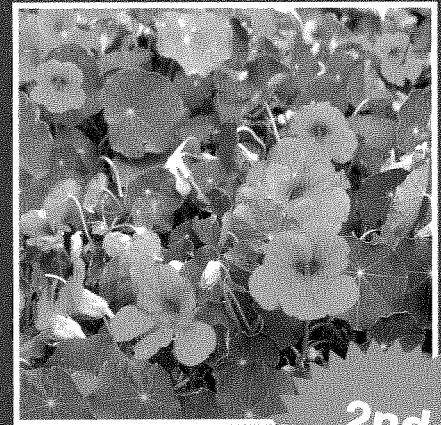
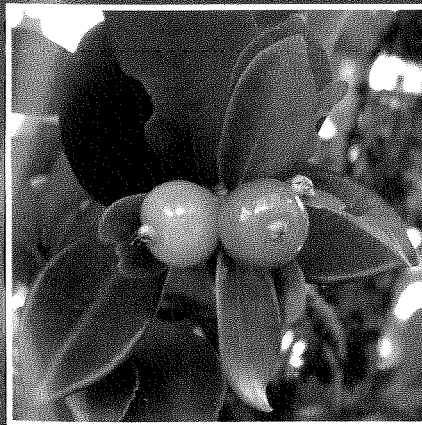
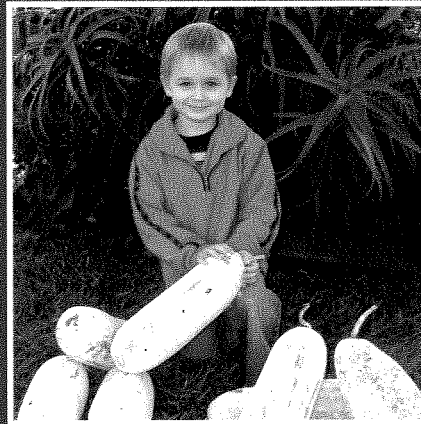
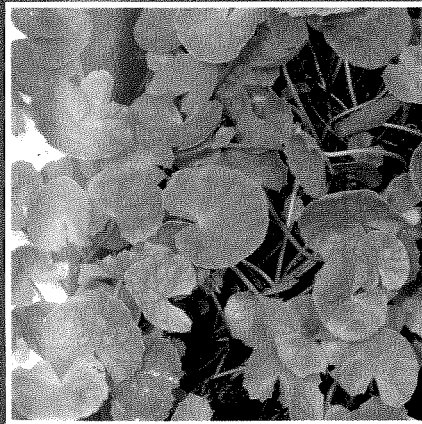
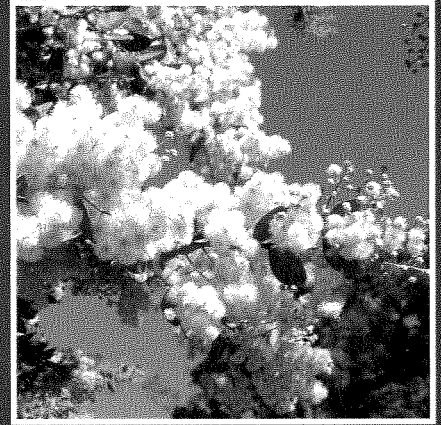


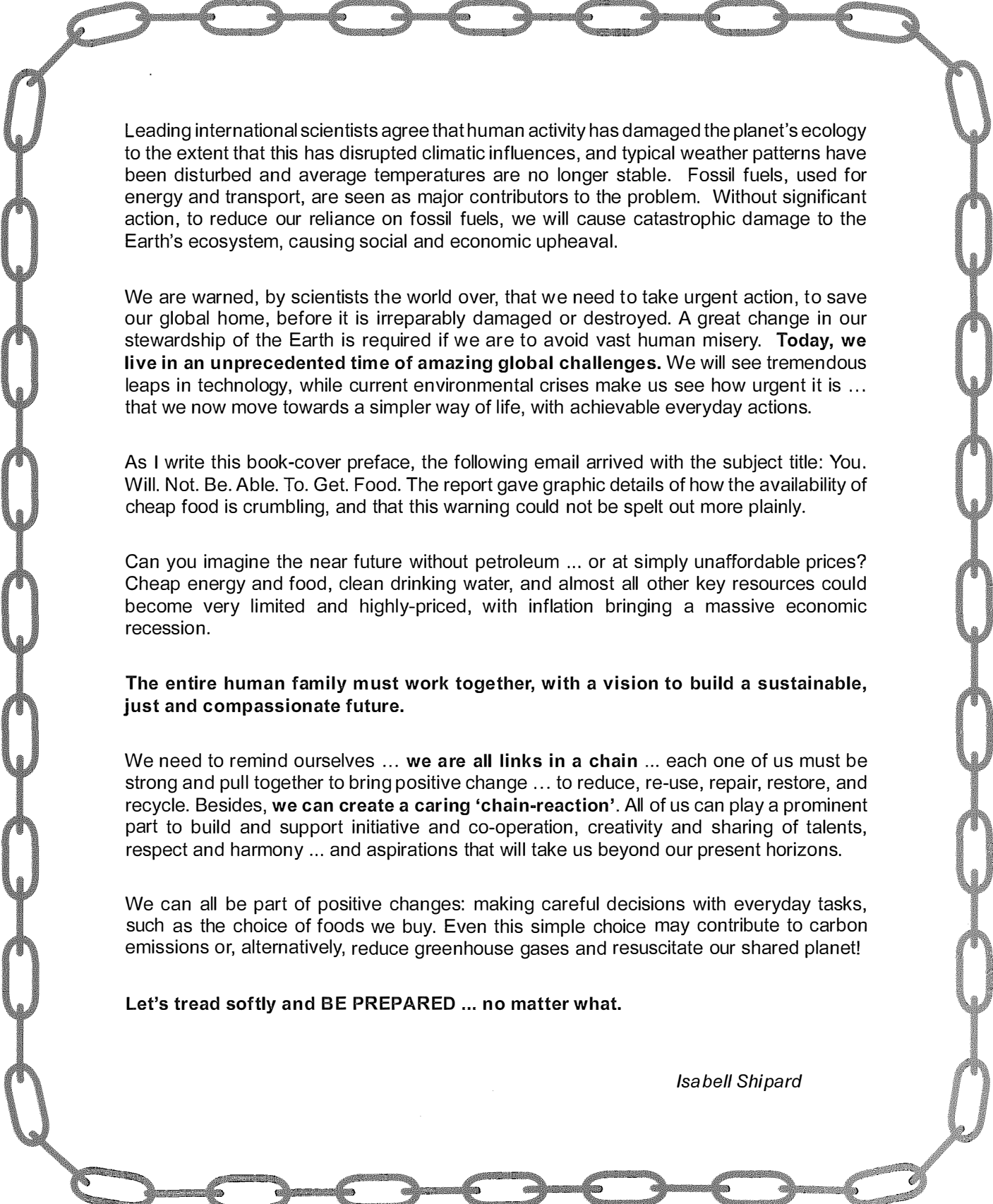
How can I be prepared with **Self-Sufficiency** and Survival Foods?

An essential manual with practical information on plants, plans and recipes to help us survive in a toxic world, and face other hazards that may threaten our health, security and sanity in the 21st Century.



ISABELL SHIPARD

**2nd
Edition**



Leading international scientists agree that human activity has damaged the planet's ecology to the extent that this has disrupted climatic influences, and typical weather patterns have been disturbed and average temperatures are no longer stable. Fossil fuels, used for energy and transport, are seen as major contributors to the problem. Without significant action, to reduce our reliance on fossil fuels, we will cause catastrophic damage to the Earth's ecosystem, causing social and economic upheaval.

We are warned, by scientists the world over, that we need to take urgent action, to save our global home, before it is irreparably damaged or destroyed. A great change in our stewardship of the Earth is required if we are to avoid vast human misery. **Today, we live in an unprecedented time of amazing global challenges.** We will see tremendous leaps in technology, while current environmental crises make us see how urgent it is ... that we now move towards a simpler way of life, with achievable everyday actions.

As I write this book-cover preface, the following email arrived with the subject title: You. Will. Not. Be. Able. To. Get. Food. The report gave graphic details of how the availability of cheap food is crumbling, and that this warning could not be spelt out more plainly.

Can you imagine the near future without petroleum ... or at simply unaffordable prices? Cheap energy and food, clean drinking water, and almost all other key resources could become very limited and highly-priced, with inflation bringing a massive economic recession.

The entire human family must work together, with a vision to build a sustainable, just and compassionate future.

We need to remind ourselves ... **we are all links in a chain** ... each one of us must be strong and pull together to bring positive change ... to reduce, re-use, repair, restore, and recycle. Besides, **we can create a caring 'chain-reaction'**. All of us can play a prominent part to build and support initiative and co-operation, creativity and sharing of talents, respect and harmony ... and aspirations that will take us beyond our present horizons.

We can all be part of positive changes: making careful decisions with everyday tasks, such as the choice of foods we buy. Even this simple choice may contribute to carbon emissions or, alternatively, reduce greenhouse gases and resuscitate our shared planet!

Let's tread softly and BE PREPARED ... no matter what.

Isabell Shipard

How can I be prepared with

Self-Sufficiency and Survival Foods?

An essential manual with practical information on plants, plans and recipes
to help us survive in a toxic world, and face other hazards
that may threaten our health, security and sanity in the 21st Century.

ISABELL SHIPARD

Appreciation

I wish to express my thanks to all who helped to make this book possible: Derrick, Ricky, Angela, David, Vicky, Aleisha, Hayden, Jessica, Levi, Christine, Judy, Kerry, Lynda, Jurgen, Rae, Pam, and to all who shared information on edible plants, self-sufficiency, survival tips, and personal experiences.

With love, I dedicate this book to people who have enriched my life: My parents and family, relatives far and near, especially my husband Derrick, and my children, grandchildren, friends, book 'fans' and people who have visited the Herb Farm Nambour, or telephoned, written or emailed and shared wonderful accounts of better health through herbal remedies, and of other experiences that have gladdened my heart.

How can I be prepared with Self-sufficiency and Survival Foods? 2nd Edition

© 2008 Isabell Shipard

No part of this publication may be reproduced in any form without the written permission of the publisher.

ISBN 978-0-9758252-3-5

Published by David Stewart, P.O. Box 66, Nambour, 4560.

info@herbsarespecial.com.au

Phone: 07 54411101 (Open hours: Mon, Tues, Thurs, Sat, 10am – 2pm) Fax: 07 54716430

Photography by Ricky Shipard

Design and layout by Steve Cook

Cover design by Lindsay Parry

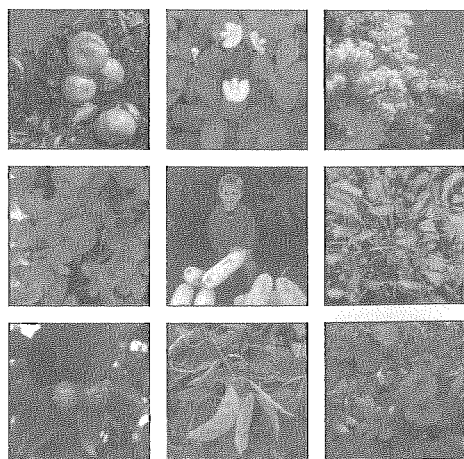
Printed by Queensland Complete Printing Services

28 Price Street, Nambour, Queensland

www.qprint.com.au

Disclaimer

This book represents research, experiences and information. It is not intended for diagnosis, or to treat any illness, or as a substitute for medical counselling; and the publisher, author, and distributors expressly disclaim all liability to any person, for any loss, injury or any inconvenience sustained, for any use or misuse of any information contained in this book. The author has made every effort to provide accurate and clear information in this book, but cannot be held responsible for any misinformation. While the author has made every effort to provide accurate Internet addresses at the time of publication, neither the publisher nor the author assume any responsibility for errors, or for changes that occur after publication, nor can they assume any responsibility for third party web sites or their content; nor do they necessarily agree with all information on these sites, however, they are given so that readers may glean some data that will be useful in relation to the topics in this book.



Front cover photos, starting top left:

1. Luscious mandarins – wonderful fruit for every garden
2. Pinto pea – food, living mulch and nitrogen fixer
3. Wattle – edible bush tucker, and Australia's floral emblem
4. Gotu kola – a valuable regenerating herb
5. Levi posing with survival food – flour gourds
6. Sheep sorrel – a powerful antioxidant herb
7. Cedar Bay cherry – tasty bush tucker
8. Seven year bean – lots of beans year after year
9. Nasturtiums – a blaze of colour and nutrients

Contents

Why do we need to be prepared?	4
Self-sufficiency and survival foods ... are you prepared?	8
How Can I Be prepared!	12
Your Safety Program ... one step at a time	12
1. Establish a 72-hour kit	13
Stress release strategies for emergencies	14
2. Sufficient food, water and essentials for a 3-month period	16
Water essential to life. Methods of storing and purifying	17
Grow an edible garden	19
Organic gardening, and mulching	20
Composting	21
Earthworms	21
Permaculture	23
3. 12-months' of stored food, for extra protection	23
Methods of storing food provisions	24
Hardy survival food plants.	25
Preservation and storage of foods	28
Bottling foods and drying foods	31
Using fermentation for preservation of food.	37
Sauerkraut	38
Rejuvelac	41
Yoghurt	41
Kefir	45
Save it for later!	46
Brine.	46
Preserving food using oil	46
Salt	47
Sugar	47
Combining vinegar and salt	48
Foods made with flour.	49
Stone soup, bone soup, vegetarian soups	51
Stories of nostalgia	55
Getting to know and use edible weeds	56
Bush tucker plants	72
Poisonous plants to avoid.	79
Edible flowers in your garden.	80
No matter what the future holds ... a strong immune system is essential	83
Salad greens are vital to health.	86
Sprouts – living food at its best!.	92
Make herbs a part of your survival plan.	97
Seed saving, is vital to our survival	123
Handy hints for every home.	126
In conclusion 'be prepared'	128
Plant Families	129
Bibliography and useful web sites	130
Index	131

In this reference book - common names of plants are generally followed by botanical names (which are printed in italics). After the botanical name in italics, if there is a colour picture of the plant in the book, there will be 'p' which refers to the page reference number of the picture in the book. A page reference at the end of a sentence, generally refers to further information.

As it was not possible in this size book to include illustrations of all plants mentioned, it is hoped that over the next 2 years we can make more pictures of plants accessible on the website of Isabell's Books and DVD's at:

www.herbsarespecial.com.au

Why do we need to be prepared?

Just why did I come to write a book centered on this topic of self-sufficiency and survival? For many years I taught Herb Courses, covering many edible plants, and included a segment on the importance of self-sufficiency and survival for possible hard times.

During one class, when I asked, "If shops closed tomorrow, how much food do you have to feed your family?"

One woman replied, "Maybe enough for one week." This made me think how dependent the majority of people are on farmers, trucking companies and shops to provide their daily food. People often expressed that I should put information on self-sufficiency into a book. Then, in 2007, my son Ricky rang from Adelaide, while doing a course on 'Alternative Energies'.

Ricky said, "Mum, when are you going to write that book on self-sufficiency and survival? There will be a big demand for it."

His words gave me the nudge to get writing! During the last few months and (as I write, in June 2008) I have sensed a real urgency to put this information together. This is not only my perception of what is happening in Australia and world-wide, but everyone is feeling and experiencing the pressure, as everything they purchase has risen in price, dramatically.

Sunshine Coast Daily Newspaper, 23rd May 2008, Special Report headlines said, 'Get used to it, rising oil charges mean that for petrol prices ... the only way is up and up.' The same newspaper, a few weeks before, indicated, 'Price of veggies could go bananas' and said that Australia could run out of food. This newspaper, soon after, flashed headlines: 'Survival depends on big changes'.

The Independent, one of Britain's leading newspapers, 4th May 2008, highlighted that rising prices obviously meant a boom for some, with the headlines, '*Multinationals make billions in profit out of growing global food crisis. Giant agribusinesses are seeing the opportunity of soaring profits by pushing the price of basic foodstuffs so high, to drive the world's poor into hunger and destitution, with over one billion living in poverty and over 100 million people facing starvation.*'

With the economic squeeze in Australia, and severe drought experienced over large areas of farmland, just what will the future hold for average Australian families? No one wishes to speculate how long a depression could go on. Do government emergency services have enough strategies in place to ensure a food supply for critical times or major catastrophes? This book offers encouragement and an action plan to help you 'ride the storms'.

What are some of the storms? Yes, wayward weather patterns world-wide, are causing some of the wildest storms. These have resulted in destruction of homes, crops, trees and the deaths of thousands of people.

Are climatic changes also the cause of droughts, bush fires and floods? We know that cutting down trees (and the massive destruction of forests in many countries of the world) has a marked effect on climate. Statistics show that a reduction in rainfall occurs in areas where forests have been felled. *Basically, the water table is diminished when trees are cut down; and lost, too, is the carbon dioxide consumption capacity that these trees absorbed.* Added to this, are the green house gases that we have all contributed to: by driving a car, using electricity, working in factories giving off fumes, over-consumption and the resultant rubbish we produce, and by eating food grown on farms using machinery, pesticides and herbicides. The Australian Climatic Statement for 2007 (Bureau of Meteorology), revealed it was the sixth warmest year on record (0.67 degrees above normal). There is strong evidence that most of this warming is due to human activities.

We all have a moral obligation to help solve this problem. By making small changes in our daily routine, we can all make a big difference in this precious world that we depend on for everything. We are caretakers of the earth, and have a responsibility to leave the smallest footprints possible, behind us. **NOW IS THE TIME** to rethink the use of our natural resources and renewable energies. **It is time to take action to reduce, recycle, repair, and reuse items, over again.**

Yes, we must look within ourselves, and ask ... have our thought patterns and way of life created a desire to want and acquire an excess of material abundance? Australia is one of the richest countries, and yet so many citizens have difficulty in making ends meet. Is this because credit cards have made it too easy to purchase on credit? We can accumulate material things (and of course debt) and what have we got ... an epidemic of over-consumption that has been dubbed 'affluenza'. Affluenza has been described as a status or condition in which we are confused about what it takes to live a worthwhile life. We may even find it difficult to make decisions in our 21st century, with so many 'mod-cons' to choose from, to distinguish between what we need and what we want. Do we need second bathrooms, air conditioning, 2-3 cars, compulsive shopping sprees, 5-star holiday accommodation, cosmetic surgery and numerous comfort goods, only to cause us to suffer with 'luxury fever' and a growing unhealthy pre-occupation with money and possessions ... or are these material 'needs' all causing a more toxic state in our world? Australia's credit card debt stands at \$41 billion (in 2008) and the average debt on a credit card account passing \$3000, with more people entering into debt agreements or simply declaring themselves bankrupt. About 15 years ago, house bankruptcy numbers were 13,000 per year, now it is over 30,000.

We just might be far better off to live more frugally; or, at least, much more sensibly within our means, to avoid excesses of everything, including debt. An excess of food has caused obesity and many other diseases, including diabetes and heart disease. **We have been called a nation that is overfed but undernourished.**

Has advertising brain-washed our thinking? Has an abundance of over-processed convenience foods dulled our taste buds to desire junk-foods with empty kilojoules? Perhaps it is time to retrain our enjoyment of fresh foods, with natural nutrients, that the cells of the body require to function well!

Besides which, we need to take into account that there are **many other hazards that may threaten our health, security and sanity in the 21st century:**

- **Scarcity of water** for the essentials of life, for drinking, hygiene, and food production. Every drop of water is precious, to be used with care.

- A legacy of 100 years of **man-made chemicals**, used in food manufacturing, farming, and in buildings. Man has created over 100,000 chemicals; some of these are quite toxic to humans, animals and the environment, having an accumulative, persistent and subtle effect (see p 83). Many pesticides have been linked in countless studies with at least one adverse effect, including: epilepsy, hypoglycaemia, asthma, infertility, allergies, skin conditions, headaches, nausea, joint pain, arrhythmia, chronic fatigue, cancer, autism, and disruption to endocrine and immune systems. The Sunday Mail reported, January 12th 1997, that chemical tests done on fruit and vegetables showed 75% contained chemical residues, with some being well above acceptable levels of pesticides.

The list of **additives in processed foods** is very long, each having a name and number. Many can cause more than one adverse or allergic reaction. Food processors use additives to increase the shelf life of the product or to make it look, taste and smell better or to disguise another ingredient. Not only do we have a cocktail of toxic chemicals in our food and environment, but also many cosmetics and health care products that we use daily have many additives: preservatives, poisonous dyes, emulsifiers and heavy metals. Researchers point out that some of these additives can have an effect like xenoestrogens, which work in a similar fashion to endocrine disruptors. Even many of the plastics used as containers for food, cosmetics and other household products, have synthetic compounds and dioxins. These are known to be hormone-disrupting chemicals that are permeating our bodies and the environment, posing potential hazards, even jeopardising the fertility of our unborn.

Then, consider the many **chemicals used in cleaning and purifying water** that we drink and bathe in. **Chlorine**, used to purify water, creates trihalomethanes (THMs). THMs activate free radicals in the body, causing cell damage, and are highly carcinogenic. Chlorine vapour is a strong irritant to the respiratory and nervous systems. It was used in warfare in World War II. The highly regarded researcher, Dr Robert Carlson, at the University of Minnesota, who works together with the Federal Environmental Protection Agency, sums it up by saying, "The chlorine problem is similar to that of air pollution" and adds that "Chlorine is the greatestcrippler and killer of modern times!"

A study carried out in Hartford, Connecticut found that, 'Women with breast cancer have 50-60% higher levels of organochlorines in their breast tissue than those without breast cancer'. According to the US Council of Environmental Quality, 'Cancer risk among people drinking chlorinated water is 93% higher than among those who use non-chlorinated water'. <http://www.waterwise.co.za/Chlorine.html>

Chlorine also reduces levels of vitamin B12, E and K. Deficiencies in these vitamins may cause significant impacts upon our health and wellbeing: a reduced level of vitamin E is associated with increased risk of heart attack; a deficiency of vitamin B12 results in anaemia; and vitamin K is essential for normal blood clotting, essential to healing. Chlorine also causes allergies and skin conditions and it destroys much of the intestinal flora, the friendly bacteria that helps in the digestion of food and which protects the body from harmful pathogens.

Another **risk to health** is drinking **fluoridated water**. Fluoride, as an additive to tap water, is compulsory in many areas of Australia. Fluoride has been found to be adverse to health: it is a carcinogenic toxin that impacts upon immunity, the normal mental development of children and the nervous system. Absorption of iodine and calcium are inhibited, thereby increasing risks of osteoporosis and hip fractures. Fluoride inhibits enzyme activity; it weakens the immune system; it is harmful to normal childhood development of the immune system, and it may disrupt DNA function. A shortage of iodine can seriously affect the thyroid. Since absorption of iodine is essential for normal mental development in children, this can also compromise the IQ and potentially cause cretinism. These serious concerns, regarding fluoride, pose the question: Why take such risks when we should, instead, ensure good dental hygiene and sound nutrition for children? Note, too, that Dean Burk, Chief Chemist Emeritus, US National Cancer Institute said, "Fluoride causes more human cancer deaths and causes cancer [to progress] faster than any other chemical." Fluoride accumulates in the body like lead, inflicting its damage over long periods of time. Fluoride is more toxic than lead and just slightly less toxic than arsenic (from Clinical Toxicology 1984). Scientific evidence has shown that even the smallest amount of poison is cumulative in the body and damaging to health. <http://www.fluoridealert.org/health/bone/fluorosis/mayo-clinic.html>

- Another, major problem 'modern man' has created is **E-smog**, radiation from all electrical 'mod-cons' in our modern way of life. It has been shown by many researchers that electromagnetic radiation can have very subtle and long-term effects on the brain and human health. While most people associate harmful radiation with nuclear bomb testing and explosions, or nuclear power stations and their emissions, we must realise that we are continually bombarded by many harmful frequencies in our daily lives, in our home and work places (p 85).

- **Heavy metal toxicity** is around us, continually: **Aluminium** is in bleached flour, regional water supplies, antacids, foil, cookware and anti-perspirants (*past studies have implicated memory loss and senility*); **Cadmium** is in food, toys, batteries, carpets, cigarettes, and water (*poisoning may lead to confusion and aggression*); **Lead** is in water, cosmetics, paints, industrial pollution (*may cause hyperactivity and aggression*); **Mercury** derived from pesticides, fish, some vaccines and mercury amalgam dental fillings (*damage to the memory and nervous system have been noted*).

- Another major threat is **the doling out of drugs**. As the number of pharmaceutical drugs taken by the population increases, so the risk of adverse effects increases exponentially. So common are drug side effects that doctors now recognise 'iatrogenic disease' as a doctor-induced disease from prescribed drugs, and a leading cause of illness and death, reports the magazine 'What Doctors Don't Tell You'. Many people swallow prescription drugs daily, particularly senior citizens, with many seniors averaging 4 to 6 drugs a day. It is known that many of these drugs are inappropriately prescribed, and have side effects. A cartoon I saw accentuated this concern: an old lady approaches a chemist and says she would like a prescription filled ... the chemist looks at the script and says he can't do it. The old lady asks, "Why not?" The chemist replies, "This drug has so many side effects, you're better off with the disease!" We have to ask, "Is this good medicine or bad medicine?" In Australia, during the period of one year, over 50,000 patients are injured from medical mishaps. According to the Medical Journal of Australia, 2006, 16% of hospitalised patients suffered an adverse event, and 50% of these could have been prevented. And, here, we can also add adverse reactions (particularly autism) experienced by some infants and children from vaccinations. Many parents are now seeking homeopathic vaccinations as a safer choice. Consumers need to take a more active part in their own health care, to help avoid medical mistakes and misadventure, Choice magazine said.

- Now we come to '**social drugs**'. Hard drugs are a problem that, perhaps, we do not see the full immensity of. It is not only drug users who suffer but their families and often the community. Rehabilitation is costly and a long, hard haul.

- **Booze 'drugs'** are a major problem if not to you, then to 1 in 10 people in the community. A headline in Sunshine Coast Daily newspaper on 7 August 2007, read: 'Booze is Killing a Generation of Brains'. There is a lot of pressure in our society to perform and work hard and then to relax with alcohol; however, health care workers are warning that many Australians who drink regularly are living with undiagnosed, permanent brain damage. The Daily paper reported that, according to a survey prepared by the National Drug and Alcohol Rehabilitation Centre in a study of more than 1500 Australians, 50% of people believed that occasionally getting drunk is part of being Australian.

- **Cigarette smoking is another social hazard** to the person who smokes, and to the passive smokers. (The involuntary inhalation of tobacco smoke from other people's cigarettes can cause the same serious and life threatening diseases as is experienced by smokers). Sunshine Coast Daily newspaper, 6th April 1993, in the column, 'Environment – Your Health', gave the definition of smoking as 'suicide in slow motion'. It is a medical fact, no 'butts', that smokers can expect loss of lung function, high blood pressure and heart problems, premature aging and other health risks. www.cancerqld.org.au/reduce_risk/prevention/tobacco.asp Smoking is the greatest cause of preventable death in the developed world. Smoking is responsible for more than 3400 deaths in Queensland each year. So, if you smoke, **stop!** Easier said than done? Sure, but your willpower could well save your life. Today, I saw a very timely cartoon. Trevor and his young friend are walking along and Trevor picks up an old cigarette packet. His friend asks what is written on the side. Trevor says, "A health warning." The friend asks, "What does it say?" Trevor reads, "If you ever take up smoking, I'll kill you!"

- Many have lost their 'moral compass' and we see an **increase in crimes** of violence and murder, and **the family unit eroded**. A strong family unit is essential to the wellbeing of each individual person and the welfare of the nation. We can all have a positive impact. For a website and magazine to encourage the family unit visit: www.aboverubies.org

How significant is your life? Possibly, far more than you realise; but, perhaps, less than it could be. Significance does not need to be something big, but small things that we do to benefit people and the world around us. Bring more **significance** into your life. Right now, what is your deepest desire for yourself ... your family ... the world?

- **Food irradiation** of produce could be a major threat, to informed choice of many foods that we purchase in supermarkets. Food irradiation is the process of exposing food to high doses of ionising radiation to sterilise and destroy bacteria, giving produce a longer shelf life. *However, irradiation changes the molecular structure of food to form toxins and the process destroys beneficial, health promoting phyto-nutrients in fresh foods*. Irradiation damages vitamins, proteins, and essential fatty acids; eg irradiation has been found to destroy 80% of vitamin A in eggs (see p 72). www.citizen.org/documents/questioningirradiation.pdf

- **Hazards of creating a radioactive planet** by mining uranium, building nuclear power plants, and from the storage of nuclear wastes. Can we be sure that these wastes are stored safely in barrels, underground, or at the bottom of the sea? Across the world, millions of tonnes of waste at uranium mines emit radon (a colourless radioactive decay product of radium), which is said to last for hundreds of thousands of years. Turning Depleted Uranium, DU (by-product of nuclear power plants and bomb production) into weapons

certainly solves the problem of storing it out at sea, but ask anyone involved in the war in Iraq if it is safe. DU used in warfare has caused spontaneous fires and horrific burns, burning people alive. A report printed by The Age newspaper on the Iraq conflict, 'Desert Storm' (1991), as told by Dr Rokke of the US Army (who led an assignment to clean up uranium contamination) should shock us all.

Dr Rokke said, when visiting Australia in June 2003: "What we saw in Iraq can be described in only 3 words: 'Oh my God!' The wounds were horrible, the contamination extensive. Although our team wore respirators and skin protection, that protection, we know today, does not provide any adequate protection against the inhalation, the ingestion, and the absorption of uranium compounds. Depleted uranium weapons are a crime against humanity, creating a toxicological nightmare. What I have learned from my work is that uranium munitions must be banned."

Doctors in Iraq have estimated that cancers have increased at an alarming rate, thousands of babies miscarried, babies born with defects to limbs or without limbs, even without eyes or heads. Health and Healing magazine, Vol. 25 No. 1, gave accounts of some horrors of DU. Doctors reported that many women, when giving birth, no longer ask: "Is it a girl or a boy?" But simply, "Is it normal, Doctor?"

Moreover, this terrible legacy will not end. The genes of their parents may have been damaged, forever, and the perilous DU dust is ever-present ... and, take note, contamination is not restricted to the Middle East, but these radioactive particles can be whipped up in sandstorms and carried by trade winds to every corner of the Earth, our home, where we desire to live life in fulfilment, happiness and peace. For further DU information, place 'depleted uranium' in your computer search box or go to the website: www.mindseeds.com.au

The following quote alerts us to this profound news, 'Any person who has spent time in Iraq, Afghanistan, or the Balkans could have been exposed to uranium oxide particles'. (ref. 'Your future with Depleted Uranium', Rigby, P. 2006 p33.) How many of our servicemen and ex-servicemen have been contaminated? Who will explain the implications of this, as it relates to not only their own physical health, but also, that of their partner or spouse ... and their future children? If you are distressed and dismayed by these few sentences I have written about the problems of nuclear power, then please voice your concern with your Member of Parliament and the Australian Government.

If you are not alarmed by this segment, please further your research on this nuclear issue at your local library or do an internet search, as I believe being forewarned on the catastrophic potential of 'tinkering' with uranium any longer, in our world, will not bring health, happiness, peace or prosperity. *My dictionary gives the meaning of 'catastrophic' as: total failure of some system from which recovery is impossible.* Radioactive

contamination of our planet, our own bodies and our future generations, is the single greatest risk to our wellbeing, today. We cannot see it, feel it or smell it. Few people have the equipment to measure it. What is measured is often kept secret from the public by the Government. <http://www.h-o-m-e.org>

We must learn from blunders of the past and start to realise that many of the problems we face today are of our own making. Photochemical smog, acid rain and depletion of the ozone layer are caused by air pollution from vehicle exhausts and many other man-made toxins, generated by our modern way of living in the 21st century.

The climate is changing, becoming erratic and unpredictable, perilous, and causing environmental hazards. Every week brings news of climatic disasters in one part of the world or another. Trees and forests are dying, due to acid rain, and this also contributes to the greenhouse effect.

If we do not cut down on greenhouse gas emissions, we will have to learn to live in a radically different world. Our local daily newspaper, Sunshine Coast Daily, July 5th 2008, flashed the headlines, 'Survival depends on big changes'. According to the Garnaut Climate Change Review Draft Report, released 4th July 2008, Australians are facing further grave risks of damaging climate change. Without strong and early action within the Australian economy, and from all other major economies, we are likely to face severe and costly impacts on Australia's prosperity and enjoyment of life. Speaking at the National Press Club in Canberra, Professor Ross Garnaut said that by 2050, unmitigated climate change would mean major declines in agricultural production across much of the country, including a 50 per cent reduction in irrigated agriculture in the Murray-Darling Basin. By 2100, irrigated agriculture in the Murray Darling Basin would decline by 92 per cent.

I am sure we will see, in the very near future, some inventions involving nano-technological energy development, and other innovations to create renewable fuels that will play a vital role in the future global economy, bringing new jobs and industries. One unique invention is based on the utilisation of greenhouse emissions by turning these into Agricha (renewable carbon-negative energy). <http://www.youtube.com/watch?v=nzmpWR6JUJZQ>

Whether the world's oil supply is sufficient for our foreseeable future or not, the rising cost of oil, together with the harm exhaust fumes cause in our world, makes it imperative that we have alternatives that are cleaner, cheaper, safer, renewable, and attain sustainable values. Technology researcher, Dr James Canton, in 'The Extreme Future' (a book which envisages trends for tomorrow that may literally reshape how we live) says that some of the innovations we may see and use by 2025 could include: teleportation of objects around the planet, hydrogen engines for transportation, four billion people doing commerce by Internet, tourists

visiting Mars and the Moon, robots doing domestic duties, life-extending techniques to maintain health productivity and brain function with super-enhanced intelligence thrown in for good measure.

There are so many things that could threaten our survival in the 21st century:

- **from a small thing like an insect, the mosquito**, which can cause malaria, encephalitis, dengue and yellow fever, Barmah Forest and Ross River virus, with an estimated 1,000,000 people dying annually due to mosquito-borne diseases;

- **to the largest expanse around us, the atmosphere** with depleted oxygen levels. Oxygen is a fundamental requisite for our existence.

With environmental uncertainties, the sky-rocketing price of fuel which will affect every item we buy, and the dilemma of the global economy, we are faced with monstrous challenges. We all need to act now and take responsibility. *Our nation is under threat, but it is capable of dramatic change to make it stronger.* We can look at what happened to Cuba, when the country lost its oil supply and the economy went into 'free-fall'. Times were tough. It was during this famine of fuel and food that the people learnt to grow their own food wherever they could – public parks, streets, gardens, vacant land, and even on rooftops. Ten years later, the people of Cuba have transformed the country into a low-carbon economy, and shown the rest of the world that it can be done.

In every century, man has had challenges ... plaques, war, droughts and food scarcity. Let us take to heart the words of Roman Philosopher, Epictetus (55-135 AD) who said, "What ought one to say, then, as each hardship comes? I was practicing for this, I was training for this."

In the 21st century, we too need to be prepared, no matter what. Every country is faced with change, bringing massive challenges; **we can all play a part** in the present and future survival, of all that lives on Earth.

Self-sufficiency and survival foods ... are you prepared?

Planting a garden with food potential is one of the most worthwhile things we can do. *Will we always have a free country with unlimited food supply?* Would we be prepared to try new foods, or forage the environment, if our usual foods are scarce?

In the Herb Book, I mentioned Peter, who shared his experiences with me: he had lost all his family in World War II and sixty-five families in his village in France were blown up. Carob pods and wild berries sustained him and a few other survivors. After years of hardship, he came to Australia. Each morning, when Peter wakes, he is extremely happy to be alive in a land of plenty, and is so grateful for the many blessings in this country.

What wild foods, would you know to survive on, in your area? How about foods, that are repulsive to you, would you eat them if starving ... snails, earthworms, cockroaches, grasshoppers or rats? Many years ago, I taught a Herb Course with a segment on self-sufficiency at Kingaroy. Robert, who was in the group, shared with the class the following information. While in Morocco, when he was backpacking the world, a family had invited him to stay. He could see that they were very poor. He patted their little dog and remarked at how the pet was so friendly. The evening meal was prepared and they ate, and he remarked at how enjoyable the meal was, and asked what it was ... they said ... "Roasted doggie poo!" Now, you thought I was going to say roasted doggie, didn't you? I am not sure if any of us would like to have to eat either the doggie or the poo! During times of war, when cities have been under siege for many days, people have resorted to atrocities beyond my desire to put on paper.

In our present century, in many third-world countries, the main concern of many thousands of children is ... where their next mouthful will come from. They die of malnutrition and disease due to poverty, while here, in Australia, where food is plentiful and social welfare assistance available for all, one major concern, is consumption of too much food. Many children, teenagers and adults are overweight.

Perhaps, we need to contemplate what it would be like without food, shelter and other essentials that we often take for granted.

The following is an account of one family's flight and plight, during World War II, written by Jurgen as he recalls, with painful memories, what it was like in Europe:

"What I share is to the best of my knowledge and memory. I was born in Berlin in March 1940. At that time, Nazi Germany was winning the war. My parents were living in Berlin. Hitler, in his madness, declared war on every nation that had its borders with Germany. First, he was very successful and overran all the other neighbouring armies. So, he declared his intention to take over Czechoslovakia, or he would destroy them.

Czechoslovakia had no army to speak of and its leader was over 75 years old. Hitler invited the old Czech leader to Berlin and told him he would take over his country. The poor man nearly had a heart attack. Hitler made him sign the paper and then rushed him back to Czechoslovakia, as Hitler did not want him to die in Berlin. So, Hitler's armies marched into Czechoslovakia and took over that country, much to the dismay of its people and all other allies.

All over Europe things changed, and the USA had declared war on Germany. The German Luftwaffe could not win the war over England. The allies started bombing Berlin, sometimes with 700 big B52 bombers, at once, unloading their deadly cargo over Berlin. Some nights, we had to go to the air-raid shelters three times, as the bombers just kept coming, wave after wave. My parents were not very happy about that and my mother arranged through her officer brother to be evacuated to East Prussia, to a safer area. But that did not last

very long because the Russian armies were pushing the German armies back to Germany.

My mother with four children (baby sister and boys aged 4, 5 and 6 years) fled to Czechoslovakia in 1943. My father was drafted into the German army in 1943 and he was stationed in France, at the western front, where he was working in the kitchen as a cook. Later, he was trained in Morse code, to be with a radio unit. He said he never shot a gun in anger and he was never at the front. He disliked the army a lot and got himself into trouble, many times, because of this. In 1945 he deserted the army, was living in hiding and was continually searching for his family, since all communications had broken down.

In May 1945, the German army surrendered and Hitler was dead. Germany was destroyed and we were stuck in Czechoslovakia. Weeks before that happened we had many German soldiers coming through our little town, fleeing from the Russian army. The German soldiers told us that all is lost: "Get out, the Russians are coming!" There was a hospital near our place, full with soldiers. Often, we could hear the screaming of the wounded because there was no more medicine.

Once, I asked my mother what that terrible screaming was and she told me it was "the cows in the field."

My mother stayed there with a hope, as Hitler promised over the radio that soon all will change and Germany will be victorious. My mother invited many German soldiers passing by into the house for a quick meal, because they had not eaten for days. At one time, the woman from the house took buckets and ran off to a horse carcass, which had been killed by Russian fighter planes. The meat was cut up and brought home: it tasted delicious.

My mother buried her mink coat and most of our valuables in the forest. Then, one day, my mother and we children were sitting at the tea table, having our tea, when the door was kicked open and two Russian Officers stood there with their guns. One of them pointed at us, the children, and said to my mother, "Yours?" ... and my mother said, "Yes." Then, they closed the door and left. My mother was so angry that they dared to do this and feared that if they came back again, they would harm us. So she took us into hiding in the forest.

At one time, she saw a Russian patrol car coming towards us with soldiers and officers and we had grave fears for our lives. Living in hiding was no good and the Russians kept on coming, more and more. Some German SS troops were still fighting, but the war was over and the Czechoslovakian people told us, in no uncertain terms, to get out and openly showed their anger towards us. We could take only what we could carry. My mother took a pram for my little 9-month-old sister and put a board across the pram. So, one of us boys could sit on the board (we had to take turns) and off she set, marching with us towards Germany – Berlin. It was in May, and getting warmer: the first thing we missed was water. There were many thousands of refugees like us, walking on foot, and we did not know

what was left of Berlin. We slept in the open on the side of the road.

Once, we came to a railway station and could shelter there. We were glad, because it was raining heavily that night. My mother was trying to settle us down to sleep. My baby sister kept on crying non-stop because she was hungry and my mother could not feed her. Then, suddenly, out of the dark, a kind woman came toward us and said to my mother in German, "This little baby is hungry, that is why she won't sleep." The woman had her hair shaven and a number on her arm from a German Nazi concentration camp. She was very thin herself, but within 20 minutes she came back to us with a warm bottle of milk and gave it to my mother and disappeared into the night, never to be seen again. She was an Angel in the night.

Our march towards Berlin, Germany, continued on, together with many other refugees. It was on the Czech-German border that – by chance, or by the grace of God – my father, who was searching diligently for his family, spotted us ... my mother with pram and baby, with three boys in tow. My parents had not heard from each other for a long time. It was a miracle!

Because I was only little at the time, I don't remember everything; but I remember a lot, and just putting it in writing brings back a lot of the fears and emotions. I think we spent about two years in Czechoslovakia. I think the distance from our place in Czechoslovakia to Berlin was about 550 to 600 km. It took us about two weeks. Once we had our father with us, he knew all the tricks of travelling unseen at night. He knew when and how the goods trains were going and we moved, from then on, quite quickly, not having to walk that much anymore. He also went on short scouting trips and always came back with food and water. We missed water more than food.

On our way back, it was shocking to see how much of Germany was destroyed and we were very worried what might be waiting for us in Berlin. There were many refugees on the road, all the time. I think my mother was skilful in survival. She had no time to prepare, pack or plan that trip with four little children, no welfare and no Red Cross, but a very strong motherly instinct and an iron will to survive. She said to me, once, after it was all over, that she would not have forgiven herself if she had lost one of us. My biggest fear, as a little boy, was losing our mother; as, sometimes, she had to leave us children and told us no matter how long it takes, to wait and not to move from that spot. We just had two blankets, one on top and one on the ground. If I think of it today, I don't know how she did it, but she had no choice and she did what had to be done. Most of us don't know what we are capable of, or are able to do ... when the will to survive is there.

When we arrived back in Berlin, the block of flats (where we had previously lived) was one of the rare buildings basically intact, but badly damaged. Life, from then on, was a struggle. Bread was the most highly prized food. I recall, once, asking for food and was told to go to bed early, so as to use less energy, and to forget about the hunger pangs.

My father went on his trusty bike to outlying farms and to the black market, in order to barter or buy basic food. My parents sold their gold wedding rings to buy food. We grew what we could on the flat rooftop with soil in boxes, carried up three storeys of stairs through the attic to the roof, with us young boys helping carry the water. The tomatoes we grew were sold in fresh and cooked forms, and cucumbers were pickled.

The most common meal at home was soup. My mother kept adding whatever she had to stretch the soup. She also made sauerkraut, noodles, and cottage cheese. Stinging nettles were collected and cooked as an alternative to spinach. There were no fussy eaters in the home. Everyone was glad for whatever they were given. Mother was the last to eat – a real mother ... and we children took her sacrifice for granted.

Rabbits were kept on the balcony for meat, and fed food scraps. It was the children's task to gather green plants from around the city ruins to feed the rabbits. It was also the children's task to collect manure by following horse carts with buckets and shovel. The manure was used for fertilising the vegetables on the rooftop.

My parents made soap with old, rotten, meat fat. My father located pigs that had died in the rail yard in a goods train: no one was interested in stinking carcasses. So, my father brought home as much as he could, and cooked it with caustic soda. The stench was overwhelming. We boys had some pet fish we had caught in the river. Next day, after the fat was rendered for soap making, we found all our dearly loved fish were dead. The soap made was very sought after and provided an income for a long time. The soap still had dead maggots inside it from the fat, but no one complained. One highly priced commodity, at that time, was toilet paper.

At home, we had two herbal teas for all sicknesses: one was chamomile, and the other was wormwood, which was very bitter and if you did not drink it, you were not really sick. (They must have worked because, as a child, I never got sick; I was only under-nourished.) We three boys always went off to school without lunch, but later the Americans supplied soup for needy children. During that time, I was so under-nourished, that I was selected with one other child (out of the school of 1200 children) to be sent to Switzerland: to stay with a family who looked after me, as part of a program of the Red Cross for needy children. When I returned home after three months, my health had improved a lot.

Years later, my parents decided to migrate to Australia because of the hardship and lack of peace in Europe. We set sail March of 1958. However, after less than a month on the trip, in the middle of the Indian Ocean, there was a fire on the ship. All on board were evacuated and spent two hours on lifeboats until a tanker rescued us. We lost all our belongings. My parents took it very hard, and my mother was very homesick. To me, it was another adventure.

After four years, we went back to Germany. Nine months later, I decided to return to Australia, and have enjoyed every minute of it. But my younger years are still not pleasant to remember, and it is giving me

problems to think too much about it, I want to forget it all. But, I can say for sure, my life has been full of blessings from God and he has worked his miracles in my life, many times, and I'm so glad for it. Many things that have happened I do not understand, but I have experienced God's love at first hand: his forgiveness and joy in belonging to him. This has been most important to my survival."

Could a major calamity or drought affect the supply and the price of food in our land of plenty? We know that the cost of living just keeps escalating but what can we anticipate ... with the predicted long droughts ... or in a prolonged flooding crisis?

A recent radio program gave details of a Queensland man who had kept all his supermarket dockets for the last 7 years. In checking the dockets, he found that the price of fruit and vegetables had increased 50%. Daily newspaper, The Courier Mail, 27th September 2007, highlighted the climate crisis with a large heading 'Starving our Shelves' and that the long drought may bring on 'food shock'. The Federal Government has joined farmers in warning us of a looming 'food shock'; as scientists speculate the drought may never end, many farmers are forced to walk away from their dustbowl farmland.

Could rolling strikes, or a range of other calamities, disrupt electricity, water, telephone, transport and other amenities to shops and to our homes ... and how would no petrol affect every household? *We truly have been a 'lucky country'* ... plentiful food, running water in our homes, sewerage systems taking away our wastes, comfort and luxuries in our homes ... we are truly blessed. However, it may not always be this way in the future ... would families be prepared ... if catastrophic disaster struck?

I asked a friend, Pam, in the Northern Territory to share recollections of living through Cyclone Tracy:

"After Cyclone Tracy there was massive devastation. Buildings disappeared, many houses were totally destroyed and the destruction of the bush set tree growth back 30 years. From Darwin, the wind cut a swathe through the rural areas of Howard Springs, McMinns Lagoon and finally expired at Humpty Doo.

Gone were the tall, stately gums that made our 5 acres at McMinns so attractive. Survival, immediately following Tracey, was the name of the game. For us, however, this was simplified, as most 'bushies' were not yet connected to the town utilities. Diesel generators were the norm and pumped out the power required to run fridges, washing machines and lights. Gas bottles provided fuel for cooking or, alternatively, we gathered around open fires for a cook up and to share the latest news of our friends and town. The 5,000-gallon water tank, I had willed to stay intact all night during the cyclone, provided water, as did our hand-dug well. And the long drop, which no longer offered the best views of local vegetation, still kept our situation sanitary. Who can forget the distinctive odour of phenyl?

With the extra food already stashed away for the cyclone season, the only service we lacked was communication.

What a great lesson this was in NOT relying on outside authorities for help, through a time of crisis. We survived by working together with our neighbours and friends, sharing 44 gallon drums of fuel, machinery, meals and labour, taking care of each other's emotional needs and keeping ourselves safe. This was truly a pivotal experience in my awareness of survival tactics. Life has never been the same since. *What would we do the next time ... or in the worst case scenario of war or invasion?*

We pondered our options. These were not uncommon thoughts in the minds of each Darwinite. Our preferred contingency plan was a move to Arnhemland to dwell with an Aboriginal clan – masters of the art of self-sufficiency. Their depth of knowledge and experience about the natural environment had long been an inspiration. The impact of that crisis remains, 33 years later, and continues to influence decisions about my garden and home. Food plants and herbs need to be available for nutrition and medicinal use. Solar and wind power will provide basic energy requirements and water storage is a paramount concern.

I hope this type of calamity will never happen again in my life. Nevertheless, my planning and preparations will provide satisfying alternatives if an unexpected crisis occurs."

Like Pam, we can all **be prepared**. Do we have to go through a situation like this to learn and to be equipped and ready for any crisis ... or can we learn from someone else who has gone through such a catastrophic situation? I do encourage everyone to **be prepared with an action plan for the possibility of unexpected events**.

Will plans proceed for putting a New World Order in place ... or socialism with collective ownership and distribution of goods, no private property, as the State owns everything ... or a dictatorship, such as fascism? This is not very pleasant to think about ... just ask anyone who has lived in communist countries or under a fascist government, if it worked. If plans for a One-World Food Bank are established, what implications could that have?

Poverty, starvation and death are 'a way of life' in many third-world countries.

How much non-perishable food does your family have stored, if all shops shut tomorrow?

Now ... is the time to grow a useful garden. Plant trees that are fruit bearing, and vegetables your family likes to eat that are suitable for your climate.

Plants most suitable for tougher times should meet one or more of the following criteria:

1. Plants that have proved hardy and adapt to a wide range of soils and low rainfall.
2. Can be harvested throughout the year, or have a long cropping period.
3. Produce that has a long shelf life or can be dried or used in some other form.
4. Plants that are little known as a food source and are unusual ... if times get tough; with jobs and food scarce (or highly priced in the shops) our

gardens could be raided and food stolen, so grow some obscure food supply.

The following plant and seeds could be practical for you to consider growing and storing for the future:

*** Food plants not so commonly known ...** particularly plants with **high protein leaves**: **sweet leaf bush** 34-39% protein, p88, **drumstick tree** 38%, p 89, **fenugreek** 32.6%, p 94, **kang kong** 31%, **Queensland greens** 29%, **comfrey** 22-36%, p 102, **salad mallow** 20.4%, p 88, **nettle** 20%, p 60, **amaranth** 20%, p 61, **alfalfa** 19%, p 71; and also other obscure plants like: sambo lettuce, mushroom plant, mukunu-wenna, warrigal greens (see Bush tucker, p 72), Ceylon salad leaves, chicory, red lantern hibiscus, pit pit, pinto peanut, Indian fig, p 66, sugar cane, sugarbeet, Lebanese cress, mitsuba, and leaf ginseng, to name a few. *The leaves of the high protein plants can be dried, then crushed and stored to provide a protein source to add to meals.* For more detail of plants, see Salad Greens, p 86 and Herbs, p 97.

*** Become familiar with edible weeds.** Be aware, now, of plants that are edible, as weeds may provide hope of survival during times of extreme hardship. Calamities may strike with terrifying suddenness ... earthquakes, tidal waves, or cyclones. During times of war, many starving people found that nettle could give sustenance (see Weeds, p 56).

*** Learn of plants to be avoided that are harmful or poisonous** (see p 79).

*** Grow a variety of root crops; these can, usually, be dug, over many months of the year** eg Queensland arrowroot, South American arrowroot, cassava, taro, coco yam, sweet fruit root, Jerusalem artichoke, jicama, Chinese artichokes, sweet potato, sacred lotus, American groundnut, water chestnuts, oca (see Hardy survival food plants, p 25).

*** Grow some hardy vegetables, particularly ones that store well** eg many pumpkin varieties, potatoes, squash, choko, pie melon, p 25, 48, African cucumbers, p 74, flour gourds (these will store for over 12 months) (see p 25 for some of these plants).

*** Store seeds for sprouting** These must be used and replaced, regularly, to ensure seed will always be viable for sprouting. Take note, that the viability period can differ with each kind of seed eg chickpea, lentils, fenugreek, peas - usually are viable 2-3 years; brassicas viable 2-4 years; corn, wheat and other grains, also sesame, buckwheat, sunflower, alfalfa, mung beans, adzuki beans, broad beans and many other kinds of beans viable 2-5 years; while rice bean seeds may be viable 10 years; chia, pigeon pea and amaranth seed 4 - 5 years (see Sprouts, p 92).

*** Plant natural sweeteners** like: stevia, licorice, Aztec sweet herb, (often during wars and calamities sugar is not available or in short supply). (see Herbs, p 97).

*** Also, herbs to dry to use for flavouring** of rice, pasta or cooked pulses eg marjoram, oregano, thyme, savory, parsley, chives, garlic, tarragon.

*** Grow tonic and immune building herbs** (see p 83) and greens (see p 86).

* **Herbs for stress relief and sleeplessness** eg rosemary, sensitive plant, lemon balm, St. Johns wort, mother of herbs, camomile, valerian (people in bomb shelters in Britain during World War II were given valerian tea to drink for its tranquillising effect). (See Herbs, p 97.)

* **Herbs for building energy, endurance and strength** eg fenugreek, licorice, gotu kola, stevia, khat, chia, oats, yerba mate, nettle. (see Herbs, p 97).

* **Grow a variety of healing herbs** ... eg herb robert, gotu kola, comfrey, aloe vera - the living first-aid plant (found to heal radiation burns) (see p 99).

* **Other items that will keep indefinitely**, when stored out of harms way of weevils and rodents eg nuts in shells (like almonds), rice, pasta, carob and tamarind pods, sweeteners like honey, molasses, golden syrup, and sugar; peanut paste, Vegemite, and other spreads; spirulina, soy sauce and tomato sauce, apple cider vinegar, dried vegetables and fruit. Seeds of wheat, barley, oats, rice, corn, amaranth, millet, buckwheat, pea and beans seeds have been found to store well for many years. These seeds may be soaked and cooked until soft, to make them more easily digested.

* **Grow some toilet-paper bushes:** *Arla bush* *Tithonia* species, p 73, 1-3m tall with white daisy flowers, and large, soft leaves; and **Blossom bouquet bush** *Dombeya burgessiae*, p 29, 2-4m tall with large leaves. These bushes will provide velvety-soft leaves for using in an outside, makeshift toilet, if the sewerage system does not work. In one of the Herb courses, a lady shared that her mother-in-law always keeps a 12-month supply of toilet paper; you see, she had lived through the 2nd World War in Europe and knew what it was like not to have toilet paper. At any time hygiene is important, and even more so during times of upheaval, as disease can spread rapidly.

* **Save non-hybrid seeds** from the basic food plants that you grow, like carrots, corn, peas and beans, tomatoes, cucumbers, pumpkins and the brassicas; make it a routine to save these valuable seeds at the end of each growing season (p 123). We must save our seeds to preserve the biodiversity of seeds, to guarantee the survival of plants, in this century and the next, and from genetic engineering.

How can I be prepared?

'Be prepared' has been the Scout motto the world over, with the meaning: 'a person is always in a state of readiness to face any difficulty'.

Hands up, who has their 'go bag' ready? By a 'go bag' I am referring to emergency supplies, a 72-hour kit, organised and at the ready in case you have to leave home due to extremes in weather caused by storms, flooding or other calamities like fire or earthquake. Other serious disruptions to our lives could include terrorist attacks, war and rioting. With extremes of weather patterns, this century, the daily news on TV, shows us very vividly the destruction of hundreds of homes and public buildings in many places of the world. Recently, Sydney City Council encouraged residents

of the city to be prepared with a 'go bag' to have ready in the case of terrorist attack or other upheaval. This seems a very wise move for all of us in these uncertain times. Planning and preparing can help reduce chaos; like the Chinese Proverb says, "It is better to light one candle than to curse the darkness."

Your Safety Program ... one step at a time

1. Every home is wise to have a **plan for emergencies**, and if we have to leave our homes suddenly, a **72-hour kit** is recommended, although a 2-3 week kit would carry a person through **extended periods of evacuation** (p 13).
2. For a pandemic situation, nuclear fallout, or during some other disasters, we are wise to stay within our homes **with sufficient food, water and essentials for a 3 month period**. Preparations for this would be the next **step**, in planning (p 16).
3. Families are then encouraged to plan and **prepare 12 months of stored food** to provide protection for possible longer term disturbances of essential supplies (p 23).

Let's plan now for such a procedure and put these 3 programs into place. **Making a plan and acting on that plan, is like wearing a seat belt when we travel in a car. We do not want or even expect to crash.** However, we can protect ourselves to reduce the consequences of a possible crash, as the highways may be hazardous due to wet weather, winds, flash floods, pot holes or reckless drivers. A crash may occur through circumstances outside of our control, and the same possibility is the case with extremes of weather or any other major catastrophe.

Every family has a responsibility to provide for its own needs within its ability and means, as making provision for such adversities does offer some security and wellbeing. Catastrophes may pose many difficulties and dangers, resulting in turmoil and chaos, which can cause extreme trauma to any person. Therefore, careful advance planning in your family is top priority. As most emergency situations do not give us much notice (that is why a sudden crisis is called an emergency) **the emphasis on this topic, here, is not grounds for panic, but on personal and family preparedness.**

Taking steps to make 'preparedness' a way of life is important in our rather unstable world.

We can call this **provident living**, which means being prudent, cautious, far-sighted, forearmed, vigilant and precautionary. These plans may well be our 'saving grace' in an increasingly unpredictable future.

Everyone would like their family to come through any upheaval without too much trauma and terror. Fear is usually based on insecurity and a lack of self-confidence resulting from inadequate preparations. *Good planning may even save lives. Share with your family why you are putting together a 'go bag' and enlist their ideas as to what would be essential items in this bag, which we will call a 72-hour kit.* Explain to children the different disasters that could occur and

that careful planning, now, will be valuable foresight for any future calamities. Talk about ways to handle some emotional reactions that disasters could bring ... and, perhaps, explain stress release techniques (p 15). Discuss with the family different emergency strategies. **Record the phone number of the State Emergency Service (SES) of 132500** (this is Australia-wide) on your home telephone and mobile to make immediate contact if help is needed during storms or similar emergency situations. **Also note the number to call for ambulance, police or fire-rescue or for help in other urgent life-threatening situations is 000.** Record the 24-hour Australian National Security Hotline 1800 123 400 to report suspicious activity that may be a sign of terrorism.

When we plan a 72-hour kit, it must take into account a number of possible emergencies. So, our preparation for each scenario must be generic, with a view of being practical in a wide range of situations, of both natural and man-made origin. **Enrol in a First Aid course to give you skills in caring for family or other people with injuries. Note: keep these skills current by updating when required.**

1. Plan for a 72-hour kit over the next 5-10 weeks. Have a note book with a list of essential items that would get you through 3 days, providing water, basic food, warmth and shelter. *Keep in mind the 72-hour kit is for extreme disasters requiring home evacuation, therefore heavy and cumbersome articles would be impractical.* Disasters of fires, floods, earthquakes or unpredictable accidents may, very suddenly, force you to move swiftly to a more secure location. The dangers and the severity of the situation will depend on many factors, like weather. Your resources, physical conditions and age of family members may also govern what each person can physically carry in their 72-hour kit. With the plan on paper, start to collect items for the kit and place them all together in one location, ticking off items in the note book. Many essential items on your list, you may already have in your home. Other goods could be purchased from supermarkets, sports, camping, hardware and home centres. Plan to purchase some of the following items each pay-day:

- * Duffel bag / backpack. A backpack is the most suitable and practical method for the body to carry goods over a long distance, being made of waterproof material with lightweight aluminium frame and padded shoulder straps. Place all absolute essentials in backpack, and name each person's bag. Hand-held bags or cases (may be on wheels) must be waterproof, strong and have padded carry handles. Polyethylene plastic buckets with tight fitting lids and padded handles could also be used. All carrying and storage containers should be lightweight (glass bottles are heavy and breakable).

- * Belt-pack made of waterproof nylon, to go around the waist for holding personal papers or CD copies. Also include information giving the full name, home address, phone number and mobile, birth date, person to be notified in an emergency, next of kin or close

friends to be notified in the case a person is injured, separated or lost. Provide the correct blood type/Rh factor, medications currently being taken (giving specific instructions), Medic-Alert tag or card (if applicable), list of allergies, and any other pertinent medical history or information.

- * Snap-locking, resealable plastic bags are light, waterproof and see-through for easy identification of contents. These bags of different sizes are handy for personal documents, family photos and other important records that may be difficult or impossible to replace, including: wills, insurance policies, birth and marriage certificates, phone numbers for contacting family and friends, credit card information or banking details (include current bank statement in case computers go down), passport, drivers license, legal documents, educational diplomas, medical history, etc. Some people may prefer to have photocopies of some records like credit cards, and although these are not valid for most legal and banking purposes, the photocopy can provide the necessary information to replace the original items if required. **Note: All important original documents can be stored at your bank or with a solicitor.** These can also be scanned and copied onto CD or DVD format. Your family history, formal documents and precious photographs may also be professionally copied (this is not expensive) and then stored securely in more than one place. Make several copies and share these with your close relatives.

- * First Aid Kit with basic essential items of Band-aids, burn cream, bandages, scissors, safety pins, Panadol, anti-diarrhoea tablets, sore throat medication, water purification tablets, adhesive tape, insect repellent, Rescue Remedy (see p 122).

- * Water, 2-3 litres per person a day and, if possible, carry several litres extra for hygiene. Plastic bottles are suitable for the 72-hour kit.

- * Food for 3 days (6-9 meals and some snacks, preferably of light weight foods like: energy bars, muesli bars, dried fruit, nuts, carob pods, cracker biscuits, Vegemite, peanut paste, ring tins of salmon, beef jerky, rice snacks, powdered milk, packets of soup, 1 minute noodles. Plan to pack foods that are low in sugar and salt, as sugar and salt tend to make a person thirsty, and water will be limited in your 72-hour survival kit.

- * 1-2 changes of clothing and strong walking shoes, hat with brim, rain hat, raincoat or umbrella, beanie, scarf and gloves for colder night temperatures.

- * Lightweight tent with ground sheet. Heavy-duty black plastic can serve as a ground sheet, a shelter, and create a makeshift tent. **Notes for makeshift tent:** Using 10 metres of thin nylon rope, wrap, and firmly fasten this around tree branches (or other upright fixtures), with the plastic placed over the rope to give shelter. Allow for an extra length of the plastic sheeting at the bottom and secure this on the ground under several heavy logs, rocks or bricks.

- * Bedding of air pillows, sleeping bags and lightweight or reflective blankets. (Space blankets have been highly recommended, as they are lightweight, reflective, and

retain up to 80% of your body's radiant heat; when folded, one of these can, neatly and conveniently, fit into your pocket.) Mosquito netting can be placed onto a piece of elastic, then tied into a circle, ready to slip over the crown of a hat for protection from insects, when needed.

- * Plastic cups with handles, plastic plates and spoons, knives for spreading and cutting.

- * Personal hygiene of soap, washer, towel, paper towels, handkerchiefs or tissues, toothbrush and toothpaste, hairbrush or comb, sanitary napkins, disposable wet wipes (as water will be limited), toilet paper.

- * Money, mobile phone, watch, pet leash or carrier and pet food (dry pet food will be the most manageable for emergency supplies; measure out the quantity a pet will need each day and factor in a good margin extra), water for pets, and include plastic food and water bowls.

- * Torch with spare batteries (or a wind-up LED light), candles and waterproof matches or butane lighter, survival or pocket knife, compass, whistle on cord to go around neck, radio with spare batteries, plastic bags with ties for personal sanitation or bucket with lid, duct tape, small fold-up shovel.

- * Notepad and pen (extra pens and pads to provide activities for the children), small ball, Frisbee, personal items, small cuddly toy, comfort rug or stress ball. (Why...? Squeezing a squishy ball or soft toy, using your sense of touch, can act as a pathway to soothe soaring stress levels; or a small sachet of dried lavender or other aromatic herbs will work, similarly for releasing stress, by acting on the sense of smell.)

Make sure your 72-hour kits fill the needs of your family members. Pack items into backpacks or portable containers, and store near an exit of the home (perhaps in a cupboard near the front door). Keep a torch at the top of a kit, so it is easy to find in the dark. Inspect your 72-hour kit twice a year, and rotate food and water. Adjust clothing for summer or winter needs, and re-evaluate family needs.

In the notebook, make a list of last minute items that will need to be collected in an emergency, like: money, mobile phone, watch, house and car keys, medications, eye glasses, credit cards. This list is important as there may not be 'thinking time' to consider what else needs to be added. Always remember that a 'go bag' may mean **GO** with a short warning notice of 5 minutes to 5 hours ... when your home is to be evacuated.

Follow the advice of the local emergency services and listen to your radio or TV for news and instructions. If a disaster occurs in your area at night, check for damage ... using a torch. Avoid lighting matches, candles or turning on electricity. Quickly check for fires. Turn off electricity and water. Sniff for gas leaks. If you smell gas, turn off the main gas valve, open windows and get everyone to evacuate the house.

When emergencies happen, you may not be able to evacuate by car, therefore the 72-hour kit for families to leave on foot must be planned for. You may

even consider testing your preparedness kit by going camping with it for 72 hours.

Teach your family how to respond to disasters most likely to happen in your area. In some disasters, local emergency services may indicate that it would be safer to stay in the confines of your home. This could also mean you will be required to secure all external objects, pets, cars and bicycles. Close and lock all windows and exterior doors, turn off power, and make sure the portable radio is working. Being in your own home during an emergency means that you will still have access to bedding, clothing, and food supplies, although there may be disruptions to water, sewerage and telephone services.

Any calamity can be traumatic and overwhelming, causing stress and shock. *Stress drains energy from the body and, in its severest form, may cause death.* Our **'life-force energy' is the source of our physical, mental and emotional wellbeing**, and this gives good health and the joy of living.

We all have some stresses in the fast pace of our daily lives. Stress is a combination of responses in the body. When stress causes anxiety, it is a corroding emotion, which can cause all the 'positive springs' of our personality to 'seize up'. *Acute stresses can bring on the 'fight or flight' response* (muscles tense ready for action), and this is a critical measure for self-preservation in situations of danger. However, it is continual high stress levels and shock that can considerably affect the stability and ability of a person to function, and this may be detrimental to the health of the body and the nervous system.

People who have experienced various traumatic situations, find it hard to cope, as they realise their lives will never be the same again. This may be due to a catastrophe causing loss of house, death of family members or other tragedy. *It is important that shock and stress be lessened as quickly as possible.* Stress causes acidity and toxins to build up in the body; drains energy levels and affects the ability of the brain to concentrate under adverse challenges. Stress may also cause a lack of confidence and result in negative emotions of worry, anger, sadness, hate, fear or anxiety. The mind may regurgitate bad memories and trauma scenes, and bring on disturbed sleep patterns. Stress causes the heart to beat faster, when the body is traumatised or remembers a stressful event, and the shock could be too much for the heart to handle.

A quick way to take stock of a situation and slow the heart rate down, is to *breathe deeply and slowly, enlarging the whole lungs and expanding the rib cage and abdomen.* **Take 10 slow deep breaths** and repeat several times in the day. Deep diaphragmatic breathing also benefits the circulatory and lymphatic systems and lungs, helping to lower high blood pressure. Deep breathing will not only provide more oxygen to the cells and help eliminate toxins, but it will also boost energy levels.

The following techniques and exercises are **simple actions we can do in our daily life**; we do not need to wait for major traumas to get the benefits.

The alternate nostril breathing exercise is valued for calming the mind. It helps produce balance in the body, optimum functioning of left and right brain activity, and a heightened level of vitality. This exercise will have a marked effect on relaxation. Breathe deeply in and out 12 times through each nostril (while holding one nostril closed with the thumb). Also, try this at bedtime for sound sleep.

The **thymus gland** is the first organ of the body to be affected by stress. The word thymus is derived from the Greek word 'thymos' which denotes life-force and feeling. Our thymus gland lies just beneath the upper part of the breastbone in the middle of the chest. The thymus produces lymphocytes and later, through the release of hormones, controls them in such a way that foreign cells and substances and abnormal body cells are recognised and destroyed. This function, called immunological surveillance, is directly concerned with resistance to infection and cancer. As the thymus immediately senses stress, it is good to be aware that we can take positive action to help it function efficiently by **gently thumping the upper breastbone 4 to 5 times**. Call this the 'Tarzan thump', and children will find this fun. We can also counteract the weakening effect of stress on the thymus, as it occurs, by placing the tip of the tongue against the roof of the mouth.

Severe stress can tax the heart, heavily. The person may wish to use 1-2 drops of Rescue Remedy under the tongue to alleviate stress (p 122). **Symptoms of a heart attack** may include: squeezing pain in the centre of the chest lasting more than a few minutes, and there may be further symptoms, with pain spreading to the shoulders, arms, neck and jaw; feelings of 'indigestion', shortness of breath, cold sweat, nausea or a light-headed sensation. *Sensing a heart attack, start coughing repeatedly and deeply, as repeated coughing helps the heart to regain normal pumping.* **Call an ambulance** or seek medical attention for the person, immediately.

Take a first-aid training course. Comprehensive instructions to assess and treat heart attack, shock, and a full range of emergency first-aid procedures, are available through first-aid training and by following approved instruction manuals. Completing a first-aid course is money well spent on a vital investment and it is the most important emergency preparation you can make: it could save a life (keep up-to-date; ensure your certification is current).

A number of simple techniques can lessen the harmful effects of stress. Stress may tighten all the muscles and skeletal structure of the body. If the neck is stiff and tight, the blood flow to the brain may be restricted which can cause mental fatigue, tiredness, confusion, frustration and headaches. **To loosen tight muscles:** squeeze and massage 'coat-hanger' shoulder muscles, shrug the shoulders, and gently massage the neck. **When feeling stressed and fuzzy in the head,** massage temples (positioned just past outer edge of eyebrows) with small slow circles, with fingertips, for a minute. Then change direction of your circles and continue massaging, for another minute. Light, soothing, outward strokes work well, too.

Relaxation techniques, or for sleeplessness: start at extremities of the body, like feet or fingers. Curl the toes up, tightly; hold tense for 30 seconds, and then relax the muscles. Repeat the technique for other areas of the body, until all the muscles are floppy and relaxed.

Our immune function has many facets (see p 83), Immune system chapter and must be kept strong in stressful situations. As the abdomen plays a major role in immune function, we can **massage the abdomen** in a clockwise direction, with the palm of the hand 5 minutes a day, which will also help liver, intestine and colon function. A good time to do this massage is while lying in bed.

Stretching exercises and aerobic activities also help to release accumulated stress. Good health habits, such as sound nutrition and regular exercise, gardening, swimming or sport, will all help build resilience to stress.

Any accident or trauma in our lives can cause increased stress, resulting in an immediate pH lowering of the body to a more acidic state. When your mind and emotions think there is something to fear, this triggers and 'fires off' the neurons in the brain, sending a chain reaction through your body to get ready for fight or flight! Whenever you are nervous, scared, excited, or perhaps have a combination of these emotions, your adrenal glands release adrenalin that triggers your body to go into overdrive. This hormone may make you tremble, stutter and sweat; blood can rush to your muscles, digestion weakens, your immunity lowers, and there may be a feeling of turmoil in the stomach, hence the saying 'butterflies in the stomach'.

When stressed, we may have cravings for something to suck on or chew; no doubt, this relates to our early childhood when, as babies, we were pacified with mother's breast or a bottle. **Sucking on a piece of natural licorice root,** which works like a pacifier, has helped many people overcome stress and calm the body. *This can also be used as a 'quit smoking' aid.* Get some licorice growing, now, so that you can dig the root and use it, regularly, in your daily life (see p 105). Chew on the root whenever you feel stressed, before exams or in other stressful situations, as licorice is valued for calming the nerves and quelling the 'butterflies' in your tummy. Licorice is also a thirst quencher and energy giver, besides having many other uses; so, it is a very practical herb to grow. Include some sticks of **licorice in your 'go bag'.**

Reconnect to positive emotions of courage, love, faith, trust, gratitude and peace. Negative emotions will weaken the thymus; therefore, we need to change our thought pattern to positive thoughts. *Smiling and laughing stimulates thymus gland activity, which will increase life-force energy.*

Laughing brings a positive response to your body, of improved digestion, pain relief, better immunity, and confidence to face adversity. Literally, laugh ... even if you do not feel like it. *Find some jokes, a funny movie, or a light-hearted book to distract your thoughts from stress or sadness ... until you are ready to deal with the problems that caused these emotions.* Research

indicates that laughing brings about many positive plusses to situations of stress. Laughing stimulates the release of endorphins, which helps bring relief from pain and anxiety, and provides more oxygen to the blood and the cells. Laughing activates pituitary and adrenal hormones, which add to the feeling of wellness. Laughing stretches facial muscles and it is said to reduce facial wrinkles ... so, this is most worthwhile to do daily! Even a **smile adds immense 'face value'** to your life ... and others in your company will be blessed by your smile. **It takes half as many muscles to smile as it does to frown, and it makes you and others feel twice as good.** Just maximise the potential of every day, and do it with a smile. Everyone is influenced by kindness, and kindness is synonymous with happiness. **Acts of kindness and compassion may help lower your personal stress levels.** Kindness is the one thing you cannot give away permanently, because it tends to return. **Make someone feel special** and cared for. Maybe, you can give a listening ear to someone traumatised. By doing something positive you will bless the person and yourself. How beautiful a day can be when kindness touches it! And when we are thinking of other people and helping, we will not have as much time to dwell on our own negatives and (past or present) distressing situations. *There is no future in living in horrible happenings of the past.* We can keep on blaming others, or, concentrate on moving forward.

Stress release points on the forehead (2cm above eyebrows) are activated by placing all fingertips across the forehead, with just a gentle pressure. While holding the forehead with fingertips, close the eyes, and think of, the incidences of trauma. After several minutes, wipe your fingers across and off the side of the forehead, and visualize that you are wiping the trauma out of your life. Replace your fingertips on your forehead again and this time think of some pleasant sights, like a trip to picturesque mountains, walking along the beach, spending time with people you love, and revel in these scenes of beauty. Do this, as an exercise, whenever distress disturbs peaceful thoughts.

Alternatively, bring to mind the horrible happening by writing it down. Gradually, by doing this as a repetitive exercise, the traumatic experience loses its power over you, and does not bring distress to your body any longer. When you feel you have 'got it out of your system' finish the job properly, by making a ball with the written page and burning it; and by sweeping away the ashes or laying the ashes to rest ... in your garden, to help the flowers grow.

Have a forgiving spirit. For some people, this exercise may require that a person stops blaming other people for what has happened (eg terrorists, murderers, rioters). Remember, that holding on to hurts and hates can be a burden that triggers toxins and poisons to build up in the body, which may then bring pain and disease. *Forgiveness needs to be genuine, thought with the mind, and felt in the emotions.* With forgiveness, we discover the humanity of the person who wronged us, we surrender our right to get even, and we move on.

However, since time is the greatest of healers, we must also respect that progressing past the grief stage, may occur gradually with time. Acknowledging this respect also means that the process should never be externally driven by well-meaning family members or friends.

Forgiveness is not a way to avoid pain, but to heal pain. Forgiveness is the only way to be fair to ourselves. We do not excuse the person we forgive, we may blame the person we forgive, but then, choose to no longer hold it against them or dwell upon it. Forgiveness does not mean forgetting what happened, however, when we forgive, we gain the greater power of taking control over our life and future. Forgiveness is a key to resolving past hurts. *God's gift to us is a free will.* We can choose to control how we want to live our lives. We can live under the bondage of bitterness ... or choose to release ourselves into the freedom of forgiveness.

2. Storage of essentials for 3 months is the next procedure to put into place. This planning is for 'preparedness' during situations that may cause failure of essential services of rail, road, electricity, water and shopping facilities, which could disrupt our carefree way of life. As I write today, 28th May 2008, television headlines showed the conundrum caused by an electrical explosion on the Sunshine Coast, Queensland, disrupting power to over 1,000 houses. Life without power is not very pleasant, as we depend on it for so many facets of living.

If roads are cut, due to flooding or other calamity, we may be required to stay in the confines of our homes. Another possible scenario may be a pandemic quarantine, when it would be wise to stay at home. On May 22nd 2008, front page headline of the Sunshine Coast Daily newspaper said: 'Virus strikes coast aged care home' and the residents were isolated due to the highly contagious norovirus. Two Sunshine Coast hospitals recently quarantined patients with the same virus. The newspaper stated that there was no antiviral medication or vaccine that worked against norovirus. We are warned that antibiotics are no longer able to combat the latest 'super bugs' around. In the 21st Century, we are seeing and hearing of crisis after crisis. Just in the last few weeks, May 2008, more disastrous news flashed across our television screens: the cyclone devastation in Burma, killing over 10,000 people with 50,000 still missing and many more thousands homeless and without water, food or shelter. Then, we heard of the massive earthquake in China, causing the death of 60,000 people and with over 30,000 missing beneath the rubble, and over 5,000,000 people homeless. These kinds of disasters can bring essential services and supplies to a standstill, over vast areas of a country. When food and other essentials are scarce, the price of these items will skyrocket. Therefore, it is important that **a family preparedness program be started**, and consistently added to, with a variety of 'long life' food items and daily essentials. With interest rates rising, and petrol prices increasing daily, we will see the cost of all items (whether essentials or luxury

items), also, increasing. For this reason, **now is the time to take action.** *No one likes inflation, but we have to face the facts and budget more carefully, to provide security for the family.* By purchasing a few extra storable food items each week and placing these in a 3-month food storage cupboard, we can make a start in **planning for future needs.** Regularly adding a variety of packaged or canned foods to the cupboard will provide essentials for predictable and unpredictable emergencies, such as: bad weather, work retrenchment, war, strikes, or illness.

Consider possible weather scenarios that may affect your area: your area is struck by a severe windstorm or cyclone that cuts essential services for two weeks. You are without electricity, which means you are also without heating, light and water (it takes electricity to run the municipal water supply); you are without food (the supermarket soon ran out of food and cannot remain open with no electricity); and, finally, there is no transportation (as your car is out of petrol and pumps at the service station don't work). These types of scenarios are events that no one wishes to happen, however, if we have made some plans for such predicaments and taken precautionary steps, we will 'weather the storm'. This is far better than if we allow the storm to give us a full blast and a beating. John Glenn, the first American to orbit in outer space (1962) said, "Whether you're getting ready for space flight or facing a problem of daily life, *the greatest antidote to worry is preparation. The more you try to envisage what might happen and what your best response and options are, the more you are able to allay your fears about the future.*"

Mark Evans, President of American Red Cross said, "What concerns me is the lack of reasonable preparedness on the part of the general public. *Many Americans are wholly unprepared for a disaster of any description. They have not stocked emergency supplies.* Wake up, America!" No doubt, the same can be said for most Australians. Being prepared is your 'spare tyre'. Give yourself and your loved ones the 'gift of preparedness'.

Food items to store: bottled, tinned and dried fruit, vegetables, and meats; seeds for sprouting (p92); dried beans, peas and lentils for cooking; powdered milk (full-cream milk has a longer shelf life than skim); Milo, herbal teas and other beverages; pasta, nuts, savoury biscuits, fermented foods (p37), vegetable oil, packets of soup mix, onion and garlic flakes, dried herbs, sugar, pure honey, salt and pepper, nori or other seaweed, peanut paste, Vegemite, Promite (or other spreads), low-salt soy sauce, custard powder, tapioca, rice, flour, rolled oats, and grains, are some foods with a good shelf life to start stocking. If you are storing grains for flour to make bread and other baked goods, then you will also require a grain grinder, and dried yeast or other alternatives to provide the rising in bread and cakes.

Check the nutritional content of food being purchased. Plan to have a variety of protein foods. Look for processed food in the supermarket that does not have excessive sugar, salt or additives of artificial

colours and preservatives. Watch for foods when 'on special' at bargain prices, to add to your storage. Although packaged and processed foods will probably have a 'best by date' on the container, this does not mean that the day after expiry the food will be unfit for consumption. This use-by date is a regulation, required in our country for processed food. Bottled, tinned and dried foods may have many years of edible potential beyond the expiry date. However, keep in mind that food does deteriorate over long periods of time in storage, with a possible 2-5 percent food value lost each year. For this reason, it is important to rotate your stored supply. Under ideal conditions, many canned and dried foods keep for many years; but remember that the longer it is stored, the more deficient in nutrients food becomes. Be aware that foods such as cracked wheat, and flour from wheat and corn, can go rancid when stored unsealed. This is particularly so in warm, humid, tropical climates, as these foods contain small amounts of natural fats, which may 'go off' and develop a foul smell.

A number of years ago, I read a very old manual that advocated, when putting together survival foods, the most elementary requirements were very basic indeed, being: wheat, powdered milk, honey and salt. The manual gave information on how to store these basics over long periods of time. The manual showed many versatile ways of using the four ingredients as daily food and how to combine these with other foods, if available. Now, quite probably, in Australia and in other First World countries where a large variety of foods have been plentiful, most people would consider these four survival foods as very limiting in palatability. For people who desire to have a diversity of flavours and nutrients, **forward planning**, building up to an ample range of stored food items, would also be important.

Set up an **emergency family fund**, money that is put aside to be tapped into, if a predicament or crisis arises. This reserve fund will help to take some of the stresses away from living in difficult times, and could help eliminate any horrible unpredicted debt. If the household is in debt, at present, plan and budget so this debt (whether on credit cards or mortgage) can be decreased and eliminated, as soon as possible.

What to do **if the sewerage system breaks down** during disasters? Plan, now, for what to do in your particular situation, whether in a unit or a suburban home. Be prepared with several buckets with lids and a rubbish bin with a lid. Use one bucket for urine, which will be relatively easy to dispose of under trees in the garden or into the compost heap. Solid human wastes in another bucket could be tipped in a rubbish bin in the backyard, and then the faeces sprinkled liberally with lime. The rubbish bin will require regular emptying by digging a pit or trench in the garden; then, wastes are covered with soil.

Other items to store and add to the cupboard, regularly: toilet paper (store 1 roll per each person per week), soap, personal hygiene needs, batteries for radio and torch, candles and matches, a cigarette lighter (no, I am not encouraging smoking ... but this is very useful as a waterproof lighting device); a small

gas cook-top with gas bottle (needed for heating water and cooking during a power failure); eucalyptus oil (a wonderful antiseptic and general healing agent); face masks and handkerchiefs, as these could be essential items for protection in the event of a pandemic, if you are unable to avoid contact with other people; and water purification tablets. As all essential services could be cut for a few days or longer in an emergency, **it is wise to plan an alternative water supply.** It is recommended that at least 10 days supply of water be stored, and a 30-day supply if at all possible. *A minimum of 4 litres per person per day is required, but 6-10 litres per person per day is safer. Water for personal hygiene and sanitation is important for maintaining health in any emergency situation, as cleanliness is essential in preventing diseases that could spread rapidly in times of disaster.* If your toilet strategy involves flushing, you will require considerably more water than if it does not. If a water tank is not feasible in your situation, consider several 100 litre containers in a shed, verandah, or balcony. This would be a whole lot better in an emergency than having no stored water at all. A depressing reality is that in an emergency, water may be looted along with other basic items (as well as valuables too, which could be sold for cash), so you may want to plan for the security of your water storage. Stored bottled water is best rotated every 6-12 months. Alternatively, have on hand 3% food grade hydrogen peroxide (available from a health food shop) to preserve water, by adding one drop of hydrogen peroxide to a litre of water. People have used this method to preserve water for a few years. **Water is absolutely essential to life.** *We can live for several weeks without food, but only a few days without water.* The human body is comprised of over 75% water. Water is the body's transport system, taking nutrients to the cells, and carrying wastes away. It is essential to the function of organs, lubricating colon and joints, and it keeps the body temperature balanced. Every day, approximately two litres of water is eliminated through the skin, lungs, intestines and kidneys. (Six to eight glasses of water a day is usually considered necessary maintenance to replace this loss, and for wellbeing.) We may require extra intake of water during hot, humid weather; in high altitudes; during heavy physical activity and work; or in times of illness, particularly if accompanied by fever, vomiting or diarrhoea. If this water is not adequately replenished, we become dehydrated. Signs of dehydration are fatigue, dark urine, headache, muscle soreness, heat intolerance and dry mouth and eyes. Dehydration causes the vascular system to constrict, leading to hypertension and pain. Pain can mean an acid state in the body, resulting from a build-up of wastes and toxins. Our body's detoxification system has an important role in maintaining health, and this process relies heavily on an intake of clean water to flush out metabolic wastes. These wastes occur as a result of normal bodily processes, even in the healthiest of people, no matter how good your diet may be. Good hydration with water improves concentration and memory, helps relieve stress and depression and provides energy to perform

daily tasks. Water is involved with every physical and mental action of the body. *To state it simply: without water, life cannot exist.*

During times of disasters, when water may be scarce, life can still exist with very little water, but the various processes of the body will be compromised, accordingly; we will survive, but definitely not thrive. Putting into place an ample supply of water, now, is a top priority for emergencies. Water is a precious resource that has been relatively plentiful in our country. Abundant water has been a great blessing ... often taken for granted. However, when municipalities warn us of coming water shortages and ask us to conserve water, waste still goes on. Encourage every member of your family **to be water-wise conservationists now**, so that in an emergency, scarcity of water will not be such a drama to them.

Store water in bottles and plastic drums or put a tank in place to take run-off rainwater from the house roof, with plumbing into the house as well as an external tap. Use containers that are clean, non-corrosive, and tightly covered. Do not store water in bottles in direct sunlight as polyethylene plastics are somewhat permeable to hydrocarbon vapours. Keep this water away from stored gasoline, kerosene or other strongly smelling substances.

In an emergency, even if municipal water supplies are still able to be maintained, keep in mind that this supply may not be as pure as usual. Therefore, you may want to store **water purification tablets** (available from camping stores and chemists) to treat water, if you are concerned that it could be polluted.

Water can be purified using the following methods:

Purify water by boiling, it is a certain way of killing all micro-organisms, including disease-causing bacteria, viruses, and parasites. Some literature states that the water needs to be boiled for 3 to 5 minutes, while other printed data indicates 10-15 minutes (which could mean precious water is boiled away). According to the Wilderness Medical Society USA, water heated to temperatures above 70°C (160°F) kills all pathogens within 30 minutes; and above 85°C (185°F) within a few minutes. So, in the time it takes for water to reach boiling point at 100°C (212°F), the water is safe to drink. As a 'ready reckoner', used for most circumstances, this becomes a good visual indicator that the water is more than hot enough. (Note: the exception to this is for low atmospheric pressure at a very high altitude. There, water boils at temperatures significantly below 100°C and, without the use of a pressure cooker, may also leave boiled foods undercooked. So, be prepared with water purification tablets at hand.)

How to make clean water, using the sun: Clean water is a problem in many parts of the world, and people have to use water from rivers, lakes or rainwater collected in containers. This water is often full of disease-creating microorganisms. When no means of heating water is available, solar energy is utilised by placing bottles of water in the sun for 3 to 4 hours, to make the water safer to drink. If the water contains a lot of sediment and many very small particles, this

method is not so efficient. Seeds of the Drumstick tree have proved very effective in this type of situation. Compounds in these seeds bind with the silt and clay so they settle at the bottom of the water being treated. Along with the particles, the bacteria and other organisms also settle. Use one finely crushed seed to clean 1 litre of water, stir well, let stand 60 minutes, then drain off the clear water, leaving the sediment in the bottom of the bottle. p86

Colloidal Silver and Hydrogen Peroxide: to sanitise water of bacteria, add 1 teasp. colloidal silver (available from health food shops) and 1 teasp. of 3 % hydrogen peroxide for every 1 litre of water; leave stand for 20 minutes.

Iodine tincture: add 12 drops of 2% tincture of iodine per 4 litres of water. Leave the water stand 30 minutes, before using any of this treated water. To help eliminate any taste or colour of iodine, add 1 flat teasp. vitamin C to 4 litres of treated water. **Warning:** **Pregnant or nursing women and people with thyroid problems should not drink water with iodine. Also, some people may be allergic to iodine.**

LifeStraw®: this 2.9cm diameter tube (with screens, carbon particles and resin beads) is quite a unique invention; weighing 160 grams, it is about the length of a drinking straw. (In fact, it is utilised like a drinking straw, by placing the end into water, whether it be a container or puddle of water.) The LifeStraw® instantly makes 'questionable water' safer for human consumption by killing and removing 99% of bacteria and micro-organisms responsible for causing water-borne diseases like Salmonella, Staphylococcus and E. Coli. Each tube will treat over 700 litres of water, and these filters have been used to help prevent diseases such as diarrhoea. Recently, LifeStraw® filters were used for people in Burma, following the May 12th 2008 tsunami, and in other countries devastated by climatic and weather upheavals. LifeStraw® was awarded The Saatchi Award for World Changing Ideas in 2008. <http://www.vestergaard-frandsen.com/lifestraw-specifications.htm>

Chlorine bleach: use 5 drops of 5.25% solution of sodium hypochlorite (without soap additives or phosphates) to 4 litres water. Leave stand at least 30 minutes before using. Chlorine treated water can be made to taste better by pouring it back and forth between two containers after it has been adequately treated. Alternatively, if the water container is placed in the sun for several hours, the chlorine taste will be eliminated. Another way to improve the taste is to add a pinch of salt per 2 litres of water; and boiling chlorinated water eliminates the taste. Chlorine is a very effective agent for water purification, which is probably why the municipal water supply is treated this way. However, for information on the detrimental effects of chlorine (see p 5).

To add to the nutritional value of the food in your 3-month storage cupboard, I do encourage that a living food supply be started or expanded. By this, I mean: **grow an edible garden.** Everyone can do it ... just like everyone can have living food, as sprouts, growing regularly in their kitchen.

Outside a unit or flat there is usually some space for a few pots. Plant in pots, or in troughs that are at least 20-30cm deep, to allow for a healthy root system. If garden soil is very heavy, it will pay to purchase an organic or premium quality potting mix to fill the pots. A premium quality mix should have enough nitrogen in it for plants to have at least 5-6 weeks growth before having to add fertiliser. Liquid seaweed is useful for feeding plants and they will thrive on this liquid when it is also correctly diluted for direct sprinkling onto the foliage. Alternatively, a liquid fertiliser made with comfrey, nettle, or weeds could be made by soaking the leaves in a bucket of water. see p60 Your edible garden in pots could be started by planting a variety of seeds, or by using small seedlings or young plants. Edibles like rocket, loose-leaf lettuces, Asian greens, or mesclun mix, which is a mixture of salad greens, will grow well if seeds are thickly planted in pots, tended with regular watering (when the potting mix feels dry to touch), and fertilised every 14 days. These plants will supply pickings of young leaves at 5-6 weeks. Continue to pick the leaves daily, and start a new pot with more seeds every 8 weeks, to give a continuous picking of succulent young greens. Ideally, provide a few hours of sunshine on the pots. However, if a sunny position outside a flat, unit, or balcony is not available, do experiment and trial some potted herbs; or even greens in an indoors position which has good lighting, or on a window sill or by a glass door. Turn the pots, every couple of days, for an even amount of light on all sides of the plants. Fertilise indoor pots, often. Regular picking of leaves for culinary use will spur plants to keep growing, and keep them in good shape.

Salad greens, herbs, and vegetables that you can grow and use fresh, will be the most beneficial of any food to maintain good health, providing living enzymes and 'life-force' energy. *Food plants absorb energy from the sun and nutrients from the soil. When we eat these fresh foods, we absorb this same energy.* That is why plants, grown naturally as a food source, are so important to human health. Remember that, although foods stored in your 3-month storage cupboard are provisions for emergencies, when complemented with sprouts grown in the kitchen and produce from the garden, this will provide a balanced health plan. Some of the most practical survival-food plants for limited space and for growing in pots, could include herbs and salad greens like: Lebanese cress, rocket, radish (eat the leaves as well as the roots), purslane, chives, strawberries, lemon balm, comfrey, watercress, herb robert, gotu kola, sheep sorrel, salad mallow, stevia, mitsuba, mibuna, parsley, basil, jade and wall pepper. For a broader list see Salads, p 86 and Herbs, p 97.

Many years ago, a senior citizen joined in my Herb Course. Although Tom lived in a retirement village with very limited space, his desire was to grow some fresh greens and herbs. This he did, wonderfully well, when he co-opted someone to make him a steel stand with shelves. Rectangular, styrofoam boxes (that he painted with flat paint to enhance their appearance) fitted neatly on the shelves, and then he planted a variety of edible plants so he could pick fresh leaves

each day. On his visit to the Herb Farm, he brought along a photo and showed me the potted garden that gave him so much pleasure.

For a garden bed 2 x 4 metre square or larger, add any of the plants listed above (for planting in pots) and the following: carrots, beetroot, tomato, zucchini, silverbeet, turnips, lettuce, onions, leeks, broccoli, garlic, and dwarf bushing varieties of beans and peas.

For larger areas of backyard garden and even for the front yard, plan to add a variety of vegetables and fruiting trees. Include: potatoes, taro, coco yam, cabbage, cauliflower, Brussels sprouts, okra, oca, Jerusalem artichokes, drumstick tree (trimmed to bush size), pumpkins, melons, sweet fruit root, asparagus, arrowroot, sweet potato and cassava. For food plants on trellises (which will conserve ground space) include: climbing beans and peas, passionfruit, choko, kiwi fruit, loofahs, long bean, Ceylon salad leaves, cucumbers and snake gourd.

Ask, at your local Permaculture group or Garden club, what are the fastest growing and best food-producing trees for your local area, with consideration of your climate, soil type and exposure. Plant some fruits that have a long shelf life when picked eg apples, quinces, citrus, nuts, pomegranates. Your local plant nursery will also be able to recommend fruits for your area, and will be able to supply dwarf varieties to suit limited sized gardens. There are so many fruits to choose from: citrus (mandarin, oranges and lemons are suited to a wide range of climatic conditions), figs, stone fruits (peach, apricot, nectarine and plum are ideal for cold and temperate climates, although several varieties have been developed for sub-tropical conditions), pears, avocado, tamarillo, dragon fruit, acerola cherry, lychee, cedar bay cherry (p 75), rhubarb, cape gooseberry, Indian hill gooseberry, papaw, grapes, star fruit, persimmon, Indian fig (p 66), mango (definitely a dwarf variety for limited space gardens), guava, Brazilian cherry (p 53) and custard apple, to name a few.

If you would like to have a fruit tree but have very limited space in the garden, try espaliering a tree along a sunny wall or fence. Espaliering is a method of growing and pruning a tree so that the branches grow in a narrower space, rather than the tree being cylindrical in shape. The branches can be trained to grow fan shaped with the assistance of vertical stakes, pipes, or horizontal wires, supported as on a trellis. Figs, plums, apples, peas, peaches, and apricots are some varieties suitable for espaliering. Go to your local library or search the internet for details of this tree-training method.

When we grow our own fruits we can pick them when ripe and delicious, full of flavour and nutrients. Compare this to many kinds of fruit for sale in the shops, which are picked quite firm, before ripening. These are kept in cold storage until ready to be sold, then, when we buy the fruit, it needs to be left at room temperature to soften before eating.

Excess produce grown in the garden can be dried (p 32), processed (p 37), or bartered (exchanged for other produce) with neighbours or friends.

With an edible garden we can grow the very best organic fresh produce, cut the costs of living, and have some food security. Also, trees provide us with life-giving oxygen. We breathe in oxygen and breathe out carbon dioxide. Everyone inhales over 14,000 times a day, absorbing over 15 kg of oxygen from the air, and most of this oxygen is produced by plants. Plants ... your herbs, vegetables and fruit trees take in carbon dioxide and give out oxygen. **Our lives literally depend, on plants for food and oxygen ...** that makes plants pretty special! Plants keep giving to us, even when they are dead! We continue to receive benefits by utilising all garden clippings and other plant material when we add these to the compost heap or use it as mulch. (This is echoing nature's way of recycling, which rejuvenates the earth.)

Mulching means covering the soil surface in the garden with the purpose of preventing weed growth; thereby, reducing moisture evaporation and the extremes of heat and cold. Mulching improves soil porosity and soil fertility, protecting the soil against the pounding effects of heavy rain and artificial watering. **The soil is one of nature's greatest miracles.** While a clod of dirt may look uninteresting and lifeless, it is actually highly complex in its structure, and inhabited by a large number of minute living organisms. These micro-organisms are very much linked with our lives, as they play a part in producing the food for plants; so, this process constitutes the basis of our living food further along 'the chain'. **When we care for and feed the soil with organic matter, we care for plants, and care for ourselves ... what could be wiser than that?** For this reason, I encourage everyone to grow an edible garden, and to grow it organically. **We can say - literally - organic gardening is a load of rubbish!** Organic gardening is all about turning garbage into wonderful nutritious 'stuff' that plants just love. In fact, tell yourself and your family that all your garbage is a valuable resource, and should be returned to the soil it came from, and not thrown away. Every year, Australians throw away thousands of tonnes of waste. A large percentage of this could be composted or recycled as mulch.

Thick newspaper and cardboard provides a good base for mulch around plants. Layer the paper 2-6cm thick, and overlap edges so that no weeds can see the light of day; then, place the mulch on the top. Perhaps you can collect or buy this fairly cheaply eg grass clippings, leaves, pine bark, mulch hay and mushroom compost. Sugar-cane trash or other bulky organic material can be put through a mulcher. (However, it is not wise to use plants or weeds with seeds that could germinate in the mulch.) Making a thick layer of mulch, in this way, usually means it will last 12-18 months until it slowly rots down. Then, it is taken into the soil by earthworms and other soil inhabitants, further increasing the humus content. If the soil is mainly clay or it is very heavy, a sprinkling of lime, dolomite or gypsum could be applied before any mulch, as any of these will help to loosen heavy soils.

Conserving moisture in the garden by mulching is important in areas where water is restricted. Plan

how to make use of grey water from the house, as recycling is paramount for gardening when water is limited. Keep in mind, when planting new trees and plants, that they will require regular watering to get established. Frequent watering with a hose or bucket around bushes can result in the water not having time to soak into the soil, and it can flow away from the base of the plant. If you would like to avoid this, collect large tins or plastic jars and bottles (cut neck off bottle) and make 1-2 small holes in the bottom of the containers. One or more containers are set at the base of each tree. When filled, water trickles out slowly into the ground, retaining moisture for a longer period of time (and at a greater depth) than watering with the pressure of a hose.

Compost will not only reduce the amount of rubbish we throw away and decrease the need for landfill sites, but it also provides organic mulch and a nutrient-rich dressing to feed our gardens. *Composting is an excellent way to convert kitchen and garden wastes into a soil conditioner, often referred to as humus. By doing this, we can play a part in nurturing and caring for our planet. Humus is the key to soil fertility.* Compost can be made in either a heap or a bin, depending on the amount of material available for composting and the size of your garden. The **heap method** is useful for gardeners with large quantities of waste. A minimum dimension of one cubic metre of compost is required to ensure that the temperature is high enough for the heap to decay. A structure of timber boards, bricks, or galvanised iron sheets could be made to enclose the heap on three sides. A plastic compost bin is ideal for smaller suburban gardens. Bins should be open at top and bottom. While the top of the bin needs a tight fitting lid, the other end is placed in contact with the soil to allow earthworms to enter.

Earthworms in the garden are efficient recyclers, decomposing plant material into a nutritious source of plant food and increasing soil fertility and structure. Earthworms are good friends to have, as they are the greatest gardeners you can employ and are happy to work without pay, if you just feed them compost. They speed up the decaying process by increasing the microbial activity and loosening the compost and allowing air to enter and circulate. Not only do earthworms eat decaying plants, but they also eat soil, digest it all, then excrete it as 'casts'. This digestive process concentrates nutrients, including calcium, potassium, phosphorous and nitrogen in a water-soluble form that plants can freely use. Though sometimes called the 'lowly' earthworm and considered repulsive by many people, this little creature is truly a giant when it comes to helping humans survive on earth.

To build a compost heap, place layers (10-15cm deep) of a variety of suitable materials to make well-balanced compost. If animal manure is available, sprinkle some after each layer. Between each layer of rubbish add herbs that are renowned for activating compost. These herbs can be added sparingly, as it has been found that even small homeopathic doses can be effective. (Nettle is considered a valuable addition, with its ammonia and carbonic acid content.)

Herbal compost activators: nettle, yarrow, dandelion, chamomile, coltsfoot, comfrey, valerian, borage and elderberry all work as activators. Sprinkle a few leaves through a heap of rubbish. Alternatively, make the herbs into a bucketful of liquid tea by adding water, leave stand overnight, and sprinkle the tea (and infused leaves) over the layers when building the heap.

Add a fine sprinkling of lime or dolomite after each layer placed on the heap, as this keeps the compost 'sweet' and non-smelly. Scatter a few spadefuls of soil through the raw materials or add some old compost to the new heap, as microbes introduced in these mediums will help activate the compost. This will ensure that there are multitudes of micro-organisms such as fungi, bacteria and algae that will feed on the tasty heap of rubbish. *A good sprinkling of water from the garden hose is essential, too.* This dampens the material, when each layer is added, to make it moist but not sodden (as this state would exclude air). The dampness together with the green wastes and materials like manure will all act to create considerable heat in the heap. This heat speeds up the rate of decomposition. Ideally, the heap that heats quickly to around 75°C (150°F) is the best, as heating to this temperature helps to kill plant diseases and weed seeds. Once tender materials are broken down, the rate of activity slows down as the organisms go to work on the tougher stuff in the heap. This means the heap cools a little ... and then earthworms and beetles move in to enjoy their feast. To help keep a constantly high temperature for several weeks, the heap can be covered with black plastic. (Covering the heap also stops it from drying out.) Turning the heap over with a garden fork, once a week, will aerate the heap and speed decomposition. In fact, the more frequently the material is turned, the faster it will turn into wonderful humus. Humus will have a crumbly appearance, an earthy smell, and be nutrient-rich: ready to place around the food-bearing plants in the garden that will feed the family. For some people, turning the heap may not be physically possible. In such situations, the heap could be aerated by driving a wooden stake into the compost, then pulling it out, which will allow oxygen into the holes to penetrate through the decaying matter. (Doing this in a few places over the pile will work best.)

Compost is ideal to mix with soil or potting mix, to fill pots for growing herbs or for other smaller sized edible plants, such as salad greens. Use the compost to top-dress the soil around vegetables and fruits. Compost may be ready in 4-10 weeks. This will depend upon day and night temperatures and season, climatic zone, carbon/nitrogen ratio, size of particles used to build the compost heap, adequate moisture, aeration, and micro-organisms.

Most organic materials that readily decompose are suitable to use in a compost heap. For best results chop or grind any coarse material (or put it through a mulching machine), as this will speed up decomposition. As a general rule, the following materials can go in a compost heap: kitchen scraps and peelings of vegetables and fruits, tea leaves and coffee grounds, hair, sawdust,

small amounts of torn up paper and cardboard, seaweed, grass clippings, garden trimmings, dead flowers, urine, eggshells, blood and bone, and manure from chickens, sheep, cows, and horses. Things not suitable to compost include: thick branches that would take too long to break down, weeds with bulbs such as nut grass and oxalis, diseased plants, plastic, glass, metals, disinfectants, and meat or fat as these may attract mice and rats. *Any heap of organic waste containing a mixture of materials in a moist condition will break down to compost; however, to ensure rapid composting takes place, a correct ratio of carbon material to nitrogen matter is essential, together with moisture and air.* An ideal mix is about 20 parts carbon to 1 part nitrogen. Carbon bulking materials include: dry leaves, sawdust, paper, cardboard, dry grass, and twiggy prunings. Nitrogen material would be added as fresh green lawn clippings, animal manure, vegetable and fruit scraps from the kitchen, garden weeds, green leaves, and seaweed.

A variety of organic leaf and plant material will break down into great humus and be rich in the elements of nitrogen (N), phosphorus (P) and potassium (K). **Nitrogen** governs leaf growth and also protein content; **Phosphorus** stimulates development of plant roots and, also, flower and seed formation; and **Potassium** regulates the efficiency of leaves to manufacture food and helps plants resist disease. Most of the minerals and trace elements that plants need is absorbed from the soil. Besides the major elements of nitrogen (as mentioned above) and the minerals phosphorus and potassium, plants also need sulphur, carbon, oxygen, hydrogen, calcium, magnesium, iron; and trace elements of boron, cobalt, copper, manganese, zinc, selenium, molybdenum, chlorine, silicon, iodine, and vanadium, to name a few.

Once your house and garden wastes have turned into nutrient-rich humus, it is time to treat the garden with this organic compost. As compost not only feeds the soil but also holds moisture, we can say that compost conserves moisture and, therefore, is valuable to plant life. If soil is deficient of humus, 49% of natural rainfall may be lost through evaporation, and 20% flows off and out of the soil. Compost, when spread 5-10cm thick, benefits the soil and plants; and it should not be buried (dug into) in the soil, as this compresses the soil and reduces its water absorption capacity. *Compost placed on top of the soil absorbs rainwater to its full capacity. Surplus water (along with small particles of the humus) washes down channels made by earthworms in the soil.* Another way of utilising compost is as a liquid fertiliser.

Compost liquid fertiliser: take 2 spadefuls of finished compost and place in a hessian bag; place bag in a container with 10 litres of water. Slop the bag up and down so that the water penetrates the bag, then leave to stand several hours. The bag will absorb about 4 litres of the water. Then drain, by sitting the bag on top of a piece of mesh placed on top of the container, so that the liquid can drain back into the container. Use this liquid to feed plants. Use it, also, as a foliar fertiliser: best applied during the cooler times

of the day, before 9am or after 4pm, unless the day is cloudy. (The leaves are not as receptive during times of heat and sun, as the stomata are then partially closed.) If using the liquid fertiliser on very young seedlings, the mixture could be diluted with 4-5 parts water, and applied fortnightly.

Recycle all prunings and finished crop foliage to the compost heap, or use as mulch around bushes and trees. If garden space permits, **grow some plants to provide mulch for the garden.** Legumes are great for fixing nitrogen in the soil and providing quick growth, to cut and cut again, for mulch. These can include: pigeon peas, rice bean and other perennial and annual beans, alfalfa, tree lucerne and bush lucerne, crotalaras, and peas; and **Pinto pea** *Arachis pinto* (cover picture no. 2) makes a good ground-cover and living mulch, as well as providing edible flowers and leaves. Large, leafy tops of **Arrowroot**, p 26, provide lots of mulch. Plant some perennial, clumping **Vetiver grass** *Vetiver zizanioides* ('monto' variety which does not set viable seeds) to cut regularly for mulch. Vetiver is ideal for erosion control and to stabilise steep slopes (even when surrounding plants have been destroyed by droughts, flood or fire, this grass has been found to endure and protect the ground from the detrimental effects of heavy rain and erosion).

Organic gardening focuses on soil health, and cares for the environment by recycling, to provide diversity of nutrient-rich produce. Soils nurtured with compost will have a relatively neutral pH balance, although soil types, climatic conditions and rainfall may also affect the pH balance. Most produce grows best in slightly acid to neutral soils (pH 6.5-pH 7). When soils are very acidic, plants will not readily absorb some minerals, and this can affect their growth and yields. A sprinkling of lime or dolomite sweetens sour, acidic soils. In areas of high rainfall, due to leaching of the soil by rain, lime should be added to the soil at least once a year. Lime is a form of calcium but it is not a fertiliser. It acts as a 'soil-unlocker', making many essential minerals easily accessible to plants, thereby producing healthier plants. Some plants will grow well in quite acid soils eg pumpkins, watermelons, rhubarb, tomatoes, carrots, corn, parsley, potatoes and sweet potatoes. If a garden has highly alkaline soil (often predominant in arid climates), adding garden sulphur is the most effective way to lower the pH. Unlike lime for acid soil, however, you need a lighter hand with sulphur (a very light sprinkling, and not on the leaves, as sulphur can burn the foliage). Alternatively, very acid mulch could be added to the garden eg pine needles, oak leaves, and composted sawdust. Plants that do quite well in highly alkaline soils include cucumbers, onions, beetroot, asparagus, peas and beans, lettuce, and all members of the cabbage family. If plants do not flourish when given fertiliser, water and general care, it could be wise to purchase a pH testing kit from a garden centre to ascertain if the soil may need tending to: if overly acid or too alkaline.

Plant a variety of fruit and vegetables to give the full rainbow of colours, as nutritional scientists have found that a wide colour range in our food intake gives

us a large array of antioxidants and anthocyanins. These components give great colour to foods, and researchers say that they are also capable of destroying free radicals and cancer cells in the body. Children will enjoy eating their 'rainbows' ... and the 'pot of gold' can be something delicious, like mango. (Starfruit, cut across the centre, make wonderful stars – fresh or dried - for children's snacks, too.)

Whenever possible, give raw foods precedence over cooked food in the daily diet as raw food has a higher nutrient content. Cooked food can lose 56% of vitamin C. When produce is frozen, then cooked, up to 83% of vitamin C may be destroyed; and, if we open a can of the same kind of food, we may have only 6% vitamin C. This is why it is so worthwhile to grow some foods for fresh picking, to be certain we are getting greater nutritional value. As we pick produce from the garden daily, for a meal, this will provide an optimal nutrient content. Food left to stand before eating will lose nutrients. This is why shop-purchased produce will not have as high a nutrient value as that which we have picked from the garden and serve the same day. Also, freshly picked produce from the garden will have an abundance of living enzymes, which are important in supplying life-force for thousands of bio-chemical functions of the body. Kirlian photography (used to measure energy fields of living things) indicates that the life-force energy in plants starts to deplete after the first hour of harvest ... so, we can increase our life-force energy, by eating our own, freshly-picked produce (see Salad greens, p 86 and Sprouts, p 92).

Growing organically means healthier soils, healthier plants and healthier people. Your food will be richer in essential nutrients, **GM-free**, and not sprayed with toxic chemicals **or irradiated**. The Rodale Institute, USA, are leaders in organic methods since 1947. In a 10-year comparison of organic and conventional produce, the Institute found that vitamins and minerals were considerably higher in organically grown foods, and that beneficial flavonoids were more than 80% higher in some produce. ***The closer we get to nature, the closer we can get to optimum health.***

As you consider the importance of growing food for your family, this is also a good time to plan well. **Make the best possible use of your land**, whether it is a very small backyard, a larger garden, or acreage. This is where a Permaculture design can be of real benefit. **Permaculture means implementing a permanent agriculture.** 'Permanent' affirms that we need to plan and design a diversity of foods to give us long-term production, coupled together with long-term wellbeing of the land. Permaculture is working with nature and growing food organically, conserving soils, water, and energy. What is profoundly significant is that each Permaculture design is unique. This is because each portion of land has differing climates, weather patterns and rainfall, topographies and soil structures. These characteristics are taken into consideration for each design, together with the cultures and requirements of the people who will live on each portion of land. Permaculture is about setting up an integrated design of plants, animals, and structures that complement (=

harmonise) each other, each having several specific functions. Arrowroot is a plant with many functions: providing food to be used raw, cooked, or dried for later use, as well as offering further benefits for the purposes of various medicinal uses, animal fodder, windbreaks and mulch for the garden. Therefore, this plant is considered to have excellent potential in a Permaculture system, as it has many functions.

As most urban gardens are very small, the main priority would be to establish a wide variety of quality healthy foods, by carefully choosing plants that will be highly productive. On acreage blocks, larger fruit producing trees can be integrated with animals, dams for water storage, and possibly even commercial food production. *For many people, Permaculture is a way of life*, a design that will implement actions in caring for the earth; secondly, it provides for our basic needs of food, shelter, education, social interaction and meaningful employment; and thirdly, when established, we are able to contribute information and know-how, assisting others to achieve these aims of earth and people care. There is so much we can do in our community (and even globally) to assist others to become more self-reliant. Along the way, this process promotes a sense of community spirit and individual responsibility to achieve beneficial goals. Bill Mollison, a co-founder of Permaculture, says: "Personal independence depends on a co-operative human society. Only what we share gives us access to all necessary possessions." To find out more about Permaculture and how to design an edible garden, go to your local library and search for books, or visit websites: www.tagari.com and www.permaculture.org.au

3. Once a 3-month food supply has been set-up, then we are encouraged to go on to **plan and establish a 12-month reserve**. Naturally, this will need to be well planned, in relation to space for storage in the home.

A 12-month supply will mean that your family is competently prepared for longer-term upheavals. *Many people regard a year's food supply as a tangible insurance.* This storage may be more valuable under emergency conditions than a large bank account, if supplies are exhausted in shops. This 12-month storage can be built up, similarly to the 3-month supply, just by increasing your 3-month supply until it is sufficient for 12 months. *Food items in the 3-month supply and 12-month supply need to be rotated, regularly.*

Rotation entails regular checking and use of stored items and replacement with new food items. By doing this, spoilage will be avoided. The suggestion is to start using and replacing after the first year of storage. Having said this, groups of people who have made food storage a way of life, over many, many years, found (in data they had previously documented) that wheat, corn and other grains, dry beans and white rice do have a long storage life of 30 years, plus. Note: brown rice may go rancid after 1-2 years of storage (that is, the hulls of the grain deteriorate); for this reason, **it should always be rotated**. Otherwise, white rice (with hulls removed) is preferable for longer-term storage. However, this denatured food lacks the essential

'B' group of vitamins; so, eat it with 'B'-rich foods to prevent diseases such as pellagra and beriberi.

A team of scientific researchers at Brigham Young University, USA, studying the shelf life of foods, found that well-packaged grains and beans, when low in moisture and stored at 24°C (75°F) or lower, remained nutritious and edible for 30 years. And, even though there could be a decline in taste and nutritional quality over time, the study showed that the food could still sustain life (even after this long-term storage). But note that seeds of this age would not usually give good germination for using as sprouts. Powdered milk has been found to have a shelf life of over 20 years. Honey stores for over 30 years. Many processed foods will last longer than the given expiry date, as will tins of fruit, vegetables and cooked meals. To prevent the tins from going rusty, particularly in damp environments, smear a little cooking oil over the top and bottom of the tins.

Estimate how much of each food to store, per person. Purchase items when 'on special'; buying in bulk or in larger bags can also be cheaper. Have a variety of foods: a larder of just dried beans could get very boring. But then, a 'colourful cook' could dress beans up in many different ways with herbs and fresh vegetables from the garden. I will always remember my herbal mentor saying that if, for any reason, he was stranded somewhere and could have only one food, he would choose almonds. Over the years, I have often thought about this; and, yes, almonds have a concentrated very high nutrient value. Almonds are very tasty, and when soaked in water for a few hours or overnight will be plump, juicy, sweet, crunchy and deliciously nutty.

How to store food provisions: to keep stored food supplies at the highest nutrient potential, over a 1-5 year period, simply **keep it dry, dark, as cool as possible, and regularly rotate** stored supplies. Endeavour to store all food products below 25°C. (55°F.) By rotating stored foods, the family will gradually use the food in storage as part of the daily diet. This will also help the family become adapted to grains, beans and any other foods that are part of your stored larder.

As items are used, replace them with new supplies. Always put new supplies at the back of the stockpile. By doing this, foods will be used systematically. *Keep in mind that temperature, exposure to moisture and oxygen, packaging methods and the adequacy of protection from insects and rodents are factors that will influence the nutrition and storage life of your foods.*

Plastic buckets with tightly sealing lids are serviceable for long-term food storage, or use other food-grade plastic containers; also, large glass jars with lids are suitable. Placing seeds and dried food inside rubbish bins (clean, of course), within a black plastic liner secured with a twisty or tape, could be another way of storing. Always label containers with details of the contents and date. When storing grains and other seeds, if all oxygen is removed from the container, the chance of insects infesting the food will also be eliminated. Perhaps, the simplest way of achieving this is with the **candle method**. Once the

bucket is well filled with grain, put a short candle in a small tin (or other suitable container), and place this in the centre on top of the seeds. Light the candle, and put the lid on the bucket. The candle will go out when it has used all the oxygen in the sealed bucket. Insects cannot live without oxygen, either. (**Caution:** DO NOT place it too close to the lid or the sides, which could cause plastic to melt.) When the bucket is opened to remove some seeds, light the candle again, and seal the lid. Some seeds may be infested by insects when you purchase them, but in a larvae form that may not be noticeable until they hatch out. A way to prevent insects developing is to freeze the sealed container for 48 hours, as this will kill the larvae. (For insufficient freezer space, small portions of seeds could be bagged and frozen at a time.)

Mice and rats could be another problem to keep a watch for; as, when hungry, they will even gnaw through plastic. To deal with this, bar up all holes of possible entry. Some people say the smell of peppermint essence smeared around the base of containers can deter, while others say that the only way is to trap them. As rodents can carry disease, they are not really to be encouraged around food supplies or in any dwelling place.

Food containers should not stand on a cement floor, as cement has a tendency to 'sweat'. Stand buckets on wooden slats or pallets to allow air flow around containers and dry any moisture that may form. If building a cupboard have it near the kitchen and design it to extend from floor to ceiling. Make the bottom space tall enough to stand buckets. Design several shelves to cater for tinned foods. And make these rolling shelves with the front of the shelf 5cm lower than the back to create a sloping shelf. Place tins on their side on the shelf; then, when a can is removed from the front for use, the next tin slides forward. New tins are placed right at the back of the shelf. This system of rotation ensures that food is used in date sequence, literally, 'first come, first served'! Strong wooden boxes are useful for storage. Building a bench seat with a lift-up lid on the seat, along the full length of a wall, can provide a good area of storage. In very small units and homes, utilise space under benches and beds. *Keep a written inventory where different foods are stored in the home and dates when purchased.*

The most important thing to do is to get started. Put in place essential foods and survival strategies for a 72-hour kit, then go on to establish a 3-month supply, and, if possible, work towards 12 months storage. *Don't just store the concept in your head; make it happen in your home and on your shelves. **Start ... RIGHT NOW ... to put your food security into place. 'Splash out' on provisions you will need for possible hard times, now, and this will provide for a 'rainy day'.** It is far better to be a visionary and be prepared, now, than to be totally unprepared when faced with difficult or devastating challenges.*

In our very secure and peaceful land of Australia, we have not had extremes of hardship since the Great Depression in the 1930s, nor have we endured wars where our lives were under daily siege. So, perhaps

this is why we tend to take peace and plenty for granted. However, recent news reports indicate we are in perilous times. The United Nations has said that the world's poorest countries face a major hunger crisis. In Australia and other developed countries, petrol and food prices are spiralling upwards, out of control, and it is a fair bet that this is the way they will stay.

Recently, I read the book, 'Berlin, the downfall 1945' by Antony Beevor, relating the extremes of suffering after World War II. We cannot imagine the city of Berlin reduced to rubble by bombing raids, the bloodshed with millions of lives lost, the pain and personal suffering of people dazed by war stumbling over the corpses littering the streets; dysentery and disease desecrating the living; and the brutality of soldiers. We cannot imagine the distortion of moral standards as some people resorted to cannibalism or to prostitution for a piece of bread to save themselves or their children from starvation; faces full of tragedy, but life still had to go on.

In Australia, in this year of 2008, no one knows what the future holds next month or in the next 10 years ... life may get tougher and rougher. What else can I say ... appreciate our wonderful way of life, use talents and opportunities wisely, and share our abundance with others not so fortunate. We can help to transform the lives of Australians in crisis with donations to numerous aid appeals. Statistics reveal over 100,000 are homeless, and over 14,000 people are sleeping rough each night in parks or sheltering in derelict buildings. Then, if we look at global statistics of absolute poverty in the world, today, the information is overwhelming. Millions of people who live in under-developed countries have no options, no resources, no income, and no avenues for change. They are trapped in such utter poverty that there is no means of escape from the hunger and disease. Civil war that has caused strife in a number of countries for many years (eg 20 years in Sudan) has left millions of people homeless, and desperately fleeing to refugee camps. For millions of children in the world, survival is largely a matter of chance. Every year, 10 million children die from avoidable, poverty-related causes ... 30,000 die each day. What is a human life worth? You may not want to put a price on it. We would probably all agree that all humans are created equal, but while we enjoy the best possible life here in Australia, millions die of starvation in other countries. How can we live with so much more than we need, while millions of our neighbours go hungry? These are our brothers and sisters: real people, suffering real pain. Yet, these people are not without hope. The resilience of the human spirit is miraculous.

We are bountifully blessed. We can all play a part in sharing with people in need by caring and giving. Mother Teresa, awarded the Nobel Peace Prize in 1979 for her practical humanitarian service in the slums of Calcutta, India, once said, "Every time you smile at someone it is an action of love, a gift to that person, a beautiful thing. Kind words can be short and easy to speak, but their echoes are truly endless."

Hardy survival food plants

As mentioned under 'Self-sufficiency' chapter (p 8), survival plants that are hardy have a long cropping period or a long shelf life. These, can be prepared in various ways, or even dried for later use ... and are rare or somewhat obscure ... and, therefore, valuable for your edible garden. In this section I will highlight a few practical plants to grow, however, this is not a complete compendium, as it is not possible within the scope of this book to include all such potential plants.

Pumpkins are very easy to grow, and produce prolifically. If picked at maturity (when the stem is no longer green), they will store for many months. (Place these onto a raised, well-ventilated surface to store.) It is a versatile vegetable, which can be used in a variety of ways raw and cooked. Use pumpkins grated in salads, steamed, roasted, barbecued, or pureed to use in soups, breads, muffins, pies and sweet and savoury dishes. Pumpkin slices, if dried, can go into storage, ready and waiting to be reconstituted in a meal. Young tip growth on the plants are eaten raw and cooked, and the thick stems can also be eaten. To prepare, pick the stems and cut off any large leaves; then, with a knife, string around the outside of the stem just like stringing beans; slice stems finely and lightly steam or add to stir-fries, etc. Diced de-stringed stems are tasty when raw, too ... being quite sweet and crunchy. The large leaves are also edible; although, in their raw state they are too rough in texture to be very palatable. Leaves, when finely cut up, can be added to stir-fry dishes and added to soups or other dishes. Flowers of pumpkins are eaten raw in salads, or cooked (often fried in a tempura batter). Pick and eat some of the male flowers when abundant, as these will not set pumpkins. To distinguish these, notice that the male flowers form on longer stems than the female flowers. Seeds are boiled, toasted or dried in the sun. They make a delicious, nutritious snack and are rich in protein and iron. They can also be fried in a little cooking oil and lightly salted. Do not throw away the seeds, as they are valuable food. I like eating these nutty seeds raw when I am cutting up a pumpkin. Closely related to the pumpkins, are squash, pie melons, African cucumbers and gourds, which can be eaten raw or cooked. These also keep well - the **African cucumbers** *Cucumis metuliferus*, p 74, for several months, **Pie melon** *Citrullus lanatus citroides* 6 months or more, and **Flour gourds** *Benincasa hispida* (cover picture no. 5) for 12 months or more. (No doubt, this is because the coating of white flour-like substance provides a protective shield on the skin of the gourds.) The white flesh of the gourd has little flavour. However, as a bulking food it is ideal to add to stews, soups, stir-fries, roasts, casseroles, pickles and jams. Small seeds may be eaten, too. In traditional Indian Ayurvedic medicine, the seeds are eaten for difficult urination and bladder stones, and taken for expelling intestinal tapeworms. The seeds are said to enhance the intellect, and these are eaten for mental imbalances (eg nervousness, frustrations, and anger). The flesh of the vegetable is considered a rejuvenating food, capable of improving intellect and physical strength, benefiting the digestion, lungs,

heart, nervous system, and pancreas; and, also, as an antidote for poisoning from food, mercury and alcohol. When the garden produces lots of flour gourds feed some to your hens; cut the gourd in half, length-wise, and these will be eagerly devoured by laying hens.

Large bottle gourds, also called calabash *Lagenaria siceraria*, p 44, may be picked when young and eaten steamed, fried, pickled, added to soups, curries and fritters. Leaves and young shoot tips are eaten cooked. These gourds are not only shaped like bottles, but are used as bottles, in some countries, for carrying water, grains and other foods.

Dish-cloth gourds, also referred to as smooth loofah *Luffa cylindrical*, p 44, and **Angled loofah** *Luffa acutangula*, when picked young (before they become spongy for potential use as dish-cloth or sponge) are eaten raw, steamed, roasted, fried; and added to curries, chutneys, soups, and meat dishes. These, too, make a good meal extender like the gourds. Young leaves, new tip growth and flowers are eaten, often added to stir-fry types of dishes.

Choko *Sechium edule* are also closely related to cucumbers, pumpkins and gourds. They are hardy vines that like to climb on a fence or trellis. This vegetable is heavy-bearing, pear-shaped, and usually larger than a fist. Fruits are eaten raw, steamed, roasted, stuffed, pickled, fried, made into sauces, tarts, pies and puddings. (When stewed, sweetened with honey or sugar, and flavoured with cinnamon, the taste is similar to cooked apples.) Young shoots, leaves, and tendrils are eaten like asparagus or put into stir-fries. Roots are also edible.

Arrowroot *Canna edulis*, p 44, is a versatile survival food; a hardy deciduous perennial, 2 metres high, with thick stems and large leaves. This fast-growing plant is useful for a quick windbreak or to create a microclimate. Foliage can be used for garden mulch and as poultry and stock fodder (protein 10%). The large rhizomes/tubers can grow bigger than a clasped fist and develop many side shoots to form a large clump. Tubers are easily dug and are best used when young, as older tubers tend to develop a fibrous texture. Arrowroot can be eaten raw, steamed, roasted or diced and added to casseroles, stir-fries, soups, stews, and made into chips. The root, when pulverised, rinsed, drained, and dried, provides real arrowroot flour, ready to use as a thickener in sauces, gravies and fillings.

West Indian arrowroot *Maranta arundinacea*, p 44, grows to 1 metre, yielding smaller tubers that are eaten raw, cooked, grated into a course meal, or made into flour. Young leaves of both these species are eaten raw or cooked.

Sweet potato *Ipomea batatas*, p 30, (and there are a number of varieties) can be utilised as a living ground-cover, which helps to keep the soil cool in summer, slow water run-off, and prevent erosion. Start to plant in spring and summer, using cuttings of stems or small sweet potatoes. This vegetable likes nutrient-rich, friable soil. If plants tend to sprawl excessively, trim stems back, as this will encourage them to put energy into tuber production. Tubers may be of a good size to dig at 4-6 months of growth; just feel around at

the base of the stem for swollen tubers. Some tubers may only fill out as daylight hours shorten, at the end of autumn. If plants do not fatten up, this could mean the soil fertility was not adequate for the plant. Dig tubers carefully, so as not to cut or bruise. When stored with good ventilation in a dark place they will store for several months; alternatively, dig tubers as required for meals. As sweet potato is so hardy and ideally suited to warm sub-tropical and tropical climates, it is a staple food of many countries in these climatic zones. Eat tubers raw, boiled, steamed, roasted, fried or prepared in tempura, added to breads, cakes, puddings, and also diced and dried for later use. When combined with butter, milk, cream or coconut milk (to provide a fat source at the same meal), this ensures that the (fat-soluble) vitamin A content in the tubers is more readily utilised by the body. Try sweet potato made into patties, curries, stir-fries, and made into puddings with apples or prunes. Leaves of the plant are added to many cooked dishes. Make a tasty dish using young leaves and tips of stems, lightly stir-fried, together with finely cut onion, a little lime or lemon juice and your choice of sauce, like sweet chilli or fish sauce. Add a little, very finely chopped, kaffir lime leaf for a delicious flavour.

Sweet potato buns Mix together 3 cups sweet potato (cooked and mashed), 2 cups SR flour, then add 1 cup milk, 1 teasp. lemon juice to make a fairly firm dough. Shape into balls the size of an egg. Place on a greased baking tray, bake in a hot oven 220°C (425°F) for about 15-25 minutes, until done. Serve hot or cold.

Potato *Solanum tuberosum*, is so well known to us, and will certainly grow well in cold to warm climates. Store harvested tubers in dry and dark conditions. If any part of the flesh or the skin starts to go green, this must be discarded, as it is an indication that toxic glycoalkaloids are concentrating in these areas. If times get tough, or potato farms are hit by disease ... and you don't think you could do without your daily serve of 'spuds'... then perhaps, now is the time to grow your own. Leaves of the plant are also toxic and should not be eaten in any form. **Note:** Despite the toxicity of potato or tomato leaves, many of the plants we eat as vegetables have **edible leaves**. Particularly root crops (eg carrots, beetroot, turnip, radish, onion, and also corn); and some fruit tree leaves are used for arthritic pain (eg guava); apple leaves – try munching on young leaves or blending in a smoothie; mulberry – leaves have medicinal benefits (eg taken as a tea for diabetes; although, for eating regularly, you probably would enjoy them more if you were a silkworm or a goat). Many varieties of **Peas** are great to grow, are very tasty, and are particularly popular with children.

Snow peas are ideal, as the pods do not have the papery inner membrane of regular pea varieties, which is why snow peas are so tender and crunchy. Tender shoots and leaves are also eaten. Snow peas love to climb on a trellis, and will thrive in a sunny, well-limed or alkaline soil with lots of organic matter incorporated. Pick peas when the seeds are just beginning to swell inside the pods, which may be 6-10 days after flowering. Pods need regular picking, as this will keep the plants producing more flowers and

Pods. The sweet, crisp, tender pods are eaten whole, either raw or lightly steamed or sautéed. Leaves of the plant can be eaten raw or cooked. Peas are **legumes that fix nitrogen** in the soil, thereby benefiting other plants in the vicinity, or for the next season's crop. For this reason, peas, beans or other legumes are ideal to plant as seasonal crops, because they will improve the soil for the next planting, and also provide rotation of food crops. (Rotation is beneficial for keeping plants healthy and disease free, rather than always planting the same vegetable in the same area, year after year.) The **Velvet bean**, also called Magic bean, *Mucuna pruriens*, p 103, perhaps so called because of its potential to dramatically improve soil fertility by fixing large amounts of nitrogen in even the poorest soils and increase yields of future crops, is a useful survival food.

Legumes that have been used by man as food crops are usually good sources of protein.

Pigeonpea, also known as tree-pea *Cajan cajanus*, p 74, is a hardy perennial bush, 1-3 metres high, ideal for warm to tropical climates. Although the fresh seeds leave a slightly astringent affect in the mouth, they certainly can be eaten raw, as well as cooked. Or use these as mature dried seeds (which store well), by reconstituting with soaking, and cooking, until tender. A traditional way of using the cooked seeds is as dhal, when the cooked seeds are pureed and flavoured with herbs like garlic or onions, chilli, ginger, and turmeric to serve as a thick sauce with a meal, or as a dip. There are a large variety of legumes that can provide a food crop, and benefit the soil where planted.

Many kinds of beans, both climbing and bush varieties, provide these benefits too, and are ideal for home gardens. Climbing beans are ideal in limited space, as a trellis or other form of support creates more space in the garden for food producing.

Seven year bean *Dolichos lab lab* (cover picture no. 8) can bear over a long period of time, producing prolifically. As beans are fast growing, plants do need to be fed and watered well to keep them bearing; and regular picking of the young beans will keep them producing over a longer period.

Broad beans *Vicia faba*, p 43, to 1 metre tall; are known for their hardiness, cold tolerance and heavy bearing potential. **Rice beans** *Vigna umbellata*, p 74, are very hardy ground sprawling legumes, heavy

bearing, and the seeds have up to 10 years viability (therefore, ideal as a survival food). These are suitable for growing as sprouts and using in a variety of other ways. **Young tender leaves of many edible bean species are eaten** raw or if eaten in larger amounts, the leaves are boiled to deactivate any toxins or to dilute to safe levels (with the cooking water being discarded). Cooking also softens the texture. In some areas of Africa and Asia, bean leaves, which are a good source of protein, have been a staple food. Leaves are also dried, and stored for later use. **Note: some people have allergies, so begin use with caution.**

Not only, do herbs, have healing properties, but also many food plants have health giving properties and are excellent antioxidants, antibiotics, or have other beneficial actions. For example, beans have a traditional use to promote kidney and bladder health. Beans have also featured in diets for diabetics.

Sweet fruit root *Polymnia sonchifolia*, p 30, due to its sweet taste and crunchy texture has been called 'apple of the earth'. The large tubers that grow underground may weigh from 200g to 2 kg, and are eaten raw and cooked. It is a hardy bush 1-2 metres tall, and deciduous in winter (except in very warm climates). Tubers can be fossicked over many months of the year, which makes it a valuable survival food plant. Slices can be dried, to add to your supply of stored foods. Dig, wash, and eat tubers, fresh in hand, after lightly peeling. Dice root and add to fruit salads or stir-fries, curries, sweet and sour dishes, pickles, or juice for a refreshing drink. Tubers are over 9% protein, very high in potassium (2230mg per 100g), calcium (143mg per 100g), iron (55mg per 100g), and are a good source of inulin. The inulin content of this wonderful food has proved beneficial in stabilising blood sugar levels. Being low in calories, this is a practical food for dieters and diabetics. Fructose, in the roots, enhances the digestion of foods, particularly the metabolism of carbohydrates, and has a thermogenic effect, helping the body burn off kilojoules that have been stored as fat.

Taro *Colocasia esculenta*, p 53, and many other *Colocasia* species are hardy food plants, for warm to tropical climates. Large leaves that look like elephants' ears stand on thick stems 1 metre tall. Tubers develop at the base, and some may grow to over 10kg in weight. The tubers, stems and young leaves are eaten as a cooked vegetable, steamed, roasted, fermented, added to stir-fries, soups, meat and savoury dishes, and prepared with coconut cream. Before cooking the tubers, peel thickly, and soak the diced tubers in cold water for an hour, then drain water, put on fresh water and cook approximately 15-20 minutes until soft. **Caution: never eat any part of the taro raw.** Since oxalates occur in the leaves, stems and tubers, cooking is required to neutralise these crystals.

A delicious desert: **Taro Fantastic** is made, by blending cooked taro with eggs, coconut milk, vanilla and palm sugar. Use your personal preference for sweetness to estimate quantities, as the texture should be a thick pouring consistency. Bake in a moderate oven, until set.



Eve's Taro Dip: Mash or blend steamed taro with enough coconut milk or cream to be of a dip consistency; add a dash of chilli sauce ... and hey-presto! Enjoy this simple, yet wonderful dip. Eve also serves steamed and cubed taro with a dash of salad dressing as scrumptious nibbles.

Coco Yam *Xanthosoma sagittifolium*, p 73, is related to taro, and very similar in appearance, growing requirements, and preparations for eating. Roots, must be cooked to eat, and have a sweet, nutty flavour. Leaves must be cooked well.

Oca *Oxalis tuberosa*, p 30, grows to 30cm high with succulent stems and trifoliate heart-shaped leaflets. Many oval-shaped tubers, 5-10cm long, form under the plant at the end of the season. Tubers are eaten raw or cooked (having a similar flavour to sweet potato). These are prepared in many ways: in savoury dishes, made into pickles or served with a white sauce. Leaves and stems are also eaten, either raw or cooked, and have a mildly sour taste.

Jerusalem artichokes *Helianthus tuberosa*, p 30, a hardy, heavy bearing bush 1-2 metres high, with yellow daisy flowers, and deciduous in winter. On poor soil a plant may yield ½ bucket of tubers and on rich soil over 2 buckets. Tubers are considered starchless, as they store carbohydrates in the form of inulin, which has been found to have many health benefits. Fresh tubers have a nutty sweet flavour and can be eat in hand, and added to salads. Tubers are also used roasted, fried in breadcrumbs, made into soup, and boiled with milk (which can then be thickened to make a white sauce).

Carob *Ceratonia siliqua*, p 28, a legume evergreen tree, suitable for acreage land, provides a valuable survival food. Trees adapt to a wide range of climates and soils, including salinity. Hardiness and longevity are two features of the carob. The dark brown carob pods, to 15cm long, are a high-energy food, and an excellent source of protein and calcium. Mature pods, when thoroughly dry, will store for many years. Taste is similar to dates but with a harder texture, and need to be chewed well. When pods are slow roasted, they have a similar flavour to chocolate. During times of war in Europe and when food was scarce, many people were sustained by eating carob pods and a few wild foods. Carob has also been used during wartime to feed cavalry horses, as animals do very well on just a few pods a day. Pods provide excellent fodder for grazing animals, and can be collected and stored for times when fodder is scarce. Trees are ideal for providing shade, screening, noise barriers and windbreaks.

Tamarind *Tamarindus indica*, p 67, is another legume tree, hardy and long-living, providing brown pods to 12cm long. The thin outer shell of the pod is easily cracked, to reveal the inside edible pulp which has a sweet/sour flavour similar to dried plums. Pods store well, and may be eaten as is, added to cooked dishes for flavour, or made into a refreshing drink. Flowers and young leaves of the tree are eaten raw in salads, and added to cooked dishes. Young green pods, finely sliced are added to cooked dishes. Seeds have high pectin content, and have been used to set jams.

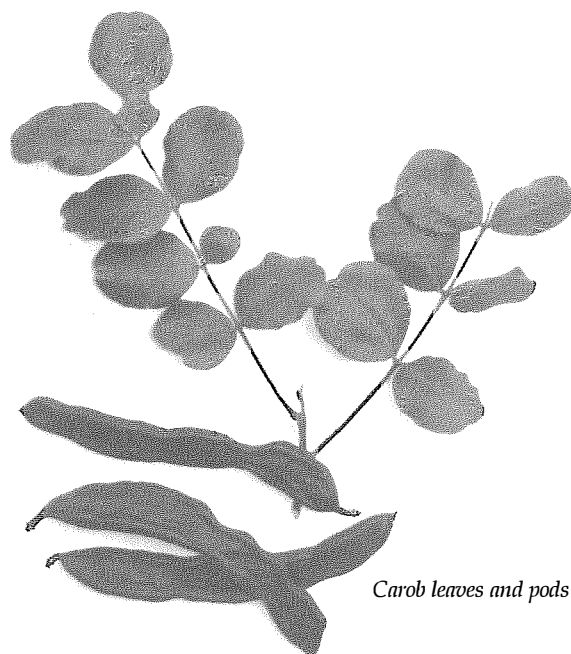
Other hardy plants are listed on page 8, and in my Herb Book which includes many edible plants; also see books listed in the Bibliography (p 129). For many ways of using plants, refer to 'The Permaculture book of ferment and human nutrition' by Bill Mollison; and 'You can have your Permaculture and eat it too' by Robin Clayfield.

Preservation and storage of foods

The human body requires over 40 essential nutrients to function perfectly. We need to eat a variety of foods to provide these fundamentals that are vital to wellbeing. As the majority of the essential nutrients are not stored in the body, good health does depend on taking these nutrients in our foods, daily. We need to plan and execute a well-balanced diet under usual conditions, however, it could be more difficult if emergencies occur and foods are limited.

Under normal conditions, kitchen appliances, including the refrigerator and freezer, provide the solution to both short and long-term storage. Our reliance on these appliances and the convenience they represent can be realistically visualised by thinking ... what might happen during a blackout of 48 hours or power failure for a week ... or months. With a disruption of electricity to shops and homes, within a few days foods would spoil and many people would be relying on canned foods. Serious emergencies could bring a breakdown in transportation of foods. Groceries and fresh produce may become very scarce. Prices of food will then skyrocket and the suffering would be beyond our perception. *Only those people sufficiently provident to prepare for such emergencies would be securely stocked.*

Food stacked in a kitchen cupboard would provide a margin of safety for a few days and would carry most people through brief blackouts. A month's supply of food, carefully stored away, would provide time for adjustment. In circumstances of major dilemmas,



Carob leaves and pods



Above: Aleisha with blossom bouquet (p 12)

Above right: Wattle pikelets (p 78)

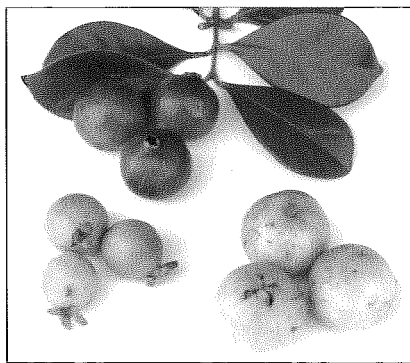
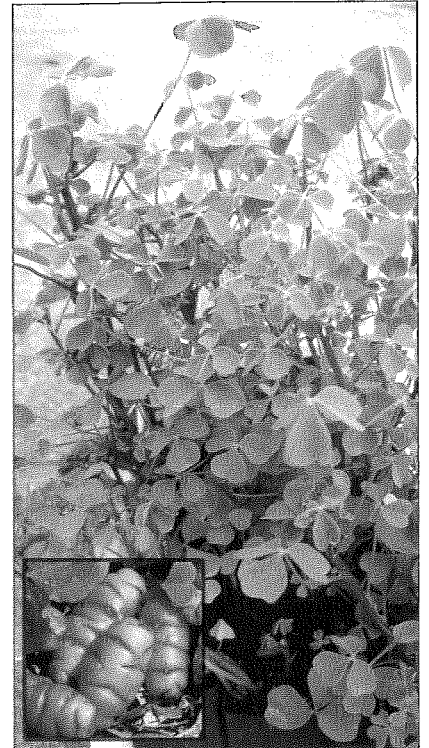
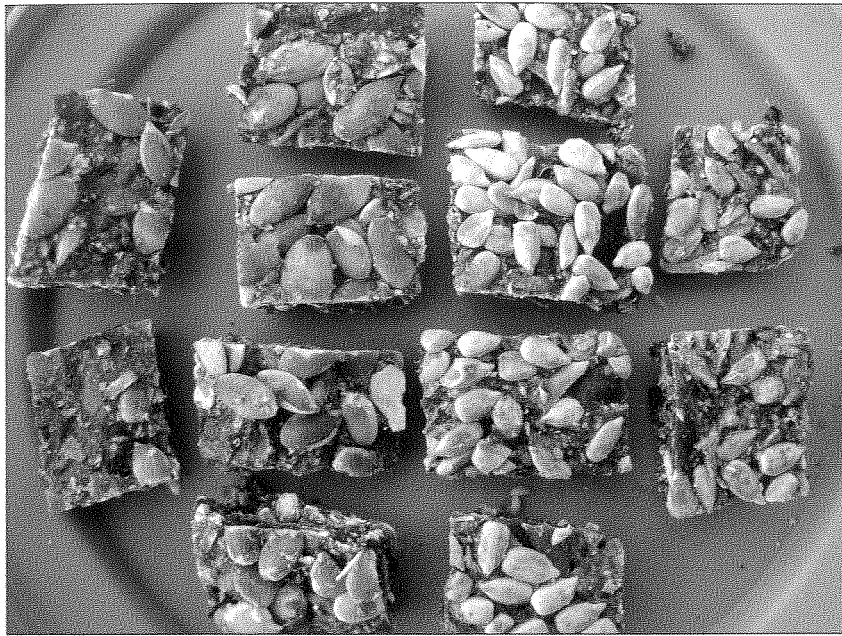
Right: Hakea (p 78)

Far right: Roman wormwood (p 119)

Bottom right: Feverfew (p 117)

Below: A variety of dried fruits: pineapple, persimmons, dates, star fruit, apricots, dates, sultanas, and seeds of pepitas and sunflower kernels (see food drying p 32)





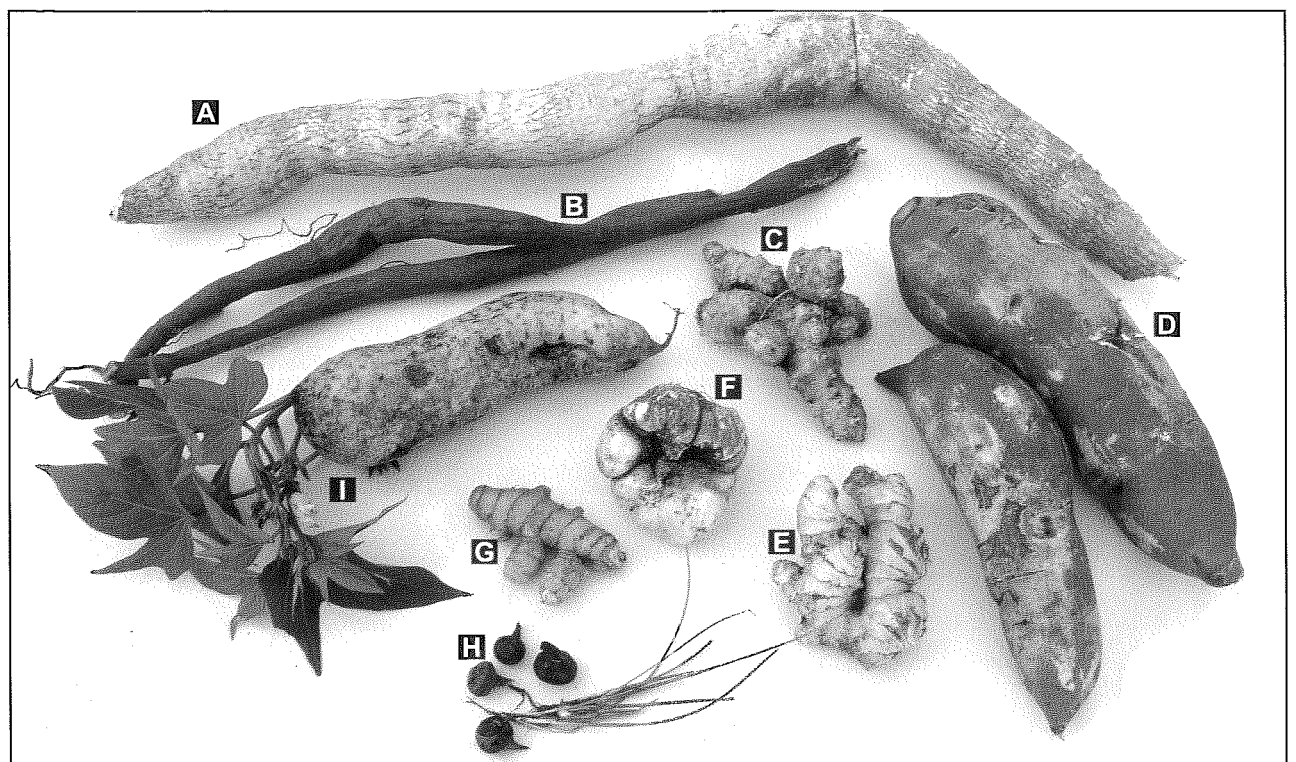
Above left: Survival nuggets topped with sunflower or pepita seeds (p 34)

Above right: Oca leaves and yams (p 28)

Below: Mixed root crops: A. cassava (p20), B. kudzu, C. Jerusalem artichoke (p28), D. sweet fruit root (p 27), E. ginger (p111), F. jicama, G. turmeric (p 111), H. waterchestnut, I. sweet potato (p 26)

Far left: Guavas: pineapple, red and yellow cherry guavas (p 20)

Left: Jerusalem artichoke (p 28)



a year's stored food would give enough time for readjustment or a complete transition.

In the bounty of our country of Australia, fresh food has been readily available at fairly reasonable prices. Our land has not experienced many calamities of climate, elements, or war on our shores, to cause food shortage. The problem of storage of food for an emergency is not a new one for people in so many areas of the world. In cold and temperate climates storing food for long winters has been essential to life. In all climatic zones, part of the harvest is stored and saved. However, the systematic storage of foods to provide essential nutrients for 'the duration' has only been set up by a minority of alert people. When speaking to these people, I often find that they have previously suffered extreme hardship from war or catastrophic weather conditions. Due to these experiences they have put in place sufficient storage for unforeseen circumstances.

Members of some churches, including the Church of Jesus Christ of Latter-Day Saints, have heeded what they accept as a prophetic message to be prepared, and have been encouraged to maintain emergency food supplies at all times. The Bible tells of hardships, which many believers have prepared for. They say we are witnessing biblical fulfilment of the book of Revelations and the end times. Numerous other prophecies over the centuries, have also given warnings of hard times. Many 'world-watchers' ask how long can massive trade debts, and debts of individuals, keep on escalating, while some say we are on the edge of financial collapse.

Planning for the future is something that every person, business, institution and country needs to think about, and such an exercise would help prepare us for uncertainties. There are numerous reasons to take a pessimistic view of the future of mankind in an insecure world. Daily, the television, newspapers and radio tell us of major climatic catastrophes in many parts of the world. The media also brings headlines of unrest, terrorism, and war that could lead to a global nuclear disaster. *It is the people who have considered some of the possible future problems and have providently made preparations by storing provisions who will find it easier to survive in major emergencies.*

There are prepacked, lightweight, survival foods, available from mail order companies and these foods are available from various web sites. These are often in the form of dried meals that require minimal meal preparation (eg adding water), or energy bars to unwrap and eat.

As we establish our own organic food gardens, purchase the freshest food possible, and prepare it in the most nutritious way, we discover this provides optimal results. Research will lead us to see that eating foods prepared without undue processing, preservatives or additives (eg. sugar, white flour, salt and colouring), does provide a basis for the best in natural health. During times of prosperity, peace and plentiful food supply, a diet of raw foods and simply prepared meals is easy to provide. However, during times of adversity, war or any disruption to fresh produce, we need to be ready with alternatives of

dried, bottled, or canned foods. We can preserve our own produce, without the excessive additives and preservatives in most commercial products.

Times of adversity may cause a breakdown in the supply of electricity: a service we regard as essential. Just what would we do without power to run appliances, our refrigerator and freezer to keep food fresh, or the stove for cooking meals? *Foods that keep for a period of time without spoilage, or may be dried and stored for later use, are essential to survival and for times of extreme hardship.* If shops in your vicinity no longer existed, due to earthquake or major calamity ... tomorrow ... next week ... next month ... how prepared is your household? This question is something we do not really want to think about, but we must.

All food is liable to deteriorate and decay, but the rate at which this happens will depend upon the type of food, various bacteria present, and weather conditions. *The aim in preservation is to maintain foods in the most nutritious form possible, so that these may be used when fresh food is not available.* Moisture, light, heat and insects can cause spoilage of fresh or processed foods. Enzymes, which are natural chemical substances, present in all fresh fruit and vegetables, can cause produce to decay. Micro-organisms of moulds, yeasts, and bacteria may result in fermentation and putrefaction. While we have refrigerators to store our food, we do not generally see the immediate, detrimental, effects of micro-organisms, as these organisms need warmth and moisture to multiply. Cold storage will retard growth of micro-organisms for a limited period of time. Cooking at high temperatures will destroy these, but the food then needs bottling, preserving with sugar, or vinegar and salt etc, to give a longer shelf life. Sugar (in quite large quantities) is used as a preservative, as micro-organisms do not survive easily in a sugar-saturated solution. Sugar is added to bottled fruit, and in a more concentrated quantity when making fruit into jams. Salt has been used extensively as a preservative (especially before the invention of refrigeration), as salt is able to remove moisture from food by osmosis, thus producing a state in which many micro-organisms cannot survive. Vinegar (acetic acid) is used to prevent the development of micro-organisms. Vegetables are often pickled by infusion in vinegar to preserve them.

Canning and bottling food makes use of heat to kill organisms, together with sealing containers to pasteurise the food, which ensures the exclusion of air, to extend the product shelf life. Bottling fruit and vegies has been a tradition for preserving produce of many farming homes of our nation, particularly between the 20's and 70's of the last century. Then with the invention and convenience of freezers, this method was used less frequently, and I thought that perhaps ... it was a lost skill. However, a Google-search revealed that there are people who still do enjoy bottling their home-grown produce. What if ... homes are without electricity for short or long periods due to a crisis ... perhaps we need to practise bottling produce now, to have food stored for possible future hard times. Preserving jars, rubber rings, lids and clips

to seal the jars can be purchased from kitchen and hardware stores and also through the worldwide web. A visit to the local opportunity and second-hand shops may surprise you with a bargain buy. Although the glass jars are long lasting, the rubber rings and lids do need replacing when worn. A large preserving pan is also required for sterilising the jars when filled with produce; so, ask for the pan, too, and directions for using this kit. The booklet will have recipes for doing a variety of produce.

As I grew up on a farm where food drying and bottling of produce was a way of life, I also used the bottling method for a number of years in my early, married life, until a freezer was added to our home. Preparing produce and meals for freezing has meant excess foods can be enjoyed, months later. For most people who grow their own food, freezing is a quick and easy way to store food, that is, until the freezer is full. However, there could be the problem of loss, caused by a power failure, and disposing of a freezer full of thawed food!

For any person contemplating bottling produce, I would recommend it, if the garden produces large amounts of excess fruit and vegetables, during the year. For small amounts of excess produce, freezing is quite practical. But, keep in mind, that dried foods could be more serviceable during a crisis.

Food drying is a process to remove moisture from food by evaporation. Drying food stops micro-organisms, as when moisture is removed in the drying process these organisms are unable to grow. Enzyme action also stops during drying. Dehydrated food, therefore, will not decay. Food drying is the oldest method of preservation known to man, and was originally done by leaving food to dry in the heat of the sun. Today, many people are rediscovering the many benefits of drying their garden produce by using sun-drying or electric dehydrators. The flavours of dried foods are supremely concentrated and the process of drying is a simple task and economical, while many people would regard bottling fruit quite a chore.

Drying fruit and vegetables is a practical way of adding variety to a survival larder. If your own garden is producing a bountiful crop, or you are able to get produce economically at a market or farmer's gate, drying food will add diversity to your survival stores. Dried produce may be eaten as the dried product, re-hydrated by adding water, or added to cooked dishes. Meats, dried as jerky may be served in a variety of ways. Sprouts, ground grains, fresh fruits, seeds and nuts blended together and dried, can be cut into small squares or muesli-bar-size slices for snacks.

Benefits of drying food

- Food drying enables us to store a bountiful harvest in an economical way, for later use.
- Food when dried decreases in volume, requiring less space to store. (Admittedly, there is some loss of vitamins, and after dehydration the vegetables do not have the fresh appearance of produce preserved by freezing or bottling.)

- Dried foods have a long shelf life and provide lightweight meals to tuck in backpacks, for times of emergency.
- Stored dried food may be easily re-hydrated for meals during food scarcity.
- A sense of satisfaction, that by drying garden produce (which is a cheap method of food storage), we will help to make our families prepared for times of hardship by utilising all ... *we are truly acting on the age-old saying 'waste not, want not'.*

The sun-drying method will require that the cut produce be spread out on trays or gauze window screens (ideal as screens allow the air to circulate all around the produce), and this is a simple way to get started. Or a homemade dryer could be made of a box-like structure placed in a warm spot in the garden, with slots for several trays and space between trays for airflow. A glass or clear plastic lid can create added heat flowing from the sun's rays.

Pitfalls of sun-drying method:

- Sunny weather is essential. In fact, many days of hot weather are required. If rainy, cloudy, or cold days come in between, the food could go mouldy and spoil. Each kind of vegetable and fruit will take a different length of time to dry, and if sun dried, the intensity of the sun, temperature and humidity will also govern the duration. *It is warmth, low humidity and moving air that are important factors to good drying.* If the surrounding air is humid, it cannot take on any more moisture, and food will not dry, but could spoil. But, if there is an air flow, to carry away the moisture-laden air and bring in more dry air, drying will continue.
- Trays must be carried inside each night to protect food from dew and dampness.
- Food drying outdoors may be exposed to dust, smog, soot or toxins in the air.
- Placing mosquito net or gauze over the top of trays may protect from birds and bees, however, ants may be smart ... smell the sweet fruit drying and be quick to turn up for a taste... and ants when they are onto a good thing like to stick to it!

An alternative method to sun-drying or electric food dehydrators is to place trays of cut food in a box in the garden and sulphur is burned below the stack of trays. The smouldering sulphur dries the produce. This sulphur-drying method is utilised by commercial companies for drying many fruit varieties like apricots, peaches, nectarines and plums. Sulphur drying does enable the produce to dry with a good natural colour, while sun-drying, can cause a darker colour, than the original produce. Although the sulphur does not leave a noticeable taste on the finished product, some people sensitive to preservatives may suffer respiratory problems or an allergic reaction.

Another method is to dip the cut fruit in a solution of 2 teasp. sodium metabisulphite dissolved in 1 cup lukewarm water. The pieces are then placed on trays to sun-dry. Turning the pieces over after 2 days will hasten drying. Use of this chemical hinders the growth

of bacteria, mould and fungus. Sodium metabisulphite is also used to sterilise bottles for wine making. Some people, who are sensitive to chemicals, may be highly sensitive to foods dried with metabisulphite.

Dipping cut fruit and vegetables for drying in lemon juice ($\frac{1}{4}$ cup lemon juice to 2 cups water), or a solution of 2 teasp. vitamin C powder to 1 cup water, has been used to help fruit keep at a close-to-natural colour.

An electric dehydrator uses warm air and ventilation, and it is a quick, efficient method of drying excess produce, at any time of the year. A dehydrator removes moisture by gently evaporating it through warm air exchange. Various makes and models are available from home hardware shops, kitchen supplies and by mail order. Once the machine has been purchased, it should last many years. When buying a dryer, seek out a dehydrator that is energy efficient (referring to the amount of electricity a machine uses per hour). The cost of electricity to run the dehydrator is generally about 9 cents an hour, and if 4-5 trays were drying for 10 hours the cost to dry would be about 90 cents. Some models, like Ezidri, enable extra trays to be added to the top of the unit to provide more drying space. When I initially purchased an Ezidri with 5 trays, I soon realised that more trays would be an advantage for drying the 15 boxes of mangoes waiting to be processed. I immediately ordered 10 more trays and plastic sheets; and these sheets were a definite advantage for drying the soft, juicy pulp of ripe mangoes.

Produce should be cut in fairly evenly sized dimensions so that the pieces all dry out uniformly. Place pieces on trays with small spaces in between to enable warm air to flow around each piece, will dry the produce much quicker than over-crowded trays. Foods may take 8-12 hours or longer to dry. Drying time is determined by several factors: humidity, moisture and sugar content of the product (the higher the sugar content the longer the drying time).

Pieces cut 1-3cm thick and to 6-10cm long will dry to a mouth-morsel size. If pieces are sliced 1cm thick they will dry to paper-thin wafers. The proposed use of the dried food when it will be eaten later, will also govern what size the food is best cut. If the product is to be used for soups, finely cut vegetable cubes will certainly suit the end product, but if pieces are to be used for snacks, larger pieces may be preferred. *Dehydration shrinks food down to a fraction of the original weight and size.* Once the moisture is removed from produce, the flavour becomes concentrated.

The temperature setting of a dehydrator can be adjusted for different foods. Most produce can be dried at any temperature from 30-60°C. Higher temperatures will result in faster drying, while lower temperatures help to maximise the preservation of the enzymes in the food. Foods with high moisture content will take longer to dry than food with a dry fibrous texture. The thicknesses of the slices that are cut, will also affect the length of time it takes to dry each different food.

With an electric dehydrator, knowing just when the food is dry will come by experience. If 99% of the moisture is removed from foods, the pieces will be hard

and brittle, which is an indication that it is perfectly dry, and it will last several years (note: with time, dried foods may lose some colour, flavour and nutrients, but it is still edible). If food is soft and pliable, it may have some moisture retained, however, some fruits like pears, apples and apricots will remain pliable when well dried. When drying fruits like pears and apricots, if the fruit is cut into halves, these pieces will take longer to dry than smaller, diced pieces. This is where an electric dehydrator has definite advantages over the sun-drying method, as the temperature can be set and left going as many hours as needed to completely dry the fruit.

Some vegetables lend themselves to drying into a serviceable storage food, better than others. When I have an abundance of 'Tom-thumb' tomatoes, I like to dry them and then fill into glass jars together with chopped, fresh garlic and sweet marjoram and cover with olive oil. Jars are left 2-3 weeks for the tomatoes to absorb the flavour of the seasoning. These dried tomatoes marinated in the seasoned oil are tasty on salads, quiche, cracker biscuits and in sandwiches. Before I place the tomatoes on the drying trays, I prick the skins with a sharp knife, to allow the moisture to evaporate readily. (Otherwise, the skin acts as a tight barrier and the tomatoes take longer to dry).

How dry is dry? Each fruit or vegetable, when dried, will have a distinctive characteristic: strawberries will feel spongy; Apples will be leathery and bendable; onion rings will snap; herbs will crumble. Examine a piece by cutting in two. Or test for dryness by taking several pieces in your hand and squeeze together. No moisture should remain in your hand, and pieces should fall apart when released. Note: some fruits like figs, dates, cherries and pears will have a slightly sticky feel, even when fully dried. Very ripe persimmons, when dried, have a similar flavour to dates, will be a bit chewy and are very enjoyable.

Another way to analyse if a food is fully dry is to do a taste test. Take a sample from the dryer and eat. It should be dry to the palate and not have any moisture in the centre. As each fruit and vegetable has different moisture and fibre content, the drying times will vary considerably. The smaller the pieces of produce are cut, the quicker it will dry.

How to store dried produce: Pack the produce in airtight containers as soon as dry; otherwise, the dried slices may re-absorb moisture from the air. Storing the dried produce in glass jars, calico or brown paper bags, then inside plastic buckets with lids that seal tightly, is a practical way to 'squirrel away' food. The small silica sachets found in vitamin supplement bottles and in boxes when buying shoes, are handy to have on hand. Place several in each jar when storing dried foods, as the silica acts to absorb moisture. Store the containers in a cool dry place. Label each container with details of contents and the date dried. Dried food gradually loses quality, colour and nutritional value with age.

Food drying in an oven: Note: an electric oven does not dry food but slow cooks it. Food will eventually become dry in an oven if left in long enough, but care must be taken that it does not become brittle or charred.

Set oven on a very low temperature, place food in to dry. *It is important that the oven door be slightly ajar, to allow for air circulation and the moist air drawn out of the produce to escape.* Placing a metal spoon down near door hinges will stop the door from shutting. Drying may take from 10-24 hours for vegetables, and 10-48 hours for fruit, depending on moisture content and size of pieces. **Dried fruit leathers:** Most kinds of fruits, can be made into dried fruit leathers. You can use just one kind of fruit, blended to a pulp and dried, or a mixture of fruit in season, blended together. Experiment with a variety of fruits in season to make leathers; or try combinations of bananas and grapes; apples and pears; strawberries and pawpaw; pineapple and pawpaw; oranges, bananas and cinnamon powder; plums and apples; mulberries and pie melon; star fruit and persimmon; possible combinations are endless. A variety of stone fruits, like apricots, nectarines, peaches, and plums, make tasty dried leather. Experiment by adding different chopped herbs like lemon balm, allspice leaves, or sweet tarragon to individual trays. Try fresh ginger together with persimmons. Apples, chokos, or pie melons make good extenders to fruit leathers.

If wishing to make **fruit leather into roll-ups**, the leathers must be well dried but still pliable, so that these can be tightly rolled up while still warm. Store as roll-ups, sliced roll-ups, or cut the leather slabs into small squares while still warm. Some fruit will be more pliable than others and some produce may dry absolutely crispy. I usually dry produce to the crispy, fairly hard stage, as then I know the pieces will not go mouldy when stored in this very dry state.

Some fruits are best cooked and lightly sweetened before making into leathers. Tart fruits like plums, rosellas and rhubarb are foods to stew for a few minutes, adding a very small amount of water and sweetening the fruit with a little honey, stevia leaves, licorice root tea or sugar. Blend to a pulp and place on the plastic trays to dry. Rubbing the plastic trays with a little oil (I use olive oil) before placing the food on the dryer trays makes it easier for lifting off the food, when it is dry.

Lemon, orange and mandarin peel, when dried, have storage potential and are handy for adding to cakes, buns, etc. Recently, I experimented with stevia leaves, mandarin and orange peel lightly steamed, then pulped, spread onto plastic dehydrator trays, sprinkled with coriander seeds, dried, and cut into small squares, which made an interesting taste treat. Researchers have found that the natural oils in these citrus peels aid the digestion, help detoxify the body, stimulate the adrenals, promote circulation and strengthen the immune system ... so, why throw away these peels, which have many health benefits to the body.

Dried fruit leathers are a practical way of drying very ripe fruit and incorporating other produce as well. I have had a lot of satisfaction and enjoyment, blending different produce from the Herb Farm to make **Survival nuggets**. These nuggets contain fruits in season and vegetables like flour gourd, pumpkin and arrowroot, fresh sprouts of mung, lentils, chick peas; fresh herbs like sweet tarragon, kaffir lime leaves, stevia, ginger,

cinnamon powder, and gel of fresh aloe vera; and sometimes adding tamarind pulp, and carob. For extra protein I have included dried crushed leaves of salad mallow, drumstick tree and sweet leaf. After spreading the mixture (approximately 2cm thick), onto lightly oiled, solid dehydrating trays, I sometimes sprinkle one of the following on the top: pepitas, sunflower kernels, flax or sesame seeds, to give an interesting visual effect.

In the last 2 years we have had a bumper crop of persimmons, which has given me an opportunity to experiment with making this 'nugget mixture' of fruit, vegetables and herbs. And, although I may use all the items mentioned above, I generally do not have a set measurement for each ingredient, but just start with a large bowl of very ripe persimmons and just add to it. The vegetables (like flour gourd, arrowroot) I put in a kitchen whiz with some of the persimmon and blend to a thick puree. Sprouts are added. The aloe leaf is peeled, and the yellow sap just under the skin washed off (as the sap is bitter), the filleted inside gel of the aloe is blended with the fruit. Then the dried crushed high protein leaves are folded in, and finely shredded ginger, kaffir lime leaves and other herbs. Sometimes I may add some rolled oats, which makes the finished dried product look similar to muesli bars.

Length of time to dehydrate depends on how moist the mixture is. When the mixture is dry enough (so that it can be easily turned) I flip it over and dry a little longer. Before it is completely dry, I remove each tray, one at a time. Then, while still warm, I peel off the drying slab and place it on a wooden board. Using a sharp knife with a long blade the slab is cut into small squares, or muesli bar lengths. Cut pieces are placed back in the dehydrator to dry out, completely, and then stored in airtight and insect proof containers.

I have called my dried jumbled-mix of fruit, vegetables and herbs... **Survival nuggets**. I chose the term 'nuggets' when considering how precious the tiniest pieces of gold were, when discovered by early Australian settlers... the tiny nuggets gave the settlers new hope. People who have a chance to sample the survival nuggets at the Herb Farm have found them very enjoyable, and many have said they could live on them if food was rationed. When I use the word 'nugget' here it signifies something small, a very solid compact portion of nutrients made into dried food. These could be precious to a hungry person and give sustenance to keep going in an emergency: a food that is easily stored and light to carry, nutrient-rich and tasty. And, perhaps, just as precious as a gold nugget! What produce could you use from your garden to make Survival nuggets?

Note: shredded coconut looks great on top of dried fruit, however coconut can go rancid after a few months; therefore, it is not recommended on dried foods for long-term storage. Another food that may go rancid quickly is avocado, as it has a high fat content. Dried avocado will only store 1-2 months. However, freezing dried avocado, enables these to be kept for a longer period.

To reconstitute dried avocado slices to make guacamole dip, puree a handful of slices with ½ cup yoghurt or cream, ¼ cup water, and 2 tablesp. lemon juice. Add powdered onion, garlic and salt to taste.

Dried fruit balls Put a variety of fruit you have dried through a food chopper using a course blade, or chop with a knife. Fruit could include apricots, plums, peaches, pears, nectarines, persimmons, raisins or tropical fruit like mangoes, papaw and pineapple. To 3 cups of dried fruit, add a handful of sunflower kernels or any chopped nuts; mix well and form into small balls (pecan nut size); roll in sesame seeds or coconut. Serve as a snack or as an alternative to sweets.

Vegetable snacks Although the main ingredient for this recipe was, originally, butternut pumpkin ... any pumpkin variety can be utilised. Or a variety of other vegetables like: flour gourd, zucchini, carrot, celeriac, sweet fruit root, and swede could be used. Peel and dice up 4 cups of pumpkin, place in food processor and blend till smooth (alternatively the vegetable could be cooked till tender and mashed). Add 1 cup raisins (or other dried fruit that you perhaps have previously dried), the rind and juice of 1 orange or lemon, 4 tablesp. honey, 1-2 teasp. cinnamon, ½ teasp. nutmeg. Spread mixture on trays to dry, and then cut into squares.

Stewed dried fruit Pour 2½ cups of boiling water over 2-3 cups of dried fruits, such as apples, apricots, pears, peaches, pineapples, prunes or figs, in a saucepan. Leave stand 30 minutes. Add ½ cup orange juice, 1 tablesp. lemon juice. Bring to boil. Simmer 10 minutes. Stir in 3 tablesp. honey and ½ teasp. cinnamon. Serve hot or cold.

Pumpkin biscuits Soak 1 cup of dried pumpkin in hot water ½ hour. Mash up with a fork. Cream ¾ cup butter with 1 cup sugar. Add 2 beaten eggs and 1 tablesp. vanilla essence; add rehydrated pumpkin, ¼ teasp. salt, ½ teasp. ginger, ½ teasp. nutmeg, 2½ cups wholemeal flour and 4 teasp. baking powder, 1 cup sultanas or other chopped dried fruit, ½ cup chopped nuts. Mix thoroughly. Drop teaspoonfuls onto oiled oven tray and bake 15 minutes at 190°C.

Many root vegetables can be made into dried chips eg beetroot, carrot, sweet potato, arracacha, sweet fruit root, pumpkin, parsnip; just slice finely and dry.

Zucchini chips Make these chips when zucchinis are abundant in the vegetable garden and serve instead of potato chips or other processed, salted, fat-laden, snack foods. Pumpkin, chokos, flour gourd, marrows and squash could also be used. The dried chips are tasty served with hommus or a herb dip. Alternatively, after cutting the vegetables into slices, approximately ½cm thick, marinate the pieces in the following:

4 tablesp. tamari sauce, 2 tablesp. dehydrated onion powder, 2 teasp. dehydrated garlic powder. The marinade could also be made with chopped fresh herbs (eg. marjoram, thyme, mother of herbs, chillies, chives, oregano, savory, basil) and apple cider vinegar or tomato sauce. Submerge the vegetable pieces in the marinade, and leave to soak up the flavours 30-60

minutes. Place the thin slices in a dehydrator, or sun dry to crisp chips.

Have you a glut of potatoes? Yes, they can be dried with several procedures. For slices, cut washed potatoes in 1cm cubes or thin slices. As potatoes do go brown quickly, when cut, soaking the slices in a solution of ½ cup lemon juice to 2 litres of cold water for 30-60 minutes may prevent discolouration. Drain in a colander and dry on trays. Alternatively, steam the pieces for 5 minutes, drain and then dry. When wishing to use the dried potatoes, reconstitute the pieces by covering in hot water and leave soak 2 hours or overnight. Cook in a saucepan with a little water. One cup of dried potato will yield nearly double, when cooked.

Cooked potatoes have potential for drying. First, wash, peel, and cook potatoes in a little water until soft, then mash. The consistency may be quite thick. Spread, 1cm thick, onto plastic drying sheets and dehydrate until the mixture is hard. To prepare for eating: place 1 cup dried potato in a blender with 1¼ cups hot milk (or water) and 3 tablesp. butter. Leave soak 30-60 minutes, add salt and pepper, to taste, and blend until smooth and creamy. This quantity makes approximately 2 cups of mashed potato.

Sweet potatoes, squash, marrows and pumpkin may be prepared the same way as for mashed potatoes. Also, try these vegetables cut finely and, when dried, these crisp chips are most appetising served with a dip or creamed cheese. The cut pieces marinated in Soy or Worchester Sauce or herbs for a few hours, then dried until crisp, creates new flavours to enjoy. Try savoury cracker biscuit recipes, mixed and dried, as an alternative to baking a batch in the oven. Roll or spread the dough for the cracker biscuits ½ cm thick on plastic dehydrator trays.

Complete meals may be dried for later use like soups, stews, spaghetti and rice dishes, even meals with meat, can be dried in a dehydrator.

Beef or other meats are dried to make jerky by marinating the meat for a few hours in any of the following: sauce, vinegar, garlic, onion, herbs or spices, gives an array of different flavours to dried meats. To make the jerky, all fat and gristle should be cut away from the meat. Note that fat will not dehydrate and tends to turn rancid; therefore, it is best to select lean meat. Slice the meat across the grain in strips ½-1cm thick (for easier cutting, freeze meat and partially thaw, just long enough, for easy slicing). Place strips, singularly, on plastic trays and sprinkle as desired with salt and pepper. Dry. The strips should be hard and stiff. Many early pioneers in Australia relied on jerky to extend meagre rations. Jerky was a way of preserving meat before the days of refrigeration.

Lean raw minced beef, herbs, vegetables and sauce mixed thoroughly and spread ½-1cm thick to dry, is a way of combining vegetables with protein. When nearly dry, place the mixture onto a wooden board and cut into 5x2cm strips. Put the strips back into the dehydrator to complete the drying process.

Dried green leaves provide many nutrients Many leaves are a good source of protein (see High

protein leaves, p 11). When dried, these can provide a nutrient boost to meals, particularly when protein could be scarce and exorbitantly priced. Leaves of amaranth, drumstick tree, sweet leaf bush, salad mallow, Chinese watercress, nettle and comfrey (to name a few), *once dried and crushed in the hands or powdered in a food processor and stored in airtight containers, will yield a provident source of protein for hard times.* The dried leaves (which will look like green flour when crushed) may be added to a variety of dishes like soups, stews, casseroles, stir-fries, rissoles, fritters and to the dough of bread, scones and dampers.

Protein leaf croquettes Use any dried leaves that are a good protein source (eg salad mallow, amaranth, comfrey, sweet leaf bush, drumstick tree leaves). Mix 100g of leaves (this is about 4 handfuls of crushed leaves) with 4 tablesp. wholemeal flour, 2-4 teasp. garam masala, 2 beaten eggs, and salt and pepper to taste. Garam masala is a traditional Indian flavouring and may include a combination of cinnamon, cardamom, nutmeg, cloves, mustard, cumin, garlic, ginger, sesame, turmeric, coriander, bay, cumin, fennel and chilli. As it is fairly pungent, the suggestion is to start with 2 teaspoons to flavour until accustomed to the taste. Place the mixture in refrigerator or a cool place to stand for 15-30 minutes. With the hands, take enough of the mixture (amount equal to a large-sized egg) to form into a croquette (sausage shape). Roll croquettes in flour and fry in an oiled frying pan until golden all around.

For a snack made with sprouts try:

Energy crisps Sprout some sunflower and buckwheat seeds (sown thickly in 4-5cm of soil or potting mix) on a seedling tray. When the sprouts have two green leaves, cut them off at soil level, wash and drain.

Soak ½ cup dulse (a coarse, edible, seaweed available from a health food shop) in 1 cup warm water. Place in a blender, and gradually, at low speed, add 2 cups sunflower sprouts, 2 cups buckwheat sprouts and 2 diced apples. Spread the blended mixture 1cm thick onto solid dehydrator trays. When the produce is fairly well dried (not sticky, which would make it difficult to handle), take it off the trays and place on a wooden board, cut into 3cm squares with a sharp knife, and place back in the dehydrator to dry until crisp.

Wheat sprouts have a sweet taste. They are a good survival food to make from stored grain. Eat in the hand after sprouting for 2-4 days or add to a mixture of dried fruit or vegetables, or toss into a stir-fry just before serving. Wheat seed, when well stored, is said to be viable for sprouting for 10-12 years.

Bread making, baked by the sun Sprout bread, or the original Essene bread, dates back to biblical times and was dried in the sun. The bread was made from germinated wheat. The sprouted wheat was crushed or pounded, and formed into thin flat wafers and dried out in the sun. We can make a similar 'Essene-like' bread, but care must be taken, so that during days when the sun's rays are not very intense, the bread does not go sour and mouldy before it dries. The flat bread may take 2-4 days to dry. It may be hard on

the outside, but still moist and chewy on the inside. The alternative to sun-drying is to place the Essene loaves in a dehydrator at the lowest temperate setting. Or, without dehydrator facilities, placing the bread in an oven on an oiled tray, with the oven door slightly ajar, and turning the oven onto the lowest temperature will simulate the drying action. If baked at 100°C for 2-3 hours, the outside of the bread may be firm and the inside soft.

To make Essene bread soak 1½ cups wheat in 3 cups water for 12 hours. Drain off the water and sprout the seeds for 2-4 days in a jar, sieve or colander, rinsing with cold water 3 times a day (length of time to sprout will depend on the temperature and humidity). Sprouts are at a good length for bread making when the shoot is about the same length as the seed. Then, place the sprouts in a food processor, meat mincer, or pound with a mortar and pestle, and blend to a fairly smooth texture. The bread can be seasoned with sea salt and herbs, if desired. If the mixture feels a little dry, add a little sunflower or olive oil. Knead into a ball of dough. Roll the dough out thinly to 1cm thickness (or knead it out flat with hands). Dry the bread in the sun, or at a very warm window, or in a food dryer at a low setting. Flip the bread over after 6-8 hours, so that it dries on both sides. I have made Essene bread by drying in a food dryer and, when dried, it tasted very much like Ryvita crispbread. The benefit of Essene bread is that the sprouted wheat provides higher nutrients, when compared to bread, made of flour.

Drying herbs for later use is another facet of self-sufficiency. The delicate flavour of herbs can be preserved for year-round use by drying, which concentrates the flavour. The best time to harvest the herbs is just as they are coming into flower, when the leaves are still young and tender, and rich in the oils that produce the wonderful flavours and aromas. Also, herb bushes benefit from regular pruning, as this keeps the plants in good condition and shape. The prunings may be dried and stored.

Cut the herbs on a warm sunny day, after the dew has dried, but before the sun is high enough to draw out the aromatic oils. Gather a handful of cut stems together and tie into bunches with string. Hang the bunched head down in a warm, dry, well-ventilated place, like the rafters of a veranda or patio.

Or spread the cut herbs on trays or cardboard boxes, and place them to dry in shade or semi-shade. They will take several days or more to dry, depending on size of leaves, moisture content and texture and temperature. Full sun may evaporate some of the essential oils and flavours. Roots and bark, however, can be dried in the sun for several days and then completed in a warm, dry, shady place. Turn the herbs several times a day. When fully dry, the leaves will crumble between the fingers. Leaves, when stripped from stems, will be easier to store in jars or other containers. Label the jars with the names of herbs, and the date dried. When storing herbs in sealed containers they must be very dry; any moisture could cause the contents to go mouldy. Plastic bags could also encourage growth of damaging mould. If unsure if herbs are completely

dry, storing them in cardboard boxes or paper bags is a safer option; and check herbs occasionally. Always label and date herbs, when storing.

A great way to store dried herbs is as herbal blends, for flavouring various dishes. For a pizza blend, mix equal parts of basil, oregano and Italian thyme. Make a blend to go with tomato dishes, combining marjoram, chives and savoury. **Asian Spice Mix** is a great combination for stir-fries and Asian style soups: mix chilli, garlic, lemon rind or kaffir lime leaves. Create your own herb and spice mixes by cutting and drying plants in your garden. These herb mixes are a wonderful way to season food and most beneficial for anyone on a salt-free diet. They can be used in soups, fritters, casseroles, marinades, stuffings and for rubbing on barbecue meats and roasts.

Using dried produce Drying excess produce from the garden, or buying produce to dry when in season at a reasonable price, enables us to have tasty snacks on hand all year around; or for preparing these dried foods into a variety of recipes. We can also have the satisfaction that we have processed the food without additives, colouring and preservatives ... and what we have stored is ready for any emergency.

Many of the dried foods can be eaten as is, and it certainly is a healthier alternative to many processed and packaged snack foods. Fruits finely cut and dried are ideal for adding to homemade muesli, biscuits, breads, cakes, puddings, pancakes and scones.

Dried fruits can be reconstituted in water and eaten like stewed fruit. Place the dried fruit in a bowl and cover with hot to boiling water, then, leave stand a few hours for the pieces to absorb the water.

The reconstituted fruit may be eaten on its own or served with yoghurt, custard, kefir, cream, ice-cream or over cereal. Use it to make a fruit pie in a pastry flan. Try it in a thick-shake made with milk, kefir, or yoghurt. Apples, when reconstituted with water, will make an apple-sauce when blended to a puree. Some dried vegetables can be enjoyed as a snack in hand, while some kinds will not have a lot of flavour when dried; these are useful for serving with a dip (taking the place of a cracker biscuit). Marinating vegetable pieces in a liquid with herbs and spices can give added flavour.

After reconstituting vegetables in hot water, the pieces can then be lightly steamed and eaten hot, or added to soups, stews, stir-fries and curries.

Dried vegetables, when powdered and with water added, will make a base for dips, soups, sauces and vegetable smoothies. Any thoroughly dried vegetable, can be ground to a powder in a food processor and stored in airtight containers. By blending the powdered vegetables with herbs and boiling water, an 'instant vegetable soup' is made. Use the powder to enhance the flavour of casseroles and stews, or sprinkle it as a seasoning on salads. Corn kernels or carrot rings dried, then reconstituted, are suitable to add to salads. Dried celery slices can be reconstituted in water or sautéed briefly in oil or butter, for use in cooking. Corn kernels, blended to a cream and dried on plastic dehydrator trays, will turn into corn chips when broken into pieces or cut up. Adding salt, pepper, or a variety of herbal

seasonings to vegetables will create tasty snacks. Sliced mushrooms dry well and make a flavoursome addition when used in a variety of savoury dishes like soups, sauces, quiche, casseroles, stir-fries and on top of pizzas.

Using fermentation for preservation of food

The use of fermented food was widespread in past centuries. It was an essential and vital method of preserving foods and their nutrients for longer periods of time, before the invention of fridges, freezers and canning. Today, we still make use of a range of fermented products, which include wine, beer, cheese, cultured fruit, vegetables and milk products (like yoghurt and kefir), sourdough and yeast products, miso and soy sauce. It is interesting to note that even the mulch in the garden and the compost heap in the back yard are also ferments. *In fact, without fermentation the cycle of growth would not occur, as nothing could be broken down to feed plants and animals.*

When fermenting foods, the action of bacteria is referred to as cultures. *The culture secretes copious amounts of very powerful enzymes, which have the potential to break the food into smaller components, thus making them easier for us to digest.* Sometimes, the culture is referred to as a starter, because it "kick starts" the fermentation process with the right kind of bacteria for the desired fermentation. All cultured foods require a lactobacillus culture, but there are many different varieties of lactobacillus bacteria and these can vary in how they act to break down food substances.

Lactobacillus bacteria are friendly micro-organisms which have the power to convert sugars into lactic acid and carbon dioxide. When our diet includes these friendly micro-organisms in cultured foods, there are significant health benefits. These friendly bacteria are also known as probiotics. The word probiotic is derived from the Greek language and literally means 'for life'. Many researchers have found that lactobacillus micro-organisms can remove toxins and bacteria in the intestines and inoculate the intestines with friendly bacteria, thus enhancing life. Even in recorded history dating back hundreds of years, fermented foods were used to protect the digestive system from infections.

Scientific studies over the last 25 years show that *probiotic organisms can improve the nutritional quality of foods and their absorption by the body.* They can also inhibit disease-causing organisms and carcinogens, aid digestion and liver function, assist in the synthesis of vitamins and minerals and promote the growth of healthy flora throughout the intestine. Fermented foods are often called pre-digested foods, as they generally, are more easily digested, even by people who have digestive problems.

In this chapter we will explore the foods cultured with lactobacillus bacteria that can extend the shelf-life to make it a serviceable food for self-sufficiency and survival storage.

Fermented vegetables and fruits are easy to make with the process of lacto-fermentation, where lactic acid forms as a natural preservative that inhibits the growth of bad bacteria. The lactic acid producing bacteria, also called lactobacilli, are ubiquitous and are, therefore, present on the surface of all living things. They are particularly numerous on leaves and roots of plants growing on or near the ground.

As lactobacilli require a range of nutrients to be able to grow, good quality produce is essential, with organic produce being an added advantage. If poor quality produce is used, for example, if vegetables are wilted, they are probably deficient in nutrients and the process of fermentation may be stalled or not proceed at all. A good way to start is with excess vegetables from the garden or cheap produce in the supermarket: cabbage is ideal for beginners. Quite probably, cabbage is the most frequently used vegetable to ferment, as it has its own lactic fermenting culture and all the nutrients the bacteria needs to develop, so this makes success easier.

To be noted, too, is the fact that some people cannot eat cabbage, onions or beans without suffering gastric pain. Generally, people who have food sensitivities can eat these vegetables if lactic-fermented.

Sauerkraut has had a long history of use in Asia and Europe as a survival food. In Germany it is prepared as a very traditional food, and the name sauerkraut means sour cabbage. Being esteemed for its benefits to wellbeing, it is served regularly. Sauerkraut owes its health-giving reputation, in part, to brave sea navigators of past centuries. Keeping a ship's crew healthy for many months was a major task without fresh vegetables and fruit. Recorded history tells us that Captain Cook knew of the benefits of sprouted barley, fermented barley-water and cultured cabbage. For his world voyage he stored 60 barrels of sauerkraut in the ship's hull, and this food retained its quality for over 2 years. The sauerkraut with its preserved vitamin C, helped to protect the entire crew from scurvy. Today, researchers have found that the fermentation action also increases the availability of minerals such as potassium, magnesium, calcium and iron - all essential elements for vitality and energy for any ship's crew.

Bear in mind, too, the sour flavour of fermented foods supports and promotes a strong immune system. We do not need to be in a sailing ship to experience these benefits, as we can all make and eat sauerkraut in our own homes. *As we eat sour foods, the salivary glands in the mouth are stimulated and this action is important to the first stage of digestion of our food.* Simply stated, sour foods are essential to health. So let's get started!

Equipment required:

- A food-grade plastic bucket or sturdy bowl large enough to hold a medium cabbage when shredded.
- A large ceramic crock or wide-mouthed glass jar.

- A plate to fit snugly inside these containers (which will be used for the first stage of making sauerkraut).
- A heavy rock weighing about 1kg (or jug filled with water) to act as a weight when the cabbage is packed into the large container.
- A sharp knife and chopping board for finely shredding the cabbage.
- A wooden pounder or meat mallet for banging the cabbage.
- A cloth to cover the container when fermenting.

All utensils must be clean, or bad bacteria could overpower the action of good bacteria. Sauerkraut can be made with only cabbage; however, many traditional recipes include a little salt and whey. Other ingredients that can be added for flavour are dill, fennel, celery or caraway seeds, seaweed, juniper berries, lemon juice, cardamom, ginger, garlic, onion, chives, or other herbs as desired.

To prepare sauerkraut: remove 3-4 outer leaves of a medium sized cabbage and place aside. If the cabbage has been grown organically these leaves can be kept (for placing on top of the cut leaves), if non-organic the very outer-most leaves which are usually heavily sprayed, could be added to the compost heap. Cut the cabbage into quarters, cut away the hard centre core, and finely slice the cabbage into ½ cm strips. Place the sliced cabbage into the large bowl, sprinkle over 1 tablesp. sea salt and flavoring herbs, as desired (eg. 1 tablesp. caraway seeds). It is the salt that inhibits decaying bacteria from being active in the food, at least for several days, until enough lactic acid develops. The lactic acid is then able to preserve the sauerkraut for many months.

The amount of salt can be reduced, or even omitted, if whey is added to the mixture. Whey is rich in lactic acid and the necessary activating lactobacilli bacteria acts as an inoculant reducing the time required for sufficient lactic acid to be generated. This ensures preservation of the food. Creators and connoisseurs of sauerkraut say that using whey in the mixture results in consistently successful fermentation. If wishing to reduce salt in a fermenting recipe, simply reduce it by ¾ and add about the same amount (or a little more) of whey, lactobacillus starter, natural yoghurt or kefir which all contain lactobacilli bacteria (see page 41, 45).

Take the meat mallet, wooden pounder or strong potato masher and pound the contents in the plastic bucket, for approximately 10 minutes to help release the juices. The salt acts to pull the juices out of the cabbage by the process of osmosis. This also creates brine in which the cabbage can ferment and sour, without rotting. Next, place the contents of the bowl or bucket into the jar or crock, adding small amounts at a time and tamping it down using the wooden pounder, meat mallet or rolling pin (or even the end of a clean, scalded cricket bat). This forces more water out of the vegetable and fills all the air spaces with liquid. Place the outer large green leaves (which were put aside at the start) on top of the cabbage mixture, then place the plate on top, and the weight on top of the plate. The

weighting action forces more juice out of the cabbage and keeps it submerged in the brine. Do not fill the jar too full – leave about 5-6cm at the top – as the fermenting juices may rise and bubble over. If this is the case, a bowl can be placed under the jar to catch the juices and these can be returned to the jar.

Cover the top of the container, completely, with a cloth to keep insects out. Leave the container to sit on a bench and every couple of hours, press down on the weight to force more liquid out of the sliced cabbage. This may take 24-48 hours, until the brine rises above the plate. Keep checking the sauerkraut, daily. After 2-3 days, the lactic acid producing bacteria will be energised and multiplying vigorously. Usually, the container is left to stand at room temperature for 2-12 days, depending on the time of year, the climate, and the rate of fermentation taking place. Generally, a room temperature of 15–26°C (60–78°F) will activate a good lactic acid fermentation in 2-4 days. A longer period of time will be required if the room is colder.

When it is ready, the sauerkraut will smell ripe and good: this recognition will come with experience. Thereafter, the sauerkraut requires a dark, cool spot in the cellar in cold climates or refrigeration in warmer climates. Sauerkraut may be packed in preserving jars and sterilised at a high temperature to seal the jars. This method of storing has the advantage of providing long-term storage; however, the heat of sterilization will result in loss of living enzymes and vitamin C.

An indication of successful lacto-fermentation will be that the vegetables used will remain preserved over several weeks or months in cold storage. I have a friend who has had bottled sauerkraut in the fridge for four years and says it continues to mature. Occasionally, there will be a batch that goes off in the first 1-2 weeks of fermentation and this will be obvious by an awful, rotten odour. Discard this in the compost, wash containers, thoroughly, and sit the containers in the sun to be purified for a day or two. Don't be discouraged that a batch did not turn out. Start a new batch to get the many benefits to health, as a digestive tonic providing friendly bacteria, healthy gut flora, active enzymes, and as an energy booster.

Sometimes, mouldy scum may appear on the top of the mixture. Check the container daily, remove the weight and plate and skim the scum off the surface with a spoon. Some of the scum may break up and be difficult to lift off. Do not be too concerned about this as it is just a surface phenomenon. Apparently, this is the result of contact with the air, but the cabbage itself is under the anaerobic protection of the brine. Wash the plate well before replacing.

Taste-test the cabbage: it should have a mild to moderately sour taste with a mild "fizz" feeling on the taste buds. Generally, it will start to be tangy after a few days and get stronger as time passes. In cold climates and over winter, the sauerkraut may be left to keep developing for weeks, to months. In hot climates and during summer, the action is far more rapid and if left in high temperatures, the sauerkraut will turn soft and the flavour will be less pleasant. Therefore, during hotter periods, after 2-7 days, the plate, weight and whole

cabbage leaves are removed. The product is usually then placed in smaller containers and transferred to the refrigerator for longer-term preservation. Clip seal jars are useful for storage of sauerkraut.

The sauerkraut may then be eaten; *however, the flavour and aroma improves with age over many months.* In hot climates, keep a close eye on the sauerkraut as it may take less time than anticipated. Higher temperatures may make it go mushy, very quickly. It is best to under-ferment than over-ferment during the initial period of fermentation at room temperature. If, for some reason, refrigeration is unavailable ... do what our ancestors did and store the containers in cool, damp bags or bogs. If there is a creek or dam close by, you could immerse the container to keep it cool.

Lactic acid fermented vegetables are not meant to be eaten as a complete meal or in large quantities at a time, but should be regarded as a condiment with a cooked meal or a dollop on raw dishes. In fact, this can add a new taste dimension to any meat or savory dish.

When using the sauerkraut and before the batch runs out, if desired, some of the juice can be reserved (about ½ cup) to pour over the next batch to give it an active culture starter. The juice of the sauerkraut may also be consumed and is considered by many people to be a digestive tonic. However, keep in mind that the shredded cabbage always needs to be submerged below the brine. If the brine tends not to cover the cabbage (and sometimes the brine evaporates a little) a mixture of a teaspoon of sea salt dissolved in 1 cup of hot water (allow to cool) can be added to top up the brine. Also, sometimes adding more brine to a batch is a way of covering all the shredded leaves with sufficient liquid when the leaves do not appear to be releasing sufficient juices. Water used in fermentation should be free of chlorine and fluoride as these elements can hinder enzyme and bacteria action. Use either rainwater or filtered water.

Many cultures around the world have very traditional dishes and these are complemented with fermented foods. Try tucking sauerkraut in a sandwich, add it to a tossed salad or soup before serving, a spoonful on mashed potato or other steamed root vegetables, or try serving a little with beans. This food goes particularly well with rich, heavy meals to aid digestion. Sauerkraut juice can be mixed with lemon juice as a salad dressing. Lactic fermented foods help to normalise the acidity of the stomach if insufficient. It stimulates the glands to produce acid and where acidity is too high it stabilises it. If you find sauerkraut too sour, add a little honey to taste. Apple-sauce and sauerkraut make a tasty combination. There are many uses and benefits of ferments.

It is said that the lactobacillus culture can synthesise all the B group vitamins, which is another plus to our advantage. Because of the nutrient content of fermented food it is a valuable aid in the preservation of teeth, gums, hair and bones. Acetylcholine, in sauerkraut, is known for its powerful beneficial action on the parasympathetic nervous system. This may assist to lower high blood pressure, slow the heart rate and encourage calm and restful sleep. As acetylcholine

has a beneficial effect on the peristaltic action of the intestine, it certainly is a valuable daily food to stimulate regular bowel movements. Fermented foods are used in reducing diets and to stabilise blood sugar levels.

Sauerkraut is valued as a blood cleanser and gland tonic, its alkaline content helps to remove impurities from the body. Bad bacteria in the body may cause *Candida albicans* and other problems. However, if we eat sauerkraut regularly, which helps stimulate the growth of friendly intestinal bacteria (because of the lactic acid fermentation and fibre content), then the colon can be cleared of toxic overload. For these health benefits and as a preventative, 100-125g (approximately ½ cup) is recommended in the menu, each day.

But don't stop at fermented cabbage! Literally, any vegetable, leafy greens or herbs can be made into nutritious fermented food. The lacto-fermentation action makes the leaves and vegetables more digestible, and also aids the digestion of other foods, such as cereals and meats. The ferment may be made with one particular vegetable or a combination of vegetables. Root vegetables can be finely grated. Try carrot, beetroot, onions, garlic, ginger and cabbage together with herbs to flavour. A mixture of beetroot, onion, garlic, horseradish, dill, tarragon and caraway is a traditional vegetable combination. Other combinations are radish with swedes, parsnips and celery, or broccoli, cabbage, onions, capsicum, garlic, coriander and mustard seeds. Try cucumber, beans, onions, tomatoes, corn, dill, garlic and cloves or allspice leaves (beans need to be boiled 5 minutes in water with a little sea salt and left to cool before adding). Grated apples combine well with root vegetables or cabbage. The combinations are endless. Use the same method as for cabbage, just place all vegetable and fruit combinations together, top with brine and use weights, as above.

Root vegetables (like taro and cassava) that require steaming before eating must also be cooked before making into fermented foods. Cut the cooked vegetables into chunks to preserve in brine. Lightly cooked leaves may also be used as well. The fermenting action breaks down the oxalic acid in leaves and foods and also produces calcium lactate (by a chemical reaction of lactic acid and the calcium present in vegetables and greens), and this renders the calcium in the sauerkraut more biologically available.

Poi is a lightly fermented food, valued as a digestive aid, made from cooked taro. The root is pounded to a paste with water added to make it as thick or thin as desired, and left to stand 2-3 days to ferment, then served with a meal or as a side dish.

After 3 months of refrigeration storage, cabbage or other pickled vegetables may start to go soft. If the sauerkraut mixture has had salt added, the leaves will usually keep firm for 3-8 months. In cases where no refrigeration is available, the use of 2-3 times the quantity of salt is required to give it a longer shelf life.

Leaves like mustard, celery, rocket, sheep sorrel, watercress, mushroom plant, salad mallow, comfrey, plantain, drumstick tree leaves, spinach, silver beet and many other leaves may be fermented individually

(or as a mixture) or can be added to vegetables. Use some edible weeds (see page 56) together with vegetables. Even grape leaves will ferment and when pickled may be made into dolmas.

Pickled grape leaves Pick 4 dozen grape leaves and rinse with water. Place in a bowl with 1 tablesp. Celtic sea salt, 1 tablesp. natural yoghurt (or lactobacillus starter), 500ml water and leave to soak 2-3 hours. Remove the leaves from the bowl and stack neatly on top of one another. Roll the leaves up tightly, push the roll into a glass jar and cover with the soaking liquid. Leave to ferment for 2 days at room temperature (can be longer in cold climates), then store in the fridge.

To prepare dolmas: sauté 3 finely chopped onions and 2 garlic cloves in a little oil. Add 2 cups cooked brown rice, 4 tablesp. sunflower kernels or pine nuts, grated rind and juice 2 lemons, 1 teasp. salt, ½ cup each of parsley, dill and chives. Warm all the ingredients through.

Place grape leaves, shiny side down, on a board or table-top and place 1 heaped tablesp. rice mixture on each leaf. Fold the sides of the leaf to the centre and roll the leaf quite firmly, starting from the stem end. Place rolled leaves snugly together on a plate and serve with cottage cheese, kefir or a yoghurt-based dip. In some cultures where fermented leaves are part of the traditional diet and cold storage or refrigeration are generally not part of their way of life, people have used a process of fermentation and sun drying to give a longer shelf life to these stored foods.

High-protein leaves are good for this method of storage, and will provide essential amino acids that our body requires. These can then be utilised as survival foods, when our usual sources of protein may be scarce. Leaves of the drumstick tree, vegetable hummingbird tree, Queensland greens, sweet leaf bush, Chinese watercress, and fenugreek are some good sources of protein leaves to use.

Pound the leaves, as you would to make cabbage into sauerkraut (p 38) and place in a jar with salt and whey or lactobacillus starter; weight the leaves and cover the container. Stir the contents every 2-3 days. When the leaves have become a **fermented paste**, form into small balls by rolling the paste in the hands, and then sun-dry; or place in an electric dryer. These high-protein, fermented and dried leaves can be re-constituted, by adding to stews, soups and cereals.

Fruits may also be preserved by fermentation and are often referred to as fruit chutneys. Whey must be used as an inoculant to activate beneficial bacteria for pickling fruits and kept at room temperature for only 2-3 days, then refrigerated; and these products should be eaten within 1-2 months.

Tropical fruit chutney Peel and cut the following fruit into 2-3cm cubes and place into a bowl: 2 large handfuls each of mango, pineapple and pawpaw. Add 1 cup of raisins or sultanas, 1 teasp. of fennel and coriander seeds, 2 tablesp. honey. In a small jug or bowl, mix rind and juice of 2 lemons, ½ cup whey or lactobacillus starter, 2 teasp. sea salt and 1 cup cold water. Pour the liquid over the fruits and place the

mixture in several glass jars. Press fruit pieces down so that they are submerged in liquid. Cover tightly, and stand at room temperature for 2 days. Refrigerate and eat within 1-2 months. The fermented fruit chutneys can be dressed up with a variety of flavourings. These could include ginger, onions, cinnamon, allspice and bay leaves (left whole), chillies, finely sliced kaffir lime leaves, mint, slivers of almonds or other nuts, orange rind, sesame seeds and herb seeds. Fermented fruit chutneys have a sweet/sour flavour. Serve on bread, buns, scones, or meat and savory dishes with rice.

Stored grains: If stored well, grains of wheat, oats, barley and rye have an excellent shelf life. Usually up to 5 years for germinating, as sprouts, and 5-10 years or more if used for cooking or flour making for damper or bread. These grains provide us with good survival foods.

Soaked grains or young sprouts of grains and legumes can be added to fermented vegetables or sauerkraut.

Rejuvelac is yet another way of gaining the benefits of fermentation. Rejuvelac is the fermented water left after soaking wheat seeds: it is rich in enzymes, vitamins, minerals and lactobacillus bacteria. Any proteins present are predigested, which makes for easy assimilation. *The lactic acid in rejuvelac destroys harmful intestinal bacteria and allows the friendly bacteria to perform their vital tasks*, like boosting vitamin production in the gastro-intestinal tract.

Rejuvelac can be prepared from any unpolished cereal grain like wheat, oats, rye, barley, millet, rice and also unhulled seeds of buckwheat (which does not belong to the Poaceae cereal family but to the Polygonaceae family). Wash grains well, with cold water, to remove any sediment.

Make rejuvelac by placing 1 cup of washed wheat seeds in 3 cups of water and soak for 24 hours. In cold climates, it may be necessary to allow 48 hours for soaking to activate the fermentation process. Pour off the liquid (rejuvelac) to drink during the day and add 3 more cups of water. Repeat this process for 3-6 days, then begin again with fresh wheat seeds. The wheat grains, after being soaked in 3-4 changes of water to make rejuvelac, can be used to make Essene bread or a sourdough loaf. Rejuvelac should have a sweet/sour taste but not be too tart. If the flavour is very sour, the wheat may have soaked too long between changes of water. High temperatures will also make a difference to the flavour. In summer, a shorter soaking time may be necessary. Once the water is drained off the seed, it will keep in the refrigerator for 4-5 days. People drink 2-8 glasses of rejuvelac daily.

Rejuvelac with a foul odour could be caused by a variety of reasons:

- Contamination of water or containers.
- Grains/seeds of poor quality or too old.
- Possibly the temperature is too high during fermentation (over 30°C, 85° F).

Do not drink if the mixture is slimy or cloudy.

Grain seeds used to make rejuvelac may be blended finely, and added to finely grated carrots, onions, ginger etc, and flavoured with herb seeds like dill, fennel, caraway or coriander to serve on cracker biscuits or as a dip. For variation, a 5cm piece of ginger can be sliced and added to the water and grains when making rejuvelac. Try adding the juice of a lemon to the brew and a dozen sultanas or raisins. For a gluten-free rejuvelac, make it with millet or buckwheat. Get the benefits of herbal rejuvelac by adding herbs to the brewing mixture. As herbs may easily ferment (to slime), if the same herbs are left in with the seeds for more than 6 days, it is recommended that new herbs be added to each new lot of water when added to the grain. The simplest way to do this is to place the cut herbs in a small muslin or cheese-cloth bag inside the container of seeds and water. After allowing this to soak for 24 hours, take out the bag of herbs, and strain off the liquid (rejuvelac). Then add the next lot of water to make the second batch and the muslin bag with a new lot of herbs. The amount of herbs to trial to 3 cups of water could be 1-2 teasp. of dried herbs. A suggestion is to use herbs that aid digestion. A glass of this herbal rejuvelac can be beneficial if taken ½ hour before or after a meal. Herbs that benefit digestion include: fennel, dill, anise, parsley, sage, rosemary, lemon balm, ginger, king of bitters, chamomile, calendula, arrowroot, caraway, yarrow, yerba mate, salad burnet, mint, juniper, stevia, allspice, coriander, mallows and bay.

The rejuvelac juice also lends itself to making fermented seed sauces, creams and dressings.

Sweet sunflower seed cream Soak 1 cup of sunflower kernels (this is the seed with outer shell removed) in ¾ cup rejuvelac for 4-5 hours. Place in a kitchen whiz and blend to a creamy consistency, together with 3 teasp. honey or ½ dozen dates. Serve over fresh, diced fruit.

Savoury sunflower seed cream Soak 1 cup sunflower kernels in ¾ cup of rejuvelac for 8-10 hours. Blend to a creamy consistency together with grated zest and juice ½ a lemon, pinch of salt and a few fresh leaves of basil, savory or sage. Serve over salads or steamed vegetables.

The sweet or savoury cream recipes above can be made with a variety of seeds or nuts like sesame, almonds, pepitas, cashews, pecans etc.

Other fermented foods to introduce to the daily diet are cultured dairy foods like **yoghurt** and **kefir**.

Yoghurt is a very good source of protein, fat, carbohydrates, vitamin A, the B complex and D vitamins, and minerals, including calcium and phosphorus. *It is very easily digested and quickly assimilated by the body, particularly the calcium. Yoghurt encourages the growth of friendly bacteria in the intestines that help destroy harmful bacteria.*

Make yoghurt by adding a small amount of 'starter' to warm milk (the starter may be either previously prepared from home-made yoghurt or shop-bought natural live yoghurt). The beneficial bacteria, added to the milk, will act on the milk sugar (lactose) to produce

lactic acid. This sets it to a soft, thickened curd, which has a refreshing and mildly acid flavour. The texture is a little like junket or custard but this will depend on how the yoghurt is made. Generally, people who are lactose intolerant (not able to drink milk) are usually able to enjoy yoghurt, as the lactose is broken down by the bacteria. For those who have their own milk-producing animals, yoghurt is a wonderful way of making self-sufficiency more efficient and nutritious. Alternatively, yoghurt may be made with bottled, powdered or seed milks.

To achieve yoghurt with a very thick consistency, ordinary milk is fortified with powdered milk. It is then pasteurized to kill any "wild" bacteria present. The milk is left to cool to just warm and the natural yoghurt is added. The inoculated milk is then incubated at a warm, even temperature for about 4-6 hours, while the cultures (bacteria) work on the milk to produce yoghurt. Put a lid on the container of yoghurt and refrigerate. It will keep for several weeks. A small quantity of this batch is used to start the next batch.

Several factors are important to yoghurt making:

- Very clean containers and utensils are essential (rinsing all utensils with boiling water is recommended).
- The starter culture must be added to milk at just above blood temperature, to make the milk coagulate; while incubating, the container should not be bumped or disturbed.
- Over incubation (allowing it to sit for longer than required) may produce a very strong tasting, tart yoghurt.

Here I will outline several methods for making yoghurt:

Method 1 Warm 1 litre of fresh, or pasteurized full-cream or low-fat milk, UHT (long-life) milk, soy, almond or other seed milks in a saucepan. If a thick consistency is desired, stir in ½ cup full-cream or low-fat powdered milk and mix well. Heat this over a medium heat, stirring constantly, to 76–82°C (170–180°F). The milk is heated to kill any other bacteria that may compete with 'good' bacteria acting to convert the milk to yoghurt. Heating milk protein changes its form to allow it to react with the culture and firm up. A kitchen thermometer is a handy utensil for checking the temperature.

It is not necessary to boil the milk. Boiling may give the milk a cooked flavour, as milk can easily burn on the bottom of the pan. Remove the pan from the heat and cool to 40–45°C (105–117°F). Stir occasionally as it cools to keep it from sticking to the bottom of the pan. This means that the milk is to be a little warmer than lukewarm and a pleasant warmth when tested with a finger. Add 3 tablesp. natural yoghurt and stir gently until it is a smooth consistency. Fill the mixture into jars and screw on clean, scalded lids (or alternatively pour into a wide-necked thermos that has been warmed and replace lid). Now, the jars must be kept at a warm temperature for several hours. There are several ways you can do this:

- Use a small esky and ½ fill with warm water approximately at 55°C (130°F). Put the jars in the esky, with the lid on esky, and leave in a warm place.
- Place jars inside a sealed, plastic bucket of warm water and stand in a warm place.
- Wrap jars in a heavy blanket or eiderdown and place on 1-2 hot water bottles, or on top of the hot water system.
- Place in the sun on a warm (not too hot) day, making sure it is not shaded, as the sun moves during the day.
- Stand at the side of a warm wood stove.
- After 4 hours, check by gently tilting a jar, to see if it has thickened. When set, refrigerate. If the yoghurt is left too long, whey (thin clear liquid) may collect on the surface of the yoghurt. Refrigerate yoghurt, immediately, after firm coagulation has formed. Note: both low and high incubation temperatures may slow down culture growth and increase the time necessary for coagulation. A solution to this problem is to use a thermometer to monitor temperature.

Some recipes for yoghurt indicate bringing the milk to boiling point but this is not essential, in fact, one recipe gave the temperature to heat the milk to only 37°C (100°F).

Method 2 An even simpler method is to put 2 litres of warm to mildly hot water in a basin, add 1½ cups of full cream or skim-milk powder and whisk until smooth. Add 3 tablesp. natural yoghurt and stir until smooth. Pour into a vacuum flask, jars or other containers and leave in a warm spot eg wrapped in a woolly blanket, sitting on a hot water bottle (ideally around 36–40°C; 74–84°F). This method of using powdered milk and not bringing to near boiling interested me, as powdered milk is a survival food ... and thus we can be prepared for an emergency.

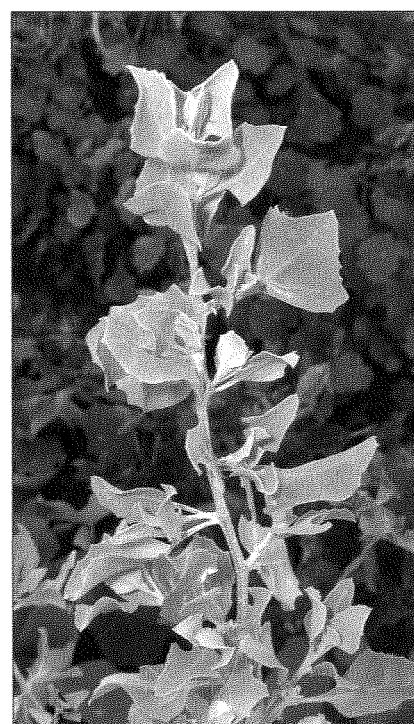
How to use yoghurt: eat it as is or over breakfast cereal, served with fresh fruit, flavoured with a sprinkling of cinnamon powder, make into smoothies, mayonnaise or dips, substitute yoghurt for sour cream in recipes, add dollops over mashed or baked potatoes or other root vegetables, add to batters of waffles, pancakes and fritters. Baked goods will rise well when yoghurt is used (try in muffins, cakes and bread).

Yoghurt mayonnaise Mix 3 teasp. Dijon mustard and 2 tablesp. olive oil together, add 1 cup yoghurt, 2 tablesp. lemon juice and salt and pepper to taste.

Refrigerate until required.

Mint and yoghurt dressing Mix 1 cup yoghurt, 2 tablesp. lemon juice and chopped fresh mint. Alternatively, other herbs may be used, as desired.

Lemon plums Take 3 large handfuls dried plums or prunes (and try other fruits that you have dried); simmer for 5-10 minutes in sufficient water to cover. Add the grated rind of 1 lemon. Remove from heat, add juice of lemon and 3 tablesp. honey. Chill and serve with yoghurt, sprinkled with a dollop of fenugreek sprouts.



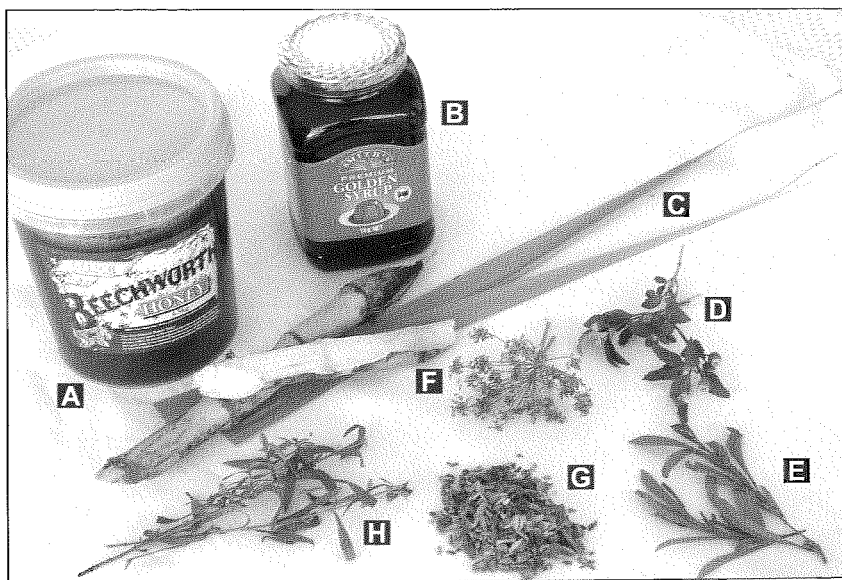
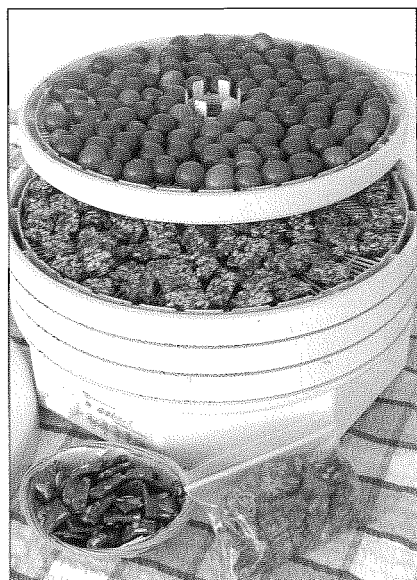
Above: Sprouting in different kinds of containers

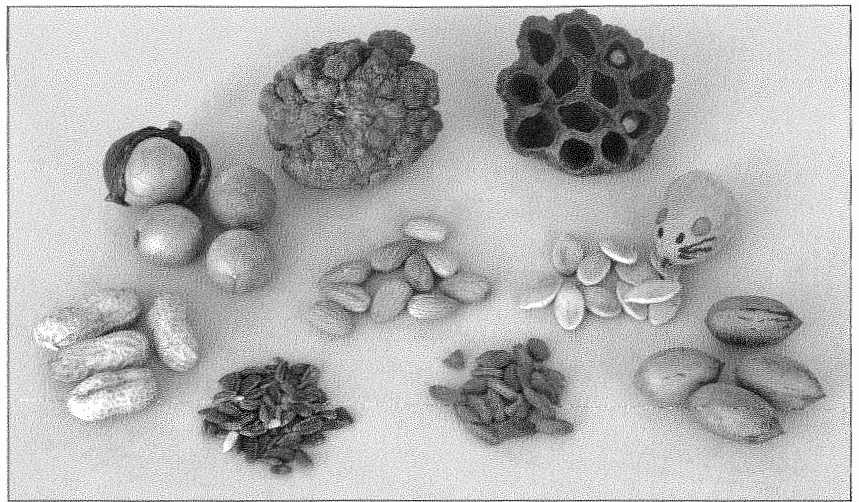
Top right: Hayden and broad beans (p 27)

Right: Saltbush (p 76)

Below right: Plants to give a sweet flavour, and sweeteners: A. honey, B. golden syrup, C. sugar cane (p 11), D. Aztec sweet herb (p 114), E. stevia (p 114), F. fennel (p 65, 114), G. licorice (p 105), H. sweet tarragon (p 90)

Below left: Dehydrator with tomatoes, survival nuggets, and dried fruit (p 33)





Above left: Arrowroot leaves and tuber (p 26)

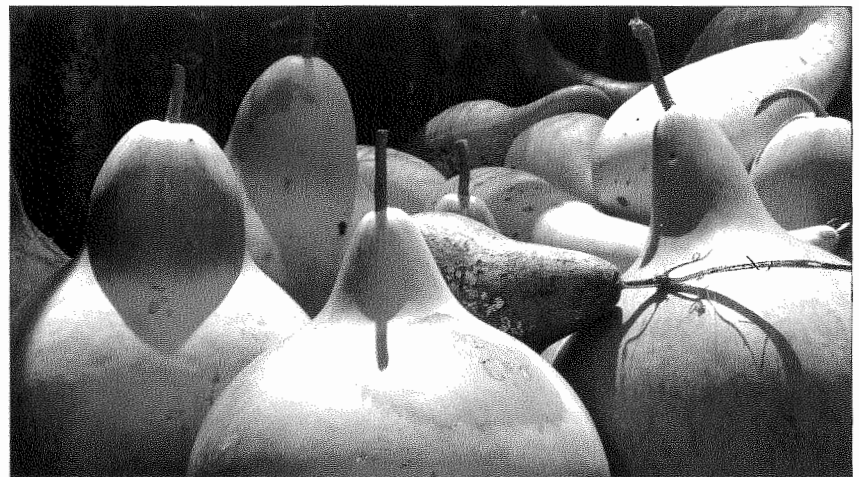
Above right: Nuts and bush tucker: peanuts, macadamia nut, bush coconut, pecan nuts, pumpkin seeds being eaten by my bunya nut pet mouse, sunflower seeds, goji berries, almonds

Below: Gourds drying out to use for storage or crafts (p 26)

Bottom right: South American arrowroot (p 26)

Bottom left: Panama red passionfruit ripening on a trellis

Left: Loofah (p 26)



Kefir is a fermented food grown with a living culture of micro-organisms to produce kefiran, a polysaccharide gum that holds together beneficial bacteria and yeasts.

The culture may be composed of milk casein, **yeasts** *Kluyveromyces fragilis*, *Candida kefir*, and **bacteria** *Streptococcus kefir*, *S. lactic*, *Lactobacillus acidophilus*, *L. caucasicus*, *L. bulgaricus* and others; to provide antibiotic properties and probiotic action, which promotes a feeling of wellbeing. Kefir probiotic action may help the **detox process**, reduce inflammation, and is said to facilitate the elimination of intestinal parasites that can cause damage to the gut wall.

It is traditional food of the Caucasians, a culture handed down through the centuries, drunk from youth to old age ... and noted as a way of life where many people live for well over 100 years. To make the fermented food, these folk placed fresh milk and the kefir in a sack made from animal hide and hung the sack near the door. Anyone going through the door would prod the sack to mix the contents. When some of the kefir was removed from the sack for eating, fresh milk was added and so the process of kefir making was maintained, and continues to our present day.

We can grow kefir culture by incubation in milk at room temperature. This process produces: carbonic, acetic, lactic and amino acids, peptones and enzymes; *these are favourable aids to digestion, building and stabilising intestinal flora.*

Kefir is a good source of calcium and magnesium and helps synthesise many B vitamins in the intestines. *It helps prevent putrefaction in the intestines and has a history of use as a nourishing food and for strengthening the immune system.*

Researchers have found that kefir can alkalise the mouth and for this reason, eating a little kefir at the beginning of a meal is most beneficial. Bacteriologists have found kefir to be most effective against some virulent pathogenic organisms; eg Hepatitis C, herpes simplex, human papilloma virus; and also for relief of numerous other ailments; eg gastric reflux, peptic ulcers, irritable bowel syndrome, colitis, chronic fatigue, constipation, candida, cancer, high blood pressure. Kefir is found to calm and strengthen the nerves, relieve diabetes, eczema, anaemia, hyperactivity, sleep disorders and respiratory conditions.

Protein in kefir is partially digested by the fermentation action and enzymes break down lactose. Therefore, people with food and lactose intolerances can generally consume kefir. As kefir culture has living enzymes, when we eat it we add enzyme stores into the body's 'enzyme bank'. Enzymes have many tasks and one of the most important is in the digestion of food. *Kefir is often recommended by natural health practitioners, as it is beneficial for anyone who may be sick, convalescing, or after a course of antibiotics to help restore healthy natural bacteria in the gut.*

To make kefir, acquire some fresh or dried culture from a health food shop, order on-line or obtain some from a friend. The culture, starter or curd (also called grains) is grown on milk. Many forms are suitable: fresh, bottled, powdered, whey protein concentrate, coconut

milk or seed milks like soy, almond etc. Using seed milks will produce a slightly different flavoured whey and curd. If the growth of the kefir slows down at any time, adding cow's milk for making several batches can boost growth again. As dairy milk is the native media for kefir culture, this is what makes it grow best.

Here is a simple procedure I use to make kefir with a culture I have been growing for almost 20 years.

Procedure for kefir making: In a wide-necked glass jar, put ½ cup of culture and ½ cup of milk. Cover the jar with a loose-fitting lid. Once the kefir is activated with milk, the jar is left on a kitchen bench and is not to be disturbed. Each day, add milk to double the volume in the jar. The clear liquid or whey, may be seen separating from the thick culture in 24-48 hours and can then be drained off the culture. To drain off the whey, hold the thick curd back with a plastic spoon and tilt the jar so that the whey can pour off into a container. Sometimes when starting kefir, it may take a week or more for the culture to develop to a thick consistency. After draining off the whey, wipe the top inside of the jar with a clean cloth or paper towel. This is important to prevent contamination of the batch, by stale particles that may be on the sides of the jar above the kefir level you wish to maintain. Then add more milk, which will grow more kefir. Use the whey as a health drink or flavour it with honey, cinnamon, nutmeg and blend to make a smoothie with fruits, like pawpaw, passionfruit, banana, strawberries and mango. Pour the whey over muesli or other cereals instead of milk.

If more kefir is brewed than is required, this should be stored in the fridge. If you are having a weekend away or a holiday, place the kefir in the fridge. It may also be frozen or dehydrated for later use. After 3-4 weeks, I place some of the culture in a new jar and wash the original jar. Always work with clean hands and utensils.

Note: on the market, there are differing culture strains available for sale. These may have grains of soft clear gelatinous-like small globules imbedded in a creamy mass. To separate the culture from the whey, the kefir may require straining by pouring it into a strainer or sieve (mesh hole size 1-4mm).

When I have grown a sufficient quantity of thick culture, I lift some out and use for spreads, dips and salad dressings. A spoonful on steamed vegies or in recipes can replace cream and butter (eg. pancakes, fritters, scones, cakes) and as a starter for sourdough bread.

To make the **kefir spread** with the thick part of the kefir, I add chopped chives, caraway or dill seeds and herb salt; it will keep for several weeks in the refrigerator. Served on bread for morning tea at herb courses or seminars, it is always very popular and people want the recipe and kefir starter. The spread goes well as a dip served with vegetable wedges or on cracker biscuits. The thick curd part of kefir, if placed in cheesecloth to drain, can be made into cheese. I have used kefir in various recipes to replace cheese, cream and milk. Try toast topped with honey and the thick creamy kefir and a dollop of fenugreek sprouts.

Kefir has a similar flavour to yoghurt – sweet, tart and refreshing, with a sour smell. Some people may not like the taste to start with, but I recommend persevering and learning to appreciate this very special health food. Each batch of kefir may have a slightly different consistency and flavour. The longer the kefir is brewed, the stronger the flavour. In very cold climates, standing the jar near a combustion stove (or wrapping it in a blanket with a warm water bottle beneath) may help to activate the fermentation process.

When a person starts on kefir, they should start with a small quantity and build up slowly. It is wise to watch body reactions: detoxification and elimination, and to monitor what daily amount is best for the system. What may be a health-promoting dose for one person may be detrimental to another. Can a person overdo kefir consumption? We can overdo and take too much of anything. Some time ago, a man rang me to say how he enjoyed kefir and shared his experiences. He said he gradually built up what he was growing each day until he had sufficient to eat 1 litre a day. He experienced more energy and an overall feeling of wellbeing. Many people have given me feedback on the benefits of kefir in their lives, which usually includes improved health, more energy and sound sleep. And, if more kefir is grown than required, it can be used as a skin cleanser, face mask, exfoliate rub, hair conditioner, application over acne and sunburn, hand cream and added to the bathwater ... all in the cause of health and beauty.

Grow some kefir and get the many benefits. If fed, kefir will self-perpetuate and last forever. *It is a valuable survival food for the present and the future*; after all, it has already survived over 5,000 years. The name kefir comes from the Turkish word 'keif' which means good feeling, relating to the feeling of wellbeing experienced when using this cultured food.

If any person is considering alternatives to milk products in the daily diet, seed milk is easy to make. **Rice milk** is prepared with 1 cup of cooked rice, 4 cups of hot water, 1 teasp. vanilla essence blended in a food processor for about 5 minutes until smooth; then strained through a cheesecloth or fine sieve, and refrigerated.

Oat milk is made with 1 cup of oats (or rolled oats) soaked in 4 cups of hot water for 6-8 hours, then blended fine, and strained through a cheesecloth. **Coconut milk** is made with 1 cup of desiccated coconut (or fresh grated coconut) soaked in 1 cup of hot water for 1 hour, and then strained through a cheesecloth. If too thick and creamy, more water can be added.

Save it for later!

There are many methods of preserving excess garden produce. Ask your grandmother or great aunt what they did with bounty from the garden, and they are sure to tell you that it was shared with neighbours and relatives. Bumper crops were made into pickles, preserves and jams. Kitchen pantry shelves soon became lined with small and large jars. This wonderful array of conserves and preserves were an essential part of many homes, needed to feed the family and to make ends meet.

My dictionary explains the meaning of conserve as: to keep in a safe or sound state; preserve from loss, decay or waste. As I grew up on a farm, I well remember spending many hours helping my mother cut up the fruit and vegetables that we grew to make into a variety of conserves. Working long hours on the farm was part of farm life (prior to the days of TV) and this hard work, knowledge and experience, learnt from my parents, is something I am grateful for. Those early years of farming life modelled my future and my desire to grow food for my own family.

There are a number of ways of conserving foods that will enable us to enjoy the produce of our labour, help extend our food supplies, and cut weekly budget costs, over many months. *Naturally, the more produce we can pick from the garden and eat absolutely fresh, the more beneficial to health.* However, in cold and temperate climates, a variety of foods from the garden all year round is not so easy to grow; therefore, preserving produce is a practical method of storing for later use.

As mentioned previously, freezing, drying, making sauerkraut and fermented foods are useful ways of storing the garden harvest (see p 28). These methods give some of the best ways of preserving food to retain the nutrient content. *If we are faced with hard times in the future, we may need to consider any method by which food is protected against spoilage by oxidation, moulds, bacteria, and micro-organisms.* Herbs and spices may be used to add flavour, and also for their antioxidant and anti-microbial properties, which will help to preserve the produce.

Other traditional methods of preserving foods, which include the use of sugar, vinegar and salt, or oil, will mean *some of the nutrients are lost in the cooking and pickling process, and the preserves will be quite acidic to the body.* These preserves may also be high in kilojoules and glycaemic index, particularly jams because of the high sugar content. Your own preserved produce will taste far better than store-bought products, and without the artificial additives. However, as these conserves are generally added to the daily diet as a condiment in a small quantity, to serve on bread, a dollop on the plate, or to season a meal, this will mean we are not consuming them in large quantities.

Brine is a traditional method of preserving vegetables using vinegar and salt as the keeping agent. Use 1 litre of vinegar for every kilogram of vegetables. The quantity of brine required will vary, depending on how well the vegetables pack into jars. Make the brine using the vinegar of your choice, such as white or apple cider vinegar (which has health benefits, too). Add salt, herbs, spices, and either sugar or honey in quantities to suit your palate. Pack the vegetables (cut into slices or chunks) into sterile jars. Heat the vinegar brine in a saucepan to boiling point, and pour over the vegetables in the jars, making sure that the vegetables are well covered. Immediately, screw on the lids. Jars with vacuum lids are the best to use, although, screw on plastic lids can also be used (eg jam and pickle jars). Shelf life of the vegetables in brine may be 3-12 months or longer. The harder the texture of

the vegetables, the longer they keep. After a period of time, the vegetables do go soft. Some vegetables that suit this method are garlic, onions, carrots, cauliflower, capsicums, broccoli, celery, radish, parsnip, zucchini and cucumber.

Sweet pickled onions Peel 1kg of small pickling onions and pack into jars. In a saucepan, bring to boiling point 3 cups vinegar, ½ cup honey, 1 tablesp. salt, and pour the brine over the onions. Seal the jars and leave onions stand 7 days before using.

Oil as a preservative creates a mellow flavour, and this method suits asparagus, olives, garlic, dried or semi-dried tomatoes, chillies, globe artichokes and beans. Preserved in oil, vegetables will keep two weeks to a year, depending on whether they are fleshy and soft, such as asparagus. Preparation of asparagus, beans, artichokes, olives, and garlic requires cutting into pieces, so they will be a suitable size to fit into jars and for serving on a meal. Place pieces into a container, pour boiling water over the top and leave immersed, for one minute. Drain in a colander and place vegetables on a clean tea-towel to cool. When cold, pack into sterilised jars. Fill jars with olive oil, then seal and wait two to three days before serving.

Salt has been used as a preservative throughout the ages. It works by drawing the moisture content out of the produce. The dry salt is sprinkled over each layer of vegetables. An excess of beans from the garden was traditionally preserved with this method. Herbs and spices are added as desired. Note: refined table salt may contain aluminium and is better to be avoided. Using iodised salt may cause preserves and pickled vegetables to discolour or go dark in colour. Look for coarse sea salt or granular pickling salt. Freshly squeezed lemon juice is poured over the vegetables and salt layers when the jar is full, and the jar is then sealed. Store for one month to mature, occasionally rolling the jar to mix the salt and lemon juice. When wishing to have a meal of salted beans or other vegetables, remove the quantity required for the meal, soak in water half an hour, rinse in several changes of water, if desired, and then boil or steam vegetables.

Salt is also used to dehydrate meats and fish. As the salt penetrates the meat, it destroys the enzyme and bacterial action. Once salted (usually in a salt and water brine), some meats like pork have been traditionally smoked to make bacon and ham.

Utensils used for preparation and storing foods using salt and vinegar should be of glass, ceramic, earthenware, plastic or wood. Aluminium, iron and copper utensils should be avoided. Stainless steel pots are suitable for heating preparations.

Sugar acts as a preservative when used in high concentrations like in jam making with fruit, thus creating a high osmotic pressure, so that most microbial activity cannot survive. As moisture is boiled away from the fruit, the sugar also acts as a thickener. Making jam can be messy, as boiling fruit and sugar can 'spit' sending the extremely hot mixture in blobs over the stove, walls, and the person who keeps constant watch while stirring the boiling pot. It is practical to have a piece of aloe leaf handy to immediately rub on burns.

Fruits that have a high, pectin content (eg citrus, quinces, sour or sharp green apples, under-ripe plums and currants) usually set readily. Low pectin levels in fruit (eg peaches, sweet cherries, rhubarb, pineapples, pears, strawberries and pie melon) may take much longer to set, which means a longer time stirring over the hot stove, and possible loss of colour and flavour. Jam that does not set well may tend to go mouldy. Pectin sachets, for adding to jam, can be purchased at supermarkets (I have used JamSetta brand), and the pectin granules are added together with the sugar, once the fruit has been cooked until soft.

Alternatively, carrot, which is rich in pectin, may be added to help the jam to set. **Carrot substitute** (for pectin) To 2kg of fruit, add 2 medium or 1 large carrot, grated, and cooked with the fruit.

Lemon juice is also a good pectin source: add ½ cup to 2kg of fruit. Fruit that has a low acid content may also be slow or difficult to set (eg pears, blackberries, sweet apples, rhubarb, peaches, figs, elderberries, very ripe apricots, raspberries, strawberries and cherries). The higher the acidity levels of the fruit (usually) means, that, when made into jam, it would be less prone to bacterial growth. Bacteria may cause jam to ferment.

To prevent bacterial growth adding citric or tartaric acid (available in supermarkets), or the juice from 1-2 lemons can help. To 5kg of fruit, adding 3 teasp. of tartaric acid would be required. The next section provides a detailed description of the finer points in jam making, followed by easy-to-follow recipes.

Step by step to jam making: Remove seeds from fruit and weigh, cut into small chunks or, if preferred, put fruit into a kitchen whiz to blend into a pulp. Lightly smear the base of a large pot or preserving pan with butter or oil, which helps to prevent sticking. Put the fruit into the pot, adding a little water - if required - to the fruit pieces (this will depend upon the juice content of the fruit). Water is seldom needed, as the crushed fruit will provide its own moisture. Besides, if too much water is added this will then need to be boiled away or the jam may not thicken. Cook the fruit until soft; some fruits with tough skins may take longer to break down. In preparation, to test the jam for setting, place 3 saucers or small bowls in the freezer or fridge to chill. Once fruit is cooked and soft (note: pulped fruit will not require a long boiling period), add sugar and pectin (or lemon or tartaric acid), as required. *Generally, the basic quantities of sugar are 2kg per each 2kg of fruit.* If jam tends to go sugary when it is stored, try adding a pinch of cream of tartar when cooking the next jam, as this helps to prevent the jam from going sugary on top.

People concerned about the large amount of sugar used in jams can experiment with less. As sugar is amongst the most acid-forming of all dietary substances and linked to poor disease resistance we do need to consider this, even in stored food items. *Sugar has been linked to over 100 health problems in our modern way of life.* As a result of our Western diet, the body has decreased ability to produce essential enzymes, which can reduce cell energy and absorption

of protein and nutrients, *destroy neuro-transmitters, and lower immune system function*. I have often made jam with $\frac{3}{4}$ to $\frac{1}{2}$ the amount of sugar given in a recipe and added pectin to help set the jam. If only small batches of jam are made, $\frac{1}{2}$ the amount of sugar can be used; but then, it is important to keep an eye on the jars in the cupboard. If jam starts to go a little mouldy on the top, scoop off the mould, put jars into the fridge or freezer, and use a jar as required. Note: adding 1 teasp. of vegetable glycerine to the jam, just before taking off the stove, may help prevent jam from going mouldy. Adding a seal of wax will help prevent mould. Another hint to stop mould: once jam has been poured into jars and left to cool, place 1 teasp. of vinegar on the top of the jam before sealing or dip cotton wool in vinegar and wipe on the top of the jam. Small batches of jam can be made with $\frac{1}{2}$ the recommended quantity of sugar to $\frac{1}{2}$ of honey; or $\frac{1}{2}$ sugar and 2 teasp. of stevia leaves, dried and ground (see p 114), to replace each cupful of sugar. It is a definite advantage to add pectin to help set the jam when stevia or honey is added to jam, as these sweeteners do not give the setting or preservative action of sugar. (Keep these refrigerated.)

Stir the jam well to dissolve sugar quickly and return mixture to the boil. Boil steadily, stirring constantly to prevent the jam from burning on the bottom of the pot. When starting to heat fruit, 3-4 marbles added to the pan can also help prevent burning. *Remember to remove the marbles after cooking.*

Do not leave the jam unattended, as some fruits can boil up like a volcano and there are few chores worse than cleaning up the mess of jam stuck onto a hot stove. Make the jam in a large pan, so that there is plenty of space for the fruit and sugar to boil without fear of it boiling over. Each kind of fruit will take a different length of time to set. When the mixture starts to look quite thick, which could be from 3 minutes to 15 minutes, test a spoonful on the pre-chilled saucer. Replace the saucer, with a spoonful of the jam, back into the fridge and leave 30 seconds, so it cools quickly. Remove saucer from the fridge and hold on an angle to see if the jam will run. If so, it is not set sufficiently and jam will need to boil longer. However, if the jam has formed a wrinkled scum and does not run, then it is thick enough, has reached setting point, and can be removed from the stove and filled, straight away, into pre-warmed, sterilised jars. Screw-on lids should be put on, immediately, to ensure a good seal. If the jam was still runny at the first testing, boil 3-4 minutes longer and test on the second saucer, or even a third time, if necessary, until jam sets with a crinkly surface. The jars of hot jam can also be covered with wax, which also acts to prevent jams going mouldy.

To prepare the wax: melt wax in a saucepan, and pour a 5-10mm layer on the top of the hot jam. (Paraffin wax is usually available at home hardware shops.)

Keep a record of the amounts of fruit and sugar used for each batch of jam, and the time required to boil, as this will be useful information when making future batches. If planning to cover jars with cellophane

or waxed paper or fabric, this covering is done when the jam is cool.

Strawberry jam Cook 1kg strawberries till soft, add 1kg sugar, juice of 1 lemon and boil rapidly until set. If having trouble with strawberry jam going mouldy, next batch made, add 2-3 rhubarb stems to the jam when cooking, which also helps jam to set.

Apricot jam In a pot, place $1\frac{1}{2}$ kg diced apricots, juice of 3 lemons and cook until soft, stirring often. Add $1\frac{1}{2}$ kg sugar and boil jam to setting point. This recipe can be used for many kinds of fruits, including other stone fruits (eg peach, plum, cherry) and figs. If the jam appears reluctant to set, add 2 teasp. tartaric acid or pectin (as per packet directions).

If only small quantities of fruits are available at one time, **pie melon** (also called jam melon or preserving melon) can be cut up and added to the fruits to extend the jam quantity. Sometimes, when I pick rosellas, mulberries or other fruits, and don't have enough of the fruit to make a full pot of jam, I will add the same quantity of pie melon. Doing this does not really alter the flavour or colour of the fruit. Other ways of extending jam is to add the diced flesh of flour gourd (also called wax gourd or winter melon), chokos, pumpkins and squash (p 25).

Marmalades are made with one or more kinds of citrus fruits, with water added, which gives the jam a jelly-like appearance.

Orange marmalade Cut finely or mince $\frac{1}{2}$ kg oranges, removing the seeds. Place in pot with 1 litre water, together with the seeds (which should be tied up in a piece of muslin). Next day, simmer pot with lid on until the peel is quite soft. This may take over 1 hour. (Using a pressure cooker pot to cook the fruit can reduce this cooking time to 5-10 minutes.) Take the seeds in muslin out and stir in $1\frac{1}{2}$ kg sugar and juice 1 lemon (or 1 teasp. tartaric acid, or alternatively, pectin, as per directions on packet). Boil rapidly with the lid off the pan, until setting point is reached, which may take 10-20 minutes. Test for setting, same as for jam.

Jam with **fresh ginger** can be made, similarly, to the marmalade recipe, with pectin included to aid setting.

Sometimes, when making ginger jam, I add pie melon or flour gourd as an extender; this also makes a milder flavoured jam, which is not so pungent to the palate.

Strawberry jam with stevia to sweeten Dice finely, 5 cups strawberries and place in pan with 1 cup water, 1pkt pectin, and 2 teasp. dried and powdered stevia leaves. Boil 5 minutes. Bottle, cool, and keep in the fridge.

Combining vinegar and salt to preserve vegetables or fruit and boiling this, to soften and cook the produce and evaporate some of the moisture, will result in chutney sauce or pickles. Such recipes may also include sugar (in small or large quantities), resulting in a sweet and sour flavoured condiment. Some recipes are very spicy and some have a really hot bite, as chillies are added.

Cucumber pickles Slice thinly, 3kg cucumbers and 1 large onion, put in basin with $\frac{1}{4}$ cup salt, cover with crushed ice, and press down with a weighted plate. Leave stand 3 hours. Drain well, wash with cold water, and drain again. Place in a pot with 2 cups sugar, 2 cups vinegar, 1 tablesp. mustard, 1 teasp. turmeric and 1 tablesp. celery salt. Heat the ingredients, just to boiling point. Remove from stove, bottle and seal. Leave 2 weeks for the flavours to blend.

Salting beans To every 5 cups of sliced beans mix 1 cup salt and $\frac{1}{2}$ cup sugar. Simply mix the beans, salt and sugar together and place in earthenware or glass jars. Do not seal down, but cover with a piece of cloth tied with a string. More beans can be added until the container is full, but be sure to always use the quantities of sugar and salt.

Sweet mustard pickles Prepare 2kg of vegetables (can be a variety: cauliflower, cucumber, choko, beans, capsicum, peas, carrots, onions) cutting into small pieces. Sprinkle with 1 tablesp. salt, cover with water, and allow to stand overnight. Next day, drain off water, add 1 litre of vinegar, and cook 1 hour. Mix together, 1 tablesp. each of curry, mustard and turmeric, 3 cups sugar, 4 large tablesp. flour and $\frac{1}{2}$ litre vinegar to make a smooth paste. Add to vegetables and cook 10 minutes, stirring constantly. Bottle, and seal jars when cool.

Tomato relish Dice finely, $1\frac{1}{2}$ kg tomatoes, and finely cut $\frac{1}{2}$ kg onions, put in a pot with 1 tablesp. salt and 1 cup vinegar, bring to the boil and simmer 10 minutes. Add 500g sugar. Mix 1 teasp. mustard powder, curry powder, and 1 pinch cayenne pepper (or 2 small chillies, chopped very finely) and $\frac{1}{2}$ cup vinegar. Boil until the mixture becomes quite thick (this may take over half an hour). Bottle and seal relish while hot. (Just before bringing to the boil to thicken the relish, 3 allspice leaves can be added for a delicious spicy-clove flavour.)

Beetroot relish Peel and grate, mince or pulp in a blender: 500g beetroot, 500g Granny Smith apples, 4cm ginger root. Place in a pan and add 200g sugar, 2 cups vinegar, $\frac{1}{2}$ teasp. ground cloves, 1 cinnamon stick (or 3 bay or allspice leaves). Bring to the boil and allow to simmer 30-60 minutes, until the liquid is reduced and the relish thickens. Bottle and seal with screw-top lids. Refrigerate once a bottle is opened.

Zucchini relish Cut finely, 2kg zucchini, 2 onions, sprinkle over 2 tablesp. salt, add water to cover, and leave stand overnight. Next morning, drain off water. Place vegetables in pan to cook with 3 teasp. sugar, 4 teasp. mustard seeds, 2 teasp. celery seeds, 2 teasp. turmeric powder or 4cm piece of the fresh root (finely cut), 1 red capsicum, finely cut, 1 tablesp. whole peppercorns and 750ml vinegar. Boil approximately $\frac{3}{4}$ hour, until thick.

Choko pickles Peel and cut up $\frac{1}{2}$ kg onions and $1\frac{1}{2}$ kg chokos, sprinkle with 2 tablesp. salt and leave to stand 12 hours. Drain and place in pan, add 1 litre vinegar, $\frac{1}{2}$ cup sugar, 1 tablesp. turmeric, 1 teasp. mustard powder, 2 teasp. curry powder. Cook until vegetables are soft, then mix $\frac{1}{2}$ cup flour to a thick

paste with a little vinegar and add to pot to thicken the pickles. Bottle and, when cold, screw on lids.

No-cook Spicy Chutney Cut 1 small pineapple into fine chunks. In a food processor blend $\frac{1}{2}$ cup raisins or sultanas, 1 dozen dates, 6-8cm long piece fresh ginger, 1 small chilli, juice $\frac{1}{2}$ lemon, 2 tablesp. honey, $\frac{1}{2}$ cup vinegar). Add the blended mixture to pineapple and mix through. Put in a container and keep in refrigerator; chutney will keep 7-10 days.

Literally any vegetables or fruit have potential for making into conserves, to be stored away for later use. Most recipe books have a variety of recipes, or if you are seeking something unusual and wish to expand your horizons with conserves, try searching the internet. You may wish to search a second-hand shop for old recipe books or ask a senior citizen for heirloom recipes ... you are sure to find a range of recipes to try. Store your pickles, preserves, chutneys and jams in a cool, dark, dry cupboard or on shelves.

People in the past (our grandparents and great grandparents) utilised a large variety of produce; *this was the lifestyle of conservation, self-sufficiency and storing for long winter months when vegetables and fruits in the garden were very limited.* All sorts of long-forgotten methods were employed to keep food from spoiling in those times. Very old books on this subject are still to be found.

If the future brings the need for more reliance on our own self-sufficiency and less dependency on shop-bought food, then each household may want to develop skills in bread making, too. Conserves of jam, chutney and pickles can provide a topping for bread or enliven a simple damper.

In colonial Australia, stockmen developed the technique of making damper out of necessity. Often away from home for many weeks, with just a campfire to cook on and only sacks of flour as provisions, a basic, staple bread evolved. Originally, it was made with flour and water and a pinch of salt, kneaded and baked in the ashes of a camp oven or open fireplace. It would be served with slices of fried dried meat, pickles, golden syrup or jam and washed down with billy tea. Today, there are many variations of the original flour and water dough.

Aussie damper In a bowl mix 3 cups self-raising flour, $\frac{1}{2}$ teasp. salt, and rub in 3 tablesp. butter until the mixture resembles fine crumbs. Add $\frac{1}{2}$ cup water, $\frac{1}{2}$ cup milk (or all liquid as water) and mix lightly with a knife until the dough leaves the sides of the bowl. Gently knead the dough and shape into a round loaf, using a little more flour to knead as required. Place on an oiled oven tray and bake in pre-heated oven 200°C (400°F) for 25 minutes, then lower the temperature to 180°C (375°F) for a further 10-15 minutes, until the damper is a light golden brown colour and sounds hollow when tapped. Damper is best eaten the day it is made. To bake over a campfire, place damper in a camp oven and cook on coals for 15-20 minutes; or try wrapping a handful of dough around a strong stick and suspend over the coals to cook. For herb damper, add a variety of flavouring herbs like rosemary, marjoram, thyme, oregano and parsley. For a savoury damper,

top with grated cheese before cooking. For sweet damper, add a little sugar or honey, and dried or fresh sliced fruit to the damper.

There are numerous simple bread recipes that may be made for home-style food preparation.

Yoghurt or kefir sourdough herb bread Mix, in a bowl, 3 cups of wholemeal flour, 2 cups plain yoghurt or kefir, ½ cup water. Cover and leave in warm place 24 hours. Place flour mixture in a food processor and blend for a few minutes to knead the mix, or mix by hand with a wooden spoon. Add 3 lightly beaten eggs, 1 tsp. salt, 2 tsp. baking soda, 2 tablesp. butter, 2 tablesp. honey, golden syrup, or 2-3 tsp. of herbs to give flavour (could include oregano, thyme or rosemary). Mix well, place dough in a well oiled and floured baking tin. Bake at 200°C (400°F) for approximately 1½ hours, or until a toothpick comes out clean.

Soda bread Mix 4 cups of wholemeal flour, 4 tsp. baking powder, 1 tsp. salt, 2 tablesp. melted butter, 1½ cups milk, kefir, whey or buttermilk, and mix lightly into soft dough, place on a floured baking tray and shape into 2 oblong loaves; with a sharp knife make angled slits along the length of the loaves, and sprinkle lightly with flour. Bake in a preheated oven 225°C (450°F) 10 minutes, then reduce to 200°C (400°F) and bake another 10 minutes.

Whole wheat crackers Mix, in a bowl, 1 cup of wholemeal flour, 1 tsp. salt and 2 cups water to make a thin batter. Place batter in a plastic sauce bottle. Squirt the mixture onto a lightly oiled oven tray, into long pretzel shapes, round crackers, or whatever design you fancy. Bake at 175°C (350°F) for 10-15 minutes, or until crisp. Crackers can be checked after 8 minutes, and turned over if the middles are not cooking as fast as the edges. For a variation, add flavouring of 2 tsp. onion or garlic flakes (or finely chopped fresh), or season with 1 tsp. ginger or cinnamon powder, or finely-crushed dried herbs.

Our early settlers, due to hardship and necessity, acted on the practical motto, **'waste not, want not'** ... and now, in our 21st century, Australians must act on this motto to save, conserve and recycle all our resources ... trees, water, electricity, fuel and food. Recently, I was browsing a book on recycling, entitled: 'No garbage' by Allen Gilbert, with very graphic coloured photos, and one picture that caught my attention was students' lunch wastes, which saddened me. Perhaps we have been a lucky country for too long. Then a newspaper cutting, sent to me by a cousin, highlighted this wanton waste with lunches found in a schoolyard rubbish bin ... the problem was that the wastes were pure food of whole apples, oranges, bananas, unwrapped sandwiches and muesli bars.

Yes, our food has been plentiful, but does that mean we should be so fussy, or waste it? Will food in the future be so abundant? We know prices are rising, and we are told that they will escalate much higher, due to increased fuel and water prices and other factors; so, perhaps we must all make **'waste not, want not'** **our daily watch words**. The old Scottish proverb, 'Wifil waste, makes woeful want', says it with even more punch.

Over the last few weeks, headlines in newspapers have indicated serious food shortages, worldwide. One newspaper headline read, 'Nation could run out of Food' and some people might say ... is this alarmism, sensationalism, or realism? Today, as I write, I received an email reporting headlines from The Age newspaper, 'World's new crisis: soaring food prices'. The papers may be warning us, and the facts are there to show us. Grain is not stock-piled to the same extent as in the past ... due to droughts, extra demands (grains going to make bio-fuel) and tough economic times ... our land of plenty could become a land of want. Then, I think of the food wastes in schoolyard bins, restaurants, homes ... and I am saddened.

Newspapers are also highlighting the problems that all this waste causes, and this may also include anything that can be broken down into compost that is going into garbage bins, like garden prunings, lawn clippings, paper, cardboard ... creating a huge heap, or rather a massive mountain of landfill. And this, we are told, is contributing to greenhouse gas pollution. *One newspaper said that, in Australia, we waste about 8% of the food we purchase and that produces almost a quarter of our greenhouse gases compared to transport, which is 10% and electricity, which is 19%.* We have grown used to an environment of plenty, with an enormous variety of consumer products, readily available: a constant enticement to buy 'more', 'new' and 'improved'. *We must cultivate a new awareness of how our shopping and lifestyle choices affect the environment and directly cause carbon emissions, then ... with a different attitude ... we can begin to make positive changes to reduce our negative effects.* Another news item reported that, in Hong Kong restaurants, they have a way to stop food wastage. Hong Kong is 'bursting at the seams' and landfill space is scarce. So, if you don't finish your meal, your leftovers will mean that in certain eateries you can be charged between \$HK5 and \$HK20 for your wasteful habits.

When I think back over my life, there were a number of role models to encourage me to 'waste not'. My mother instilled in me: 'a stitch in time saves nine' when it came to clothes that needed mending. She was very skilful at doing two or more tasks at once. And, while the hands were involved in routine tasks, the mind could be sorting out problems or planning future activities; or she gathered materials that would be needed for the next job ... all part of planning ahead.

My father had great talents in recycling. He could recycle junk and give it new life. He was also endowed with a talent for fixing anything that broke. I did not seem to have this talent in my genes, or the capacity to think how to fix mechanical things (but I guess I could fix clothes and do sewing repairs). However, I am extremely grateful that I have a husband who also has this wonderful skill of being able to renovate or fix anything that is broken; so, I suppose, I have never needed to learn all the 'fix-it' skills. So renowned are Derrick's skills as a 'fix-it' man, that when my grandson Hayden was 4 years old, he noticed a cane toad that had been run over and flattened by a car, on the

driveway. Hayden remarked that Grandpa would be able to fix it!

I guess, some of these 'fix-it' skills can be learnt, especially if a person has the chance to watch repairs being carried out. There are books available that show step-by-step repairs; so, why not learn some of these skills, which would help the household budget.

Water was always considered precious, an essential commodity, never to be wasted. Many farming families will remember Saturday night baths ... when everyone in the family would go through the same bath water. The younger (or cleaner) members bathed first, and then, after the 'family bath', the water would be bucketed out to water the vegetable garden.

Some people still feel that a simple (but thorough) sponge bath with just a couple of litres of water - or herbal infusions - in a plastic basin can be sufficient to make the body fresh and clean. The basin of water is placed into the bath or the shower recess to prevent splashing; the used water is put onto the garden. If water becomes a very scarce commodity, we may all need to consider shorter showers, and bathing in a bucket! And, for another water conservation ritual, in reference to a visit to the family toilet ... 'If it's yellow, let it mellow; if it's brown, flush it down'.

I will never forget my grandmother, who was a real pioneer. She raised a family of 10 children, and all before the days of modern machinery and electricity, working alongside her husband on their farm in a dry, harsh land. When my family would receive a letter from Grandmother it was long and newsy, written on writing pad paper both back and front (and sometimes across the lines at right angles too). Then, the last page was (usually) a used envelope ... carefully opened up and flattened (no doubt from the last letter Grandma had received from one of her 10 children) and this, too, would have news back and front. I loved to read her letters, they were like puzzles to decipher, finding where to read next. No wonder I value every scrap of paper ... use it on both sides; and then, when finished, it is given four more practical uses, by placing in the garden: to cover weeds; to mulch and improve the soil; to help conserve moisture; and to feed the earthworms. Today, we know how important trees are to our wellbeing, but look at the waste of paper in society.

I recall, some years ago, when we ran free herb farm walks with a guided tour, I would explain about the many edible plants, and a man noticed that we recycled numerous things. At that time my daughter had a pet sheep. The man commented that we could start bottling the sheep droppings, label, and market them as 'Smart Pills' and, if someone buys a bottle ... because they wish to increase their intelligence ... and then says, "This is sheep poo" ... then we say, "See, you're getting smart already!"

This brings to mind, the stone soup fable ... where the story emphasises, that we make use of everything. Now, there are varying strains or truths that have been added to this tale ... but the story goes something like this, and I will add an Australian flavour to it ...

Swaggie stone soup: Early in the settlement of Australia, a swagman was making his way through

the country, looking for work. After the gold rush, there were many others also seeking jobs, cutting wood for a household, crutching some sheep for a farmer (note: for those who are not familiar with this term, it means clipping soiled-daggy wool from under the sheep's tail), droving for a cattleman, and milking cows at a dairy. One day, a swagman knocked at a farmhouse door seeking work and a meal. The woman of the house looked the beggar up and down with scorn. Then, she said her husband was away, and that she could not let him in, besides, she had nothing to offer him for a meal.

Now, swagmen were renowned for their cunning tricks and tough hides, and he was not about to take a rebuff from the woman. The swagman pulled a rock out of his pocket, saying that she could benefit with his stone soup. This aroused her interest. He asked for a pot, full of water to boil over the fire ... and he would show her how it worked, to make the best soup ever. The woman, still a little suspicious, let the swaggie in, set a pot with water to boil, and the swaggie dropped in the stone. After a while of boiling, he tasted the water gruel and said it needed some salt to flavour, and just a little barley. The woman obliged with the suggested ingredients. He tasted it again, remarking that it tasted much better, but felt that a good soup still needed vegetables and potato and asked if she had any in the garden or stored in the cellar. She quickly found a generous portion of potatoes, beans, carrots and turnips. When the broth had boiled longer, the swaggie tasted it again, saying, "It's almost soup, the stone has not failed us, but some chicken or chunks of meat would make it a meal fit for a king." The woman, recognising the truth of his claim, quickly obliged. She ran to the fowl yard and came back with a freshly slaughtered fowl, which was plucked and added to the soup. Soon, a wonderful aroma filled the house, and the man was thrilled that he could do something to assist the woman with his stone. The woman dished up a bowl of soup for her guest and herself. They enjoyed their soup ... thanks to the magic stone, and there was plenty left in the pot for the husband, too.

Now, the swaggie sensed that maybe he should be on his way, as the woman's husband might soon be home, so he fished his stone from the bottom of the pot, licked it clean, and put it back in his pocket. He thanked the woman for the use of the pot and the fire, and the woman said it was simply amazing that he could make soup out of a stone, and that he should come again. "I will, indeed," said the swaggie, disappearing between the gum trees and into the night to look for a soft place to rest his body in a hay-shed, so glad that he could be of help.

Now, making this stone soup is not only a legendary story, but it also has lots of tradition, which just must be carried on. Make sure you find a smooth stone about the size of a goose egg, place it in a pot, cover it with water and bring it to the boil ... then, taste it. (You will notice that it tastes like hot water.) Now, you need to bring the flavour out of the stone. This is not an easy task, as the stone is very hard and unyielding. It may not give you any flavour, unless you search for

the secret to extract its natural juices. Try adding a variety of vegetables, but do not peel the vegetables, as the roots of carrots, potatoes, swedes, turnips and parsnips, coming from the earth, have had a natural affinity to the stone and will entice it to give up a hearty flavour. Then, sprinkle the pot with salt and pepper and add anything else that you fancy. **Warning:** if you try to make stone soup without using the above instructions for extracting the flavour, then all you will have will be a lot of boiling water.

I have shared my stone soup story with you ... to expand your horizons, to show what can be done with a few vegetables and some meaty bones to make a tasty pot of soup. If you like, you can add a stone to it, too ... for no other reason than to tell the story to your children. We can all improvise, extend, and make a nourishing meal, without expensive shop-bought items or processed foods. Thrift was a virtue of most families in the 1920s and 1930s and a very necessary one, too. (Especially in the 1930s, during the time of the Great Depression.) And that brings me to bone soup, which was the backbone of many meals for early settlers and into the 20th century. Still, today, soups can provide a heart-warming, nourishing and economical meal.

Method of preparing bone soup: In a large pot place your choice of bones: chicken or other poultry, beef, lamb, pork, goat or fish, which may have meat attached. (Add as little or as much as desired, since more meat will mean a meatier soup.) Cover bones with water, 2 to 4 times the volume of the bones. Add 2-3 tablesp. apple cider vinegar, which acts to liberate the bone nutrients into the water. After adding the vinegar, leave the pot to stand 1-2 hours. Bring pot to boil and simmer, slowly, 1 or more hours. (This will depend on the age of the animal bones, as to how long it may take for the meat to fall off the bone and the nutrients to be released into the broth. The larger the bones, the longer they need to simmer; a young chicken would release the nutrients into the liquid quite quickly.) A pressure cooker is ideal for soup making; it will reduce the length of boiling to about ¼ of the usual time. At any stage of cooking, a variety of diced vegetables may be added: celery, cauliflower, silverbeet, carrots, onions, garlic, taro, sweet potato and any other root vegetables. Include leafy herbs, such as mushroom plant, nasturtium, nettle, other green leaves or weeds. Fresh or dried culinary herbs provide flavour, and help to chase away winter ills. Choose from any of the following: parsley, oregano, marjoram, thyme, sage, rocket, rau om, bay, curry leaves and chillies, which all add to make your soup a power-packed meal. Add salt and pepper to taste. Noodles are considered, a must in soup by many people, and these are best added only 10-15 minutes before serving. Long cooking will cause noodles to go mushy and lose their special character.

Bone soup will be a concentrated source of vitamins, minerals, (calcium, magnesium, silica and phosphorus), and also glucosamine and gelatine. These nutrients support and strengthen our bones, joints, cartilage, tendons, ligaments and skin. A simple way to remember the benefits is ... bone soup for the bones – and we all need strong bones! So, do not

underestimate the 'humble bone soup' that has had a tradition of use for strengthening our whole skeletal structure and heart muscles: making limber joints, beautifying the skin, smoothing out wrinkles, and reducing sagging skin! If we wish to do something good for ourselves, we can eat bone soup to reduce the loss of collagen caused by the usual ageing process.

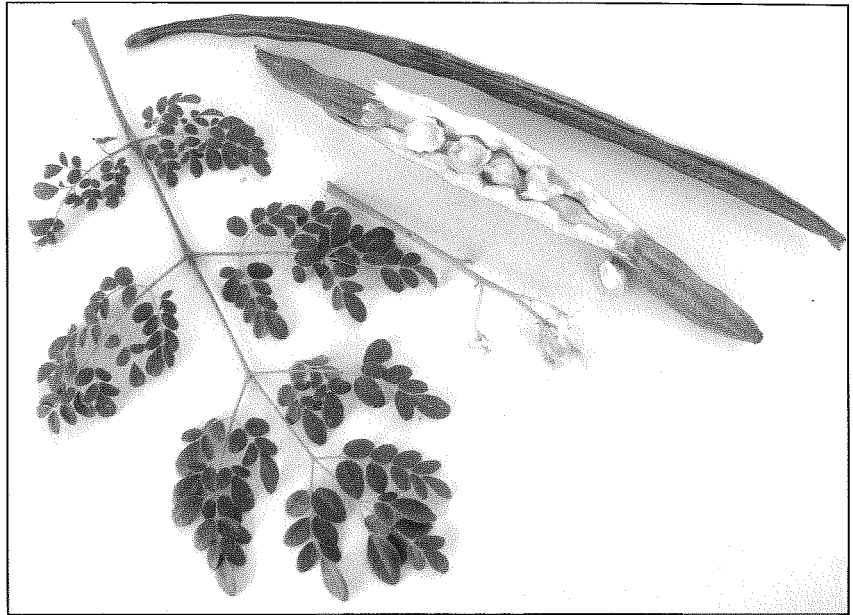
Gelatine is a valuable aid to digestion and it enhances gastric acid secretions. Bone soup has been used successfully in the treatment of many intestinal disorders, including hyperacidity, colitis and Crohn's disease ... and to detox the body. Gelatine is not a complete protein, but it does contain the amino acids, proline, arginine and glycine, and in large amounts. These act as a protein sparer, allow the body to more fully utilise protein that we consume, and also helps prevent the breakdown of body protein muscle-mass. Gelatine-rich broths are a valuable and economical food for those who cannot afford large amounts of meat in their diets. Gelatine-rich bone soup has also had a tradition of use for many chronic disorders and for people who are sick or convalescing. Also for colds and sore throats, anaemia, diabetes, peptic ulcers, to strengthen the immune system and to relieve rheumatism and arthritis.

Bone soup is an economical way to make a nutritious meal. A big pot of soup may yield several meals to feed the family. It was a custom by housewives of yesteryear to re-use the bones, sometimes 2-3 times, as it was said that the bones would keep giving more and more, as they are boiled! I have never done this with soup bones ... but it could be worth remembering for the future. Even the bones after roasting a chicken can be kept to start a big pot of chicken soup, enriched with vegetables, greens, grains and noodles.

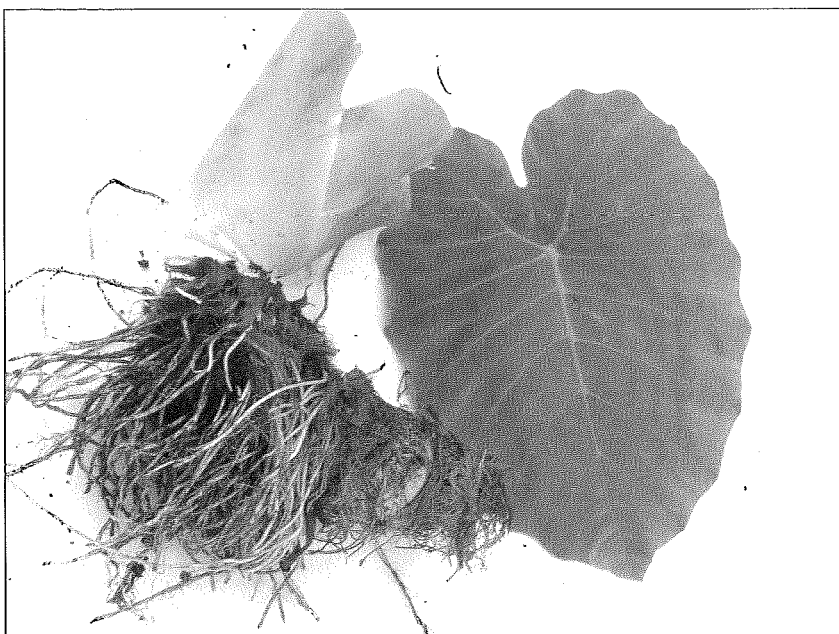
Now, when soup is savoured at the meal table, slurping the soup can have several meanings: the soup is good and hot and slurping cools the spoonful a little, so that the mouth is not burnt; the noodles taste far better when slurped; slurping shows the cook you appreciate the tasty meal; while, in some households, slurping means bad manners!

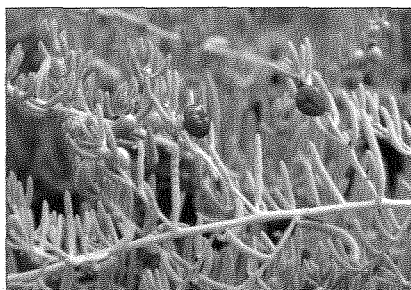
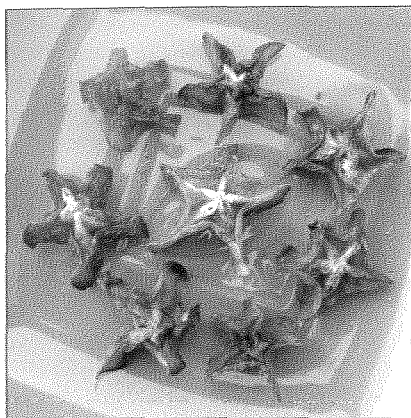
And, if you are a male with a bushy beard and get soup matted in your beard ... and someone remarks that you have food in your beard ... you can always say that *you're saving it 'for Ron'*. If someone asks you who Ron is, you say, "Later On." I guess this is similar to the expression, 'Saving it for a rainy day'. I feel we all need to have this prudence in many facets of our daily lives, no matter what the future brings.

Vegetarians can also apply the 'big pot of soup' to their lifestyle. **Note:** at the finish of making this soup, add nutritional yeast to the pot for flavour and for essential vitamin B12. Starting with soaking legumes: various seeds, dried peas and beans in hot water for 5-10 hours. The soaking in water releases gases in legumes, which makes them easier to digest. Soaking also softens the seeds and they will cook quicker. The soak water is then drained off and hot or cold water added, 2-3 times the volume of seeds. Heat the pot and simmer until the seeds have softened. Grains of barley, oats, rice and wheat could be added to the pot,



Above left: Milk thistle (sow thistle) (p 65)
Above right: Drumstick tree leaves and pods (p 98)
Right: Sweet potato (p 26)
Bottom right: Olives (p 116)
Bottom left: Taro leaf and tuber (p 27)
Below left: Brazillian cherry (p 20)
Left: Purslane (p 57)





Above left: Star fruit (p 23)

Above centre: Wild turnip (p 63)

Above right: Cobblers' pegs (p 62)

Right: Toothache Plant (p 116)

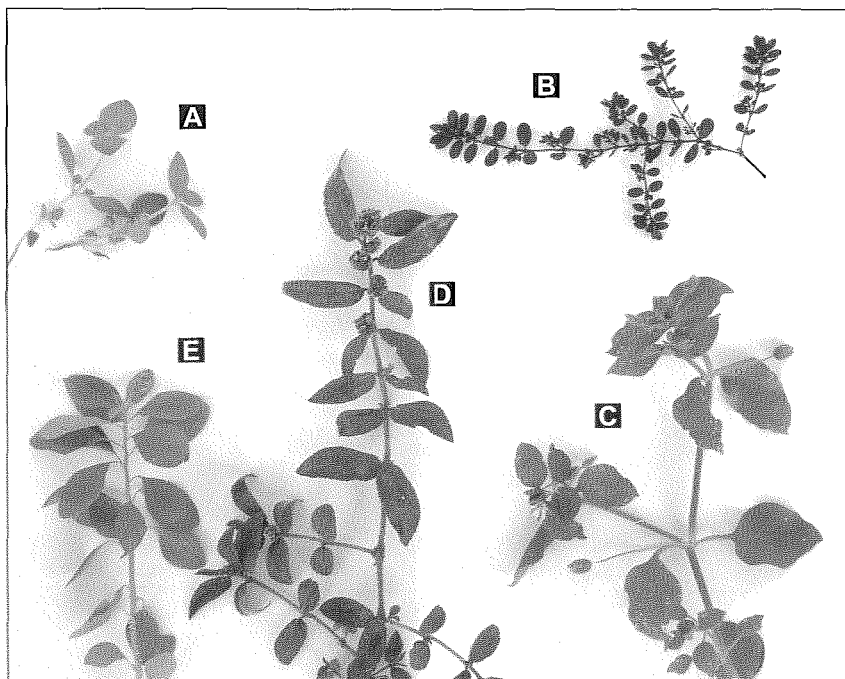
Below right: Nodding top (65)

*Bottom left: A. Mini Sunflower (65),
B. Euphorbia groundcover species,
C. Chickweed (p 59), D. Queensland
asthma weed (p 80), E. Petty spurge
(p 80)*



Left: Cat's ear (p 58)

Above left: Ruby salt bush (p 76)



together with vegetables, seaweed or miso, and herbs to season and add nutrients. Especially **comfrey** (22-36% protein), with the mineral boron to harden the skeletal system, as well as other minerals and trace elements supplying beneficial properties and nutrients, as previously discussed in 'Bone Soup' (see p 52). Comfrey is a plant source of vitamin B12, a vitamin valued for enhancing mental acuity. Comfrey supplies nutrients to help prevent deficiencies due to the lack of meat (or other complete protein sources) in the diet (p 102). **Nettle** (20% protein) is also a good source of boron, and it is a valuable green to add to soup. Nettle has had a history of use for treating osteoarthritis and rheumatoid arthritis. It is found to help the bones retain calcium, and also influences the endocrine system, as hormones play an important role in maintaining healthy bones and joints (p 60).

Gently warmed raw vegetable juice blends, or Gazpacho Soup (p 72), can provide wonderfully restorative meals for those who are ill or convalescing. Raw foods are packed with enzymes, vitamins and minerals to rejuvenate your vitality and naturally warm the body in winter.

For an easy to make, economical meal, **Miso soup** has been traditionally eaten for nourishment, stamina, and energy, and to alkalise the blood. Place into a saucepan: 1 finely cut carrot, 1 onion, a 3cm square piece wakame seaweed and 3 litres water. Add 1 large handful of chopped greens or edible weeds, 4 teasp. miso, and simmer 5 minutes. Serve. For a higher protein meal, add to the soup 1-2 lightly beaten eggs or ½ cup finely diced tofu. Simmer for a short period until the egg is cooked or the tofu heated. Garnish the soup with chopped parsley or chives.

Veggie soup: This soup can be made with mainly one vegetable (like pumpkin or carrots) or with a variety of vegetables that are growing in the garden. In a large saucepan, place 2 large chopped onions, 4 large handfuls of diced carrots or pumpkin or a mixture of vegetables and greens, 1 tablesp. freshly grated ginger and 3 cups water. Simmer 10-15 minutes. Puree in a kitchen whiz, add juice of 1 large lemon, 1 tablesp. honey and salt to season. Serve in bowls and garnish the soup with a sprinkling of fresh chopped coriander or other herbs.

In yester-year ... the head of the house mended and re-soled shoes. Clothing was recycled in the family or given to neighbours and friends, and leftovers were turned into a variety of meals.

In every facet of daily life, with careful planning, budgeting, and by planting an edible garden, frugal families prepared simple but nutritious meals. It was all a matter of necessity, as these were the days before fortnightly social security payments.

In an emergency, our instinct tells us to conserve. This is where the 'prudence' comes in. We know that feeding our families tomorrow is more important than buying non-essentials today.

My cousin Rae recalls ... that large flocks of galahs enjoyed seeing farmers working so hard on their farms and would be around, in droves, for free feeds at wheat harvest time. Galahs were caught, and roasted or

made into soup, and were very tasty (not like stones, as the myth suggests). In our present century, native birds are protected. Sparrows, referred to as spoggies, were also roasted. When spoggies were a major pest in the 1950s, Grandpa made a trap and caught many, and he had the patience to pluck and prepare them for Mum to roast, and they were tasty. Rabbits (introduced into Australia by early settlers) soon bred rapidly ... like rabbits ... these soft, furry little animals are renowned for breeding, and became pests in plague proportions on farms. Often, rabbits were trapped, skinned and roasted to provide a very tasty meal, and were referred to as 'underground mutton'. When there was a mouse plague over the land, Mum put a dead mouse under each turnip she planted and the resulting turnips were magnificent!

Rae's sister, Ruth, and other family members, sum up some of their mother's (Sophie Pech) very special facets ... she did not need much money and she got so much satisfaction from conserving, stretching, recycling, reusing (eg washing plastic bags to reuse), adjusting, altering, keeping and hoarding ("it may come in handy later"), growing a food garden, preserving vegetables and fruits and jam making to stock the pantry shelves, milking cows, assisting with farm work, sewing clothes for her family, baking bread, cakes and biscuits, cooking three meals a day, singing as she worked, and showing hospitality. All were welcome to drop in for a cuppa and served delicious home-baked cakes and biscuits ... all, that is, except blowflies, and these were served with a vicious vengeance of the fly swat. Sophie gave her best, was always energetic and full of life, and she hated waste ... especially wasted time. Her humour, energy and work ethics were an example for us all. These were the good times ... despite the droughts and the depression and the horrific dust-storms in South Australia.

And for a little more nostalgia ... just for senior citizens or anyone else who remembers the use of an apron ... and to share the information with younger folk, so that they can learn the purpose of this practical garment.

The principal use of **Grandma's apron** was to protect the dress underneath, but along with that ... it served as a potholder for removing hot pans from the oven. It was wonderful for drying children's tears and, on occasion, was even used for cleaning out dirty ears. From the fowl yard, the apron was used for carrying eggs, fussy chicks, and ... sometimes ... half-hatched eggs to be finished in the warming oven. When company came, those aprons were ideal hiding places for shy kids. And when the weather was cold, Grandma wrapped it around her arms. Those big old aprons wiped many a perspiring brow, while bent over the hot wood stove. Chips and kindling wood were brought into the kitchen in that apron. From the garden, it carried all sorts of vegetables. After the peas had been shelled, it carried out the hulls. The apron was used to bring in ripe apricots, apples and other fruit that had fallen from trees. When unexpected company drove up the road, it was surprising how much furniture that old apron could dust in a matter of seconds. When

dinner was ready, Grandma walked out onto the porch, waved her apron, and the men knew it was time to come in from the paddocks.

Wearing an apron ... meant less washing of dresses, so a saving of water, soap powder and time; dresses were protected from stains that could be of a permanent nature and ruin a good garment; and wearing an apron meant there was less 'wear and tear' on the dress; therefore, it had a longer life ... all very practical reasons to wear an apron. Perhaps, the 'old-time apron' that served so many purposes could come back into vogue again, even if in just a small way, to help us save the future in our times of urgent global challenges!

Yes, we have some urgent challenges. Perhaps we need to return to a more simple way of life. I like the way Duane Elgin sums it up, "What is simple living? It is living in a way that is outwardly simple and inwardly rich." And this quote is from a public speaker, and author of 'Promise ahead: a vision of hope and action for humanity's future' who says, "We need to consider both the extraordinary opportunities of technology and the sobering dangers ... of our present moment in history."

Getting to know and use edible weeds

Weeds are generally regarded as plants to despise and pull out of the garden. For many years, in countries that have enjoyed prosperity and plenty, people have overlooked the importance of weeds as food. In many third-world countries, the *gathering of weeds and wild food plants is essential to their survival*, especially in times of drought or other catastrophes, when regular (often, meagre) food sources are scarce.

In times of food shortage, such as during the two World Wars, the virtues of weeds were rediscovered. At the Herb Farm, I have had a number of senior citizens tell me, when visiting, of eating weeds to survive as young children during World War II.

Today, *in our peaceful country and comfortable lives, we cannot possibly imagine the suffering, terror and destruction of war*. But I am encouraging every fellow Australian to 'be prepared'. There may be a time when we do not have peace and prosperity; so, discover edible weeds and familiarise yourselves with these, now.

Until now, many weeds in your garden have been regarded as unwelcome pests, due to the work that is required to eradicate them.

Weeds have many characteristics:

- They appear where man has disturbed the soil.
- Fast growing weeds often smother and deplete the fertility of the soil from our garden plants.
- Many weeds act as natural ploughs, bringing up beneficial nutrients that would never, otherwise, surface.
- Readily self-seed, producing large quantities of more weeds.
- Difficult to control. Some weeds are so hardy they can sprout in rock walls, shoot between pavement

cracks, and grow on rooftops. They are truly exceptional plants.

I am not suggesting that the weeds be allowed to take over the garden; but that, as you pull *young edible weeds, make use of some of them as a food, as many have a higher nutrient content than commercially grown greens we buy*. And many of these weeds are endowed with remarkable healing properties.

We do need to appreciate edible weeds and use them as food for their vitamins, minerals, protein, chlorophyll, and as a source of free food; especially, for people on low incomes. Weeds are not to be snubbed at by anyone, in fact. *It is wise to get to know edible weeds now, as there may be a time in the future when these weeds could come to our rescue and be our means of survival*. And in becoming familiar with weeds now, you may even come to enjoy eating them, and even see that the weekly food costs will be lessened.

I remember, with pleasure, the trip my husband Derrick and I did around Australia in 2004. We had the opportunity to see our country with its amazing diversity in scenery. Along the way, I had great delight in finding so many edible weeds, which regularly gave us fresh greens.

Before eating weeds, it is your responsibility to positively identify any plant material. Not all weeds are edible, and careless experimentation by eating, could be dangerous. There are numerous edible weeds that have a similar appearance to poisonous plants; so, accurate identification is essential. For example, edible Chickweed *Stellaria media*, is similar to Petty spurge *Euphorbia peplus*, (which should never be eaten as it has a milky latex sap in the stems and leaves). Plants containing milky latex should be regarded with caution, as many are known to be toxic; however, not all white-sapped plants are poisonous (eg dandelion, chicory, fig). If animals are seen eating plants this does not, necessarily, mean it is a reliable indication that they are suitable for human consumption. Birds may provide a better indication, but are by no means infallible, as poisonous seeds may pass through a bird without absorption. Certainly, do not look to insects for endorsement as to what may be edible for us humans. The larva of the common crow butterfly spends its life munching through oleander leaves, while just one leaf of oleander has been known to kill a human.

Perhaps a friend or a senior citizen (who eats weeds) can assist you: a botany teacher, an illustrated library book or the Department of Agriculture in your vicinity. Once you become experienced, as a forager of edible weeds, *you will start to notice food plants* on vacant allotments, urban and country areas, and you will also feel closer to nature. If an edible plant in the neighbourhood looks wilted, yellow, or not very healthy, it would be best to pass this patch by, as it could be that the poison spray unit of the local council has noticed the weeds before you, and recently sprayed.

Ways to eat weeds:

- Many weed leaves can be eaten raw. Nibble on leaves when in the garden or add to a tossed salad, tuck in a sandwich, or use as a garnish on a meal.

- Add leaves to a cup of boiling water in a teapot, and add other herbs to give aroma and flavouring, like lemon grass or spearmint. Stir, steep a few minutes, drink, and enjoy the health promoting benefits.
- Place leaves in a blender with fruit juices (I like using orange or pineapple) and blend to make a nutrient-rich smoothie.
- Pickle the fresh leaves in apple cider vinegar, adding garlic, onions and herbs for flavouring.
- Use as a potherb like our ancestors did, by adding handfuls of fresh leaves to soups, stews, steamed vegetables, curries, starchy grains or rice dishes.
- Incorporate leaves in recipes like quiche, pesto, stir-fries, fritters, casseroles, sauces, spreads and dips.
- Dry the leaves, then crush to a fine powder with your hands. Put in containers for a stored survival food to add to soups, stews, etc.
- Add some dried powdered leaves to dried herbs in a saltshaker to use for flavouring meals, as a nutrient-rich salt substitute.
- Mix all ingredients well ... to give your dog a healthy, balanced diet.

As many weeds have vigorous root systems (unlike our usual vegetables), these are able to reach deep into the sub-soil, bringing up minerals and trace elements. For this reason, weeds can add many essential nutrients to our daily diet. Edible weeds should be introduced into the diet in small amounts, and any individual weed should not be consumed in a large quantity at one time. People that have sensitivities to various foods may also be allergic to some weeds.

And, if you have too many weeds to eat, employ any excess as garden fertiliser. Pull weeds and half fill a bucket with leaves, top up bucket with water and cover with a lid to keep mosquitoes out. Plastic screen mesh is a versatile cover that doubles as a strainer, when firmly tied. Leave to soak a few days (or longer) until the water turns a dark colour. Use as a liquid fertiliser around the garden. If the weeds have already grown to ripe-seed stage, it is best to strain the liquid through a fine cloth, like muslin or screen mesh, so that all seeds are excluded from the liquid fertiliser (as these seeds could germinate).

Since 'survival' in the broadest sense, suggests we may need to be able to live outside the system of supermarkets, our knowledge of edible weeds must be acquired now. Many kinds of edible weeds can be found over a wide area in Australia, while some are found in more precise areas or various climatic conditions.

Here, I will share details of the more common ones. Some are native plants, which have been spread by man or animals, while others are weeds or herbs that were introduced by early settlers, knowingly, or as seeds that had a *free ride* on clothes or shoes. If you wish to discover more about edible weeds in your particular area, seek out an old-timer in your neighbourhood or join a Permaculture or Organic growers group.

The plants listed below are not in any particular order of usefulness, but, given in order of more commonly seen, throughout Australia.

Purslane also called Munyeroo and Pigweed *Portulaca oleracea*, p 53. A number of other *Portulaca* species are found worldwide in tropical to temperate climates and have been a *food source for large populations of people*. Purslane was growing in Australia before white man came. Early explorers observed Indigenous Australians collecting the tiny black seeds to mix with water and cook in hot ashes. The flavour of the seed is much like linseed. An annual plant and extremely hardy, purslane grows as a thick, mat-like ground cover with succulent stems, often with a red tinge; oval, succulent leaves, 1-3cm long, develop in clusters at stem nodes; small yellow flowers set at the nodes and ends of stems. Seed capsules are small, peaked cones, full of tiny black seeds, the size of fine sand. Each plant has potential to produce thousands of seeds and it is said that their germination power can last seven years, plus.

Purslane grows without any help in sun or shade, in any soil and climate, without fertiliser or water. On our trip around Australia, we saw it growing in the harshest desert conditions of Central Australia (and 'nature's big garden' provided us with fresh green leaves, a real treasure for us from the heart of Australia).

Leaves are mild in flavour, slightly sour, mucilaginous, and an excellent source of vitamins A and C, iron, calcium, potassium and magnesium. *Eating 5 sprigs 10cm long of purslane daily, provides over 550mg of calcium: a great nutritional benefit to the bones for anyone from toddler to later years.* (From the website of the Association of Women for the Advancement of Research and Education.)

The scientific discovery, in 1980, by Dr Artemis Siopoulous, that *purslane leaves are a rich source of alpha-linolenic acid (LNA)*, the omega-3 form, highlights how valuable the plant can be in our daily lives. *This plant can supply us with a backyard source of omega-3 essential fatty acid (EFAs) to add to our daily diet.* Researchers have found that omega-3 helps provide protection from cancers and regulates the metabolism: correcting blood pressure, cholesterol and triglycerides. *A recent TV presentation on the EFAs highlighted purslane, and the benefits of EFAs to the cardiac, immune and nervous systems; also for the brain, and for memory recall.* EFAs nourish the body at the very foundation of health, the cellular level. EFAs strengthen cell membranes and help fortify against the invasion of harmful micro-organisms. EFAs also help dissolve body fat, reduce cravings for sweet and fatty foods.

Purslane has a cooling effect on the body, and its high alkalinity is helpful in alleviating acidic stomachs and various other ailments stemming from acidic or toxic conditions.

Use leaves fresh, added to salads, stir-fries, quiche, egg dishes, soups, and pickled. For relieving thirst, purslane leaves are held under the tongue.

Most references say that the weed can be eaten freely, and I know of people who have eaten it by the large handful, daily. However, keep in mind that

leaves do contain oxalic acid ... about the same as spinach, although the young leaves would be less concentrated in oxalic acid than the older leaves. The general assumption is that the sourer the leaves, the higher the oxalic acid. The relationship between calcium and vitamin D deficiencies and oxalate-related health problems, have been reported by a number of researchers. Note: a high oxalic acid intake is not considered to be a problem if foods rich in calcium (vegetables, greens and dairy products), as well as daily sunshine for vitamin D synthesis, are also typical in everyday life. An American study found that 120g of purslane, eaten daily, did not pose any problems to health. For further information on oxalic acid, see under the sheep sorrel listing in my book, 'How can I use herbs in my daily life?'

Dr A.S. Czechowicz and S. Talalaj in their book, 'Herbal remedies harmful and beneficial effects', list purslane as, 'a harmless medicinal plant with no adverse effects being reported'.

Purslane is sometimes called pigweed; no doubt, because it has been fed to stock, particularly pigs. Poultry also enjoy it. Fed to goats and cows, it is reputed to increase their milk production, and it may assist, similarly, for women. It has been found that cattle can travel long distances when fed on the plant.

Purslane has a long history of therapeutic uses. Valued as a tonic to the liver, the intestines and the whole body, it is an ancient Chinese herb for longevity. The plant contains dopamine, which has been found of real advantage for strengthening the pituitary gland and treating Parkinson's Disease and other shaking disorders.

Many people esteem and eat purslane for the powerful antioxidant properties and its alkalising benefits. Don't underestimate the healing properties of purslane; even King Henry VIII (1491-1547) esteemed purslane. Known for his famous gluttony and the number of wives he violently dispatched into the next world when they ceased to please him; lesser known, though, was his interest in botanical medicine and collection of over 100 favourite recipes archived in the British Museum. One remedy, using purslane, caught my attention: "To coole and comfort the Kinges member hee pissethe." Today, anyone could try purslane for kidney, bladder, urethra and (for men) prostate problems ... quite probably, King Henry had an enlarged prostate, causing pain with slow and difficult discharge. The King's recipe: take 1 cupful chopped purslane leaves and cover with 3 cups boiling water steeped 30 minutes, strain, and take warm, several cupfuls at a time ... and the results? "The Kinges highness had his payne and heat taken away" whenever he urinated.

Another of King Henry's own formulas was, "To ease the payne and swelling about the ankles" because his excessive eating and drinking had resulted in gout. He found great relief by drinking tea made by combining equal parts of purslane and chickweed, ½ cup of chopped leaves of each, steeped in 3 cups of boiling water. King Henry would drink several cups of this tea, about an hour after one of his traditionally heavy meals.

Note: there are several other species of portulaca that grow wild in Australia that look very similar in appearance. Two of these species are *P. napiformis* and *P. australis*; both are edible and have much narrower leaves than *P. oleracea*.

Dandelion *Taraxacum officinale*, p 67, is another valuable weed/herb to use, regularly. A deep rooting perennial with a rosette of leaves 10-30cm long, bright green leaves that feel smooth, with deeply jagged leaf margins. Hollow flower stem 30cm long, with one terminal yellow daisy, per stem, which then sets into a puffball seed-head, with fluffy white parachutes to carry each seed away in the wind; this is nature's way of plant preservation. Dandelion should not be confused with **Cat's Ear** *Hypochoeris radicata*, p 54, also called Flatweed, as the leaves sit quite flat on the ground; or other wild plants in the same family (*Asteraceae*), which can have a similar appearance. Cat's Ear is eaten by some people; however, note that when eaten by horses it can cause a magnesium deficiency, which results indirectly in stringhalt by inhibiting enzymes in the muscles (all enzymes depend on adequate magnesium). Stringhalt is curable. Cat's Ear has also been known to cause blindness in horses.

The identifying features of dandelion are pointed leaves, only one flower per each hollow stem, and no hairs on the leaves. *The whole plant may be eaten and in a number of countries the leaves and roots are traditional foods.* Plant analysts have said that dandelion leaves are more nutritious than any greens we usually buy in supermarkets.

Calcium and iron in the leaves are higher than in spinach. The chlorophyll-rich leaves are also a good source of lecithin, iron (more iron than spinach), phosphorus, chromium, zinc, magnesium, manganese, boron, potassium, silicon, sodium and selenium. Besides all this, vitamins A (found to be higher in beta-carotene than carrots), B1, B2, B3, B5, B6, C, D, E, H, K and P and 16.5% protein make dandelion a valuable addition to your diet.

The roots contain inulin and many other therapeutic benefits. *Inulin assists the growth of friendly bacteria in the gut, helps control blood sugar levels, and boosts bone strength and the immune system.* Dandelion is an excellent natural diuretic; it is a source of organic sodium; and with its high potassium content, creates a balance of electrolytes in the blood. Women with hormone imbalance can benefit with taking dandelion.

Dandelion has a very alkalising effect, and helps detoxify the system, thus improving health and reducing stiffness in the joints. It is an aid to digestion by inducing the flow of bile from the liver. Every part of the plant has had medicinal uses: strengthening the heart, liver, kidneys, spleen and gall bladder; and for relieving headaches, menstrual cramps, backaches, stomach aches, and even depression. Dandelion flower oil makes great massage oil. It's particularly good for stiff, sore muscles and joints, and to relieve back tension. *Eating a couple of leaves at the start of a meal increases the production of hydrochloric acid in the stomach, thus increasing the bioavailability of many nutrients, especially calcium.* It is so effective,

that first stages of cirrhosis of the liver have, reputedly, been alleviated by its consistent use. Dandelion is one of the best herbs for building the blood and helping to counteract anaemia and jaundice. Young leaves have a mildly, bitter flavour. Bitter flavoured herbs are so valuable to the body, for improving secretions in the mouth and stimulating stomach juices, thereby, aiding digestive and liver functions. A heaped teaspoon of the finely-cut dandelion leaves, flowers or roots, infused in 1 cup of boiling water for 10 minutes and then drunk, eases biliousness and indigestion (peppermint and honey can be added to flavour and sweeten). Add dandelion leaves and flower petals to salads, sandwiches, scrambled eggs and any cooked dishes. Dip leaves in batter and fry like fritters; mix the flowers into batter for pancakes. Make the flowers and roots into pickles with apple cider vinegar. Roots dried, roasted and ground make a coffee substitute.

Dandelion Flower Cookies: Beat 2 eggs, add ½ cup sunflower oil, ½ cup honey, 1 teasp. vanilla essence, stir in 1 cup wholemeal flour, 1 cup of rolled oats, ½ cup dandelion flower petals (after the petals have been removed from the green part). Spoon the dough by tablespoon on to an oiled baking tray, bake 10-15 minutes in a pre-heated moderate oven. Enjoy the biscuits with the health benefits of dandelion.

Plantains: Broad leafed plantain *Plantago major*, p 67, perennial 30-60cm tall, a rosette of wide leaves 4-10cm long, with prominent longitudinal veins. Plants send up a number of fine leafless stems, each with a terminal spike of small, inconspicuous, green-white flowers, followed by small seed capsules containing hundreds of very fine brown seeds. **Narrow leafed plantain**, also known as Ribwort *P. lanceolata*, a perennial, similar to broad leafed plantain in form, but with narrow leaves 1-3cm wide and 5 prominent veins; flower heads have fluffy yellow pollen sacs. **Buckshorn plantain** *P. coronopus*, has very narrow leaves, 1cm wide, 5-20cm long, lobed margins that look similar to horn-like spurs, hence the name buckshorn plantain. Plantain has had a long history as a potherb in Europe, Asia, and North America. It is best to use the young leaves, as older leaves tend to be rather fibrous. Eat leaves raw and add to cooked dishes. Taste is slightly bitter, with a mild mushroom flavour. Buckshorn plantain leaves are very palatable and look very attractive as a garnish. Plantain seeds and husks may be added to meals for benefits of fibre and nutrients. Some people like the seeds sprinkled on top of muesli for breakfast. If plantain seeds are soaked in hot water they will form a thick, jelly-like consistency, which indicates the mucilage content. If left to cool and added to fruit juice, an enjoyable smoothie can be drunk, which can help to stimulate the reflex action of the bowel. Mucilage is found in many plants and eating edible plants with mucilage is most beneficial, as *mucin lines the mucous membranes of the digestive tract, protecting from irritation, acidity and inflammation. This mucin also benefits the mucous membranes of the throat, lungs, kidneys and urinary tubes.* Plantain is valuable for any bleeding, internal and external. Use this on scratches and severe cuts, as the plant accelerates clotting and

scab formation, and promotes skin growth. *Allantoin is the substance in the leaves that helps knit the cells back together* and reduce inflammation. Plantain is antiseptic, and also an astringent (an action that pulls tissues together). Use the leaves as a wash, as a poultice and, internally, as a tea or edible leafy greens. Other therapeutic uses include: to correct high cholesterol and blood pressure, candida, thrush, diarrhoea, digestive conditions and gastrointestinal ulcers, constipation, cancer, haemorrhoids; glandular complaints, spleen, bladder, kidney, liver and lung disorders; skin conditions, diabetes, irritable bowel syndrome, and as a tonic for the blood. Next time you are afflicted with a sore throat, use plantain tea as a gargle, and drink it as a tea for its immune boosting benefits. When bitten by ants, bees, white-tailed spider, mosquitoes or sandflies, crush a plantain leaf in the hands (or chew the leaf) and rub the crushed leaf on the bite. Plantain has also had use for addictions: eg tobacco.

Throughout history, plantain has been a valuable healing herb. My herbal mentor always said, "Wherever white man goes, there goes plantain". This saying could be explained: firstly, that white man discovered and revered the many healing properties of the plant and always took seed with him when settling in new areas. Secondly, relating to the fact that the seeds swell up when damp and stick to the clothes, and thus could have been spread widely - and indeed, *plantain is a common weed of great value.*

Chickweed *Stellaria media*, p 54, a common annual weed in gardens, roadsides and parks. Thrives in the cooler months and in shade, as a sprawling ground cover with soft 1cm long, ovate-shaped, lime green leaves; a line of tiny white hairs runs down the opposing sides of each stem, between each pair of leaves; star-like, tiny white flowers form at stem terminals.

In some areas of Europe, chickweed is encouraged in orchards, as it is believed to increase yields of fruit. For this reason, it was planted in vineyards on the Rhine.

The flavour of young leaves could be considered as a cross between comfrey and lettuce; so, perhaps we could say it is a chlorophyll fix! Chickweed has a protein content of 15-20%. Leaves are rich in iron, and a good source of calcium, chromium, cobalt, molybdenum, magnesium, manganese, silicon, zinc, and vitamin C (analysis has found between 150-350mg per 100g of leaves).

Eat leaves raw, cooked and made as a tea. Add leaves to pesto, sandwiches, scrambled eggs, and tossed salads. The highly nourishing leaves have been used to build up undernourished children, and for people convalescing from illness.

Chickweed has been esteemed as an internal cleanser and external healer. It is a soothing and healing herb for the entire digestive system, helping to relieve conditions such as inflammation, ulceration, and bowel disorders. It is said that chickweed possesses many of the healing properties of the valued American Indian remedy, slippery elm. All respiratory complaints can benefit from chickweed. It also has been used as a

tea and the leaves are eaten for arthritis, rheumatism, blood poisoning, constipation, colitis, gastritis, acid indigestion, diabetes, candida, cancer, fatigue, fractures, mouth ulcers, to strengthen the heart, improve eyesight and to assist the function of the thyroid, liver, gall, kidneys, bladder and lymphatic system. *Stellaria media*, the plants botanical name, means *little star* and this plant with its star flowers, in herbal folklore is a 'star' at helping, when we need to gently dissolve something, or to relieve and cool inflamed tissue. As a folk remedy, taken daily over a number of months, it has been known to dissolve cysts, lumps in the breast and elsewhere in the body. Chickweed also thins the membranes of the cells, so that nutrients are more readily absorbed and utilised.

Leaves made as a poultice, wash, infusion in oil or ointment are used to give soothing relief and healing to burns, bites, heat rash, all skin conditions, haemorrhoids, painful joints, tendons and ligaments.

Nettles: **Greater nettle** *Urtica dioica*, p 73, hardy perennial 100cm high, with spreading root system; **Lesser nettle** *U. urens*, annual to 100cm with smaller leaves than Greater nettle; **Native scrub nettle** *U. incisa*, perennial, grows to 100cm similar in growth to Greater nettle. All 3 species have serrated leaves and leaves and stems are covered in fine hairs. If the plants are touched, these fine hairs can sting the skin, causing pain, redness and itching.

However, the sting that gives the nettle its nasty reputation has been used for centuries as an effective remedy for pain relief, and it is not just an old wives tale! Early man would have discovered this use by accident, as he bumped into the plant and experienced the pain it inflicted. Then, he would have learnt, very quickly, how the body was stimulated by blood moving rapidly to the area and the sting gave warmth and pain relief. From this discovery, we have the folklore of taking some fresh nettle stems and beating parts of the body affected by arthritis, rheumatism, sciatica, paralysis, gout and lumbago. This method of pain relief is still practiced in countries where natural remedies are the major source of therapies.

Just as I was writing this weed chapter, Glen called at the Herb Farm to buy herbs, and shared an amazing account of someone using nettle. Several weeks ago, Glen borrowed my herb book, 'How can I use herbs in my daily life?' from his local library. He found it so practical that he decided to buy a copy and was thoroughly enjoying reading it.

He is a builder and, recently, had a truck deliver materials. When the truckie got out of his truck he could hardly walk and complained of painful knees. Glen told the truckie about his recent purchase of the herb book that had a simple folk remedy for arthritic and painful joints, of beating the area with nettles. The truckie bought the book and read the chapter on nettles. After reading the accounts of many people who had experienced pain relief when they used nettle, he decided it was worth trying, as he had put up with enough pain.

The truckie had another delivery to Glen's place, soon after. This time he got out of his truck with

a big smile on his face. He shook Glen's hand and said, "I want to thank you, so much." Glen was trying to remember what he had done that warranted such an overwhelming thanks ... and the truckie said, "For telling me about nettle." Then, he told Glen his story: he bought the book; he knew where there were some nettles growing; he picked some, took the nettles home, and his wife and children had a great time beating him. Then followed hours of pain from the nettle beating ... but when he woke up next morning, he was free from pain. Glen said, "That is wonderful. Just remember to pass on the benefits of nettle to others." This is what herbal folklore is all about ... passing on the knowledge of what is effective, so others can benefit, also.

Herbal folklore is the traditional knowledge and practice that is disseminated largely through oral communication, handed down from one generation to the next, and it is a deeply significant dimension of culture ... but it has been lost, because it has not been handed down very consistently in the last 50 years. I believe this is because it has been too easy, when sick, to see a doctor who will prescribe a pill. Generally, this is quite effective for relieving pain but not, necessarily, in curing the problem. Then, there are the possible side effects caused by the drugs prescribed. We do not need to make new herbal remedies for the 21st Century: we can delve into our past and revive many tried and effective treatments used for every ailment of man.

Some may think that 'folklore' refers to something old-fashioned or untrue: as an 'old wives tale' or 'misinformation of the uneducated.' However, traditional knowledge is still valid and meaningful for our present day ... just ask the truckie!

Another folklore custom from Europe was to brush nettle stems over the skin, so that the stings would warm the limbs in the freezing conditions of winter. And if that really does not appeal to you, try a warm nettle infusion in a footbath, to relieve cold feet.

It is best to wear gloves when picking nettles, or place hands in plastic bags to give protection when grasping cut stems. If I get stung, when picking nettle, I just tell myself it is good for me. Nettle leaves are not very agreeable to the tongue and throat if eaten raw. But nettle may be eaten raw, when blended, and the stinging action does dissipate when leaves are cooked or dried.) Use nettle leaves steamed, in soups, and other cooked dishes. *Leaves dried, crushed and stored provide a valuable survival food.* The way I like to use nettle is as a nettle smoothie: a handful of nettle leaves in a blender with pineapple or orange juice.

Use nettle and get the nutrient-rich benefits: protein 21%, polysaccharides, vitamins A, B complex, C, D, E and K; and minerals, iron (41.8mg per 100 g), calcium (2,900mg), magnesium (860mg), potassium (1,750mg); chromium, iodine, silica, silicon, selenium and sulphur.

Leaves are a source of *histamine*, which helps to reduce the symptoms in any allergic response, including hay fever, asthma and sinus. Also, *serotonin*, which acts as a neuro-transmitter to the central nervous system and is helpful for relieving stress,

fear, nervousness, depression, insomnia, and eating disorders; and *melatonin*, an antioxidant sometimes referred to as an 'anti-ageing hormone', that may give relief from chronic fatigue syndrome, seasonal affect disorder and sleeplessness.

Nettle provides one of the richest sources of chlorophyll and is a valuable blood builder. It is one of the most powerful iron sources in the vegetable kingdom. Therefore, it is a valuable aid for anaemia, during menstruation to build up iron, for fatigue or whenever you feel run down or tired ... think of nettles. As nettle is high in iodine it is beneficial for the thyroid gland. Drink nettle as a tea to stimulate the digestive system and encourage weight-loss, to stop haemorrhaging (including excess menstruation); to treat ulcers, kidney, bladder and liver ailments; and to promote milk flow for nursing mothers. Nettle is valuable for strengthening the adrenals. Eating nettles or drinking the tea has been a folk custom to make hair brighter, thicker and shinier and the skin clearer and healthier. A healing ointment is prepared by steeping cut nettle leaves in oil.

Use nettle tea for its metal chelating action to remove heavy metals and to detox the body. Sip nettle tea for its benefits as a mild diuretic to relieve fluid retention, and to stimulate the lymphatic system. It is also known to eliminate bad breath. Nettles increase excretion of uric acid through the kidneys, making them an excellent remedy for gout and all other arthritic conditions. The herb is used to reduce blood sugar, and a tincture of the seed is found to raise thyroid function and reduce goiter.

It is said that nettle, eaten regularly in the diet, will give children lots of calcium and strong bones (good for adults too) and, as a bonus, rosy cheeks and a high level of immunity from viral diseases. Applications of nettle leaf tea infusion, using cotton buds or swabs, clears up polyps in the nose. Nettle tea has been used to relieve painful and frequent urination, and inhibit cancer of the prostate.

When nettles are abundant, make the leaves into a nettle plant tonic, a practical and economical plant fertiliser. The infused nettles are also used to give plants increased resistance to insect pests and heat stress.

Nettle fertiliser Soak for 5-6 days, ½ bucket of nettles, 1 small handful chamomile flowers and ½ cup seaweed concentrate in a bucket of water; then, strain. For use: dilute 1 part to 4 of water, spray or sprinkle over plants to promote plant growth and protect plants from pests and disease. This fertiliser can be made without the chamomile and seaweed, if none available. The nettle may be left longer to brew. If left for a longer period, it will get rather smelly; however, the plants you wish to fertilise, will not object. If there are no nettles to use, then use any **weeds to make liquid fertiliser**. If the weeds have seeds, it would be best to strain the liquid through a fine cloth to exclude all seeds, otherwise these seeds could germinate in the garden, when applied with the liquid.

If there are no nettles growing wild in your vicinity, I encourage everyone to grow this herb for its multiple

uses. Note: it is best to contain the perennial nettle *Urtica dioica* in a large pot or confined area, where the seeds will not drop into the garden. Once there, it is very difficult to remove, as the roots spread underground, similar to mint, and it can take over a garden bed. In the pot, it will have room to thicken up and still grow lots of leaves to use.

Nettle is one herb I highly esteem. Often, I put it in the category of the 'top ten herbs'. However, in this book I have classified it with useful edible weeds, as it is readily available in many areas, free for the picking and pricking! Nettle is a super-food to super-charge you, regularly. Action: it stimulates cell regeneration and rejuvenation ... experience your new vitality!

Perhaps, we will come to appreciate nettle in Australia, someday, just as it is in England. There, 'Be nice to nettle week' is celebrated, annually, to improve the image of nettles and to recognise the value of nettles and the role they can play in health and in other facets of our wellbeing. Nettle yields a very strong fibre, used in papermaking, weaving and cloth manufacture. It is much more environmentally friendly than cotton production, which requires higher levels of irrigation and agricultural chemical input. Man has been using nettles as food, medicine, fibre and dye since the Bronze Age, so why should we find a few stings offensive and give up on it in the 21st Century?

Amaranth: a number of amaranths species are weeds of gardens, roadsides and pastures, which is easy to understand, as each plant may set thousands of tiny, pinhead-sized seeds. Plants are hardy annuals, 1-2m tall, with a lush leaf canopy and finely clustered flowers on long spikes.

Species to watch for: **Green amaranth** *Amaranthus viridis*, p 73, annual 1m, lush green leaves and flower/seed spikes that stand upright and turn brown when ripe. This plant is a common plant around my neighbourhood. **Spiny amaranth** *A. spinosus* has alternate leaves and clusters of straw-coloured flowers. When pulling this weed, you will quickly realise it has very sharp spines about 1cm long, where the leaves join the stems. **Indian cabbage** *A. lividis* has a large leaf canopy and green flower spikes. **Love-lies-bleeding** *A. candatus* is a traditional food of the Inca's, often seen as a decorative garden plant, as it has very showy pendulous, long red flower spikes. **Vegetable amaranth** *A. Tricolor* is often referred to as Chinese Spinach, since the plant has had a tradition of use as a hot weather substitute for spinach in Asia. Lower leaves of this bush may be green and upper leaves red-purple.

While the early Grecians called these plants *amarantus*, meaning 'never withering', in Indian Sanskrit the plant was called 'king of immortality'; and the ancient Aztecs considered it a food of immortality. In our present century we can purchase a number of species, and the seed of **Grain amaranth** *A. hypochondriacus* is available in health food shops. Nutritionally rich, gluten free, easily digested and found to be less allergenic than most cereal grains, amaranth is sometimes served to babies, young children, lactating mothers, invalids and the elderly.

The seed is 20% protein with 8 essential amino acids; fatty acids: linoleic, linolenic and oleic acid; squalene (valued for relieving pain, candida, arthritis, asthma, improving memory function and reducing the spread of tumors); vitamins A, B1, B2, B3, B5, B6, B17, C, E and folic acid; minerals: calcium, copper, iron, magnesium, phosphorus, potassium, sodium and zinc. Although I have not been able to find nutrient analysis on other amaranth species, listed above, I feel certain they could be similar to the grain amaranth. Probably, this species has been more widely grown and researched due to the large amount of seed each plant produces.

Leaves of these species are eaten raw and cooked.

As oxalic acid is believed to be more concentrated in the leaves, eat only a small serving at one time, and, when steaming the leaves, the water should be discarded. Amaranth leaves are a popular potherb in South America, Africa and Asia. Leaves are dried, powdered, and stored as survival food. Seeds of amaranths are eaten raw or cooked, ground into flour and used in baking, and made into unleavened breads like tortillas.

Seed colours, of amaranth species, can range from white, cream, red and brown, to black. The tasty seeds are heated and popped, and are a crunchy, nutty snack, similar to popcorn. Seeds soaked in milk or whey (milk by-product) are valued as a tonic food to the body. A leaf tea is gargled for sore mouth and throat, and used as a wash for skin rashes. As the plant has astringent properties, the tea is taken for diarrhoea, bleeding from the bowel, and excessive menstruation.

Cobblers' pegs *Bindens pilosa*, p 54, is an annual bush to 50-100cm; leaves with fine serrated margins form in groups of 3-5; the 5mm diameter flowers are small daisies with yellow centres and cream-coloured petals. Of all the wild foods available in Australia, this weed, otherwise known **Farmers' friends** (they love to be your friends) would have to be the most unpopular. And yet, in many parts of the world, it is considered the most widely eaten wild plant: for many people, a food for daily survival. It is recognized by its clusters of narrow, black seeds 1cm long; and 2-3 fine, barbed projections at the apex that are a very efficient means of seed dispersal, as these 'pegs' just love to catch on clothing and have a free ride.

Let me tell you of an experience I had with the seed. Many years ago, when looking through an overseas botanical seed catalogue, a listing caught my eye, 'Bindens pilosa: an Aztec herb with diuretic properties' (a diuretic may relieve fluid retention in the body). I added these to the list of seeds I ordered. To my surprise, when the seeds arrived and I opened the packet of seeds, the seeds looked very much like cobblers' pegs. When I checked the botanical name of cobblers' pegs: yes, what I had ordered from USA was, indeed, cobblers' pegs! We did not really need any more cobblers' pegs on our farm. This is where being familiar with botanical names can be a definite advantage.

Leaves are eaten raw, added to cooked dishes, made as a tea, and *dried and stored for future use as a survival food*. Leaves are a very good source of chlorophyll, vitamin C, calcium, iron, potassium and magnesium. Tannin, in the plant, has made it a treatment for diarrhoea and dysentery, and for respiratory congestion.

Flowers and leaves are chewed for toothache. Research in Thailand, in 2006, found that *cobblers' pegs have strong antibacterial activity against dental caries pathogen Streptococcus mutans*. This anaerobic bacterium, commonly found in the mouth, is a significant contributor to tooth decay, as it sticks to the surface of the teeth while metabolising sugar and other energy sources from the foods we eat. Then, these microbes produce large amounts of acid that cause cavities in the teeth. So, possibly, cobblers' pegs are not so bad in our garden, after all. Perhaps, if we chew some leaves after eating, this could help prevent tooth decay, the pain of toothache and costly visits to the dentist, too. Other plants found to have this antibacterial action in this research, were **Clove basil** *Ocimum gratissimum*, and **Japanese honeysuckle** *Lonicera japonica*.

Man has found that this persistent weed has given relief from many ailments. In fact, one researcher listed over ninety, which included: allergies, angina, baldness, biliousness, cancer, candida, colitis, constipation, diabetes, fevers, food poisoning, gastroenteritis, gout, gall stones, infections, heat rash, headache, haemorrhoids, insect bites, indigestion, liver diseases, malaria, nervous problems, parasites, obesity, rheumatism, scurvy, tonsillitis, tuberculosis, ulcers, urinary infections, and vomiting ... to name a few uses. It is probable that these seeds need to stick to us for good reason, so why should we despise such a useful plant!

Bountiful brassicas In our supermarkets, we can select from a variety of nutritious brassicas (cabbage, cauliflower, broccoli, Brussels sprouts, radishes) and if we desire, from our countryside, we can choose from many more. Colonial immigrants arrived with packets of seeds to plant in their new country, and some of these soon became established as weeds. Australia already had more than a hundred native members of the brassica family that thrived in various areas. These were gathered, principally, by the Indigenous population and by early pioneers. Some of these species (in particular, the cresses) were noted and recorded by the very early settlers. However, as some of these plant species are also native to other parts of the globe, it is now considered that some species have come into Australia on a free airlift, perhaps thousands of years ago. Very likely, on the feet or feathers of migrating waterbirds, as plants are common along the edges of lagoons and rivers, where egrets and ducks roost. Wild turnips, mustards and radishes are hardy plants 50-100cm tall, readily seen in many areas along roadsides and vacant land. They all have similar cross-shaped, cream-yellow coloured, four-petalled flowers that form in clusters. Leaves are typically lobed, with serrated margins and fine hairs,

often blue-green in colour. Small, thin cylindrical pods, 2cm long, contain about a dozen tiny round seeds, with the pods shattering readily when dry, thus ensuring the next generation of plants.

Some of the most commonly seen brassicas are: **Wild turnip** *Brassica rapa*, p 54, is distinguished by its stem-clasping appearance of upper leaves; pods 2-6cm long with a protruding beak 2-3cm long. **Indian mustard** *B. juncea* is quite a widespread weed with stalked hairless leaves along the upper stems, seedpods 2-6cm long and protruding beak 4-10cm long. **Black mustard** *B. Nigra*, with pinnate-lobed, hairy lower leaves and lance-shaped higher leaves, has seedpods 2cm long. **Mediterranean turnip** *B. tournefortii* has very hairy, pinnate, fern-like leaves that lie flat on the ground.

Man has put mustard (meaning, in the broad sense, many of the brassica species), to use throughout the centuries. Used as a poultice for inflammation of the lungs, joints, gout, and for backache. Also, to act as an irritant to bring blood flow to an area to disperse inflammation, so healing could take place. In the seventeenth century, mustard leaves were eaten to strengthen the memory, dispel depression, liven the spirit, and as a blood purifier.

A folk remedy that some may remember (by experience) was hot mustard footbaths for colds, head and lung congestion. *Mustard has been of importance to man since the beginning of time, when he found the pungent taste could not only give flavour but helped to preserve foods, or even disguise foods that had lost their freshness.* As people moved to new areas, they scattered mustard seed as they went, and so mustard became a wayside weed.

Use the leaves raw or cooked. Young leaves are slightly tangy and mature leaves quite pungent. Seeds are hot and very pungent: use whole or crushed to flavour meat and savoury dishes.

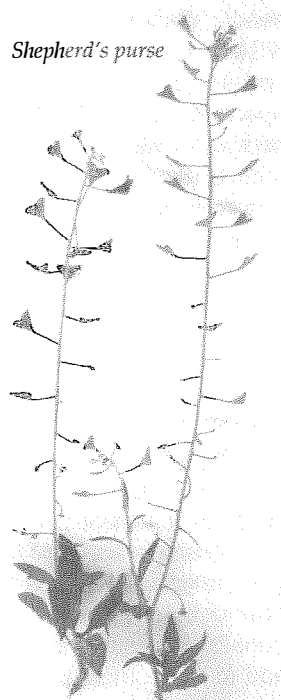
Pungent flavoured foods are beneficial for stimulating the circulation and act to trigger the production of endorphins. Endorphins are sometimes called: 'happy hormones,' as they give a feeling of wellbeing and aid healing by relieving pain, thus helping to build a stronger immune system. Keep in mind that brassicas could come to the rescue with happy endorphins during times of calamity ... as *aren't we told to laugh in the face of adversity!* All brassicas are an excellent source of sulphur, an important mineral for its cleansing and antiseptic effect on the blood and digestive system. They are also rich in iron, calcium, potassium, boron, silicon, magnesium, iodine and vitamins A, B's, C, E and K. Research has shown that brassicas contain very powerful antioxidants, which act as powerful scavengers of free radicals in the body. Glycosides in the plants are potent antiseptics, and phytochemicals (eg Indole-3-carbinal, zeaxanthin, benzyl isothiocyanate, dithiolethione, glucorophanin) are considered to be some of the most powerful anti-cancer substances known. Eating brassicas, regularly, has been found to have an inhibiting effect on the yeast fungi, *Candida albicans*, which can cause multiple symptoms throughout the gut and respiratory passages.

There are other edible wild weeds belonging to the Brassica family, which we can look out for and make good use of. **Shepherd's purse** *Capsella bursa-pastoris*, p 63, has soft, toothed leaves 8cm long that form as a rosette and lie flat on the ground; flower stem 20-30cm tall with four, small, white cross-shaped flower petals, followed by heart-shaped seed capsules 5-10mm long, resembling old-fashioned shepherds' purses. The leaves are very nutritious, as it has been found that 100g of leaves can provide the recommended daily amounts of vitamins A and C.

Peppercresses are a little similar in size and appearance to the shepherd's purse plant. Although, the seed head is multiple stemmed and seedpods form as smaller flat discs 2-4mm long, slightly notched at the tip. Over 40 varieties inhabit Australia, some native, and others introduced. All are edible with hot peppery leaves and seeds. The variety most commonly seen is **Common peppercress** *Lepidium africanum*, quite peppery in flavour. If wishing to pull this weed it is quite difficult, as the root is deep; it seems to say it is here to stay, and has no plans of returning to its native Africa.

Bittercress, also called **Flickweed** *Cardamine hirsuta*, is a common weed, thriving in damp spots of shade houses and gardens. It is an extremely fast growing annual, 10-20cm high, from germination to seeding in 4 weeks. The small narrow seedpods, 15-25mm long, as soon as mature, have an amazing ability to flick their seeds over a wide area; therefore, it is best to arrest this weed and eat it. Leaves, flowers and seeds have a mild, peppery flavour, which compliment sandwiches, salads, and for use as a garnish.

Watercress *Nasturtium officinale*, p 81, is an introduced plant, which has naturalised in many parts of Australia. From the days of earliest white settlement in Australia, attempts were made to establish watercress in the wild; no doubt, because it was a traditional salad green of Englishmen. It grows in running water along the banks of creeks. During floods it may be washed out to a certain extent, but can hold its position, reasonably well, because of the thick root system. In times of drought, when creek beds dry up, watercress has been known to completely disappear in many streams. Unless the seeds remain viable, watercress is not so freely available for the picking. Watercress has hollow, square stems, with many side stems of lush-green, oblong-ovate leaves; small, white, four-petalled flowers are followed by 1-2cm long, narrow seedpods. Care should be taken, when picking watercress, as



it often grows in waterways of polluted sludge, or on farms where there could be risk of liver fluke, and for this reason it is recommended that it should be cooked.

Watercress has numerous actions: antibiotic, antioxidant, expectorant, tonic, and a large range of vitamins and minerals, including *germanium*, which benefits the body as an oxygen carrier and catalyst, able to strengthen bone-mass, as well as the immune system and to biologically stimulate electrical impulses at a cellular level. If you can't find it in a stream near you, why not buy seeds or a plant and grow it in a pot or shady spot in the garden and get the nutritional benefits of this valuable plant. Eat leaves in salads, sandwiches, made into pesto, soup, dips, and served as a garnish (see Salads p 86).

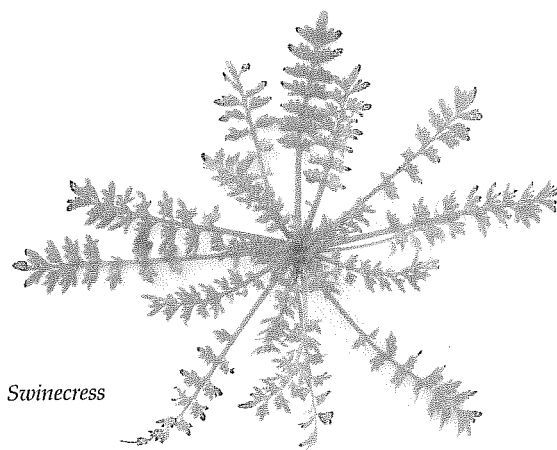
Swinecress *Coronopus didymus*, p 64, a sprawling ground cover, hairy stems, aromatic, deeply indented leaves 1-4cm long; tiny round seedpods 2cm wide, set together as pairs. The pungent leaves and seeds give bite to sandwiches and salads.

Sweet alyssum *Lobularia maritime*, otherwise known as Sweet Alice, may be in your garden as a dainty border plant with white or mauve flowers. It is a member of the mustard family and the spicy leaves and flowers can be eaten raw and cooked. It is naturalised along beaches in south-eastern Australia.

Clovers: **White clover** *Trifolium repens*, perennial creeping ground cover, leaflets with trifoliate form, spherical 2cm flower-heads, containing 20 or more tiny pea flowers. White clover is commonly seen in lawns, parks and nature strips. **Red clover** *T. pratense*, can form a very thick clump of stems and leaves, sometimes over 30cm high; trifoliate leaves have a pale v-shaped variegation mark; spherical 2-3cm flower heads are pink, rose, or pale purple in colour. Clovers are nitrogen-fixing legumes. They are good forage for poultry and stock.

Throughout history, during times of famine, people have turned to clovers, eating leaves, flowers and seeds. Clover tastes very much like wheat grass. A soothing, relaxing tea is made from fresh or dried flowers; also valued for coughs, muscle tension and spasms, blood cleanser, ulcers, cancer, constipation and skin conditions. As the plants are a good protein source, flowers and leaves have been dried, powdered and sprinkled on meals, added to bread dough and flat breads, when other proteins are scarce. As a future survival food, we may need to learn to like the clover in our lawns.

Rumex species: **Yellow dock**, also called **Curled dock** *Rumex crispus*, a perennial to 1m tall, with a basal rosette of wide, wavy, linear-shaped leaves, often 60cm in length; long, upright, flower stems of pale-green, panicle racemes turn into showy, dark-brown seed tops with hundreds of seeds. This dock is seen on road sides, garden lawns, farms, wasteland and swampy areas. Thick, yellow roots grow deep into the ground, and can bring to the surface minerals from deep in the soil. For this reason, the leaves are beneficial to cut and use as mulch in the garden or add to the compost. Leaves and roots of yellow dock



are remedies to purify the blood, cleanse the lymphatic system, to increase iron in the blood, and to treat cancer and constipation. This herb is an American Indian herb for all women's problems, as it acts to correct hormone levels and reduce menstrual flooding and cramping. The seeds are very astringent, and traditionally used as a tea for diarrhoea and a wash for haemorrhoids.

Swamp dock *Rumex brownii*, p 67, found all over Australia, grows 50-80cm high and a thick main stem; rosette of leaves, linear in shape to 30cm long, and decreasing in size up the flower stems; small brown seeds are covered in hooked spines that readily attach to clothes when brushed against. One connoisseur of weeds says the leaves of docks are equal in flavour to silverbeet and spinach, with a slightly sour taste. Tender young leaves are good to include in soups, spinach recipes and other greens dishes. Leaf stems, cut and diced, can be stewed like rhubarb (and have a similar flavour) in a little water and sugar, or stewed with apples to fill a pie.

An English folklore saying, which I have heard many times by people visiting our Herb Farm is, 'if stung by nettle, look for some dock leaves to rub on to ease the pain'. For insect bites, crushed leaves will ease the pain.

Sheep sorrel *Rumex acetosella* (cover picture 6), is another species found in eastern and southern Australia. This was a weed that I had delight in picking on our Australia all-over trip. A perennial plant, of creeping habit, arrow-shaped leaves 5-10cm long, tiny yellow flowers set very small, brown seeds. The plant is extremely hardy and cold tolerant. Leaf flavour is mildly sour. As sorrel leaves stimulate the salivary glands of the mouth, a few leaves at the commencement of a meal are most beneficial to digestion. Sheep sorrel has had many therapeutic uses, including fevers, blood and skin disorders, inflammations, infections, mouth ulcers and diarrhoea. This herb is in the Essiac formula, a non-toxic cancer treatment. Leaves are rich in vitamin C, and have been used as an anti-scorbutic for centuries. No doubt, the high vitamin C content is one reason the plant has been called, 'One of the strongest antioxidant herbs we can use'.

As *Rumex* species are considered to be fairly high in oxalic acid, it is wise to use these in moderation. Eating excessive amounts of foods high in oxalic acid can have

the effect of robbing calcium from the teeth and bones. Overdosing to a dangerous level of oxalates could be experienced as severe nausea, vomiting, kidney stones, and irritation and soreness to the digestive tract. It is interesting to note that Dr. E.E. Shook writes in his herbal 'Advanced treatise on herbology', that oxalic-acid rich plants have been recommended by herbalists throughout history, as blood purifiers and as therapeutic agents. Shook says that because the oxalic acid in plants is found in combination with iron, calcium, potassium, manganese, sulphur and sodium, the nutrients (together with the oxalic acid) create a beneficial balance.

A herbalist, who taught me many traditional herbal applications, used to say that all greens have oxalic acid in some degree. So, I guess, it is a substance we eat daily in many foods. As oxalic acid is water soluble, this acid can be eliminated by bringing the leaves to the boil in a little water, draining the water, adding a fresh lot of water, and simmering a minute longer. However, note that this procedure probably does away with most of the vitamin C as well. Norman Walker, author of numerous books on health and nutrition, lived to 117 years, free of disease or other ailments common to people of advanced age. In his book 'Fresh vegetable and fruit juices', Walker states that organic oxalic acid from vegetables (in their fresh, raw state) is an important element needed to maintain the tone of, and to stimulate peristaltic motion of the alimentary canal.

Fat hen *Chenopodium album*, p 67, can be seen in gardens and roadsides. It is a hardy annual 50-150cm tall, grey-green leaves 4-7cm long, with soft-toothed margins on the lower leaves of the bush. The underside of leaves, flower and seed spikes are covered with a white powder, which rubs off between the fingers. Leaves are eaten raw and cooked as a potherb. It has been used as a spinach substitute for hundreds of years, and of major importance in Britain as a vegetable for centuries. The plant is keen to let us know it would like to stay, as each plant may set thousands of seeds that can remain viable, it is said, for 30 - 40 years. Add leaves to recipes that use greens; use the seeds boiled, added to stews and stir-fries; also, seeds ground into flour for bread, pancakes, muffins and biscuits. Fat hen is a rich source of vitamins A and C.

Milk thistle or **Sow thistle** *Sonchus oleraceus*, p 53, (Note: it is not the Milk thistle *Silybum marianum* with white markings on the leaves that has had research for its silymarin properties and therapeutic uses, p 67). Milk thistle is a familiar weed throughout most of Australia; 50-100cm high with branched leafy stems; grey-green leaves; bright yellow daisy-like flowers, followed by seed heads with white thistledown that will readily disperse with the wind. Use the young, mildly-bitter flavoured leaves and shoots in salads and cooked (good in soups). Sow thistle is a traditional food of New Zealand Maoris, often added to a pot when cooking rich meat like pork. All parts of the plant are rich in white milky latex, which has been applied to warts and ulcers. A timeless folk remedy, passed on to new mothers, encouraged them to eat milk thistle to boost lactation.

Emilia *Emilia sonchifolia*, p 67, annual 20-30cm tall, looks like a miniature milk thistle, but with small, purple flowers, 1cm long. The whole plant may be eaten raw or cooked. As the seeds are imbedded in a soft white down, when ripe they readily blow in the wind and new plants pop up in gardens and roadsides. Emilia can be found in the eastern states; although considered a native, the plant has a heritage on other continents as well.

Nodding top or **Thickhead** *Crassocephalum crepidioides*, p 54, has similarities to milk thistle above, but the leaves are lime green rather than grey-green. The small, thistle-shaped orange flowers are set in clusters of four or more at the apex of the plant, causing the stem to bend downwards, hence the name, 'nodding top'. Leaves have a carrot taste: use raw, lightly steamed or added to stir-fry dishes.

Oxalis species with heart-shaped leaves in groups of three and bell-shaped five-petalled flowers are **prolific**; the numerous species are seen as garden weeds. **Sour sob** *Oxalis pes-caprae*, grows to 20cm high from small bulblets; flowers: bright yellow. **Pink shamrock** *O. corymbosa*, p 67, is 15-20cm high; it has pink flowers and a short, thick, translucent taproot, surrounded by small brown bulblets. The 8cm long taproot looks like a small white carrot and is a sweet, tasty morsel. **Creeping oxalis** or **Yellow Wood sorrel** *O. corniculata*, is a native, whose creeping stems, shamrock-like leaves and yellow flowers are frequent garden weeds. The leaves and flowers of the above 3 oxalis species are a good source of vitamin C, are edible and have a sour taste: add to salads and soups, etc. They are also high in oxalic acid, and therefore should not be eaten in large amounts.

Yellow weed or **Mini sunflower** *Galinsoga parviflora*, p 54, annual weed to 50cm, hairy stems, lanceolate leaves 2-6cm long; small, daisy-like flowers with white petals and yellow centres. Leaves and young stems may be eaten raw or cooked. It has a rather bland flavour.

Wild carrot also called **Slender celery** *Apium leptophyllum*, p 66, is a fine feathery-leaved weed 30-50cm tall. Tiny, brown seeds follow umbels of tiny, white flowers. If the leaves are crushed the aroma is similar to parsley and celery, and it does belong to the same family (*Apiaceae*). Leaves have a flavour similar to parsley.

Parsley, the flat leafed Italian form, is growing wild in southern Australia, waiting to be picked and eaten.

Fennel *Foeniculum vulgare*, p 43, 68, is also of the *Apiaceae* family. Although this herb is grown in gardens for its culinary and medicinal benefits, the plant is also seen as a wayside weed in urban and rural areas. On our travels, we have seen fennel in capital cities, along country roadsides and railway lines. I have enjoyed picking the aniseed-flavoured seeds to chew on our trip.

Add leaves to salads, sandwiches, serve with fish and use as a garnish; add the seeds to bread, pies, sauerkraut, spaghetti, and to snack on like lollies, as they taste like black jellybeans.

Many plants in the *Apiaceae* family we enjoy as herbs for flavouring, like dill, coriander, caraway, chervil, cumin and anise. Vegetables: carrot and celery have similarities in appearance with feathery or fern-like leaves, and seeds that set as umbels. However, if picking from the wild, be aware that there is another *Apiaceae* look-alike, **Hemlock** *Conium maculatum*, is a poisonous plant causing fatality if eaten. Hemlock may grow 1-2m high, with large fern-like leaves (when crushed these give off a mousey odour), and clusters of white flowers. Although introduced to Australia by early settlers for medicinal purposes, and now seen as a weed in eastern and southern states, it is not a weed to partake of, even if starving.

Sensitive plant *Mimosa pudica*, p 67, a perennial legume to 50cm; slender, branching red stems bear small, sharp, curved thorns; leaves form in pairs, as fern-like oblong leaflets; pink, fluffy pom-pom flowers 1cm in diameter are followed by small brown pods containing several round flat seeds. It is a common weed of tropical and sub-tropical areas of coastal Queensland. The plant has ability to fold its leaves instantly when touched, which is a survival technique to protect it against high winds and storms. Because of its thorns, it is a despised weed. Flowers may be eaten and look novel as a garnish on a meal, and leaves are eaten, also. Very few people have heard of the valuable therapeutic properties of the plant. Hawaiian folklore gives the use of the flowers for brain clarity, leaves for central nervous system disorders, and the stem and roots for the digestive system, intestines and kidneys. People who drink it as a leaf tea, regularly, have observed many benefits. These are: reduced symptoms of stress, lowering of high blood pressure, restful sleep; and relief from shingles, fluid retention, glandular swellings, Parkinson's Disease, and other ailments that affect the nervous system. **Mimosa tea** is made with 16-20 small leaflets to 2 cups of boiling water, steeped; 1 cup is drunk in the morning and another in the evening.

Prickly pear cactus *Opuntia stricta*, p 67, *O. vulgaris* and several other species were introduced

into Australia during the days of convict settlement. This was mainly to provide food and breeding grounds for the cochineal insect, which provided red dye for soldiers' uniforms. The prickly pear just loved the new country of Australia and spread by seed, stems and leaf pads. By the 1920's the cactus had become a severe plant pest in many areas of Australia, from beaches to dry inland areas. Prickly pear cactuses can grow 2-4m tall, with thick, flattened, fleshy pads branching in numerous directions. The pads are covered with sharp spines, and produce round, sweet, succulent fruits. It is declared a noxious weed (because of its prickles) and, therefore, should not be planted in gardens.

However, the plants are still seen along roadsides and are sought after by people who enjoy the flavour of the fruits. Prickly pears are often seen fruiting over many months of the year. The fruits are also covered by fine prickles, which readily stick into fingers when picked (wear thick gardening gloves, when picking the fruit). Before cutting the fruit to eat, some people singe off the prickles by holding above a lighted candle, or place fruit in a bucket and turn on a tap to give high pressured water in the bucket can help to dislodge the prickles. It is suggested that not more than 2 fruit a day be eaten, as the fruit can have a very constipating effect (I can speak from experience).

Thick, young leaf pads have been an important survival food. With the prickles scraped off with a knife, or brushed off with a soft scrubbing brush, the pads are eaten raw, or peeled, diced, roasted, steamed, also added to stir-fries and other cooked dishes. Add diced cooked pieces to a cold bean salad, tossed salads, or make into pickles with vinegar. Pads diced and stewed with sugar and water make a sweets dish, either on its own or stewed with fruits.

Early settlers used the mucilaginous pulp of the pads as a cough syrup. Split pads were bandaged to wounds, tumours, abscesses, rheumatic joints and bruises. This provided mucilaginous cleansing and soothing effects, cell regeneration, and other healing benefits; as well as the padding giving physical support.

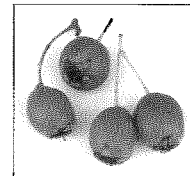
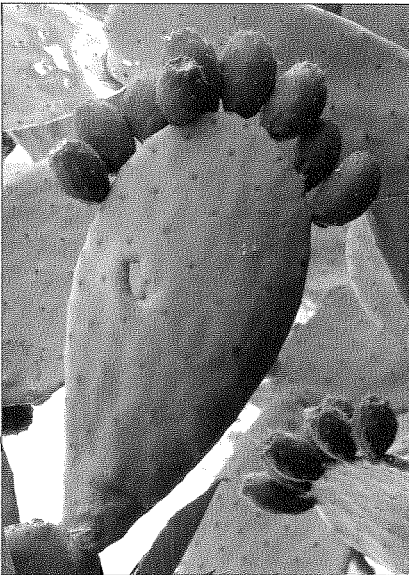
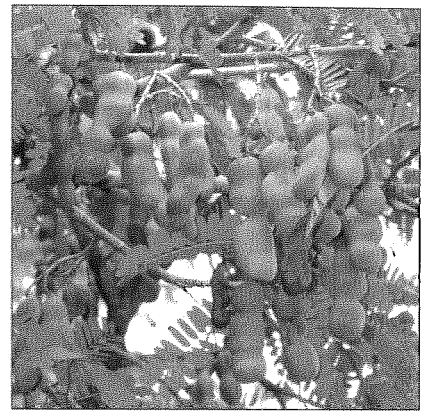
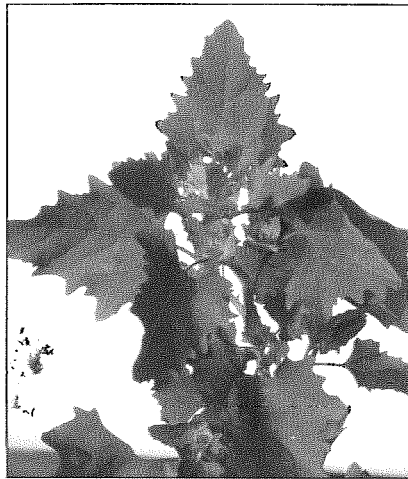
Some people may be familiar with the **Indian fig** *O. ficus indica*, p 68, which at first sight looks like a formidable prickly pear, however, it is not as ferocious, as it bears fewer prickles. Although related to the prickly pear, it is not a banned, noxious plant like the prickly pear.

Therapeutic uses of the plant include: diabetes, respiratory, liver and gall conditions, for lowering high cholesterol, blood sugar, and excess weight.

Opuntia species are sometimes referred to as Nopals. In traditional Mexican medicine, nopal is used for treating Type-2 diabetes. Mexican researchers found that people with non-insulin-dependent Type-2 diabetes given nopal experienced a large drop in sugar levels and this has been documented by many studies. Researcher, Mike Adams from 'News Target' says that for many diabetics and pre-diabetics, nopal is also able to be used as a complete replacement for prescription blood sugar drugs, and that it regulates blood sugar with no side effects and no liver damage



Wild carrot



Above left: Emilia (p 65)

Above centre: Fat hen (p 65)

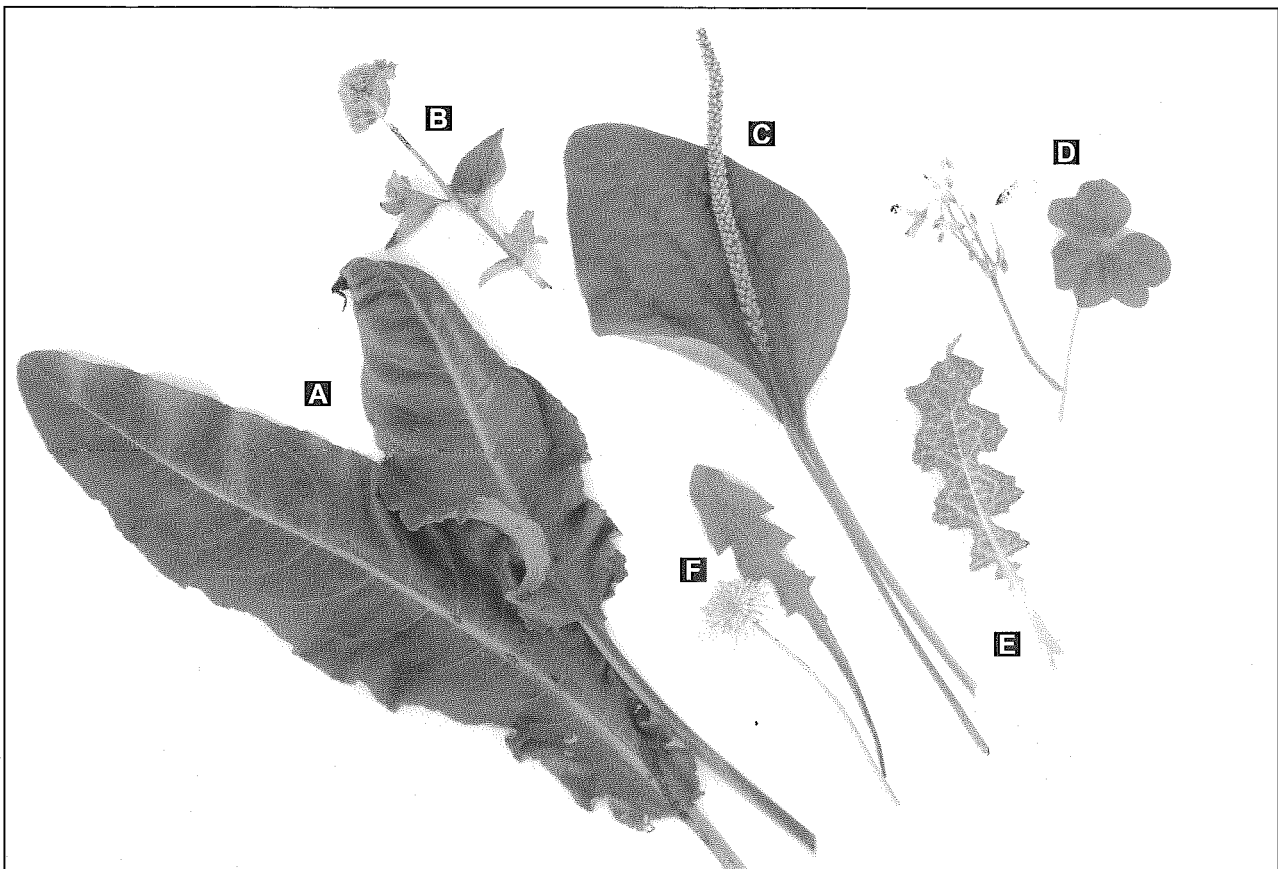
Top right; Tamarind (p 28)

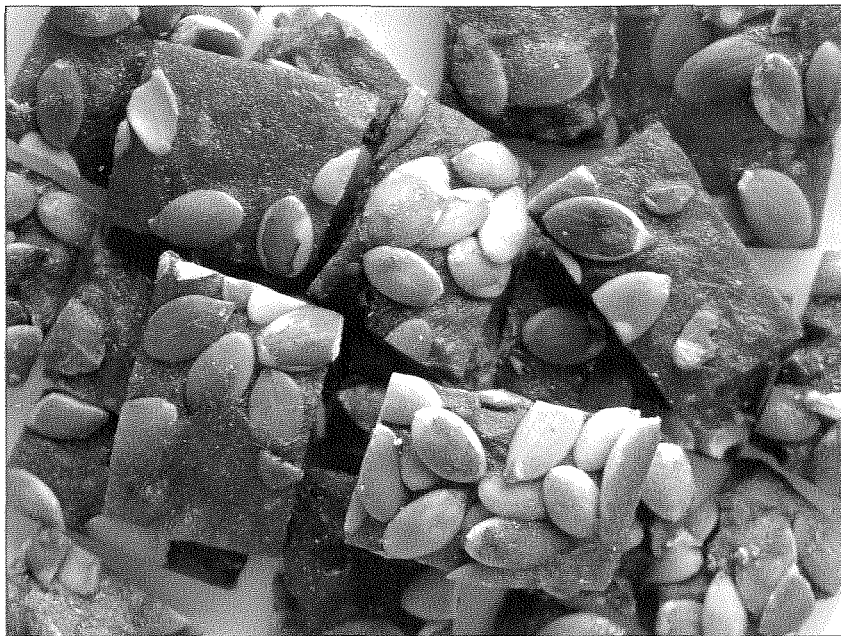
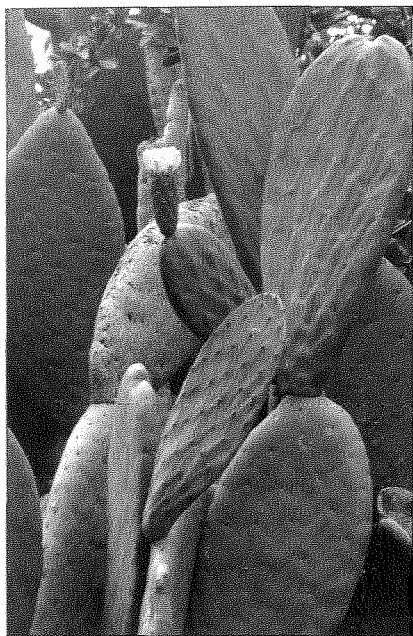
Above: Hawthorn berries (p 70)

Below l - r: A. swamp dock (p 64), B. blue top (billygont weed) (p 71), C. broad leaved plantain (p 59), D. soursob (pink shamrock) (p 65), E. St Mary's histle Silybum marianum (p 65), F. dandelion (p 58)

Far left: Prickly pear (p 66)

Left: Sensitive plant (p 66)



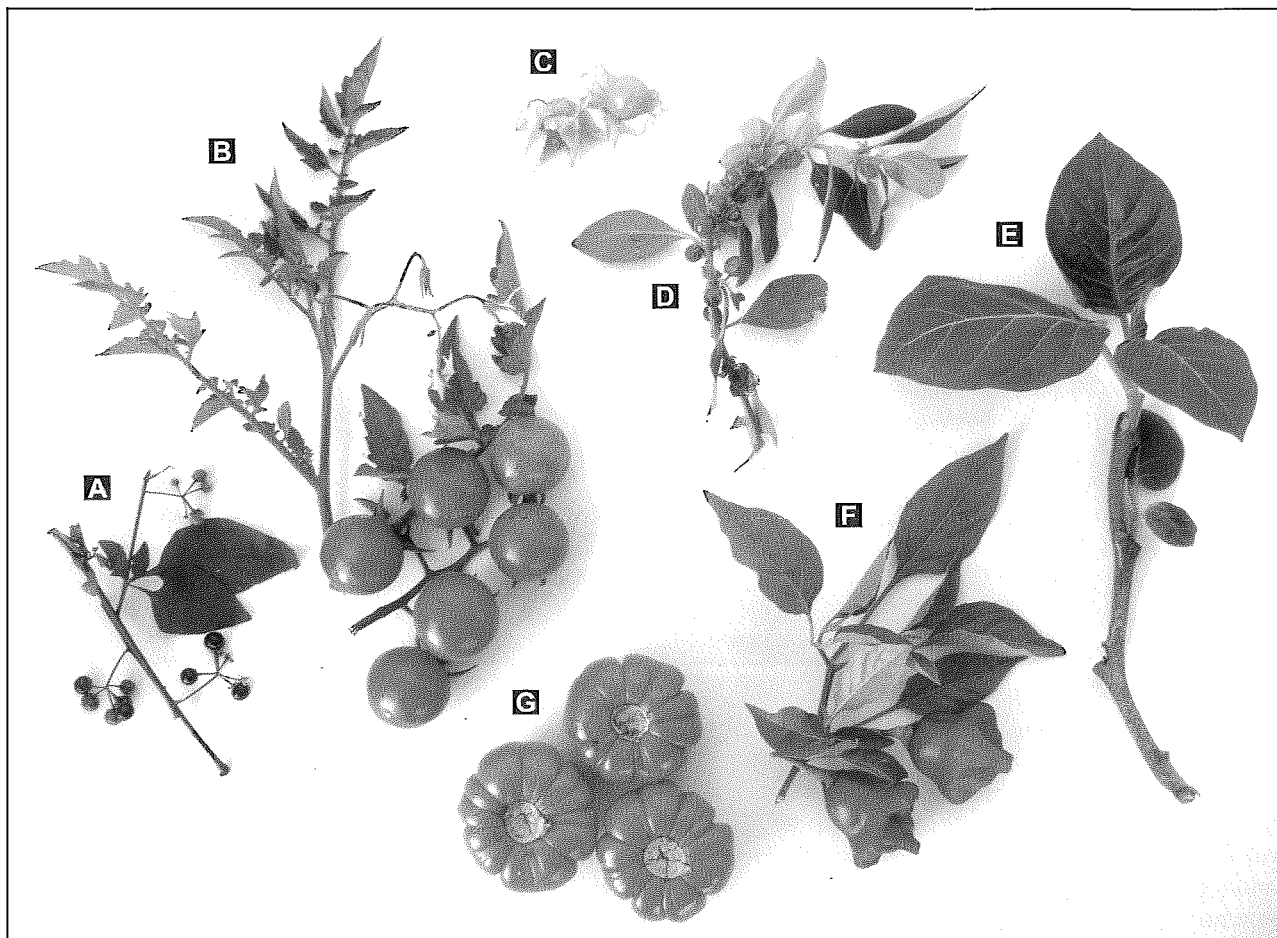
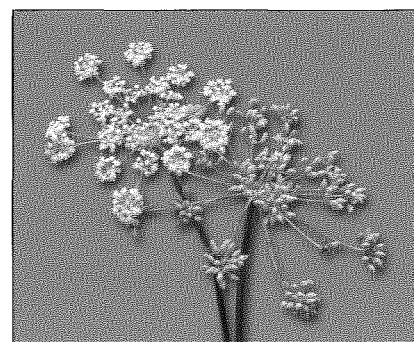


Above: left Indian fig (p 66)

Above right: Dried persimmon squares topped with pepita seeds

Right: Fennel flowers (p 114)

Below: Solanum family clockwise from left: A. black nightshade (p 70), B. Tom Thumb tomato, C. cape gooseberry (p 70), D. Indian ginseng (p 117), E. tamarillo, F. bell chilli (p 110), G. pumpkin tree (hmong eggplant)



(which is one of the primary side effects of blood sugar prescriptions). **Caution:** do not halt prescription drug use except under the guidance of a health practitioner. **Warning: Any lapse of use in prescribed insulin for Insulin-dependent Diabetes Mellitus (Type-1) may result in coma and death.**

Trials of Indian fig showed that daily consumption of 250g of the plant can lower LDL cholesterol levels significantly, while HDL and triglyceride levels were not affected.

In some countries, small farmers use mucilage from the nopal leaf pads to purify drinking water.

For medicinal use the leaf pads are diced into small pieces, covered with water and slowly simmered for 30 minutes, cooled, strained, the liquid refrigerated, and a glassful of the decoction is taken 3 times a day. Alternatively, the inside of a leaf pad can be scraped to yield about 2 tablespoons of pulp which can be mixed with water or fruit juice and drunk before meals. The fruits and leaf pads are eaten for endurance and building stamina.

Opuntia species are able to survive in extremes of heat and drought for long periods, in fact, for many years. Plants have hard, thick skins and a wax coating, which helps protect from evaporation. During times of rain, this plant can store large volumes of water in stems and leaves. Keep this in mind... as this could be a source of water if you have been forced into survival mode and water is scarce; cut a thick leaf pad, peel the leaf and suck.

Grasses, have been devoured by man, when all other food sources have been depleted. In times of scarcity, when mankind has had to rely on a very simple diet of what can be foraged, often it has been grasses that has not only sustained humanity, but also kept us in good health. Perhaps, there will be readers of this book on survival foods who say they hope they will never have to resort to eating grasses on the footpaths and nature strips: lawn grasses, nut grass, couch, sedges, crows-foot grass, and wild oats ... well, there are so many to choose from! But it is better to discover what you like best sooner, rather than later. (Can I hear you laughing? Good!)

Laughter also sustains humanity ... and keeps us in good health. (Although laughing between mouthfuls of grass is not such a good idea.) So, before you start munching ... here is a variation of 'the grass is always greener on the far side of the hill'.

One afternoon, a lawyer was riding in his limousine when he saw two men along the roadside eating grass. Disturbed, he ordered his driver to stop and he got out to investigate. He asked one man, "Why are you eating grass?"

"We don't have any money for food," the poor man replied. "We have to eat grass."

"Well, then, you can come with me to my house and I'll feed you," the lawyer said.

"But sir, I have a wife and two children with me. They are over there, under that tree."

"Bring them along," the lawyer replied.

Turning to the other poor man he stated, "You come with us, too."

The second man, in a pitiful voice, then said, "But sir, I also have a wife and six children with me."

"Bring them all, as well," the lawyer answered.

They all entered the car, which was no easy task, even for a car as large as the limousine. Once underway, one of the poor fellows turned to the lawyer and said, "Sir, you are too kind. Thank you for taking all of us with you."

The lawyer replied, "Glad to do it. You'll really love my place. The grass is almost a foot high."

In an ideal world, we would never have the need to munch on grasses. However, since we know this is not the case, with unforeseen circumstances ... we do need to be prepared. If we are ready for the worst scenario, then, we can use it, if need be, rather than starve. And live to appreciate this knowledge!

Scurvy weed, also known as Wandering Jew *Commelina cyanea*, p 73, is a common ground cover weed in temperate, tropical and sub-tropical areas, thriving along creeks and in moist forests. The creeping stems may take root along the nodes; lanceolate, 5cm long, leaves develop along the stem nodes, as do the bright blue three-petalled flowers. Early settlers discovered the plant's virtues when forced to depend on wild plants during times of scarcity. Scurvy weed was thought to be a good source of vitamin C, and the young leaves were eaten raw or cooked. Crushed leaves were applied topically to boils, burns, bites and carbuncles. Leaves were chewed into a small wad and held in mouth for ulcers. Tea or decoction is drunk for respiratory and urogenital infections, difficult urination, oedema and dysentery.

Sida-retusa, commonly called **Paddy's lucerne** *Sida rhombifolia*, p 70, perennial to 60cm tall with tough stems and strong deep taproot; yellow flowers carried on long slender stems in the leaf joints; seed capsules have two long sharp points at the top. Closely related is **Flannel weed** *Sida cordifolia* upright perennial to 1m tall with slightly velvety, ovate-shaped leaves and dense clusters of yellow flowers; each seed capsule has 2 fine bristles at the top.

Both species are edible weeds of gardens and roadsides. The leaves (7.4% protein) have been used as a tea substitute. The tea or chewing the leaves is an effective remedy for diarrhoea. Both these *Sida* species are quite palatable, rich in mucilage, and have been valued for treating respiratory ailments, relieving gastric ulcers, inflammation and irritation of the alimentary canal, and as a poultice for ulcers.

Several months ago, I had people call at the Herb Farm and relate an account of a lady they knew in North Queensland, who had a respiratory condition that no medication, including antibiotics the doctor gave, would give relief; the woman was still spitting blood. Someone suggested that she try a local weed, sida-retusa and eat 3 leaves a day. She took 3 leaves for 2 days and is now completely free of the condition.

Solanum species as food: there are several species of the *Solanaceae* family that readily pop up in gardens and roadsides with edible berries. Then, we are all familiar with commercial species that are



Sida-retusa (p 69)

a regular part of our diet like tomatoes, potatoes, eggplant, and capsicums (see plant families p 129).

Glossy nightshade *Solanum americana*, an annual bush 50-100cm tall, lanceolate shaped leaves, 5-10cm long; small, white, star-shaped, five-petalled white flowers with a central cone of yellow stamens, these develop in clusters of 4-6 to a slightly erect stalk that forms between the leaf joint. The flowers are followed by small, globular, green berries, 5-7mm wide, ripening to shiny purple-black berries, with mildly sweet palatable taste, similar to tomato.

Black nightshade *S. nigrum*, p 68, lanceolate leaves may have soft-toothed margins, and the dull purple-black berries tend to hang downwards. Berries of both these nightshade species are eaten when fully ripe, fresh in hand or stewed, made into pies, jams and relish. Ripe fruits have been used to treat fevers, diarrhoea and are regarded as a tonic. Unripe fruits should not be eaten. Immature berries that are green or light purple in colour contain the toxic alkaloid solanine (which is also the poisonous component in green potatoes). It is suggested that these berries should not be eaten in large quantities, as they contain glyco-alkaloids, which if taken in excess, may cause gastroenteritis.

Young tip shoots and leaves have been a traditional cooked potherb or added to soups, although they are said to be bitter when grown in very dry conditions. Note: before eating, always cook the leaves to neutralise the toxic alkaloid solanine. Recently, a man who visited the Herb Farm mentioned that, when he lived in New Guinea, the cooked leaves were a common food. He said that these were used to reduce blood pressure and for heart problems. Leaves are also crushed in the hand and used as a poultice for ulcers, sores and skin conditions. **Note:** before eating, always cook the leaves to neutralise the toxic alkaloid solanine.

Gooseberries, with about six known edible species in Australia, also of the Solanaceae family,

are small bushes that bear juicy yellow or cream-purplish berries, encased in green papery husks, which turns straw-coloured when the fruit is ripe. **Cape gooseberry** *Physalis peruviana*, p 68, to 1m high, grey-green velvety leaves 8-12cm long, yellow star-shaped flowers, 2cm diameter, are followed by yellow-orange round berries 2cm diameter, enclosed in an inflated husk. Early settlers introduced this fast growing and fruiting food plant. The juicy, sweet/acid flavoured fruit is very tasty: eat fresh, or make into jams or pies. Birds are very fond of the fruit, and seeds expelled in droppings have germinated far and wide, and have become naturalised in a number of places.

Watch for any dried husks that may have dropped under the bush, as the fruit within the husk can keep for many weeks. In fact, the riper the fruit the sweeter it will be. Fruits can be dried, and taste similar to raisins. Dried fruits have been used as a substitute for yeast in ginger beer and bread making.

Native gooseberry *Physalis minima*, to 50-60cm high, has yellow 1½ cm star-shaped flowers, often with a brown spot in the centre; leaves and stems are smooth; fruits are round yellow berries, similar to cape gooseberries, but not as flavoursome. Leaves of the two *Physalis* species, listed above, are reputedly cooked and eaten in some Third World countries, however they are rather bitter.

Hawthorn, *Crataegus* species, p 67, 71, were introduced to Australia by early English settlers as a hedge plant that became readily dispersed by fruit-eating birds and now has wide distribution in areas of Victoria, New South Wales and South Australia, seen in paddocks and along roadsides. Early pioneers used the flower petals in salads and winemaking. They also ate the berries and made them into jams and chutneys. The flavour of the fresh berries is rather dry and not very appealing; however, when cooked with sugar or vinegar, they make a good base for jams and sauces. No doubt some of the first settlers also knew of hawthorn's benefits to the heart, as it was during the 1800's that Dr. Green, an Irish physician, was recognised for his success in the treatment of heart disease using hawthorn. More recent research has found that *hawthorn berries and flowers can have a gentle effect, dilating arteries, regulating heart beat, relieving angina pain, bringing down high blood pressure, and allowing a better flow of oxygen-rich blood to the lungs, brain and every cell of the body.*

Use hawthorn as a prophylactic (preventative) too, as it has been found to contain a number of powerful flavonoids that can act to protect against cardiovascular disease. On our Australian trip, we had the opportunity to pick berries in numerous places and make them into tinctures, which is a practical way of preparing many medicinal plants, for later use.

There are two, most recognised, therapeutic species of hawthorn: *Crataegus oxyantha*, 5-7m high, has lobed green leaves with 3-5 serrations; white flowers in clusters with pink anthers; dark red, round fruit 1.8cm diameter with 2 small seeds. *Crataegus monogynia*, 48m high, with deeply lobed leaves, white flowers, bright red fruit 1cm diameter, and usually only 1 seed.



Hawthorn leaf

Alfalfa *Medicago sativa*, p 81, hardy perennial to 1m has a deep root system; nutritious, dark-green, trifoliate leaves and violet-blue, small pea flowers; a common weed on roadsides; no doubt, growing wherever seeds fall from trucks carrying hay, as this legume (also known as Lucerne) is used as stock fodder. Alfalfa is able to absorb large amounts of carbon dioxide from the atmosphere, reduce methane output by animals that consume it, and turn carbon into biomass. It is, therefore, a very worthwhile plant in the fight against greenhouse gases. Leaves and flowers are eaten and made as a tea. It is a very alkalising herb and the chlorophyll-rich leaves are valued for cleansing and oxygenating the blood. Alfalfa nourishes the digestive, skeletal, glandular, respiratory and urinary systems.

Blue top also called **Billygoat weed** *Agoratum conyzoides*, p 67, perennial to 1m high with opposite cordate-shaped leaves; clusters of fluffy, pale lavender-blue flower heads; it is a common weed of pastures and wastelands of eastern Queensland, New South Wales, and Western Australia. Leaves, when crushed, have a strong odour; and, as the leaves are hairy, they are not very palatable. However, leaves can be eaten in salads and other dishes; and have been used as a folk remedy for fevers, tick and insect bites. Crushing the leaves and rubbing it over the bite helps relieve the itch and pain in a few minutes.

The edible weeds listed in this chapter are some of the most commonly seen. Weeds don't need to be cultivated. They grow simply for the love of life. *Enjoy the weeds - they are a free source of food and medicine.* I encourage all fellow Australians, both rich and poor, to eat your weeds. I challenge you to get to know weeds, now. Someday ... in an uncertain future with changes in climate, the peak oil crisis and other

adaptations to be negotiated ... there may be nothing else to eat for a time. For many years, we have had food in abundance, with grocery store shelves stocked with hundreds of food items from floor to ceiling. But times are now changing. By getting to know and eat weeds, you will also learn about your local environment ... for no matter where you live, you are bound to be living amongst a healthy population of friendly, edible weeds!

Some readers may be wondering why I am suggesting people eat roadside weeds that are sure to be loaded with exhaust fumes. Be aware, that all city dwellers are continually surrounded by thousands of chemicals from factory smog and other man-made toxins; and country dwellers have spray drift of farm chemicals: pesticides and herbicides. We may think we have beautiful blue skies, neat modern cities and a clean countryside, however, chemicals build up and drift in the wind, and toxins are around us all the time. Man-made toxins are everywhere (even if we cannot see them) with DDT found in the Arctic Circle, where it has never been used as a spray. This means that it is blowing in the wind or it has dispersed through the animal food chain.

Genetic Manipulation (GM foods): Do we know that the food we bought today from our friendly local supermarket is safe for consumption? GM foods are mostly unlabelled. Many are developed to be herbicide tolerant with in-built insect toxins. In the 1990s, a Brazil nut gene was added to GM soybeans. This variety triggered allergic reactions and was withdrawn. Potatoes, altered with genes from flowers (snowdrops) to produce lectins, acquired this gene for the poison to kill insects and worms. Then, in 1999, Dr Arpad Pusztai found major health impacts for rats from the trials. The CSIRO's decade-long project combining beans with peas was cancelled after rats and mice developed hypersensitive skin responses, airway inflammation and lung damage. (Ref. *Journal of Agriculture and Food Chemistry* 2005, 53, Pp 9023-30.) Dr. Irina Ermakova from the Russian Academy of Sciences indicated in her report on 10 October 2005 that 55.6% of the offspring from female rats fed GM soy flour died within three weeks. Surviving offspring from the GM-fed rats were stunted. GeneEthics Network advises us that: 'in March 2006 in the UK, six healthy, paid volunteers in the first human clinical trial of the new GM medicine - monoclonal antibodies - all soon fell ill and remain near death'. Animal studies had not disclosed the danger. This report concludes: *In Australia, there is an urgent need for an independent review of the standards of assessment and public scrutiny on GM foods and pharmaceuticals.*

Thankfully, the weeds growing readily in our gardens are GM free AND they are not irradiated.

Is our daily bread irradiated? It could be! Irradiation changes the molecular structure of foods, forming toxic chemicals. Risks include: genetic damage, immune system disorders, tumours, vitamin deficiencies, stunted growth and reproductive problems. The European Union has placed a ban on further irradiation approvals after research revealed 'unique radiolytic

products' (URPs) found only in irradiated foods. Some of these, classified as 'cyclobutanones', can cause genetic damage. Animals fed irradiated foods have shown lowered immune resistance, increased abnormal lymph cells, decreased fertility, damaged kidneys, depressed growth rates and deficiencies in vitamins A, B, C, E and K. Carcinogenic free radical overload is also linked to irradiated foods. www.foodsradiationinfo.org

Many products we think are healthy for us to consume, have been irradiated. Pet food products are similarly treated. Australia has three commercial irradiation plants, using the nuclear by-product Cobalt-60 to produce gamma radiation. (Another waste product of the nuclear industry, Caesium 137, is also permitted by the USA and other countries.) Irradiation is used on domestic products such as tropical fruit, teas, herbs and spices. A wide range of imported irradiated foods, are also sitting on our supermarket shelves.

How do we know if our food is irradiated? Buyer beware, you may not! No warning of potential harmful impact is required in Australia. Imported foods may indicate irradiated foods by use of a logo but this is not required in Australia. *The logo is an attractive budding flower ... in a healthy green colour ... allowing us all to feel safe.* The words 'irradiated' or 'radiation' are NOT required. Some products may include a statement in very small font, saying: *This product has been treated with ionising electrons to destroy harmful micro-organisms.* Therapeutic or medicinal herbs and health products do not require labels, as they are not classified as 'food'. In 2006, the UK Food Standards Agency investigation revealed that 50% of supplements tested were either irradiated or included irradiated ingredients. None were labelled. For further information about irradiated foods and how to avoid them, go to www.foodirradiationinfo.org for an Irradiation-free Food Guide.

On the home front, in this battle to eat clean, green produce, we can demand labels on irradiated foods and therapeutic goods. *We can refuse irradiated foods and buy locally-grown produce.* And ... take heart ... our gardens have a solution! As long as we can correctly identify nutrient-rich edible greens, we can rely on weeds as a safe, healthy, food source. Here is an appropriate motto for the uses of garden weeds: if you can't beat them ... eat them! Recently, Suminah, who has made her home in Australia from South East Asia called at the Herb Farm, and had a cute story to tell: she said when people come to share a meal with them, and when they partake, and folk say it is very enjoyable and ask what is in the dish, she says, she will tell them when they have finished eating ... only then they learn from her what the ingredients are, together with local edible weeds, she usually includes in the tasty dish.

Wild weed salad Take 1 large handful dandelion leaves, purslane or other edible leaves and cut in 1-2cm pieces, 1 cup sprouts, 1 handful mandarin or orange slices. Toss with vinaigrette made with 1 tablesp. honey, 1 teasp. miso, 3 tablesp. orange juice, 2 tablesp. vegetable oil, 3 tablesp. rice vinegar or apple cider vinegar.

Weed gazpacho is Christine's favourite raw soup and it is quick and easy to make. There is no cooking for this raw food soup, which is so refreshing in hot weather. A basic pesto is first made with weeds and strong flavoured herbs. Christine uses any combination of leaves: nodding top, cobblers' pegs, alfalfa, pigweed, Qld. greens, betel leaf, mother-of-herbs, tarragon, nasturtium, Vietnamese hot mint and bush basil. (Use any edible weeds and herbs on hand but the basil is a key ingredient, as the strong flavour should subdue the 'weedy' taste.)

For the **Pesto**: blend basil and other leaves with extra-virgin olive oil, garlic, salt and cracked pepper. This completes the pesto for flavouring a variety of dishes, including pasta dishes. Now to make the **Weed gazpacho**: blend pesto with a cube of fresh aloe vera gel to a smooth consistency. Add this mixture to blended raw tomatoes, beetroot, carrot, capsicum and cucumber. Add chopped salad onion and a dash of soy sauce, for a delicious gazpacho. If more liquid is needed, use tomato or vegetable juice. A few drops of tabasco sauce are optional.

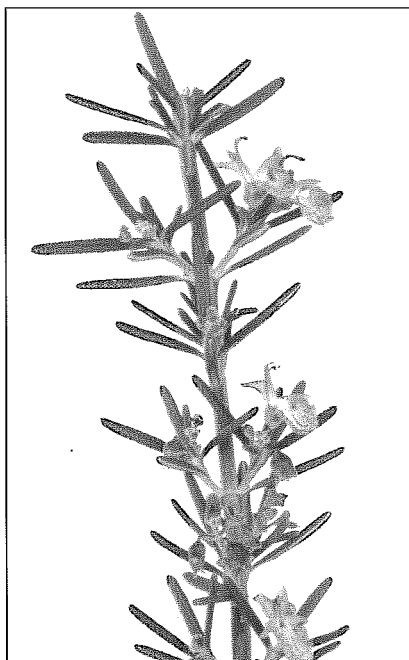
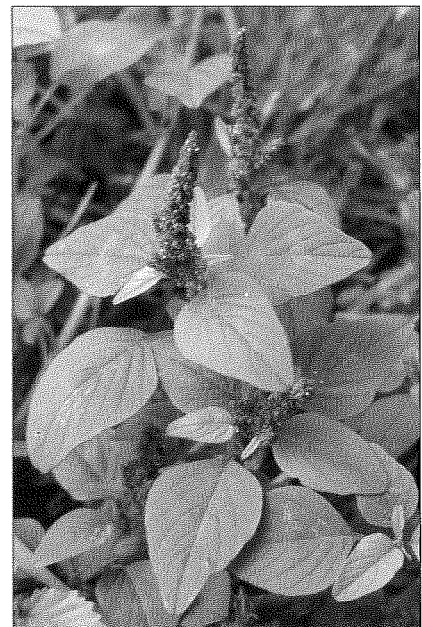
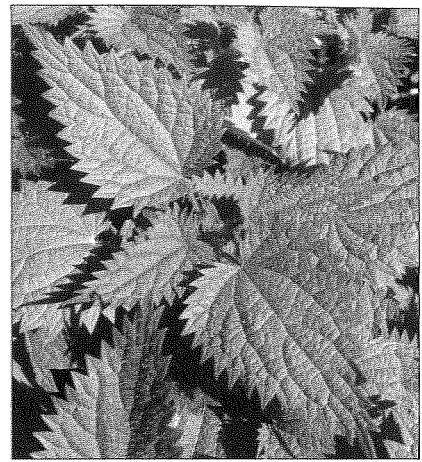
The following recipe from Christine resulted after a Vet's recommendation: to add 40-60% grated (or blended) RAW vegetables, including greens, to keep the digestive system of her dog in a natural balance. When questioned, the vet explained that dogs in the wild would normally eat the stomach contents of their prey. So, forget the dry food and feed your pet well. Here is Christine's recipe for a healthy 'dog's breakfast'.

Wuppy's weedtees To a kilo of raw lean minced meat, add an extra 40% in a variety of grated raw vegies: beetroot, carrot, zucchini, pumpkin, etc. ... but not onions, potatoes or brassicas. Add 10% of rolled oats or cooked brown rice and a tablesp. each of brewer's yeast, kelp powder, apple cider vinegar, ocean minerals, a good quality flax-seed oil or olive oil and one or two raw eggs. Now, here comes the 'crunch' factor! Blend a quantity of edible weeds with a large cube of aloe vera gel. Mix all ingredients ... to give your dog a healthy, balanced diet. (Christine's cat, Violet, likes this combination too.)

Bush tucker plants

'Tucker' is an Australian word for food and can refer to food obtained from native plants and animals.

Before European settlement, over two hundred years ago, Indigenous Australians lived on food foraged from the environment. These foods consisted of seasonal fruits, nuts, leaves, flowers, roots, animals, reptiles and insects. It has been estimated that there were upwards of 5,000 different bushfood plant species across Australia, utilised and harvested seasonally by Aboriginal people. Usually, the men hunted larger animals and fish, while the women collected smaller animals, fruits and greens and dug for tubers. Children's sharp eyes also found small edible berries. Foraging sometimes included long treks for many kilometres on foot (barefooted) over a hot and



Above: Survival foods: Tahini, Vegemite, peanut paste, dried star fruit, persimmons, survival nuggets topped with sunflower or pepita seeds (p 34)

Top right: Nettle (p 60)

Above right: Green amaranth (p 61)

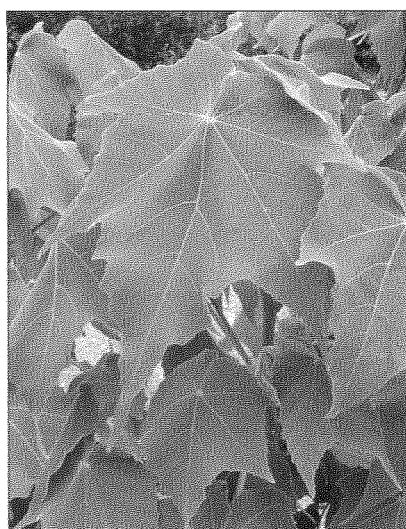
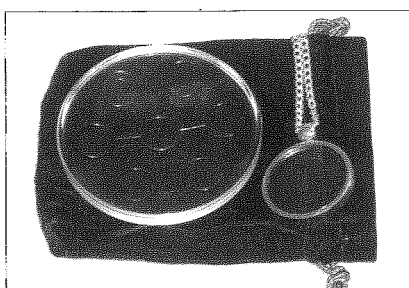
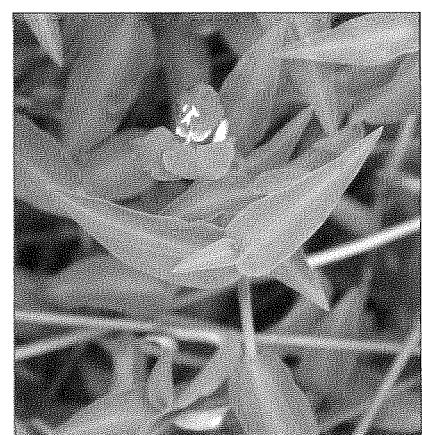
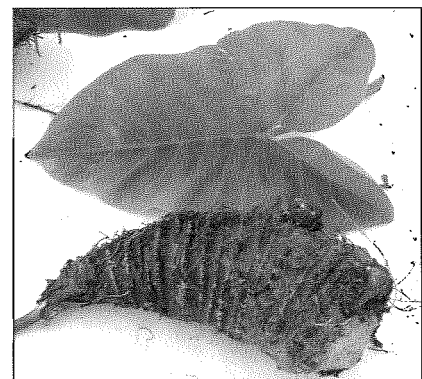
Right: Coco yam (p 28)

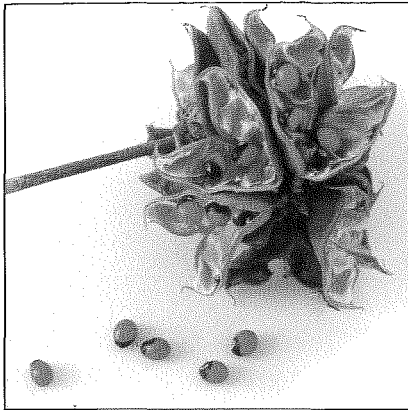
Below right: Scurvy grass (p 69)

Below centre: Arla (p 12)

Below left: Scalar energy inventions, Amezcua Chi Disc and Pendant (p 85)

Left: Rosemary (p 113)

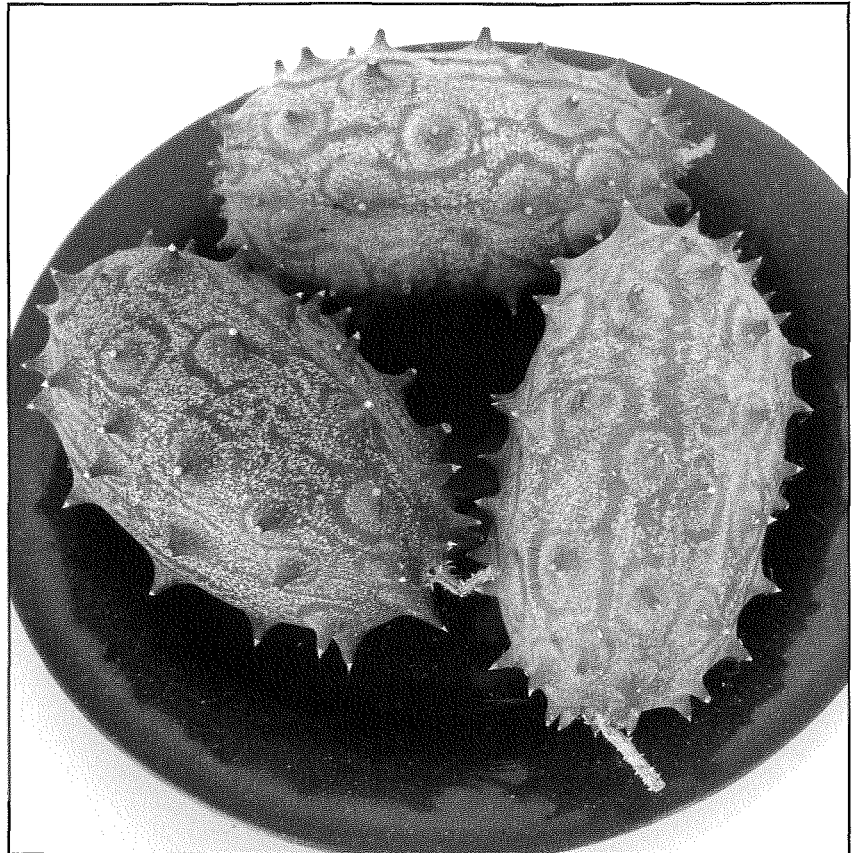




Above: Gidee gidee (p 77)

Right: African cucumber (p 11, 25)

Below: Seeds and sprouts: chia, sunflower, fenugreek, broad beans, mung beans, adzuki beans, pea seeds, lentils, rice beans, pigeon pea (p 92)



harsh terrain. However, most areas, including the lush coastal regions, had abundant food supplies. Some of the freshest, most nutritious foods may still be found in our Australian bushland.

Knowledge of what was edible, palatable (or even delicious), the best harvest times and food preparation methods were passed from one generation to another, by word of mouth. Certain types of seeds and tubers were poisonous. Extensive preparation was then required before these foods could be eaten. Sometimes this entailed removing skin and irritating hairs; or pounding the plant material to a pulp, then submerging this in a flowing stream to leach soluble toxins; finally, this material was roasted to remove other toxins that are chemically changed through heating.

Food was eaten either raw, cooked by direct roasting in fire, or cooked more slowly in hot rocks, ashes and coals. The first pioneer white settlers and explorers faced many hardships and when oppressed by hunger, were glad to taste Aboriginal tucker. However, today, over 200 years later, the majority of our population do not even take the opportunity to grow an edible garden, as it is so easy to forage the food shelves of the supermarkets. In the 21st century, it is hard for us to even visualise how much country would be needed to support a food gathering people and with our present population approaching 21,000,000, possibly only a small percent would survive if we had to resort to the bush during an emergency.

Here in this chapter we will be covering a few of the food plants, but not native animals, as these are protected by legislation.

I do encourage people to become familiar with edible native food plants in their surrounds and sample them when opportunity offers, as this awareness may be valuable for the future. Various books are available on wild foods (see references p 129) and an internet search will also provide information.

Be aware, there are various regulations designed for the protection of flora and these laws may differ in each state. Generally, native flora is protected in national parks and on crown land. Even where there are no regulations in force, there should not be unreasonable destruction of plants or the land, remembering that future visitors may also include yourself.

As Australia is a vast country with different climatic zones, the variety of wild plant foods is extensive. Most native fruits and berries are not very large in size and the majority of them are not very sweet in flavour, so these foods have not been developed as commercial crops; this also means that many Australians have never had the opportunity to taste them. With the hundreds of plant species used for food by Australian Aborigines, it is perhaps surprising that only one, the Queensland nut, which we also know as the Macadamia nut, has become a major commercial crop. Various other nuts, fruits and seeds are being grown and marketed as bush tucker foods in small quantities or as value-added products by being made into jams, pickles, dried seasonings or flavourings.

For people on acreage, it could be worthwhile to plant some native species and these can be sourced

from native plant nurseries. For small-sized backyards, these plants are not so practical when comparing edible native yields to our typical fruit and vegetables suitable for growing in small areas.

In this text, I will give details of a few of the tastier (and readily seen) edible native plants. To give a complete listing would require a large volume; besides, plants indigenous to say the Kimberleys of Western Australia would be of no practical benefit to city dwellers in Metropolitan Melbourne. However, with this book title centred on 'self-sufficiency and survival', this chapter is to make us aware that *edible native plants are here for our present pleasure and possibly our future survival*.

Some of the better known fruits, include:

Lillypillies with over 50 *Syzygium* species; these are common along streams, in rainforests, scrub and coastal dunes in eastern states of Australia; hardy, fast growing trees with glossy, evergreen foliage, often with brilliantly coloured new leaves of pink and red. Flowers are generally creamy-white and are a mass of soft stamens, which are very attractive to bees. Fruits may vary in size from 1–4cm in diameter and are usually round or pear-shaped with smooth skin, in colours of cream, pink, purple or red. The flesh around the seed is sour, astringent and fragrant. Fruits are eaten fresh and made into jams, jellies and sauces.

Most common species seen are: **Riberry** or **Cherry alder** *Syzygium leuhmannii*, 1cm red fruits (pear or egg shaped) in great quantities. **Blue lillypilly** *S. coolminiana*, with rounded, purple-blue 2.5cm fruits, and the small seed often rattles in the central cavity of ripe fruit. **Brush cherry** *S. paniculatum*, has ovoid red-violet berries, 2cm diameter. **Creek lillypilly** *S. australe*, with glossy pink fruit 1–2cm diameter. **Hot flush lillypilly** *Acmena smithii*, is possibly the most widely distributed species, being found from coastal districts of Victoria to northern Queensland, with rounded small purplish fruit.

Powderpuff lillypilly *S. wilsonii*, grows 1–3m high with red flowers and white club-shaped fruit 1cm diameter.

Closely related to lillypillies and belonging to the same *Myrtaceae* family (see plant families 129) is the **Cedar Bay Cherry** or **Beach cherry** *Eugenia reinwardtiana*, (cover picture no. 7), an attractive bush 1–2m high and therefore ideal for small gardens; creamy coloured flowers nearly all year round and juicy, sweet, bright red fruit, which many people consider to be one of the tastiest of native fruits.

Another native for small gardens is the **Midyim**, also called **Sandberry** *Austromyrtus dulcis*; bush 20–40cm high, sprawling branches, 4cm linear-shaped leaves and 1cm round, white-purple speckled fruit. The soft, aromatic fruit is sweet and very enjoyable ... so much so, that, once tasted, you will be looking for more berries on the bush. The midyim is sometimes used by municipal councils in landscaping gardens. Watch out for the fruits in summer and autumn, for a tasty treat.

Native raspberries: there are six *Rubus* species, all with sharp, hooked prickles on stems and leaves, found in eastern coastal districts from Queensland to

Victoria, Tasmania and South Australia. Fruits provide a tasty morsel, and the leaves soaked in water are drunk to relieve stomach upsets.

Native figs are found in eastern Australia from Queensland to Victoria. The greatest variety, of about 40 species, are found in sub-tropical to tropical areas and these trees can attain massive proportions, some with majestic aerial roots and large, shady leaf canopies. Fruits of native figs can vary from pea size to 5cm in diameter. Some people may find the furry skin rather irritating. All species are edible, but tend to be gritty due to the rather dry pulp and large number of sand-sized seeds when compared to the cultivated **Fig** *Ficus carica*, indigenous to the Middle East and North Africa, which many home gardeners grow and enjoy.

The most commonly seen native species include: **Moreton Bay fig** *Ficus macrophylla*; the under-surface of the leaves are rusty brown, purple fruits 2cm diameter, young leaf shoots can be eaten as a boiled green vegetable. **Sandpaper fig** *F. coronata*, rough leaves used as sandpaper, purple 2.5cm diameter fruit is quite tasty when fully ripe. **Cluster fig** *F. racemosa*, 4–5cm fruits are reddish when ripe, and borne in dense clusters on short, branched stalks on the trunk and main branches. Although we may not consider the flavour of native figs to be very tasty (perhaps because of the abundance of fresh fruits to choose from in shops), you can bet ... birds and bats will be out to beat us to native figs, as they ripen.

Quandong *Santalum acuminatum*, is found in all mainland states, thriving in dry desert areas, spinifex and mulga country. The round 2–3cm diameter, red fruit has a mild acid, but pleasant taste. The fruits are eaten fresh, dried, and made into jams. Inside the fruit are knobbly seeds and within the hard, knobbly seed shell is a rich, oily, high protein kernel: a food source Aborigines gathered during droughts. I remember from my childhood in South Australia, eating quandong fruits, and my brothers painting the round seeds to use as marbles for Chinese Checkers.

Pigfaces are hardy, succulent, prostrate plants with fleshy, opposite-forming green leaves, triangular in section, turning red with age. Bright purple daisy-like flowers are followed by elongated, purple fruit containing numerous small seeds; the white pulp can be squeezed out and eaten, the flavour rather like salty apples and quite pleasant and refreshing. The leaves are also edible, although there may be an irritating aftertaste. Some people prefer to eat leaves cooked (but even so, they can be an irritant). Pigfaces are distributed over much of Australia, with three species of *Carpobrotus* spreading over coastal dunes and several species seen on inland plains. Juice from the leaves, rubbed on mosquito, sandfly bites and marine stings, will relieve pain very quickly; also apply to burns and scalds. Note: pigfaces are not related to pigweed, even though both have fleshy leaves. Pigweed, also called purslane, is a valuable native survival food (see p 57). Early settlers valued edible native greens as preventative medicine or scurvy cure.

Warrigal greens, also called **Botany Bay greens** and **New Zealand spinach** *Tetragonia tetragonoides*,

p 82, is a ground sprawler with thick stems, triangular fleshy leaves 7–10cm long; small green-yellow flowers with four petals set in leaf axils, and 1cm long, horny seed capsules. The edibility of the plant impressed early explorers. So much so, that seeds were taken back to England. Although the plant is indigenous to coastal districts, growing in sand along beaches, it will grow anywhere that seed is dropped, existing in extremely harsh environments – a **‘true blue’ Aussie survival food**. It is said that many convicts and early settlers owed their lives to eating the leaves of warrigal greens. Use young leaves and tips of stems raw or cooked. When cooked, the flavour resembles spinach. As older leaves are said to have a high oxalic acid content, it is recommended to blanch or steam these leaves for 3–5 minutes to remove the soluble oxalates (and discard the cooking water). Add leaves to stir-fries, quiche, salads, stuffings, stews and soups. Recent trials at the Horticulture Research Station, Udhagamandalam, India, found that warrigal greens have a high vitamin A and C content, iron and calcium, a protein level of 28.8%, and anti-cancer properties.

Saltbushes are found over many dry, inland parts of Australia and some species occur near the coast. **Grey saltbush** *Atriplex cinerea*, a large spreading bush 1.5m tall with flat grey/green leaves; thrives in salty marshes along the shore. **Old man saltbush** *A. nummularia*, p 43, is often seen in more inland areas and can grow to 1–3m in height, with 4cm long grey leaves and scalloped leaf margins. The plant has received interest from agriculturalists not only for its drought resistance and as a fire-retardant, but also as a solution to the rural soil crisis for holding eroding soil. It is also suitable as animal forage of equal quantity and quality as lucerne, but requiring only 40% of the water usage of lucerne. **Ruby saltbush** *Enchylaena tomentosa*, p 54, is a hardy, inland saltbush 40–60cm high; grey stems covered in woolly hairs; small narrow pale grey-green leaves; tiny red berry-like fruits, which are sweet and tasty. Leaves of saltbush are eaten raw or cooked; although, it is suggested that if eating leaves raw, they should be taken sparingly as over-eating can have an emetic effect, inducing nausea and vomiting. The flavour of the leaves is mildly salty. The seeds are finely ground and this flour is mixed with water and cooked in hot coals to make a damper.

Dry and desert areas of Australia are places to find about a dozen edible **Parrakeelyas**. These *Calandrina* species, when in flower, brighten the harsh desert with pink, purple and white. Plants are succulent ground sprawlers that are related to and resemble purslane, somewhat, in appearance but have showier flowers. The thick fleshy leaves 2–5cm long, are eaten as greens, and valued as a thirst quencher; and tiny seeds are eaten raw or ground to a paste, mixed with water and cooked like a damper.

Native hibiscus plants are sometimes referred to as **Desert rose**, as they thrive in dry conditions. Like the ornamental hibiscus grown in gardens, some species have large showy flowers in colours of white, yellow, pink and lilac, while the *sida* species have smaller yellow flowers (p 70). Aborigines and early settlers ate

native hibiscus leaves and flowers, raw and cooked. Leaves, flowers and roots (all with mucilaginous gel) gave relief from coughs, colds, dysentery, and were applied externally as dressings. **Native rosella** *Hibiscus heterophyllus*, is stewed like the garden rosella variety and the leaves can be cooked like spinach.

Bunya nut *Araucaria bidwillii*, is a round-topped native pine standing tall and stately to 40-45m, found in the Bunya Mountains of southern Queensland and on Mount Molloy near Cairns in northern Queensland, also planted in parks and on farms by early settlers. Trees may be 15 years of age before they bear. The triangular, lance-shaped leaves are quite spiky and feel prickly to touch. Large oval pinecones 30cm long and 20cm across, can weigh over 10kg. Seed cones are borne on the topmost branches and, in a good year, a tree may bear 20 cones. Although some cones are produced each year, usually from January to March, the trees are renowned for producing heavy crops at three-yearly intervals. It was traditional for Aborigines to hold bunya feasts when the nuts were ripe and these feasts would bring tribes from a radius of 300km or more. When the heavy cones fall from the tree, they may break into two or more pieces as they strike the ground. The cone is made up of segments or scales and the nuts, which are 5-7cm long, are easily popped out of the segments (p 44). The cream coloured flesh of the egg-shaped kernel is eaten raw, boiled or roasted with a flavour somewhere between that of a chestnut and a pine nut. Ground kernels are used like flour in scones and other baked recipes.

Aborigines regarded the seeds of a variety of other native trees as good tucker. *However, before we eat any seeds we must be sure of the species and methods of preparation for eating.* Many seeds have toxic properties and do require very lengthy preparation by pounding and washing of the meal to leach away the harmful substances, and then baking. I remember a woman phoning me several years ago and telling me of her experience with eating **Black bean** seeds, *Castanospermum australe*. Someone had told her they were very tasty. Joan grated the seeds and mixed them into a tossed salad for the evening meal. Tasting much like peanuts, she and her husband enjoyed the meal (Joan was not told that the pulp of these large seeds need to be soaked in water). Soon after, they experienced severe griping pain and vomiting and thought they were going to die. They were in agony for several hours and, no doubt, will not be tempted to eat black bean again, in any form.

Be aware, too, when collecting in the bush, that *if you spot fruit or seeds that are red, not all are palatable like lillypillies or quandong. In fact, they could be very poisonous.*

Gidee-gidee *Abrus precatorius*, p 74, a legume climber with small pink pea flowers, opens its 3cm pods, that form in a cluster of 15 or more pods to show off very eye-catching shiny round, red seeds (with a black spot). Each pod holds 2-4 seeds ½ in diameter. Do not be tempted to try these colourful seeds, as one seed contains sufficient poison (abrin) to kill an adult. However, the leaves and roots contain glycyrrhizin

(the same active principle as in liquorice root), which can be made as a simmered tea (decoction) to relieve coughs, colds and diarrhoea. When I first heard about this plant, I was told that chewing the leaves relieves a sore throat, and taste like the traditional Irish Moss throat lozenges. Shortly after, when walking on the beach at Bribie Island, I spotted the gidee-gidee with its bright red seeds.

Boab trees *Adansonia gregorii*, of the Kimberley region of Western Australia, stand like statues – great monuments of time – with some trees hundreds of years old. The trees are distinctive for their massive, bulbous trunks, some measuring more than 20 metres in circumference, and large seed capsules the size of emu eggs. Trees can adapt to extremes of dry by dropping leaves; then, when the wet season comes, bounce back into leaf. Aborigines value boab trees for food, fibre, medicine, shelter and hydration, tapping the trunks and roots for water. Seeds are 1.5cm in diameter (not uniform in shape) and are embedded in the soft, white pulp of the seed capsule: these have a pleasant, sherbet-like taste, and are a good source of vitamin C. The seeds are rich in protein and oil and are eaten raw or pounded into flour. Young leaves are crisp and nutty and can be used as a salad vegetable or dried, powdered and added to soups and other meals. Thick taproots (10-19cm long) of young seedling trees are rich in potassium and considered a delicacy; served cooked in some city restaurants.

Seeds of the **Peanut tree** *Sterculia quarifida*, taste very much like peanuts. The tree is found in rainforests from northern New South Wales to the Northern Territory. In summer, it sets leathery pods that split to reveal two rows of seeds, framed by the scarlet-coloured insides of the pod.

Closely related to the peanut tree are the **Kurrajong trees** *Brachychiton species*, which have nutty, edible seeds inside hard, leathery, curved pods. Ripe pods crack open, exposing rows of starchy, yellow, oval seeds encased in yellow hairs. Seeds are a good source of oil and protein (some species found to be 20%). Rub the seeds free of the yellow hairs, and these may be eaten raw or roasted for a nutty treat. When cleaning these seeds, great care must be taken not to inhale or eat the fine hairs around the seeds, or get any irritating hairs in the eyes.

The *Brachychiton species* are variable in tree size, shape of trunk, leaves, and the colour and size of their bell-shaped flowers.

Desert kurrajong *B. gregorii*, can yield about a thousand pods each season, with each pod containing 4-8 seeds.

Black kurrajong *B. populneum*, as the pods mature they turn quite black; trees are used in many towns as street trees.

Queensland bottle trees *B. rupestre*, stand as unique landscape 'bottles' with bloated water-storing trunks.

The **Illawara flame tree** *B. acerifolium*, is a common roadside tree and most attractive when in flower.

Acacias are so decorative when bursting into masses of cream or golden blossom at different times of

the year, according to their species. These trees play a very special part in beautifying our landscape and can be seen all over Australia. Acacias are hardy and fast growing. Due to nitrogen-fixing root nodules of these legume trees, they will grow even under adverse soil conditions where few other trees can thrive. Leaves of some species are thin and strap-like, while others are quite fern-like in appearance.

The **Golden wattle** *Acacia pycnantha* (cover picture no. 3) has been adopted as the nation's floral symbol and wreaths the coat of arms. Seed pods of wattles are roasted and the seeds eaten or ground to make a damper. Leaves of various acacias can be eaten, eg *Acacia farnesiana*.

The green seeds of **Wiry wattle** *A. coriacea*, have a sweet flavour and a high protein and oil content.

The pom-pom flowers of acacias can be added to pikelet and fritter batters (p 29). Several species of wattles yield a good supply of gum, when notches are cut in the bark of the trees. The gum is chewed or dissolved in water for soothing syrup to treat sore throats. The gum is also chewed for diarrhoea.

Many acacias were highly prized for their tasty roasted seeds, and the following species are known to be edible: **Desert wattle** *A. dictyophleba*; **Coastal wattle** *A. sophorae*; **Mulga** *A. aneura*; **Elegant wattle** *A. victoria*; **Brisbane wattle** *A. fimbriata*; **Fragrance acacia** or **Mimosa bush** *A. farnesiana*; **Hall's Creek wattle** *A. cowleana*; **River wattle** *A. difficilis*; **Ironweed** *A. estrophiolata*; **Witchetty bush** *A. kempeana*; **Umbrella bush** *A. ligulata*; **Black wattle** *A. notabilis*; **Murray's wattle** *A. Murrayana*; **River cooba** *A. stenophylla*; **Pindon wattle** *A. tumida*

Edible wattle seeds are great fun for children to gather. Don't let children munch the seeds unless you know exactly what variety of tree you have, as several species have known toxic properties. Australia has over 700 *Acacia* species and nearly all of them appear to have edible seeds. However, it is wise to use species that have a tradition of Aboriginal use. A few species were avoided, including **Sandhill Wattle** *A. ligulata*, which had a reputation for making your hair fall out; and **Georgina gidgee** *A. Georginae*, which has been found to contain some fluoroacetate (this compound is the same as the commercial '1080' poison used for vermin). Some of the fresh seeds of wattle species are quite similar in composition to cultivated fresh garden peas (both are legumes). However, the seeds are best cooked (usually by lightly roasting) as all Australian acacia species tested, so far, have had the action of inhibiting some of the enzymes of the digestive system when used, in quantity, raw. The same is true of soybeans and other legumes in our usual diet, which require cooking.

Wattle seeds contain up to 20% protein, about 8% of mostly unsaturated fats and oils and 50% carbohydrate. The bush tucker industry in Australia has developed the roasted, ground seeds as an ingredient in biscuits, breads, cakes, ice cream and gluten-free recipes.

Sweet tasting foods are scarce in the bush; no doubt, for this reason, Indigenous Australians highly

prized the sweet fragrant nectars of native flowers. Most popular were banksias, grass trees, paperbark tea-trees, heath, acacias, hakeas, bauhinias, gum blossoms and grevilleas. The sweet nectar can, quite easily, be sucked out of some of these flowers, while others like the gum blossoms, when soaked in water, give sweetness to the water and were also used to make a mildly fermented drink. Sturt desert pea nectar is sweet like honey, and when sucked out of the flower it quenches the thirst.

Whole flowers of some species were eaten; like **Heaths**, also called **Honey pots**, *Acrotriche serrulata*, and these were appreciated for their sweetness. The resinous gum that exudes from some native trees is edible. Although, some are rather tasteless, an example of a *sweet gum* is the gum of a **Casaurina** species that many people will know as she-oak trees, which provide a sweet treat sometimes referred to as 'bush lollies'. It has been recorded that the lives of people who have been lost in the bush were sustained by eating the gum, indicating that there must be some nutritive value in it. While some species will naturally exude gum, Aborigines would also score or cut the bark of some species, like bauhinia, kurrajongs, Queensland bottle trees and acacias.

The **Gumbi gumbi tree**, also called **Native apricot** *Pittosporum phillyreoides* p... is a small tree distributed in all mainland states, which yields a good edible gum. Although the 1.5cm diameter orange seed capsules might look like miniature apricots, they are quite hard and split open to show small seeds enveloped in sticky red pulp. Aborigines and early explorers and settlers used the healing properties of the leaves, and recent studies have verified therapeutic uses. Researchers have found a variety classified as *Capricornia erect variety No. 2*, to have anti-cancer properties, and this is taken as a tea for internal and external cancers.

People that have drunk the leaf tea, have reported that skin cancers have completely cleared, even if a person has had a history of spots with burning or cutting cancerous spots on arms and face... they report that they do not occur anymore. The leaves, as a tea, have been used to improve circulation, relieve angina and other pain conditions, emphysema, cramps, Meniere's Disease, chronic fatigue and to detox the body. Many edible native foods were also used by Aborigines to appease pain and other ailments, and other non-food bearing plants also had healing properties. Remedies were handed down by word of mouth and are part of our Australian heritage.

Leaves for flavouring are another useful facet of native plants. A real favourite with many people is **Lemon myrtle** *Backhousia citriodora*, p 82, a Queensland rainforest tree to 8m; although, if regularly pruned, it can be kept to bush size and is suitable for home gardens. The leaves, to 10cm long, are rich in lemon oil. Citral accounts for over 90% of the plant's essential oil (note: lemons have approximately 3% citral). It has been found that the high citral content has a remarkable effect in relieving cramps, spasms, rheumatism, headaches, fevers and has an anti-carcinogenic action. *Studies have shown that citral*

inhibits the growth of Helicobacter pylori, the pathogen that can be the cause of ulcers and other gastro-duodenal diseases. Citral may also be of benefit to muscles, connective tissue, to reduce cellulite and to strengthen the immune system. Lemon myrtle leaves are used fresh, dried and ground, with breads, stuffing, chicken, fish and rice dishes, sauces, barbecues, cheesecakes, biscuits, and as a refreshing tea served hot, or chilled in summer. *Add 2-3 leaves to your water bottle – a great way to flavour water.* Make decorative festive drinks by placing sweetened, chilled, lemon myrtle tea into a jug, adding leaf sprigs and bright red lillypilly berries before serving.

Aniseed myrtle *Backhousia anisata*, is closely related to lemon myrtle and can be used similarly for flavouring and tea, imparting a flavour and aroma of aniseed.

Tea tree species (sometimes referred to as paper bark trees) have had many uses by Indigenous tribes. Leaves were crushed in the hands and the scents sniffed deeply, to relieve headaches, coughs, and runny noses. The leaves were applied to burns, bites and wounds. They also boiled the leaves in water over the fire and inhaled the steam, after which the leaves and liquid were rubbed on the forehead. For head colds, leaves were chewed, and made as a tea and drunk for pain and general sickness. There are over 200 species native to Australia. One species, *Melaleuca alternifolia*, has been developed for commercial production of oil from the leaves, which has germicidal and antiseptic properties found to be powerful against pathogenic bacteria and fungal infections. Oil distilled from various eucalyptus species have found many uses which have included: rub on chest for colds, massaged into muscular aches and pains, applied to insect bites, cuts, acne and head lice, and used as a disinfectant and cleaning agent.

There are many other edible native plants useful to learn about, as they are part of our Australian heritage. Include in your search: mistletoe, bulrushes, bush tomatoes, kangaroo apples, pandanus, bracken and nardoo. *When using a native plant, make sure you have the correct plant ... near enough is not good enough.*

Today, with such a large range of fruit and vegetables, so readily available in our shops, there is no immediate prospect of starvation or being lost for long periods in the bush. It may seem we have no necessity to be familiar with native edibles for the present ... however, the *knowledge could stand us in good stead for the future*. If ever lost in the bush or desert and starving, there are a few points as a **guide to edibility**:

- Taste – poisonous species often warn of their danger by tasting bitter or acrid. An unpleasant taste may warn you of harmful acids (but some dangerous species have no unpleasant taste).
- Colour – some fruits are poisonous when green or unripe, but harmless when fully ripe.
- Milky latex – regard plants with milky latex with suspicion (but not all are harmful).

- Beware of myths – plants are not necessarily safe for humans just because birds, animals or insects eat them.
- Heating – may destroy some toxins.
- Common sense – try a very small amount first, and wait a reasonable length of time (4-5 hours) for any symptoms to develop, before eating in quantity.

Poisonous plants to avoid

Aren't we fortunate to live in such a beautiful resource-rich world, with hundreds of tasty plants to eat and enjoy? However, not all plants are good to eat. Our beautifully landscaped gardens may have quite a number of plants that are potentially toxic. Parents may be aware of some that are harmful and educate their children not to touch or eat them. However, if in the future, food is scarce and tummies are rumbling, we could be tempted to try plants just to relieve the hunger pangs. Knowing which plants are irritating or poisonous is important information for parents, child carers, and those interested in bush tucker; in fact, for everyone ... and vital for the future. *Get to know which plants are dangerous and poisonous.*

Beautiful flowers or leaves may be enticing but, if eaten, pretty plants could pack a dangerous punch. Teach children from an early age not to put plants, berries or seeds in their mouths. Always positively identify plants before using any part for food or medicine. Not all parts of a certain plant may be poisonous: sometimes this will be the seeds, but it may well be the flowers, leaves, sap or roots. For example: we enjoy cooked potato, however, any potato that is turning green under the skin could be toxic. This green part is as toxic as the leaves of the plant. Rhubarb leaves have a very high content of oxalic acid and leaves should never be eaten, while the red stalks (stems of leaves) we know as a food, stewed with sweetening and enjoyed as a dessert.

Note: some people may vary in sensitivity and reaction to some plants; eg nettle, when it is accidentally touched may cause respiratory problems to people who are prone to asthma.

If you are concerned about an actual or suspected poisoning, call the Poisons Information Centre immediately on 131126 (Australia only). Symptoms of poisoning may include intense thirst, vomiting and diarrhoea, fever, confusion, convulsions, swelling of the lips, tongue and throat, dizziness, disorientation, dilated pupils, difficulty in breathing, disturbed heart rate or a skin rash.

Important note: symptoms may be delayed for hours or days after ingestion of a few species. Parents with young children should be particularly vigilant in this regard. An example of delayed symptoms can follow ingestion of seeds of the castor oil plant, a common plant in warmer parts of Australia, coastal areas and throughout the tropics (it is one of Hawaii's many ornamental plants).

Castor oil plant *Ricinus communis*, p 80, is a large branching shrub to 3m tall with lobed leaves 10-30cm

across. There are separate male and female flowers on the same plant, the male showing a mass of stamens and the female flowers developing into a three-lobed spiny fruit, 2.5cm in diameter, encasing three smooth, mottled oval seeds. The seeds resemble to a tick is responsible for the name 'Ricinus', this being a tick of a sheep. The seeds have been processed for the castor oil they contain; however, in the raw, unprocessed state the seeds of this plant contain a powerful poison called 'ricin'. It is said that if as little as 1/100 of a milligram gets into the blood it becomes a fatal dose. Ricin clumps together red blood cells; it may also cause internal bleeding and severe kidney damage.

Now, having given the deathly decree on the castor oil bush seeds, I am sure many people in the senior citizen age bracket will remember using the folk remedy of the processed castor oil on warts to make them disappear; for stomach upsets; applying the oil on skin cancer, skin diseases; as a poultice over the breasts for lumps and cancer; and also as a pack over abdominal pain to relieve uterine fibroids. Many women may have been required to take castor oil internally to induce labour in childbirth (I remember the dose well!).

Pounded fresh leaves were also used as a poultice over tumours, abscesses, boils, swollen joints and chest congestion. Castor oil was kept in the first-aid cupboard. When I mentioned that I was writing about castor oil to my husband, Derrick, he said, "Everything used to get castor oil when I was a kid, from cuts to constipation."

No doubt, early settlers brought seed with them to Australia. Apart from medicinal uses, castor oil is an excellent lamp oil, and farmers used plants around crops to deter rabbits. It was also used in gardens to deter mosquitoes.

The oil has had application in over 100 products, including linoleum, printing ink, polishes, hair oil, cosmetics, flypaper, for preserving leather, and as a heavy machinery lubricant. Although the castor oil bush has had numerous uses, it is wise to prevent it from going to seed, as the seeds are just too dangerous. Seek urgent medical attention if seeds are ingested.

Another plant that is a deadly toxic is **Oleander** *Nerium oleander*, p 82. Oleander is a very showy, ornamental bush, 2-4m high, available from garden nurseries in a range of flower colours. This is an ornamental our gardens can certainly do without as

all parts of the plant are extremely poisonous and deaths have been reported after people have ingested even a very small amount; eg, tea stirred with an oleander twig caused death. Fumes inhaled of burning oleander bushes have also caused death. Never use the branches as firewood. When my husband and I purchased our first house there were very attractive oleander bushes in the garden; no doubt planted due to their hardiness for the dry conditions of Mount Isa. Before our children were born, these bushes were pulled out.

Gardens can do without plants that pose dangers: common sense informs us to pull out highly toxic plants, as *inquisitive children could be tempted to taste*. Other known poisonous plants, possibly lurking in your garden may include:

Alamanda and **Azalea** species; **Angels trumpet** *Datura arborea*; **Autumn crocus** *Colchicum autumnale*; **Caladium** species; Columbine *Aquilegia sp*; **Cunjevoi** *Alocasia macrorrhiza*; **Daffodil** *Narcissus pseudo narcissus*; **Delphinium** and **Daphne** species; **Foxglove** *Digitalis purpurea*; **Hyacinth** *Hyacinth orientalis*; **Iris** species; **Lantana** *Lantana camara*; **Petunia** species; **Ranunculus** *R. asiaticus*; **Rhododendron** species; **White cedar** *Melia azederach*; **Wisteria** species. The Botanic Gardens in each state of Australia, are able to identify plants (contact for information). If children have ingested plants that you are not sure about, Children's Hospitals in capital cities are able to give assistance, when you phone.

The seeds of some plants are poisonous, like **Bird of Paradise** *Strelitzia reginae*, **Morning glory** *Ipomea sp*, **Broom** *Cytisus sp*. The white sap of some plants are toxic; such as: **Poinsettia** *Euphorbia pulcherrima*, **Snow in the mountains** *Euphorbia marginata*, **Petty spurge** *Euphorbia peplus*, and **Queensland asthma weed** *Euphorbia hirta*. Many Australian natives are known to be toxic or cause vomiting, headaches or diarrhoea. Find out which natives in your vicinity are toxic, so that you know what to avoid. *In life there are some things we do not need to learn by experience*. When it comes to poisonous plants, accept and learn from the knowledge of people before us.

Edible flowers in your garden

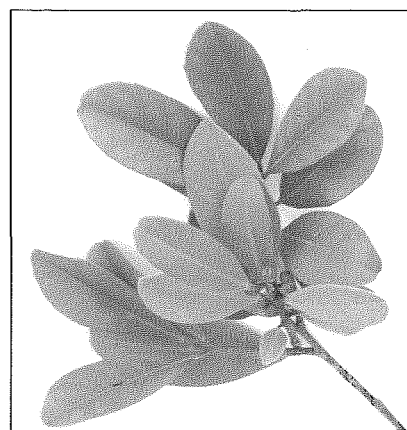
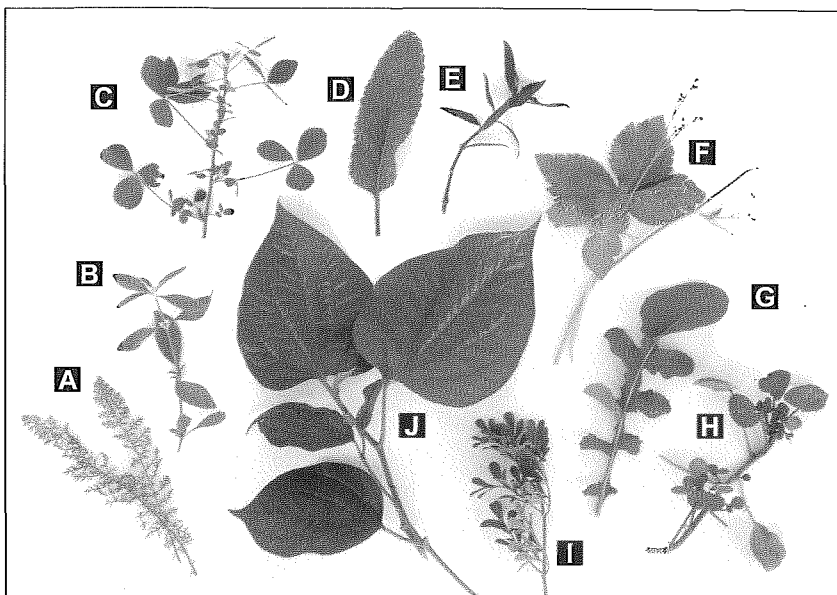
Have you ever eaten flowers from your garden? From the earliest times, the blossoms of plants were used for sustenance, at first by trial and error and by watching what birds and animals ate. As time went on, traditions were established: it became known which flowers were edible and this information was passed on within families.

To continue this tradition safely, correct identification of the plants growing in your home garden, is essential knowledge. While we know that there may be a number of toxic plants in our gardens, if the need arises due to food shortage, it is good to be aware of which ornamentals (many known as cottage garden plants) provide flowers that can be eaten.

Many people remember when they were children eating a nasturtium flower at Grandma's or sucking the



Castor oil plant



Top left: Turmeric (p 111)

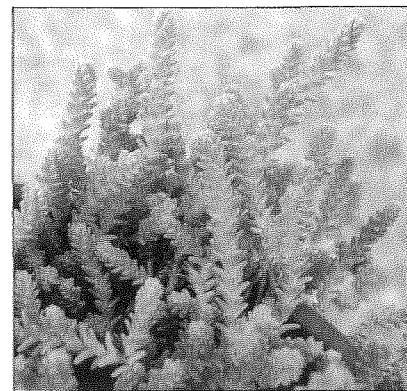
Top right: A. Yarrow (p 110), B. mukunuwenna (p 89), C. alfalfa (p 71), D. horseradish (p 113), E. purple mukunuwenna (p 89), F. mitsuba (p 90), G. rocket (p 90), H. watercress (p 63), I. rock samphire (p 90), J. betel leaf (p 90)

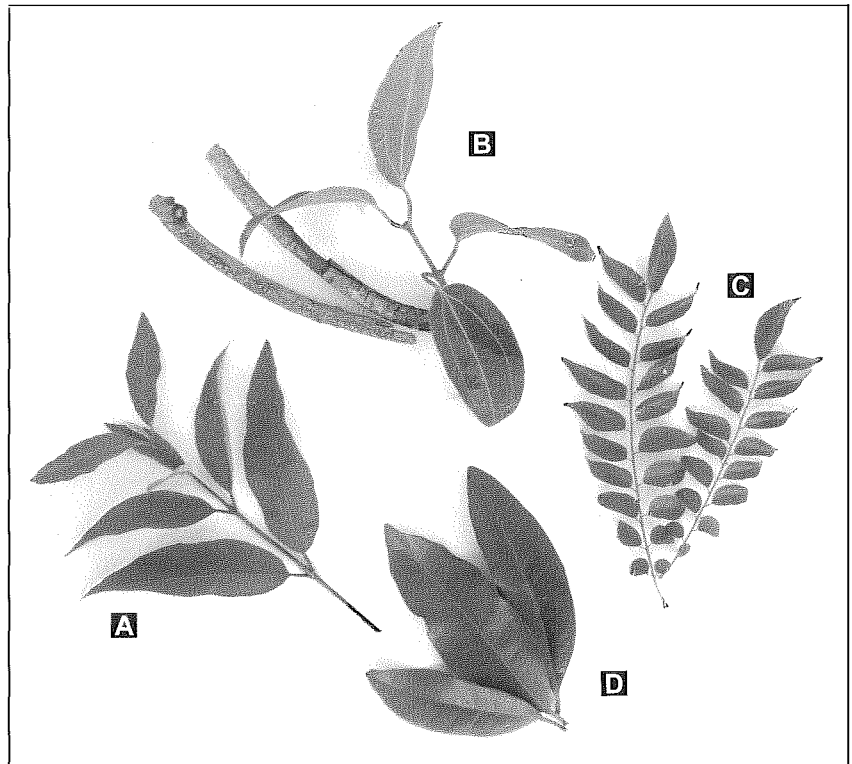
Above right: Yerba mate (p 118)

Below right: Wall pepper (p 90)

Below left: Cabbage, vinegar, yogurt, kefir (p 45); persimmons, leaves to use for wraps: betel leaf (p 90), salad mallow (p 88) and grape

Above left: Vegetables from Ricky and Liesl's productive garden in Adelaide: squash, eggplant, beans, tomatoes, chillies





Top left: *Candelabra aloe* (98)

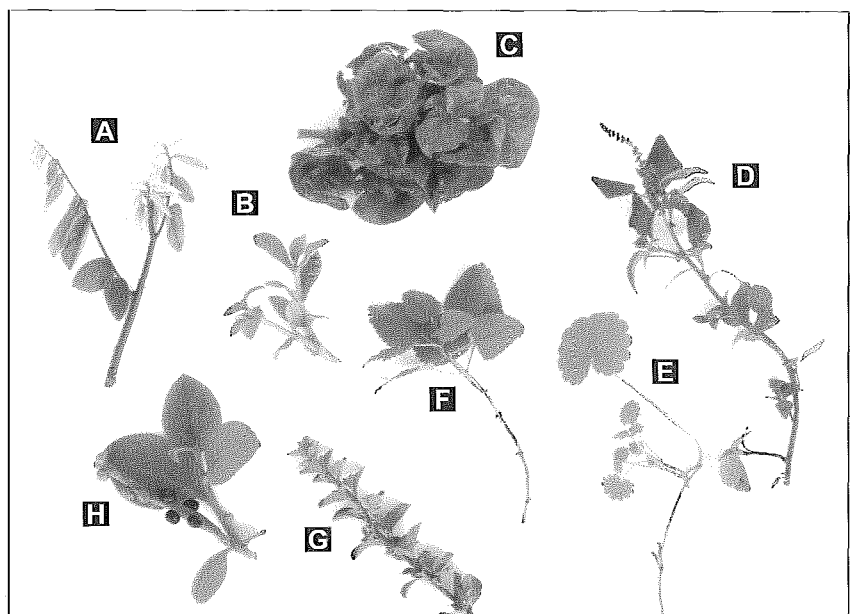
Above: A. *Lemon myrtle* (p 78), B. *cinnamon* (p 19), C. *curry leaves*, D. *allspice leaves* (p 111)

Right: *Warrigal greens* (p 76)

Below: From left going clockwise: A. *sweet leaf* (p 88), B. *rau om* (p 90), C. *sambu lettuce* (p 89), D. *amaranth* (p 61), E. *alehoof* (p 118), F. *lemon balm* (p 112), G. *sweet marjoram* (p 112), H. *ceylon salad leaves* (p 89)

Below left: *Oleander* (p 80)

Above left: *Mushroom plant* (p 90)



delicious end of the petunia or honeysuckle to enjoy the drop of nectar stored there.

Beautiful flowers share with us the highest sentiments from nature and give aesthetic pleasure and joy. Many flowers also have an *uplifting and energising* perfume that delights the sense of smell, and beautiful aromas creates a feeling of wellbeing and may strengthen our immune system. No doubt this is why, when life gets too hectic, it is good to take time ... to smell the roses. Edible flowers are rich in essential oils, which can help build up electrical energy in the body and also provide nutrients and healing properties.

Before eating any flowers it is important that you have identified them as edible. Caution: Jasmine flowers *Jasminum* species: eg *J. officinale*, *J. humile*, *J. odoratissimum*, *J. paniculatum*, *J. sambac*) are edible, but must not be confused with Carolina Jasmine *Gelsemium semperpureus*, which is poisonous. Also, do not confuse the very poisonous Autumn crocus *Colchicum autumnale* with the Saffron crocus *Crocus sativus* which is used for flavouring and colouring food.

Note: people with food sensitivities or other allergies may react to some edible flowers. It is best to avoid eating the flower centres and the pollen, particularly of the daisy-like flowers. With rose petals remove the bitter white ends, which join on to the centre of the flower (and other flowers may also be slightly bitters at the base).

Many ornamental plants are poisonous. *All culinary herbs used to flavour foods have edible flowers* and can be enjoyed in a variety of ways. For example: as a garnish on meals, to decorate and flavour drinks, to add colour to plain meals, made into flower fritters, floating in soups, added to cakes and biscuits, butters or tossed in salads.

Well-known edible flowers of ornamental plants may be used, similarly. However, some kinds will have quite big blossoms: as a garnish on a meal, these may look a little large. Daylily flowers and buds can be chopped finely and added to salads to provide a lettuce-like flavour; also add to cold desserts, casseroles, soups, stews and stir-fries. Also add these chopped or whole to a fritter batter. The young white tubers are eaten raw or cooked and taste much like a carrot. Edible flowers used as a garnish may be a wonderful conversation topic at the family meal table and can provide a great opportunity to teach children about herbs, edible plants and their uses. Following is a list of ornamental flowers that are safe for you to eat:

Calendula *Calendula officinalis*

Camelia *Camelia japonica*

Carnations *Dianthus* sp.

Chamomile *Matricaria recutita*
and *Chamaemelum nobile*

Chrysanthemum species

Cornflower *Centaurea cyanus*

Cowslip *Primula veris*

Bruselwort / Lawn Daisy *Bellis perennis*

Dahlia species (flower petals and tubers)

Day lilies *Hemerocallis* s.p

Elderberry *Sambucus nigra*, *S. canadensis*

Forget-me-nots *Myosotis sylvatica*

Fuchsia *Fuchsia magellanica*

Geranium species; Gladiolus species

Hawthorn *Crataegus* sp; Heartsease *Viola tricolor*

Hibiscus species, p 95; Hollyhock *Althea rosea*

Honeysuckle *Lonicera japonica*

Lavender *Lavendula officinalis*

Lilac *Syringa vulgaris*; Rose species

Stock *Matthiola incana*

Sunflower *Helianthus annuus*

Sun jewels *Portulaca grandiflora*

Sweet Williams *Dianthus barbatus*

Tulip *Tulipa* sp; Violet and Pansy *Viola* sp.

Wallflower *Cheiranthus cheirii*

Waterlilies *Nymphaea* sp.

Yucca species; Zinnia *Zinnia elegans*

Edible flowers can enrich your day, but do ensure that what you eat is, in fact, the listed species.

No matter what the future holds ... a strong immune system is essential

Our immune system plays a vital role in defending our health and wellbeing. This defence system is assisted by organs, cells and hormones that protect the body from a range of infections and diseases, including cancer. The first line of defence against infection is the skin, acting as a physical barrier to deny access to pathogens. When we breathe, cilium filters dust and airborne germs, and mucosa lubricates the respiratory tract. In addition, the complex functions of cells, tissues, glands and organs (eg thymus, tonsils, appendix, small intestine, lymph nodes, spleen, liver, white blood cells, antibodies, hormones, enzymes and beneficial bacteria) work together to provide a coordinated defence mechanism. An efficient response from our immune system protects the body against harmful germs, bacteria, viruses, infectious organisms, fungi, foreign substances (eg man-made toxins such as food additives) and other invaders, which may gain access to it. *The immune system has to work around the clock, 24 hours a day, in many different ways, doing its work largely unnoticed.*

One thing that causes us to really notice our immune system is when it fails, for some reason. We also notice it when it does something that has a side effect we can see or feel. For example, when you cut yourself bacteria may enter the break in the skin and the area becomes inflamed. This inflammatory response may cause redness, heat, swelling and pain in the area of infection - all this is the work of the immune system. A sore throat is an inflammatory response of the immune system going into battle against viruses. Every day we ingest countless germs and most of these die in the saliva and acid of the stomach. Occasionally, germs

may cause a stomach ache, vomiting, diarrhoea or food poisoning. Bacteria and other intruders can do many harmful things, multiplying very rapidly, causing damage in a small or larger scale. Some bacteria may paralyse our nerves, while others block the ability of the cells to carry on their normal function, and may disturb one or more bodily functions. Such intruders, inert or alive, are called **antigens**.

An antigen may be any germ or virus, undigested protein, or poisonous substance. Apart from antigens, any challenge to the body's wellbeing, such as trauma of any kind, or stress – physical or emotional – will stimulate the immune system, whereupon standby white blood cells (WBCs) are released into circulation. Even brief bursts of physical activity have the effect of increasing the white blood cell count. Apart from maintaining vigilance against intruders, the immune system normally destroys cells when they become defective and no longer of any use. Red blood cells wear out after a period, variously estimated at from 6 to 17 weeks, and are continuously replaced. It is the task of the white cells to destroy the red cells as they become defective. Millions of red cells are destroyed and replaced every minute.

White cells are called **leucocytes** (two basic types, called **phagocytes** and **lymphocytes**), which originate in bone marrow and migrate to inhabit every tissue and fluid of the body in great numbers. Some WBCs are very mobile, able to proceed quickly within body fluids to anywhere they may be needed, while some remain more or less stationary in the tissues. They work cooperatively, each type taking specific roles, to destroy anything potentially dangerous. **Phagocytes** destroy antigens of invading germs and viruses, by consuming and digesting them. Patrolling constantly in the blood and lymph fluid are the **B** and **T lymphocytes**. Not all lymphocytes circulate in the lymph and blood. The majority remain in reserves in the many nodes and glands of the lymphatic system, as well as the thymus, spleen, liver and other locations such as the tonsils and appendix.

The capability of the immune system depends upon the general state of health and physical fitness, but regardless of this, immuno-competence may be drastically reduced in a healthy body by fatigue or excessive stress. Other depressants of the immune system are drugs such as nicotine, alcohol, tranquillisers, pain killers, and many other substances like fluoride, chlorine and other chemicals and toxins of our 21st century. *Without the protection of the immune system, death from any number of infections would be swift and certain.*

The immune system is capable of recognising cancer cells in most tissues, most of the time. They do this constantly, as malignant cells frequently occur in our body. However, *if our immune system is suppressed, there is an increased risk of cancer.* Then, some people are better at handling cancer immunologically, than are others. Various tumours are much harder to detect than others, and they can fool anyone's immune system. They may be very hard to kill, as they either do not display 'tell-tale' surface antigens needed to excite

our cancer killing cells. Or they may hide their antigens or suppress the immune system around the tumour-activating suppressor T cells. Cancer occurs when the process of orderly self-replication of cells is disturbed. Rogue genes are either activated spontaneously or by chemicals, viruses, or other extrinsic factors. If these activated genes are not rapidly deactivated by immune functions, cell division may continue in an uncontrolled fashion, and a tumour may develop. <http://www.falconblanco.com/health/ozone/ozdiseas.htm>

Cancer may lie dormant for many years, or be held in check by the response of the immune system. But, when subjected to shock, excess worry, injury, or grief, such people may rapidly develop cancer, as their immune responses become weakened and their health is depleted. The mass of cancer cells can expand, extremely rapidly, altering normal cell tissue, and invading the walls of blood and lymphatic vessels. Cancer cells may then relocate (metastasize), to different parts of the body, spreading further into the surrounding tissues and, finally, compromising vital organs. If cells have, for one reason or another, embarked on a malignant course, then there is every reason for lymphocytes to attack and destroy them. If, in their malignant state, these cells vary even slightly from the personal genetic blueprint of each individual, an effective immune system is programmed to destroy them. An inefficient or dysfunctional immune system is a factor in any precondition, which may lead to cancer. We need to recognise that there may be many toxins, substances or influences, which can contribute to the development, firstly, of pre-cancerous conditions, and then to cancer. Most people are not aware that over 14,000 man-made chemicals have been recorded as additives in foods. One solution to all these 'questionable-chemicals' is to grow as much food as we can, organically, and to eat it freshly picked. Cancer in humans has been separately correlated by numerous researchers, with each of the following factors: oxygen deprivation of cells; constipation; high blood viscosity (sludged blood); hyperlipidemia (high blood fat and cholesterol); toxins, which may include poisons from infected teeth and amalgam fillings; defective circulation; hormonal disturbances; excess body fat; a high dietary fat and protein diet; high sugar and sodium intake; high intake of alcohol, caffeine in chocolate, coffee, tea, and cola drinks; fluoridated and chlorinated water; aluminium cooking utensils; drugs (including medical drugs, sedatives, painkillers); x-rays; E-smog; various chemical carcinogens inhaled, eaten or absorbed through the skin including nicotine and carbon monoxide; lack of sunshine and exercise; stress – emotional or physical; consuming food deficient in vitamins, minerals and enzymes; and a high intake of processed and cooked foods. Our body is not designed for acid-forming, processed, and 'pseudo foods' other examples of an unnatural lifestyle, we may constantly put it through. Doctor Robert Young, author of 'The pH miracle: balance your diet, retain your health', says: "When it comes to health, alkalinity is everything. When the body is in a healthy alkaline balance, toxic micro-organisms such as germs, viruses, bacteria,

and yeasts are unable to take foothold (these micro-organisms thrive in an acid environment). Alkalinity maintains our inner electromagnetic conductivity."

Diets high in naturally alkaline foods, consisting of sprouts, fresh vegetables and fruits are associated with a substantially reduced risk of coronary heart disease, stroke and some cancers. The National Health and Medical Research Council suggest at least five servings a day of vegetables and two servings of fruit to benefit our health. But recent figures from the Research Council show that most Australians do not meet this target. Health is so very precious. **The state of our health will depend on the capacity of the immune system to neutralise free radicals and stop their destructive action, in our toxic world.** Believe it or not, since World War II, man has concocted over 100,000 chemicals for use in agriculture, industry and warfare. All these have created a 'toxic stew' in the world we call home for ourselves and for future generations. In milk, alone, research carried out by the National Research Council revealed 167 residues in commercial milk sold in Australia, which included DDT, paraquat, 2,4,5-T, dieldrin, and maldison, to name a few. A Queensland newspaper, several years ago, highlighted the problem with the headlines 'Most Foods Fail the Pesticide Tests', with only 17 out of 77 foods tested found to be free of pesticides. Some foods were 10 to 25 times the stipulated allowable level. These toxins are threatening our fertility, intelligence, and the future survival of the human race, as well as birds, animals and all life on earth. But, you might say ... look at our lush green countryside and beautiful blue skies, where is the evidence? But, as I ponder on this, perhaps we need to be alarmed at the high incidence of cancer and so many other diseases, as this may indicate the body is not able to cope with the toxic load.

Note that the highly toxic poison DDT was banned in Australia in 1987. Since then, numerous other organochlorines have been banned. However, there are still many thousands of other toxins in use, accumulating in soils and living things. The term 'organochlorines' refers to a wide range of organic chemicals containing chlorine and, sometimes, several other elements. Many organochlorine compounds have been used in Australia, including herbicides, insecticides, fungicides and industrial chemicals such as polychlorinated biphenyls (PCBs). The compounds are characteristically very stable. This characteristic is widely recognised as being a problem when used for some purposes, such as pesticides and transformer oils. This is because the chemicals can be distributed in the environment, where they persist long after their original use. They degrade slowly and, being fat-soluble, accumulate in the food chain, eventually ending up in the fat cells of our bodies. An example is DDT, found in the Arctic Circle following its arrival there by the wind and the food chain of animals. Authors of 'Our Stolen Future' state that we would all be carrying PCBs and other persistent chemicals in our body fat and we pass them on to our babies. Virtually anyone who is willing to put up over \$2,000 for tests may find

up to 250 chemical contaminants in his or her body fat, regardless of whether they live in USA, Europe, Tibet, or a remote island in the South Pacific.

Our immune system continually feels the detrimental frequencies of electromagnetic radiation, E-smog. A great deal of research over the last 25 years has documented E-smog as linked to a wide range of health problems, including:- headaches, migraine, eyestrain, cataracts, stress, depression, mood swings, memory and concentration loss, chronic fatigue, infertility, miscarriage, birth defects, blood disorders, leukaemia and other forms of cancer, heart problems, and immune system damage. Scientists have found that cancer cells grow much faster in electromagnetic fields. We cannot ignore the problems of E-smog. Note, in Sweden, cancer has been designated as an electromagnetic disease. Sunshine Coast Daily Newspaper reported on 26/8/06 that statistics in Australia show that one in three people are diagnosed with cancer, which is an alarmingly high incidence.

Who would want to be without electricity ... no washing machine or refrigerator, radio or TV, computer, telephone, or the many other gadgets that enhance our daily lives? Therefore, we may wish to consider technologies that can give protection from these electromagnetic emissions and chaotic frequencies that are not compatible with the energy frequencies of the body. Numerous inventions by scientists, utilising scalar energy, have been found to provide a field of protection. For example, on the Amezcua and Bioenergiseme websites a product evaluation of the Amezcua Chi Pendant (invention of Dr. Ian Lyons, Perth) by Dr. Manfred Doepp, Holistic Centre, Germany, indicated that with Meridian Diagnostics System Prognos® testing, the Amezcua Chi Pendant was able to neutralise the negative effects of E-smog, as well as improve and harmonise the energy levels of the user. http://www.amezcua.com/bodyandhealth/bio_chipendant.html Further, it is claimed that when water is treated with the pendant, there is a marked change in the water's surface tension. This renders the water more bio-available, thus also improving the transfer of nutrients in and out of body cells. Several other inventions by Dr. Lyons show similar enhancements to water treated by these products. (picture p 73) It is reported that the testing results at I.H.M. General Research Institute Inc. in Japan, have shown that the improved energy and quality of the treated water causes a change in its structure, producing beautifully formed water crystals. www.bioenergiseme.com.au

Without health, many components for a happy life are not possible. **Herbs have properties that help strengthen the immune system.** Fresh herbs are alkalising to the body and have intrinsic antibiotic, antibacterial, antiviral, tonic, digestive benefits and blood cleansing properties.

Many herbs are strong antioxidants that can fight and kill free radicals (created in the body by some foods, cooking oils, preservatives, artificial colours, flavours and additives, environmental toxins, and also metabolic body functions). *Progress in antioxidant technology has led researchers to the belief that many*

signs of ageing result from the damage caused by free radicals. Fresh herbs and many edible plants are a rich source of antioxidants, or aid antioxidant actions – as vitamin A (beta-carotene), C, E, and minerals zinc, selenium, vanadium, and several herbs that have germanium. Herbs also contain many other antioxidant properties (eg polyphenols, flavanols, benzisothio-cyanate, curcumin, coenzyme Q10) which help build strong defences against cardio-vascular diseases such as stroke and heart attacks, help rejuvenate cells, and increase protection from cancer.

The following list is just some of many **herbs**, that are valuable to grow and use regularly, **for their cleansing and antioxidant action, tonic properties and to strengthen the immune system**:- herb robert, sheep sorrel, watercress, gotu kola, fenugreek, brahmi, sensitive plant, purslane, leaf ginseng, Indian ginseng, sage, chia, king of bitters, nettle, garlic, licorice, St. John's wort, echinacea, asparagus, turmeric, oregano, yerba mate, horseradish, St. Mary's thistle, lemon balm, mullein, menthol, goji, aloe: particularly 'candelabra' which has a high 'Aloctin A' content found to stimulate biological functions and strengthen the immune system (see Aloe candelabra p 98). Use culinary herbs, regularly, for flavouring and to aid the digestion. **Herbs that have antibiotic or anti-viral action also help to boost the immune system**: licorice, nasturtium, ginger, aloe, Indian ginseng, garlic, watercress, echinacea and the toothache plant. The soured milk product, kefir, has a **probiotic** action. (p 45) **Lots of chlorophyll-rich greens** (see p 86), are vital for blood cleansing and deliver a quick boost to the immune response. The darker green the leaves, the higher the number of cancer-fighting nutrients they contain; see book, 'How can I use herbs in my daily life?' with the Five Systems diagram (page 12 edition 1, or page 14 of edition 2 and 3), showing that green foods help strengthen the immune system. Use potassium rich plants like salad mallow, sweet leaf bush and sweet fruit root, as potassium foods help to alkalise the body. Sprouts are alkalising to the body and also benefit the immune system by providing lots of living enzymes (p 92).

When we use herbs and sprouts daily, the body can be strengthened to give some protection from airborne bacteria, viruses and possible epidemics like SARS (Sudden Acute Respiratory Syndrome), Avian Bird Flu, or the 'super bugs' that scientists say, are appearing to be resistant to the most powerful antibiotics. Epidemics are renown for spreading rapidly (eg Spanish 'flu' of 1918 spread to the whole world killing over 20 million people), and in the 21st century with the ease of air travel and food imports, deadly micro-organisms could cause deaths in the millions. Note, too, that the Spanish flu pandemic did not confine itself to children and the elderly but struck young adults and people without obvious immune system problems.

Our immune system function also requires a high nutrient-rich daily diet, a good night's sleep (which gives the immune system a chance to repair), and that we take time out to lower the stress in our daily lives (as continuous stress stimulates the body to release

various hormones which actually depress T-cell activities).

It is up to every person to maintain a high level of health. Recently a friend told me of a sign, seen in a health food shop window ... 'Look after your body. Where else are you going to live?'

Salad greens are vital to health

Every person can grow salad greens, no matter what size their garden. Even a few pots with plants, outside the kitchen door on the balcony of a unit, will give a regular picking of leaves.

But why are salad greens important to health? Plants play an essential role in our lives. In fact, all food on our table is made possible by plants, whether it is a loaf of bread, piece of steak, eggs, ice cream or sugar. We can't live without food ... *we can't live without plants*. Plants capture sunlight and energy through photosynthesis and together with chlorophyll (the green stuff in plants) produce food for us. Rich in vitamins, minerals, proteins, and enzymes, **plants give us our daily food**, providing many other processes in the body ... to keep its amazing mechanism functioning ... like cell building, and removal of wastes and toxins.

The chlorophyll in green leaves forms the basis of all life on earth: without this **amazing substance**, life as we know it would not exist. *Chlorophyll, the green pigment, is important to plants, and in fact can be regarded as the 'green blood' of plants, supplying nutrients to plant cells. It is the chlorophyll molecules of plants that trap the sun's energy, and when we eat green plants this solar energy becomes our energy.*

Interestingly, chlorophyll is very similar in chemical composition to human blood, with the chlorophyll molecule closely resembling the hemin molecule of our blood. The only difference in these molecules is that chlorophyll contains magnesium as its central atom, while the haemoglobin of blood contains iron, in the correlating position.

Chlorophyll acts as a catalyst to form the various elements associated with plant growth and it also acts as a *catalyst to promote health and healing for humans and animals*. Research has shown, chlorophyll to be a tremendous blood-building element, for rejuvenating old cells, promoting growth of new cells, to provide a favourable intestinal flora and to aid regular bowel elimination. It benefits the circulation, is a plus for pain-relieving properties, and has antiseptic and antioxidant action. *Greens enrich the blood with substances to purify and regenerate red blood cells*. This **revitalised, 'healthy' blood** is essential for maintaining healthy glands (eg pituitary, thyroid, parathyroid, adrenals, pancreas and gonads) that need to work together like a well-balanced orchestra, to regulate the system for optimal wellbeing. For anyone wishing to detox the body, the use of chlorophyll-rich greens is highly recommended. *Think of chlorophyll as a mighty weapon that you can add to your diet, for maintaining or restoring health*. Many remedial effects of chlorophyll have been recorded: helps build a high, red blood cell

count; helps eliminate anaemic conditions, bad breath and body odour, haemorrhoids, catarrh and nasal drip; assists to prevent varicose veins, inflammatory conditions and ulcers, and counteracts toxins. Dark coloured greens, are rich in a range of powerful phytonutrients, which researchers say, provides super-nutrition, for eye health.

Research has shown chlorophyll is a valuable aid to prevent and to treat many diseases. Chlorophyll-rich plants have featured in cancer treatments, as they help detoxify the liver. *The darker the greens, the higher the number of cancer-combating nutrients they contain.* A diet rich in greens has been used to help lower cholesterol and triglycerides, regulate blood sugar, relieve heartburn, ease chronic muscle pain, reduce food cravings, and increase strength and stamina. American herbal lecturer and author Dr. Bernard Jensen, valued greens for good health. He said, **"When you are green inside, you are clean inside."** *Being green inside, can result from a daily regime of raw salad eating - salads with plenty of fresh, green leafy chlorophyll-rich plants.* Numerous studies have shown that fresh greens boost lymphocyte production and so increase resistance to illness, and strengthen the immune system.

Chlorophyll is an oxygen producing substance. When we eat greens, this contributes to a healthier bowel by increasing intestinal flora – as *'friendly bacteria' thrive on 'green stuff'*. Leaves are also an excellent source of fibre, which helps to maintain regular soft stools and a healthy colon. Lack of fibre (usually due to a diet of processed foods) causes constipation, a toxic colon and other diseases.

Greens are rich in nutrients. In Australia and many other developed countries, most people limit their source of greens to lettuce, peas, and beans. However, millions of people in Third World Countries have a wider range of green vegetables, and these greens have very high nutritional value. Many of these exotic plants are available, and we can grow them in the home garden, and pick leaves fresh for a meal.

Dark green leaves indicate a high content of vitamin C and beta-carotene, and both work together to prevent the oxidation of cholesterol, which makes them 'heart-friendly'. (When cholesterol becomes oxidised, it is sticky and starts to build up in arterial walls, forming plaques. If these plaques become too large, they can block off blood flow or break off, causing a clot that may trigger a heart attack or stroke.) Beta-carotene (provitamin A) assists the body to make as much vitamin A as it needs.

Maximise the benefits of greens, for the *B vitamins*, as they are important for the release of energy from foods we eat, and for helping maintain the immune system. *Folic acid, vitamin B9*, is widely distributed in green leaves. Folic acid works as an antioxidant, noted for reducing risk of colon cancer, cardiac disease, relieving depression, and it is essential in DNA synthesis and repair. Folic acid is essential before and during pregnancy to reduce risk of cleft palate, spina bifida and childhood leukaemia. The word 'folic' is derived from the Latin word folium, meaning foliage

or leaf – this meaning can help us to remember the importance of folic acid and greens in our daily diet. *Vitamin E (another anti-oxidant vitamin) and vitamin K (essential for blood clotting)* are abundant in green leaves.

Green foods are very rich in easily absorbed calcium. On a dry weight basis, chemical analysis shows that many greens are actually as rich, or richer, than cow's milk. Generally, we do not keep a cow in the backyard, but we can all keep greens. Milk generates a considerable amount of sticky mucus in the gut, which can interfere with digestion and absorption, so the calcium it contains may not be so well utilised. In addition to this, calcium requires magnesium for its absorption into the body – without sufficient magnesium, calcium cannot be utilised properly. Magnesium and calcium work as a team in the formation of strong lungs, heart, teeth and bones; we need strong bones, especially senior citizens (bone density decreases as we age). One research study found people eating one large serving of greens daily were 30% less likely to break their hips than people who ate less than that amount. Milk is a poor source of magnesium, while *green leaves, are a rich source of both calcium and magnesium together.* Also, unlike milk, green leaves are very clean and light foods, which the body finds easy to handle, and the greens actually help to clear the body of mucus and toxins. Besides, some greens are a source of 'mucin', which has an action of helping remove mucus from the body.

Greens are an excellent source of iron, an important mineral for building blood, stamina and energy. Iron deficiency anaemia is one of the most severe nutritional deficiencies. Every age group is vulnerable. It has been found that iron deficiency impairs the cognitive development of children from infancy through to adolescence. As much as 30% impairment of physical work capacity and performance is reported in iron-deficient men and women, and low iron can damage the immune mechanism.

Green leaves are a very rich source of the mineral potassium, which has been shown in studies to be useful in lowering high blood pressure, and benefiting heart health. Potassium has a role in blood and oxygen circulation, and it assists with elimination of blood impurities and toxic wastes.

Potassium is an electrolyte, a substance that conducts an electrical charge. It plays an important role in the transmission of nerve impulses for muscle contraction. In particular, it can build immunity against life-threatening strokes, feared by many people with cardiovascular disease. Potassium brings about an important mineral balance in the cells of the body, as it cleans out excess sodium and restores equilibrium to the cells, thus establishing a ratio that can save the heart ... and a life.

Sodium and potassium atoms each have an electrical charge attached to them. If we have too much sodium sludge and not enough cleansing potassium in the cells surrounding the arteries, an electrical imbalance strikes, leading to sodium overload. The arteries clamp down too forcibly when they contract.

The result is elevated blood pressure, strain on artery walls and slowing of blood flow to some smaller arteries. There is a risk of an artery clot – an occlusion – that could choke off blood to the heart or brain. We do need some sodium, but if sodium accumulates excessively inside cells of the body, there is an increase in blood pressure and risk of heart disease. Accumulated sludge can reduce the circulation, depriving the heart muscle of vital oxygen and causing cardiac cells to die. For this reason, we need potassium-rich foods to boost inner cleansing and to assist the removal of any excess sodium out of the cells. In our 21st century with cardiovascular disease a major cause of premature death, perhaps we need to see that potassium-rich greens are important to our survival.

Greens are also a good source of copper, cobalt, manganese, zinc and many other minerals that are vital to our needs, whether or not we have considered this. Note: if food is cooked, much of the potassium is leached into the water, and possibly discarded down the kitchen sink.

Recent research at the Queensland Institute of Medical Research has found that the consumption of green leafy vegetables have a range of constituents (eg zeaxanthin, lutein and other components) which help boost the skin's natural defence against damage caused by UV rays. Dr. Jolieke van der Pols said, "This new evidence suggests that an increase in consumption of greens may help to reduce the risk of skin cancer recurring among those with a previous history, by up to 55%." We all need to protect ourselves from skin cancer.

Salad greens picked fresh from the garden or from a few pots near the kitchen door (if no garden is available) are absolutely the freshest and most nutritious plant foods to serve for a meal: teeming with *living enzymes* that are so essential to health. Living enzymes from fresh picked live foods literally have electrical energy vibrations, created through the activity of sun, air and water.

Enzymes have been called 'the spark plug of life' as they initiate so many bio-chemical processes in the body. Greens are rich in digestive enzymes – these make it easier to digest the heavier foods we eat, such as starches and proteins. Enzymes convert food to energy, essential to fuel every biologic mechanism, and regulate metabolism on a cellular level. Eating salad greens in their freshest state gives the body "power foods" it can easily assimilate and use for rejuvenation. The more we eat from nature's raw garden, the better we are going to feel.

Many greens are a good source of protein (see p 88-90), some with a good balance of the 8 essential amino acids. Protein is essential to cell growth and repair.

Should readily available protein foods such as meat, fish, eggs and dairy products, become inaccessible due to drought or calamities or war, then, we can use greens, together with nuts, seeds, and sprouts to sustain our protein requirements.

Salad plants are alkaline, and alkaline foods are fundamental to good health. Pain and disease in the body is caused by a build up of toxins around the cells,

which creates an acid state (as opposed to alkaline). A variety of alkaline foods can assist the body to clear acid wastes. *When our body is very acidic, we are unable to readily absorb minerals and other nutrients from the food we eat.* Then, the body may be slower in repairing damaged cells and detoxifying heavy metals or other toxins.

This reduced function weakens the immune system and we are more susceptible to fatigue and illness. Many natural health practitioners recommend a ratio of 80% alkaline foods and 20% acid foods in the daily diet. Alkaline foods are also known for their healing properties. *Our cells love alkaline foods.*

By tossing together a variety of greens, fresh herbs for flavouring, and colourful vegetables, we can create a wonderful meal with a **whole** range of phytonutrients. Many of these are antioxidants that act to destroy free radicals and toxins in the body, and halt cell mutations. *Think of salads as a 'treat to wellbeing' and a 'boost to better health'.* Call salad leaves '*green magic*' and this is a good way of encouraging children to eat a salad, saying, 'When we eat a salad, it can work like magic in the body to make toxins disappear and keep our body healthy'.

Add to your garden, or grow in pots, some of the following plants:

Lebanese cress *Aethionema cordifolium*, p 96, perennial to 30cm, loves shade, fast growing, lush attractive fern-like leaves with a carrot-like flavour; wonderful in tossed salads, sandwiches, as a garnish or with basil in pesto. These are fabulous greens, which I use daily.

Sweet leaf bush *Sauropus androgynus* p 82, perennial 1-2m high; sometimes, the bushes are planted close together to make a living food hedge. Leaves taste like fresh peas, are over 34-39% protein, and an excellent source of calcium, potassium, magnesium, phosphorus and iron. 100g (½ cup) serving of fresh leaves supplies 22% of our daily requirement of vitamin A, and is a substantial source of vitamin C providing 138% of our daily requirement.

Eat leaves as a snack any time, and add to salads, and toss through a stir-fried dish just before serving. Dried leaves are excellent survival food, as they can provide a high-protein to add to meals. Lactating mothers are encouraged to eat the leaves, for promoting high protein, milk production. Leaves are also beneficial for anaemia to relieve fatigue, build stamina, to assist nutrient absorption of nutrients from other foods eaten, and to prevent cardiovascular disease. Sweet leaf is also used for diarrhoea, diabetes, and to lower cholesterol and blood sugar levels. Indonesian folklore says: to stop teeth grinding or snoring in sleep, eat sweet leaf! Research in Thailand found the plant has powerful antioxidants, which can delay or inhibit cell destruction by oxidation. This plant is one of my favourite greens, and it is popular with people who visit the herb farm and taste-test it too.

Salad mallow *Corchorus olitorius*, p 95, annual to 1m; lush green leaves are over 20% protein; rich in vitamin A, B1, B2, B3, C; exceptionally high potassium (3068mg per 100g) making it perhaps the richest plant

source of potassium that we can grow. (Potassium aids blood and oxygen circulation; is essential to digestion; the function of the heart and skeletal muscles; and for energy). Mucin, in leaves, is valuable for clearing mucus and toxins from the body. Eat raw, cooked, or dry leaves and store for a protein source, to add to other meals, and as a survival food.

Drumstick tree *Moringa oleifera*, p 53, this tree can be trimmed to keep to bush size of 1-2 metres; leaves 38% protein with all essential amino acids, use leaves fresh or cooked in a variety of dishes, and also dried (nutritious high protein survival food); high in calcium (297mg per 100g leaves), vitamins A (8855 IU per 100g leaves) B1, B2, B3, B5, B6, B15, B17, C, D, K. The drumstick tree is an important staple food source in many countries. Studies show leaves to be an excellent source of vitamins, minerals and protein. Various aid programs, working in Third World countries, use the dried leaves, to fight against malnutrition and its associated diseases (blindness, etc). The plant has been valued for treating and building resistance to many diseases, including cancer, and for fortifying the immune system. Leaves have strong antibiotic, antifungal, anti-fatigue, antioxidant and tonic properties. Young seed pods are eaten cooked, and swollen roots of seedling trees are washed, peeled and eaten raw and cooked (have a horseradish-like flavour). The antimicrobial seeds of the tree contain cationic polyelectrolytes which have proved efficient as a flocculent in treatment of turbid water, to make it drinkable. (The seeds are completely bio-degradable, while, aluminium sulphate, an alternative used to clean water, is not as user-friendly).

Nasturtiums *Tropaeolum majus*, cover picture no. 9, p 108, ground sprawler to 60cm high. Use leaves and the bright-coloured flowers for antibiotic, antioxidant and tonic properties; add to salads, sandwiches, pesto, and as a garnish.

Sheep sorrel *Rumex acetosella* (cover picture no. 6 and p 64), leaves stand 12cm high; powerful

antioxidant properties, said to kill viruses; leaves are good to eat at the beginning of a meal as they have a mild sour flavour, which helps stimulate the digestive juices in the mouth, and the sour flavour can benefit kidney, bladder, and the circulation.

Ceylon salad leaves *Basella alba*, p 82, and *B. rubra*, perennial (annual in cold climates), fast growing climber or ground sprawler; nip off nutritious leaves (very rich in calcium and iron), which have many health-giving and healing benefits, and eat raw or cooked. Leaves are a mild laxative.

Purslane *Portulaca oleracea*, p 53, young leaves extremely rich in vitamin C and Essential Fatty Acids so are valuable to pick and use regularly (see p 57). Another plant in the same family is **Leaf ginseng** *Talinum triangulare*, p 117, a perennial to 60cm; use leaves in salads and stir-fries etc. In South East Asia the tonic properties of this plant are as highly esteemed as Panax ginseng. The plant is valued for treating inflammation, fluid retention, and to build energy and stamina. Also belonging to the *Portulacaceae* family is the cottage garden plant, **Sun jewel** *Portulaca grandiflora*, an annual ground cover. Add leaves and bright coloured flowers to salads and use as garnish. If you happen to have **Jade** *Portulacaria afra*, p 96, growing, another survival food (see plant families p 129).

Watercress *Nasturtium officinale*, p 81, 63, perennial to 20cm, will grow in well-limed soil in pots. Leaves rich in vitamin A, B1, B2, B3, B5, B6, B17, C, D, E, K, and in minerals: calcium, potassium, iron, iodine, zinc, sulphur and germanium; leaves valued for purifying the blood and toning the whole system. Herbal folklore, says watercress is an excellent food for stimulating the intelligence.

And when you have excess watercress, try a **Watercress sauce**: blend in a blender, or chop very finely, a large handful of watercress, ½ cup yoghurt or kefir, 1 tablesp. lemon juice, 1 teasp. mustard paste, dash of salt and pepper, 1 tablesp. fresh chives and dill. Serve over diced cucumber, other vegetables or over a tossed salad.

Rocket *Eruca veriscaria sativa*, p 81, annual 60cm-100cm high; tasty leaves in salads, pesto, soups, and as a garnish.

Mukunu-wenna *Alternanthera triandra*, p 81, and **Purple mukunu-wenna** *A. versicolor*, p 81, perennial ground cover plants, and **Sambu lettuce** *A. sissoo*, p 82, a bush species to 60cm; provides nutritious leaves for salads and cooked dishes. These plants are highly esteemed in Sri Lanka and India and other Asian countries for eye ailments, and strengthening the eyes and the nervous system. The vitamin and mineral-rich leaves are an essential ingredient in *kola kanda*, a traditional dish. Consumed daily, it is made with boiled rice, coconut and several kinds of green leaves, finely chopped. Eaten as a meal, kola kanda is esteemed for cooling the body, as a tonic, and for promoting energy and balance.

Mallow *Malva sylvestris*, p 95, hardy bush to 1m, glossy green leaves, eye-catching lavender flowers; leaves eaten and flowers too, which are slightly sweet, cool, and jelly-like, indicating the presence of mucin,



Salad mallow

valuable for cleansing and healing and strengthening the lymphatic system. The plant is a valuable expectorant, relieving mucus from irritated tissues in the throat and chest; and is very soothing to the urinary tract, intestines, and for relieving inflamed tissues.

Mushroom plant *Rungia klossii*, p 82, perennial to 60cm; glossy, dark green leaves are rich in calcium (272mg per 100g leaves) and provide a mushroom flavour; use raw or cooked.

Chinese watercress also called **Kang kong** *Ipomea aquatica*, sprawling perennial to 60cm (annual in cold climates); leaves 31% protein; rich in vitamin A (6300 I.U. per 100g leaves), B1, B2, B5, C; use leaves raw or cooked.

Queensland greens *Hibiscus manihot*, perennial 2m; leaves 29% protein and rich in vitamins A, B, C, and minerals calcium, magnesium, iron, also mucin. Use in salads, steamed, in quiches; large leaves used as wraps for morsels of food. These leaves have a high mucilage content, and therefore have a soothing effect on inflammation and irritation of the alimentary canal, respiratory and urinary system, and for acute stomach-ache. Leaves are valued for blood cleansing and blood building benefits. Nursing mothers eat leaves to increase milk supply. Note: ornamental flowering hibiscus species - flowers and leaves are edible (perhaps you have some in the garden). Red lantern hibiscus, p 95, is one species that is a common food in Asian countries, with the flowers and leaves eaten raw or cooked; also used medicinally, as above.

Amaranth (there are many *Amaranthus* species) annuals 60cm–100cm high; young leaves in salads, and mature leaves in cooked dishes. Seeds sprouted, added to baking, made into bread; seeds popped like popcorn.

Warrigal greens *Tetragonia tetragonioides*, p 76 and p 82, annual/biennial, use young leaves (rich in iron, folic acid, vitamins A and C) raw and cooked; great in quiche.

Betel Leaf *Piper sermentosum*, p 81, shade loving perennial to 1 m; mild pungent flavoured, large glossy leaves used in salads, as wraps, and cooked. Drunk as a leaf tea it is valued for alleviating coughs, asthma, candida, cancer, for healthy teeth and gums, and as a natural deodorant to free the body of unpleasant smells of perspiration and menstrual odour.

Mustard Greens, **rocket**, **pak choi**, **tatsoi**, **kale**, **mizuna**, **cress**, **broccoli**, **horseradish**, **wasabi** and other plants in the *Brassicaceae* family provide flavour, antioxidants and nutrient-rich leaves.

Celery, **celeriac**, **dill**, **fennel**, **parsley**, **mitsuba**, p 81, **chervil**, **lovage**, **coriander**, **rock samphire**, p 81, **gotu kola** and **arracacha** - all members of the *Apiaceae* family (formerly called *Umbelliferae*), are useful greens to add to salads and for flavouring.

Often, **plants of the Asteraceae family** (formerly called *Compositae*) are added to mesclun salad mixes, and some of the easiest to grow for salads are **dandelion**, **endive** and **chicory**; also, **open-headed**, **loose-leaf**, **lettuce types** like: oak leaf, royal oak, rabbit ear, cos verdi, darwin and everlasting. **Mesclun** means a variety of very young tender, baby-green

leaves of a variety of edible greens, picked 2-5 weeks after germination. And other green leaves like **silver beet**, **salad burnet** (with its cool cucumber-like flavour), p 103, **alehoof**, **orach**, **borage**, **fenugreek**, **yellow melilot**, **spinach**, **comfrey**, **brahmi**, **brooklime**, and **red clover** can add extra variety to a salad. **Alfalfa** leaves are renowned for their alkalising action and for nourishing the digestive, glandular, urinary and skeletal systems.

And don't forget **edible weeds** in your garden like young leaves of plantain, shepherd's purse, cobblers' pegs, fat hen and chickweed (make sure it is *Stelaria media*, not the tropical chickweed). Weeds are rich in nutrients, antioxidants and healing properties. Cobblers' pegs have been noted for 95 therapeutic uses (see Weeds p 62).

And **flavouring a tossed salad with herbs**, gives us even more nutrients, antibiotics, antioxidants and health-promoting properties. Grow a variety of herbs and use them daily; experiment with flavours; try any of the following to give a variety of tantalising aromas and tastes... **rau om** *Limnophila aromatica*, p 82, (is one of my favourite herbs for its absolutely wonderfully refreshing aroma and energy boosting benefits, and delicious flavour), **dill**, **finely-cut kaffir lime leaves**, **caraway seeds**, **garlic**, **chives** and **garlic tops**, **chillies**, **basil**, **marjoram**, **tade**, **oregano**, **mint**, **thyme**, **savory**, **sweet tarragon**, p 43, **coriander**, **papalo**, **vap ca**, **lemon balm**, and a little finely-grated **ginger**. For a peppery-flavour use **wall pepper** *Sedum acre*, p 81, 10cm high perennial plant with small succulent leaves, valued as a survival food plant.

There are so many benefits in using herbs in foods. The aroma, essences or essential oils in herbs represent the life force and energy of plants, and *using herbs is a gentle way of stimulating the body's self-healing process and also to build energy and a feeling of wellbeing*. Delicious herbal aromas can induce deep relaxed breathing that can help relieve nervous tension, stress and pain. In herbal history, the Chinese looked upon the nose as the chief organ of absorption of Qi or vital energy, for sustaining life. So, let's use fresh herbs, regularly, for their wonderful aromas and thus encourage a deeper more relaxed breathing rate, to enhance our daily lives. *Adding fresh herbs will mean we can eat more naturally, without excess salt, as the herbs will stimulate the taste bud receptors and heighten the natural flavours in the salad.*

To make a salad into a complete meal, toss in for colour, texture and added nutrients: diced or grated carrots, beetroot, radish, corn, snow peas, asparagus, capsicum, cucumber, tomatoes and avocado. And, if you wish, add cauliflower, cabbage, pickled gherkins, apple, pineapple, orange, onion, zucchini, Chinese artichokes and Jerusalem artichokes, mushrooms and **sprouts** (like fenugreek, mung, alfalfa, lentils, adzuki, sunflower, buckwheat); if desired, add hard-boiled egg, diced cheese, and cooked chicken or other meats.

If you like a mayonnaise, toss the salad with a tantalising dressing, which could be a simple mix of olive oil, apple cider vinegar, lemon juice and a little honey, if desired; or the mayonnaise could be

accentuated with mustard, garlic, horseradish or curry powder. The dressing can utilise yoghurt or kefir as a base, plus garlic or other herbs.

Try pine needle vinegar to enhance a salad, it is easy to make and has similar uses to balsamic vinegar. The needles of any pine can be used (pick some in a park nearby); just fill a jar with pine needles. Cover needles completely with apple cider vinegar, filling the jar to the top and cap. Shake the bottle daily, the flavours will be well infused in the vinegar in 4-6 weeks. Pine vinegar is rich in flavonoids, vitamins, and minerals. It helps keep the immune system strong, and strengthens the lungs as well. Various herbs can also be added to the vinegar if desired.

The salad bowl could be decorated with a sprinkling of any of the following **seeds and nuts**... sesame, pepitas, chia, caraway, almonds, walnuts, coconut, pecans, linseed, dill, hulled sunflower seeds, and sultanas or raisins. And, for a finishing touch to your wonderful salad, decorate the top with petite, edible flowers from the garden. **Garnish with flowers** like hearts-ease, nasturtiums, thyme, violets, chives, elderberry, mullein, society garlic, fennel, sweet tarragon, mallow, chervil, and calendula petals. Now ... serve and enjoy. Herb flowers look great and make a wonderful conversation piece.

Create a rainbow salad with the whole spectrum of colours and flavours. When we create a tossed salad with a variety of leaves, herbs, seeds, vegetables and fruits, we can combine a complete spectrum of colours... red, yellow/orange, green, purple/blue, white, and the flavours... of sweet, sour, pungent, salty and bitter... to help build balance in the body. **Fresh green leaves and herbs can be utilised in so many ways, and in every meal of the day.** I start my day with fresh-picked herbs on a *breakfast* of homemade muesli, fresh fruit in season, sprouts, and chopped leaves of gotu kola, herb robert, brahmi, sweet leaf, lemon balm, rau om, sheep sorrel, purslane and any other herbs that I wish to add, topped with kefir (p 45).

Fresh greens and herbs can be generously topped on bread or sandwiches for *lunch*. Even a hot soup, or cooked *evening meal*, can have a generous dollop of chopped fresh leaves or a side salad ... *and remind yourself that the raw food will be the most nutrient-rich food on the plate.*

Green smoothies using chlorophyll-rich leaves like salad mallow, comfrey, nettle, stevia, alfalfa, sweet leaf ... blended with fresh pineapple, orange or apple juice, make a quick, delicious and refreshing drink.

Recently Anne emailed me with feedback about her family, enjoying smoothies. With her family of 6 children and home-schooling, she finds her days very full. So, she decided to prepare a quantity of smoothies of pineapple and comfrey leaves, blended in a Vita-Mix and then poured into clip-lock bags and frozen in batches of 70 bags at a time, to last several weeks. She said, "My children are loving them! Begging for them, and they eat it all; such a fabulous way for them to have comfrey daily, without fail. You see, my trouble is being consistent, putting in that daily effort, so doing it in fortnightly batches works well. I just go to the freezer

and pull them out each day with no work required."

For a flavour treat, try **pesto with herbs and lots of green leaves**. Although pesto is considered to be of Italian origin (using sweet basil, olive oil, pine nuts, garlic and cheese), we can now enjoy this traditional mixture, using a variety of leaves and herbs, in many different ways, on meals. Pesto means '*pounded*' and it was traditionally made: by pounding the leaves with a pestle, in a marble mortar, using lots of steady, repeated, pounding hand action. With kitchen 'mod-cons' we can prepare pesto very quickly in an electric blender. The pesto consistency can be either a thick paste and spreadable, or thin like a pouring sauce, depending on the way it is to be used - as an appetiser, or on a meal. A thick pesto is so tasty on bread and cracker biscuits; I like to serve it with a plate of small-sized Ceylon salad leaves (just use the leaves for scooping some of the pesto). Pesto made to a thinner consistency, like a sauce, can be served over pasta, rice or meats, spread on a pizza base, used as a salad dressing or drizzled over steamed vegetables. Pesto can dress up a simple food and make it into an elegant meal, grand enough to place before royalty. *Of course, you may also lay claim to the title ... 'royalty' ... as you wish to give your body the best;* pesto is a supreme food in flavour and nutrients.

Pesto can be made from a variety of herbs and green leaves, oil, nuts, cheese, and garlic. There is nothing complicated in the process of making herb pastes or pesto... just look at what plants are thriving in your garden that have lots of leaves to share with you, and use your creative imagination. When using herbs that do not provide a lot of green bulk, as with thyme for example, a '*green extender*' can add volume to the mixture (try purslane, Lebanese cress, watercress, salad mallow, sheep sorrel and French sorrel, parsley, spinach, silverbeet, mallow, nasturtiums drumstick and sweet leaf bush leaves). The choice of the right oil is important in pesto, with olive oil considered essential for flavour and viscosity; alternatively, a variety of other seed, or cold pressed oils could be used. To make classic pesto, use the following ratios, pounded with mortar and pestle or blend in a food processor.

Classic Pesto Use 4 parts (by volume) fresh basil or other herbs, 1 part oil, 1 part nuts (I use sunflower kernels as they are economical), ½ part grated cheese, 1 teasp. salt, and garlic if desired. Process as smooth or as chunky as you wish. For a thinner pesto, use more oil. Pack the pesto into a container, cover with a thin layer of olive oil and cap tightly. Pesto is such a flavour treat, and will keep several weeks when refrigerated, or it can be frozen for later use. There may be some discolouration of the pesto on the surface, but it will not affect the flavour. Simply stir the discoloured pesto into the green pesto below, add a layer of oil, and refrigerate again.

Another way to get the benefits of fresh greens is as, **Raw greens soup**: 2 large handfuls of greens, like watercress, spinach, kale, etc; 1 capsicum, 1 tomato, 1 avocado, juice 3-4 lemons, several small

pieces of dulse (seaweed), 4 cups of water or water as required to blend to desired consistency. Garnish raw soup with sprouts, grated carrot and finely cut herbs.

A great recipe for using greens is in a baked dish called **Incredible quiche**. Beat 3 eggs, add 1½ cups milk, ½ cup wholemeal flour, 1 tsp. salt, garlic and onions as desired, and season with herbs. Add 3-4 large handfuls of chopped green leaves. The leaves could be one of any of the following when in plentiful supply, picked fresh from the garden, or a mixture of leaves - Ceylon salad leaves, amaranth, sweet leaf, salad mallow, comfrey, Queensland greens, purslane, drumstick tree leaves, rocket, mukunu-wenna, and warrigal greens. Tip into a large oiled oven dish and bake in a moderate oven 20 minutes, or until set. Serve hot or cold, pack for school and work lunches, or freeze for later use. Cheese, mushrooms, bacon, etc, can be added, if desired. This recipe is incredibly easy and incredibly popular.

When growing a variety of salad plants organically, these can be served absolutely fresh: full of nutrients and living enzymes. You will find this rewarding activity will also be a saving to your weekly food budget ... what could be better than that!

Plan to prepare a green salad every day. *Salads are low in calories and glycaemic index*, with a most beneficial *glycaemic load* effect on human biochemistry. Eat greens, daily, as they help to stimulate the immune system, and offer the strongest support for cellular regeneration. Many natural health researchers emphasise the importance of green leaves and fresh herbs to help prevent premature ageing, illness and fatigue.

Remember: The 'green blood' or 'green stuff' in plants is valuable for building our blood. The quality of the foods we eat and liquids we drink, determines the condition of the circulatory system. The human body averages 5 litres of blood. Continually circulating through the body, this 'river of life' feeds cells, oxygenates tissues, and then returns 'stale' deoxygenated venous blood back to the heart. Every three minutes, fresh oxygenated blood flows back through the arteries to feed over 70 trillion cells.

Many researchers have found that the best way to build healthy blood is with fresh green foods. Eating more greens means more oxygen to the cells. Eating greens from fresh edible leaves and herbs can have a preventative and curative action against disease. Green foods help build a strong immune system. So, always remember Dr Bernard Jensen's wonderful advice: **when you are green inside, you are clean inside.**

Salads are so rich in nutrients for providing nourishment and energy to the body. **Salad greens are natural ... so use these foods, freshly picked, just as nature intended.** Someone said, "The more we work with Mother Nature, the less we have to depend on Lady Luck."

Put some 'green magic' into your life today!

Sprouts – living food at its best!

Using sprouts for self-sufficiency, or in a survival situation, can provide essential and balanced nutrients quickly and economically. In fact, *no other food can rival sprouts for delivering fresh enzymes.*

It is highly recommended, that every home, food storage plan, includes seeds for sprouting. Sprouts can be used in many ways to supplement dehydrated foods or canned products and give variety to the diet. *A family could maintain excellent health during a time of emergency by combining basic storage items with sprouts.* Seeds, when sprouted, will provide fresh produce any time of the year in 2-6 days, at minimal cost. When we sprout seeds we can reduce our dependence upon costly processed foods and animal proteins.

To turn seeds into nutritious sprouts, all that is needed, are seeds and a container to put them in, a net or gauze cloth and rubber bands, and water. Seeds suitable for sprouting can be purchased from health food shops, supermarkets, or by postal order.

Some of the easiest seeds to sprout are mung beans, fenugreek, alfalfa, lentils, buckwheat, sunflower, wheat, barley and adzuki beans. There are many others that can be added to the diet. Over 100 seed varieties are given in my book, 'How can I grow and use sprouts as living food?'

Seeds, when purchased, need to be stored in insect-proof containers. It is not practical to purchase seeds in large quantities, as some seeds, like alfalfa and fenugreek, are best used in 12-18 months or the sprouting potential may diminish. The viability of most bean seeds is 2-5 years and pea seeds 2-3 years, corn 2-5 years, brassica species 2-4 years, sunflower (in the hull) up to 5 years and pumpkin seeds can be 3-10 years. As your family becomes efficient at sprouting and realises the value and health benefits in their daily lives, purchasing seeds in larger quantities may become more economical. If, after a period of time, the seeds are not providing a high yield in germination, do not discard, but soak the seeds and add these when cooking casseroles and soups. All soaked dried beans (and grains too), will cook soft very quickly if cooked in a pressure cooker – usually in a third of the time, that these would usually take to cook soft by steaming.

Start sprouting by using a clear glass jar with a wide neck. I like using clear glass to see the seeds growing and I believe this, in itself, is one of the wonderful facets of sprouts – that you can see the miracle of seeds sprouting to life. *This visibly reminds us, each time we sprout, that we truly are giving ourselves real, live, nutritionally-packed, whole food.*

In a 1litre jar, place 2-3 tablesp. of seeds. As seeds may expand in volume, approximately 8-10 times during germination, keep in mind that one rounded tablespoon of seed can sprout to one cupful or more. The smaller the seed variety, the greater will be the increase in volume (eg 1-2 tablesp. of alfalfa can grow to 3-4 cups of sprouts, 1 cup of mung beans to 9-10 cups of sprouts).

Pour cold water into the jar until ¾ full. With some of the larger seeds, it is an advantage to use hot water

(eg mung beans, adzuki and peas). This helps to soften the hard seed coat and the seeds will germinate more evenly.

Now, **the seeds are left to soak**. Small seeds, like alfalfa and fenugreek, can be left to soak 3-8 hours and larger seeds need longer (8-12 hours) for the seed to completely take up all the water that they are able to. I often leave seeds soaking overnight and I know that, while I sleep, my seeds are waking up and the jar is becoming a 'live food factory' in my kitchen. This truly is incredible, as all I have provided is water. By morning, the seeds have germinated and amazing activity is taking place inside the seed, to give me literally more than I put into the jar. The nutrient food value can multiply and increase, many times over. *The most valuable benefit for me is that the seeds transform from an acid food ... to become an alkaline food, when germinated.* This is a remarkable phenomenon and a tremendous asset for every person who wants optimum health.

After the soaking period, take a piece of net or gauze (about 8cm larger in diameter than the size of the jar top) and place it over the jar opening. Hold this in place with a strong rubber band or string tied around the top of the jar. Drain off the soak water (the net acts like a sieve) and **rinse the seeds** once or twice with cold tap water.

The next step is to up-end the jar and stand at a 45° angle so that no soak water remains. This is how the jar will stand for the length of time it takes to sprout the seeds. The dish drainer on the kitchen sink is ideal for propping the jar at a 45° angle. As the seeds need to be kept moist, it is essential to rinse the seeds 2-3 times a day with cold water from the tap. Hey presto! The seeds will do the rest. It is important that seeds be rinsed to keep them cool, moist, and alive. Rinsing seeds washes away waste gasses, anti-nutrients, bacteria and fine debris. **Good ventilation in the container is important**, too, as seeds need oxygen during germination. After rinsing, roll the jar in the hands so that the seeds are loose and do not stick together in one mass.

In the warm months of the year, sprouts will grow quickly and during colder temperatures of winter, they may take a little longer. Once sprouts are at the length you wish to use, start eating them as just a snack in the hand, tossed in a salad, added to sandwiches, topped on breakfast cereal, a dollop on a cooked meal, mixed with diced fresh fruit for a snack, and in many other ways.

Sprouts vary in texture and taste. Some are sweet and crunchy (eg mung bean) and are great in stir-fries and oriental dishes, some are spicy (eg radish and onion) and others are more delicate in flavour (eg alfalfa and lentils) and these are great in salads and sandwiches.

Fenugreek can be used at 1-2cm length or left to grow to the green leaf stage. In our household we grow and eat fenugreek regularly.

Mung beans are tasty morsels: whether at 1/2cm long or 2-3cm. If sprouts are not all consumed in one sitting, leave off the gauze covering, place a lid or plastic

cover over the jar and put the jar in the refrigerator. If small amounts of sprouts are regularly started, every 2-3 days, there will always be a fresh supply on hand to eat, which means that less space is required to keep the sprouts in cold storage.

Seeds could also be sprouted in plastic containers, sieves, clay saucers, woven bamboo baskets, cloth bags, and in various models of sprouters that are available from health food shops.

Buckwheat, unhulled sunflower seeds, wheat and barley may be grown on plastic trays with paper towel, soil or potting mix, placed on the base. The seeds are spread quite thickly, with paper or potting mix placed on top, and the lot is kept moist. As soon as the seeds germinate, the paper is removed. Keep seedlings moist, and cut for use when sprouts are 5-10cm tall and at the two-leaf stage.

*Everyone can grow sprouts in their kitchen to provide a ready source of food and **these sprouts will be teaming with living enzymes**, so essential for building energy and vitality.* We require lots of enzymes for the body to work efficiently and to meet its highest potential.

Enzymes are extremely important, as they are the very basis of every action in the body from digestion to the repair of tissue. Without enzymes, efficient nutrient absorption is impossible and all metabolic functions slow down, making the body age faster and become more susceptible to diseases. We need to acknowledge the valuable role that enzymes provide in improving overall health, and the successful treatment of numerous diseases. *Enzymes make sprouts a supreme food ... let's grow sprouts, eat them daily and give them a standing ovation ... by sharing their true value with others.* We need to encourage people to see the real importance of enzyme-rich sprouts for providing a food rich in essential nutrients; especially bearing in mind that generally many foods we see in our shops are processed and cooked (therefore less enzymes and nutrients); and even fresh produce has drastically declined in vitamin and mineral content, and **this degeneration of food leads to degenerative disease.**

With the burst of enzymes released as sprouting seeds germinate, vitamins and minerals are liberated and increase tremendously. This process is called natural transmutation, when the sprouted seeds have changed, providing a much greater nutrient content than the original seeds. Research at Yale University on wheat sprouts showed in analysis, an increase of vitamins B2 and B3 of 500%, folic acid 600% and with sprouted oats, vitamin C increased 700%, vitamin B12 increased 1300% and B2 increased 2000%. Also, when water is added to the seed, the hydrating action has a remarkable effect on the protein: this is converted into amino acids of a readily available 'pre-digested' form, easily and completely assimilated by the body.

When we eat sprouts at a meal we know, without a doubt, that they will be the best food on the plate, and have the highest nutritional value. Eating a variety of sprouts, regularly, is most beneficial. *Sprouts are nature's wonder food, so rich in protein, essential*

vitamins and alkaline minerals. Sprouts are often called, 'the most nutrient dense food we can eat' and 'the fountain of youth'. A diet rich in sprouts is not only nutritious but also beneficial to cleanse and regenerate the body. *Eating sprouts is said to be the best way to slow down the ageing clock, and we all want to stay young, don't we?*

Alfalfa sprouts are very alkalising and have been used to bring inner cleansing and a return to health from many conditions, such as: peptic ulcers, fluid retention, irritable bowel syndrome, diverticulitis, thyroid conditions, cancer and many other degenerative conditions.

Fenugreek sprouts are my favourite. Fenugreek is a powerful antioxidant and it is valuable for cleansing the blood and the lymphatic system. Use it, also for mucus conditions, all respiratory, stomach and bowel ailments, macular degeneration, chronic fatigue, diabetes, anaemia, allergies, menstrual discomfort, menopause symptoms (including hot flushes) and to strengthen the immune system.

Mung bean sprouts contain powerful phytochemicals, including coumestrol, and studies have shown this to be a strong antioxidant as well as an anti-inflammatory.

Buckwheat sprouts are very tasty and nutritious, rich in the bioflavonoid rutin, which has a very beneficial effect on the circulatory system.

Almond sprouts, sometimes referred to as 'soaks' because they are best eaten at 1-2 days, are deliciously sweet and nutty. Besides being a good addition when added to survival storage (best stored in shell) to provide a high nutrient food, almonds are also valued for medicinal effects. Japanese clinical studies found that almonds exert an anti-cancer effect due to the rich content of antioxidants and benzaldehyde. With powerful alkalising benefits to the blood and an ability to eliminate toxins and to strengthen the immune system, almonds have unique properties.

Many kinds of sprouts are rich in fibre, essential fatty acids and protein. *Sprouts are whole food, with power to build blood, tissue and bone.*

Can sprouts help control cancer? Studies by doctors at various natural health and wholistic centres around the world, where people have followed a dietary program of sprouts, wheat grass, fresh juices and raw foods, found that such programs showed a significant increase in the immune response. This indicates an increased ability to fight off illness and to considerably reduce the toxicity level of the blood of cancer patients.

Biochemist, Ernest Krebs, found that sprouts have anti-cancer factors. Seeds contain nitrilosides that are anti-neoplastic (work against cancer). When broken down in the body, they release two chemicals, cyanide and benzaldehyde. Healthy body cells can protect themselves from such released chemicals but cancer cells are incapable of doing this ... both these chemicals can kill unprotected cancer cells.

In July 2006, Channel 9 did a news coverage entitled "Natural Wonder Weapons in Fight Against Cancer" with research done in Queensland by a

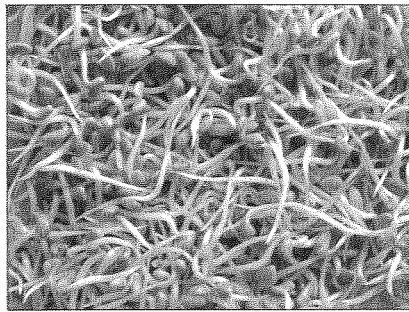
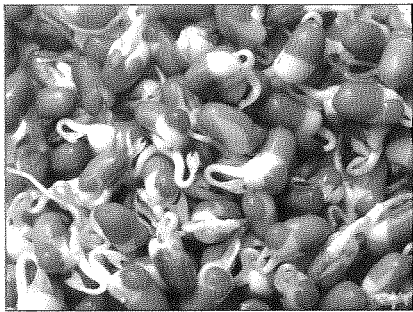
Department of Primary Industries physiologist, who found that *radish sprouts, literally, can flush out cancer-causing elements*. A powerful phytochemical in radish sprouts, glucosinolate, breaks down in the body to isothiocyanates. In a highly concentrated form, this acts to neutralise toxins and eliminate them from the body. These isothiocyanates are formed when we chew the radish sprouts, and the cells of the sprouts are broken down. This action mixes the glucosinolates with a plant enzyme called myrosinase. The mechanism by which isothiocyanates then acts to protect against cancer is by increasing the body's Phase II bio-transformation enzymes. Phase II enzyme function induces detoxifying enzymes to join together with ingested carcinogens and this has the power to accelerate the removal of carcinogens from the human body. It was found that radish sprouts were 4 - 5 times more potent than broccoli sprouts, which were previously found in research to have this same action. All of the brassica vegetables, like cabbage, cauliflower, watercress, Brussels sprouts, mustard, rocket, turnip, horseradish, kale and wasabi, contain plant chemicals that convert to isothiocyanates when we chew them. *Research has shown that, as sprouts, they have more cancer blocking potential than the same plants as mature vegetables*. This is because of the differences in their content of beneficial phytochemicals.

Eaten as radish sprouts, it has been found to be 50 times more powerful than when eaten as a fully-grown radish. This research, indicated, we need to eat one cup of fresh radish sprouts a week to literally flush out cancer-causing elements and neutralise any carcinogens eaten or inhaled from environmental toxins, including cigarette smoke.

Do we realise that toxins in our environment are a major threat to our survival? Statistics in Australia show 1 in 3 people are affected by cancer. This certainly indicates that we do need to protect ourselves.

If fresh vegetables are not available for a prolonged period of time (perhaps due to drought or war), then sprouts, rich in: protein, enzymes, phytochemicals, vitamins and minerals, could make the difference between health and illness. Perhaps, in some cases, this could mean a distinction between life and death. Considering the uncertainty of our times, it is good to know how to provide food for our families and, in so doing, be assured of good health. **There is no survival food better than sprouts.**

During World War II, the British Army sprouted seeds in the trenches to supplement meagre dry rations and ward off scurvy. Some families (having had to go into hiding during the war) had seeds to sprout, which kept them alive. I read of one family who lived entirely on sprouts for 6 months and they acknowledged that sprouts not only sustained them but also kept them in good health. We do not have to go through war to know and experience the benefits of sprouts. *We can all grow sprouts, regularly*. We can eat them with our meals or they can be our complete meal, if necessary. We can grow them in a backpack when on camping trips, or if at some time in the future, we have to flee our homes on foot. Fresh sprouts are fast growing,



Top left: Adzuki sprouts (p 92)

Top centre: Fenugreek sprouts (p 93)

Top right: Fenugreek seeds, and sprouts in jars. Two tablespoons of seeds when sprouted fills a 750 ml jar (p 93)

Above: Lentil sprouts (p 92)

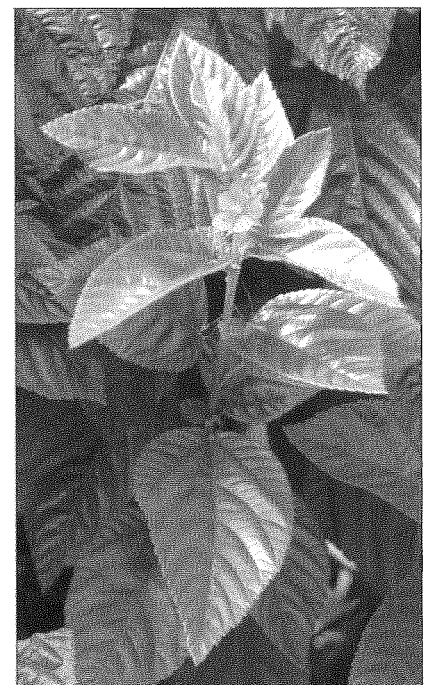
Right: Salad mallow (p 88)

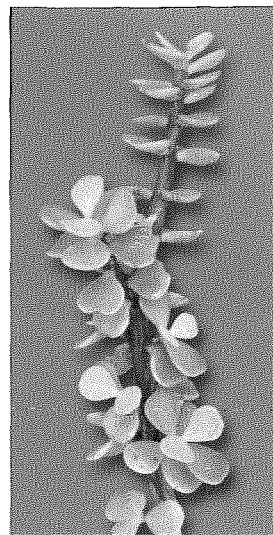
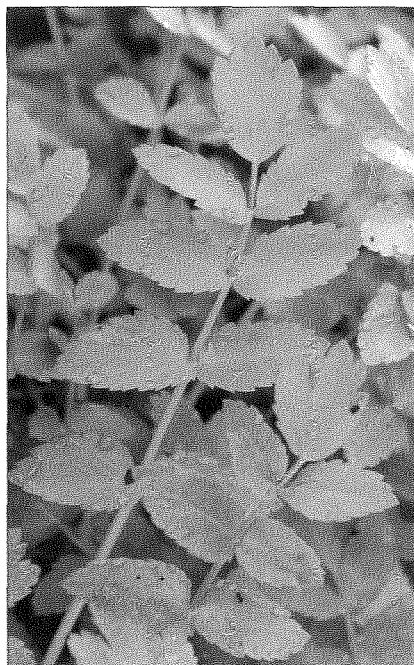
Below right: Breakfast of living enzymes: fresh herbs and fruit, kefir (p 45), fenugreek and mung sprouts (p 92), with muesli

Below left: Soapwort (p 119)

Left: Red lantern hibiscus (p 83, 90)

Above left: Mallow (p 89)





Above left: Aloe vera (p 98)

Above centre: Lebanese cress (p 88)

Above right: Jade (P 98)

Centre left: Levi and Jessica sorting seeds

Bottom left: Levi with sprouts

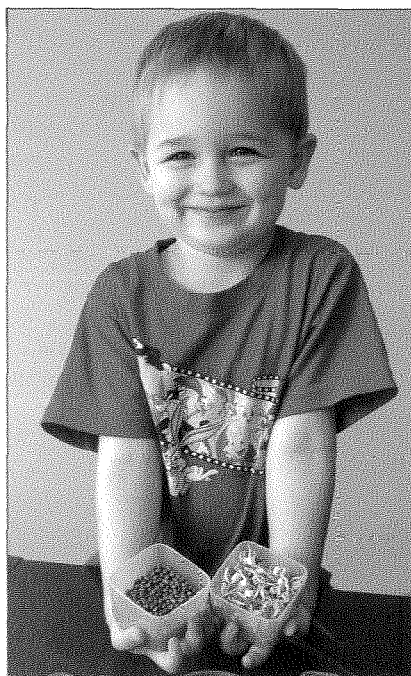
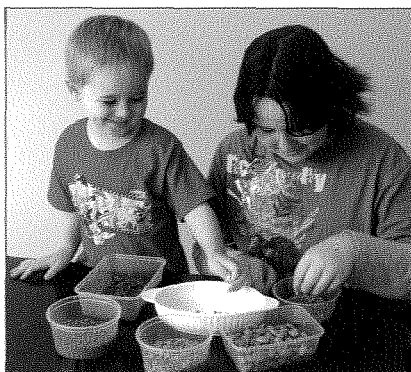
Below: Jessica preparing for growing sprouts

1. Pouring fenugreek seeds into a jar;

2. Pouring cold water into jar and then leaving seeds to soak;

3. Putting a gauze cloth over the top of jar, so that water can be poured off the seeds;

4. Draining off the water and upending the jar to stand on a 45 degree angle so seeds are not soggy, but that they stay moist between rinses, and will sprout. p 92



and easily incorporated into a disaster preparedness strategy.

The Channel 7 program, The Great South East, recently did a segment at the Herb Farm on ways to use sprouts. After this program, I received a phone call from a man of 84, living in a retirement village, who makes a variety of sprouts his main food and adds a little fish, fresh fruit and vegetables. He said he was so pleased to see information on the benefits of sprouts on the TV, and he knows he is onto a good thing. His neighbours keep remarking at how fit and young he looks.

Of all the vegetables, sprouts are the richest source of vitamins, minerals and enzymes. Sprouts provide more nutrient, gram for gram, than any other natural food known. **Sprouts are a fantastic food for all seasons and places** – you don't need half an acre, a backyard, a balcony or even a window box. It's so easy to grow sprouts that every person can do it, even a child.

Sprouts are supreme food that can be grown in your kitchen 365 days of the year, and be pesticide free, providing low cost, highly nutritious living food. Sprouts have no fat, are low in kilojoules but high in energy, help detox the body and build a stronger immune system. Sprouts can transfer their life energy to you. Eating sprouts is a pro-active health approach: teach your family how. In this chapter, I have given just the basics of sprouting. For more complete information on over 100 kinds of seeds to sprout, and different methods, refer to my sprout book, 'How can I grow and use sprouts as living food?'

Make herbs a part of your survival plan

There are few tasks as rewarding as growing and using herbs in our daily lives. Herbs are fascinating plants to grow and each has its own traditions and folklore, as well as medicinal uses, and many have been documented for over 5,000 years. Even after all these centuries, we are still finding new uses for herbs. Numerous people have shared with me the wonderful benefits they have experienced, using herbs.

The following account is an email from North Queensland; Emmanuel wrote, "I am writing to share with you my experiences using comfrey. I enjoyed reading on the website of your books, the information on this herb. I really enjoyed it because comfrey is my number one herb. Comfrey saved me a lot of pain. You see, I had a duodenal ulcer when I was 18 and, although I went to many doctors and specialists, they never cured me with their medicine. I had this ulcer for 14 years until I was 32 years old. Then, I obtained some tapes by an Englishman, Lawrence D Hills, and discovered how good comfrey was. Later, I bought a book called 'Grandmother's secrets' which gave a recipe on how to make a comfrey tea to heal ulcers. So, I obtained a comfrey plant from a friend and made this decoction from the comfrey roots. I used three pieces of comfrey root the size of a medium carrot. I scraped the black skin, like you scrape carrots; grated the roots with a large-holed cheese grater, put it in a

saucepan, and added 1 litre of water. I brought it to the boil and simmered it for about 5 minutes, let it cool for 10 hours; then, strained, and put it in a container. The pulp went back into the pot with another litre of cold water, and I just left it to soak for another 10 hours. I strained it, added this liquid to the first batch, and kept the mixture in the fridge. I drank $\frac{3}{4}$ of a cup, before meals, 3 times a day (it was suggested to take it 5 minutes or more before meals). I started drinking this comfrey tea and within 3 days the pain started leaving. This batch lasted about 6-7 days, and by the end of the seventh day I had no more pain. I am now 67 years old and I have never suffered with an ulcer again. I thought I would share this with you, as you might like to share it with others. I have made this and given it to at least five other people, who told me it worked, miraculously." The above incident is of one person telling another the details of how this herb has helped them. That is what herbal folklore is all about ... passing it on. And herbs are amazingly multi-functional. As Sue, who loves herbs, said, "Herbs can help anything from a broken leg to a broken heart!"

Herbs, have been given to us by our Creator, for our health and healing. Herbs have very powerful properties to cleanse the body and strengthen the immune system. *Health is a dynamic expression of life.* We all need the protection that herbs can give in a 'toxic' world. A television report on 19th November 2007 highlighted the fact that 2 million Australians don't have proper access to doctors. Who would want to be without proper medical care in an emergency situation? But, is it the task of the Government to assume total responsibility for our health and wellbeing? While modern medicine provides the best options for actual emergencies, doctors tend to focus on treatment using pharmaceutical drugs. It is now known that the over-prescription of antibiotics may be the undoing of this key asset of medical science. I believe *it is far better to focus on prevention.*

Note: it is ironic that, as people around the world are turning in ever increasing numbers to complementary and alternative medicine and taking care of their health with herbs they grow in their gardens, governments in a number of countries (including Australia) are universally engaged in shutting down those options. Governments wish to put in place legislation (usually instigated by submissions from self-seeking pharmaceutical companies) that will restrict our options, eg Codex Alimentarius. See <http://members.iimetro.com.au/~hubbca/codex.htm> (and on this site, also click on 'Codex by Eve Hillary').

Why not be self-empowered and use herbs for health and healing? Herbs have so many valuable components:

- Rich in vitamins, minerals, chlorophyll, antiseptic and antibiotic properties.
- As seasoning in food to add flavour and aid the digestion.
- Contain pain relieving, cleansing, healing and rejuvenating properties.
- Valuable alkalising benefits.

- Herbs have electrical vibrations that harmonise and help fine-tune the vibrational level of our cells (the body finds it hard to identify with synthetic pharmaceutical drugs which can have an acid-forming effect).
- Herbs contain unique substances called phytochemicals that help the body in a variety of ways – some strengthen the immune system, others eliminate free radicals that damage DNA, while others protect against heart disease and help to rid the body of cancer-causing substances. Many researchers believe that using herbs, regularly, for flavouring food will provide the benefits of these disease-fighting substances. Fresh herbs are best because they are the most flavoursome and contain the most phytochemicals, and living enzymes. Dried herbs are still quite effective and can be used; and, if dried and added to stored survival foods, these can also contribute to wellbeing.
- Herbs can play a positive role in pro-active health care when used daily; we all need to make a daily commitment to attain the best in health. We need to learn all we can about herbs and their uses to help prevent many diseases of man, so prevalent in the 21st century.

Be aware that herbs are not wonder drugs. However, their effectiveness is based on a gradual action to restore the natural balance of bodily functions. *Some herbs may assist the body to heal quite quickly; while, generally, herbs produce a beneficial effect after more consistent use.*

Herbs can have side effects: although, this refers mainly to herbs taken therapeutically. When starting on medicinal herbs we may experience a *healing crisis*. This could be more severe than a hangover, bringing on a feeling of disorientation, headaches, nausea, pain, aching body and fatigue. Therefore, some people (who are perhaps sensitive to chemicals and various foods) may be wise to start on half the recommended daily dose. Then, after a few days, build up to the full dose. When the body is going through detox periods, which may last for several days at a time, it is important not to become discouraged. We need to realise that the body is pulling toxins out of storage and into circulation to eliminate them, which causes the dramatic symptoms that may be experienced ... but things do get better.

Culinary herbs, used to flavour foods, would generally be of a smaller amount than a therapeutic dose, and usually do not cause reactions or pose a problem. However, when herbs are taken for medicinal uses, there may be contraindications. **Caution: When taken with other medications, medicinal herbs could cause unpleasant or dangerous reactions, especially in people with allergies.** An example is ginkgo, if taken while on Warfarin it can cause bleeding. St. John's wort can bring on unpleasant reactions if combined with some prescription medications, and may cause some drugs to be eliminated twice as fast as normal, thus lessening potency. If taking prescription medication, including birth control pills, tell your doctor

or alternative health practitioner, before using herbal remedies, particularly, if you are taking medication for high blood pressure, epilepsy, glaucoma, diabetes, thyroid or blood-clotting problems, heart disease or stroke. When used with care, herbs are safe and effective. There are a few medicinal herbs that should not be taken during pregnancy, lactation, or by very young children. Pregnant and nursing mothers should consult their health care provider before taking herbs, as there are some herbs that may trigger uterine contractions or interact with medicinal drugs in various ways.

Doses for children, generally, are half an adult dose or less, depending on the weight of the child. When taking herbs for medicinal uses, be consistent; don't give up after the first cup of tea if your condition has not cleared up. *Herbs are not magic; however, miracles happen when herbs are used.*

I have a friend, who calls herbs 'disease busters'. A Chinese proverb says, 'Nature, time and patience are the three great physicians'. *If we want good health we have to put effort into it. Invest in optimum health today: make natural health a high priority in daily life.*

Often, I am asked by people, "What are some of the most useful and beneficial herbs to grow for health and wellbeing?" *The most beneficial herbs are ones that cleanse, heal, tone and regenerate, and there are many that have these actions.* In this chapter I will share some information on these herbs. As space will not permit all uses of each plant here, I will give a few very practical applications. For more complete detail, I encourage readers to refer to, "How can I use herbs in my daily life?" I recommend these 'top priority' herbs in all self-sufficiency and survival food gardens. A brief account, of other useful herbs, will also be included at the end of this chapter.

Aloe is often referred to as 'The living first-aid plant'. Ancient Egyptians called aloe 'the plant of immortality'. There are over 200 aloe species; the most used species for medicinal uses are:

Aloe Vera barbadensis, p 96, a hardy, cactus-like plant 60-80cm high with thick, dagger-shaped leaves armed with prickly teeth on the margins; yellow flowers on a pendulous spike 60-100cm high. These plants like well-drained soil, full sun, and are drought tolerant. During extreme dry periods the plant will use the moisture in the outer leaves and this will be evident by shrivelled, dry tips. As plants are frost tender, in temperate to cold climates, aloe can be grown as a potted plant and moved to a protected area in winter.

Candelabra or tree aloe *A. aborescens*, p 96, 1-2m tall, with a main trunk and many side branches, each with a rosette of leaves. The heavily-toothed leaves tend to curl around and under at the tips, giving the appearance of a candelabra light. The red flowers form in long spikes.

Socratine aloe *A. perryi* is similar in growth to Aloe vera but usually smaller in size, flowers of an orange to apricot shade; the plant tends to pup profusely, by growing new small plants around the parent plant, even when the plant is not very large. The therapeutic properties of this species are not considered as potent

as Aloe vera. This species is often for sale in plant nurseries.

Research conducted at a number of universities found that aloe penetrates the human skin almost four times faster than water and that aloe is an effective oral and topical agent for accelerating wound healing. As aloe can quickly penetrate injured tissue to relieve pain, reduce inflammation and dilate capillaries, thereby, it increases blood supply to the injured area and healing can occur rapidly. Burn clinics have found aloe to be 50% more effective for burn treatment than other specific remedies.

Aloe vera contains a wide range of beneficial nutrients, including protein, complex carbohydrates, vitamins (eg A, B1, B2, B3, B6, B12, folic acid, C and K), minerals (eg calcium, chromium, copper, cobalt, iron, magnesium, manganese, potassium, silicon, sulphur, and zinc), and many other valuable constituents. Perhaps, the most active of constituents in aloe is the concentration of polysaccharides, which have been noted for their significant action in stimulating the immune system and the cell membranes. This results in much greater cell fluidity and permeability. Toxins can then flow out of the cells more easily and nutrients can flow in, so that the overall effect on the body is a rise in energy and cell metabolism function.

Aloe can also interact with special cell-surface receptors, which help repair damaged tissues and, by stimulating them, activate faster growth and replication. Plant hormones in aloe, called gibberellins, also accelerate healing by stimulating cell replication.

These combined actions make aloe a uniquely potent healing herb. The therapeutic actions of aloe are extensive: analgesic, antibiotic, anti-oxidant, anti-inflammatory, anti-microbial, diuretic, demulcent, cathartic, antiperspirant, vermicide, to name a few. Aloe for external uses include: acne, age lines and wrinkles, burns, boils, bruises, bunions, bed sores, chapped or cracked skin, scars, cold sores, cuts, carbuncles, gum sores and mouth ulcers, nappy rash, skin rashes and dermatitis, dandruff, herpes, frost bite, insect bites, sprains, shingles, sports injuries, and sunburn. Use aloe as a compress to draw out splinters. *Aloe has been found to heal radiation burns quickly;* for this benefit, aloe should be planted in every home garden (we must be prepared for every situation).

Recent talks have centred on the possibility that our future electricity supply may come from nuclear power. Nuclear development raises questions about the problem of radioactive wastes, and the fact that there is no safe means of disposal. Furthermore, war now poses threats of a massive nuclear dimension. Will future generations be forever burdened with storage of toxic wastes and the very real threat of deadly spillage and contamination? These threats do pose major concerns in contemporary society, yet the simplest solution may still prove the best: renewable energy sources. Safe and natural is always the best practice, and this is also true of our healing herbs. With the world in such a state of uncertainty, aloe could provide many benefits if its healing properties, were more widely acknowledged. Aloe vera gel would greatly assist

many conditions, especially the treatment of burns, if used in hospitals. If you know anyone undergoing radium treatment, share with them about aloe, as it is found to relieve the burning and nausea caused by radium treatment.

Bathing the eyes with aloe leaf infusion in cold water is of great benefit to those who have had little sleep or have been working in front of computers for many hours. The aloe heals and soothes any redness and helps reduce the effects of eyestrain from long hours of exposure to bright lights and computer screens.

Aloe has a wide variety of therapeutic uses. It inhibits histamines, which cause skin itching and other allergic irritations. When aloe is taken internally, it enhances the secretion of digestive enzymes, balances acid in the stomach and regulates sugar and fat metabolism and it is a tonic to the whole body. It has pain relieving properties and a cooling, moistening effect on the body that counteracts problems associated with excess heat and inflammation. It is most effective used as a rub, or the inner gel of the sliced leaf applied to the skin as a poultice. The aloe has wonderful demulcent properties, which help to soothe and protect the lining of the gut. Many people report benefits and relief when using the gel for colitis, peptic and duodenal ulcers, irritable bowel syndrome, leaky gut syndrome, colon polyps, celiac disease and diverticulitis. Research has found that aloe increases the proliferation of lymphocytes, macrophages, T cells and antibodies, to stimulate natural immunity.

Some internal uses for aloe include: allergies, arthritis and rheumatism, AIDS, autism, Down's Syndrome, candida, constipation, colds and flu, anaemia, diabetes, fluid retention, Epstein-Barr virus, insomnia, menstrual cramps, hot flushes, circulation and blood disorders, lupus, fibromyalgia, thrush, acid reflux, staph and viral infections, diarrhoea, kidney, bladder and prostate conditions, paralysis, heartburn, back pain, high cholesterol, blood pressure and blood sugar, lung and heart diseases, gout, bad breath, muscle cramps, bone fractures, gum disease, fatigue, nervous stress, cancer and for removing heavy metals from the body. Aloe gel is applied to haemorrhoids to soothe pain, irritation, and to speed healing.

Researchers have found aloe may enhance the quality of the blood by oxygenation and aiding sticky blood to become 'un-sticky' blood; thus enhancing the quality of the blood, which can have a significant impact on reducing heart attacks and strokes. Aloe contains a natural immune boosting phytonutrient, acemannan, which is a valuable constituent that research shows can destroy cancer cells and increase cellular production of nitric oxide.

Another practical way of using aloe is for cleaning teeth. **Aloe tooth gel:** Cut an aloe leaf from a plant in the garden and place on a piece of paper for 30 minutes, so that the yellow sap drains from the leaf. Then place the cut leaf in a container in the bathroom with a small sharp knife. The aloe is then ready and waiting to be used in place of toothpaste for cleaning teeth. To use, cut a 1-2 cm slit with the knife, into

the cut end of the leaf to make cavity to push a wet toothbrush in and coat the bristles with the aloe gel from inside the leaf, and clean teeth. The clear gel has no flavour. However, if the brush happens to collect some yellow sap from near the skin there will be some bitter flavour added to the gel, but do not worry, as this bitter taste is not on the taste buds long, after the mouth is rinsed. As needed, cut a slice off the end of the leaf to provide more gel for cleaning.. *Aloe provides a germicidal and healing action to delicate gum tissue, as well as a cleansing function, and can help to inhibit the growth of oral bacteria.* The aloe gel is also beneficial for receding gums, mouth ulcers and sore gums. Some time ago, when I was researching about aloe and found the benefits of this herb to oral health, I decided to try aloe leaf instead of toothpaste; and, to my great surprise, I found it just works so well. Fresh aloe gel revitalises the gums and provides a healthy new dimension to oral hygiene. Considering that toothpaste often contains sugar or artificial sweeteners and abrasives, this makes aloe tooth gel a superior product to use for your oral health ... naturally. Now, I pass this practical hint on to you: this is herbal folklore of the 21st century; so, use it ... and pass the information on. After cleaning the teeth and rinsing the mouth, a mint leaf could be chewed, if desired, as this is a good way to freshen the breath. Several months after the first Edition of this book came off the Press, a lass from the Gold Coast emailed saying, "I recently purchased all your books which I love. Since reading in the Self-sufficiency Book about using Aloe vera, I have been using aloe to clean my teeth, as I have a gum disease, and have now experienced wonderful results – no more throbbing gums."

Aloe shampoo and body wash: blend aloe gel to make a great shampoo and body wash ... add lemon myrtle tea to the blended gel to wash your hair and to cleanse and tone your skin; use immediately or refrigerate. And, guess what? There will be no sodium lauryl sulphate, no petroleum derivatives, no harsh detergents, no preservatives, artificial colours or fragrances, and no chemicals to harm the skin! Apply the fresh inner gel of aloe to the hair and scalp as a hair conditioner (comb through and rinse) or use as hair gel.

The Candelabra aloe species *has a folklore tradition of use for cancer, and as a general tonic for good health.* Candelabra aloe has a rather special substance called Aloctin A, found in quantities that can stimulate biological activities, such as mitogenic activity of T Lymphocytes, with scientific research showing its strong performance in boosting the immune system. In cancer patients, immune-modulating polysaccharides of aloe increase the body's production of tumour necrosis factor, which is a natural chemical that functions to shut off the blood supply to malignant tumours. Another derivative of the leaves is Alexin B, which researchers have found possesses powerful anti-cancer activity against lymphoid leukaemia.

To prepare the candelabra tonic recipe: blend, in a kitchen whiz, 300g candelabra leaves (cut off the prickles). Then, add 500g pure honey and 750ml red wine. No doubt the red wine acts as a preservative, and red grapes are known for powerful, healing,

phytochemical properties. Put the mixture in a bottle (preferably dark glass) and keep refrigerated. The daily dose is 50ml of the mixture, half an hour before breakfast, lunch and the evening meal. The fresh inner gel of candelabra leaf has been found to give relief, when applied topically, for arthritis and any conditions of inflammation, and also for shingles.

To use aloe vera barbadensis, internally, as pure leaf gel: the leaf is peeled and the yellow sap is washed off the inner gel; an 8 x 8cm chunk can be eaten daily. Now, because the inner gel of the leaf is so slippery, some people balk at consuming aloe this way. So, here are some alternatives: prepare leaves by peeling and washing off the yellow sap. To make 3 cups of gel, place in a blender with 1 tsp. vitamin C powder (acts as a short-term preservative) and blend at low speed. Place in a covered container and refrigerate. Take 2-5 tablesp. daily, mixed with water or fruit juice (which helps to disguise the gooey texture and makes it easier to swallow.

Alternatively, **make an aloe leaf infusion in cold water:** cut 1-2 large aloe leaves and allow to stand for ½ hour for the yellow sap, just under the skin, to drain. The yellow sap has a cathartic action, which helps to produce bowel movements and, therefore, could be used if constipation is a problem. Cut the leaves into 2cm chunks, put into ½ litre glass jars, filling a little more than half full. Fill the containers with cold water, put lid on and refrigerate. Leave to steep 8-12 hours. Pour off half to one glassful of the aloe infusion and drink first thing in the morning. If desired, use the same amount before each meal. Aloe is absorbed quickest on an empty stomach, so it is advisable to take it half an hour before meals. After draining the infusion from the jar, refill the jar with water. The first few batches may be a little bitter, as this is the flavour of the yellow sap, and some may still be present under the skin. It is useful to have several jars prepared, so that the jars can be rotated. This allows enough time for each jar to steep before being used and, if kept in the refrigerator, this will last well for a week. Then empty the contents of the jars onto the compost heap and make up a new batch. As aloe is antimicrobial, the gel infused in water has been used in countries where water has not been treated.

Over the years, many people who visited the Herb Farm have shared with me some wonderful benefits of using aloe. Like Reg, who came to pick up a large aloe plant to give to a friend suffering with back pain. You see, at one time, Reg had severe back pain but after using aloe leaves, made into a cold infusion, he had complete relief. He also shared with me that he had broken his wrist. The wrist healed, but he had no feeling in his fingers. He made up an aloe infusion and after drinking it for 2 weeks he had feeling back in his fingers.

Eleanor visited the Herb Farm from North Queensland and shared that a lady with cancer of the mouth visited her. Although the lady had an operation to remove the cancer, which had included cutting some of the tongue away, the cancer still was growing and this poor lady was in severe pain. Eleanor gave the lady a piece of peeled aloe leaf to hold in her mouth and, within half an hour, the pain had eased. With the ongoing procedure that Eleanor suggested, of holding

aloe in her mouth on a daily basis, this lady is now free of cancer.

Aloe has many benefits for health, as well as other practical uses. I add some aloe gel blended up from fresh leaves when making 'Survival Nuggets' with farm produce (see p 34). The thick jelly-like consistency of the fleshy leaves helps to bind the ingredients together, and then the Nuggets have the added health benefits of aloe.

The gel may be made into a mayonnaise or dressing, together with oil, apple cider vinegar, and cream or kefir for salad greens or vegetables. Incorporate aloe in meals and in smoothies, as enzymes and other factors in aloe act as a catalyst in breaking down foods in our diet, so that the body can better assimilate the nutrients.

When not enough eggs are on hand for baking a cake, consider improvising. Christine has recently been experimenting with using aloe to replace half the quantity of eggs in cake recipes, arriving at the idea that the fresh aloe leaf gel, when beaten, is thick like beaten eggs. Used sparingly (use only about a 6-8cm cube to replace one or two eggs), this resulted in very moist, light cakes. Early settlers to Australia found they had to improvise and we may, too, if faced by hard times.

To mellow wine: try adding a good-sized piece of aloe gel to a decanter of 'rough' red wine. Decant the wine for 15-30 minutes (or longer for better results), stir, and remove the gel before serving. (Note: first wash or soak aloe gel in water, as any yellow sap will make the wine bitter.) Alternatively, you can add blended pure leaf gel, to your liking, and stir in thoroughly ... using a fork; or you may prefer to add, to taste, some aloe leaf infusion. You will be pleasantly surprised to find this gives an agreeably smooth, mellow finish to a raw (red or white) wine. Aloe adds 'body' to wine and enhances the beneficial properties of both.

Researchers at Miguel Hernandez University in Spain have developed a product based on aloe leaf gel that prolongs the shelf life of fresh fruit and vegetables. The product is tasteless, colourless, odourless, and an environmentally friendly alternative to synthetic preservatives such as sulphur dioxide. Studies showed that grapes stored at 1°C and coated with the aloe could be preserved for 35 days, against 7 days for untreated grapes. The aloe provides a protective layer against oxygen and moisture of the air, thus keeping the produce in good condition. **Aloe to stimulate roots on cuttings:** place a cut stem of aloe (cut end down) into a container with water, along with the plant cuttings. Leave the aloe stem to soak with the cuttings for a few days until the new shoots appear. (For slow-growing cuttings that need extra time, the aloe stem should be trimmed to remain fresh and not ferment in the water.) Christine found this technique increased the strike rate of cuttings, with her further idea of a blended aloe and honey dip for cuttings that are placed directly into soil. (To be used as an eco-friendly replacement for hormone powder.) Aloe is valued for stimulating and regenerating cell division and growth, and honey is germicidal and fungicidal.

Today as I write, an email came in with news from www.naturalnews.com that in the USA a number of schools have reported confirmed cases of students

being infected with the 'super bug' known as methicillin-resistant staphylococcus aureus (MRSA), and that this follows on from the deaths of 3 students. MRSA is resistant to antibiotics, but the report indicated MRSA can be treated successfully with aloe vera gel, or other antibacterial herbs found in nature.

I encourage readers to grow aloe and make it part of your home health program. Note: this chapter gives various herbs that could be important for survival; a country in crisis would put immense pressure on our already overburdened health care system. Therefore, *we need to have herbs readily available in our garden to be there to care for our own health, both now and in the future ...* no matter what happens. Aloe truly is a remarkable plant – one of God's great gifts to mankind.

Herb robert *Geranium robertianum*, p 103, is a shade loving annual to 40cm, with palmate-shaped leaves, dainty pink five-petalled flowers, followed by seedpods in the shape of a crane's bill. Stems and leaves may be red in colour, and are covered with very fine hairs. Herb robert is the most requested herb at the Herb Farm. No doubt, this has resulted from information being passed on by word of mouth, after people have experienced the benefits of using the herb. Herb robert is a powerful herb that we can all grow and use, daily, for our entire lifetime, to enhance and strengthen the immune system. *Researchers have found that herb robert is a source of germanium, a valuable element and powerful antioxidant that has the ability to make oxygen more readily available to the cells of the body.* Germanium also stimulates electrical impulses at a cellular level to create a beneficial ripple effect, throughout the whole body. Germanium's remarkable effects on the immune system have been documented in medical journals. It enhances energy levels and is a powerful healing agent. Germanium provides a strong antibiotic and antioxidant arsenal, and I believe we receive so many benefits when we use it on a daily basis.

Herb robert is highly valued for haemorrhaging and as a wound healer, undoubtedly, because of its astringent properties; and it was also used for bone fractures. In Europe, it has been a traditional herb for cancer, and it was believed to supply a natural dose of radiation. My herbal mentor called herb robert 'the radiation plant'. Herb robert contains ellagic acid. Researchers have found ellagic acid may slow growth of tumours caused by certain carcinogens; and it has been used to fight and prevent cancer. Here we see the herb has many actions ... that can work on our behalf.

Many years ago, someone shared with me a news item from Herald of Health, (a European magazine) entitled, 'Geranium robertianum, ancient herb used in the treatment for defeating cancer'. The article gave details of how to use the herb and case histories of people in remission from cancer. The full article from the magazine is given in my book, 'How can I use herbs in my daily life?' and at www.herbsarespecial.com.au. Many people diagnosed with cancer have come to hear of herb robert, have taken the herb, and are in remission from cancer. Health has been restored

to people who had been diagnosed with cancer of the lungs, mouth, oesophagus, bowel, prostate, breast, uterus, spine, lymph and other cancerous conditions, including skin cancer. Other people taking the herb have experienced relief from pain, diabetes and chronic fatigue; digestive, stomach and bowel conditions; diarrhoea, arthritis, rheumatism and numerous other ailments.

For any person wishing to use herb robert as a preventative measure, the herb can be made as a tea; or by using 4-5 leaves, eaten daily.

Numerous animal owners have shared that pets with cancer, when given herb robert in their food, are now free of cancer.

Gotu kola *Centella asiatica* (cover picture no 4), is another supreme plant to grow and use daily. This is a perennial, creeping ground cover with kidney-shaped leaves, 2-4cm wide, and with a v-shaped slot where the leaf joins the stem. Leaf margins are serrated. Very tiny pink flowers are often hidden underneath the leaves.

An old Asian saying is 'Two leaves a day keeps old age away'. Numerous research projects in the western world have studied this remarkable herb, as popular culture tells of the life of Professor Li Chung Yun, who reputedly died at the age of 256 years in 1933. He was born in 1677 (Chinese calendar) and in 1933 (Christian calendar) the New York Times announced the death of this remarkable Oriental. (Note: it must be understood that the Chinese calendar is not directly comparable with the Christian calendar). The professor ate gotu kola daily. We are told in this story that at 200 years of age he was still lecturing at a Chinese university and was said to look like a man of 50 years, he stood straight and had his own natural teeth and full head of hair.

Many herbalists have called gotu kola the finest of all herbal tonics, a revitalising herb to the body, brain and nerves; it assists memory, concentration, intelligence, improves reflexes and energy levels, and is said to help balance the left and right hemispheres of the brain. People have reported that with using the herb regularly they have been able to correct high blood pressure and cholesterol, and many *have experienced relief from painful and crippling arthritis and rheumatism.*

Judy rang to share with me the benefits she experienced from taking herbs, as she suffered terrible pain from fibromyalgia. Then, she read about fenugreek sprouts and gotu kola, started taking them daily, and in 4 weeks was completely pain free.

Margaret was a constant visitor to the toilet with irritable bowel syndrome. When she heard about gotu kola, she took 2 cups of tea a day and now enjoys her days to the full, without constant trips to the toilet. Margaret said drinking the tea has also resulted in mouth ulcers clearing.

Antioxidant flavonoids in gotu kola play a part in zapping free radicals, boosting the circulation to every cell and strengthening the immune system. The asiaticoside constituent in gotu kola has the action of speeding the healing of wounds and accelerating the repair of connective tissue, ligaments, cartilage,

tendons, bone fractures, and also repair of veins and arteries. Studies have shown the herb can help relieve ADD and hyperactive conditions.

Every person can benefit by taking gotu kola. Start with eating 2-3 leaves 3cm in diameter. If leaves are smaller, more leaves need to be taken to give the same amount; then, if desired ... after several weeks ... increase the intake to 5-6 leaves.

If a person has severe pain and arthritis, it may be necessary to slowly increase intake to 10-12 leaves daily. It is best to eat the leaves early in the day. *Don't eat these in the evening, as people who have tried this have said they have experienced a boost of energy and could not sleep.* I chop the leaves and eat these, together with other herbs, over my muesli for breakfast.

Comfrey *Symphytum officinale*, p 103, and other *Symphytum* species; perennials with lanceolate shaped, dark green leaves, 30-100cm long. The plant adapts to a wide range of climates and soils. In temperate to cold climates the plants die down during winter. When leaves are cut, more leaves keep developing, continually. *Comfrey has been called knit-bone for its potential to knit broken bones. The allantoin in comfrey is renowned for its ability to rejuvenate old cells, promote growth of new cells, and provide immunity from many infectious diseases by building up white blood cells.*

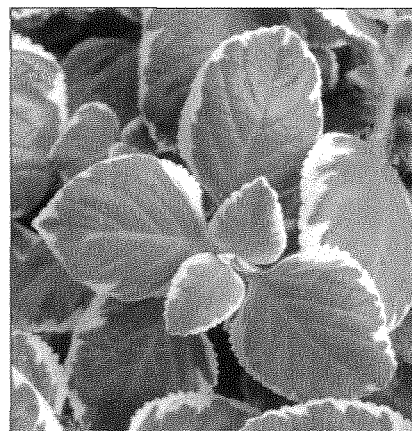
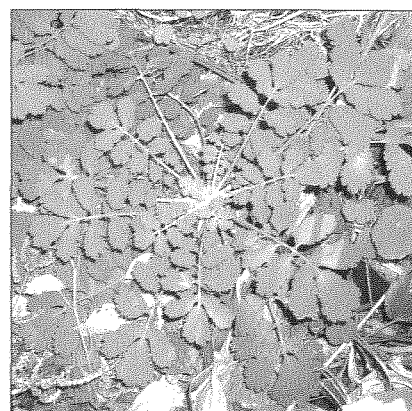
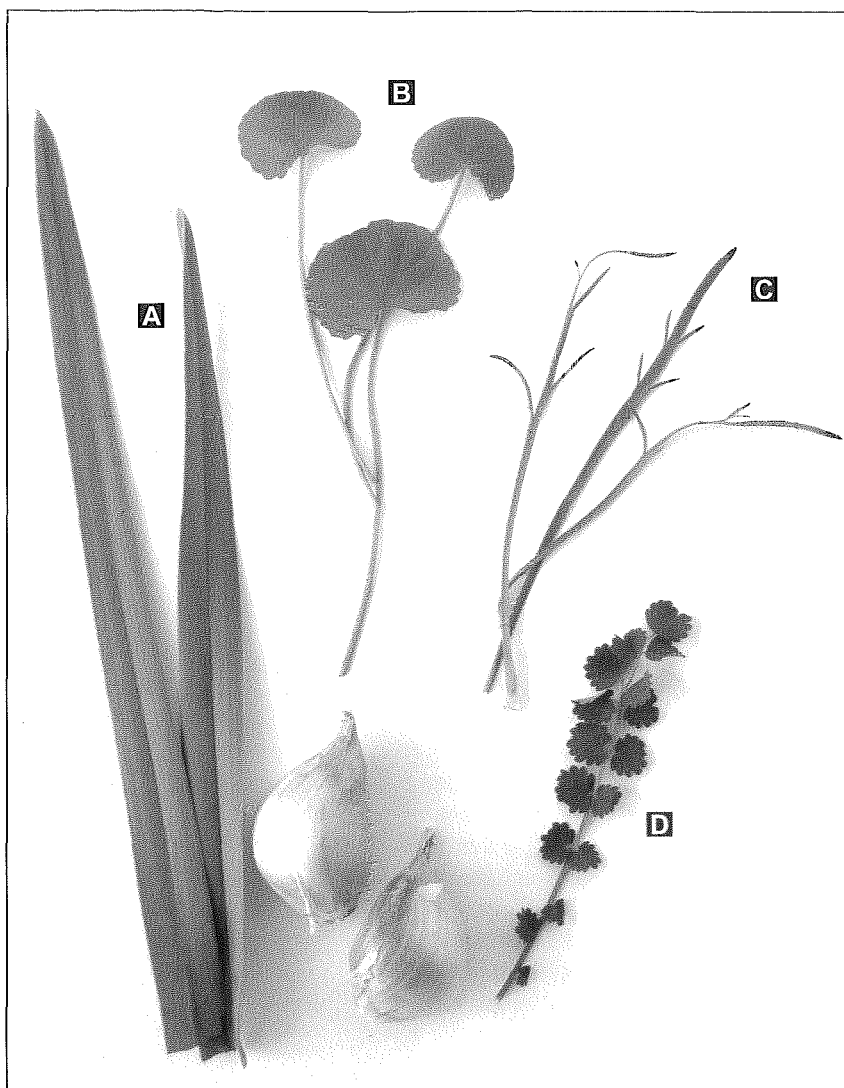
Comfrey has been used for thousands of years and the healing benefits of this valuable plant have spread by word of mouth. The plant was used in folk medicine, successfully, for many ailments, including: tropical ulcers, irritable bowel, diarrhoea, stomach ulcers, indigestion, gum diseases, lung conditions, cancer and arthritis.

The Henry Doubleday Research Association in England did extensive trials with comfrey over many years, which demonstrated its potential to improve soils, increase crop yields, and for its value as a high protein, nutrient rich food for humans and animals.

Analysis found comfrey leaves are a rich source of protein (22-36%), and contains vitamin B12. This plant may also play an additional role as an alternative to meat in the diet. A simple blood test will determine if sufficient individual intake of this essential vitamin is available in a vegetarian diet.

Further references indicate that B12 forms in bacteria, such as supplied by soil residues on unwashed leaves, which contain B12 producing micro-organisms. Current research also indicates that soil residues can boost immunity. For this reason, we may all consider 'eating dirt' on organically grown herbs and vegetables to boost our health – but we do need to ensure that animals have not had recent contact with soil residues. Leaves are extremely rich in vitamin A, 28,000 IU per 100g.

Henry Doubleday, the great pioneer researcher of comfrey in England, documented over 30 years planting trials of comfrey, and was amazed at the plant's growth. As comfrey may yield 200 tons of leaf per acre, he had the vision that comfrey could be utilised to relieve hunger in areas of famine, in the world.



Above left: A. Giant garlic (p 106), B. gotu kola (p 102), C. buckshorn plantain (p 59), D. salad burnet (p 90)

Top right: Greater celandine (p 118)

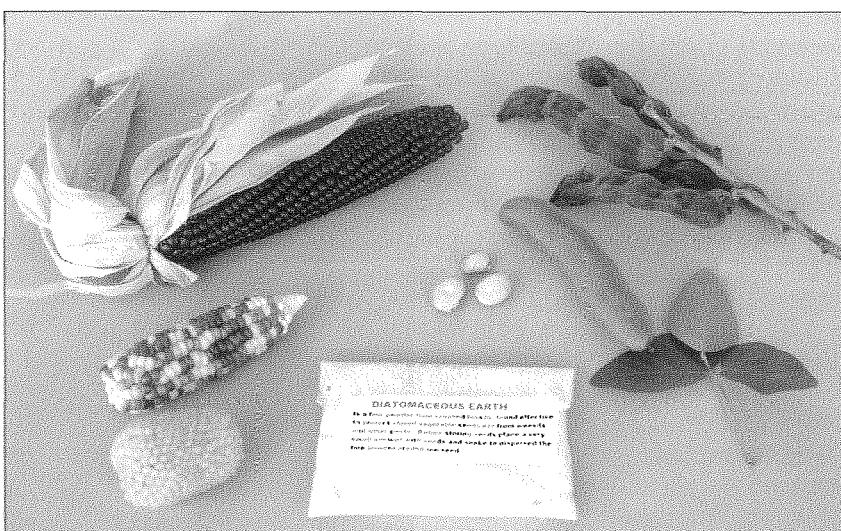
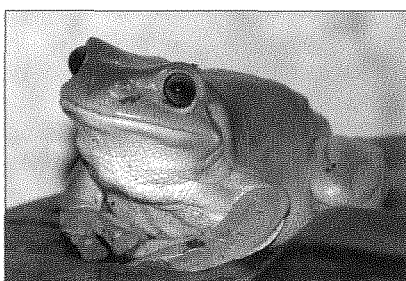
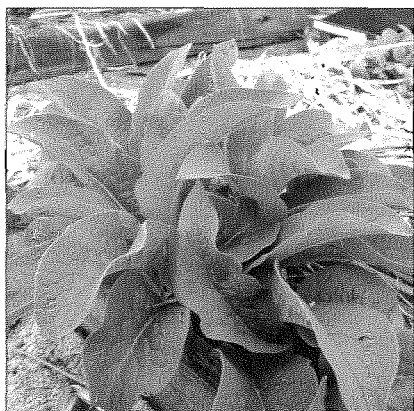
Above: Mother of herbs (p 112)

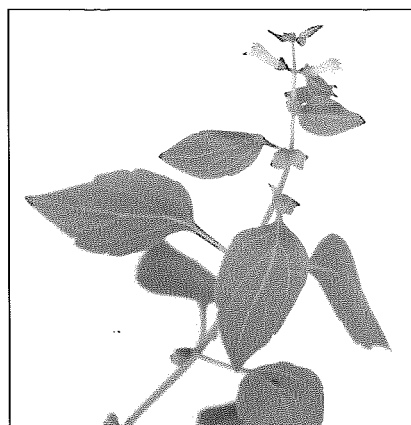
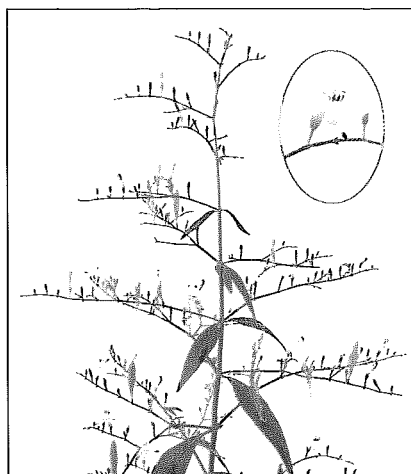
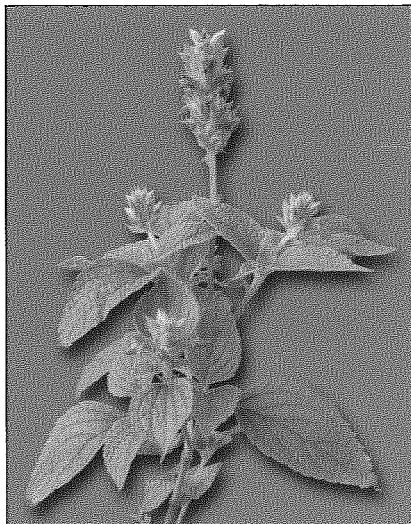
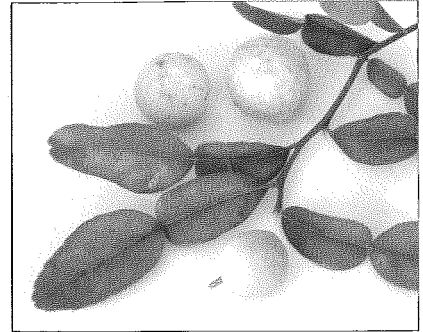
Below: Corn varieties, Velvet bean (p 27), diatomaceous earth (p 125)

Bottom left: Herb robert (p 101)

Far left: Comfrey (p 102)

Left: Green frog, my insect catcher





Top left: Alehoof (p 118)

Top centre: Lemon verbena (p 112)

Top right: Kaffir lime and leaves (p 112)

Above centre: Brahmi (p 108)

Above right: Licorice (p 105)

Right Chamomile flowers (p 116)

Below right: Hayden picking Pigeon peas (p 27)

Bottom left: Scullcap (p 116)

Below left: King of bitters (p 106)

Above left: Chia (p 109)



In 1984, the Australian Government passed legislation to prohibit the use of comfrey for therapeutic use due to the plants pyrrolizidine alkaloids, which may have a hepa-toxic, carcinogenic effect. It is believed that powerful lobbying led to this legislation, which now restricts comfrey. But note, as a food, it is quite legal to eat as much as you like! What makes the difference is the purpose for which you put it into your mouth. If it is to appease your stomach ulcer it is illegal. If it is to feed your family with nutritious greens it is legal. We have to ask: are our legislators really interested in our health?

Comfrey has been used by countless people for therapeutic uses and as a food with no adverse effects evident. I well remember one lady who called at the Herb Farm, and she said that when her family was very poor, they almost lived on comfrey. They ate the leaves in a batter, like fillets of fish, and she observed this was a time when her family was at their healthiest.

Andrew Hughes, author of 'Comfrey, nature's healing herb and health food', who researched comfrey over many years, consumed comfrey daily for over 30 years, and lived to an old age. More detailed information on comfrey is given at www.herbsarespecial.com.au

Comfrey is eaten: fresh, chopped finely into salads, stir-fries, cooked dishes, and made into green drinks. *Leaves dried, crushed and stored are a high protein food source to add to your storage of survival foods.*

Comfrey fritters make an economical, nutritious, and quick meal. Make a batter with egg, milk and flour, and add finely-chopped, fresh comfrey leaves. (It is best to omit the thick stems, as these take longer to cook than the leaves.) Use dried comfrey leaves (crushed in the hands to a powder) when plants are dormant during winter. Season with a little salt, pepper, onions or garlic, chopped or diced fresh herbs. Fry tablespoonful amounts in an oiled frying pan and when golden brown on the bottom, turn over so that both sides brown. Serve fritters hot, and any leftovers eat cold, or pack for lunches. Whole leaves of comfrey can be dipped into the fritter batter and fried. Best to use leaves of a size that will fit into the frying pan. When dipping the leaves, if the batter seems to coat the leaves too thickly, dip the leaves into cold water before dipping in batter.

And, if you can't eat all the comfrey in your garden, feed it to the laying hens, animals and earthworms, or use it for mulch and add to the compost heap.

Liquid fertiliser: to make liquid fertiliser for the garden, put the leaves in a bucket, then fill with water, cover the bucket with a lid, and after a few days, when it starts to ferment, use the liquid around plants.

In the last 30 years, people have shared with me information and wonderful experiences with using comfrey. These accounts encompass a range of health benefits - from dealing with gout, diabetes, bowel conditions, lung complaints, cancer, and arthritis to tropical ulcers ... the reports keep coming in. Just yesterday, a man telephoned from north Queensland to say he'd recently had a motorbike accident, broke his collarbone and had extensive wounds. Comfrey, used externally as a strong leaf decoction, gave quick healing with no scarring. Numerous people have

shared with me how comfrey leaf tea has given relief from irritable bowel syndrome, diverticulitis, peptic and duodenal ulcers. Researchers have found that the bacteria *Helicobacter pylori*, which can grow in the stomach, may lead to gastric ulcers and stomach cancer. The damage done by constant irritation by these bacteria can be relieved and (for some people) healed by comfrey, allowing the immune system to do the rest. It has been estimated that over 60% of stomach cancers are caused by *Helicobacter pylori*. Comfrey has also been found to be an effective treatment for *Giardia lamblia*, a microscopic parasite that causes diarrhoea, stomach pain, nausea and loss of appetite.

Use comfrey tea as a hair rinse, for hair health and shine. Recently, Jan rang the Herb Farm to share with me how they had used comfrey with their dog that had a severe allergy to fleabites. A comfrey leaf tea was applied with a wide paint brush to wet the dog's coat. The condition completely cleared up after a few applications. Jan told friends of the success she had with comfrey on the dog. Now the friends had a dog with mange, used the comfrey tea application and completely cleared mange on their dog.

Licorice *Glycyrrhiza glabra*, p 104, is a hardy deciduous perennial to 1m, an easy-care plant that adapts to a wide range of soils and climates. It is the root that provides sweetening, flavouring, and over 600 constituents, powerful antiviral and antioxidant action, and nutritive health and healing benefits. *Since earliest recorded history, licorice has been used for many ailments and for vitality and longevity. It was often called an elixir of life.* In China, licorice has remained one of the most frequently used herbs, over thousands of years. It has been valued as a harmonising herb, that extends out through the 12 meridians, to organs, and reaches every muscle, nerve and cell of the body, and has the effect of balancing herbal formulas that are taken, and lengthening the period of time that a tonic formula will effect the body. For this reason licorice is often taken in a combination with other herbs.

Licorice water has been a popular sweet drink since the time of the Pharaohs. It contains a unique substance called glycyrrhizin, by analysis found to be 50 times sweeter than refined sugar and safe for a diabetic to use. Due to its sweetening and flavouring properties, it has been utilised to make bitter medicines more palatable.

It is valued for building stamina and energy, and for having a beneficial effect on the digestive, respiratory, reproductive, and excretory systems. Licorice has an action that helps to calm the mind and soothe the nervous system; it acts to facilitate hydration with increases in cranial and cerebrospinal fluids. Other uses include: coughs, colds, constipation, fatigue, candida, diabetes, duodenal and peptic ulcers, depression, stress, arthritis, herpes, tuberculosis, heart burn, poor circulation; thyroid conditions, prostate enlargement, pre-menstrual symptoms, menopausal discomforts, Addison's Disease, skin rashes, libido insufficiency, insomnia, and for soothing benefits to the stomach and digestive tract.

Licorice has been shown to have activities similar to those of cortisone and, to a lesser extent, oestrogen. It induces the adrenal cortex to produce larger amounts of cortisone and aldosterone. *As licorice supports and strengthens the adrenal glands, using licorice helps to sustain regulation of blood sugar-levels and so, reduce cravings for sweets.* Using licorice root tea over a period of time has given complete recovery for a number of shingles sufferers. It has also been demonstrated to have powerful anti-HIV action in vivo.

Researchers have found that licorice can kill the bacteria in the mouth that causes tooth decay. It makes good sense to grow licorice and chew the root, regularly, as this action may reduce dental bills. Some people chew on licorice sticks in place of lollies and chocolate, or when feeling like a snack.

Chew on a licorice stick or make a licorice tea, when studying for exams. When students are cramming knowledge and studying long hours, the adrenals may be overworked. Students frequently suffer nervous stress, so ... let licorice come to their rescue.

Any person who would like to give up smoking could have a licorice stick handy to suck on to appease the nicotine craving and to calm the nerves; this method has helped many people to quit.

When licorice roots are dug, washed, dried out, and then stored well, the roots will keep their sweet flavour and beneficial properties, indefinitely. *Licorice can be called a survival food, not only because it stores well, but for its use as a sugar replacement, a refreshing beverage with potential to quench thirst and allay hunger and also its support for endurance.* Try a licorice root tea, today. Only a few fine slivers of licorice root are needed to flavour a cup of tea. Drink it hot in winter, adding a little ginger root to warm the extremities of the body. In summer, cool the tea and serve it over ice: it will give you get-up-and-go when suffering from heat fatigue. Use the chilled tea as a base for fruit cups, or make the tea into iceblocks for the children.

The leaves of the licorice plant, fresh or dried, are used as a substitute for China tea. Licorice should be avoided in cases of high blood pressure, cardiac or kidney insufficiency, myasthenia gravis disease, fluid retention, and during pregnancy.

King of bitters *Andrographis paniculate*, p 104, an annual or biennial bush 50cm-1m high, lanceolate leaves 4-12cm long, small white flowers with fine purple flecks on the inside of the petals. A herb with many actions: antibacterial, antibiotic, analgesic, anti-inflammatory, antioxidant, anti-carcinogenic, anti-thrombotic, anti-viral, anti-microbial, digestive, blood purifier, prophylactic, vermifugal and adaptogen (helps to normalise a physical function, depending on what the individual needs, eg it will lower high blood pressure, or raise low blood pressure).

It is a very bitter herb – no wonder it has been called 'King of bitters'. The bitterness has not deterred people who seek out the herb for protection from Avian Flu. I find that chewing 3-4 leaves and then following it with something sweet, like fruit, 'helps the medicine go down' and the bitterness is only on the taste buds for

30 seconds. Some people make the leaves as a tea. The tea can be sweetened with licorice root.

King of bitters has been used in Ayurvedic medicine for centuries, revered for infectious diseases and for its preventative action. The Spanish flu of 1919 was a global epidemic that killed millions of people, worldwide, causing grief and hardship to many families. In India, where the benefits of this herb were well known, andrographis was credited with stopping the deadly virus.

Today, many people find it is valuable as an infusion of 2-4 leaves in boiling water (or the fresh leaves are chewed) to prevent the common cold, flu, viruses and bacteria. *The herb in studies, has shown solid evidence of success in treating colds during the first stages of a cold, and can reduce the severity and duration of symptoms.*

This herb assists the body to make antibodies to counteract invading microbes and to act as a scavenger to destroy invaders and cancer cells. Research scientists have found that the andrographolides in the plant can cross the blood-brain barrier, and it is also of benefit to the central nervous system. Some of the therapeutic uses of king of bitters include: fevers, fibromyalgia, edema, headaches, inflammation and muscular pain, fatigue, hepatitis; respiratory, skin and lymphatic conditions; multiple sclerosis, lupus, candida, diabetes, diarrhoea, thrombosis, and malaria. *With scientists saying the 'super-bugs' of our present age are becoming resistant to the most powerful antibiotics,* the therapeutic powers of king of bitters could help to give us protection.

Garlic *Allium sativum*, has had numerous common names: Heal all, Stinking rose, Russian penicillin, Gift of the gods ... and they all describe the characteristics of this plant, which has been revered for hundreds of years. A seasonal herb with bulbous base, linear shaped grey-green leaves, 40cm long by 1-2cm wide, flowers of pink-white-mauve, form as round umbels, 5-8cm diameter.

Giant garlic *A. ampeloprasum* or *A. giganteum*, p 103 also referred to as Russian or Elephant garlic, is a species that adapts to a wide range of climates from cold conditions to tropical. Division of the bulb at the end of the growing season will yield a handful of large cloves to use raw or cooked. Use the leaves chopped, in any meal that a garlic flavour is desired.

In many cultures of the world, garlic has stood supreme as a cure-all home remedy and it acts as a natural antibiotic. As an antifungal agent, garlic fights yeast infections such as thrush. As an expectorant, garlic helps clear the respiratory passages, and, therefore, it is helpful in treating colds, coughs, bronchitis and catarrh.

Medical trials have shown that eating one clove of garlic a day will significantly reduce levels of cholesterol. High cholesterol clogs up the coronary arteries, restricting the flow of blood to the heart. High LDL (low-density lipoprotein) cholesterol levels can be a major cause of heart attacks. Research has shown that garlic-eaters are 30% less likely to have coronary artery disease, than someone with the same diet and

lifestyle, who does not eat garlic. Garlic is good for the whole circulatory system, as it keeps blood flowing freely by discouraging blood platelets from clumping together, and reduces blood pressure by dilating the blood vessels. In this way, it can help protect against heart attacks and other circulatory related conditions such as strokes and severe cramps.

As an antibiotic, garlic has been found to kill a number of common bacteria that are the cause of sore throats, coughs, and stomach upsets, including salmonella. Eating garlic, regularly, stimulates the immune system to fight against these bacteria. Garlic stimulates the lymphatic system to throw off wastes, acids, mucus and poisons. As an anti-inflammatory, garlic can relieve arthritis, rheumatism, gout and lumbago. *Also researched is garlic's chelating action in the bloodstream to neutralise or clear heavy metal toxicity. In our toxic world of man-made chemicals, garlic comes to the rescue.* Other garlic uses include: anaemia, fevers, ulcers, colitis, athlete's foot (tinea), allergies, intestinal parasites, diabetes, blood poisoning, gall, liver and kidney diseases; typhoid dysentery, candida, cancer, varicose veins, earache, and sinus congestion. Many people use garlic as a treatment for parasitic worms.

Garlic parasite treatment: One method (used for adults) is to chop 1-2 cloves of garlic finely, place it on a tablespoon and fill the spoon the rest of the way with olive or sesame oil and swallow. This should be done first thing in the morning and, usually, no food or drink is taken until after the bowels have moved, the same morning, in normal, daily, elimination. Repeat the procedure for 2-3 days.

For anyone, who is not so keen on garlic, here is a folk remedy for **intestinal worms**: eat a handful of pepita pumpkin seeds 3 times a day, while fasting for 3 days. **Tincture blend for worms and intestinal parasites:** 1 part clove, 2 parts wormwood (see p 118) and 6 parts black walnut in blended tincture form. **Dose:** 10 drops three times daily, before meals, the first week; and double the dose to 20 drops the second week. **Ongoing maintenance dose:** 30 drops daily, three times per week. Drinking 8 glasses of water a day, during this regime, is also important.

Seventy-five compounds containing sulphur have been identified in garlic, and all are valuable assets to health. *As sulphur is one of the base minerals used in the body to carry oxygen (the breath of life to every cell) for nutrients and energy, we can boost these benefits by eating garlic.* Note: cancer cells cannot live in an oxygen-rich environment. Other easy to grow, sulphur-rich plants of the garlic allium family include onions, chives, leeks, shallots, and society garlic. Even if your yard or balcony is very limited in space, everyone can grow a pot of chives to get the health benefits of the alliums.

Allicin is what gives garlic (and chives) a strong smell. It is released by enzyme action when garlic is cut, crushed and chewed. This enzyme process is required for the antimicrobial activity and many other actions to make garlic eating so beneficial to health.

As a general health tonic, eating 1-2 cloves a day is recommended. Add garlic to salads, sauces, pastas, soups, dips, stir-fries and other savoury dishes. Garlic will keep well if infused in oil or apple cider vinegar. Try this simple method in three easy steps.

To preserve garlic: Peel the cloves (if cloves are soaked in water ½ an hour they are easier to peel). Pack the peeled cloves into an airtight jar. Cover with olive oil or apple cider vinegar. As a bonus, use the garlic-flavoured oil or vinegar in dressings and other dishes.

To get the many benefits of garlic, it should not be cooked for long periods of time. Some people just chew the freshly peeled garlic, however, it can cause a slight burning sensation on the tongue, throat and stomach, but this soon passes.

After eating garlic, the smell on the breath can be masked a little by taking a drink of lemon juice and water, sweetened with honey, or by chewing on a sprig of mint, fennel, parsley, basil or thyme, in fact, any chlorophyll-rich herb. Does your body need the help of garlic? Folklore says that the greater the need for garlic, the greater the odour the body gives off, after consumption. So, that gives you something to think about! And, if you are not very fond of eating it all the time, try rubbing a cut garlic clove on the soles of your feet or putting crushed garlic in your socks ... the body will benefit. Sometimes, it will also be detected on the breath! The way garlic is utilised by our bodies is truly amazing. **Note:** as crushed garlic may burn those with sensitive skins if put on full strength, mix this with olive oil. When using for small children, strain out the crushed garlic before application of the oil to the soles of the feet.

Use garlic in the garden as a companion plant between cabbages, cauliflowers, lettuce, roses, stone fruit and raspberries. Best not to plant garlic near beans and peas, as it is said that these legumes can be hindered in their growth and may not thrive. As a spray, garlic is used to kill a wide range of insect pests; particularly, sucking insects, caterpillars, and mosquito larvae. Trials by members of the Henry Doubleday Research Association, in England, found garlic spray produced the following percentage of kill: aphids 99%, white butterfly caterpillar 98%, codling moth 98%, wireworms 87%, and snails 73%. Protect your garden by making a spray.

Garlic spray: Crush 75g (approximately 15 cloves) of garlic or blend in a kitchen whiz; add 4 teasp. vegetable oil. Leave to soak 48 hours. Add 3 cups water, 2 tablesp. of an oil-based natural soap. Filter, and store in a plastic container. This mixture is used at varying dilutions. Some pests can be killed at a dilution of 1 part garlic to 100 parts water. With persistent pests, it may be needed at a lesser dilution and spraying done more frequently. The Henry Doubleday Research Association suggests to trial different dilutions and to keep records.

Bug Spray: A mixture to deter aphids, mealy bugs and ants on plants: crush 10 cloves of garlic finely with 1½ cups vegetable oil. Infuse 3-4 days, shaking daily. Strain. This can be sprayed, very sparingly, from a small

spray bottle onto aphids, mealy bugs and around the base of plants to repel ants. In medieval times, garlic was thought to ward off evil spirits and blood-sucking vampires; maybe for a folklore use in our century we could include ... burglars and attacks by terrorists!

Brahmi *Bacopa monnieri*, p 104, a shade loving perennial ground cover with fleshy, oval-shaped leaves 1-2cm long; small 5-petalled white flowers develop at leaf terminals. 'Brahmi for the brain' is a catchy way of remembering this valuable herb. It has been an esteemed traditional Ayurvedic herb for over 3,000 years, valued as a brain, heart, and nerve tonic, and in the treatment of cognitive disorders associated with ageing. *Today, the herb is used and revered by many people for reducing stress and anxiety, enhancing mental alertness, long and short term memory, concentration and learning; and for giving confidence and improving intelligence and IQ.*

In 1963, researchers identified Bacoside A and B in brahmi. *Bacoside A assists in the release of nitric oxide, a substance that aids the relaxation of the aorta and veins, and for blood to flow more freely through the body.* Bacoside B is a protein, valued for nourishing and rejuvenating nerve and brain cells. In May, 1996, The Royal Society of British Science published a paper on nitric oxide calling it 'the marvel of the decade', for its potential role in learning and memory recall, as well as benefiting the liver, lungs, and kidneys. The Nobel Prize in 1998 was awarded to three researchers for their discovery of nitric oxide in its natural form and its role as a messenger molecule in the brain. Also, research has been done with brahmi for stroke victims and Alzheimer's sufferers. Dr. S Ajit, an Indian holistic physician, when speaking at a Brain Tonic Seminar in Brisbane, stressed that *rejuvenation must start with the consumption of herbs well before old age or the onset of degenerative diseases like Alzheimer's.*

Brahmi is naturally fortified with beta-sitosterol, a powerful fatty acid, which has been found to counter the action of many degenerative diseases. *Brahmi has strong antioxidants that help negate toxins, strengthen the immune system, and build energy and vitality.* It has mild tranquillising effects but, unlike conventional sedatives, which can dull the mind, brahmi actually improves mental clarity. It may also be used as an anti-anxiety agent, to calm restlessness in children; to support academic performance; and to treat nervous system disorders, such as neuralgia, epilepsy, and mental illness. Brahmi has been used to treat conditions such as: coughs and respiratory ailments, fluid retention, arthritis, rheumatism, gout and other inflammatory conditions, ulcers, fevers, ADD, impotence, irritable bowel syndrome, fatigue, boils, epilepsy, depression (including post-natal depression), constipation, insomnia and an overactive mind, stress, and to improve circulation.

Brahmi has a bitter flavour. Bitter foods are important to the function of the endocrine system, for many other metabolic functions, for stabilising blood pressure and insulin secretions, and also for the manufacture of T cells that have the role of destroying cancer cells. Bitter flavours stimulate secretions by

the salivary glands and digestive organs, improving the overall function of the digestive system. Improved digestion and absorption of nutrients nourishes and strengthens the body. Perhaps we all need to consider eating more bitter foods in our daily lives. Tuck a few sprigs of brahmi in the corner of a sandwich, chop some over breakfast cereal, or make the leaves as a tea or a tincture.

Nasturtium *Tropaeolum majus* (cover picture 9), an annual in frost prone areas, and may grow as a perennial in sub-tropical climates. A vigorous ground sprawler, to 50cm high; the trailing stems will climb, if given support, or cascade over rockeries. Round leaves, 5-20cm wide, with deep veins radiating from the centre; trumpet shaped flowers are in colours of bright yellow, orange and red, or they can be two-toned, always creating such a vivid display in the garden. Plants self-seed readily, so it is likely that once you have them, you will always have them – they are a blessing in every garden.

Nasturtiums are good companion plants. They excrete a strong pungent essence into the air and soil, which has been found to deter aphids, white fly and root pests; and the essence secreted into the soil is also absorbed by other plants, helping them to resist attack by pests and disease. Plant between cabbages, broccoli, melons, cucumbers, pumpkins, potatoes, and around fruit trees. For an **Aphid spray**: infuse nasturtium leaves in boiling water, cool, then strain, add a little liquid soap and use as a spray for aphids on vegetables and other plants.

Now, when the plants have thickened up and started to spread, start picking the leaves and flowers to eat. Use the flowers as a garnish on a meal and the leaves and flowers in salads and sandwiches, pesto, coleslaw, soups, rice or bean dishes, and omelettes. Spread a slice of bread with butter and Vegemite (or Promite) and top with colourful nasturtium flowers and leaves for a snack. In winter, I often have a handful of finely chopped leaves and flowers on my hot porridge.

Leaves have a pungent peppery taste, while the flowers are milder in flavour. If leaves and flowers are chopped up finely and added to other greens and vegetables, they are not as noticeably hot in flavour. I encourage every home grower to plant this valuable herb, learn to enjoy it and use it daily for its high content of vitamin C, iron and other minerals, and the powerful antibiotic, antimicrobial, antioxidant and general tonic actions. The hot pungent seeds can be eaten, too.

Nasturtium seasoning: some people pick the seeds, or the flower buds, and pickle them in vinegar to use as a condiment on meals, similar to capers. If the seeds are pricked with a fork before adding the vinegar, this allows the flavour of the hot vinegar to permeate the density of the seeds and helps to preserve them. Mature seeds, when dried, can be ground and used as a substitute pepper for seasoning. Add flowers and leaves to dips, pesto, spreads and cream cheese for added flavour and visual appeal.

Scientific research has found the plant has a natural antibiotic action that is fast-working in the body. *It is interesting to note that the antibiotic agent,*

tromalyt, has been found in the urine within one hour of digesting the herb. Noteworthy, is that this antibiotic does not interfere with intestinal flora, and it has been found to be effective against some microorganisms that have built up resistance to common antibiotic drugs. I encourage every person to get the wonderful antibiotic benefit of nasturtiums by eating some leaves and flowers, daily. As my herbal teacher would say, "Do it daily for protection from colds, viruses, measles, tummy upsets, and other nasties lurking around the neighbourhood."

Juice from the freshly crushed leaves and stems can be rubbed on an itchy skin, cuts or bites. Nasturtiums have had a reputation as an aphrodisiac, and for retarding balding (for this a tincture made of nasturtium and nettle, is massaged into the scalp, daily). Use nasturtiums as a blood cleanser and tonic for prevention and relief of coughs and flu; to stimulate the liver, kidneys, bladder, gall, pancreas and the secretion of digestive enzymes; also, for intestinal worms, stomach-ache, indigestion, nervous exhaustion and lack of energy, genito-urinary infections, and constipation. The pungent flavour of the plant is warming and stimulating. It invigorates the digestion, improves appetite and absorption of food nutrients. It acts as a tonic for weak digestion and food stagnation, which can lead to toxicity and poor absorption. The combination of its nourishing, detoxifying and immune-enhancing properties makes nasturtiums a good tonic for those feeling depleted and run down. Being high in iron, it is helpful when feeling tired as a result of anaemia.

Nasturtiums growing in my garden with their bright flowers make me feel happy, and I eat them daily for their health-giving benefits.

Sage *Salvia officinalis*, perennial bush 60-100cm, grey-green oblong wrinkled leaves 6cm long, with a very marked network of veins. Leaves and stems are covered with fine soft hairs. Small lavender/blue two-lipped flowers form on terminal spikes. *The generic name Salvia comes from Latin 'salvere' which means to save, cure and to be in good health.* There are over 750 species in the *Salvia* genus. Of these, about a dozen are especially revered for culinary or medicinal uses. The legends and folklore uses of sage are many, with some now verified in scientific research.

While researching sage for my herb book, I came to realise that: however long our life may be, the healthier it shall be, if sage is used regularly. An ancient proverb, from which we can all learn, says '*How can a man grow old who has sage in his garden*'. Women in senior years, benefit with drinking sage tea, to increase oestrogen levels. Use sage for its antioxidant, anti-bacterial, anti-inflammatory and tonic properties; for benefits to the glandular, respiratory and circulatory systems; to strengthen kidneys and liver; to relieve cramps; and for trembling limbs, Parkinson's Disease, Alzheimer's Disease, stomach ulcers, fevers, painful menstruation, menopausal discomforts, anxiety, ADD, nausea, vertigo, cancer, bad breath, constipation, mouth ulcers and bleeding gums, diabetes, intestinal parasites, and as a blood purifier and blood builder.

Many people interested in natural health drink sage tea, daily, to strengthen the nerves and heart, prevent strokes, sharpen the wit, revitalise the mind and improve concentration.

Sage stimulates the flow of digestive juices. Use sage in the daily diet to flavour meat and savoury dishes, steamed root vegetables, tomatoes, soups, bean dishes, spreads, and dips.

Other useful salvias include:

Pineapple sage *Salvia elegans*, a hardy perennial bush to 100cm; bright red flowers contain a sweet nectar. Use the leaves as a hot tea, or chill the tea and use as a base for making a fruit cup.

Clary sage *S. sclarea*, biennial habit, forming as large grey leaves to 24cm long. An infusion of the leaves is used as a wash to relieve tired and inflamed eyes, a gargle for sore throats, and drunk for nausea and vomiting. Try dipping the leaves in flour and then in a batter made with beaten egg, milk and flour and frying until golden on both sides.

Chia *S. rhyacophila*, p 104, also a member of the sage family, this plant requires special mention. Chia, is often a common name applied to several species of *Salvia* that are native to North and Central America. *Recent research has found the seed of chia to be one of the richest known sources of Essential Fatty Acids (EFA) as linolenic acid (LNA) up to 60%, and linoleic acid (LA) 30%.* For this reason, we need to get to know this unique herb, grow it, and use it. These fatty acids are called 'essential' as the body needs them to function efficiently, but as we cannot manufacture them, we must source them from food. EFAs are necessary for vitality, immunity, pain relief and healing. EFAs help to maximise the ideal pressure of oxygen in the body and can, quite uniquely, 'magnetise' oxygen into the cell (as sufficient oxygen to the cells is essential to prevent cancerous cells from developing).

Chia is renowned for its benefit in promoting endurance. *It acts as a catalyst in the assimilation of protein and the production of high performance energy.* Seed of chia is a highly prized energy food of the American Indians. One tablespoon of seed and plenty of water supplied energy and sustenance for an Indian travelling for 24 hours. Indian folklore recounts a story that a person existed on it for many days, when this was necessary. Several USA universities have researched the endurance properties of chia and found that a tablespoon of seed could, indeed, sustain a person for 24 hours with hard labour. A man who recently called at the Herb Farm found that eating chia seed gave him an amazing boost of energy and stamina. He needed to get more seeds to keep him going for the long hours of work he was doing at the time. Give chia a go, and discover its ability to provide the 'go power' to get through a busy day with a hop, skip and a jump!

The calcium content of chia seed is five times that of milk: *Strontium, besides being a catalyst in protein assimilation and energy release, this mineral has a strengthening effect on cartilage, teeth and bones.* Use chia for regulating blood sugar levels and high cholesterol, relieving colitis, celiac disease, acid reflux,

irritable bowel syndrome and constipation. Seed of chia and the seed husks, provide a fibre source and bulking agent for cleansing and soothing the colon, and when soaked in water and drunk help to lubricate the colon and strengthen peristaltic action.

Chia leaf tea, made with a few freshly chopped fresh or dried leaves, is helpful for anyone feeling lethargic or lacking energy. *Chia seeds are 30% protein, with all 8 essential amino acids in excellent proportion, and the taste is nutty and yummy.* Seeds are gluten free and cholesterol free. Use in drinks, sprinkled over meals, and added to breakfast cereals and baked goods. When the seed is added to a fruit juice or other liquid it swells up. When this is drunk it gives a feeling of fullness and satisfaction and an excellent source of nutrients, for a number of hours, and has been helpful for people wishing to lose weight.

As chia seeds do store well, value chia for its survival food potential.

There are a number of other herbs that I also rate very highly. These are covered in the Weeds chapter page 56 eg nettle, p 73, sheep sorrel, p 64, and purslane, p 53. Besides these, there are many other herbs that I encourage readers to gradually add to the garden, for flavouring and medicinal uses. Here, I will list some of these with brief information on some of the most useful and easily grown herbs. For further details, refer to my herb book. Many other salad and culinary herbs are briefly described in the Salad chapter, p 86.

Growing and using a variety of herbs on a regular basis gives us a diversity of powerful antioxidants that have the role of fighting and killing free radicals. Harmful free radicals are created in the body by some foods we eat, cooking oils, preservatives, artificial colours, flavours and additives; also, by environmental toxins and even metabolic body functions. Progress in antioxidant technology has lead researchers to the belief that many signs of disease and ageing result from the damage caused by free radicals in the body. Therefore, it is wise to grow and use a variety of herbs to get the benefits of the wide range of antioxidants these will give - call them 'free radical slayers' or 'disease busters'. Also, when we use herbs in their fresh state they are a good source of nutrient antioxidants: vitamins A, C, E, and the minerals selenium, zinc, manganese, copper and vanadium. Some herbs also have the antioxidant, germanium, which is a valuable element, as it has the ability to make more oxygen available to the cells (see page 101).

The following herbs also have potential in self-sufficiency gardens for their valuable nutrients and useful therapeutic actions in 'survival' planning:

Yarrow *Achillea millefolium*, p 81, perennial ground-spreading plant, fragrant ferny leaves to 20cm long, miniature daisy flowers, 5mm diameter, forming as closely clustered umbels. Yarrow has been esteemed throughout the ages. It acts as a powerful healing herb for fevers, incontinence, bed wetting and urinary tract infection, skin conditions, pain, headache, depression, hysteria, toothache, colds and infectious diseases; it assists haemostasis both internally and externally, easing menstrual and menopausal discomforts; and it

also speeds the healing of burns and wounds. Yarrow tea is used to tone blood vessels, especially the veins, to relieve varicose veins and haemorrhoids. It can also be applied externally, as a wash or poultice.

Circulation is stimulated by taking yarrow, as it assists blood to flow freely to the skin, with toxins released through the pores. Yarrow has a positive effect on the entire nervous system, benefiting the brain, the spinal cord, and branching out to extend to every part of the peripheral nervous system. In general, it may be said that yarrow enhances clarity, and restores vigour and drive. Use yarrow for stomach upsets and gastric complaints, as the herb stimulates the gall bladder to release bile, which improves the digestive function and helps expel gas. Chew a yarrow leaf to relieve toothache. *Use yarrow to help the blood to clot quickly by crushing some leaves and applying them to any bleeding.* For earache, place a wad of freshly crushed yarrow leaf in the ear. Yarrow is a valuable blood cleanser and tonic, and a stimulant of the lymphatic and immune systems. Besides making yarrow as a tea, use the mildly peppery, chopped leaves, sparingly, in salads and as a garnish on soups, etc.

In the garden, all plants like the company of yarrow. Yarrow has insect repelling properties and can be included with other herbs used to spray onto plants. Oil of yarrow has been sprayed to kill mosquito larvae. Applying yarrow to the skin, as a strong leaf infusion or when made into an ointment, has been found to repel mosquitoes. Yarrow also benefits the garden by attracting beneficial insects, including ladybirds and predatory wasps. If your garden grows plenty of yarrow, throw a couple of leaves onto each layer of the compost heap to activate decomposition.

Chillies *Capsicum species*, p 81, 30-100cm bush, fruits can be yellow, purple, red or black (depending on species) with fiery-pungent flavour. When we eat chillies the capsaicin content sends a message to the brain to secrete endorphins, a natural morphine. This acts to block pain sensations, bring a feeling of wellbeing, and induce a kind of euphoria. *Endorphins are sometimes called 'happy hormones' ... they aid healing, give a feeling of wellbeing* and can help build a strong immune system. Chilli (also referred to as cayenne) is a dynamic herb. When taken internally, chilli helps to purify the blood and stimulate the circulatory system, moving the blood more vigorously through the arteries and veins to every organ and cell, energising the entire body. *Many people use cayenne regularly as a preventative against heart attack, as it helps regulate blood flow, dissolve blood clots and strengthens arteries, capillaries, nerves and the heart.* Recent research has indicated that chilli reduces the tendency towards blood clots and can lower harmful cholesterol. Chillies also benefit the respiratory and digestive systems, provide a strengthening tonic, and encourage circulation to the extremities, including the brain. (Possibly, for this reason, people took chillies to ward off senility.) It also has a history of use for tiredness, lethargy, nervous debility, depression, and sluggish digestion.

For diarrhoea: put 1 chopped chilli (or dried chilli as a pinch of cayenne pepper) in a saucepan with 2 cups

of water and simmer 5-10 minutes. Take 1-2 tablesp. every hour. (**Note:** this treatment is not recommended for children.)

Externally, cayenne is a powerful local stimulant and counter-irritant. It is used in ointments, liniments and poultices to treat muscular pain, neuralgia, bruises and lumbago, arthritis, and to paint on unbroken chilblains. It helps to relieve inflammation and, by numbing the skin, relieves pain. Fresh chillies or the dried powder (cayenne powder) can be used as a poultice on the soles of the feet to warm cold feet and to restore circulation for diabetics. Chillies infused in olive oil or apple cider vinegar for 2 weeks, then strained, can be applied to varicose veins to stimulate the circulation and improve blood flow.

Fresh chillies are added to meat and savoury meals, or made as a tea infusion by pouring 1 cup of boiling water over 1-2 fresh, small chillies or ¼ to ½ teasp. cayenne powder.

Ginger *Zingiber officinale*, p 30, a hot, pungent, root spice (grows to 1m high) for warm temperate to tropical climates. *Ginger increases blood circulation, which improves oxygen transport giving the body more energy.* As ginger stimulates the excretion of bile, this action can reduce fat absorption and lower cholesterol levels. Ginger has been taken for many conditions, including: travel sickness, morning sickness, sinus congestion and respiratory ailments, insomnia, menstrual discomfort, backache, migraines, rheumatism, tonsillitis, brain fog, jaundice, fevers, piles, pimples, paralysis, impotence, diarrhoea, diabetes, indigestion, strokes, kidney stones, upset tummies, cold hands and feet, chilblains, high cholesterol, varicose ulcers, heavy bruising and pain, peptic ulcers, liver, kidney, gall, and prostate ailments.

Research by scientists at the Odense University in Denmark has found that 1 teaspoon of ginger a day can take the pain and the swelling of arthritis away. Chew a piece of ginger to relieve toothache, bleeding gums, and to act as a strengthening agent for loose teeth; and also for failing eyesight. When feeling that a cold or a sore throat is coming on, chew on a small piece of fresh ginger. Eating ginger regularly is said to protect against environmental pollutants.

To make a tea: use a few slivers of fresh ginger or 1 teasp. dried ginger to 1 cup of boiling water. Use ginger in stir-fries, curries, rice dishes, and add a little grated ginger to salad vegetables. A small amount of ginger in your food helps to stimulate digestive juices, thus helping to relieve indigestion and flatulence.

Turmeric *Curcuma longa*, p 81, pungent, orange-coloured root spice to 1m high; for warm temperate to tropical climates; that has been used as a medicine, spice and colouring agent for thousands of years. Turmeric provides various benefits: digestive, anti-inflammatory, antibacterial, analgesic, astringent, blood detoxifier, tonic, and stimulant to the adrenal glands. *Strong antioxidants in turmeric have been found to act to prevent free radical formation and also to neutralise free radicals that have already formed.* Therefore, it is a valuable herb in the prevention and also the treatment of many conditions.

Recent scientific findings, published in the Journal of Agriculture and Food Chemistry in 2006, indicate that turmeric can act as a preventative, protecting against Alzheimer's disease, by 'activating' a gene that codes for the production of the antioxidant, bilirubin. The researchers found, this shields the brain against injury from free radicals that are thought to be responsible for neuro-degenerative diseases, including Alzheimer's and dementia. Turmeric helps to fight the free radicals responsible for colon cancer, painful joint inflammation of arthritis, also rheumatism, fibromyalgia and gives relieve from cystic fibrosis. Turmeric increases energy flow and has a cleansing effect on the gall bladder and liver. Researchers have indicated that by improving liver function, turmeric also helps destroy mutated cancer cells, so that they cannot spread through the body. Some people take turmeric regularly in their diet to prevent intestinal parasites.

People with digestive weaknesses and flatulence could consider using turmeric, freely; especially, as a flavouring with foods that tend to be difficult to digest. Turmeric is found to protect the stomach lining due to its powerful antioxidant effects. When turmeric is consumed as part of a meal, it is said to have the effect of binding the cholesterol substances in the food. This action is said to render them incapable of absorption and stops them from clinging to the insides of arteries, thus lowering cholesterol, platelet aggregation, and internal blood clots.

To make a tea: add ½ to 1 teasp. turmeric powder to 1 cup of water and drink 1-4 times a day; or use an 8cm piece of grated fresh root. It is said that if a little ginger or black pepper is added, the body is able to utilise the therapeutic properties of turmeric 20 times more efficiently. Turmeric made into smoothies with a little ginger and fresh pineapple (also a digestive aid, pain reliever and immune booster) is a pleasant way to get the many benefits.

Several years ago I attended a seminar by Dr. S. Ajit an Indian holistic physician and he highlighted many Ayurvedic traditional herb uses, and emphasised that several herbs were extremely beneficial for enhancing the intellect and removing toxins from the body. He encouraged the use of the following mixture be taken in the evening, of ¼ teasp. grated turmeric and ginger, 1 teasp. honey and a pinch of cinnamon in a glass of warm milk. Other herbs he encouraged the use of to improve the intellect, concentration and nervous system were gotu kola, brahmi, and 5-10 almonds soaked overnight and eaten.

Use fresh turmeric root (or the powdered root) in bean, rice, vegetable, cheese, chicken, and fish dishes. Turmeric has an earthy aroma, with a slightly bitter, pungent taste, but it is not as hot as ginger.

Allspice *Pimenta dioica*, p 82, attractive evergreen tree, which may be regularly pruned to keep to bush size; glossy leaves to 15cm long are rich in volatile oil with a strong aroma of cloves and a hint of cinnamon and nutmeg. *Allspice has been used as a food preservative due to its oil content and strong antioxidant action.* It is a valuable digestive, antiseptic, antibiotic and tonic. The eugenol content of the leaves

and seeds promotes digestive enzymes in the body. Eugenol can also relieve pain of toothache; just chew a fresh leaf and then place the chewed wad near the area of the tooth giving pain. Make 2-3 chopped leaves into a tea to relieve upset tummies and diarrhoea, to appease sore throats and to ward off coughs, colds and flu.

In the kitchen, leaves and berries are used to flavour meat and savoury dishes. Add the leaves to the hotplate when barbecuing foods for a wonderful aroma and flavour. *Allspice leaves are great to energise the body and give zest and pleasure.* I take great delight in sniffing the aroma of allspice. Maybe it will be this kind of 'herbal high' that could help carry us through hard times.

Mother of herbs *Coleus amboinicus*, p 103, is a very drought hardy, sprawling perennial to 50cm high. It has aromatic, thick, ovate leaves, 4-10cm long; and spikes of mauve-pink, two-lipped flowers. Also available is the variegated leaf form with attractive green-cream-white markings. The herb is rich in essential oil and has powerful antiseptic, digestive, antibacterial, diaphoretic, expectorant and tonic actions. Chew a leaf for a sore throat.

Make a tea using 1 large leaf, chopped finely, to 1 cup of boiling water for bronchitis, coughs, indigestion and stomach cramps, viral and pain conditions. *For sleeplessness, drink the tea ½ hour before bedtime: this simple remedy has helped many people who suffer from insomnia.* Studies have found that many people suffer from insomnia, and then these people may experience serious daytime impairment due to lack of sleep. During times of crisis, coping with major stresses and worries of the unknown can add to the burdens people may experience, which can also cause sleeplessness. Herbs can come to our rescue.

When outdoors, rub leaves over arms and legs to deter insects from biting. To relieve the pain of insect bites, cuts and burns, rub a leaf on the area. Use the leaves for flavouring in the kitchen; but, as the flavour is quite strong, use sparingly. The taste is a combination of flavours: oregano, marjoram, thyme, savory and sage. Use to season meats, tomatoes, cucumber, root vegetables, soups, stews, dips, curries, eggs, cheese, stir-fries and chicken stuffing.

Lemon balm *Melissa officinalis*, p 82, a clumping perennial to 60cm high, square stems, lime green ovate leaves 6cm long with fine hairs on leaves. The herb has a long history of use, often called, 'the elixir of life' because of its reputation for strengthening the immune system and promoting long life. Besides being rich in citral, the herb has strong antibacterial, carminative, sedative, antioxidant, antidepressant, tonic and antiviral action. Clinical studies have shown oral and topical lemon balm extracts to be effective against the viruses associated with herpes, influenza, measles and HIV.

Lemon balm tea is taken for anxiety, stress, depression, dementia, headaches, fevers, heart palpitations, vomiting, indigestion, pain conditions, incontinence, coughs, colds, irritable bowel syndrome, candida, menstrual pain, morning

sickness, sleeplessness and to soothe upset babies and children. Students, studying for exams, drink lemon balm tea to sharpen the memory and calm their butterflies before and during exams. *For any times of stress in life, whether regular work-related stress or unforeseen tragedy, lemon balm has the ability to soothe, lessen the pain and revive the spirits; it is an exceptional herb.*

Lemon balm iceblocks are a great way to cool the body and the nerves in summer, for you, and the children too: Put 2 handfuls of leaves in a jug, pour over 2 litres of boiling water. Let steep 30 minutes, strain and add 2 tablesp. honey. When cool pour into ice cube trays or popsicle moulds, freeze and enjoy, delicious and cooling, soothing, and helps to calm the kids!

For the benefits of citral, see Lemon myrtle, p 78. Many other herbs have a lemon aroma and flavour, indicating a citral content:

Lemon savory *Satureja biflora*, perennial to 30cm, with an exquisitely strong lemon aroma and flavour.

Kaffir lime *Citrus hystrix*, p 104, small citrus tree; very aromatic leaves, when finely sliced, are great for flavouring rice, curries, soups, stir-fries and other Asian dishes.

Lemon verbena *Aloysia triphylla*, p 104, perennial 1-2m high; steep leaves for a refreshing tea or use for flavouring savoury dishes, fruit salad, muffins, etc.

Lemon grass *Cymbopogon citratus*, clumping grass to 100cm high; use leaves as a refreshing tea, hot or cold. (This is good, too, as a base for fruit cups.) Use the thick leaf base to flavour curries, fish, rice, soups, and sweet and sour dishes.

Citronella grass *Cymbopogon nardus*, clumping grass 100cm high, use as a refreshing tea; and, medicinally, for coughs, colds, and intestinal worms. When working outside, crush the leaves and rub on arms and legs to deter insects from biting.

Herbs with lemon aroma and flavour generally have a high vitamin C content.

Basil *Ocimum species*—so many fabulous aromatic varieties to grow and enjoy for flavouring and many therapeutic benefits:

Sweet basil *O. basilicum*, **Greek basil** *O. ovabatum*, **Bush basil** *O. basilicum minimum*, **Spicy globe basil** *O. Basilicum var 'spicy globe'*, **Dark opal basil** *O. basilicum 'dark opal'*, **Lemon basil** *O. basilicum citriodorum*, **Thai basil** *O. basilicum*, and **Sacred or Tulsi basil** *O. sanctum* to name a few. Leaves have strong antibacterial, antiviral, analgesic, antispasmodic and antioxidant action. As an adaptogen, basil increases our natural resistance to stress and disease and strengthens the immune system. Recent research in Thailand has found that **East Indies clove basil** *O. gratissimum* has strong antibacterial activity against the dental caries pathogen *Streptococcus mutans*. These basil species can be used to make tea, or for flavouring food.

Oregano *Origanum vulgare*, and **Sweet marjoram** *Origanum marjorana*, p 82, are perennial plants 20-50cm high. Both are close cousins, as can be seen by the same genus name; therefore, these have a similar

aroma, and culinary and medicinal uses. These two herbs, used freely in the daily diet, have a traditional significance in maintaining a high resistance to many viruses and diseases. Use the leaves to flavour savoury and meat dishes, pizza, fritters, soup, beans and eggs. Add a sprig to the saucepan when steaming vegetables. Marjoram and oregano stimulate the flow of digestive juices and help to break down rich and heavy foods.

Horseradish *Armoracia rusticana*, p 81, perennial with 50cm long basal leaves; whole plant is pungent but the flavour is intensely concentrated in the root, which is valued for flavouring meat and vegetables and for its antibiotic and germ-killing properties. *Horseradish has a long history as an expectorant.* The potent ethers in fresh grated horseradish root, work to dissolve mucus in the sinuses and bronchial tubes quickly and effectively. If the grated fresh root is mixed with fresh lemon juice (which is said to double its efficacy) to a creamy-consistency paste, 1 teaspoon of the mixture is taken 3 times a day, as required.

Used as a stimulant, horseradish activates every system of the body: respiratory, coronary, nervous, digestive, urinary, etc. Grate the root and use sparingly until the body becomes accustomed to this strong flavouring herb. Add to dips, sauces, mayonnaise, mashed potatoes and other root vegetables. Mix horseradish with mung bean sprouts; the sweetness of the sprouts and the hotness of the horseradish are a tasty combination. Try young horseradish leaves, finely chopped, in a tossed salad, with avocado, or with hard-boiled egg sandwiches.

Coriander *Coriandrum sativum*, annual 50-100cm high, feathery foliage, umbels of white flowers. The leaves smell like stink-beetles. However, when used in salads and cooked dishes, the flavour can be quite addictive, that is ... to connoisseurs of coriander. The aroma of dried coriander seed is of an orange-peel like smell, with a sweet and spicy flavour, quite acceptable to most palates, and not repugnant, as the fresh leaves may be for some people. Add seeds to hot spicy dishes and curries to tone down the heat. Add ground seeds to meats (*it acts as a preservative and kills some bacteria*); also, to flavour casseroles, soups, sauces, marinades, vegetables and rice. Or try growing the **Sawtooth (Thai) coriander** *Eryngium foetidum*, a biennial 30-50cm high (a hardier herb for hot climates) with a similar smell and taste to the annual variety, above. Coriander has a tradition of use as a stomach tonic, heart strengthener, blood purifier, pain reliever, and for relief from respiratory conditions. Research scientists have found coriander has properties that can kill various bacteria. This valuable herb can also assist with clearing the body of lead, mercury and aluminium.

Rosemary *Rosmarinus officinalis*, p 73, hardy perennial bush 1m high; narrow needle-like leaves 2.5cm long, and small blue flowers. Throughout history, rosemary has been renowned for strengthening the memory and the plant has been an emblem of love, friendship and remembrance. Many stories and beliefs surround rosemary. During the Middle Ages, branches

of rosemary were burnt in homes to protect the occupants from the plague. *Recent scientific research found rosemary has over 20 antioxidants that can play a powerful role in neutralising free radicals and toxins, keeping arteries and the heart functioning well, relieving pain, and slowing the ageing process.* Use rosemary, regularly, for its rejuvenating and tonic benefits. Do you suffer with mental fatigue or forgetfulness? Drink 1-3 cups of tea a day; this tea is taken by many people, who say, it has profoundly improved memory. Even inhaling the aroma of rosemary is said to stimulate concentration, and the essential oil is used in a 'study blend' to aid students. Researchers have found that one of rosemary's active ingredients, carnosic acid, can have the effect of protecting the brain from stroke and degeneration, due to free radical damage that not only contribute to stroke and neurodegenerative conditions such as Alzheimer's, but also to the ill effects of normal ageing on the brain.

Rosemary's warming and invigorating qualities improve the circulation and vitality, and have a stimulating effect on the digestion and the absorption of nutrients, so that the maximum benefit is derived from the diet. By enhancing the liver function, rosemary helps to clear toxins from the body. These toxins may account for symptoms such as headaches, lethargy, irritability and general malaise. By cleansing the system of impurities and wastes, conditions of gout, arthritis, rheumatism and skin conditions are relieved. Drinking rosemary tea has helped women with menstrual irregularities and pain. *Rosemary tea is used as a wash for puffiness under the eyes and to reduce wrinkles.* Chew leaves to sweeten the breath and to combat infection of the teeth and gums. Rub rosemary on the temples to relieve tension and headaches, and crush a sprig between the fingers to dispel drowsiness and increase concentration to fulfil work commitments.

As rosemary is a digestive aid, use to flavour foods; particularly, rich and starchy foods. Rosemary combines well with garlic for flavouring. Use rosemary to season meats, tomatoes, cabbage, potatoes, beans, peas, soups, gravies, rice, salad dressings, pasta, breads and scones. Cut leaves finely, otherwise the pointed leaves may be difficult to swallow. It has a strong flavour, so use sparingly. Hang up bunches of cut rosemary where flies are teasing. To keep insects from biting animals try an infusion of rosemary, in oil or water, in a misting bottle and spray on their coats. Place dried rosemary leaves inside cupboards, in sachets, to deter moths. Make a rosemary sleep pillow for children who are often disturbed by bad dreams.

Thyme *Thymus* species have many wonderfully aromatic varieties; these perennial bushes are 10-40cm high with petite leaves and flowers. The most common kinds available are **Garden thyme** *T. vulgaris*, grey-green leaves with strong aroma, it is the traditional thyme used in stuffings for poultry; **Lemon thyme** *T. citriodorus*, dark green leaves with strong lemon fragrance; **Caraway thyme** *T. herba-barona*, a ground hugger with grey-green leaves and a strong aroma and the flavour of caraway; **Wild thyme** or

Mother of thyme *T. serpyllum*, grey-green leaves with a sweet aroma of honey-eucalyptus-menthol, which is so refreshing and energising to the body.

The name 'thyme' means to fumigate and one of its early uses was as an incense. This is a very practical use, as thyme has powerful antibacterial, antiviral, antimicrobial, antiseptic and deodorant properties. Thyme aids digestion, relieves fevers, pain, cramps, depression, giddiness, gum disease, nail infections, diarrhoea, sinus and bad breath. Use the herb as a tea to gargle for sore throat and laryngitis. The tea is applied, externally, on sores, skin rashes, and rubbed into the scalp to clear dandruff.

Thyme was also a symbol for courage. Roman soldiers bathed in water infused with thyme to give them vigour and courage. Get thyme growing well ... it could come to our rescue. In the kitchen, use thyme to flavour tomatoes, fish, chicken, mornay, stuffings, dips, root vegetables and salads.

Fennel *Foeniculum vulgare*, p 68, with several varieties to 1m high, and ferny foliage; the yellow flowers and seeds have an aniseed flavour. Use with fish and other meats, sauerkraut, cucumbers, root vegetables, quiche, and in bread and biscuits. Chew seeds for digestive problems and to encourage intestinal flora. Fennel tea is taken for hiccups, cramps, gum disease, diarrhoea, vomiting, anaemia, kidney and bladder infections, sinus, conditions of pain, headaches, coughs, and to increase milk production for nursing mothers. Fennel has featured for strengthening the lungs, liver, pancreas, spleen and kidneys.

An old folk remedy for intestinal worms is fennel seed tea made with 1 rounded teasp. fennel seeds steeped in a cup of boiling water for 10 minutes. It is said that this acts as a sedative to the worms and they will pass from the body if the bowels are loose.

Fennel seeds taste like black jelly beans and are good to snack on. *The seeds store well, so these are good to add to the family's survival foods.*

Mint *Mentha* species include over 20 species and many varieties, their classification can be quite a task, as some species may cross fertilise. Differing soils and growing conditions may result in considerable difference in appearance, oil content, and aroma. They are perennials and may spread, quite quickly, by creeping rootstock. Therefore, it is best to grow them in a contained area or in pots. Mints do have delightful aromas and rich oil content. Practical species to grow include:

Garden mint *M. cordifolia*, the common mint that is the traditional mint for mint sauce, jellies, and served with meat and vegetables.

Peppermint *M. piperita*, this is popular as herbal tea and to flavour lollies. Drink the tea for tension, stress and anxiety.

Spearmint *M. spicata*, refreshing flavour as tea, hot or cold, and as a garnish on fruit.

Japanese menthol *M. arvensis* v. *piper* p... , when leaves are rubbed between fingers and the aroma inhaled, the intensely penetrating volatile oil with menthol helps to clear the head and chest. This

surpasses any other 'herbal high'; besides, it's legal and it's good for you!

Mint has been used, traditionally, for: treating colds, flu, indigestion, soothing nerves, calming the heart, travel sickness, ulcerative colitis, muscle spasms, menstrual cramps and irritable bowel syndrome. *If you wake up tired, switch from coffee to peppermint tea to give you some get-up-and-go.* A popular alarm clock marketed in Japan emits a peppermint aroma 10 minutes before the alarm sounds, helping sleepers to wake up feeling refreshed. Also being marketed is a pin or button that releases a puff of peppermint aroma that is said to curb cravings. Why not try carrying a sprig of peppermint leaves in your pocket and reach for it to sniff when feeling like a piece of cake or chocolate!

Stevia *Stevia rebaudiana*, p 43, perennial bush 50-100cm high; components of the leaves (fresh or dried) provide a natural sweetness 20-30 times sweeter than sugar, while the active component, stevioside, is an incredible 250-300 times sweeter than refined sugar. Using the fresh leaves of the plant regularly helps to keep the bush well trimmed. If the plant goes to flower, the tip leaves may have a sweet/bitter flavour (which can still be used). Stevia is almost calorie free and the body does not metabolise the sweet glycosides from stevia. Therefore, it is a practical sweetener for diabetics and any person wishing to restrict kilojoule intake. Using stevia's sweetness and cutting back on refined sugar is a positive action to enhance health. We know that refined sugar can disrupt our natural balance of nutrients, causing the body to be acidic, lowering the immune system function, and fueling cancer cells.

Chewing a leaf of stevia has helped to curb cravings for sweet or rich foods and reduces the desire for alcohol and tobacco. Stevia provides supportive action to the liver, pancreas, spleen, heart, nerves and immune system. It also helps regulate blood sugar and blood pressure. Many people add stevia to their daily lives for improved digestion, and to increase mental alertness and energy levels. Leaves have anti-fungal and antibacterial properties.

Stevia is known too, for its healing actions for external use. Use the crushed leaves or a leaf infusion, on cuts, burns, and acne. Stevia leaves can sweeten drinks and foods. One tablesp. of dried, powdered leaves equals, approximately, 1 cup of sugar. Try a little sprinkling of crushed dried stevia over breakfast cereal – this just might give you more energy and get-up-and-go for the day!

Aztec sweet herb *Lippa dulcis*, p 43, perennial to 40cm high, leaves and flowers have sweet compound hennandulcin, which can be used in drinks and foods. However, as the leaves also contain camphor, which may be toxic if ingested in large amounts, this sweetening herb should be used sparingly.

Note that during times of war or calamity, sugar is usually in short supply and has been rationed. Therefore, it is practical to have a few herbs that could provide sweetening.

Borage *Borago officinalis*, fast growing annual 100-150cm high, large leaves with coarse hairs; blue star-shaped flowers 1.5cm in diameter. Borage has the

reputation of imparting courage and borage tea was drunk before tournaments, exams and battles. It is also renowned for its ability to gladden the spirits, strengthen the heart, disperse sadness and melancholy and invigorate the body. Borage has a cleansing action on the blood, lungs, liver, kidneys and colon and may act like shock absorbers in our toxic and stressful world. In our daily lives, now, or during times of unforeseen climatic calamity, and any other major upheaval, herbs can help lessen the trauma. *Modern research shows that borage stimulates the adrenal glands, the organs of courage, increasing the secretion of adrenalin: the fight or flight hormone, which primes the body for action in dangerous or stressful times.*

Borage tea is drunk to relieve pain of gout, arthritis, rheumatism, skin diseases, coughs and colds; to strengthen the heart, calm palpitations, and to revitalise the body during convalescence and exhaustion. Use the flowers and finely chopped leaves in salads and stir-fries. Nursing mothers drink borage tea to stimulate the flow of milk.

Neem *Azadirachta indica*, p 115, hardy, long-lived shade tree, 5-15m high, lanceolate leaves with serrated margins and oval shaped fruit, 1-2cm long. Trees, trimmed to bush height, can be useful for small gardens or it can even be grown in large pots. Trees thrive in tropical and sub-tropical climates and will adapt to warm temperate conditions if protected for 1-2 winters. (Trees in pots can be moved to a sheltered area.) In India, where neem is a common tree like gum is in Australia, the tree has been revered for centuries.

Dried neem leaves have been used as a moth deterrent, to protect grains, dried fruits, and woollen clothes in storage. Dried leaves have been placed with

books to protect them from silver fish. Leaves placed near lights and around doorways deter flying insects. In India, it is said: if you want to get away from insects, sit under a neem tree. Many Indian people eat a neem leaf a day to remain free from internal parasites and to give protection from insect bites.

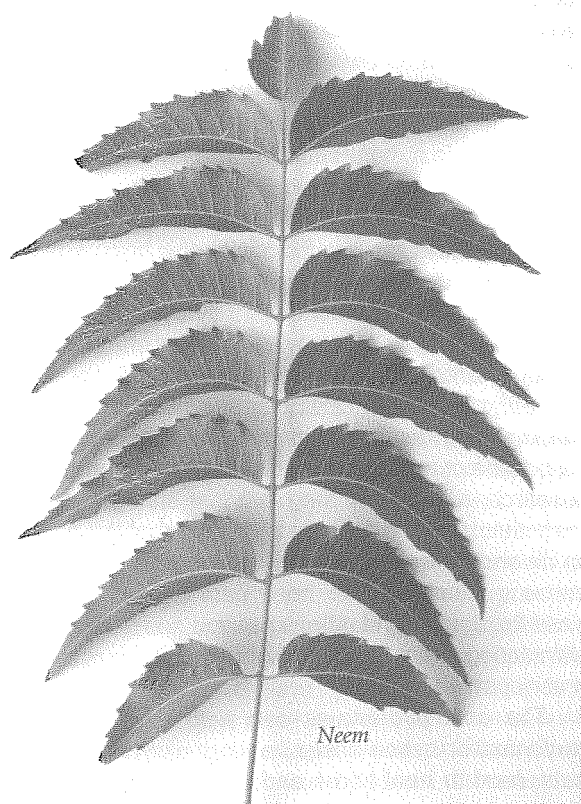
For intestinal parasites: chop four neem leaves, finely, and mix with two carrots, finely grated. Eat first thing in the morning. Do not eat anything else for at least one hour. Repeat next day and do the same in the second and third week.

In Australia, with the increasing problems of mosquitoes and transmitted diseases like Ross River fever, we could do well to protect ourselves with neem, each day. Leaves taste quite bitter, so just remember the herbal saying, 'bitter to the tongue is sweet to the tummy'! But, do give it a go, as the bitterness only lingers on the taste buds for a few seconds. Eat the leaf with something sweet, like a piece of fruit. *People in Indonesia believe eating the bitter leaves makes the blood bitter, and their theory is that mosquitoes don't like bitter blood and will not bite. They eat the leaves for protection from malaria and other diseases.* Eating a couple of chopped neem leaves mixed with a little food (like sweet strawberries) has been found effective for eliminating head lice.

Young leaves and flowers are commonly eaten in curries and wok dishes. Bitter flavoured foods and flavourings are an important part of Asian culture and cuisine for dispelling toxins, purifying the blood and strengthening the endocrine and immune systems.

Neem has been called 'The Village Dispensary' in India and it has been a traditional remedy for many ailments. In Sanskrit, neem is known as 'nimba' and the meaning is defined as, 'that which keeps disease at bay'. It is used as a tea, a tincture, or it can be added to a condiment or eaten as fresh leaves. Traditional uses include: gastritis, poor circulation, indigestion, peptic and duodenal ulcers, diabetes, gout, arthritis, rheumatism, respiratory conditions, conjunctivitis, chronic fatigue, cancer, insomnia, hangover, stress, blood purifier, hepatitis, fevers, dysentery, elephantitis, earache, heat stroke, epilepsy, acidity, gingivitis, candida, venereal diseases, urinary infections, high cholesterol and blood pressure, and for spleen, kidney and liver conditions. Scientific research validates many traditional uses of neem; particularly, for benefiting the immune system and for skin care to treat bacterial, fungal, and viral infections. These may include: nappy rash, acne, eczema, dandruff, psoriasis, warts, athlete's foot, cold sores, jock itch, ring worm, shingles, burns, cuts, and boils. In some Asian cultures they had the saying 'if you are sick, lie under a neem tree', as it was believed that just being near a neem imparted healing properties. **Caution: neem should not be used when pregnant or wishing to conceive.**

Once your garden has a neem tree growing to a good size, twigs can be picked and used as toothbrushes. Stems, 1-2cm thick, are used by millions of people in India to brush their teeth. The twigs are chewed to strengthen teeth and then the chewed tasselled end is used to vigorously brush the teeth.



The crushed leaves are applied, externally, or as a leaf tea infusion. The tea is also very effective as a wash to relieve the itch of insect bites, allergies and rashes. Neem leaf tea, taken internally, is cooling to the body. *Placing a sprig of Neem leaves inside one's hat when working outside in hot weather is useful for creating a cooling effect.*

Triterpenes in neem seeds, and to a lesser extent in the leaves, have been found, in research, to be effective in controlling a very wide range of insect pests. Research has also been done with neem for blowfly on sheep, buffalo-fly on cattle, lice on poultry, mange, flea, tick, and intestinal parasite treatment for animals, and also for mosquito infestations.

A garden spray to deter insects: this is made with the seeds crushed (2 handfuls of seeds) or the leaves (6 handfuls of leaves, finely cut) to one bucket of boiling water, steeped for one hour; this is strained, and a little natural soap or vegetable oil added, as a spreader. The spray is best used towards evening when the sun is not so intense. For heavy infestation of pests in an area, it may be necessary to spray at weekly intervals, initially, then fortnightly to prevent re-infestation. Neem oil poured on water is used to kill mosquito larvae.

Olive *Olea europaea*, p 53, although it is a tree which may live 100 years or more and grow quite large, in small gardens it can be pruned to bush size. All the prunings may be kept to use for tea or as a wash, as the leaves have broad-spectrum antibiotic and antioxidant action. Using leaves as a tea or an extract is found to be beneficial for fevers, sinus, colds and all respiratory conditions; for fibromyalgia, candida, coronary disease, bladder infection, fungus, yeast infections, intestinal parasites, food poisoning, gastric ulcers, shingles, chronic fatigue, malaria, and for lowering high blood pressure and cholesterol.

In addition to alleviating a range of health problems, people use olive leaf tea as a daily tonic in their health maintenance program. When trees start to bear, the olives are made into olive oil or pickled.

Chamomile *Matricaria recutita*, p 104, annual bush 60cm high with fern-like foliage and a profusion of dainty, white daisy flowers 2cm in diameter, which have a refreshing aroma like Granny Smith apples. Flowers, fresh or dried, are made as a tea that is very safe and soothing for babies and children, calming irritability and promoting sleep. Use the tea for teething babies to relieve the pain and relax the gums, so that the teeth can emerge without so much pain and trauma. The tea is also very soothing when applied to nappy rash, heat rash, bites, burns and eczema. Mothers-to-be drink the tea for morning sickness. Women find the tea relieves menstrual pain and menopausal discomforts. *Chamomile tea has been a time-tested remedy for stomach pain, headaches, anxiety, tension, depression, indigestion, bowel conditions, insomnia, jaundice, fainting, diarrhoea, difficult breathing, sciatica and rheumatic pain.*

Scullcap *Scutellaria lateriflora*, p 104, is a hardy perennial 30-60cm high, multi-branching square stems with serrated, oval shaped leaves to 4cm long. Two-lipped blue flowers ½ cm long and small

seed capsule resembling a helmet or skull. *Scullcap is a wonderful herb for strengthening, calming and sedating the nervous system and for muscular spasms.* Uses include: hysteria, nervous exhaustion, epilepsy, paralysis, premenstrual cramps, spasmodic coughs, tension, insomnia, tremors, muscle twitching, nervous headaches, ADD, neuralgia, incontinence, motor neurone disease, high blood pressure, heart conditions and stroke. Skullcap is a very gentle, safe herb, a valuable tonic to the nervous system and the central nervous system.

Calendula *Calendula officinalis*, annual 30-50cm high, yellow or orange daisy flowers, 5cm diameter, which always makes a bright display in the garden. Calendula has been a safe and gentle folk remedy for many ailments including fevers, stomach cramps, leaky gut syndrome, hepatitis, colitis, duodenal ulcer, diarrhoea, vomiting, candida, thrush, fluid retention, cancer, convulsions and for relieving inflamed lymph nodes. Apply the tea as a wash on the sores of chicken pox and measles, bruises and wounds, warts, corns, calluses, scalds, haemorrhoids, chilblains and stings.

Research has shown the properties of calendula can improve resistance to bacteria, viruses and fungi by stimulating the white blood cells to fight these microbial invaders. For sore throat and tonsillitis, make a tea with the flower petals to gargle and to drink. The tea is found to be soothing and healing as a lotion for dry eyelids, conjunctivitis, skin cancer, cracked lips and feet, and sores in the nose. An ointment made of the flowers is applied to rashes, bites and sores.

Calendula flower petals, fresh or dried, look fabulous as a garnish on salads, stir fries, soups, vegetable and egg dishes, cheesecake and fruit cup. *An old custom in Europe was to eat the flower petals, regularly, and this was said to maintain health right through the cold winter (it is also good for the circulation).* The calendula leaves can be chopped and mixed in a salad. If leaves are eaten on their own, they are a little acrid.

Toothache plant *Spilanthes acmella*, p 54, annual to 40cm high, 1cm yellow flowers. Spilanthalol in the plant is a most effective anaesthetic. Therefore, rubbing a crushed leaf on teething babies' gums (or when used for mouth ulcers or toothache), this acts to desensitise the area and diminish the pain. This year, I was invited to speak at a garden club and when I talked about the toothache plant everyone present had the opportunity to taste a leaf. At the end of my talk, a lady shared with everyone present that *chewing on the leaf relieved her of all pain from Lichen planus, an autoimmune disease that had been giving constant pain in the mouth.* Amazing! I went home and did some research, to discover the plant has sialagogue action that stimulates the flow of saliva, and that the herb acts to cleanse the mouth, tone the gums and enhances immune function. The herb can improve digestion, ease flatulence, and relieve nausea and vomiting by its stimulating effect on the salivary glands, thus making it a very powerful herb.

The antibiotic leaves can help to clear bacteria and infections, and assist healing; use on cold sores, cuts, hard to heal sores and acne. Rub a leaf on, as

often as needed, to relieve pain or discomfort. Eating a few leaves, every day, can bring relief for people who suffer with candida. This is also recommended for those who may experience symptoms of tiredness, chronic fatigue, headaches, aches all over the body, bouts of diarrhoea or constipation, sinus, hayfever, poor concentration and memory, sensitivity to odours, lupus, kidney infections, and fungal infections between fingers, toes, in mouth, under breasts, vagina, scrotum and penis.

And if anyone has toothache, but no toothache plant, my husband told me the way to cure it with a remedy of yester-year. His grandfather said that a sure cure for toothache was to go and chop wood till you sweat, and then your tooth will not ache! Too bad, that not many homes have wood stoves or fireplaces that need chopped wood these days!

Ginseng may refer to a number of plants from various plant families. These ginsengs, are esteemed in many cultures and climates. The word 'ginseng' means '*the wonder of the world*' for it has been a panacea for many ailments.

Korean Ginseng *Panax pseudo ginseng*, is a shade loving deciduous perennial to 70cm high, and has palmate leaves; it has a forked root system, which can often take on the appearance of the human body, with side roots that look like arms and legs.

American Ginseng *P. quinquefolius*, is similar in appearance and uses to the above, although its properties are considered to make it a valuable medicinal for people living in warm to tropical climates. Roots may take a couple of years to get to a suitable size to dig and the active ingredients are considered more available after four years of age.

Ginseng is esteemed as a general adaptogen and restoring tonic for just about any ailment of the body. The root is used as a tea or added to soups, etc. It is a herb for many purposes, a panacea, to build stamina and resistance to the many diseases and stresses of daily life. True to the name, ginseng does wonders to nourish the blood, strengthen endocrine glands, prevent and treat coronary heart disease and cancer; to normalise circulation, blood pressure, blood sugar and cholesterol; also, for pain conditions, diabetes, respiratory and digestive diseases; and to give energy, strengthen the memory and improve resistance to infections.

Sucking on a sliver of the root each day or making a tea using 2-3g is considered the optimal daily dose. Quite a number of plants would need to be grown to maintain a daily dose. Ginseng should not be taken with coffee or other stimulants and should be avoided by people with asthma and respiratory conditions. *Panax* ginsengs prefer to grow in cold to temperate climates.

Now, for an easier and faster plant to grow, which many people use for its similar rejuvenating action to *Panax ginseng*, there is **Indian ginseng** *Withania somnifera*, p 68. The Sanskrit name for the plant is **Ashwaganda** which means 'giving the power and vigour of a horse'. This plant is a hardy perennial bush 40-150cm high, elliptic shaped leaves 3-6cm long, small yellow flowers, followed by ½ cm diameter red

berry that forms within a 1cm calyx. The red berries are not edible (if eaten they may cause severe gastrointestinal upset). In traditional Ayurvedic medicine the herb is revered as a strengthening tonic to the body, brain, muscles, marrow and semen. Also for treating inflammation and pain conditions, to support thyroid and adrenal function; for impotence and infertility, cognitive disorders and Parkinson's Disease, anaemia, fevers, fatigue and Alzheimer's Disease; to lower blood pressure and cholesterol; for cancer, stomach, respiratory and liver complaints, panic attacks and phobias, nervous agitation and manic depression, memory loss and ageing. Research, over the last twenty years, shows that Indian ginseng supports connective tissue growth and is a strengthening tonic to the heart and a stimulator to the immune system. The highest content of withaferin is found in the leaves. This alkaloid has antimicrobial action on certain pathogenic fungi, bacteria and tumours.

Indian Ginseng Tonic: traditionally, 2-6g of the dried root was taken, daily, in warmed milk sweetened with honey or alternatively, as a tea using 1 teasp. dried root or leaf to 1 cup of boiling water. Chewing 5-10 fresh leaves, each day, can benefit people who suffer from insomnia. **Caution:** people with peptic ulcers may experience discomfort when taking this herb.

Another esteemed plant coming under the common name of ginseng is **Leaf ginseng**, p 89.

Echinacea, the two species most commonly grown and used are: *Echinacea purpurea* and *E. augustifolia*, deciduous perennials 60-100cm high, hairy leaves, daisy flowers with drooping petals. Echinacea has many attributes and it is highly esteemed for its ability to prevent infection by revving up the immune system and fighting bacteria and viruses. *Scientific research found that echinacea extract increases production of infection fighting T-cells: T-lymphocytes up to 30% more than other immune boosting drugs.* Echinacea is especially useful for cold and flu prevention, respiratory infections and sinus, bladder and ear infection, fevers, inflammation, infectious diseases, as an antidote for poisons, to reduce tumours and to give some protection from the effects of radiation treatment.

A **decoction** of the plant is made with 1 teasp. root simmered in 1 cup of water for 3-5 minutes, or an **infusion** is made with 1 teasp. finely cut fresh leaves steeped in 1 cup of boiling water for 5 minutes. Adding 1 tablesp. lemon juice or 1 teasp. apple cider vinegar is said to help extract the plant's active constituents. Echinacea may create a slight tingling sensation on the tongue.

Feverfew *Tanacetum parthenium*, p 29, a perennial 60-100cm high, small white daisy flowers. Feverfew derives its name from its ability to bring down fevers. When taken as a hot tea, it will increase perspiration and reduce fevers. Also, it has a history of use for malaria, menstrual problems, convulsions, nausea and vomiting, sciatica, neuralgia, chronic catarrh and sinusitis, hay fever, asthma, nervousness and twitching.

In recent years, feverfew has become known as the 'migraine' herb, and has been a lifesaver to

thousands of migraine and headache sufferers. In the 1970s, scientific research with double blind, crossover studies, verified the potential pain relieving properties of this herb.

Migraine soother: an 8cm long leaf or 2-3 small leaves of feverfew can be eaten (or tucked into a sandwich) or made as a tea. This remedy has given relief to many people and it may even have pleasant side effects, including a sense of wellbeing, reduce tension, relief from arthritis or sinus problems, and improved eyesight and hearing. *The stresses of life may inflict headaches on people and it is good to know feverfew may bring relief.* Perhaps feverfew in the garden may come to save quite a few headaches, from the stresses of life, in the future.

Externally, a crushed leaf (or a little leaf tincture) is rubbed on arms and legs to repel insects. When bitten by insects, the same can be applied to the stings and bites to relieve pain and swelling.

Yerba mate *Illex paraguariensis*, p 81, small evergreen tree, which may be pruned to keep at bush height, with prunings used as a tea; petite white flowers followed by red 5mm berries. Yerba mate is the most used beverage in South America. Mate tea has the effect of stimulating the mind, increasing concentration, easing depressive moods, increasing energy levels and supporting the immune system with antioxidant and tonic action. Students preparing for exams find mate tea assists with clear thinking and recall and it is soothing to the nerves. In research, the tea has been found to help deliver oxygen to the heart and muscles. Drinking mate tea may decrease the sensation of cravings for sweet foods and hunger, and the tea has properties that assist in fat burning.



Leaf ginseng (p 89)

Mate tea is drunk to relieve kidney, bladder, and respiratory conditions and to strengthen glands; also, for diabetes, depression, indigestion and pain. Although mate tea may have a very minimal amount of caffeine (1.5%) and theobromine (0.2%) it appears other active constituents of the leaves have a balancing effect. Therefore, it does not elevate blood pressure, blood sugar or cholesterol levels, as can be the case with coffee drinking.

Greater celandine *Chelidonium majus*, p 103, perennial with rosette of lobed basal leaves 40cm long; yellow flowers 2cm in diameter, orange sap in leaves and roots has antiviral action. The sap is applied topically to warts, corns, tinea, herpes, ringworm, cysts, planter warts, ulcers and skin cancer. Sap applied over closed eyelids was a folk remedy for strained or failing vision, cataracts and detached retina. Internally, the herb is taken as a tincture or tea for gall, spleen, kidney, bladder, colon and glandular diseases; for irritable bowel syndrome, coughs, cramps, back pain, rheumatism, insomnia, stress and tension; to clear mucus from the lungs, purify the blood and for weight loss. *This herb has been valued as a liver cleanser and for stimulating the metabolism.*

Make a tea with 1 teasp. dried herb or 2 teasp. finely chopped fresh leaves steeped in 1 cup of boiling water. This is drunk cold, ½ cup morning and evening, at least ½ an hour before meals. Use for three weeks and then have a break for several weeks. It is not a pleasant herb to the palate and some people may be nauseated by it. Adding a little ginger or cinnamon, honey or peppermint can make it a little easier to take. Some people prefer to take the herb as a tincture or flower essence.

Alehoof *Glechoma hederacea*, p 104, is a perennial ground cover with trailing stems, attractive 4-5cm leaves with scalloped margins. The plant has been used to flavour, clarify and preserve beer, until it was superseded by hops.

The herb made as a tea, is mildly bitter to taste, and is an all-purpose drink, cooling and stimulating. It is held in high esteem as a wash for treating sore, inflamed, itchy and watery eyes, black eyes, spots or failing eyesight.

To make **Alehoof tea and wash:** use 3 teasp. finely chopped, fresh leaves in 1 cup of boiling water. Infuse for 5 minutes; drink 1-3 cups throughout the day. (For the wash: bathe eyes with the tea; or apply to the skin, as often as required, using a cotton swab.)

The tea may be flavoured with lemon juice and sweetened with a little licorice root or honey. Alehoof tea is used for indigestion, colic, gastritis, fevers, headaches, gout, sciatica, tinnitus, vertigo, arthritis, persistent cough, poor circulation, jaundice; for strengthening the stomach, spleen, glands, kidneys, liver and heart; and as a gargle for sore mouth and throat. The herb has been valued as a blood purifier and for eliminating heavy metals, such as lead and cadmium from the body. A little juice from fresh leaves, transferred into the ears using a clean eyedropper, has helped with ringing in the ears (tinnitus). Use fresh

bruised leaves as a poultice, applied to new wounds, for quick healing.

Drink chilled alehoof tea in summer for heat fatigue.

Use fresh leaves in salads and savoury dishes, steamed like spinach, and use the scalloped leaves and blue flowers as a dainty garnish.

Artemesia species are perennial bushes, to 1.5m high, with attractive grey foliage and a very bitter flavour. Most commonly grown species are:

Wormwood *Artemesia absinthium*, used to flavour absinthe, vermouth and other liqueurs, with the reputation of stimulating the appetite and improving digestion.

Tree wormwood also called **Roman wormwood** *Artemesia aborescens*, p 29, a traditional herb used as bitters for digestive upsets.

Wild wormwood *A. afra*, African folk medicine for malaria, headaches, colds, coughs and stomach problems. Leaves were placed into socks to act as a deodorant ... to keep the feet smelling sweet. Wormwood, as its name implies, has been used as a traditional herb for eliminating intestinal worms.

Worm treatment: a tea is made with 1 teasp. dried herb or 3 teasp. finely cut fresh leaves steeped in 1 cup of boiling water for 10 minutes. This may be sweetened with honey, if desired. **Dose:** take 1 cup of tea, three times a day, on an empty stomach, then, wait at least ½ hour before eating a meal. Take this dose 2-3 times in first week; and then, once a week for the next 2-4 weeks.

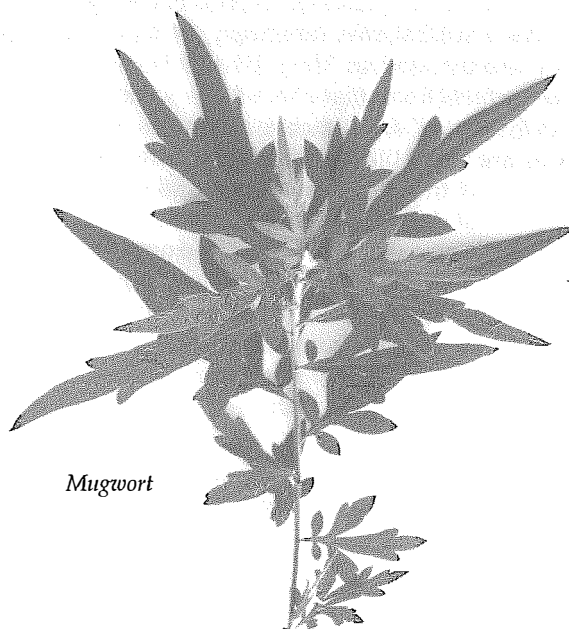
Wormwood has also been taken to stimulate the functions of the liver, gall, spleen and circulation. *Wormwood was drunk for protection from the great plagues, no doubt, due to its antiseptic, antibacterial and antibiotic actions.*

And closely related, and with similar properties are **Mugwort** *Artemesia vulgaris* to 1 m tall, and **Tree mugwort** *A. velotorum*, p 119, a very hardy bush 2-4m tall, makes excellent windbreaks, useful for worming animals and keeping stock in good condition (if placed on fenced boundary, where they can reach branches that grow through fence).

Soapwort *Saponaria officinalis*, p 95, clumping perennial 50cm high; *leaves and roots have saponin properties that provide a sudsing and cleansing action when crushed and infused in water.*

Liquid soap: to make a liquid soap to use in the kitchen, laundry and bathroom, pick two large handfuls of leaves, stems or roots. Chop finely, cover with 3 cups water, and simmer 5 minutes. Leave to cool, strain and bottle. This detergent will keep in the refrigerator for several weeks. It is said that the lathering properties are nowhere near as effective when made with chemically treated 'mains' water. Some recipes suggest adding 1-2 teasp. borax, after simmering the herb. Borax has an antiseptic, cleansing and preservative action. This mixture is also used as a hair shampoo and to help eliminate dandruff; and also applied externally on bruises, rashes and sunspots.

This chapter highlights a few herbs that are valuable for every home. **Get to know and use these herbs now**, so you can be prepared for the future. Even



Mugwort

more so, if we have to go into **unexpected 'survival mode'** ... becoming self-reliant by living on our own efficiency, will be essential. There is an amazing range of herbs we are able to grow. The brief description and uses of a few herbs, in this chapter, gives the reader some ideas of where to start to create a practical herb garden. The World Health Organisation (WHO) has listed over 21,000 plants, worldwide, that have reported medicinal uses, so we will never run out of potential plants! I encourage every home to have a herb garden, and flat dwellers with a balcony can have a few potted plants for flavouring and health benefits.

People often ask how I use herbs in my daily life. There are so many ways to get the benefits: I use herbs for flavouring meals, as tea or smoothies, greens in salads, and as poultices, washes or footbaths. In herb courses and lectures I demonstrate how I incorporate fresh herbs with my breakfast and I usually ask for several volunteers to taste-test what I prepare.

Isabell's energising breakfast: in a bowl, I start by placing some homemade muesli of rolled oats, dried fruits, tamarind and a little cinnamon (a valuable spice with many health benefits). This is topped with fresh fruit in season and a handful of fenugreek sprouts.

Then, fresh herbs are added. You see, I like to go into my garden each morning to greet the new day, thank God for all the beauty of nature, enjoy the fresh morning air and pick herbs to use, absolutely fresh.

Herbs I use on my breakfast are: herb robert (4-5 leaves), gotu kola (4-5 leaves), sheep sorrel (4-5 leaves), brahmi (6 sprigs 3-4cm long), sweet leaf (leaves stripped off 4-5 sprigs 10cm long) and sometimes I also add lemon balm, salad mallow, mint or other herbs that I may feel drawn to pick. Lastly, I pour over kefir whey, which is an alternative for milk (p 45).

Then, my two volunteers are invited to partake, and to tell how they felt about experiencing my 'herb-style' breakfast. The feedback from the volunteers has always been of enthusiastic sharing. Recently, two

young people who assisted in my demonstration said that the breakfast was amazingly refreshing with so many flavours, and so filling. *When I have herbs with my breakfast I know that I have done something really good for myself for the day, as herbs are alkaline. Herbs are valuable for balancing the body's pH, because of the alkaline nature of herbs - which helps to build the formula for health.*

During winter, when we have rolled oats, I like to add finely chopped nasturtium leaves to the hot porridge in the plate. If fresh avocado on toast is on the menu for breakfast, I top the avocado with a variety of fresh cut herbs. Fresh cut herbs go great with salads. (see Salads p 86) Even on a cooked meal, plan to have some fresh herbs as a garnish, or a dollop of fresh greens, as these will be alkaline.

Fresh herbs have a wide spectrum of essential nutrients and antioxidants, which can help to revitalise and regenerate the body. This is what we all need. **Herbs as teas** can be made as a cuppa to enjoy any time of the day, or for their medicinal benefits. An **infusion** is prepared similarly to making a pot of China tea. With fresh herbs, the leaves, stems, and flowers can all be used. Finely cut the herb, using 2-3 teasp. fresh herb (or 1 teasp. dried) to 1 cup of boiling water in a teapot. Stir with a spoon for several seconds, and place the lid on the pot so that the valuable essential oils do not vaporise. Leave the tea to steep for 3-5 minutes or, if you like a strong tea, leave to stand 10 minutes. Some herbs, if left to steep for long periods, may develop a bitter taste: as various herbs have high tannin or bitter properties. Herb teas are drunk without milk. If sweetening is desired, add a little honey, stevia or licorice root. When using herbs as refreshing beverages, make a large pot of tea in the morning for breakfast; and then, the remainder can be enjoyed cold or chilled, throughout the day.

Finely chopped fresh or dried herbs can also be infused in cold water. Generally they will not be as strong in flavour or colour, therefore extra herbs can be added if desired. A really good stir will help to bring out the flavours and the properties; and the cold infusion method may be something to remember if at any time we are without power, or wish to conserve electricity.

Serve a cold herb tea in a glass with ice and a mint leaf (or other herb leaf or flower as a garnish). Half fill a glass with chilled herb and top the glass up with apple juice (this is a good way to introduce herb drinks to children). In summer, various aromatic herbs may be blended to create a variety of flavours. Adding a few small pieces of your own homemade dried fruits will give a new taste sensation.

Medicinal teas taken for therapeutic use, for example, at the onset of flu, would be taken every 2-3 hours. For chronic conditions, a standard dose is taken 3 times per day. For children 2-10 years, $\frac{1}{4}$ to $\frac{1}{2}$ the adult dosage is recommended.

A **decoction** is another method of making herb tea, made by boiling tough leaves, stems and roots of plants. The boiling softens the herbs; and minerals (such as iron and copper) and other nutrients are then more readily released. Place the herb in a glass,

enamel, ceramic or stainless steel container and simmer for 3-10 minutes with the lid on. Use 30g (1oz) of finely chopped leaves, stems or roots of the herb to 600ml (1 pint) of water. Strain and drink, hot or cold, **and enjoy the benefits.**

A **standard dose** is 1 cupful, 3 times a day. Store decoctions in the refrigerator and use these within 36 hours. For those who are unwell or suffer any condition of severe pain, begin with half the suggested daily amount of tea. As herbs can help the body to detox, it is possible this **beneficial effect** may initially bring on nausea, headaches or lack of energy. Then, over several days, the dose can be gradually increased. Don't just assume that more is better, when taking herbs.

Generally, herbs taken on a daily basis work slowly, but diligently, to benefit health. I encourage you to make **herbal teas**, for health and healing, a part of your daily routine. If improving digestion is one of your aims, the best time to take a herb tea or tincture is 15-30 minutes before each meal, as this will help to prime the digestive system before eating. If you wish to balance energy levels or hormone levels, try to take the herbs at very regular intervals, so that the amount of herbal compounds in the bloodstream, remain relatively constant.

What to expect from herbs ... both short and long term benefits! Relief from headache, colds and flu can be fast with herbs: **sometimes, immediate effects can be experienced.** While some ailments may be relieved after using herbs for 2-3 months, other conditions may require the consistent use of herbs for 6 months or longer. Some herbalists may recommend the use of herbs for a number of weeks and then to have a break for a week, other practitioners may advocate the constant use of a remedy. Then, when improvement is experienced, the herb is taken for several more weeks as an insurance or maintenance dose.

Many herbs have multiple actions and this is what makes herbs so unique. Herbs can help us maintain a high level of health and wellbeing and support the many systems of the body, including the endocrine, reproductive, cardiovascular, gastrointestinal, respiratory, muscular, skeletal, renal, nervous, and immune systems. Herbs provide a gentle healing service to the body. Herbs that act as adaptogens, may also act as tonics, to boost health.

Tinctures: The active ingredients of herbs are also made available by extraction with solvents, such as alcohol or glycerine, and prepared in this way are referred to as tinctures. As alcohol provides a better solvent than water for some plant constituents, a tincture is a practical way of obtaining the highest benefit. Because alcohol also acts as a preservative, tinctures are a functional way to store herbal medicines ready for use and are, therefore, ideal for emergencies. *As tinctures are very concentrated and potent, they must be used with care.* Usually, a dose is several drops to 15ml at a time, taken in a little cold water. Sometimes, drops are placed directly on the tongue, as tinctures are quickly absorbed into the blood stream. Many people find this method preparing and taking herbal

medicine is easier for them to stick to a routine, rather than boiling up a decoction.

For general home use, a **tincture is made**, by finely chopping 120g of dried herb or 250g of finely cut fresh herb, then placing it in a jar. Pour 500ml of vodka, brandy or other suitable solvent over the herbs, and close the container. Place the jar in a warm place for two weeks, and shake the jar well, several times each day. Then, strain through a muslin cloth and squeeze out any remaining liquid from the residue. The liquid is now the finished tincture, ready to be poured into a bottle (preferably a dark bottle) and capped, labelled and dated. Store tincture at room temperature, but out of direct sunlight. Tinctures can be stored for long periods of time, even years, without loss of effectiveness.

Herbal infusions in wine or vinegar: herbs may be infused in wine, using the alcohol method above. Such wine based preparations do not have the long shelf life as the vodka tincture, and will not be as concentrated. There is a long history of using wines in this way, and using herbs like aniseed and wormwood as digestive aids. Aromatic culinary herbs and spices, infused in vinegar, are ideal for flavouring salad dressings, sauces and marinades. **These are simple to prepare:** after chopping the leaves, vinegar is poured over the herbs so that all leaves are covered. If the vinegar is heated to boiling point and then poured over, the flavour is drawn out of the herbs quite quickly. Shake the container daily, and after 1-2 weeks the vinegar is strained off and bottled.

Herb oils to use in salads and cooking are prepared the same way as the vinegar by pouring oil over the finely chopped herbs (use light olive oil, sunflower or safflower). Note: this preparation is an infusion of herbs in cold oil, therefore, the end result *is not a pure essential oil*. To make essential oil, the herbs are put through a process of distillation by heating, which requires rather complex apparatus, generally beyond the budget of the home gardener to set up.

Herbs as teas, decoctions or diluted tinctures may be used externally as a **compress** on the skin to accelerate the healing process on wounds, ulcers and skin conditions. The compress is prepared with a piece of clean linen cloth or cotton wool soaked in the liquid. (This may be heated and placed on, as hot as the skin can stand, as the heat enhances the action of the herb.) Cover the area with an old towel or plastic cling wrap to keep in the warmth and to hold the compress in place.

Poultices are another method used for external healing, using bruised or crushed fresh leaves or dried herbs. Mix to a paste with a little hot water or apple cider vinegar and apply to the skin or place between thin gauze. (Chux works well.) The poultice may be covered with plastic and kept warm with a hot water bottle. If applying the herb directly to the skin, it is helpful to apply a little olive oil to the area first, as this helps to make it easier to remove the poultice, later.

Ointments, creams and liniments are other ways of applying herbs to the skin. A base ointment recipe can use any herb with healing and antiseptic properties, eg calendula, comfrey, rosemary, thyme, chickweed,

sage. **To prepare an ointment:** finely cut or blend 60g of fresh herb or 20g dried herb. Melt 15g beeswax and 80g vegetable oil. Add the cut herb and simmer gently for 20-30 minutes when using dried herbs. If using fresh herbs, simmer until leaves look quite brown and crisp. Strain the mixture through a fine cloth, held in a strainer. Then, squeeze the cloth to extract all ointment and pour into small jars, placing the lids on, when cool, and label.

Herbal baths are for healing, relaxation and for the pleasure of wonderful aromas around the body. By adding herbs to the hot bath water, the body can experience and enjoy the many benefits of the herbs. The hot bath water opens the pores of the skin, allowing absorption of the healing properties. I have a hunch, that the pores take great delight in soaking up the herbal properties that are released into the bath water.

Herbal bath: take 2-3 handfuls of chopped fresh herbs or a small handful of dried herbs, and place in a muslin or cloth bag or even an old stocking. Hold the bag of herbs under the tap and run the hot water, which will help to release the herbal properties into the water. Fill bath to the desired level with water, and adjust with cold water, to a relaxing temperature, to enjoy the bath. Leave the bag of herbs soak in the bath with you for 15-20 minutes. Alternatively, herbs, particularly of plants that have a tougher leaf structure, may be simmered as a decoction, strained and added to the hot bath water.

As water is a precious resource, your garden will benefit from your herbal bath (when cold), too.

Bathtime benefits include detoxification. It is said that when we use herbs for a specific use, eg herbs for a liver cleanse - within 10 minutes of soaking in the herbal bath, the liver will get the benefit. Adding a handful of Epsom salts to the water helps draw out excess sodium and acidic toxins from the body through the pores. Epsom salts in the water is also beneficial when doing a detox, and for easing aches and pains, fatigue and nervousness. Using Epsom salts (magnesium sulphate) in the bath at night will ensure a refreshing sleep: magnesium acts as a muscle relaxant and sulphur assists to detoxify the body.

If there is no bath in the house, or disability makes it difficult for a person to get in and out of a bath, a footbath is another way to receive the healing benefits. Even though only the feet are being soaked, the herbs can assist many other parts of the body. Have a footbath while reading a book or watching TV.

Herbal footbaths and hand baths: the amount of herbs used for a footbath is 2-3 teasps. of dried herbs or 1-2 handfuls of fresh chopped herbs. Place herbs into the footbath (a large plastic bowl or bucket will do). Pour boiling water over the herbs. Steep for a few minutes, then, add sufficient cold water to adjust the water to the temperature that the feet are able to stand. For chronically cold feet, a 15-minute hot footbath with a little ginger, peppermint and cayenne will stimulate the circulation. An alternative to a footbath is a hand bath, with hands soaking in a bowl, resting on a table.

Inhalations give quick relief where there are blocked nasal passages and sore throats. Fresh or

dried herbs are placed in a small bowl, covered in boiling water and stirred. Holding the head over the container, inhale deeply, allowing the vapours to clear the respiratory passages, making it easier to breathe. Lavender, rosemary, thyme, gum leaves, marjoram and mints, particularly Japanese menthol, will open the passages.

A **steam treatment** may be made similarly with boiling water over herbs in a bowl for a facial skin cleanse. Yarrow, horseradish and peppermint will help to clear blackheads and oily skin.

Herb pillows are another way to experience many benefits from **herbal blends**. The nose knows, to automatically keep breathing oxygen, which is essential every second of our survival. The nose, while inhaling, takes in the **various aromas of plants, which can impart restorative healing benefits** for relieving tension, to clear toxins, rejuvenate the body and induce a refreshing sleep. To make a sleep pillow, use cheesecloth, muslin or soft cotton cloth and sew a bag 10–15cm square. Loosely fill the bag with a mixture of dried herbs which could include any of the following: lemon balm, dill, hops, angelica, bergamot, marjoram, sage, thyme, rosemary, rose geranium, chamomile, lavender and anise. Sew the opening closed or tie with a ribbon. Place the herb pillow near your head when in bed.

Herb and flower essences are esteemed and appreciated by many people, interested in natural healing. These essences can address the disharmonies in the mind or emotions. One great researcher, Dr Edward Bach, who practiced in London early in the 20th century, came to the conclusion that distress of the mind ... such as fear, worry, anxiety, impatience, jealousy and other negative dispositions ... could deplete the vitality of a person, causing a toxic state and illness in the body. He gave up his practice to devote his full time to researching a simple treatment of harmless flower remedies from nature.

After a number of years of working with plants, preparing the essences and sharing these with people, he formulated 38 remedies, which proved valuable to emotional and physical wellbeing. Further research led Dr Bach to see that when he combined five of his remedies, this composite mixture had an extremely powerful action to lessen shock, mental stress, sadness, grief and anxiety. *He called this composite mixture 'Rescue Remedy' and this mixture has truly helped thousands of people to a calm, relaxed state, given courage, clear thinking and helped to neutralise shock and ease pain.* Rescue Remedy can ease the upset in case of sad or bad news, accident, trauma, nightmares, depression, frazzled nerves, heated words, stress, confusion, panic and terror, relationship difficulties, quarrelling siblings, toddler temper tantrums and hyperactivity. Use Rescue Remedy before exams, a job interview, a visit to the dentist or doctor, or any other situation where you may be apprehensive about the outcome. Have Rescue Remedy on hand at home; carry a bottle in your handbag, briefcase, schoolbag, and in the car.

Assisting to relieve shock is something we can all do whether it is fingers jammed in a window, toes stubbed in a door, or at the scene of a car accident. Make it a practice at all times to carry Rescue Remedy; the remedy may well save a life during an emergency when seconds count and before medical help arrives. The person needing help may experience mild to severe shock and fear, which could amount to terror, panic and desperation with its consequent numbing effect and confusion. To be able to relieve the victim's fear and to restore calm and confidence with comforting words and the help of Rescue Remedy is of paramount importance in emergencies.

In situations of absolute exhaustion, whether physical work, sport, or disasters, this special remedy can give renewed energy to finish the task. Share this information with pregnant mums as Rescue Remedy can help during labour pains and childbirth: and then, too, for restless or sleepless babies. Use for severe muscular pain, headaches, and for toothache until you can get to the dentist.

To use Rescue Remedy: take the 'medicine strength' dropper bottle and place 2–4 drops (undiluted) directly onto the tongue or, preferably, under the tongue to make for speedy absorption. Alternatively, the drops can be added to a glass of water or fruit juice. Repeat in 15 minutes, and then half hourly, according to the condition and need as required, to settle the person. If a person is unconscious or unable to sip, the Rescue Remedy can be rubbed on the lips or wrists or behind the ears. Apply to cuts, bruises, stings and any injury.

Use it, too, for wounded and upset birds and animals. A few drops can be administered in the mouth, place of injury or added to drinking water or food. Animals that are stressed in thunderstorms will be calmed by Rescue Remedy. And in the garden, plants suffering shock after transplanting or adverse weather conditions will be helped with a few drops in a watering can of water, poured over the foliage and around the base of the plant. Rescue Remedy is a natural remedy, safe for the youngest child, it has no side effects, nor is it habit-forming. It will not interfere with any other medical treatment, but it certainly calms and gives relief from many stresses.

Due to the composition of Rescue Remedy, generally, it would not be practical for people to make this. However, it can be purchased from health food shops and some chemists. Singular flower essences are, certainly, suitable for the home gardener to make. In recent years, many essences have been created in countries around the world with plants indigenous to those lands, and these have been tested and used in clinical practice. There are numerous books that cover methods of preparing the herbs for essences and their applications. 'The Complete Floral Healer' by Anne McIntyre provides information of many essences, preparations and uses. For example: addictions, anger, anxiety, confusion, disappointment and despair, disorientation, effects of aging, fears, grief, lack of confidence and low self-esteem, negativity and oversensitivity.

Many natural health practitioners have come to understand and recognise the relationship between using herbs for natural healing and that there is a close affinity between the modalities of aromatherapy, homeopathy and flower essences. The healing effects of the flower essences of a particular plant are generally in keeping with the herbal use of that plant and even with its use in aromatherapy.

Dr Bach's original 38 flower remedies were made from the early morning dew that settles on the flower petals and takes up that healing energy of the flowers. Because this is not an easy method, he then devised a simpler method of extracting the subtle healing properties of the flowers using water and sunlight, which is easy enough for anyone to use. The sun method involves carefully picking the flower heads so as not to damage them and placing them to float in a small bowl of cold, sterilised water. Place this bowl in the sun on the ground, near the plant, for 3 hours, during which time the healing energy from the flowers should be transferred to the water. Carefully, remove flowers from the water: preferably, with a twig from the same plant, so as not to touch the water with the fingers. Have a sterilised bottle ready, half filled with brandy (which acts as a preservative). Pour the flower essence into the bottle using a sterilised funnel. Label the bottle. This is now called the **Flower essence** and will keep indefinitely, even if a slight sediment may form. The next step is to make the **Stock bottle**: take a 30ml bottle (1oz) and fill it with brandy and add 4 drops from the flower essence bottle. Cork and label the bottle with the name of the flower and that it is stock strength.

The **Medicine bottle** is the third stage in the preparation, which is taken (as required) by a person. Fill a 30ml bottle with rain water or sterilised water and add 2 drops from the stock bottle and label the bottle with the flower name and that it is medicine strength. If you wish to preserve this medicine strength dilution for a lengthy time period, add 1 teasp. of brandy or apple cider vinegar to the medicine strength bottle. The usual dose for a person is 4 drops, 4 times a day.

Although this flower essence section is quite lengthy, I wanted to share with you the many valuable uses of Rescue Remedy that could come to your aid for any traumas in the future; and that individual flower essences can also address disharmonies in the mind or emotions, which may be an underlying problem, giving rise to some physical ills.

These essences may also help us to become aware of what is in our temperament that sometimes manifests as disharmony, thus giving us a greater possibility of taking responsibility to resolve these profound issues. I encourage every home to have Rescue Remedy made up, ready for emergencies. My home has had Rescue Remedy for over 30 years, and on numerous occasions it has come to the rescue; and I often have people tell me the benefits they have experienced with using it. When accidents happen unexpectedly, immediately reach for the Rescue Remedy.

Herbs can play a significant part in our everyday lives to benefit our health and wellbeing. In fact, herbal

remedies represent the most continuous and universal form of treatment. In the developed world, scientists have invented a whole range of 'super' drugs that may give quick relief for some ailments, but may bring with them a whole host of damaging side effects that often leave the patient with more health problems than they began with. Perhaps, this is because science often isolates only the single active ingredient in herbs, and has attempted to duplicate them, without taking into account the various other supporting elements. These are required to very gently and naturally enhance the effectiveness or offset harmful side effects. Furthermore, synthetic drugs are specifically designed to suppress the symptoms of the disease, while herbs actually stimulate the body's own natural healing ability. This **natural defence system** allows it to fight the condition and overcome the symptoms. This action actually strengthens the body's resistance instead of fighting and repressing it; *thereby, acting to build and fortify the immune system against further infections or disease, p 83.*

By growing our own herbs and becoming familiar with their uses, of how these natural remedies can act as prophylactics (preventative medicine) and help relieve ailments, we can take advantage of centuries of herbal knowledge and age-old traditions to **help ourselves to good health.**

Why take an expensive chemical drug when the original herbal remedy, on which it is most likely based, is safer and does not come with harmful side effects? *Herbs help to restore the body's natural self-healing abilities, strengthening and maintaining general health and wellbeing.*

We have been forewarned that the cost of living will increase; this will include food supplies, petrol, water, electricity and health care. It is evident from the daily media that the government is hardly coping with basic free health care services.

During times of hardship or calamities on a regional basis, or possible breakdown of essential services on a national scale, we will need to be prepared with our own natural health care skills ... and herbs will be here to help us.

Seed saving is vital to our survival

Seeds of food-bearing plants are essential to life. Tucked away in every kind of seed is the secret of life. We call this 'life force' and it is this living energy that generates and sustains our lives). When God, the Creator, was creating all things, He said, "I have given you the seed-bearing plants throughout the earth, and all the fruit trees for food." (Genesis 1: 29) *All the necessary life-giving elements are contained in seeds, carefully locked in. These include vitamins, minerals, protein, fatty acids and antioxidants, providing essential components for building health. To reap the benefits of nutrient-rich food we must start with good seeds, as this is the basis for our wellbeing.*

In Australia, the seeds of many of the fruits and vegetables we eat today, were brought to this country by early settlers. It was essential to their survival that they

quickly established self-sufficient food supplies for the new colony. Seeds that the settlers brought with them have come from family heirloom seeds, saved over hundreds of years. Many gardeners have continued to save seeds from healthy, regionally adapted, plants to ensure their regeneration. By collecting seeds, individuals were able to conserve plants, safeguarding both flavour and hardiness. However, over the last 50 years, the diversity of food plants that are essential to our survival has been quietly eroding away. Backyard gardeners saved less seed, no doubt, because food is so readily available in shops. Perhaps, also, because of the time constraints of demanding occupations imposed by modern living, which has meant many people no longer have home grown food.

It is also the case, in the last 50 years that large multinational corporations have been buying out small seed companies. In the 1980s alone, they invested \$US10 billion on seed company acquisitions. The large multinational corporations have been working at hybridising seeds. Concurrently, applications to governments of these countries have persuaded the authorities to enact and enforce Plant Breeders Rights Legislation granting corporations royalties and increasing the monopoly on seeds.

Hybrid seeds are the first offspring produced by repeated crossing of two or more parental lines, which means the next generation of plants and their seed will be different from the originals. Most hybrids are not suitable for seed saving, because they revert to their highly inbred parents, or are simply sterile. Civil libertarians have condemned such legislation and the awarding of patent rights. Such patent laws demand royalties from growers of patented seed, leading the seed corporations to have the ultimate power over mankind: control over what we eat or if we eat at all! Because you have to buy new seed each year, hybrids prevent you from saving your own seeds, just like patented varieties do.

As the old, traditional, non-hybrid varieties cannot be patented, the large corporations have carefully planned to delete these varieties from their stocks, and breed only varieties that can be patented. *The Plant Breeders Rights Legislation prevents anyone else from producing that variety. Ultimately, this can result in loss of plant varieties.* For details of the Act, introduced in Australia in 1987, also refer to Plant Breeders Rights Act 1999 and Bill amendments in 2002. Be aware, too, that the large multinational corporations also produce chemical fertilisers, insecticides and fungicides. Many of the new plant and seed selections will be based on their response to being grown with these chemicals. Developing Third World countries are hit hardest by the corporate seed monopolies, as small farmers are not able to afford the seeds, or the chemicals to make them grow. This domination has the capacity to send the farmers broke and the power to control the malnourished and hungry people in these regions.

Even more frightening for the future of the world, is the awesome supremacy that transgenics gives to large corporations, as seeds become more and more genetically engineered. Using genetic modification,

toxic chemicals are already being synthesised into seeds and used in broad-acre cultivation. Do we really want to eat these inferior genetically modified foods? Research professionals have very good cause for ringing alarm bells about the safety issues relating to man, animals and the environment. (see p 71). *Are the issues of seed control, plant breeders' rights, and genetically modified foods all part of an agenda of world domination by a few? Never before have we been in so much peril.* As the challenges of globalisation, erratic climatic conditions, and high prices for fuel, loom over our collective horizon, farmers are forced off their land in droves. Local control is lost to offshore production with poorly-paid labour markets and international trade treaties. Instead of fresh local produce, Australian consumers are provided with inferior food that is sterile, genetically modified, and, more frequently than we realize ... irradiated.

The Seed Savers Network Newsletter (Autumn 2008) reported that in Indonesia small-scale corn farmers are being hauled before courts for exercising their traditional right to produce their own seed. Some have ended up in jail; some have been fined, while others have been prohibited from planting their own seeds. A French seed-saving association of small farmers, who save seeds from heirloom vegetables and fruits, have recently been dealt a harsh legal blow. In accordance with recently enforced European Union French Legislation, seed must be registered in a catalogue at the cost of 1,500 Euro (\$2,500 Aus) for each variety before they can be sold. A spokesperson for the Kokopelli Association says the non-profit volunteer organization has 2,500 varieties of seeds and could not afford to pay to register all of their seed. This Association believes that access to open-pollinated non-hybrid seeds is the only way to alleviate hunger and to promote food security in a sustainable way. Kokopelli go beyond their native France to assist people in low-income countries with training programs and seed collection centres.

We, as individuals, families, and communities must take some control over our food security to be sure it is from non-hybrid seed. We can best ensure our food supplies are the freshest possible by growing it in the areas we live and by buying from local growers.

Jude and Michel Fanton of Byron Bay, the founders of in Australia (since 1986), urgently encourage fellow Australians, saying there is a real imperative that small farmers and gardeners continue to save their seeds. This, they say, is the most effective way of being the cultural 'seed guardians', preserving the seeds of traditional plant varieties, for now ... and for future generations. They have worked in twenty countries helping to establish seed networks.

I recommend Jude and Michael's book, 'The Seed Savers' Handbook', which is a practical and essential reference manual for growing and propagating over 100 food plants. For details of the book, contacts for Local Seed Networks, film clips on seed saving and how to subscribe to Seed Savers, go to www.seedsavers.net or write to Seed Savers' Network: PO Box 975, Byron Bay, NSW, 2481; email: info@seedsavers.net.

net Although Seed Savers was originally a bank for thousands of kinds of seeds from Seeds Savers' members, now this task is decentralised, with growers in over 70 Local Seed Networks around Australia saving and collating seeds. Seeds are available through these groups, which can be accessed via the website www.seedsavers.net Once a person becomes a member of Seed Savers, they also have access to over 1000 varieties of seeds in the Spring Newsletter, each year. 'Seed to Seed Food Gardens in Schools' is available for free as a pdf file from the website; it is available for sale there, too, as are other books, 'The Seed Savers' Handbook' and 'Local Seed Network Manual'.

Seeds are living things. *They are, in fact, a tiny bundle of stored energy just waiting for the appropriate signal to burst into life.* Every seed puts that stored energy to work, in the production of a brand new plant. Because it is living, a seed can be affected by different external influences: eg excessive temperature, light and humidity may affect the germination potential. If a seed is not planted within a given time, it will gradually lose the ability to germinate and grow. Not all varieties of seeds have the same viability period. Most vegetable seeds have 2 to 5 years of viability from when the seeds are picked. Some plants produce seeds that are viable 10 or more years. However, in common with all other living organisms, there comes a time when seeds literally die, even when kept in ideal conditions.

Saving your own seeds from the garden gives you a sense of continuity and accomplishment. You care for the life of your plants from germination to harvest. The cycle is then completed, by gathering seed to have ready for planting the next season.

As seeds ripen, they change colour from green to pale yellow or light brown, dark brown, or black, depending on the variety. As a general rule, seeds can be collected when they are not green like the leaves of the plant, and before they drop from the plant. Most seed capsules can be harvested when they are filled out, which could be before the capsule is completely brown and dry. Some types of seedpods, if left too long when mature and dry, can shatter, dispersing seeds in different directions; this is nature's clever way of distribution. Plants that self-seed can be very hardy and productive in the garden, growing with minimal attention. Such varieties include lettuce, radish, carrot, silverbeet, spring onions, leeks, calendulas, dill, fennel, parsley, rocket, and many kinds of herbs.

Method: collect the seed on a dry day, as any dampness could cause the seed to go mouldy. Pick seed into paper bags, open boxes or containers. Then, allow seed to dry out completely, before storing away in a dry, dark, cool area. Once the seed is completely dry (this could take 1-3 weeks) it can be separated from capsules or pods. Then, any clinging dry matter, can be dislodged, by rubbing the seeds in the hands (or in a sieve), and then winnowing away the debris.

Saving 'wet' seeds from vegetables or fruits that are imbedded in a soft, moist pulp, like tomatoes, cucumbers, pumpkins and tamarillos, require a 'wet cleaning' procedure. After scooping out the seeds there

will be some flesh attached, so place everything in a large container and rub it vigorously between the hands, while running water over the pulp. This will loosen the seeds. If the seeds do not separate completely, the pulp can be left in the container with water, 10-20 hours or more, stirring every couple of hours with a spoon or stick. What actually happens, is the pulp starts to ferment and will float to the top, and the seeds will sink to the bottom. The pulp can be drained away, the seeds placed in a sieve and rinsed with clean water, and the nice clean seed spread out on a plate, paper or tray to dry out, completely. Fast-tracking method: a quick and easy seed-saving method is simply to place seeds straight from 'wet' fruit or vegetables onto a paper towel and allow to dry. Store the seed in airtight containers. When needed, place pieces of the paper towel with dried seed straight into the soil.

Storing cleaned seeds in used envelopes, cardboard boxes, cotton, calico or paper bags is an important step. This process allows the seeds to breathe and, if there happens to be a little moisture in the seeds, they will still be able to completely dry out. Packets of seeds need to be named and dated. **Note:** if seed is sealed in airtight containers like glass jars, and there happens to be more than 6% of moisture in the seed, condensation could occur inside the container, causing the growth of mould. If glass jars are used, the lids must have holes punched in to prevent condensation. Paper seed packets may then be successfully stored inside.

Some insects might think you have grown seeds just for them to feast on (eg grains, peas, beans, sunflowers and pumpkins); therefore, include insect repellent with stored seeds. Try dried leaves of bay, allspice, eucalyptus, tansy or rosemary. Adding a very small amount of diatomaceous earth (fossilised diatoms finely ground to a powder), p 103, to the dried seeds, when storing, can give protection from insects. Mice and other rodents enjoy seeds, too, and could eat your entire supply in a night. This may require storing packets of seeds inside mouse-proof containers, such as biscuit tins, with lids.

Enclosing a small amount of silica gel crystals may be used to help prevent condensation (available from chemist shops, or use silica satchels, which often come in shoe boxes). These can be used to absorb moisture when seed packets are stored in sealed containers. Check storage containers, regularly, as these seeds are a practical investment in your future food supply.

Before storing seeds check for insect infestation. The eggs of weevils and other insects may even hide under the seed coat of beans and corn, and emerge when the temperature is right. Placing seeds in a freezer for two days (inside a sealed container: eg paper bag within a sealed plastic bag) kills most weevils and insect eggs.

When to plant seeds of various food crops will be governed by the climatic zoning of where you live and whether the plant varieties are annuals, biennials or perennials. **Annuals** are plants that typically start from seed and complete their lifecycle of growth, flowering and seeding in one season, which could be from 3-6 months. Some annuals, like sweet basil and perilla can also be grown from cuttings. Generally,

annuals would be planted in spring or early summer and grow quite quickly, bloom, set seed, and die down in autumn. However, in sub-tropical to tropical areas some annuals that do not grow well in hot summers are better suited to planting in autumn, and will bear through the winter, with seed for picking in spring (eg broad beans, spinach, silverbeet, and lettuce varieties that prefer cooler conditions). Some plants that are grown as annuals in temperate and cold climates, such as tomatoes and salad mallow, may perform more like a perennial in warmer and tropical climates. **Biennial** plants have an extended life, usually flowering and seeding in the second growing season, and then will die. **Perennial** plants may grow from seed or some can be only reproduced by cuttings or root division, and will last more than one season. In fact, their length of life may be two or many more years, depending on the type of plant. Perennials are usually very hardy plants that can adapt to a wide range of climates. Some perennials die back over winter and may go completely dormant by dropping leaves in cold climates, and then will shoot again in spring. Plants like taro, cassava, sweet potato, ginger, rhubarb, turmeric and arrowroot are perennials, known for their hardiness. As perennials have a long life, they need to be given a place in the garden that can be a more permanent position than annuals, which have only a few months duration. Perennial plants are an essential part of self-sufficiency gardens.

Sowing your saved seeds is the start to your future food production. This could mean just a few large pots, if living in a unit; a small garden bed in a backyard or long rows in larger areas. Concreted areas can also be utilised with raised garden beds, in old washtubs and resized rainwater tanks. As most vegetables and herbs will germinate best with temperatures between 15-30°C, planting in spring and summer will give good results. For seeds to spring to life they require moisture and light. Many seeds, such as beans, peas, carrots and pumpkins can be sown direct into the soil in the garden.

When starting seeds in pots, use a seed raising mix, a fine compost, or loose friable soil from the garden. Another alternative is a mixture of 1 part compost, 1 part river sand and 2 parts loamy soil, which gives an open textured mix, for raising seeds. Before planting seed, it is an advantage to soak the seed in hot (but not boiling) water, and leave to soak a few hours or overnight. This is an advantage for large seeds, or for seeds like peas and other legumes that have a hard seed coat. Soaked seed will germinate several days quicker than non-soaked seeds. Some seed coats have inhibiting substances, which prevent seeds from germinating. Soaking such seeds helps to break down the inhibitors.

Seed sprinkled over potting mix in punnets and pots (or planted individually in tubes) should be covered with a fine soil mix, twice the thickness of the seeds. For very fine seed, do not over-cover. Label the pots with the name of the seed and the date planted. Place pots in a warm place and lightly water each day.

Some seeds germinate quickly, within a week or two. A large range of herbs and vegetables germinate

in 2-4 weeks, while some seeds may take 6-18 months or longer (eg ginseng, licorice). Many deciduous trees will not germinate from seed until the seed has been through a period of chill. For these, it is an advantage to store seed packets in the refrigerator for a couple weeks before planting. A number of herbs, including echinacea and parsley, often benefit with this cold treatment. Tropical fruits are best planted as soon as the fruit is eaten, for good germination. Seeds from

rare plants may be temperamental and difficult to germinate, that is why they are rare.

Once seeds are planted, keep soil in the pots or garden moist, not soggy, as seed can rot with too much water. Take care that the pressure of water does not dislodge the seeds. If seeds dry out for a short period, this can cause germination to cease. So, do be diligent with planted seeds for best results. Keep seeds out of the way of ants, birds, mice, slugs and snails that creep out at night to devour emerging seedlings. One way to check for these night creepers is to take a torch and look for them after dark.

When seedlings are 2-4cm high, at the 4-6 leaf stage, divide the young plants into individual pots. Then, when these plants have put on new growth, they will be ready to transplant into a permanent position.

When I go into my garden, gathering seeds, I marvel over their diverse colours and shapes, and the benefits to health they provide.

Enjoy your garden, food harvest, and seed saving!

Handy hints for every home and garden

These hints can help reduce the use of cleaning and household products, and cut your weekly cost of living, and more...

* When a **toothbrush** is well used, but not yet 'shaggy dog', freshen it up with ½ teasp. salt in ½ cup of water and leave soak a couple of hours; or put 3% hydrogen peroxide onto bristles, rinse well before using.

* To **moth-proof woollen** blankets and clothes, melt a camphor block in a cup of hot water and add to the rinse water when washing. Alternatively, use 2 teasp. eucalyptus oil added to the rinse water.

* To **sharpen blunt scissors**, cut into some sandpaper (or into aluminium foil) a few times, or use the scissors to make a cutting motion around the neck of a glass bottle, and this will help sharpen the blades.

* To **clean and to deodorise carpets**, sprinkle liberally with baking soda, leave on half an hour and then vacuum.

* To **freshen your breath**, chew a few fresh peppermint, spearmint, or parsley leaves. It is a good idea to have some growing in a pot near the door to pick when rushing off to work or to an appointment.

* For **sore throats**, pick from garden and put 1 heaped teasp. each of rosemary, sage and plantain leaves (chopped finely) in 2 cups of boiling water and 1 teasp. honey, and let steep 5-10 minutes. Use as a gargle 6 or more times a day.

* To **eliminate cooking smells** in the kitchen, place vinegar in an open bowl beside the stove when cooking.

* To remove garlic, onion, fish or other **food odours** from chopping boards, make a thin paste with a small amount of bi-carbonate soda and water and apply to the area, leave 1-2 hours; then, wash the board.

* When **ants** want to come **inside**... sprinkle a few whole cloves where they are making their entry; or mix ½ cup sugar and 1 cup borax in a jar, put into a jar with holes punched in the lid and use this mixture to sprinkle around foundations or where ants are working, or just sprinkle a little talcum powder around.

* To **catch** the elusive **mouse**, set a trap with a little vanilla on bread; or a pumpkin seed; or set the trap with a little cheese or peanut butter wrapped in a small piece of plastic wrap, which will take the mouse longer to chew through to get the morsel; and, hopefully, the trap will do the rest.

* **Mosquitoes** do not like the aroma of mint, or of lit aromatic candles, so these can help keep them at bay. Listerine in small spray bottle, and sprayed, when relaxing or working outside in summer, is found to keep the critters away.

* When **cleaning** the inside of the **refrigerator**, wipe with a little bi-carb soda on a damp cloth, and then wipe with a dry cloth.

* To eliminate **strong odour in shoes**, sprinkle bi-carb soda inside shoes and leave in overnight; or use a few drops of eucalyptus oil.

* To **wash floors**, use ½ bucket hot water with ¼ cup vinegar added. This same mix can be used in the bathroom to clean glass and mirrors, and to disinfect the toilet.

* Bi-carbonate soda and a damp cloth or brush is a **useful aid for cleaning** tiles, bench tops, shower, bath and toilet.

* To stop **mildew** on the **inside of fridge**, try wiping inside with a little vinegar on a cloth. To keep the rubber seal of the fridge in good condition, clean and free of mould, place a little methylated spirits on a damp cloth and give it a good rub, regularly. To clear a block in the drainage system in the fridge, use a drinking straw and blow down the drain. As it clears it will make a gurgling sound.

* **Bloodstains** on clothes: remove fresh stains by soaking in cold water with several teaspoons of salt. For old blood stains, try soaking stained cloth in 1 tablespoon ammonia and 2 cups of water; or moisten and use milky sap from green paw-paws (the enzyme papain digests protein); but use gloves to protect your hands from this sap.

* For **fruit** and fruit juice **stains**, first rinse the stain with cold water; soak the area with 1 cup of water and 1 tablesp. liquid detergent; and, wearing gloves, rub the area by hand, rinse. For really persistent stains, apply a little glycerine and leave on 1 hour. Then apply a little vinegar for 10 minutes. Rinse out and wash well.

* To remove **grass stains** from clothes, sponge the spot with methylated spirits, eucalyptus oil, or glycerine, leave on for an hour; then, wash clothes, as usual.

* To take fresh **ballpoint pen stains** out of fabric, rub on a little salt or talcum powder. Then remove the stained powder and apply more until the stain has all been taken up into the powder, and wash fabric. Alternatively, apply methylated spirits on a cloth, and sponge the area with 1 cup of warm water mixed with 1 teasp. vinegar and 1 tablesp. liquid detergent. Or dampen stain with full-cream milk, then with methylated spirits; afterwards, just wash in the usual way.

* Clothes with **fresh oil-based paint stains**, use turpentine or the thinner recommended on the paint tin, as a degreaser; dab area with paper towel. Then, sponge the area with a mixture of 1 teasp. white vinegar and of liquid detergent. Wash well.

* For **shoe polish stains** on **carpet**, place turpentine on a cloth and rub on, gently and careful, to spread the polish. Sponge the area with 1 teasp. each, of white vinegar and liquid detergent, and 1-2 cups of warm water.

* In wet and humid weather, if **mildew** develops on clothes, dab on vinegar; or soak the stain in lemon juice mixed with 1 teasp. salt, leave it dry in the sun, and then wash.

* For **cleaning windows**, wash with a mixture of 1 tablesp. vinegar, 1 teasp. liquid detergent and 2 litres of warm water; or clean windows with methylated spirits on a damp cloth; or use wet newspaper to clean the window (in place of a cloth) and then polish the window using a dry scrunched-up newspaper.

* When a **saucepan is burnt** on the inside, place 1 heaped tablesp. of baking powder and 2-3 cups of water in pot and simmer for 5 minutes. Let stand several hours, if necessary, then clean pot. For pots with burnt-on greasy foods, put 1 tablesp. vinegar and 2 cups of hot water in the pot and soak 1-2 hours, and then cleaning should be easier.

* Save all small pieces of soap, and keep these **soap scraps** in a jar or wide-necked bottle, and when full of scrap soap, fill with water. When the pieces are soft, put in a kitchen whizz and turn into ¼ liquid soap to use in the washing machine, or into an empty liquid soap-pump dispenser to use for washing hands. If no whizz, just leave the pieces to soak in water, they will gradually soften. (Or grate soap, first.)

* No **eggs in the house**... a good substitute when making biscuits or cakes, is to mix 1 level dessertsp. custard powder and 1 tablesp. milk to replace an egg in the recipe.

Or soak 2 tablesp. flax seeds in 1 ½ cup of cold water for several hours, so that the seeds soften and swell up; then blend in a blender until smooth and thick. ¼ cup of this egg replacer equals 1 large egg. And see also as an egg replacer (p 101).

* To **tone down a hot curry**, add a little of one or two of the following: lemon juice, potato, milk, yoghurt or sour cream.

* As most garden insects do not like a sticky surface, a solution of 1 cups of treacle or golden syrup to 2 litres of water, will help to **deter grasshoppers and other pests** on leaves. Spray on or use a watering can and repeat after wet weather.

* **Urine spray** is an old remedy for deterring insects on plants, and is useful as a foliage fertiliser. Mix together: 1 cup of urine, 4 litres of water, and ¼ cup of Lux Flakes, and spray on leaves to deter insects.

* **Tomato leaves are toxic** so we do not eat them; however, the leaves are made into a useful spray to control aphids and caterpillars on plants. Boil 500 grams tomato leaves and 5 litres water 5 minutes. Strain mixture and add ½ cup Lux Flakes or liquid soap. Dilute 1 part spray to 4 parts water and spray. It is said, this mixture should not be used on tomatoes, capsicum or potato plants (these plants are from the same Solanaceae family).

In conclusion ... be prepared!

There are many practical things we can do each day to make the most of our lives, even in bleak situations. Life may have many burps, hurts, hardships and sorrows. Within us is the ability to see sunshine, even in storms. If anyone has recently experienced losing a family member or close friend in death, you will know that life is fragile, but we can have hope (see New Testament, 'The Message Bible' in everyday language).

Some things we can do:

- * Live simply, in as many facets of daily life as we can.
- * Take action to reduce, recycle, repair and reuse, over again.
- * If it will brighten someone's day ... then say it, do it; show love, kindness, compassion: a friendly look, a cheery smile, one kind act, and life is worthwhile ... again.
- * Make a commitment to want optimum health. The human body is the 'planet' of each person. Your 'planet' is superbly designed and unique - 'a once off' that does require special care. What we eat and drink affects our body as a whole. *Just as we need to take care of the environment and planet earth we live on, so too, it is vital that each person provides an optimal level of care for their body.* You would expect good care from your local hospital so treat your own body with respect ... before it gets there!
- * Use opportunities to develop talents and skills, then life will be rich and meaningful. Become a member in a local LETS system (Local Energy Trading System). LETS is a support network, an exchange/trading system for sharing skills and services in the community. It is based on the view that all people have valuable skills and services to share with their community, whether they are unemployed, self-employed, elderly or retired. LETS creates employment. A participant is able to get those neglected jobs done, help other participants in need, and make use of the communities true wealth - the skills and services of the people, without the use of money, and provide an alternative to the monetary economy, and thus, lessen the pain of the global financial crisis.

<http://www.gmlets.u-net.com/explore/explrdir.html>

* Develop essentials for happiness: someone to love, something meaningful to do, and something to hope for.

* Read something inspirational daily; meditate (take time to still the mind, thoughts and emotions; to create inner peace and become more focused on what is truly important in life); and pray (prayer is about connecting our heart to God's heart).

* Appreciate the wonderful world we call home, and also the little things in everyday life, that we often take for granted.

* There are many ways we can live a fulfilled, abundant and prosperous life: find your balance in health and wealth, knowledge, love and happiness. Prosperity has been called a flow of giving and receiving. We can take a wonderfully positive view of life, with the words of Rabindranath Tagore, "I slept and dreamt life was a pleasure; I woke and saw life was service; I served and discovered that service was pleasure."

* We can make decisions and have a vision to take action, with opportunities and practical changes that will benefit our world.

We all have an instinct to survive - call it 'love of life'. There is desire, a burning need to survive: to live life for today, tomorrow, and the next morrow. For this reason, when we think of 'time', it is wise to use it wisely. Time runs on, it can't be stopped, time can't be saved or repeated, and time cannot be bought or sold. Think about how best to use your time.

In this book, I have established that we are in for change, whether we like it or not. We can bury our head in the sand and try to forget about it (that is until we go to purchase petrol), **OR** we can think about it and never quite get to doing anything about it, like the words of the Unknown Author, 'You cannot plough a field by turning it over in your mind' **OR** 'We can think of an idea to change the world and put it into action', like in the movie, 'Pay it Forward' **AND** we can all be **wise like Scouts** and **'be prepared'**.

As I started to write this final chapter, what came to mind is that we live in a lucky country... no, I am not sure it is luck. Perhaps, I will write ... we are fortunate to live in Australia, a land of plenty. No, what I really want to say is that we are truly blessed. In my life, I know, no matter what has happened with highs and lows, I have been held in the hands of God. We all have life and a positive part to play, something special to give, just like Edward Everett Hale's words: "I am one. I cannot do everything. And because I cannot do everything, I will not refuse to do something that I can do. What I can do, I should do. And what I should do, by the Grace of God, I will do."

So much more could be written ... this will suffice for now ... and each person can go and add their personal touch to 'preparedness'.

My desire for you is to laugh lots and enjoy life, and that you put your hand into the hand of God.

Words of a quote to encourage you, written in 1908 by inspirational poet, Minnie Louise Haskin, and lecturer in Economics in London:

I said to the man who stood at the gate of the year

'Give me a light that I may tread safely into the unknown.'

And he replied, 'Go into the darkness and put your hand into the hand of God. That shall be to you better than light and safer than a known way!'

Getting to Know Important Herb and Food Plant Families

Note: the list in each Family is not a complete list, but each list gives some of the familiar edible plants and medicinal herbs, and also lists some of the toxic and poisonous plants to be aware of in these families. Poisonous plants are noted with an * after the plant name. Plants in a particular family may have similarities in leaves, flowers, seed capsules, food or flavouring uses, and medicinal properties.

Acanthaceae

Mushroom Plant, King of Bitters

Amaranthaceae

Grain Amaranth, Tampala, Mukunuwenna, Sambu Lettuce, Purple Mukunuwenna, Bhajhee

Amaryllidaceae

(Formerly known as Liliaceae)

- Symbol – purity, purifying plants

Garlic, Leek, Chives, Shallots, Onion, Tree Onion, Society Garlic

Apiaceae

(Formerly Umbelliferae family)

Flowers and seed heads have 'umbrella' shape

- Symbol – Protection

Angelica, Anise, Arracacha, Ajowan, Asafetida, Cnidium, Carrot, Celery, Celeriac, Chervil, Coriander, Thai Coriander, Cumin, Dill, Caraway, Parsley, Gotu Kola, Fennel, Lovage, Mitsuba, Sweet Cicely, Parsnip, Rock Samphire, Poison Hemlock*

Araceae

Calamus, Coco Yam, Taro, Monsterio

Asteraceae

(Formerly Compositae family)

Daisy flowers and sun lovers

- Symbol – Harmony

Artichoke (Globe and Jerusalem), Calendula, Camomile, Golden Rod, Coltsfoot, Curry Plant, Chrysanthemum, Chicory, Lettuce, Cardoon, Burdock, Dandelion, Cornflower, Echinacea, Elecampane, Endive, Everlasting Daisies, Feverfew, Chop Suey Greens, Marigold, Mouse Ears, St. Mary's Thistle, Southernwood, Milk Thistle (Puah), Mugwort, Eclipta, Emelia, Pyrethum, Stevia, Tansy, Sweet Fruit Root, Sunflower, Bellis Perennis, Cobblers Pegs, Groundsel, Tarragon, Sweet Tarragon, Toothache Plant, Blessed Thistle, Wormwoods, Yarrow

Boraginaceae

Comfrey, Borage, Forget-Me-Not, Lungwort

Brassicaceae

(Formerly Cruciferae family)

Flowers are in shape of a cross

- Symbol - Sacrifice

Cauliflower, Mustard, Kale, Cabbage, Brussel Sprouts, Broccoli, Radish, Cress, Turnip, Rocket, Watercress, Horseradish, Wasabi, Money Plant, Maca, Flickweed, Shepherd's Purse

Cucurbitaceae

Cucumber, Zucchini, Pumpkin, Watermelon, Rockmelon, Choko, Chilacayote, Bitter Melon, Pie Melon, Squash, Snake Gourd, Flour Gourd, Loofah, Long Bean, Gourds

Euphorbaceae

Cassava, Sweet Leaf Bush, Star Gooseberry, Petty Spurge* Phyllanthus, Queensland Asthma Weed*, Candlenut, Snow-in-the-Mountains*

Lamiaceae

(Formerly Labiatae family)

Plants have lip-shaped flowers and square stems

- Symbol – Devotion

- Action – soothing, tonic properties

Mints, Thymes, Basils, Sages, Chia, Oregano, Marjoram, Savory, Rosemary, Skullcap, Lavender, Self Heal, Lemon Balm, Betony, Chinese Artichokes, Motherwort, Woundwort, Perilla, Catnip, Calamint, Cat's Whiskers, Bergamot, Mother Of Herbs, Bugle, Alehoof, Pennyroyal, Hyssop, Patchouli, White Horehound, Ratala/Inula, Hottentot, Germander, Plectranthus / Coleus

Lauraceae

Bay, Avocado, Cinnamon, Sassafras, Camphor Laurel*

Legume / Fabaceae Family

(Formerly called Leguminosae)

Now divided for convenience into

3 Sub-Families:

- Caesalpinaceae

Includes Legumes like Tamarind, Carob, Bauhinia, Cassia,

- Mimosaceae

Includes Sensitive Plant, Wattles, Icecream Bean,

- Fabaceae

(Papilionaceae)

(Many of the food legumes)

Alfalfa, Fenugreek, Lentils, American Ground Nut, Peanuts, the many Bean varieties that we use as food, Peas, Chickpeas, Caterpillar Plant, Jicama, Kudzu, Binko, Lupin, Licorice, Mellilot, Butterfly Pea, Indigo, Pigeon Pea, Pinto Pea, Guar, Red Clover, Rice Beans, Mucuna, Vegetable Hummingbird Tree, Senna, Crotalaria, Gidee-Gidee*, Tree Lucerne, Bush Lucerne, Tephrosia, Derris, Goat's Rue, Leuceana, Sturt Desert Pea, Cancer Bush / Sutherlandia

Liliaceae

Aloe species, Lily-of-the-Valley, Daly Lily, New Zealand Flax

Moringaceae

Drumstick Tree, Phantom Tree

Myrtaceae

Allspice, Clove, Eucalyptus, Culinary Myrtle, Brazilian Cherry, Indian Hill Gooseberry, Midyim, Cedar Bay Cherry,

Jambolan, Nutmeg, Grumichama, Lilly Pilly, Bottlebrush, Jaboticaba, Guava, Lemon Myrtle, Rose Apple, Feijoa, Malay Apple, Melaleuca, Wax Jambu, Leptospermum

Papaveraceae

Greater Celandine, Poppy

Piperaceae

Peppercorns, Betel Leaf,

Betel Pepper, Kava

Poaceae

(Formerly known as Gramineae)

Wheat, Barley, Rice, Oats, Rye, Bamboo, Palmarosa, Vetiver Grass, Lemon Grass, Native Lemon Grasses, Vanilla Grass, Corn, Incense Grass, Citronella Grass, Reed Canary Grass Job's Tears, Zebra Grass, Job's Tears

Polygonaceae

Buckwheat, Vietnamese Hot Mint, Tade, Rhubarb, Turkey Rhubarb, French Sorrel, Sheep Sorrel, Docks

Portulacaceae

Purslane, Leaf Ginseng, Jade

Rosaceae

- * Symbol – Love

- Herbs and fruits good for the heart

Rose, Hawthorn, Nectarine, Strawberries, Blackberries, Raspberries, Native Raspberries, Agrimony, Salad Burnet, Meadowsweet, Ladies Mantle, Potentilla, Cinquefoil, Avens, Apples, Pear, Quince, Almond, Peach, Cherries, Apricot, Prune (and all in the Prunus genus)

Rutaceae

Curry Leaf Tree, Bael Fruit, Rue, Lemon, Orange, Mandarin, Wampi, Pummelo, Grape Fruit, Elephant Apple, Lime, Australian Finger Lime, Boronia, Kaffir Lime, White Sapote, Kumquat

Scrophulariaceae

Brahmi, Rau Om, Paulownia, Black Mullein, White Mullein, Brooklime, Speedwell

Solanaceae

Tomato, Potato, Capsicum, Chillies, Indian Ginseng, Goji Berry, Eggplant, Cape Gooseberry, Native Gooseberry, Chinese Lantern, Pepino, Duboisia, Udder Plant*, Mandrake, Henbane* Tobacco*, Datura* Jimson Weed* Shoofly Plant*, Native Tomato, Black Nightshade, Belladonna*, Duboisia, Kantikari, Devil's Apple* Tamarillo

Tiliaceae

Salad Mallow, Jute, Linden, Grewia

Valerianaceae

Lemon Verbena, Vervain, Valerian, Chaste Tree, Corn Salad, Aztec Sweet Herb, Lantana*

Violaceae

Sweet Violet, Heartsease, Pansy

Zingiberaceae

Gingers, Cardamom, Galangals, Turmeric, Kenchur, Chinese Keys

Bibliography, references, and web sites with information on book topics

Aboriginal communities of the Northern Territory of Australia,
Traditional bush medicines, an Aboriginal pharmacopoeia

Biggs, M. & Flowerdew, B. & J. McVicar, *The complete book of
vegetables, herbs and fruit*

Cherikoff, V. *The bushfood handbook*

Clayfield, R. *You can have your Permaculture and eat it too*
robin@earthcare.com.au

Colburn, T. & Dumanoski, D. & Meyers, J. *Our stolen future*

Cribb, A.B. & J.W. *Wild food; Wild Medicine*

Dennis, R. & Hamilton, C. *Affluenza*

Everist, S.L. *Poisonous plants of Australia*

Facciola, S. *Cornucopia – a source book of edible plants*

Fuller, B. *Harnessing the sun*

Glowinski, L. *Complete book of fruit growing in Australia*

Gribling, R. *Drying food*

Grieve, M. *A Modern Herbal*

Isaacs, J. *Bush Foods*

Kleinschmidt, H. *Suburban weeds*

Lassak, E.V. & McCarthy, T. *Australian Medicinal plants*

Low, T. *Bush Tucker; Wild herbs of Australia and New Zealand*

Mc Barron, E.J. *Poisonous plants handbook for farmers and graziers*

McFarlane, A. *Organic vegetable gardening*

Martin, F.W. & Ruberta, R.M. *Edible leaves of the tropics; &
Survival and subsistence in the tropics*

Mollison, B. *The Permaculture book of ferment and human
nutrition; Introduction to Permaculture*

Richardson, R.G & F.J. *Pretty but poisonous*

Smith, K & I. *Grow your own bushfoods; Growing uncommon fruits
and vegetables*

Sturtenant, E.L. *Sturtevant's Edible Plants of the World*

Turner Neal, J. & Henderson, M. *Bush Food*

Grassroots magazine, Australia

Dickey, E. *Passport to survival*

GM ref. True Food Guide, May 2002 ed., produced by
Greenpeace and GeneEthics Network. (Visit www.greenpeace.org.au/truefood and call 1800 815 151 for a comprehensive free
booklet.)

Irradiation-free Food Guide, Autumn 2007 ed., produced by
Food Irradiation Watch (www.foodirradiationinfo.org and call
0411 118 737 for a free copy of this informative guide.)

<http://www.nationalterroralert.com>

<http://www.keeppaustraliabeautiful.org.au/>

<http://www.redcross.org/index.html>

<http://www.aussieslivingsimply.com.au/news.php>

<http://www.aussurvivalist.com/>

www.permaculture.org.au

<http://www.standeyo.com/index1.html>

www.nutrientdensenutrition.com

www.edenseeds.com.au

www.greenharvest.com.au

<http://docsfrugalworld.blogspot.com/>

<http://www.alkalizeforhealth.net/library.htm>

<http://www.sodis.ch/>

<http://www.greatturningtimes.org/>

<http://www.savewater.com.au/>

[http://www.redcross.org.au/ourservices_acrossaustralia_](http://www.redcross.org.au/ourservices_acrossaustralia_disasteremergencydefault.htm)
[disasteremergencydefault.htm](http://www.redcross.org.au/ourservices_acrossaustralia_disasteremergencydefault.htm)

<http://www.karina.com/chlorine2.htm> Anti-chlorine

http://www.wearewhatwedo.org.au/about_us/

http://beprepared.com/article.asp_Q_ai_E_6_A_name_E_InightArticles

<http://www.greenfoot.com.au/>

<http://www.living-foods.com/articles/enzymes.html>

[codex http://www.greatestherbsonearth.com/codex_information.htm](http://www.greatestherbsonearth.com/codex_information.htm)

[codex video http://www.greatestherbsonearth.com/we_become_silent.htm](http://www.greatestherbsonearth.com/we_become_silent.htm)

<http://www.stjohn.org.au/>

<http://www.grandpappy.info/indexhar.htm>

<http://www.ecodirectory.com.au/>

<http://www.mrssurvival.com/links.html>

<http://www.alkalizeforhealth.net/Ltmhealth5.htm>

<http://www.organicfooddirectory.com.au/search.php>

<http://www.frugaltimes.com/frugaltips.html>

<http://www.nitro-pak.com/>

www.electropollution.com/

<http://synergymcg.com/content/view/34>

<http://www.resilient2disaster.com/tiki-index.php>

<http://www.disaster-zone.com/>

<http://theoldfoodie.blogspot.com/>

<http://www.australianregionalfoodguide.com.au/>

www.payitforwardfoundation.org

<http://www.simplicityforum.org/simplesolutions-climatecrisis.html>

<http://water4gas.com/2books.htm?hop=imejerry>

<http://www.wisegEEK.com/what-are-some-uses-of-hydrogen.htm>

www.ready.gov/america/_downloads/familyemergencyplan.pdf

<http://www.energyfields.org/>

www.radiationresearch.org

<http://juicefeasting.com>

<http://www.rawpower.com.au/>

<http://www.gardenorganic.org.uk/>

www.earthsave.org

www.storyofstuff.org

<http://transitiontowns.org>

www.seac.net.au

Index

Names of recipes are in bold type in the index

A

Abrus precatorius Gidee-gidee 77
abscesses 66
Acacia species 77, 78
Achillea millefolium Yarrow 110
Acmena smithii Hot flush lillypilly 75
acne 79, 116
Acrotriche serrulata Heaths, Honey pots 78
Adansonia gregorii Boab tree 77
adaptogen 106
ADD 102, 109, 116
addictions 122
Addison's Disease 105
adrenal glands 61, 106, 111, 115, 117
Aethionema cordifolium Lebanese cress 88
African cucumbers *Cucumis metuliferus* 11, 25
Agoratum conyzoides Blue top, Billygoat weed 71
AIDS 99
Alehoof *Glechoma hederacea* 118
Alfalfa *Medicago sativa* 11, 71
alkaline, alkalinity, alkalisng 45, 57, 58, 71, 88, 93, 120
allantoin 59, 102
allergies 62, 99, 107, 116
allicin 107
Allium ampeloprasum, *A. giganteum* Giant garlic 106
Allium sativum Garlic 106
Allspice *Pimenta dioica* 111
almonds 111
Alocasia macrorrhiza Cunjevoi 80
Aloe aborescens Candelabra, tree aloe 98
Aloe perryi Socratine aloe 98
Aloeshampoo and bodywash 100
Aloe tooth gel 99
Aloe Vera barbadensis Aloe 12, 98
Aloysia triphylla Lemon verbena 112
Altemanthera sissoo Sambu lettuce 89
Altemanthera triandra Mukunu-wenna 89
Altemanthera versicolor Purple mukunu-wenna 89
Alzheimer's Disease 109, 111, 113, 117
Amaranth 11, 36, 90
Amaranthus candelatus Love-lies-bleeding 61
Amaranthus hypochondriacus Grain amaranth 61
Amaranthus lividus Indian cabbage 61
Amaranthus spinosus Spiny amaranth 61
Amaranthus Tricolor Vegetable amaranth 61
Amaranthus viridis Green amaranth 61
American Ginseng *Panax quinquefolius* 117
anaemia, jaundice, anaemic conditions 45, 52, 59, 61, 87, 99, 107, 109, 114
anaesthetic 116
analgesic 99, 106, 111
Andrographis paniculate King of bitters 106
angina 62, 70
Angled loofah *Luffa acutangula* 26
Aniseed myrtle *Backhousia anisata* 79
antibacterial 62, 106, 109, 111, 112, 114, 119
antibiotic 45, 64, 86, 89, 99, 101, 106, 107, 108, 111, 119
antidepressant 112
antifungal 106, 114
antigens 84
anti-inflammatory 99, 106, 107, 109, 111
antimicrobial 99, 108, 117
antioxidant 58, 63, 64, 88, 89, 90, 99, 101, 102, 106, 108, 109, 111, 112, 118
antiseptic 59, 63, 79, 111, 119
antithrombotic 106
antiviral 86, 106, 112
anxiety, stress 105, 108, 109, 112, 115, 116, 118, 122
Aphid spray 108
aphrodisiac 109
Apium leptophyllum Wild carrot, Slender celery 65
Apricot jam 48
Aquilegia species Columbine 80
Arachis pintoi Pinto pea 22
Araucaria bidwillii Bunya nut 77
Arla bush 12
Armoracia rusticana Horseradish 113
Arrowroot *Canna edulis* 22, 26

Artemesia aborescens Tree wormwood, Roman wormwood 119
Artemesia absinthium Wormwood 119
Artemesia afra Wild wormwood 119
Artemesia velotorum Tree mugwort 119
Artemesia vulgaris Mugwort 119
arteries, dilating 70
arthritis, rheumatism 52, 60, 62, 66, 78, 99, 102, 105, 108, 111, 113, 115, 116, 118
asthma 60, 62, 90, 117
Atriplex cinerea Grey saltbush 76
Atriplex nummularia Old man saltbush 76
Aussie damper 49
Austromyrtus dulcis Midyim, Sandberry 75
autism 99
Azadirachta indica Neem 115
Aztec sweet herb *Lippa dulcis* 11, 114
B
backache 58, 63, 111
Backhousia anisata Aniseed myrtle 79
Backhousia citriodora Lemon myrtle 78
Bacopa monnieri Brahmi 108
bad breath 87, 99, 109, 114
baldness 62
barley 93
Basella alba Ceylon salad leaves 89
Basella rubra Ceylon salad leaves 89
Basil *Ocimum* species 112
bed sores 99
bed wetting 110
Beetroot relish 49
Benincasa hispida Flour gourds 25
beta-carotene 58, 87
beta-sitosterol 108
Betel Leaf *Piper sermentosum* 90
biliousness 59, 62
Bindens pilosa Cobblers' pegs 62
Black bean *Castanospermum australe* 77
Blackberry nightshade *Solanum nigrum* 70
Black mustard *Brassica Nigra* 63
bladder 59, 60, 61, 89, 99, 109, 114, 116, 118
bladder infection 117
bleeding 59, 62
bleeding gums 109, 111
blood 59, 106, 117, 118
blood-brain barrier 106
blood builder 61
blood cleanser 40, 63, 64, 90, 109, 110, 113, 115
blood disorders 99
blood poisoning 60, 107
blood pressure 39, 45, 57, 59, 66, 70, 99, 102, 106, 108, 114, 115, 116, 117
blood sugar 40, 58, 61, 66, 87, 88, 99, 106, 109, 117
Blossom bouquet bush *Dombeya burgessiae* 12
Blue top *Agoratum conyzoides* 71
Boab trees *Adansonia gregorii* 77
boils 69, 80, 99, 108, 115
bones, fractures 39, 52, 57, 58, 61, 64, 99, 101, 102, 109
Bonesoup 52
Borage *Borago officinalis* 114
Borago officinalis Borage 114
boron 58, 63
Botany Bay greens *Tetragonia tetragonoides* 76
bottling food 31
bowel 59
bowel disorders 59
Brachychiton acerifolium Illawarra flame tree 77
Brachychiton gregorii Desert kurrajong 77
Brachychiton populneum Black kurrajong 77
Brachychiton rupestre Queensland bottle tree 77
Brachychiton species Kurrajong trees 77
Brahmi *Bacopa monnieri* 108, 111
brain 57, 108, 110, 117
Brassica juncea Indian mustard 63
Brassica Nigra Black mustard 63
Brassica rapa Wild turnip 63
Brassica toumefortii Mediterranean turnip 63
bread making 36
Broad beans *Vicia faba* 27
Broad leafed plantain *Plantago major* 59
bronchitis 106, 112
bruises 66, 99

Buckshorn plantain *Plantago coronopus* 59
Buckwheat 93
bunions 99
Bunya nut *Araucaria bidwillii* 77
burns 60, 69, 99, 114, 115, 116
C
Cajan cajanus Pigeon pea 27
Caladium species 80
Calandrina species Parrakeelyas 76
calcium 27, 40, 45, 57, 58, 59, 60, 62, 63, 87, 88, 89, 90, 99, 109
Calendula *Calendula officinalis* 116
Calendula officinalis Calendula 116
cancer, tumours, skin cancer 45, 59, 60, 61, 62, 64, 80, 89, 90, 99, 101, 102, 105, 106, 107, 109, 115, 116, 117
Candelabra *Aloe aborescens* 98, 100
Candida albicans 40, 45, 59, 60, 62, 63, 90, 99, 105, 106, 107, 112, 115, 116
Canna edulis Arrowroot 26
Cape gooseberry *Physalis peruviana* 70
Capsella bursa-pastoris Shepherd's purse 63
Capsicum species Chillies 110
carbuncles 69
Cardamine hirsuta Bittercress, Flickweed 63
cardiacsystem 57
cardiovascular disease 88
carminative 112
Carob *Ceratonina siliqua* 28
Carpobrotus species Pigface 76
cartilage 102, 109
cassava 11
Castanospermum australe Black bean 77
Castor oil plant *Ricinus communis* 79
cataracts 118
catarrh 117
Cat's Ear *Hypochoeris radicata* 58
Cedar Bay Cherry *Eugenia reinwardtiana* 75
celiac disease 99
cell membranes, strengthen 57
cellulite 79
Centella asiatica Gotu kola 102
central nervous system 60, 66, 106, 116
Ceratonina siliqua Carob 28
Ceylon salad leaves *Basella alba* 11, 89
Chamomile *Matricaria recutita* 12, 21, 116
Chelidonium majus Greater celandine 118
Chenopodium album Fat hen 65
Chia *Salvia rhyacophila* 12, 109
Chickweed *Stellaria media* 56, 59
Chillies *Capsicum* species 110
Chinese watercress *Ipomea aquatica* 36, 40, 90
chlorine 5
chlorine bleach 19
chlorophyll 61, 62, 86
Choko pickles 49
Choko *Sechium edule* 11, 26
cholesterol 57, 59, 66, 87, 88, 99, 102, 106, 109, 110, 111, 115, 116, 117
chromium 58, 59, 60, 99
chronic fatigue 45, 61, 117
cinnamon 111, 119
circulatory system, circulation 89, 99, 102, 107, 108, 109, 110, 111, 113, 115, 117, 118, 119
cirrhosis of the liver 59
Citral 78
Citronella grass *Cymbopogon nardus* 112
Citrullus lanatus *citroides* Pie melon 25
Citrus hystrix Kaffir lime 112
Clary sage *Salvia sclarea* 109
Classic Pesto 91
clear thinking 118
Clove basil *Ocimum gratissimum* 62
cobalt 59, 99
Cobblers' pegs *Bindens pilosa* 62
Coco Yam *Xanthosoma sagittifolium* 11, 28
Codex 97
Colchicum autumnale Autumn crocus 80, 83
colds 52, 79, 99, 105, 106, 110, 111, 112, 114, 115, 116, 117
cold sores 116
Coleus amboinicus Mother of herbs 112
colitis 45, 52, 60, 62, 99, 107, 109, 114, 116

colloidal silver 19
Colocasia esculenta Taro 27
 colon polyps 99
Comfrey Symphytum officinale 11, 12, 21, 36, 55, 97, 102
Commelina cyanea Scurvy weed, Wandering Jew 69
 Common peppergrass *Lepidium africanum* 63
 compost 21
 concentration 102, 108, 109, 118
Conium maculatum Hemlock 66
 conjunctivitis 115, 116
 constipation 45, 59, 60, 62, 64, 99, 105, 108, 109, 110, 117
 contraindications 98
 convulsions 117
 copper 62, 99
Corchorus olitorius Salad mallow 88
Coriander Coriandrum sativum 113
Coriandrum sativum Coriander 113
 corns 118
Coronopus didymus Swinecress 64
 coughs 64, 77, 79, 90, 105, 108, 109, 112, 114, 116, 118
 cramps 78, 109, 114, 116, 118
Crassocephalum crepidioides Nodding top, Thickhead 65
Crateagus species Hawthorn 70
 Creeping oxalis *Oxalis corniculata* 65
Crocus sativus Saffron crocus 83
 Crohn's disease 52
Cucumber pickles 49
Cucumis metuliferus African cucumber 25
Curcuma longa Turmeric 111
Cymbopogon citratus Lemon grass 112
Cymbopogon nardus Citronella grass 112
 cysts 60, 118
Cytisus species Broom 80

D
 Dandelion *Taraxacum officinale* 21, 58
 dandruff 99, 114, 115
 Daphne species 80
Datura arborea Angels trumpet 80
Delphinium species 80
 dementia 112
 depression 58, 61, 63, 105, 108, 110, 112, 116, 118
 diabetes 45, 52, 59, 60, 62, 66, 88, 99, 105, 106, 107, 109, 111, 115, 117, 118
 diarrhoea 59, 62, 64, 69, 70, 88, 99, 102, 106, 110, 111, 112, 114, 116, 117
 digestive system, digestion 25, 40, 58, 59, 61, 66, 71, 89, 90, 105, 106, 108, 109, 110, 111, 113, 114, 116, 117
Digitalis purpurea Foxglove 80
 Dish-cloth gourds *Luffa cylindrical*, smooth loofah 26
 diverticulitis 99, 105
Dolichos lab lab Seven year bean 27
Dolmas 40
Dombeya burgessiae Blossom bouquet bush 12
 Down's Syndrome 99
Dried fruit balls 35
Dried fruit leathers 34
 driedgreen leaves 35
 Drumstick tree *Moringa oleifera* 11, 19, 36, 40, 89
 drying herbs 36
 duodenal ulcers 99
 dysentery 62, 69, 107, 115

E
 earache 107, 110
 ear infection 117
 earthworms 21
 eating disorders 61
Echinacea angustifolia 117
Echinacea purpurea 117
 eczema 45, 116
 edible flowers 80
 edible weeds 56
 electric dehydrator 33
 ellagic acid 101
Emilia Emilia sonchifolia 65
Emilia sonchifolia Emilia 65
Enchylaena tomentosa Ruby saltbush 76
 endocrine glands, endocrine system 55, 108, 115, 117

endorphins 63, 110
Energy crisps 36
 enzymes 45, 88, 93
 epilepsy 108, 115, 116
 Epstein-Barr virus 99
Eruca veriscaria sativa Rocket 89
Eryngium foetidum Sawtooth (Thai) coriander 113
 E-smog 5
Essene bread 36
 Essential Fatty Acids (EFA) 57, 89, 109
 Essiac 64
Eugenia reinwardtiana Cedar Bay Cherry, Beach cherry 75
 Eugenol 112
Euphorbia hirta Queensland asthma weed 80
Euphorbia marginata Snow in the mountains 80
Euphorbia peplus Petty spurge 56, 80
Euphorbia pulcherrima Poinsettia 80
Eve's Taro Dip 28
 expectorant 64, 113
 eyesight 60, 111, 118
 eyestrain 99

F
 fat burning 118
 Fat hen *Chenopodium album* 65
 fatigue 60, 61, 88, 89, 105, 106, 108, 115, 116, 117
 fear 122
 Fennel *Foeniculum vulgare* 65, 114
 fenugreek 11, 12, 40, 93, 102, 119
 fermentation of food 37
 Feverfew *Tanacetum parthenium* 117
 fevers 62, 64, 70, 71, 78, 106, 107, 110, 111, 112, 115, 116, 117, 118
 fibromyalgia 102, 106, 111, 116
Ficus carica Fig, cultivated 76
Ficus coronata Sandpaper fig 76
Ficus macrophylla Moreton Bay fig 76
Ficus racemosa Cluster fig 76
 First Aid Kit 13
 Flannel weed *Sida cordifolia* 69
 flavonoids 70
 Flickweed *Cardamine hirsuta* 63
 Flour gourds *Benincasa hispida* 11, 25
 fluid retention, diuretic 58, 61, 66, 99, 108, 116
 fluoridated water 5
Foeniculum vulgare Fennel 65, 114
 folic acid 62, 87, 99
 food drying 32
 food irradiation 6
 food poisoning 26, 62, 116
 food provisions, how to store 24
 fractures 60. See bones, fractures
 fungal infections 117

G
Galinsoga parviflora Yellow weed, Mini sunflower 65
 gall 58, 60, 66, 107, 109, 111, 118, 119
 gall stones 62
 Garden mint *Mentha cordifolia* 114
 Garlic *Allium sativum* 106
Garlic spray 107
 gastric ulcers 69
 gastritis 60, 115
 gastroenteritis 62
 gastrointestinal ulcers 59
 gelatine 52
Gelsemium semperpureus Carolina Jasmine 83
Geranium robertianum Herb robert 101
 germanium 64, 89, 101
 Giant garlic *Allium ampeloprasum* 106
 Giardia lamblia 105
 gibberellins 99
 Gidee-gidee *Abrus precatorius* 77
 Ginger *Zingiber officinale* 111
 gingivitis 115
 glands, glandular system, glandular diseases 40, 59, 66, 71, 90, 109, 118
Glechoma hederacea Alehoof 118
 Glossy nightshade *Solanum americana* 70
Glycyrrhiza glabra Licorice 105
 GM foods 71
 Golden wattle *Acacia pycnantha* 78
 Gotu kola *Centella asiatica* 12, 102, 111
 gout 58, 60, 62, 63, 99, 105, 107, 108, 113, 115, 118

Grain amaranth *Amaranthus hypochondriacus* 61
 Greater celandine *Chelidonium majus* 118
 Greater nettle *Urtica dioica* 60
 Green amaranth *Amaranthus viridis* 61
 greenhouse gas 7, 50
 Grey saltbush *Atriplex cinerea* 76
 grief 122
 Gumbi gumbi tree *Pittosporum phyllireoides* 78
 gums, gum diseases 39, 99, 102, 114
 gums, receding 100

H
 haemorrhaging 61, 101
 haemorrhoids 59, 60, 62, 64, 87, 99, 110, 111, 116
 hair 39, 61, 105. See also baldness
 hakeas 78
 hangover 115
 Hawthorn *Crataegus monogynna* 70
 Hawthorn *Crataegus oxycantha* 70
 hay fever 60, 117
 headaches 58, 62, 78, 79, 106, 110, 112, 113, 114, 116, 117, 118, 122
 head lice 79, 115
 heartburn 99, 105
 heart, heart attack, heart disease, strengthening 15, 26, 58, 60, 70, 99, 108, 109, 110, 112, 114, 115, 116, 117, 118
 heat fatigue 119
 Heath *Acrotriche serrulata* 78
 heat rash 60, 62, 116
 heat stroke 115
 heavy metals, toxicity 6, 61
Helianthus tuberosa Jerusalem artichokes 28
 Helicobacter pylori 79, 105
 Hemlock *Conium maculatum* 66
 hepatitis 45, 106, 115
 Herbal bath 121
 Herb robert *Geranium robertianum* 12, 101
 herpes 45, 99, 105, 112, 118
Hibiscus heterophyllus Native rosella 77
Hibiscus manihot Queensland greens 90
 high-protein leaves 40
 histamine 60
 HIV 106, 112
 hormone imbalance 58
 Horseradish *Armoracia rusticana* 113
 hot flushes 99
Hyacinth orientalis Hyacinth 80
 hydrochloric acid 58
 hydrogen peroxide 19
 hyperactivity 45
Hypochoeris radicata Cat's Ear 58
 hysteria 110

I
Illex paraguariensis Yerba mate 118
 immune system 38, 52, 57, 58, 59, 64, 79, 83, 86, 89, 92, 101, 102, 107, 108, 110, 112, 114, 115, 117, 118
 impotence 108, 111, 117
 incontinence 110, 112, 116
Incredible quiche 92
 Indian cabbage *Amaranthus lividis* 61
 Indian fig *Opuntia ficus indica* 11, 66
Indian Ginseng Tonic 117
 Indian ginseng *Withania somnifera* 117
 Indian mustard *Brassica juncea* 63
 indigestion 60, 62, 102, 109, 111, 112, 114, 115, 116, 118
 infection 64
 infectious diseases 117
 infertility 117
 inflammation 45, 59, 63, 64, 69, 87, 99, 106, 111, 117
 influenza 99, 112
 insect bites 59, 60, 62, 69, 71, 79, 99, 109, 112, 115, 116, 118
 insomnia 61, 99, 105, 108, 111, 115, 116, 118
 intellect, improving 25
 internal parasites 115
 intestinal flora 45
 intestinal parasites, worms 25, 45, 109, 111, 112, 116, 119
 intestines 66, 107
 inulin 27, 58
 iodine 60, 61, 63, 89
 iodine tincture 19
Ipomea aquatica Chinese watercress, Kang kong

90
Ipomea batatas Sweet potato 26
Ipomea species Morning glory 80
 iron 27, 58, 59, 60, 62, 63, 87, 88, 89, 90, 99, 108, 109
 irradiated food 72
 irritable bowel syndrome 45, 59, 99, 102, 108, 110, 112, 114, 118

J

Jade *Portulacaria afra* 89
 Japanese honeysuckle *Lonicera japonica* 62
 Japanese menthol *Mentha arvensis* 114
Jasminum species Jasmine flowers 83
 jaundice, see anaemia 111, 116, 118
 jerky 35
 Jerusalem artichoke *Helianthus tuberosa* 11, 28

K

Kaffir lime *Citrus hystrix* 112
 Kang kong *Ipomea aquatica* 11, 90
 Kefir 45
 Kefir spread 45
 khat 12
 kidneys, kidney diseases 58, 59, 60, 61, 66, 89, 99, 107, 108, 109, 111, 114, 115, 117, 118
 kidney stones 111
 King of bitters *Andrographis paniculata* 106
 Korean Ginseng *Panax pseudo ginseng* 117
 Kurrajong *Brachychiton* species 77

L

lactating mothers 88
 lactation, increase 114, 115
 lactose intolerances 45
Lagenaria siceraria calabash 26
Lantana camara Lantana 80
 Large bottle gourds *Lagenaria siceraria* 26
 laryngitis 114
 laughing 15
 Leaf ginseng *Talinum triangulare* 11, 89
 leaky gut syndrome 99, 116
 Lebanese cress *Aethionema cordifolium* 11, 88
 lecithin 58
 Lemon balm *Melissa officinalis* 12, 112
 Lemon grass *Cymbopogon citratus* 112
 Lemon myrtle *Backhousia citriodora* 78
 Lemon plums 42
 Lemon savory *Satureja biflora* 112
 Lemon verbena *Aloysia triphylla* 112
Lepidium africanum Common peppergrass 63
 Lesser nettle *Urtica urens* 60
 libido 105
 Licorice *Glycyrrhiza glabra* 11, 105
 life-force energy 14
 LifeStraw® 19
 ligaments 60, 102
 Lillypillies 75
 Blue lillypill Syzygium coolminiana 75
 Brush cherry Syzygium paniculatum 75
 Creek lillypill Syzygium australe 75
 Hot flush lillypill Acmena smithii 75
 Powderpuff lillypill Syzygium wilsonii 75
 Riberry Syzygium leuhmannii 75
Limnophila aromatica Rau om 90
Lippa dulcis Aztec sweet herb 114
 liquid fertiliser 22
 liver 58, 59, 60, 61, 62, 66, 107, 108, 109, 111, 114, 115, 117, 118, 119
 living enzymes 93
Lobularia maritime Sweet alyssum 64
 longevity 58
Lonicera japonica Japanese honeysuckle 62
 loose teeth 111
 Love-lies-bleeding *Amaranthus candatus* 61
Luffa acutangula Angled loofah 26
Luffa cylindrical loofah 26
 lumbago 60, 107, 111
 lung diseases 99
 lungs 25, 59, 63, 102, 105, 108, 114, 115
 lupus 99, 106, 117
 lymphatic system 60, 106, 107, 110

M

magnesium 45, 57, 58, 59, 60, 62, 63, 87, 88, 90, 99
 makeshift tent 13
 malaria 62, 106, 115, 116, 117
 Mallow *Malva sylvestris* 89

Malva sylvestris Mallow 89
 manganese 58, 59, 99
 manic depression 117
Maranta arundinacea West Indian arrowroot 26
Matricaria recutita Chamomile 116
 measles 112, 116
Medicago sativa Alfalfa 71
 Mediterranean turnip *Brassica toumefortii* 63
Melaleuca alternifolia Tea tree 79
 melatonin 61
Melia azederach White cedar 80
Melissa officinalis Lemon balm 112
 memory 62, 63, 102, 108, 112, 113, 117
 menopausal discomfort, cramps 105, 109, 110, 116
 menstruation, menstrual discomfort, cramps, excessive 58, 61, 62, 99, 109, 110, 111, 112, 113, 114, 117
Mentha species Mint 114
Midyim Austromyrtus dulcis 75
 migraine 111, 118
 Migraine soother 118
 Milk thistle *Silybum marianum* 65
 Milk thistle *Sonchus oleraceus* 65
Mimosa pudica Sensitive plant 66
 Mini sunflower *Galinsoga parviflora* 65
 Mint and yoghurt dressing 42
 Mint *Mentha* species 114
 Miso soup 55
 molybdenum 59
Moringa oleifera Drumsticktree 89
 morning sickness 111, 112, 116
 Mother of herbs *Coleus amboinicus* 12, 112
 motor neurone disease 116
 mouth ulcers 60, 64, 99, 100, 109, 116
 mucilage, mucilaginous 59, 66, 69
 mucin 59, 90
Mucuna pruriens Velvet bean 27
 mucus 118
 Mugwort *Artemisia vulgaris* 119
 Mukunu-wenna *Alternanthera triandra* 11, 89
 mulching 20
 multiple sclerosis 106
 Mung beans 93
 muscles, cramps, spasms 99, 114, 116, 117
 Mushroom plant *Rungia klossii* 11, 90

N

nappy rash 116
Narcissus pseudo narcissus Daffodil 80
 Narrow leafed plantain *Plantago lanceolata* 59
 nasal polyps 61
Nasturtium officinale Watercress 63, 89
Nasturtium Tropaolum majus 89, 108, 120
 Native figs 76
 Native gooseberry *Physalis minima* 70
 Native raspberries 75
 Native rosella *Hibiscus heterophyllus* 77
 Native scrub nettle *Urtica incisa* 60
 nausea 109, 116, 117
 Neem *Azadirachta indica* 115
Nerium oleander Oleander 80
 nervousness, agitation 25, 61, 117
 nervous stress 99
 nervous system 39, 57, 62, 66, 102, 105, 108, 109, 110, 113, 114, 116, 118
 nettle 11, 21, 36, 55, 60, 109
 Nettle fertiliser 61
 neuralgia 108, 111, 117
 nitric oxide 99, 108
 nitrogen 22
 No-cook Spicy Chutney 49
 Nodding top *Crassocephalum crepidioides* 65

O

Oat milk 46
 obesity 62. See also Weight loss
 Oca *Oxalis tuberosa* 11, 28
Ocimum gratissimum Clove basil 62
Ocimum species Basil 112
 Old man saltbush *Atriplex nummularia* 76
Olea europaea Olive 116
 Oleander *Nerium oleander* 80
 Olive *Olea europaea* 116
Opuntia ficus indica Indian fig 66
Opuntia stricta Prickly pear cactus 66
 Orange marmalade 48
Oregano *Origanum vulgare* 112
 organic gardening 20, 22

Origanum marjorana Sweet marjoram 112
Origanum vulgare Oregano 112
 oxalates 76
 oxalic acid 58, 62, 64, 65, 76
Oxalis corniculata Yellow Wood sorrel 65
Oxalis corymbosa Pink shamrock 65
Oxalis pes-caprae Soursob 65
Oxalis tuberosa Oca 28

P

Paddy's lucerne *Sida rhombifolia* 69
 pain 60, 62, 79, 87, 99, 102, 106, 110, 112, 117, 118, 122
 palpitations 115
Panax pseudo ginseng Korean Ginseng 117
Panax quinquefolius American Ginseng 117
 pancreas 109, 114
 panic 117, 122
 paralysis 60, 99, 111
 parasites 62, 107
 Parkinson's Disease 58, 66, 109
 Parrakeelyas 76
 Peanut tree *Sterculia quarifida* 77
 pectin 47
 Peppermint *Mentha piperita* 114
 peptic ulcers 45, 52, 99
 peristaltic action 40
 Permaculture 23
 Pesto 91
 Petty spurge *Euphorbia peplus* 56
Petunia species 80
 phobias 117
 phosphorus 22, 58, 62, 88
Physalis minima Native gooseberry 70
Physalis peruviana Cape gooseberry 70
 phytochemical 63
 Pickled grape leaves 40
 Pie melon *Citrullus lanatus citroides* 11, 25, 48
 Pigeon pea *Cajanus cajan* 27
 Pigfaces 76
Pimenta dioica Allspice 111
 Pineapple sage *Salvia elegans* 109
 Pink shamrock *Oxalis corymbosa* 65
 Pinto pea *Arachis pintoi* 11, 22
Piper sermentosum Betel Leaf 90
Pittosporum phylliroides Native apricot 78
 pituitary gland 58
 Plantain
 Plantago coronopus Buckshorn plantain 59
 Plantago lanceolata Ribwort 59
 Plantago major Broad leafed plantain 59
 planter warts 118
 poisonous plants 79
Polymnia sonchifolia Sweetfruitroot 27
 polysaccharides 60, 99
Portulaca grandiflora Sun jewels 89
Portulaca oleracea Purslane, pigweed 57, 89
Portulacaria afra Jade 89
 potassium 22, 27, 57, 58, 60, 62, 63, 87, 88, 89
 Potato *Solanum tuberosum* 26, 35
 Poultices 121
 pre-menstrual symptoms 105
 Prickly pear cactus *Opuntia stricta* 66
 probiotic 45
 prostate 99, 105, 111
 protein 11, 27, 58, 59, 60, 62, 78, 88, 90, 102, 110
 Protein leaf croquettes 36
 psoriasis 115
 pumpkin 11, 25
 Pumpkin biscuits 35
 Purifying water 18
 Purple mukunu-wenna *Alternanthera versicolor* 89
 Purslane *Portulaca oleracea* Pigweed 57, 89
 pyrrolizidine alkaloids 105

Q

Quandong *Santalum acuminatum* 76
 Queensland arrowroot 11
 Queensland greens *Hibiscus manihot* 11, 90

R

radiation burns 99
Ranunculus asiaticus Ranunculus 80
 rashes 116
 Rau om *Limnophila aromatica* 90
 Raw greens soup 91
 Red clover *Trifolium pratense* 64
 Red lantern hibiscus 11
 Rejuvelac 41

relaxation techniques 15
 reproductive system 105
Rescue Remedy 122
 respiratory system, ailments, infections 45, 62,
 66, 69, 71, 105, 106, 108, 109, 110, 111,
 113, 115, 117, 118
Rhododendron species 80
 Riberry *Syzygium leuhmannii* 75
 Rice beans *Vigna umbellata* 27
Rice milk 46
Ricinus communis Castor oil plant 79
 ringworm 118
 Rocket *Eruca veriscaria sativa* 89
 Rosemary *Rosmarinus officinalis* 12, 113
Rosmarinus officinalis Rosemary 113
Rubus species Native raspberries 75
 Ruby saltbush *Enchylaena tomentosa* 76
Rumex acetosella Sheep sorrel 64, 89
Rumex brownii Swamp dock 64
Rumex crispus Yellow dock, Curled dock 64
Rungia klossii Mushroom plant 90

S
 Sage *Salvia officinalis* 109
 Salad mallow *Corchorus olitorius* 11, 36, 88
Salting beans 49
Salvia elegans Pineapple sage 109
Salvia officinalis Sage 109
Salvia rhyacophila Chia 109
Salvia sclarea Clary sage 109
 Sambu lettuce *Altemanthra sissoo* 11, 89
 Sandberry *Austrorhynchus dulcis* 75
Santalum acuminatum Quandong 76
Saponaria officinalis Soapwort 119
Satureja biflora Lemon savory 112
Sauerkraut 38
Sauropus androgynus Sweet leaf bush 88
Savoury sunflower seed cream 41
 Sawtooth coriander *Eryngium foetidum* 113
 scalar energy 85
 sciatica 60, 117, 118
 Scullcap *Scutellaria lateriflora* 116
 Scurvy weed *Commelina cyanea* 69
Scutellaria lateriflora Scullcap 116
Sechium edule Choko 26
 sedative 112
Sedum acre Wall pepper 90
 Seed Savers Network 124
 seed saving 123
 selenium 58, 60
 Sensitive plant *Mimosa pudica* 12, 66
 serotonin 60
 Seven year bean *Dolichos lab lab* 27
 Sheep sorrel *Rumex acetosella* 64, 89
 Shepherd's purse *Capsella bursa-pastoris* 63
 shingles 66, 99, 106, 115, 116
 shock 122
Sida cordifolia Flannel weed 69
Sida-retusa *Sida rhombifolia* 69, 70
Sida rhombifolia Paddy's lucerne 69
 silica 60
 silicon 58, 59, 60, 63
Silybum marianum Milk thistle 65
 sinus, infection, sinusitis 107, 111, 114, 117, 118
 105, 110, 113, 114, 115, 118
 sleep, disorders, sleeplessness 12, 45, 66, 112
 Slender celery *Apium leptophyllum* 65
 smoking, quit 106
Smoothies 59, 91, 101
 Snow peas 26
 Soapwort *Saponaria officinalis* 119
 Socratine aloe *Aloe pernyi* 98
Soda bread 50
 sodium 58, 62, 87
Solanum americana Glossy nightshade 70
Solanum nigrum Blackberry nightshade 70
Sonchus oleraceus Milk thistle, Sow thistle 65
 sore muscles 58
 sore throat 59, 111
Sourdough herb bread 50
 Soursob *Oxalis pes-caprae* 65
 South American arrowroot 11, 44
 Sow thistle *Sonchus oleraceus* 65
 Spearmint *Mentha spicata* 114
Spilanthes acmella Toothache plant 116
 Spiny amaranth *Amaranthus spinosus* 61

spleen 58, 59, 114, 115, 118, 119
 sprouts 92
 squalene 62
 stamina 105
 staph infection 99
Stellaria media Chickweed 56, 59
Sterculia quarifida Peanut tree 77
Stevia rebaudiana Stevia 114
Stevia Stevia rebaudiana 11, 48, 114
Stewed dried fruit 35
 stings 122
 stomach, ache, cramps, ulcers 58, 76, 109, 110,
 112, 117
Strawberry jam with stevia 48
Strelitzia reginae Bird of Paradise 80
 strength, energy, endurance, vitality, vigour 12,
 25, 61, 69, 87, 93, 105, 106, 108, 109,
 110, 111, 114, 117, 118
 stress release points, relief 12, 15, 60
 stroke 113, 116
 sulphur 60, 89, 99, 107
 sun-drying method 32
 sunflower seeds 93
 Sun jewels *Portulaca grandiflora* 89
 survival food 42, 60, 62, 64, 66, 76, 89, 90, 94,
 106, 114
 survival food plants 25
Survival nuggets 34
 survival storage 24, 37
Swaggie stone soup 51
 Swamp dock *Rumex brownii* 64
 Sweet alyssum *Lobularia maritime* 64
 Sweet fruitroot *Polymnia sonchifolia* 11, 27
 Sweet leaf bush *Sauropus androgynus* 11, 36,
 40, 88
 Sweet marjoram *Origanum majorana* 112
Sweet mustard pickles 49
Sweet pickled onions 47
 Sweet potato *Ipomoea batatas* 11, 26
Sweet sunflower seed cream 41
 Swinecress *Coronopus didymus* 64
Symphitum officinale Comfrey 102
Syzygium australe Creek lillypilly 75
Syzygium coolminiana Blue lillypilly 75
Syzygium leuhmannii Riberry, Cherry alder 75
Syzygium paniculatum Brush cherry 75
Syzygium wilsonii Powderpuff lillypilly 75

T
Talinum triangulare Leaf ginseng 89
 Tamarind *Tamarindus indica* 28
Tamarindus indica Tamarind 28
Tanacetum parthenium Feverfew 117
 Tannin 62
Taraxacum officinale Dandelion 58
 Taro *Colocasia esculenta* 11, 27
Taro Fantastic 27
 Tea tree 79
 teething 116
 teeth, loose, strengthen 39, 111, 115
 tendons 60, 102
Tetragonia tetragonoides Warrigal greens, Botany
 Bay greens, New Zealand spinach 76,
 90
 Thickhead *Crassocephalum crepidioides* 65
 thrombosis 106
 thrush 59, 99, 116
 Thyme *Thymus* species 113
 thymus gland 15
Thymus species Thyme 113
 thyroid 60, 61, 105, 117
 Tinctures 120
 tine 107, 118
 tinnitus 118
Tithonia species Aria bush 12
Tomato relish 49
 tonic 61, 64, 70, 89, 108, 109, 110, 111, 112, 117,
 118
 tonsillitis 62, 111, 116
 toothache 62, 110, 111, 112, 116, 122
 Toothache plant *Spilanthes acmella* 116
 travel sickness 111, 114
 Tree mugwort *Artemisia velotorum* 119
 Tree wormwood *Artemisia abrotans* 119
Trifolium pratense Red clover 64
Trifolium repens White clover 64
 tromalyl 109

Tropaeolum majus Nasturtium 89, 108
Tropical fruit chutney 40
 tropical ulcers 102
 tuberculosis 62, 105
 tumours 66, 117
 Turmeric *Curcuma longa* 111

U
 ulcers 61, 62, 64, 69, 70, 107, 118
 duodenal and peptic 99, 105, 115, 116
 gastric 105, 116
 mouth 100, 109
 stomach 102, 109
 tropical 102, 105
 ulcers 111
 urinary system, infections 59, 62, 71, 90, 110, 113
 urination, frequent 61
Urtica dioica Greater nettle 60
Urtica incisa Native scrub nettle 60
Urtica urens Lesser nettle 60

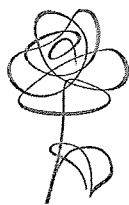
V
 valerian 12
 varicose ulcers 111
 varicose veins 87, 107, 110, 111
 Vegetable amaranth *Amaranthus Tricolor* 61
Vegetable snacks 35
Veggie soup 55
 Velvet bean *Mucuna pruriens* 27
 vermical 106
 vertigo 109, 118
 Vetiver grass *Vetiver zizanioides* 22
Vetiver zizanioides Vetiver grass 22
Vicia faba Broad bean 27
Vigna umbellata Rice bean 27
 vitamin A 57, 58, 60, 62, 63, 76, 88, 89, 90, 99
 vitamin B12 102
 vitamin B17 62
 vitamin C 38, 57, 58, 59, 60, 62, 63, 64, 65, 76,
 87, 88, 89, 90, 99, 108, 112
 vitamin E 58, 62, 63, 87, 89
 vitamin K 58, 87, 89, 99
 vomiting 62, 112, 114, 116, 117

W
 Wall pepper *Sedum acre* 90
 Wandering Jew *Commelina cyanea* 69
 Warrigal greens *Tetragonia tetragonoides* 11,
 76, 90
 warts 80, 115, 118
Watercress Nasturtium officinale 63, 89
Watercress sauce 89
 water purification tablets 18
 Wattle 78
 weight, excess, loss 61, 66, 118
 West Indian arrowroot *Maranta arundinacea* 26
 wheat 93
 wheat sprouts 36
 White clover *Trifolium repens* 64
Whole wheat crackers 50
 Wild carrot *Apium leptophyllum* 65
 Wild turnip *Brassica rapa* 63
 Wild wormwood *Artemisia afra* 119
 Wisteria species 80
Withania somnifera Indian ginseng 117
 Wormwood *Artemisia absinthium* 119

X
Xanthosoma sagittifolium Cocoyam 28

Y
 Yarrow *Achillea millefolium* 21, 110
 yeast infections 116
 Yellow dock *Rumex crispus* 64
 Yellow weed *Galinsoga parviflora* 65
 Yellow Wood sorrel *Oxalis corniculata* 65
 Yerba mate *Ilex paraguariensis* 118
Yoghurt 41
Yoghurt mayonnaise 42

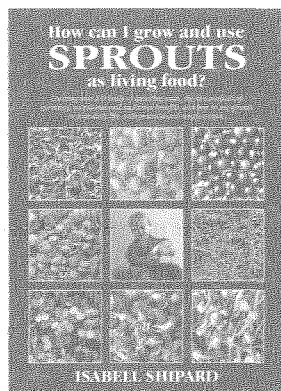
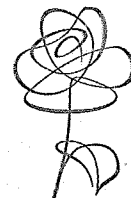
Z
 zinc 58, 59, 62, 89
Zingiber officinale Ginger 111
Zucchini chips 35
Zucchini relish 49



Isabell Shipard's passion is herbs,

and she loves to inspire and share the joys and wonders of natural herbs ... so Isabell has put her many years of extensive research, knowledge and experience into the form of easy to read books and courses on DVD.

more information about these books and dvds can be seen at
herbsarespecial.com.au



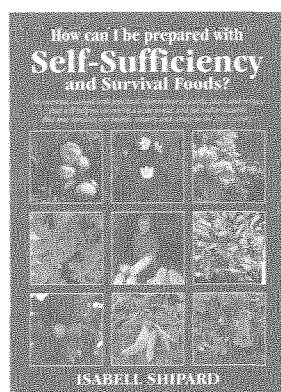
"Isabell's book is life enhancing and belongs in every health professional's library and in every household, in every country.

Her out standing research and practical information will help to protect from degenerative diseases (e.g. cancer, heart diseases, arthritis, chronic fatigue, to name a few).

Adopt the pro-active health approach, now and reap the rewards of a life time of good health and vitality. Look after your greatest asset, your body. One's Health is One's Wealth. The Choice is Yours, Choose Wisely."

Ella Hayes
Australia Healthy Mission,
Melbourne

★ Special Offer ★
10% off \$184 for All 3
books and 2 DVD sets
you pay \$165.60



In 2003, Isabell completed the book, ***How can I use Herbs in my daily life?*** - \$45 which quickly became a best seller. Many readers have commented that it is so practical, informative and inspiring; and now they use herbs more, and report wonderful health benefits. The book has become a constant reference for people, with many requests for extra books to give as gifts to family and friends.

In 2005, Isabell went on to write ***How can I grow and use Sprouts as living food?*** - \$37 To our knowledge, this is the only book written on sprouts by an Australian author. Many readers have said that this book should be in every home.

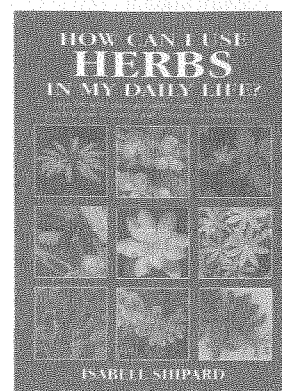
Isabell's NEW book, ***How can I be prepared with Self-Sufficiency and Survival Foods?*** - \$37 will be a valuable reference manual for every person. This book offers encouragement, and emphasises the importance of being as self-sufficient as one is able, and an action plan to help you 'ride the storms'. Isabell shows us how to be prepared with a step-by-step emergency management plan for food provisions and essential supplies.

In August 2008 Isabell's long awaited Herb and Sprout Courses were released on DVD. For many years, Isabell held Herb Courses in Queensland. Many people in other states expressed a desire to be able to attend, yet our vast country made this difficult. Now wherever you live, by watching these DVDs, you have the chance to sit in on her courses and gain the knowledge and understanding to make the herbs in your garden more meaningful, and experience the wonderful benefits that herbs and sprouts provide.

Isabell's Herb Course on DVD, ***Wonderful World of Herbs!*** - \$35 covers many topics such as: herbs as medicine and for good health, 29 plant families, weeds we can eat, poisonous plants, methods of using herbs, plants as sweeteners, income opportunities from plants, survival foods, and seed saving. 2 DVD's total running time 4 hours 27 minutes (includes booklet of printed Herb Course Notes).

Isabell's Sprout Course on DVD, ***Living Food at its Best!*** - \$30 covers many topics such as: sprouts are supreme foods with living enzymes, nutrients in sprouts, easy methods of sprouting seeds and ways of using sprouts, how we can cut our food bills by growing sprouts, and storing seeds. 2 DVD's total running time 2 hours 33 minutes

To get the most out of Isabell Shipard's herb and sprout courses on DVD, it is recommended to also have Isabell's herb and sprout books as the courses give a visual learning experience, but cannot in a few hours give all the information that is valuable about the herbs and sprouts. The books will add to, and reinforce what you learn from these DVDs.

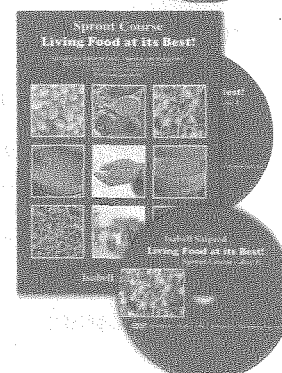
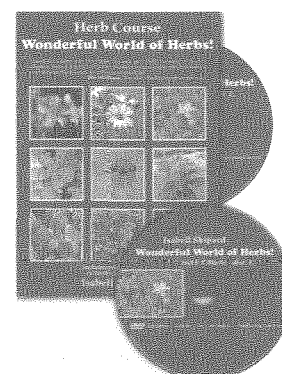


"Australia has waited 20 years for her first home-grown herbal, but here it is at last!"

Isabell has always been the source of plants and advice for many of us, her admirers. We can be proud of her encyclopaedic work (Acerola to Yucca) on plants, which includes a vast reference background, as well as practical advice.

"Shipard on herbs" is destined to be one of those foundation books that will be in print for the next century. Buy one for yourself, and your grandchildren."

Bill Mollison
Founder, The Permaculture
Institute



All our DVDs are - Pal standard, All Regions. For more info. see link below
herbsarespecial.com.au/books_and_dvds/pal-countries.html
Please be sure to check that you are happy with Pal video standard before purchasing.

Isabell Shipard says

"The response to the Herb Book has been overwhelming, with so many readers saying that it is practical informative, inspiring and that when they use the simple remedies they have experienced wonderful benefits to health. Then they pass the information on to other people ... and that is what herbal folklore is about ... please do pass it on.

May you be excited to extend your garden and include a variety of herbs, edible plants and sprouts ... and use them regularly Experience the wonderful benefits which herbs and sprouts provide.

May your garden bring much joy, satisfaction and be a beautiful and interesting place."

"I recently bought copies of your book on herbs. It is a very wonderful book and I thank you very much for publishing all this information. I also gave a copy to my daughter who loves it, and I am now enclosing payment for 5 books and addresses where I would like the books to be sent." **Jacque F., NSW.**

"Dear Isabell, fantastic book you have produced! Congratulations. It will be a reference book for many, many years. Well done. Could you please send us another 5 copies."

Essential Ingredients, Coffs Harbour, NSW.

Payment can be made by:

- **cheque or money order** made out to Shipards Herb Farm and send to - PO Box 66, Nambour, Qld, 4560.
- **direct deposit** to D.B.Stewart, Commonwealth Acc. BSB 064424, Acc. No. 10490784 then notify us of your *receipt number* and order details by email, fax 07 54716430 or ph. 07 54411101 (**During Open Hours**) Mon, Tues, Thurs, Sat, 10am-2pm.
- **credit card** over the phone or on the 'cut off' order form below and send to PO Box 66, Nambour, Qld, 4560.
- **on line** at herbsarespecial.com.au with credit card through Paypal.
- **at Shipards Herb Farm** 139 Windsor Rd., Nambour, Sunshine Coast, Qld. (**ONLY During Open Hours, see above**).

Postage, Pack and Handling (because of different weights of books and dvds, it is difficult to have one standard postage cost)

● **Herb Books**

to Qld, NSW.: 1-2 books \$15; 3-4 books \$18; 5-6 books \$22
to Vic. & SA.: 1-2 books \$15; 3-4 books \$19; 5-6 books \$30
to WA, Tas. & NT.: 1-2 books \$15; 3-4 books \$25; 5-6 books \$33

NOTE: 2 Self-sufficiency or Sprout books equals the weight of 1 Herb book.
All prices in this box are purely postage and handling costs.

- **Sprout or Self-sufficiency Books:** 1 book = \$10; 2-7 of either of these books \$15 (**to all Aust. states**).
- **DVDs** either of the dvd sets: 1-2 dvds = \$10; 3-12 dvds = \$15 (**to all Aust. states**).
- **5 or more books and/or dvd combination** please use 'Herb Book' Post & Handling charges as above.
- **To addresses outside of Australia**, please order online through herbsarespecial.com.au
- **If unsure** of Postage and Handling, please email: info@herbs-to-use.com; fax 07 54716430; or phone 07 54411101 (**During Open Hours**) Mon, Tues, Thurs, Sat, 10am-2pm.

★ **10% discount available on orders of 5 or more of any combination of Isabell's books and/or dvds.**

★ We invite any expressions of interest from Book shops, Natural health clinics, Health food shops, Garden Centres, Gift shops, Tourist attractions, Clubs, Market stall holders and other retailers wishing to stock the books and DVDs.

Contact us for Wholesale Details.



Order Form:

How can I use Herbs in my daily life? ____ x \$45 = \$ ____

How can I grow and use Sprouts as living food? ____ x \$37 = \$ ____

How can I be prepared with Self-Sufficiency and Survival Foods? ____ x \$37 = \$ ____

★ Prices of Books, DVD's & Postage & Handling valid till Dec 31st 2010.

After this date please contact us.

★ GST is inclusive in all prices.

Wonderful World of Herbs! - DVD set ____ x \$35 = \$ ____

Living Food at its Best! - DVD set ____ x \$30 = \$ ____

Book and DVD Total = \$ ____

If purchasing 5 or more books and/or dvds in any combination 10% Off = \$ -

(please print your name and address clearly)

Postage & Handling = \$ ____

Name:

Total = \$ ____

Address:

State: Postcode:

Phone: Email:

Method of Payment (please make Cheques or Money Orders payable to **D. B. Stewart - ABN: 70049178079**)

Cheque ☐ Money Order ☐ Mastercard ☐ Visa ☐ American Express ☐

Credit Card Number:

(please note, \$1.00 surcharge applies on all credit card orders)

Cardholders Name: Expiry Date:

Signature:

- How to plant a practical edible garden.
- How to prepare a 72 hour survival kit.
- Best choices of food and provisions for the home for 3 to 12 months.
- Getting to know and use edible weeds.
- Bush tucker plants we need to know.
- Herbs for health and for healing.
- Practical herbal preparations and uses – such as fresh aloe leaf gel to clean your teeth.
- Sprouted seeds – living survival food at its best.
- Ideas on how to cut the costs of living.
- Seed saving tips.
- Stories to lighten the heart.
- Numerous economical recipes.

This book covers many practical facets of self-sufficiency and informs readers about survival foods. Isabell shows how we all can be prepared for hard times, no matter what the future may bring.

Do we need to live more simply, conserving resources by being budget conscious and more self-reliant?

Many Australians and others in affluent countries suffer from diseases like diabetes, obesity and heart disease, caused by over-consumption of food (particularly processed food) and lack of exercise.

In other parts of the world, millions of people struggle daily, seeking out a meagre existence amidst the everyday reality of starvation and death. But, as resources diminish and the world faces food, energy and other crises, what will the future hold in our wonderful country?

In the news we hear that global oil reserves are running low, dramatically increasing the price of fuel and causing the cost of food and other everyday necessities to skyrocket. We also hear that drought, genetically modified crops, and the increase of bio-fuel production are taking over vital farmland and causing massive food shortages around the world. Changes in weather conditions may cause cyclones, floods, bushfires and other calamities, and every home must be prepared for **whatever** the future might bring. Councils, throughout Australia, are beginning to inform the public of the need to be prepared in case of emergencies.

Right NOW, it is vital for every person to be conscious of how the choices we make affect the world.

Self-sufficiency is one means of reclaiming our responsibility. We all must reclaim the knowledge and ability to grow our own food to provide for ourselves and our families.

Isabell says, "I grew up on a farm and learnt the value of fresh home-grown produce. This background gave me the desire to grow and provide food for my own family (fruits, vegetables, eggs, milk and meat) and then to establish the Herb Farm at Nambour, on the Sunshine Coast, with a large variety of herbs. For many years, I taught Herb Courses and always included a segment on the importance of self-sufficiency and survival in possible hard times. People often expressed the view that I should put this information into a book."

This book is a practical 'survival manual' for every home. Isabell will encourage you to see the importance of being prepared. She urges everyone to have an emergency plan in place and to be equipped. The future may bring us many challenges, including possible food and energy shortages and other unforeseen calamities. Families can learn to grow as much as they are able, and also to put in place some food security for these uncertain times.

Today is the right time to get started.



"Once again, Isabell has put together a very helpful book. A book that will help us to act together, for survival in emergencies, such as surround us today. Many of us have tried, at all levels, to alert people to the critical 'state of the nation', due to global warming, low levels of all fuels and droughts.

"To grow our own food always has taken us less time than to shop for it! People, in the end, get what they choose, and to me at least, chasing life and food seems only sensible. As usual, Isabell has put in your hands, a manual that helps that aim. She has all my support."

Bill Mollison – *The Permaculture Institute*

"This is an essential book for everyone who intends to make a serious effort to survive any food crisis. It is full of the most detailed and valuable information on a great diversity of survival foods, and how to produce them.

Isabell has the greatest knowledge of reference and experience on this subject that I have ever known or met in all my travels, teaching and consulting on permaculture around the world. You need to buy this book for the security of your family."

Geoff Lawton – *www.permaculture.org.au*

"Within the spectrum of concepts presented in her book, here is a very useful 'survival manual', packed full of practical ideas in true Shipard style... like aloe tooth gel, seed-saving tips, and how to use edible weeds. You will find many budget-saving ways to conserve resources and deal with climate change. Be prepared for the future... and enjoy Isabell's light-hearted memoirs."

Christine Bennett – *Maroochy Greens member, Sunshine Coast*

www.herbsarespecial.com.au

ISBN 978-0-9758252-3-5

