

THE COGS



QUARTERLY

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ORGANIC GROWING IN THE CANBERRA REGION

SPRING 1995



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WHAT IS ORGANIC GROWING

ABOUT

The ORGANIC MOVEMENT endeavours to provide an alternative to the mass of toxic chemicals, fertilisers, fungicides and herbicides used in modern agricultural methods by utilising more natural means of improving and preserving our soils and to produce nutritious, less contaminated food.

WHAT ARE THE ORGANIC

ALTERNATIVES?

By enriching the soil with compost, manure, green manure and mulches we avoid disease and control pests through non-chemical methods, including encouraging the presence of beneficial insects to feed on pests, growing companion plants to discourage pest attacks, by growing healthy plants to resist pest attacks and disease and by tuning in to nature with love, harmony and gratitude.

**REMEMBER: Monthly meetings are on the 4th Tuesday of the month
except December and January**

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on the inside back page

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NEWS BRIEFS

by Michelle Johnson

AROUND THE WORLD:

SUSTAINABLE CAN BE COMPETITIVE:

The results of a \$US4.5million survey in Minnesota, Iowa, North and South Dakota, Montana, Washington and Oregon by the Northwest Area Foundation have shown -

1. Sustainable farms are profitable despite receiving fewer federal commodity payments than conventional farms;
2. Sustainable farmers purchase fewer inputs but tend to purchase the inputs they do require from local dealers, contributing to the well-being of their community;
3. Sustainable farmers spent about a quarter more of their time farming;
4. It may be easier for beginning farmers to start sustainably than to move from conventional to sustainable; and
5. Sustainable methods rely less on inputs but may result in some reduced yields.¹

The study also showed that there are a number of disincentives to sustainable practices in current farm policies in the US, and in the report the investigators recommend that farm commodity performance be tied to environmental improvements and that more funding be directed toward sustainable agriculture research.

Supporting this recommendation, an editorial in the Minneapolis Star Tribune states "1 federal farm programs especially weigh heavily in favour of conventional practices that depend on high levels of chemical and fertiliser use to achieve high volumes of production of a narrow range of crops", primarily corn, wheat and soybeans.

¹ Source: *Sustainable Agriculture News, Produced by the Institute for Agriculture and Trade Policy, January 11, 1995 Volume 4 No1*

DIRECT MARKETING:

The Organic Trade Association in the US has said that increased demand for organic foods is encouraging more organic farmers to test out direct marketing techniques.

Wendall Berry, farmer and writer, said "2local efforts are the way to preserve the well-being of rural communities. 'If we as communities and farmers and consumers wish to promote a sustainable, safe supply of reasonably inexpensive good food, then we must promote strong local economies. It is in the best interests of consumers to be surrounded by well farmed and well maintained and productive land, by thriving farm families and thriving farm communities.' Marketing more agriculture products locally instead of relying on the global economy will help farmers build strong communities." he said.

PS more on direct marketing: Apparently Walnut Acres Organic Farms, based in Penns Creek, Pennsylvania, has estimated sales of \$US 7million to \$US 12 million annually in its mail order market. The company sends out 2 million catalogues every year and offers 300 kinds of food products.

²Source: *Sustainable Agriculture News, February 7, 1995, Volume 4, No 2*

SUSTAINABLE AGRICULTURE NEWS?:

This American publication was found on the Internet, by accessing the Noah's Ark - Don't Panic Eat Organic homepage (Web Site: <http://www.rain.org/~sals/my.html>) and then using one of his links to publications on sustainable agriculture. Very useful homepage - well worth a browse.

PESTICIDES AND BIRDS:

Remember Rachel Carson's "Silent Spring" in 1962 first raising the dangers of massive and indiscriminate use of pesticides to the delicate balance of nature (hence the silent spring with no birdsong)? Well environmentalists still have to push the same arguments in the '90s.

In the US, the EPA demands that the toxicity to non-target organisms, eg birds, be considered before any pesticide can be registered - good news so far - but the EPA only looks at each chemical in isolation, despite the knowledge that farmers regularly spray a lethal cocktail of chemicals on crops and orchards.

Now finally there is some work being undertaken by wildlife experts on what happens in a real life situation. Researchers have monitored bird populations and breeding patterns in six apple orchards in a valley in Pennsylvania. Three orchards were organic, three conventional.

The three conventional orchards "1were sprayed 19 times in 1990 and 17 times in 1991 with up to 16 different pesticides, including nine that are classified as 'highly toxic' (yes, that's a typical amount of pesticide use on non-organic apples!)"

The results clearly showed fewer bird species in the chemical orchards, and that the two most common species - robins and mourning doves - had problems breeding successfully in those orchards.

¹. Source: *Organic Gardening, Rodale Publication, May/June 1995 "New Ground"*

IN AUSTRALIA

AMA STUDY TOUR

Members of the AMA will undertake a study tour of "pollution hot spots" around Australia to review health issues arising from chemical pollution. The itinerary is currently being worked out in consultation with the National Toxic Network, but is likely to include the North Coast of NSW, Cotton areas in NSW, Newcastle, Sydney and Melbourne. The tour will culminate back in Canberra with an AMA conference on the 20th October. Kate Short will be one of speakers at this conference. If you would like to know more about the conference contact Roland Greenland at Canberra's AMA Office.

The AMA is also pursuing the possibility of setting up a hotline for people to ring in with their personal stories on toxic abuse. Apparently when this idea was first touted the new head of the AMA was inundated with calls from individuals wanting to tell their story, and this has reinforced his conviction that such a hotline is needed.

It is indeed welcome to see an organisation such as the AMA taking a much stronger interest in these type of health issues.

Source: verbal communication, Marianne Grinter, National Toxic Network

CADMIUM LEVELS:

The review of the MPC (Maximum Permissible Concentration) for cadmium for a range of crops as mentioned in the last News Briefs is still underway. The MPCs must be considered in light of Australia's GATT obligations. Please see the next article for an interesting discussion on GATT.

REGISTRATION OF AGRICULTURAL AND VETERINARY CHEMICALS:

While on the often depressing subject of AG. and Vet. chemicals, readers may be interested to know that members of the public can contact the National Registration Authority (ph 272 5158) to be placed on the mailing list for all public summaries of chemicals which come up before the NRA to be registered.

USE FROGS!

Mike Tyler, is one of Australia's foremost experts on Frogs and is passionate about the need for farmers to act to stop the decline in frog numbers.

Frogs, he maintains, are underrated as a "free insect control system". He points out that "When the frogs of northern India and Bangladesh were removed, largely for French restaurants, insect pests greatly increased in rice paddies.... when they were gone insecticide use increased by 10 times."

He also warns however that virtually every insecticide and herbicide made will kill frogs. Organic farmers therefore provide an important haven for frogs, and he is supportive of the inclusion of biodiversity and provision for environmental enhancement in organic standards.

Source: Acres Australia, Vol3 No. 1 "Frogs" by Tim Marshall.

LANDCARE, WHO PAYS?

In the same issue of ACRES (Vol3, No1) mentioned above is an excellent article "Tools for the Job", which features an interview with Professor Brian Roberts, Director of the Land Use Study Centre at the University of Southern Queensland.

It is a long and detailed article and as such difficult to summarise, but he believes that the fundamental political question on Landcare is who should pay for land rehabilitation. "That question can be answered only when government clarifies its stance on land stewardship as a serious goal of rural policy....The national success of Landcare depends initially on landholders adopting a land ethic which positions them as stewards of the community's land resources. Politically it follows then that if individuals are expected to become guardians of the common resource they should be supported by the beneficiaries through a fiscal policy which gives them sufficient incentive to take on the custodial role and ensure there is no loss of personal benefit to them."

This article is interesting to read alongside latest the comments on the American FARM BILL (my latest report is from a February issue of an American Journal) where environmentalists from the American Farmland Trust are proposing: a "green" payment system, a conservation credit initiative, an environmental stewardship incentives program, and a sustainable research and education program.

Source: Acres Vol3, No 1 & Sustainable Agriculture News Vol4, No2.

GATTastrophe!

By Danny Kennedy

(Despite little press coverage, huge problems await environment and social policy advocates as a result of the Uruguay Round of the General Agreement on Tariffs and Trade (GATT) - and could just as easily emerge in other free trade agreements. Danny Kennedy reports.)

*GATTastrophe, by Danny Kennedy, Habitat, vol.23 no. 2, April 1995, the bimonthly membership magazine of the Australian Conservation Foundation (ph 03 9416 1166)
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The outcomes of the Uruguay round of GATT, and the World Trade Organisation (WTO) which it established, pose at least three significant challenges to the environment and sustainable development.

1. The myth of a perpetual growth machine

Free trade extends the simplistic notion that 'trade is good, therefore more trade must be better'. Perpetual growth, although not possible, is the fundamental assumption of a market-based system such as GATT. This casts humans merely in the role of consumers, communities become markets and societies are seen only as economies for which the planet is either a quarry or dump. The environmental impacts of the 'growth machine-market-money' model of economic development are increasingly under fire. We would need seven planets as quarries or dumps to universalise the standards of living which make a nation 'developed'.

2. The true meaning of the level playing field

The corporate influence in determining the 'level playing field' for GATT has seriously affected the quality of the standards adopted. Take the pesticide trade, for instance, of which 94 per cent is controlled by twenty transitional corporations. Already one-third of pesticide exports to countries outside the industrialised world are banned for health and safety reasons in the country of manufacture. GATT and WTO, when levelling the playing field for the health and safety checks allowed in this toxic trade, adopted standards for below those of the industrial countries.

From January 1995 the allowable level of pesticide residue in Australian imports can be challenged under the new GATT standards as unnecessarily high and trade restrictive. The body which determined the universally applicable standard for GATT, and can reverse our democratically agreed food standards, is called the Codex Alimentarius - literally the law of food. Throughout the Codex negotiations for the Uruguay Round, more corporations were represented on committees (140) than nations (105), including 85 participants from the top food companies and 55 from the top agrochemical companies. Within national delegations, industry representatives outnumbered public interest non-government organisations by 56 to one. As a result, we will soon be eating fruit with more DDT in it than the Australian

parliament deemed wise, because the WTO sees such a health standard as a non-tariff trade barrier.

3. GATTack on democracy and sovereignty

Under free trade, commerce remains just as tightly bound by rules as before, just different rules established not by the national legislature but by new, unaccountable bureaucracies. These issues of sovereignty and democracy are the third substantial area of concern for environmentalists with the 'free trade' agenda.

National governments become regulated by the WTO when they commit to GATT. We will also trade away more of our regulatory freedoms if instruments like the Asia Pacific Economic Cooperation forum (APEC) also become institutionalised. These bodies can review state and federal laws of members to ensure that they do not pose any barrier to the economic activity of trading parties which are normally global corporations.

Australia has already conducted extensive reviews of its laws to make them consistent with the WTO prescriptions. In this process, important instruments to promote socially and environmentally worthy industry have been removed from the government's hands. For example, subsidies or tax breaks for local resource producers are made very difficult under the 'Agreement on Subsidies and Countervailing Measures'. Foreign aluminium or paper producers could challenge local subsidisation of a recycling program on the grounds that it was adversely affecting their exports. The Canadian government has used GATT principles to overturn the recycled paper content laws in New York State claiming that they threaten Canada's virgin pulp export industry.

When the GATT implementation bills were being considered by the Australian Senate Economics Committee, the Trade Minister, Senator McMullan said a different sales tax on orange juice made from concentrate to that of orange juice made from fresh juice could not be introduced because it would be GATT-inconsistent. This differential sales tax was proposed by the Citrus Grower's Federation to create an incentive to 'Buy Australian'. Instead, the Australian market will be flooded with poor-quality Brazilian imported orange juice made from concentrate and 3,000 Australian small farmers would go to the wall.

Exposure to global competition ignores the plight of these farmers, the superior nutritional value of the fresh Aussie product and the fact that the Brazilian citrus industry is planted where rainforest once grew. But social 'goods' and environmental 'costs' are not properly accounted for in the GATT balance sheets. As well as sacrificing domestic producers on the altar of free trade, the market provides an incentive to the Brazilian industry to expand their productive capacity into what's left on the Brazilian rainforest.

In 1992 the United States passed their Marine Mammal Protection Act which stipulated that tuna caught in dolphin-unfriendly nets could not be imported into the US market. This was challenged by the Mexicans as a non-tariff trade barrier before the GATT Dispute Resolution Panels. These panels are effectively an international court which decide on such issues, although they do so in complete secrecy, and with no guidelines other than to maintain the least trade restrictive conditions necessary.

In this case, GATT deemed that enforcement of the Marine Mammal Protection Act was an unfair trade practice and the US was forced to accept Mexican tuna, although the fishing fleets used nets which killed a high number of dolphins. The sovereign nation of the US was thus forced to reverse the intent of one of its democratically enacted laws in order to free trade!

This casts doubts on any laws designed to protect the environment beyond the jurisdiction of the state enacting the law. For instance, it is unclear whether trade measures used in multilateral environment agreements, such as the Convention on International Trade in Endangered Species (CITES), are safe from a challenge like that in the dolphin/tuna case. Nor is there any certainty about the GATT and WTO response to product bans and duties on the import of non-sustainable timbers.

It is frightening to think how far the dictates of 'GATT-consistency' may enter into the domain of environmental policy-making of nations. Already the European Union has released a list of US Federal and State laws they intend to challenge as non-tariff trade barriers before the WTO's Dispute Panels. This list includes new legislation on nutrition and also education, limits on lead content in wine and gas guzzler taxes designed to create incentives to buy fuel-efficient cars.

Fair trade not free trade

Free trade is less about the deregulation of trade and more about its re-regulation to suit the needs of transnational capital in their economic battle with national competitors. Ralph Nader, the US consumer advocate, claims that GATT has kicked off a 'race to the bottom' in terms of environmental, worker and consumer protection standards. It is clear in the history of the Uruguay Round that there have been few checks and balances established by

The Internet Column by John Allen

Hi folks

From time to time I will be letting you know about interesting sites available on the Internet. I have listed one such site below as an example.

I would like to find out which COGS members are on the Internet because there are a number of activities which may evolve on that medium if there is sufficient interest. If you are interested please mail me at:

jallen@pcug.org.au

I will compile and maintain a list of user-names.

If this takes off perhaps we could eventually develop our own "Home Page" on organic growing and gradually make available the vast quantity of material that COGS has access to.

I used to receive a monthly magazine from the USA (not COGS related). It now arrives on the Internet faster and about 60% of the price of the printed copy - saving paper as well! Maybe further down the track we could look at doing this with the COGS Flyer and Quarterly and, perhaps, provide access to articles/periodicals from affiliated groups.

Enough star-gazing. If any of you are moved to comment, either E-Mail me at the above address, or post written comments to me at the usual COGS address.

I may have your comments printed in a COGS periodical, so please say whether or not you agree to having your name printed along with your comments.

My current interesting site is in Texas, it is called "The Donald Firsching's Chicken Page". It contains information on breeds, diseases, nutrition, breeding etc. It also contains links to other Internet "chicken" sites, such as the "Poultry Science Virtual Library" and "NETVET".

If you want to have a look, the site code is:

[HTTP://ccwf.cc.utexas.edu/~ifza664/index.html](http://ccwf.cc.utexas.edu/~ifza664/index.html)

governments against the growing influence of big business and the excesses of their operations.

Nonetheless, people's organisations from India to the United States have organised around the issues of trade, environment and sustainable development. The Australian Conservation Foundation and a coalition of trade, aid, environment, consumer, farmer and labour non-government organisations are organising a Fair Trade Forum.

In 'fair trade', non-government organisations are seeking commercial arrangements which practice full-cost accounting of social and environmental impacts. The forum will identify key issues dealt with by the WTO and APEC, and develop a consensus between the groups on fairer trading relations within Australia and also regionally and globally. For more information, contact the ACF Campaigns office on (03) 416 1166.

How To Grow a Cabbage

by Jackie French

Jackie French's latest books include *The Chook Book* (Aird Books) *The Great Survivors* (LOthian Books) *The Secret Beach* (Harper Collins) and *Soil Food -- 3,462 Ways to Feed Your Garden*.

I fell in love with cabbages the day I realised they didn't have to be boiled. That was in the sixties, when coleslaw was an avante garde American import -- and even though Mr Doo, our chinese neighbour, had been eating his cabbage stir fried within sniffing range ever since we moved in, it wasn't till the early seventies that I discovered that cooked cabbage could be good too.

Cabbages are now one of our winter staples. We rarely eat cabbages in summer, keeping them for a winter treat. Cabbages aren't much good in summer -- flabby, with a stronger 'cabbagey' flavour -- the very faintest tinge of heat induced rot.

Cabbages need winter frosts to be crisp and sweet, and then they can be superb. I plant great big cabbages to boast about (you can give a slab away to friends), red cabbages for colour, and tiny sugar cabbages for a single meal. A giant cabbage is a thing to boast about -- unless you're into cow pumpkins it's the most massive thing you'll ever grow -- and after all anyone can grow a massive pumpkin.

We eat cabbages raw, grated with raw beetroot and raw carrot and a few sunflower seeds, and masses of mustardy vinaigrette dressing (sounds horrible unless you've eaten it; its excellent, and even kids love it), or stir fried with a little soy sauce, or fried with tomatoes and onions, or steamed then each leaf stuffed with mince or old fried rice and simmered in stock, or fried with leftover potatoes and maybe just a little bacon, which is one of those magic dishes that tastes infinitely better than any of its ingredients. There's also a luxurious version of this -- layers of chopped cabbage and sliced potatoes with just a little chopped onion in an oven dish, with cream poured on top and very slowly baked till the top is bown and bubbling. Wonderful.

You can plant cabbages till the ground feels cold when you sit on it. After that they'll go to seed in spring before getting fat enough to make a good feed (Though you can eat cabbages that are just going to seed -- even the stalk is good if sliced thinly before the flower heads form and it gets tough). Some varieties also resist going to seed in spring. When in doubt buy the punnets of cabbages available at the garden centre -- usually they'll be the right variety for your area and that time of year.

While you're down there of course you can stock up on other brassicas -- broccoli, caulies, even brussel sprouts if you're that way inclined. It's now probably the wrong time of year in most areas to put seeds in -- but if you're in a frost free area seeds are a far cheaper way to grow your greens.

The three rules for good cabbages (or broccoli, cauliflower etc) are:

. plant them to mature in cool weather -- either late summer, autumn, winter or early spring

. feed them well -- brassicas like cabbages and caulies and broccoli 'sulk' if they're not fed properly. I've had starved cabbages in a patch of the garden do nothing for two years- then suddenly decide to heart when I hadn't even bothered to look at them for months. (You can in fact make use of this sulking habit -- plant four seedlings together -- the 'dominant' seedling will mature -- but the

others will wait till they have room and inclination -- this is an easy way to stagger your crop with one planting

. never plant a clump -- or even worse -- a row of cabbages, don't plant them on the outskirts of the garden either.

Pests, especially cabbage butterflies and moths, find their food supply in two ways -- either by scent or appearance (often by silhouette). Brassicas have a very distinctive shape. The more you interplant your cabbages, the less of a pest problem there'll be.

This year, for axample, I've got one lot of broccoli planted on the terrace by the kitchen. It's an almost complete failure -- the shapes are very visible to any pest that flutters by -- and another lot disguised among parsnips and dahlias. They're doing fine -- even though they are only a few metres away.

If you are really worried by caterpillars, MAKE SURE YOU LET A FEW BRASSICAS GO TO FLOWER

Most pests are lazy -- they'll lay their eggs where they feed. If you let a few broccoli plants flower, they'll last for years if you keep snipping them. You'll find most of the eggs are laid on them, after the butterflies have fed on the nectar from the flowers.

Our best defense here are the annual wild turnip weeds. They flower through most of summer -- and their presence is enough to protect the cabbages crop nearby.

Other brassica problems

Spindly broccoli.

This has been starved. Feed the poor thing and it'll feed you (old hen manure etc is excellent -- broccoli need more nitrogen than other brassicas, as they give more crop per plant if you keep harvesting the heads).

Don't just pick the central broccoli head. The more you pick your broccoli the more you'll get. The heads will be progressively smaller, but there'll be more and more of them. I once kept a broccoli plant going for three years. Then I went on holiday and the whole lot went to seed, and toughened. By then it was enormous. At the moment we've got rather dwarf-looking cabbages that we've been harvesting for two and a half years. They produce small, brussel-sprout like heads at irregular intervals.

Puffy Brussel Sprouts.

If your brussel sprouts aren't firm it's either too hot; or you used too much nitrogen to feed them (mulch instead for both problems). In a trial plot here, compost-fed sprouts planted at the same time as urea-fed sprouts yielded an excellent crop -- the urea fed crop gave a few puffy blobs then went to seed.

Puffy or Gone-to-Seed-Cabbage

Cabbage can be sown at any warm time of the year, though the firmest heads come from cabbage planted after Christmas for autumn winter and spring. Cabbage can go to seed quickly in hot weather. Pick cabbages as soon as the head seems to elongate -- at this stage its getting ready to burst to seed. Puffy cabbage have had too much nitrogen and too much heat and water. Give a more balanced feed, especially if you like summer cabbage.

Like brussel sprouts, compost fed cabbage tolerates extremes more than cabbage fed on a high nitrogen fertiliser. If you must use a high nitrogen fertiliser like dynamic lifter or hen manure, try to give a fortnightly dose of liquid foliar seaweed spray to help check nutritional imbalances.

Purple or Tough Cauliflower

Summer caulies turn purple and become tough. Wrap the outer leaves around them to keep them soft, white and tender (sounds like a detergent commercial for your hands). New varieties don't have enough leaves to wrap round the heart -- avoid them. Beware of 'miracle maturers', too -- caulies that are supposed to heart early. Most I've tried here have matured at the same rate as the non hybrids -- but only with enormous quantities of fertiliser and water. They don't hold as well as old fashioned 'paleface' either.

Try cutting off the head of the cauliflower -- don't pull the whole thing up. Small heads should then form around the stalk. These can be eaten too. Once the stalk starts to rot, though, remove it -- it will inhibit other plants.

Aphids.

Plant the caulies/cabbages etc later -- you have probably planted them too early; add potash to the soil with wood ash, comfrey or compost; hose them strongly; make a spray of glue and water to suffocate them.

Know Your Enemy

Humans have a contradictory attitude to pests -- on one hand we are so frightened by them we use stronger and stronger poisons to (unsuccessfully) eradicate them; on the other hand we have too much contempt for them to understand them.

The more you understand your pest, the easier it will be to grow a crop that will be able to tolerate their presence. (Eradicating pests doesn't work -- there are always more where they came from -- so you have to keep spraying and the pests become resistant while the predators are zapped, or simply move away to a place with a more regular food supply.) The worst pest problems come where there are pest booms and busts -- a 'no pest' stage after spraying; then pests build up quickly without predators to control them.

The following is a short run down on cabbage caterpillars (the larvae of cabbage white butterflies and cabbage or diamond-back moth), and their parents -- a few methods of controlling them, and, as a last resort, killing them. Unlike conventional growing, organic growing has infinite ways of controlling pests. Once you understand your pest problem, you will probably be able to work out many other ways of attacking it.

About a decade ago I grew 2,000 caulies. By the time they were finger size they were supporting a healthy population of caterpillars. I began to go through them, squashing them (this isn't as labour intensive as it sounds and is still the best caterpillar killing method I know). After ten days I noticed that there were far fewer caterpillars -- though still plenty of butterflies. There were also many more wasps (three sorts), yellow robins, and probably many other predators. At the end of three weeks I stopped squashing them. The crop grew fat and healthy, and was sold through regular commercial channels.

IT IS POSSIBLE TO ENTIRELY CONTROL MOST PEST PROBLEMS WITH NATURAL PREDATORS. In the case of caterpillars, you need:

1. a regular supply of pests to keep your predators eating all year long -- otherwise they'll die or move away;
2. flowering plants to attract predators -- especially flowering brassicas -- see above; nearby water also helps;
3. minimal to nil pesticide use.

Actually, predator attracting is a subject in itself -- I could go on for pages. But the three elements above are perhaps the most important. I also find no-dig beds here have fewer pests, possibly because one of our best predators is a ground dwelling wasp that is killed by cultivation.

Back to butterflies and moths.....

Cabbage White Butterfly

The cabbage white butterfly is a European import. It first appeared in Australia in 1939, and soon became a major pest of all cabbage crops, as well as wallflowers, stocks, occasionally mignonette and nasturtiums and a range of weeds like wild mustard.

In warm areas cabbage white butterfly larvae will feed throughout winter. In colder areas they do most damage in autumn and spring.

It is the larvae of the cabbage white butterflies that eat the leaves. The butterflies themselves feed on nectar, usually from flowers, though I have seen them on gum trees as well. The butterflies are a creamish yellow with black wing tips, and a black spot on the hindwing, about 5 cm across. The female has two black forewing spots, while the male has only one.

Cabbage white eggs are a pale yellow, and laid on the underside of leaves, usually near the edge. The young caterpillars hatch there and start feeding under the leaves, transferring up top as they get older. The young caterpillars are pale green with fine velvet hair and faint yellow stripes down the side. They usually feed for two or three weeks before pupating, and there may be several generations a year.

Cabbage white cocoons are light greyish yellow to green and about 18 cm long. In cold areas the cabbage whites overwinter in their cocoons, either attached to growing crops or just nearby, and it can be worth white hunting these out and destroying them, though the butterflies can fly several kilometers, and any susceptible crop is likely to be attacked.

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Predators

These include three imported wasps that attack the caterpillars. I have

also noted several native wasps carrying off caterpillars and a wide variety of birds, as well as assassin bugs, mantids, centipedes, dragonflies, ichneumons, scorpion flies and spiders. Lacewings eat caterpillar eggs and hoverflies may eat very small caterpillars just after they have hatched. There is also a natural virus that may reduce numbers.

In a diverse garden you may find that natural predators are enough to control the caterpillars -- but only after a wait of several weeks while they notice the available food. There may be considerable damage during this time. Choose a means of control that won't deter the predators -- like squashing the caterpillars on the leaves, or using DIPEL. The latter will still leave edible caterpillars -- and while sickening they will be easier to catch. Like all of us, predators are attracted by an easy food supply.

Control

. place empty egg shells in the beds to outfox the butterflies as to their population density; (I've tried this in three control plots over three years -- it worked only once);

. surround the beds and PROFUSELY interplant with strongly perfumed herbs like lavender, marigolds, and nasturtiums. This works best combined with the other disguise technique below;

. interplant other crops so it is more difficult for caterpillars to migrate from plant to plant, and so the pests find it harder to recognise the brassica silhouette (see above). The more 'companion plants' the less damage.

Sprays and dusts

Make sure that you spray or dust the undersides of leaves as well as tops, as this is where the young caterpillars will be hiding.

Try flour first. This is a caterpillar stomach poison. It will take three or four days to be effective, however, and may be washed off before enough is eaten.

Mix flour and boiling water to a bill stickers paste, then add more water and spray that. Glued up bugs stop eating - and are easy for predators to find.

Try DIPEL as the next resort, or clay spray (this is just clay and water -- no dirt, though), bug juice or white pepper spray. (White pepper spray will slightly dehydrate the caterpillars. Most will die; the rest will be easy prey for birds etc).

You might also try dusting the leaves with powdered rock phosphate for the same effect. If these fail try wormwood spray, garlic, quassia, or dusting or spraying with derris. These are all last resorts, though, as they all kill non target species.

Caterpillar trap

This may be useful for large infestations where caterpillars denude one plant then move on to the next. Place a small three sided box at the base of plants -- about 10 mm high. Place a scatter of lime or wood ash inside. The caterpillars should shelter there during the day, and dehydrate. A scatter of wood ash around plants also stops migration..

Cabbage Moth

While the cabbage moth is quite different from the cabbage white butterfly -- it's greyish brown and hairy with yellow diamond shaped markings when the wings

are folded -- the caterpillars of both are easily confused. Both are green, and both devastate cabbages, cauliflowers and similar crops. Cabbage moth caterpillars however are a clearer green than cabbage white caterpillars and lack the velvety appearance and yellow stripe.

In terms of garden control however the difference is slight. Cabbage moths also lay their eggs on the underside of leaves. The cabbage moth caterpillar tends to eat towards the heart of the vegetable, and may cause even more damage than the cabbage white.

Predators

Like cabbage whites, the cabbage moth caterpillars are preyed upon by a range of imported wasps -- different ones from the cabbage white's. Native wasps don't appear to be so particular, and I have noticed two species here that will carry off either. The same range of birds also appears to attack both.

Cabbages as herbicides

Brassicas going to seed inhibit the germination of seeds around them, and the growth of other plants. I make use of this by letting a plot of brassicas go to seed in spring -- then hauling them out two months later. The result is a nearly weed free bed for early summer planting -- and the massive roots have 'dug' the soil.

The above may all sound complicated. In reality, if you have good soil and good cultivation practice, the only trick with brassicas is to know when to plant them -- and what varieties suit your area and the time of year you want to plant. That's mostly a matter of peering over your neighbours' shoulders, and seeing what works for them -- and looking through seed catalogues for appropriate varieties, rather than choosing the mass-produced seedlings so often sold by nurseries, that are almost suitable for most areas -- but really suitable for none.



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VACANCIES FROM MARCH

Blueberries in a Cool Climate -- Winter Chores

by Harold McCormick

Winter in this region is traditionally the time to prune and to plant deciduous bushes and trees. This article will outline some of my thoughts on these topics.

I have read numerous articles recently on the necessity and timing of pruning in a "permaculture" type environment. I must admit that although I eagerly investigate any alternatives that involve less work, I have not always found these alternatives to be successful in practice.

Some authors argue that one should not prune at all as it is unnatural. I'm not convinced. Fruit growing in a garden or orchard is not natural; plants benefit from closer to optimum nutrient and moisture conditions than in nature. This results in more vigorous growth.

In addition, modern fruit plants have been modified by breeding to produce fruit as a food source as compared to their natural ancestors where the purpose of the fruit was to give the seed the maximum possible chance to develop into a seedling.

Finally, naturally growing fruit trees would have been pruned to some extent by browsing animals. For all of these reasons, I believe that many fruit trees and bushes benefit from some pruning, the amount of pruning being dependent on the vigour of the growth. Blueberries are vigorous growers and so should be pruned quite heavily.

The other question often posed is in regard to the timing of pruning. More sources are recommending summer (autumn) rather than winter pruning, primarily on the grounds of diseases entering the plant via the pruning wound. With the plant growing actively, the wounds will heal more quickly.

Certainly, fruit trees which are very susceptible to fungal diseases, such as apricot and cherry, should probably be pruned in summer after fruiting. Removal of complete branches of all fruit trees could well be carried out in summer, to minimise winter wounds which heal slowly. However, pruning to control fruit quantity is best carried out in winter when the number of fruit buds can be clearly seen.

Why prune? Firstly pruning controls the quantity and indirectly the size of the fruit. Secondly, by controlling the amount of fruit we can help balance the fruit production and the amount of vegetative growth. Since many plants fruit on one-year-old wood, this year's growth is next year's fruit.

Young blueberry bushes need to be pruned for shape and to restrict the fruit formed as it is important at this stage for maximum branch and root growth. In the early couple of years you should prune off small twigs and branches from the upper portion of major limbs as shown in Fig. 1.

As well, in spring you should remove all blossoms for the first two years. New canes may shoot up from near the bottom of branches. Leave the strongest of these each

year so that when the bush becomes mature (5 - 6 years) it will consist of 6 - 8 main canes.

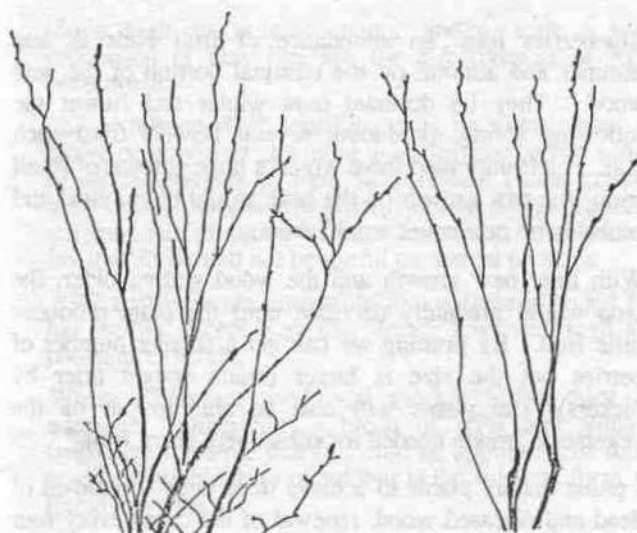


Fig. 1. A vigorous immature (2 years old) blueberry bush (from ref.1). The right diagram shows the bush after pruning. The twiggly growth and some of the canes have been removed.

After the first couple of years, remove much of the upper twigginess each winter and any branches growing into the centre of the bush. The centre should be left open to allow light in. At this stage allow some fruit to form, gradually increasing the proportion of fruiting buds left. By 5 years (in this region) you should have a vigorous bush approximately 1.5 - 2 metres in height bearing 3 - 5 kg of fruit.

To understand pruning of mature plants, we need to look at the growing and fruiting habits of a mature bush. A bush would consist of a number of canes of differing ages shooting from the base. Current canes are green to light red; last year's canes are a woody red; and older canes are very woody in appearance, the wood becoming thicker and more gnarled with each year.

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If left to its own devices, new growth will occur from buds on the old wood, becoming less vigorous with each passing year. Thus one-year-old wood will have lots of new growth with 4 - 5 year-old wood almost no growth. So we need to keep the majority of the wood in the bush reasonably young.

Blueberries form an abundance of fruit buds in late summer and autumn on the terminal portion of the new wood. They lie dormant over winter and flower the following spring, producing several flowers from each bud. If left unpruned there would be a huge amount of small fruit; the new growth on the bush would be minimal and probably no new canes would shoot.

With little new growth and the wood getting older, the crop would gradually decrease until the plant produces little fruit. By pruning we can get a smaller number of berries but the size is larger (much sought after by pickers). The plants will also be able to put on the vegetative growth needed for subsequent years' fruit.

I prune mature plants to achieve three ends -- removal of dead and diseased wood, renewal of the canes every four years, and removal of 40-50% of fruiting buds. See Fig. 2.

I first remove any dead and diseased branches. I then pick one or two of the oldest main canes (out of 6 - 8) to remove. In deciding which to remove I look at the amount of growth on that cane during the past year (remove the least vigorous first), the balance and the vigour of the whole bush, and whether a vigorous new cane is able to grow into the space left.

I then remove the weak twiggy growth, watershoots and excess new canes (leaving 1 - 2 to replace the old canes). Finally I remove some of the small twigs and branches at the top of the old canes until I have removed enough fruit buds. It is then only a matter of patiently waiting for large juicy berries next January.

The other winter chore is to set out new plantings. I have just received some bare rooted plants from Moondarra Blueberries in Victoria (certified "A" NASAA) which was featured in the last issue of *Earth Garden*. Bare rooted plants do not have the root bound problems of potted plants. It is an advantage to mix organic material (I use worm castings) with the soil in the hole when planting. It is also a good idea to hill the soil up to increase drainage and increase the topsoil depth. Plant about 1.2 metres apart. Water in and keep mulched through the summer. Look forward to at least twenty years of delicious fruit.

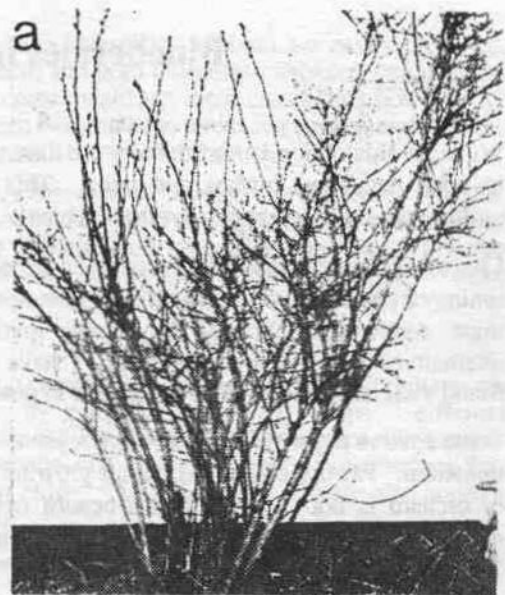
Happy Blueberrying

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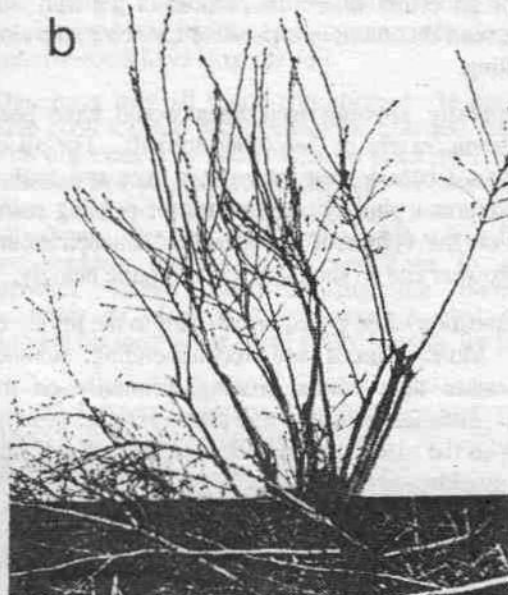
- (1) *The Australian Blueberry Grower*, June 1986 (Issue No. 40).
- (2) *Blueberry Culture* (eds P. Eck, N.F. Childers) Rutgers University Press, New Brunswick, New Jersey, 378 pp (1966).

OPPOSITE

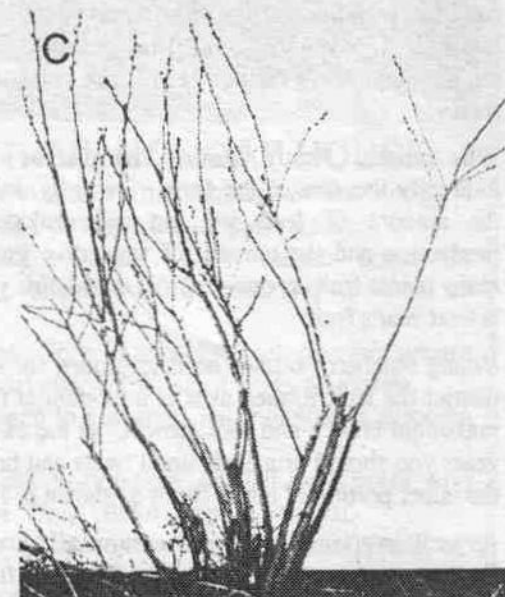
Fig. 2. Progressive views of an older bush as it is being pruned (from ref. 2).



a. bush with weak current growth probably due to heavy fruit production last season.



b. the same bush with several canes and unproductive wood removed.



c. the same bush with more of the twigs removed.

Reactive phosphate rock fertilisers

Adapted from *Agnote Reg4/62* (Second edition February 1994), by **Ian McGowen**, Research Officer (Resource Information), NSW Agriculture, Orange

A number of slow release phosphorus fertilisers are now available for use on pastures. Most contain 'reactive' phosphate rock or are blends of superphosphate and reactive phosphate rock. There is some confusion about the place of these fertilisers on pastures - where they can be used, and their advantages and disadvantages compared to soluble fertilisers such as superphosphate.

What are reactive phosphate rocks (RPRs)?

Sources of phosphate rock vary in their solubility. The forms of phosphate rock commonly used to produce fertilisers such as superphosphate are extremely hard ('unreactive'), containing mainly insoluble phosphorus, and are processed with acid to improve solubility. However, there are other sources of phosphate rock that are more soluble ('reactive') and if applied to acid soils do not require processing to make them useful as pasture fertilisers.

Commonly used reactive phosphate rocks are found in North Carolina (USA), Egypt, Arad (Israel), Sechura (Peru), Tunisia and Morocco as well as some other areas around the world. These vary greatly in their reactivity (that is, their speed of breakdown and release of phosphorus).

The forms currently available in Australia include North Carolina rock phosphate, available from Pivot Fertilisers as Naturaphos. Sechura rock phosphate is distributed by Incitec as Greenleaf RPR and Greenleaf RPR Supreme (a mix of RPR, gypsum and elemental sulphur), while Egyptian rock phosphate is available from Quinphos Fertilisers as Quinphos RPR and as Quinphos Clover King (a mix of RPR and gypsum). Moroccan rock can be also purchased commercially.

Most reactive phosphate rocks are untreated, except for some crushing, and can be used raw. They are generally very fine, with a granule size of less than 3 mm. In comparison superphosphate is produced from unreactive phosphate rock, which is treated with sulphuric acid. This produces a combination of soluble phosphorus and sulphur (in the form of gypsum).

RPRs are not soluble fertilisers. The raw rock must undergo a chemical reaction with the soil to dissolve and slowly release its phosphorus. The breakdown of the fertiliser is influenced by many factors including soil pH and rainfall. Due to this, RPRs should be considered as maintenance fertilisers and used on soils that already have moderate phosphorus levels in most circumstances.

In addition to phosphorus RPRs may contain small amounts of other nutrients such as sulphur, magnesium and molybdenum. However, at normal application rates of RPR the small amounts of these elements applied will be insufficient to correct deficiencies.

Where can RPRs be used?

The place of RPRs in Southern and Central Tablelands pastures is not at present well understood. It is difficult to generalise about where and how they can be used as their effectiveness is so dependent on environmental conditions.

The following are general guidelines on usage situations based on our current knowledge.

Acid soils with a pH (CaCl₂) of less than 5.0 - 5.5 are required. The more acid the soil, the more rapid the breakdown of the fertiliser.

A rainfall of 600 mm or more per annum appears necessary to allow the fertiliser to break down effectively.

Soils high in organic matter and/or with a high proportion of clay increase the effectiveness of RPR breakdown.

Slow release RPR fertilisers will be more suited to native or improved perennial grass/legume pastures than to annual pastures as their slow release characteristics more closely matches the growth pattern and phosphorus requirements of such pastures. However, this is not to say that RPRs will not be useful on annual pastures.

RPR fertilisers are unsuitable for pastures intended for hay cutting, except those that already have very high soil phosphorus levels.

Where RPRs are used, soil sulphur levels must be adequate. Otherwise, a blend of RPR and sulphur (sufficient for three years) should be applied. The most readily available form of sulphur is the sulphate form, as found in gypsum.

Soil phosphorus levels must be moderate or better* for RPRs to be efficient on most soils, due to their slow release of phosphorus. For this reason, RPRs should be regarded as maintenance fertilisers.

The speed of phosphorus breakdown from RPR fertilisers varies but may extend over two to four years. Where used on low phosphorus soils, there may be a delay in pasture production for a number of years compared to where soluble phosphorus fertilisers are used.

* *Strategic fertiliser use on pastures (Agnote Reg4/57) provides a guide to interpreting phosphorus soil tests on soils with a pH (CaCl₂) < 5.*

Advantages of RPR fertilisers

The major advantage of RPR fertilisers is that they are more suited to the needs of perennial pastures (on soils of a moderate to high phosphorus status) than soluble fertilisers, due to the sustained slow release of phosphorus.

Also, the slow release of phosphorus from these RPR fertilisers may result in less of the phosphorus being 'fixed' by the soil than occurs with soluble phosphorus fertilisers. Fixation is the process where soluble phosphorus compounds are changed by soil processes and made unavailable to plants.

In very sandy soils in high rainfall areas (such as coastal areas) leaching of phosphorus from soluble fertilisers can occur. The slow release of phosphorus from RPR fertilisers will result in reduced phosphorus leaching in such situations.

RPR fertilisers have a modest liming effect on the soil, although at normal application rates this is insufficient to counteract soil acidification. At best, soil acidification may be slowed but not corrected. As a general guide, 100 kg of pure RPR fertiliser (containing 10% phosphorus) has a similar neutralising effect to 40 kg of lime.

Note that while pure RPR products and blended RPR/gypsum products retain this liming effect, mixtures of RPR and conventional superphosphates or elemental sulphur have little or no neutralising effect.

RPR fertilisers when applied raw or mixed with mined gypsum (as a sulphur source) are normally permissible as fertilisers for 'organic' farming, under the guidelines set by organic certifying organisations. Consult your certifying organisation before using such fertilisers.

The cost of RPR fertilisers per tonne is less than that for other phosphorus fertilisers and the phosphorus levels in pure RPRs are usually 20-40 per cent higher than in single superphosphate.

Disadvantages of RPR fertilisers

The major disadvantages of RPR fertilisers are:

They are unsuited for use in most situations on low phosphorus soils due to their slow release of phosphorus.

They are only effective when used on acid soils in moderate to high rainfall areas.

They contain little sulphur. In many Tablelands situations sufficient sulphur must be added to last for at least three years. The addition of elemental (slow release) sulphur will counteract all or part of the neutralising effect of the RPR. The addition of gypsum (quick release sulphate sulphur) will increase the bulk of the product to be applied and mean a much greater product application rate. Also, the sulphate sulphur in gypsum may be leached under some conditions and so may not last for three years.

The fineness of the fertiliser is important - the finer the material the more rapidly the fertiliser will break down (although the crystalline structure may be important). However, the fineness of RPRs means that they are more difficult to ground spread and such spreading may therefore be more expensive than for other phosphorus fertilisers.

Limited trial information suggests that pasture production in the year of application will be less than that from an equivalent rate of single superphosphate.

Due to their slow breakdown, RPR fertilisers are unsuitable for most field crops. Cereal crops require most of their phosphorus in the first four to six weeks of growth. RPR fertilisers are unable to meet this demand.

Most current phosphorus soil tests (particularly the Bray No.1 Test) are ineffective for predicting phosphorus responses after RPRs have been used, and until the fertiliser has fully broken down (at least three to four years).

Blended products

Blended RPR products are also available. These include superphosphate/RPR mixes, such as Pivot Pro-long SR15 HiFert Pasture Slow Release, Quinphos Superlife Hi-S and INCITEC Longlife Super.

The place for these blends is similar to that of straight RPR fertilisers. However, the added soluble phosphorus means that they will be more useful on soils lower in phosphorus than the standard RPRs, and provide much greater pasture production in the year of application.

While the effectiveness and longevity of the slow release phosphorus portion of these fertilisers is unknown, it could be expected to be less than for standard RPRs.

Blends of RPR and other substances (such as potassium) are also available from some suppliers and may be of use in coastal or potassium deficient situations in high rainfall areas.

Most of the blends are not suitable for use as 'organic' fertilisers, due to being mixed with conventional superphosphates and manufactured sulphur fertilisers.

Summary - using RPR fertilisers

RPR products should be considered as medium term slow release fertilisers. By comparison, single superphosphate is a short term quick release fertiliser.

As the phosphorus in RPR fertiliser is released over a period of about three years or more, a higher application rate than commonly used for single superphosphate is necessary. Information on rates is limited, but suggests that up to two and a half times more phosphorus as RPR should be applied than as single superphosphate to provide the same response in the year of application.

While this will cost more in the year of application than where superphosphate is used, the advantage is a sustained pasture production level for up to three to four years. By comparison, the response from a single application of superphosphate on soils with a moderate phosphorus level will decline in the second and third year after application.

Due to their slow breakdown, RPR fertilisers are most suited to paddocks with a good density of native or improved perennial grass and legume. The paddocks must also have a moderate to high soil phosphorus level in most circumstances (see Agnote Reg4/57 Strategic phosphorus use on pastures for details of soil phosphorus levels on the Central and Southern Tablelands).

In some situations RPRs can provide reasonable results when used on low phosphorus soils. In these cases, the soils should be extremely acidic, with a pH(CaCl₂) of less than 4.5 and rainfall should be more than 600 mm per annum where reasonably rapid breakdown is required from the RPR fertiliser. Otherwise, there could be a lag period of a number of years before the RPR has broken down sufficiently to provide reasonable plant growth.

The slow breakdown of the products means that they should initially be applied in mid-late spring on the Central and Southern Tablelands, when there is still sufficient soil moisture to commence the breakdown of phosphorus from the RPR. This, with some summer and early autumn rain, will help ensure the best availability of phosphorus by the time the subterranean clover germinates in the following autumn (see Agnote Reg4/58 Timing of phosphorus fertiliser application).

Spreading of RPR fertilisers by ground will be more costly than for single superphosphate. This is due to their fineness, which results in the swath (spreading) width from a ground spreader being only about half that than where single superphosphate is used. The fineness of the material means it tends to spread well by air, giving a similar swath width to superphosphate. However, as a result, the fertiliser is more prone to wind drift than superphosphate.

Where RPR fertilisers are to be used, liming should be avoided as it will greatly decrease their rate of breakdown. This will be particularly so if the liming material is top dressed without incorporation into the soil.

Further reading:

Reactive phosphate rock Advisory Bulletin 6 Strategic fertiliser use on pastures Agnote Reg4/57 Timing of phosphorus fertiliser application Agnote Reg4/58 Soil testing for pastures and crops Agnote Reg4/59.

Sewage sludge and organic farms

by Michael Burlace

Organic Farming Officer, NSW Agriculture, Locked Mail Bag 21, Orange 2800, phone 063 91 3155, fax 063 91 3206

This article is about organic farmers and organic farming certifiers and what they have decided in relation to sewage sludge. It is not about NSW Agriculture policy. The questions below have been asked of NSW Agriculture staff by organic and conventional farmers. The answers have been provided by the organic certifiers.

About sludge: Sludge is what is left after the water has been removed from treated sewage. Those who produce sludges want to do something useful with them. Some farmers want the nutrients. Recycling is a good idea. But recycling sludge on farms which grow food for the city which produces the sludge is not always a good idea.

About organics: Consumers and organic farmers generally understand organics to mean farming in a more sustainable way without using artificial chemicals such as synthetic pesticides and artificial fertilisers. Most farmers farm conventionally, using artificial chemical fertilisers and pesticides as they consider appropriate.

But on organic farms, no artificial chemicals are used. None is used to prepare the soil, grow the crop, grow pasture on which animals feed, nor to store or market produce.

Can organic farmers use sewage sludge?

Yes, with restrictions. These restrictions mean that for the moment the answer is often "No".

What are the restrictions?

1. Every batch of sludge must be tested for heavy metals and other chemicals which could cause problems.
2. Sludge must be composted.
3. The certifier must get results of soil tests taken after sludge application.
4. Sludge may be restricted to certain crops, such as trees for timber.

Why test every batch?

Every batch of sludge is potentially different. So to be sure that the batch being used is acceptable, the certifier has each batch tested for anything which could cause problems.

Note: Sludge from some country towns with little industry may be less variable and less polluted with undesirable substances.

Why must sludge be composted?

This is a requirement of the National Standard for Organic and Bio-dynamic Produce. Good composting will ensure that nutrients are not too available. This will allow nutrients in the sludge to feed the soil organisms rather than feeding the plant directly. It will also reduce the risk of nutrient runoff.

Good composting will reduce the number of pathogens (disease-causing organisms).

Ask whether your certifier accepts sludge as an input to your compost.

Why test the soil after application?

The certifier will want to minimise any problems in soil and water, particularly ones which would take a long time to repair or remove.

So the certifier will check the soil after some applications. If there are problems, application will be stopped or the farmer will lose certification.

Monitoring will taper off if no problems are found.

It also makes sense to test soil before application. This makes it easier to track the cause of any problem discovered later. For example, residues found later could have been in the soil before sludge was applied or could have come from the sludge.

Isn't sewage a natural product?

Human sewage is a natural product. But our city sewers carry more than human manure and urine. Industrial waste, household cleaners, car oil, pesticides and other products are dumped or find their way into the sewer from industry or stormwater runoff.

So sludge is not always appropriate for an organic farm. Sometimes the sludge may be so contaminated that it can't be used on any farm. For example, on some sewer lines, there are high levels of heavy metals.

How do I make good compost?

Your certifier can tell you what methods are available. Composting where the heap stays at 55°C or more for at least three days will be needed to kill significant pathogens.

What are the certifiers' attitudes to sludge?

The *BDRI*, the *Bio-Dynamic Research Institute*, does not allow the use of sewage sludge on land used for food production. The *BDRI* may allow sludge which passed all the tests listed earlier to be used for timber production or on parkland. Organic cotton land is not acceptable for sludge application because cotton is rotated with food crops such as pastures and grains.

Any use of sludge would be allowed only after discussion with the *BDRI*. It would also only be allowed where there would be no movement of chemical residues or excess nutrients onto food-growing land.

The *BFA*, the *Biological Farmers of Australia*, does not allow the use of sewage sludge on land used for food production. The *BFA* may allow sludge which passed all the tests listed earlier to be used for timber production. Organic cotton land is not acceptable for sludge application because cotton is rotated with food crops such as pastures and grains.

Any use of sludge would be allowed only after discussion with the *BFA*. It would also only be allowed where there would be no movement of chemical residues or excess nutrients onto food-growing land.

NASAA, the *National Association for Sustainable Agriculture, Australia*, classes sewage sludge as a "restricted" input. This means *NASAA* farmers must get permission before using sludge.

It can only be applied to green manures or forestry and not in intensive horticulture. Sludge may be used once per paddock. Each batch must be tested before use and the soil tested after use.

The *OHGA*, *The Organic Herb Growers Association of Australia*, does not allow sewage sludge use.

The *OVAA*, *The Organic Vignerons Association of Australia*, does not allow sewage sludge use.



WINTER - a time for reflection and preparation - a time for meeting challenges - and a time for setting goals.

A comment I noticed recently in the Canberra Times was to the effect that gardeners in this region enjoy Winter because it provides a definite contrast of season -- not to be avoided by flight to the sub-tropics -- but to be enjoyed for its own challenges and peculiar beauties.

For me this Winter has been particularly significant because it is the advent of a new purpose for ROCKYGLEN as a demonstration organic farm. Until now the farm has provided a pleasant outlet for my retirement energies but recently some unconnected incidents and comments caused me to think about future directions and to formulate a Mission Statement and Business Plan.

It was easy for me to be dismissive of such objectives as a hangover from 'management-speak' but such a course of action proved to be of value by focussing my mind on the direction my business should now take.

First, I was shocked into action by the unexpected and fatuous comment "Organic Farming is a luxury we can't afford". This was said with an earnestness that displayed a woeful ignorance of ecological issues (and the need for sustainable systems if we are to provide a future for our grandchildren) -- but at the same time presented me with the challenge to refute it, not only with ethical arguments, but on economic grounds as well and left me pondering the related question of the price of sustainability in a world of shrinking resources.

The second trigger for the setting of the Business Plan was the need to provide a practical focus for the teaching of my Small Area Farming course with the Queanbeyan branch of Southern Adult Education, and the need to take a fresh look to see how the farm could support this approach.

The classroom lessons are supplemented with 'hands-on' experience in all facets of integrated mixed farming. Linked to this is my abhorrence of 'armchair experts' who like to recycle others' experiences without getting their own hands dirty -- and if I am in the business of giving advice in matters organic I have to make sure that my advice is soundly based in practice, especially practices relating to local conditions.

Thirdly, the decision was taken to become 'certified' organic with the Biological Farmer's Association and to justify the cost of this certification it was no longer feasible to be just a hobbyist but essential to have an outside and independent body reinforce my credibility in the commercial undertaking.

Finally, and most importantly, because the farm is located in Zone 7(e), Environmental Protection, under the Environmental Planning and Assessment Act 1979, the proposal to conduct an organic demonstration farm required the granting of consent by Yarrowlunla Council to a Development Application. In this respect I found the advice and support of Council's officers to be extremely helpful.

To seek guidance in formulating my proposal I sought, and was granted, an interview with the Director, Environment and Development (and one of his officers) in order to obtain clarification of Council's objectives for this area and at the same time to have the opportunity of outlining the ways in which a small intergrated organic

farm could be used to demonstrate sustainable land use. This interview proved its value to both Council and myself by defining the issues and clarifying the procedures - which in the long run saved time, unnecessary correspondence and possible misunderstandings.

So what business am I in? My Mission Statement and Business Plan have convinced me that I am in the business of education in sustainable land use -- with the farm as a laboratory/classroom to demonstrate those principles -- while at the same time finding it necessary to have cost-based systems in place to answer those critics who say "Organic Farming is a luxury we can't afford"!

This Winter has also seen the end of the current water drought -- the rain having come too late to provide a boost for Autumn growth -- so there is still a 'feed' drought which will remain with us until the warmer weather comes.

At this stage there is plenty of sub-soil moisture to give the promise of an early Spring, in fact it is quite unusual to see such soggy paddocks, but as we have seen previously this situation can quickly change should the benefits of follow-up rains fail to arrive with the warmer weather.

The drought and wintry conditions have combined to provide a long fallow for the preparation of a new area for a market garden -- about a hectare in total -- an area which previously had never been ploughed. The development of a new area such as this presents its own special problems but once it has been developed it will then demonstrate its worth.

First and foremost it has never been poisoned with artificial fertilisers or weedicides so it doesn't have to undergo recuperative treatment for cleansing. Secondly, it has the ideal aspect in gently sloping towards the early morning sun and to the north-east. Thirdly, it has some 'real' soil in its heavy loams. And finally it has been securely fenced and adequately watered.

A problem arose with the initial chisel ploughing as rock 'floaters' were brought to the surface to the extent that, in some areas, it looked as though it sported a carpet of rocks. This situation was complicated by the inclusion of broken pieces of wood and roots from dead trees and logs which had been previously removed. There was nothing else for it but to pick them up by hand for them to be piled up ready for removal.

The little piles of wood were readily piled and burnt but the rocks were a different matter. At first, piling rocks was a chore, a laborious, backbreaking chore which was approached in a rather desultory fashion and one which was low on the list of priorities, but gradually it turned from a chore into a challenge.

'De-rocking' has its health benefits too -- I call it my 'aerobics' -- as the constant bending, stretching and lifting resulted for me in an initial weight loss of 5kg. And what better surroundings could one have than to be under a clear blue sky with a brisk nip in the air from the melting frost and with the prospect of creating a garden where none had been created before.

continued opposite

What Do Aloe Vera, Comfrey and Cabbage Have in Common?

by Shirley Carden

All three have been used through the ages by many different countries as first aid plants.

I shall give you some examples of how Aloe Vera has been used in our family to rescue different members both young and old, especially the former, with instant success.

Very young children tend to be accident prone, and I have learnt it is advisable to always keep in the refrigerator a container of pure aloe vera juice. In emergencies such as severe burns it is invaluable to alleviate pain and promote healing. In fact it is well worth while to keep some of the juice in a spray container for this purpose, in the refrigerator of course.

It is as well to understand the effect of the aloe vera in such a case. Its immediate action is to get rid of dead cells so be prepared for the resulting blisters to peel. The juice is antiseptic so infection, a problem in the case of burns, will be avoided.

Many is the time I have sprayed the cold juice onto a burn acquired by a toddler, screaming with pain, eyes tightly closed. The result has always been the same. The scream has stopped, the eyes opened with a look of surprise -- the pain has disappeared! The soothing cold liquid has achieved a miracle. It would not be possible to apply a fresh leaf even though it would be just as effective, because the child, in great pain, would not cooperate.

It is necessary to continue to spray the burn every twenty minutes or so to start with, until the burn is no longer painful. Then for a week or so use a good aloe vera cream, about 75% aloe vera with vitamin E to totally heal and prevent scarring.

The same effect can be achieved in the case of jammed fingers. Recently my four year old grandchild had a heavy door closed on his little finger where it rested in the hinge side. Fortunately I had in the refrigerator a container of

aloe vera gel. In seconds I had spread a thick film of the gel over the resulting wound. The reaction was the same as for the burns. The eyes opened in surprise as the scream ceased. For the whole of that day I constantly inquired of either the child or his mother as to how the wound was progressing. In each case the incident had been forgotten.

Well I remember the incident when that child's mother at a similar age had gone off on an excursion with a neighbour, who had managed to close the car door on my daughters' fingers. It was so painful I consulted the local G.P. He prescribed nothing to relieve the pain and even with two more visits both my daughter and I spent sleepless nights. That was long before I had learned the healing power of herbs. Is it any wonder my grandchildren are my greatest converts!

In both these cases I have used commercial products because of the need for speed and convenience, but I still prefer to use the fresh leaf wherever possible. It is handy to know how to apply a piece of fresh leaf, the skin removed from one side, to such problems as warts and other skin blemishes. If the aloe vera is placed on the problem before the band-aid is applied, the juice will get under the adhesive sides of the band-aid and it will not stick. It is necessary to first position the band-aid and make sure it is well attached. Then carefully unstick the middle on both sides, just enough to ease in the piece of aloe vera so that it is firmly held in place.

In the case of warts it is necessary to renew the piece of aloe vera every day for about five days. This can be done by either easing a fresh piece under the first piece or starting from scratch with a new band-aid..

cont. next page

David Odell's Rural Correspondent cont.

It wasn't long before the rock piles began to take on individual shapes -- quantities, sizes and positions varied of course -- but it didn't take much effort to create different shapes such as walls, pyramids, cones and rough rock topiary inspired by the materials. The initial clearing has almost been completed and now I'm waiting for conditions to dry out sufficiently so that the tractor can make another pass with the chisel plough to bring any remaining floaters to the surface for another round of 'aerobic de-rocking'.

I was pleased recently to have a WWOOFer stay with me for almost three weeks to help me catch up on those jobs which for too long had been the subject of a blind-eye. Willing Workers On Organic Farms (WWOOFers) trade their labour in return for meals, accommodation and the gaining of experience and on this occasion it proved to be a rewarding experience for both of us. In particular I was pleased to have Hendrick's help in building the new brooder room for the chicks which will arrive shortly, and for his part he enjoyed driving the tractor, especially getting experience in backing a trailer.

I was pleased to meet up with John Brummell again when he attended our meeting to talk on his work with the people at Youth Haven. His work is particularly interesting, especially in achieving the third prize (and the heaviest in the ACT) in the giant pumpkin competition, and he has thrown down the gauntlet (in his modest fashion) for others to emulate his results.

One area where this could be demonstrated is at the Canberra Show (at the end of February 1996) not only in the competitive classes but in a combined display from the region's organic growers to show the quantity, diversity and, above all, the quality of organic produce. Owen Pigeon has expressed his interest in coordinating such a display and if sufficient interest is shown by members then a growing programme can be drawn up. What do you think?

Continued from previous page

What Do Aloe Vera, Comfrey and Cabbage Have in Common?

By Shirley Carden

After five days the wart will look a little mushy to say the least, but just let it dry out completely, and after a day or two it should just drop off, leaving new skin -- no sign of scarring. If it is a persistent wart, repeat the process. This is particularly good for those annoying ingrown warts that seem to come from frequenting public swimming pools.

Ingrown toenails and corns can be softened by applying the leaf as above.

It can be a worry when applying aloe vera to the skin when the skin seems to peel. Aloe vera is as good as a dry brush massage to get rid of dead cells, but remember this is just an initial action. The aloe vera encourages new cell growth.

While you are waiting for an appointment to have your sunspots attended to try applying the aloe vera as above.

Aloe vera may be applied to an injury on the leg or foot if you do not intend being active by carefully placing inside a sock, with enough glad wrap to keep the juice going into the injury instead of the sock. A little imagination when it comes to applying the leaf is all that is needed.

One very dangerous situation I remember was when a two year old in nothing more than a pair of bower shorts wandered up behind his father and grandfather, both in full protective gear, who were attending to their bee hives. The child was engrossed in the procedure of robbing the hives and was unnoticed by the adults.

When bees sting they release a scent which alerts the other bees which then proceed to sting in the same area. In this case the child was stung in the neck area and was very quickly covered in bees. Everyone rallied. He was rushed up to the house. One person vacuumed off the bees. Others removed the stings. Another sprayed aloe vera juice onto the neck. It could have been a life threatening situation, but once again aloe vera came to the rescue, and he quickly recovered.

In America leg ulcers have been treated with success by applying a gauze bandage then keeping the bandage wet with aloe vera juice either by drip feeding the juice or spraying. The bandage needs to be replaced regularly.

It is claimed aloe vera treatment of the skin is as good as a face lift. But remember the juice is astringent, so it is necessary to use a product that has vitamin E included or if you are using the fresh leaf finish off with a good moisturiser or oil from a vitamin E capsule.

Internally use the juice as a gargle for sore throats. If you feel your health will improve by consuming regular doses of the juice, it is more beneficial to take it unadulterated a couple of hours before a meal. It has more effect that way. Start with a small amount. Your bodily functions will let you know what is the correct dose for you. If you wish to use the fresh gel (removed from the skin), then blend it in a little water, strain and drink immediately.

Comfrey has similar properties to aloe vera but it is not antiseptic and is less convenient to use. It can be made antiseptic by combining with such herbs as thyme, rosemary or lavender.

If nothing else is available say during the winter when the leaves have died off, then dig up a thick root. Scrub it to remove the dirt then scrape off the brown skin. Beneath is a white root. This may be scraped into a mush then applied

thickly say to an injured toe. Cover it carefully with a little glad wrap. Like aloe vera this will remove the pain.

It is interesting that in the case of such an injury (e.g. on the top of the foot after a better brick has been accidentally dropped on it), if the area has not been totally covered, beyond the comfrey root mush there will be bruising and swelling.

In the case of an injured small toe when there was little comfrey root available, the mush turned brown in colour then set quite hard. After five days it had to be cut off, but beneath was a well healed toe.

Comfrey poultices of any size can be made by blending the leaves with a little water plus antiseptic herbs if needed, strained then placed between two pieces of linen and applied to the problem area. Don't be tempted to apply the fresh leaves. They can be very prickly and set up an annoying itch.

Records of **cabbage** go back to 2,000 B.C. It is best steamed or eaten raw, not boiled. It may be also taken juiced with a little lemon juice. It was reputed to have been used against the plague.

The leaf may be softened by ironing with a warm iron (I'd place it between layers of cloth first), then applied to a wound, inflamed breasts or painful backs. I find the resulting smell not particularly attractive.

Maurice Messegue used cabbage when he treated his first patient, a very important government official, with great trepidation. The problem was arthritis of the shoulder. The treatment was successful.

Captain Cook undertook a three year voyage with a hold containing great quantities of cabbage, no doubt aware of its antiscorbutic properties as well as other medicinal uses. He lost not a single crew member in spite of the problems of scurvy during such long voyages in those days.

I remember a man who suffered from severe chronic sinusitis, which is a most painful, unpleasant illness. He was cured in India by a local doctor using raw cabbage. It has been regarded through the ages as the poor man's medicine. It is an ideal first-aid material in emergencies.

The crushed leaf promptly applied relieves burns, insect bites, cuts, sores, lesions, pimples, abscesses etc. It relieves the pain and speeds healing. It draws out infection.

The central rib of the leaf is best removed. The leaves may be plunged into boiling water or soaked in olive oil for an hour or two as well as ironing to soften them. The olive oil also helps the leaf to adhere to the affected area. They may be used in the place of sterilized dressings. Varicose veins, ulcerations, swellings, skin eruptions, hemorrhoids and infections will benefit.

Hot compresses will relieve sciatica, neuralgia, arthritis and rheumatism or internal pain such as that associated with the liver, stomach or intestines. Use on the brow, throat and chest in the case of a migraine, colds or asthma.

Gargle with the fresh juice for sore throats. Mix with a little honey for laryngitis. Take internally for the relief of cirrhosis of the liver, dysentery, intestinal diseases, anemia, arthritis and gout.

Make a tea with sage and cabbage for anyone who tends to have nightmares.

As you can see, by growing these three plants, organically of course, you will be well equipped for any emergency.

Good health and happy gardening to you all!

Fairview Gardens Farm

By Tim Marshall

reprinted from "Eating into the Environment" Information Newsletter for the Michael Ableman Tour of Australia November - December 1995 No1 May 1995

Michael Ableman will be coming to Canberra in early December for a number of events. Watch out for further details in the Flier and the November Quarterly.

Fairview Gardens began life in the company of other farms around Goleta, near Santa Barbara, California. It is now a lonely anachronism in a thriving suburban sprawl which eats up more and more of the west coast.

Every year more orchards are flattened, the fields are graded, compacted and paved over. Any square inch of land which is not built on is lucky if it is not bituminised for highways, roads and parking lots. For twenty years Fairview Gardens has been spared by its owners.

The Chapmans purchased the land in 1974 and began its restoration, aided by local farmer Chris Thompson. They protected it as valuable, productive farmland where others would have given in to the pressures of development and rising land values.

In 1981 a new caretaker arrived at Fairview Gardens. Michael Abelman knew little or nothing of farming at the time, but he obviously possessed a great capacity for work, for self-directed learning, for community participation, networking and motivating other people. Michael is now an accomplished farmer and gardener, a visionary and talented ambassador for community farming, a writer and a skilled photographer.

I first saw Fairview Gardens farm with the aid of transparencies and a screen. Images from two projectors and words from a coordinated sound tape brought it to life. The images were compared and contrasted with traditional farming methods collected during Michael's travels in Europe, China, Asia and Africa, and with industrial agriculture in the Californian Central Valley. I was captured by an aerial view of the farm, nestled between highways, petrol stations and supermarkets, a peaceful haven from the bustle and hurry of the city. Later I saw Fairview Gardens from a similar perspective as the small plane approached the Goleta airport, barely three kilometres away.

The temperate climate of the Santa Barbara coast is ideal for diverse mixed horticulture. The 5 Ha (12 acre) farm supports a mixed orchard, with emphasis on avocados,



peached, mandarins and oranges, a seasonally varied vegetable cornucopia, laying hens and bees. Produce is marketed from the farm shop, from farmers markets and directly to subscribers.

Michael has recently produced an excellent book of photos and text called *From the Good Earth: Traditional Farming in a new age* (reviewed in *Acres* vol 1#8). He writes

"I began farming because I wanted to eat well and to tend the earth. I didn't know that I was part of a movement. It was years before I found others who were working in the same way, calling their practices "organic", "sustainable", "natural", and even "sensible" agriculture.

"They were growing food locally, close to home, applying techniques and philosophies as diverse as the climates and geographies where they lived. When I eventually visited them I found that, miles or continents apart, we shared similar goals: high-quality, safe food; a healthy environment; and strong local communities."

This sense of local production and community involvement is strongly advocated by Michael and has created a loyal following from his customers. It will be necessary to have their continued support if the farm is to survive the gathering pressures of development.

Fairview Farm operates partly on a subscription basis. Distributions are made once per week on Thursday. The farm stand is open each day for direct sales. Farmers markets are attended in Santa Barbara on Saturdays and Tuesday evenings and Santa Monica on Wednesdays.

The farm stand is very important. It is on the main road, it is attractively presented and causes interest in the farm itself. Presentation of produce is important whether at the farm stand or farmers markets.

Michael is fortunate that his photographers eye and artistic interests allow him to create interesting displays readily. Garlic is braided, jams are attractively labelled, wreaths and flowers are an essential element of the display and are popular with the customers. The farming practices, freshness of the display and the care of handling and presentation of produce are witness to the nurturing and caring approach to food and to the land. This attitude is extended to consumption of food in Michael's home where meals are lovingly and carefully prepared from fresh ingredients. For Michael sharing and enjoyment of food are important aspects of community spirit and joyfulness, and his book devotes a section to celebration of food consumption.

Farmers markets are open to producers only. No distributors, agents or wholesalers are permitted. They are set up in public areas such as car parks and closed-off streets. They have a wonderful atmosphere similar to the craft markets found in small towns and communities in Australia, with a food emphasis.

Customers expect to have questions answered. How is this produce grown? Do you use pesticides? What is this vegetable called? How do you cook it? Friendly discussions are part of the atmosphere and sales are better for those who can join in the fun and promote themselves and their produce in a low key way. Bargaining is also a feature and "tasters" of strawberries or other fruits are expected.

The farm subscribers are also very important to the farm. There are about eighty members, some shares are now delivered to a local Waldorf school.

Half shares are provided for. A half share is \$390 and a full share \$690, for 35 - 37 weeks of production per year. Subscribers are not serviced in the period December to February.

There is a weekly newsletter for members, and a full range of fruits and vegetables are included, as well as honey, eggs and even bread is supplied at cost (the form used to supply milk but legal problems have made this difficult). Members meetings are social events with kids, food, music and entertainment. In Spring each year a major music event opens the entire farm to the broader community and provides opportunities for education and sharing.

Michael regards these events as extensions of himself and the farm, forging links with the community, providing opportunities for kids and others to see and taste the bountiful produce of the good earth as it was meant to be consumed rather than from the ever present takeaway outlet.

Fairview Gardens was certified by California Certified Organic Farmers (CCOF) but this has been dropped in favour of total openness of the farm and its methods to the public. "We don't need certification because people can see what we do - they know what goes on here and how the food is produced".

Production on the farm is based on compost, good preparation, rotation and cultural practices. Almost no pesticides are required on any produce. Another property in the hills outside of town has been used to enhance seasonal production but Michael intends to abandon it as it takes energy away from the main action at Fairview Gardens.

A small amount of produce is now accepted from other growers but still with an emphasis on local production. The healthiness of the garden and it's robustness without pesticides are attributed to the soil improvement. I detected in Michael some fondness for the old style Eve Balfour approach to farming, he says of organic farming,

"...there is more to good farming than the substances we don't use. Eliminating toxic chemicals is an important step, but a more complete farming approach goes further, seeking to grow a diversity of products, reduce external inputs, and become self-contained. It is concerned with the entire ecology of the farm from the tiniest soil microbes to the larger environment.

"Some of the practices might include crop rotations, careful timing of plantings, use of disease-resistant crop varieties and biological pest controls, new approaches to tilling the soil that preserve natural soil structure and prevent erosion and compaction, and particular attention to soil fertility.

"Rather than just substituting materials - a synthetic one for one from nature - the emphasis is on management and knowledge, knowledge acquired through experience, walking the fields and orchards every day, seeing and observing".

"...as long as we define the problem of food and farming in narrow market terms...simply increasing commodity prices, enhancing efficiency or convenience, or lowering consumer costs - we cannot envision a democratic system of food production and use in this society"

Frances Moore Lappe
Food, Farming and Democracy

RECIPES

from Linda Hyslop

CAULIFLOWER SALAD

- 1/4 - 1/2 cauliflower, trimmed (use tender stalks)
- 1/4 - 1/2 cup parsley, chives or shallot greens
- 1/2 cup red capsicum, finely chopped (optional)

Dressing:

- 1/2 cup fresh orange juice (1 orange)
- 2 tabs. lemon juice (1/2 lemon)
- 2 tabs worcestershire sauce
- 1/4 cup apple cider or white vinegar
- 1 - 2 cloves crushed garlic
- 1 tabs sugar or honey
- 1 teas sweet paprika

Steam or saute cauliflower, checking frequently as not to over-cook. Mix dressing in screwtop jar. Pour half the dressing over the hot cauliflower and toss or turn gently. Add capsicum and greens just before serving. Keeps for days. Use remaining dressing on any tossed salad.

PICKLED COLESLAW

- 1/2 cabbage, shredded
 - 2 large carrots, grated
- Place in large saucepan - 1 cup white vinegar, 1 cup sugar, 1/2 teas. celery seeds, 1 teas. mustard seeds and slowly bring to the boil and dissolve the sugar. Add cabbage and carrot and stir well. Add a little oil. Keeps very well - up to 2 weeks in fridge.

GREEN BEAN AND MUSHROOM SALAD

- 500g fresh green beans, sliced diagonally and steamed until just tender
 - 250g button mushrooms, thinly sliced
 - 1/2 red capsicum, cut into thin strips
 - 1/2 lettuce, torn in pieces
 - chopped dill, parsley or shallot greens (optional)
- Combine 1/2 cup white vinegar, 1 tabs oil and 1/2 teas. sugar and mix in screwtop jar. Pour over salad. Substitute fresh asparagus (in season) for beans.

RED and WHITE CABBAGE SALAD WITH APPLE

- 2 cups finely shredded red cabbage
 - 2 cups finely shredded white cabbage
 - 1 large green apple, coarsely grated or finely chopped
 - 2 tabs. plain yoghurt (or favourite mayonaise)
- Mix all ingredients together and serve

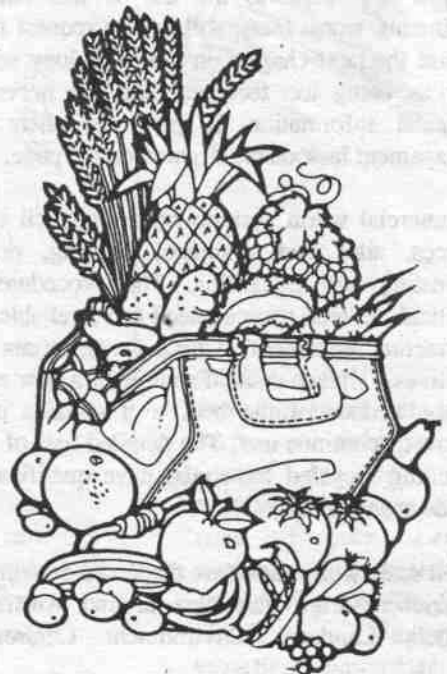
WALDORF SALAD

- 2 cups celery, chopped
 - 2 cups cucumber or zucchini, chopped
 - 2 cups green apple, chopped
 - 1/2 cup dates or raisins, chopped
 - 1/2 cup walnut pieces
 - 1/2 cup plain yoghurt (or mayonaise)
- Wash and scrub fruit and vegetables well. Do not peel. Chop fairly small. Mix together reserving a few dried fruit and nuts for garnish. Enjoy!

TOMATO LENTIL SOUP

- 1 onion, chopped
- 1 carrot, peeled and chopped
- 1 stick celery, chopped
- 1 1/2 cups red lentils
- 4 - 5 cups stock or water
- 1 bay leaf
- 1 - 2 cloves garlic, crushed
- 2 tabs tomato paste
- 1 teas. chilli sauce, or less of chilli powder
- 1 tabs fresh mint, or 1 teas. dried mint

Look through the lentils and pick out any small stones. Rinse a couple of times in cold water. Add all ingredients in a large saucepan. Simmer gently until lentils are soft, about 20 minutes. If using fresh mint, add just before serving.



WORMS

Downunder Downunder by Allan Windust

For Farm, Garden, Schools, Profit and Recycling.

Book review by Maryanne Humphreys

Published by Allscape, Mandurang Victoria 3551; ph (054) 395 099

\$14.95, available through Tower Books.

Farm and Garden Series 1994

81 pp including appendices.

I love this book. It is clear, helpful, inspiring, entertaining and exciting. It is one of a series entitled 'Farm Skills' which the author states aims to encourage environmentally sound practices. Intended for the beginner (wormfarmer), though 'new material will be of interest to all worm farming enthusiasts, farmers and gardeners'. Information has been included on worm production from areas in the southern and northern regions of Australia, making this book the only non-technical publication on earthworms covering the range of Australian climates.

The book is divided into nine chapters, with each chapter having bold type headings and subheadings dealing with all the businesses of earthworms. Each paragraph is concise, many with one line only, the result being easy to read text.

Illustrations include striking black and white photographs and diagrams, with colour photos on the front and back cover.

The range of topics covered in the chapters include: why worms, worm biology and life, commercial worm systems, healthy soil, worms in farmland, garden practices to encourage earthworm activity, school systems, worm winners, and potential income opportunities.

Chapter one explores the use of this book; a list of fascinating worm facts; soils and a request for readers to look at the next chapter on worm biology and not pass it over as being too technical and not necessary. Where technical information is presented there are related management lessons highlighted on the page.

Commercial worm systems covers council zonings, feed sources, sites and drainage, bedding, problems, and harvesting and marketing. The procedures listed are practical, ie 'feed sources need to be reliable, enter into a contractual agreement'; 'Check the materials for chemical additives, place a small sample of a new source of feed on the surface of the bed. If it remains untouched by worms discontinue use'. The detailed lists of feed sources, including recycled materials, have qualifications written beside each material

Small scale worm farms are discussed drawing on personal experiences from gardeners around Australia, and the Schools Landcare Environment Centres - SLEC.

Innovative and simple technologies are displayed including a worm composting toilet, liquid worm castings, and worm bins.

Worm winners are anecdotes from people who have success stories to tell about worms, from Claire Edward's garden in North Queensland to the Ivanhoe Diamond Valley Centre in Melbourne where people with disabilities are trained to set up their own worm industry, and to Bert Farquhar's sustainable farming success in Tasmania.

The appendices cover the related information of earthworm taxonomic classification; some trees suited to agroforestry and worm and pasture production; characteristics of compost farm and garden worms; pastures in crop rotations encourage earthworms; and recommended reading.

Allan Windust is a gardener and landscape designer interested in soil health and the composting process. He has run Worm Farming courses through his small farms school - Allscape. Allan writes that 'scientists working on earthworms in Australia are concerned about misinformation being spread about worms and worm farming by over enthusiastic worm farmers. He says this book is designed to clarify the situation'.

A useful and practical book for people wanting to grow worms.

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* When direct planting with small seeds, eg carrots, bulk out first by mixing the seeds with sand. You can help the plants pre-germinate by keeping them in moist sand for about 4 days (no longer - don't let them actually germinate!) before planting out.

* When planting out large seeds, eg pea or corn, soak overnight in a weak seaweed solution prior to planting; alternatively, keep seeds moist between 2 pieces of moist kitchen paper for 3 or 4 days until seeds germinate, then plant out carefully. This is particularly useful if you are not sure of the seed's viability.

* A seed should be planted at a depth 2-3 times its diameter, although it is better to plant too shallow rather than too deep.

* Check your seed packets for their 'use-by' date as poor germination may result from planting after that time, or plants may show a lack of vigour when the seedlings come up.

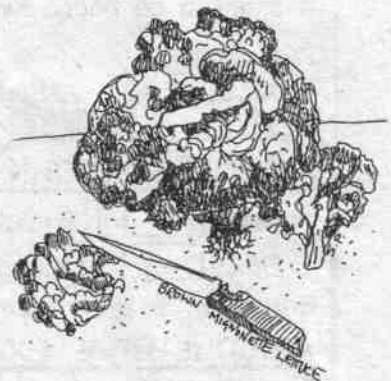
SPRING VEGETABLE PLANTING GUIDE

	SEPT	OCT	NOV
Globe Art	T		
Jerus. Art	T		
Asparagus	S		
French Beans	S	S	S
Beetroot	S	S	S
Broccoli			S
Brussel Sprouts		S	
Cabbage	ST	ST	ST
Capsicum		S	
Carrot	S	S	S
Cauliflower			S
Celery	S	ST	ST
Cucumber	S	S	ST
Eggplant	S	T	T
Endive			S
Leeks	ST	ST	T
Lettuce	ST	ST	S
Marrows	S	S	ST
Melons	S	S	ST
Onions	ST	T	
Parsnips	S	S	S
Peas	S	S	S
Potatoes	S	S	S
Pumpkins	S	S	ST
Radish	S	S	S
Rhubarb	T	T	
Salsify	S	S	S
Silverbeet	S	S	ST
Spinach	S	S	
Squash	S	S	ST
Sweet corn		S	ST
Tomatoes	S	ST	ST
Turnips white	S		

S= seed sowing
T= transplant

* Be prepared to protect your frost-tender seedlings, as Canberra can experience harsh frosts right through Spring. Make your own cloches from plastic bottles with the bottoms cut out, or row covers for larger plantings.

CROP ROTATION:
Remember to rotate the crops you grow in a particular garden bed. Crop rotation is a most important practice for organic gardeners. Successive crops should not make the same demand on nutrients i.e. follow heavy feeders with light feeders, and should not share the same diseases or attract the same pests (this prevents a build up of disease problems, and losses from pests). There are numerous crop rotation schemes used, but try to keep to at least a 4 year rotation period and do not grow the same members of a plant family in the same bed in consecutive years. eg the solanum family - tomatoes, capsicums, eggplants, potatoes



PLANT VARIETIES:
It is important with crops such as cabbage and lettuce to choose the appropriate variety for the time of year. Lettuce varieties best suited to early Spring are Cos, Salad Bowl, Butterhead varieties, Mignonette.

COGS NOTICEBOARD

AUGUST GENERAL MEETING:

The August General Meeting will be held at Room 4, Griffin Centre, Tuesday 22nd August, 7.30pm. This is the Annual Quiz Night. Visitors are most welcome.

Next Committee Meeting: Tuesday 29th August, 7.30pm Environment Centre

Welcome to our new Secretary! At the last Committee Meeting we were pleased to coopt Ezmi Witty to the position of COGS Secretary. Thank you Ezmi for your help.

Vacancies! We do still have **three** vacancies on the Committee for general Committee Members. Can you help us?

THE COGS FLIER STAYS: A number of people have responded to the query about the value of our Flier - all emphatically in favour of retaining it - so with COGS members wishes in mind **plus** our recognition that reminder letters would have to be sent out to members coming up to membership renewal if reminders could not be put on the Flier labels - the Committee has decided to keep on with the Flier.

Our main concern has been the lack of contributions to the Flier, making the job such harder for those involved in its publication, and providing less variety for the readers. **Please make the effort to write** any gardening hints or experiences you may have, questions you want answered etc. Contact Aylwen Garden 292 7828 if you can.

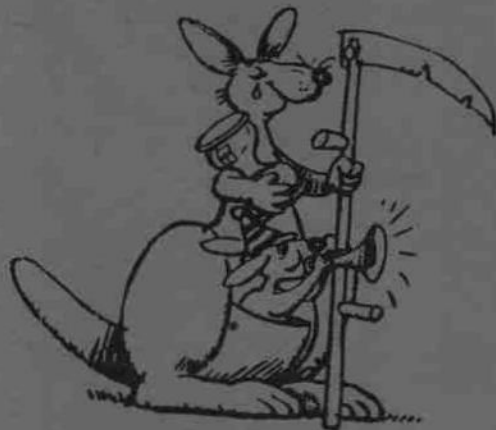
Some Committee members interested in browsing the Internet, may be able to find some interesting articles on organic growing - particularly urban farms - which would interest readers - so we aim to include these in the Flier too! (with copyright permission of course.)

Seed Exchange: The range of COGS Seeds in our Seed Exchange is quite low, although we do have a range of Phoenix Seeds available. If you have excess seeds, please consider donating them. They don't need to be cleaned - Marietta Asa has kindly offered to do that.

COGS Mulchers:

The two COGS Mulchers are available for use by COGS members. Enquiries to:

John Ross (Northside, including Queanbeyan & Bungendore) ph 241 4063 and **Richard Blyton** (Southside) 231 6219



DON'T FORGET OUR QUIZ NIGHT!

participants will work in teams of 4 people, so bring some friends!

First Prize is The Golden Fork Award plus a voucher from Richard Odell's Butchery for each individual in the winning team

Quiz will consist of 40 main questions
10 Basic Beginners, 10 Veritable Veg.
10 Pests and Problems
10 Terrible Teasers

Prizes for Spot Questions also

SEE YOU THERE!!!