Edible Gardening for Otago / Southland Schools

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Contents:

I made several gardens at various schools while working as a primary school teacher, but the most successful have always been when students and the wider community have been involved in the process. Gardens are a fabulous context for learning and a great way for students and their whanau to learn the cycles of the seasons and how to grow their own food. They provide an opportunity to find out about the importance of improving soil, various composting methods, heritage seeds, interdependence, biodiversity, nutrition and health. Gardens also offer a chance for communities to work together, learn from one another and share seeds, plants, kai and recipes!

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1: Ideas and Issues for School Gardens

Gardening is Easy!
You don't need to have 'green thumbs' to start gardening. If you are a novice, just start with a small plot, and some 'easy' plants, such as radish and salad greens. Ask experienced gardeners for help and advice. Gardeners love sharing! You will soon find out how fun, easy and satisfying gardening is, and nothing tastes better than something harvested straight from the garden!

Getting Started: Take Time!
You really need to spend at least one term learning about gardens, before starting your garden. Suggested activities for students prior to starting a garden include:

- Collecting baseline data as to how many families within the school community already have gardens at home. This information helps determine gardens to visit and community experts. (This survey can be repeated after developing a school garden to see how a school garden can impact on the wider community)
- Learning about different gardening methods (e.g.: no-dig; organic; mulch; 'traditional'; planting by the moon; Māori and Pasifika gardening) and garden designs (e.g.: permaculture; potager; 'traditional')
- Visiting local gardens (may include gardens of family / whanau; community gardens; other schools)
- Learning about plants that grow in your bio-region
- Developing design ideas for your garden
- Sourcing funding and / or seeking re-usable materials for your garden
- Deciding where to locate the garden (see criteria to consider below)
- Having the soil tested
- Consulting parents, whanau and the wider community about the garden

Involve Students
It is crucial that students are involved in the process as much as possible – this enables them to have ownership of the garden, and encourages them to take responsibility for it! Ideally, students will have identified a need for, or a desire to develop a garden. This may come about as an investigation of their school environment and environmental practices.

Including Parents, Whanau and the Wider Community
Successful school gardens often become community gardens, and this can be encouraged by giving all community members a role in the garden development. Too often schools rely on the same few community members to contribute to projects. One way to overcome this is to have students develop a list of things they would like adult help with and then ask all community members to contribute in only one way. An example of such a list may include:

- Loaning a trailer
- Picking up compost
- Donating seeds or seedlings

- Collecting mulch
- Helping unload compost
- Loaning a shovel
- Inviting an older community member with gardening expertise
- Showing students around their personal garden

Students can also set up rosters for community members, so adults take turn in to contribute to the garden as well.

Link to the Curriculum

It is vital that any garden project links to students' learning and the curriculum. Gardens are a fabulous context for teaching and learning. A garden provides an authentic context to meet the Vision, Principles, Values and Key Competencies of the New Zealand curriculum (Ministry of Education, 2007). Many learning areas can be integrated into the context of a garden, including:

Mathematics - e.g.: measurement when designing; statistics when comparing preferred conditions for plants; calculating volumes of compost, mulch materials; estimating number of plants required; estimating numbers of seeds on plants; collecting data on rainfall, plant growth

English – e.g.: writing letters, stories, poems and reports; documenting the process; diary and record keeping; reading and researching; asking questions from experts; using the telephone/ email/ skype etc to connect with other gardeners (including other school gardeners!); sourcing quotes; presenting information about the garden

Social Sciences – e.g.: why is gardening important to people; different cultures' gardening practices; marketing produce; comparing commercial and home gardening; which plants have significance for various cultures; how does gardening contribute to a community

Health and Physical Education – e.g.: how does healthy soil and food contribute to people's health; which edible plants we can grow in our climate and how do these rate for health benefits; minerals and vitamins of various fruit and vegetables; how does establishing a garden contribute to the four areas of hauora: taha tinana (physical well-being); taha hinengaro (mental and emotional well-being; taha whanau (social well-being); taha wairua (spiritual well-being)

Technology – e.g.: using appropriate technology (correct tool for the job); designing and creating gardening tools (watering cans, weeding tools, irrigation system, rain water harvesting etc.) and structures (pest traps, climbing frames for beans, weather stations, compost and worm farms etc.)

Science – e.g.: biodiversity; soils and soil structures; ecosystems; companion planting (i.e. which plants grow well alongside others and support them by attracting predatory wasps, supply nitrogen etc .); developing and retaining healthy soil; composting; weather monitoring

The Arts – e.g.: sculptures and structures; botanical sketching; natural music and sounds; role plays and drama

Te reo and tikanga Māori – e.g.: Māori names for plants; planting by the moon; cultivation methods; traditionally grown plants and tools

There are also *NCEA Education for Sustainability Achievement Standards* at Level 2 and 3 now which lend themselves very well to an edible gardening project.

Placement of the Garden

Out of Sight = Out of Mind! Many school gardens fail because they get forgotten about due to their location. Ideally the students will be involved in deciding where to place the school garden. Criteria they need to consider include:

- North facing aspect
- All day sun
- Not a student 'playing area'
- Suitable and safe soil
- Where everyone can see it everyday
- Protected from pests (rabbits; chooks; sheep etc)
- Easily accessible by wheelbarrow and / or trailer
- Near a water source (outside tap; rain harvesting from a roof)
- Distance to existing large trees (especially oaks and walnuts – which can hinder the growth of gardens)

Garden Edging

If you have the choice, try to use *non-treated timber* for garden surrounds. Macrocarpa sleepers are ideal for more formal gardens, with child sculptured *Oamaru stone, driftwood, bricks* and *rocks* excellent for more creative gardens. Old tyres and treated timber can be used, but be aware there could be some leaching from these into the soil. It is meant to be minimal, but the recommendation is to use these for flowering, rather than edible plants.

Using Paper and Cardboard in the Garden

Many people ask about using newspaper and cardboard in a garden, with their inks and glues. Some research that suggests that the glues and inks are so minimally damaging for the soil that it is not worth being concerned about. And certainly composting these materials are better than sending them to landfill, or, arguably, to Asia for recycling. However, in saying that, avoid using banana boxes, as they are reputed to be full of harmful sprays.

Watering

Seedlings especially need regular watering. Designing and making watering cans, rain water harvesting systems or irrigation systems are great ways to enthuse students about getting involved. Mulching also greatly reduces the need for watering. Students can test and trial various mulches, comparing availability, costs and nutritional value for the soil.

School Holidays

The Christmas school holidays in particular can be an issue for some schools. Some schools worry that everything is harvested during January, while the students are absent. However, as you will see in the 'What to do When' section of this booklet, there are many vegetables and fruits that can be harvested during other months of the year. Watering and weeding may be an issue which can be alleviated by mulching and /or irrigation systems, and by developing partnerships with the community, some of whom may be happy to help out over January in return for a share in the harvest.

Maintenance

Once the garden is up and running and students start to focus on other areas of sustainability (e.g.: reducing energy use, water conservation, sustainable transport, eco-buildings etc.) it is important that the garden is maintained. Some ideas to do this include:

- Having two representatives (which change weekly) working in the garden with a garden facilitator at a certain time each week
- Classes taking turns for having responsibility for the garden for a certain time
- Once a week having an 'environmental project' time, when students do jobs including the garden, alongside others such as managing the worm farm, compost, bokashi buckets, paper recycling, other recycling, lost property, monitoring energy use etc.
- Having parent and whanau 'working bees' during school time, and involving students
- Dividing certain areas of the garden for each class
- Ensuring that the garden is regularly utilised as a context for learning (see 'Links to the Curriculum' above)

What to do with the Harvest

It is important that students learn what to do with their produce. Ideas include:

- Giving it as 'prizes' or 'rewards' to students to take home
- Classes taking turns to share the harvest
- Selling fresh produce to the wider community once a week
- Eating fresh or cooking the produce at school
- Adding value to the produce (making relish, pickles, herb vinegars etc) and selling these at the school fair

2: How to Make a Mulch / No-Dig Garden

There are several ways to make a mulch or no-dig garden. The process outlined below is relatively easy and quick, once you have collected your materials. It has the advantage of not disrupting the microlife in the soil, and requires very little weeding or watering.

1. Mow or flatten the grass if it is long

2. Create the outline of your garden (use a hose if it is to be curved)

3. Spread a sprinkling of organic matter – vegetable scraps are ideal – to encourage worms

4. Cover with 7 layers of damp newspaper (or you could use cardboard) to prevent weeds growing through. This layer will eventually rot down so you can take advantage of the soil underneath. Don't use plastic – it doesn't allow the soil to breathe

5. Place your garden edging over the newspaper (could be non-treated timber, driftwood, rocks or stone)

4. Add at least 10 cm of composted material. Do not use soil, as there will be weed seeds in it

5. Mulch over the top with pea straw / lucerne hay / dry leaves / shredded paper etc

6. Water

7. To plant seedlings / seeds, part the mulch and plant into the composted material. Keep mulch well clear of seeds.

8. Over time, keep on adding mulch, but use a variety

9. It will probably take at least 2 seasons before you can grow root crops in a mulch garden.

3: Incredible Edibles for School Gardens

There is a huge range of incredible edibles that grow in our region. These are some of the basic vegetables that grow relatively easily. Apart from tomatoes, they can all be grown outside, without too much special care. The trick is to plant them at the right time so they can be harvested during the school term (see the What to do When section), although many can be grazed on during the year.

Plants are listed alphabetically by their common names under three sections; vegetables, herbs, fruit and nut trees and bushes. Brief descriptions are given, care required, known companions and non-companions and uses.

VEGETABLES

Beetroot (Beta vulgaris)
Description: root vegetable with edible leaves
Care: plant in Spring to Early Summer for Autumn harvest; likes nitrogen and lime; plant following cabbage, lettuce or tomato; can stand light frosts; tolerates all soils; can grow in semi shaded positions but prefers full sun; can harvest 1/3 of leaves without damaging roots; beetroots are best when 5-9cm in diameter; store undamaged roots in layers between sand or untreated sawdust in boxes in cool places
Companions: cabbage; onions
Keep away from: beans
Uses: can eat raw or cooked; edible roots and leaves (use as for spinach); attractive

Broad beans
Description: vegetable
Care: sow by Anzac Day to eat before Christmas; can sow in Spring to harvest in Term 1; can pinch out tips after flowers appear to encourage pod set – the pinched out tops can be eaten as spinach
Companions: cabbages; carrots; cauliflower; celery; cucumber; leeks; marigolds; rosemary; rhubarb; summer savoury
Keep away from: beetroot; garlic; gladiolus; onions
Uses: edible seeds and tops;

Broccoli (Brassica oleracea italica)
Description: brassica vegetable
Care: plant in Spring or early Term 1; interplant with lettuce (deters white butterfly); nasturtiums (helps deter aphids)
Companions: chamomile; celery; dill; onions; peppermint; potatoes; rosemary; sage
Keep away from: tomatoes; strawberries
Uses: edible 'flower'

Brussel Sprouts (Brassica oleracea gemmifera)
Description: brassica vegetable
Care: plant in November / December or early Term 1; can plant between broad beans, break bottom leaves when buds form; pick buds from bottom
Companions: chamomile; celery; dill; hyssop; mint; marigolds; nasturtiums; onions; peppermint; potatoes; rhubarb; rosemary; sage; thyme; wormwood
Uses: edible; good winter vegetable

Carrots (Daucus carota subspecies sativa)
Description: root vegetable
Care: plant in Spring; grow between cabbages or other maturing crops; plant on previously manured soil, following brassicas; mix seed 1:8 with coffee ground, bone meal, sand or radish when sowing to avoid having to thin out too many baby plants; lightly mulch germinating seeds with lawn clippings to keep moisture in; Nantes varieties suitable for heavy soils and Chantenay suitable for sandy soils; store layered horizontally in sand or untreated sawdust; store separately from apples
Companions: chives; leeks; lettuce; onions; peas; rosemary; sage; tomatoes; wormwood
Keep away from: dill
Uses: edible raw, in salads, cooked or juiced; good to cure worms in goats
Other: Chantenay varieties store well; not all carrots are orange – some are purple and some are white!

Cauliflower (Brassica oleracea botrytis)
Description: brassica vegetable
Care: plant in Spring or early Term 1; grow quick growing crops between e.g. radish, lettuce; likes good drainage, lime, manure; plant following legumes
Companions: celery (keeps white butterfly away)
Keep away from: strawberries; tomatoes
Uses: edible 'flower'

Celery
Description: vegetable
Care: plant November to December; prefers well manured soil
Companions: cabbage; cauliflower; dwarf beans (can grow 1:6 ratio celery: dwarf beans); leeks; tomatoes
Uses: edible stalks

Corn Salad (Valerianella locusta)
Description: very small leaf vegetable, forms small rosettes of leaves
Care: plant during Autumn to early Spring; easily self seeds
Uses: edible salad vegetable, tastes similar to corn; grows during colder seasons

Kale / Borecole (Brassica oleracea acephala)
Description: hardy brassica vegetable; several varieties
Care: plant in November and December; prefers alkaline soil
Companions: potatoes, cabbages
Uses: edible cool weather green; resistant to heat; valuable source of vitamin C; can drink the water kale has boiled in

Leek (Allium ampeloprasum)
Description: stem vegetable
Care: plant in December; likes composted pig and goat manure; likes similar conditions as for onions
Companions: carrots; celery; onions
Uses: edible cool weather plant

Lettuce (Lactuca sativa)
Description: leafy vegetable – 6 types including crisphead, butterhead, cos, leaf stem and latin
Care: plant from Spring to Autumn; prefers well drained soil with plenty of aeration, not excessively acid; likes organic humus; prefers some shade in Summer - this can be achieved by growing plants between brassicas
Companions: carrots; cucumbers; radishes; strawberries
Uses: eat leaves raw in salads

Mizuna
Description: fast growing Japanese salad vegetable
Care: plant during Autumn to Spring; grows even in the colder months
Uses: cool weather edible plant; eat raw

Onion (Allium cepe)
Description: vegetable / herb; many varieties including bunching and Egyptian tree onions
Care: plant in Autumn or early Spring; require rich, fertile, well drained soil; harvest when tops are down and dry for a few days in the sun; plait and hang as for garlic to store
Uses: culinary essential
Other: best variety for storage is Pukekohe Long Keeper; a great variety for children is Spring onion as they grow quickly and can be eaten raw

Orache / Mountain Spinach (Atriplex hortensis); **Red Orache / Mountain Spinach** (Atriplex hortensis 'Rubra')
Description: annual spinach like vegetable, grows to 60 cm in height
Care: plant during Spring to Autumn; hardy; prefers sunny situations and well drained soil; grows well in coastal locations; A. h. 'Rubra' self seeds readily
Use: edible leaves, use when young to enjoy flavour and tenderness; fast growing; salt tolerant

Miners Lettuce / Winter Purslane (Claytonia parvifola)
Description: very early annual plant; first leaves are kidney shaped and succulent
Care: plant during late Autumn or early Spring; prefers moist shady areas; easily intercropped between other vegetables; self seeds readily
Uses: cool weather plant; salad vegetable

Parsnip (Pastinaca sativa)
Description: root vegetable
Care: plant in November to December; prefers light rich soil; seeds have a very short vitality; can soak seeds prior to sowing; sow with radish – the radish will mark the row and assist parsnips to push through the ground – ensure that radish is harvested as soon as it is of useful size though!; lightly mulch germinating seeds with lawn clippings to retain moisture; frost sweetens parsnip, so harvest after frosts; can keep plants in ground during winter and harvest as required
Uses: flowers attracts beneficial wasps; foliage and roots make a safe insecticide spray
Other: seed needs to be fresh to germinate; excellent winter vegetable

Pea (Pisum)
Description: leguminous vegetable; several varieties including tall and bush, sugar snap, red and green
Care: if plant in Autumn, you can harvest by Christmas, otherwise plant in November or December for picking in term 1; if soil is heavy, sow shallow; if soil is light, sow deep; do not require extra nitrogen and if received will result in excessive green growth and few flowers; water well when flowering;
Companions: beans; carrots; corn; cucumbers; nasturtiums; radishes; turnips
Keep away from: chives; garlic; gladiolus; onions; shallots
Uses: edible seeds and pods (raw and cooked); highly nutritious; good green manure crop as are nitrogen fixing
Other: do not grow in the same place two years in a row

Potato (Solanum tuberosum)
Description: root vegetable
Care: plant from Spring to Summer; prefers slightly acidic, moist soil with plenty of compost; plant small tuber with relatively few eyes for the main crop and larger tubers for an early crop
Companions: beans; corn; cabbage; garlic; horseradish; nasturtium; peas
Keep away from: apples; cucumber; cherry; pumpkins; squash; sunflowers; raspberry; tomatoes
Uses: edible roots – note that green potato is poisonous and should not be eaten
Other: to minimise space required, can grow in tyres or similar containers; store main crop seed potato seed at a relatively low temperature to prevent early sprouting; do not store with ripening apples

Radish (Raphanus sativus)
Description: root vegetable
Care: plant Spring to Autumn
Companions: beans; beets; carrot; kohlrabi; lettuce; nasturtium; parsnip; peas; spinach
Uses: eat the root raw; good source of Vitamin C; can sow with parsnip and carrots
Other: easy and fast (4 weeks from seed to harvest) to grow for children

Rocket / Arugola / Rucola (Eruca vesicaria subspecies sativa)
Description: annual green salad vegetable with distinctive wavy edged leaves, with peppery taste
Care: plant Spring to Autumn; tolerates most soils; prefers sun; harvest leaves before flower stalks appear
Uses: spicy flavoured leaves, usually eaten raw; quick growing
Other: perennial rocket is a great alternative and can be harvested almost year round

Runner Beans
Description: climbing leguminous vegetable
Care: plant in November to December; likes lime and potash; can climb up corn – assists corn by providing nitrogen
Companions: cabbages; carrots; cauliflower; celery; cucumber; leeks; marigolds; rosemary; rhubarb; summer savoury
Keep away from: beetroot; garlic; gladiolus; shallots; onions
Uses: can eat raw when young or cooked when older; nitrogen fixing

Silver beet / Swiss Chard (Beta vulgaris variety)
Description: leafy vegetable; colours include red, yellow and silver
Care: plant from Spring to Autumn; prefer an open, sunny position with well drained soil
Companions: butter beans; green beans; kohlrabi; onions
Keep away from: climbing and dwarf beans
Uses: edible leaves and stems; great chook fodder; colourful and attractive; long roots aerate the subsoil; can eat small leaves raw

Spinach (Spinacia oleracea)
Description: leafy, cool season crop vegetable
Care: plant from Spring to Autumn; prefers well drained soil, not too acidic; will go to seed quickly if too warm or too dry - an alternative to try is 'Perpetual Spinach' which is more like a Silver Beet
Companions: strawberries
Uses: edible leaves; rich in minerals and vitamins; quick growing; can eat small leaves raw

Swede / Rutabaga (Brassica napobrassica)
Description: root vegetable
Care: plant in November / December; prefers rich, moist soil; best harvested after frost
Uses: eat root raw or cooked; high in Vitamin C

Tomato (Lyopersicum esculentum commune)
Description: fruiting plant
Care: plant around Labour Weekend; require an open sunny position and well drained light soil with plenty of humus; most varieties do well in glasshouse but do require attention; can grow some varieties such as Russian Red outside in warm microclimates; frost intolerant; do not like foliage getting wet, so water roots only; like plenty of liquid fertiliser; need to pinch outside shoots in most varieties (not Russian Reds) and remove lower leaves as they yellow
Companions: asparagus; brassicas; cabbage; carrots; gooseberry; marigolds; parsley; stinging nettle
Keep away from: young apricot trees; fennel; kohlrabi; potatoes; walnuts
Uses: eat raw, pureed, dried, in stews, soups and pies; good source of vitamins; cherry tomatoes are great for children

Yam
Description: root vegetable
Care: plant in November / December; mulch well or earth up as you would potatoes
Uses: winter vegetable; edible tubers, good roasted

Zucchini / Courgette (Cucurbita pepo)
Description: vegetable; prickly leaves and stems when mature; include scallops, crooknecks, cocozelles, marrows and zucchini
Care: does best in deep soils, rich with composted material; frost tender; plant in the ground around Labour weekend to December, but can begin earlier if protected from frost; grows best in well composted soil, with some lime if soil is very acidic
Companions: potatoes; zinnias
Uses: flowers and fruits are edible; can eat raw or cooked; prolific plants

HERBS

Basil (Ocimum basilcum) **Sweet Basil** (O. minimum)
Description: annual herb
Care: Will grow outside but has a longer season if grown in pots indoors or in a glasshouse
Companions: tomatoes
Uses: Flavouring, sauces and pesto; superb with tomatoes, in soups, with meat, fish and vegetables, in salads, egg, rice and pasta dishes

Borage (Borago officinalis)
Description: annual herb
Care: prefers dry sunny position
Uses: edible flowers and leaves, adding piquant cucumber favour to salads and drinks, blossom able to be frozen in ice cubes, add decoration to cakes and eaten in salads; deters slugs and snails; excellent under orchard trees; very good bee forage; can make a liquid fertilizer with comfrey (rich in potash and calcium) and breaks down very quickly

Chives (Allium schoenoprasum)
Description: perennial herb
Care: prefers full sun and rich soil
Companions: carrots
Uses: leaves can be added to salads, soup, omelettes, cheese and used as a garnish; flowers have mild onion flavour and can be sprinkled into salads; chive tea (make from dried chives) can be sprayed against downy and powdery mildew on gooseberries and apple scab
Other: plant under apple trees (helps apple trees against scab)

Comfrey (Symphytum officinale)
Description: perennial herb
Uses: excellent bee forage; leaves are good in compost heap, for making liquid fertilizer, as green manure or as mulch; roll seed potatoes in a comfrey leaf when planting to increase yield; high in calcium, potassium, phosphorous and vitamin B12 – can use sparingly in salads / cooking (too much can result in liver damage); helps tap subsoil for water and nutrients
Other: easily propagated by root division - need to take care with roots as any small root will into grow a plant; spreads quickly if dug or rotary hoed

Garlic (Allium sativum)
Description: herb; bulb vegetable
Care: plant cloves in May; harvest in February when leaves yellow; clean and dry, plait into strings and hang to store
Companions: most crops except beans and peas
Uses: essential culinary herb; can deter aphids from roses; garlic tea can be sprayed on tomatoes and potatoes to control blight; natural antibiotic

Marigold / Pot Marigold / Calendula
Description: annual yellow – orange flower
Care: bloom best in poor soil
Companions: apples; beans; brassicas; tomatoes
Uses: Calendula (Calendula officinalis) has edible petals and is useful in hand creams; tagetes useful with tomatoes to prevent disease

Marjoram /Sweet Marjoram / Knotted Marjoram (Origanum marjorana)
Description: perennial herb; red-brown stems and down, grey-green, oval leaves, white to pink flowers in late summer, grows to 60 cm in height
Care: full sun; well drained soil
Companions: most plants
Uses: flavouring in stews with meat or beans, peas and carrots; rub on meat before roasting; will eventually choke out grasses (not cooch / twitch) if planted as a ground cover with violets; flowers attract bees
Other: more delicate flavour than Oregano

Nasturtium (Tropaelum majus)
Description: creeping / climbing ground cover plant
Care: do best in sunny well drained locations
Companions: broccoli; cabbage; cucurbits; potatoes; radish; plant under apple trees
Uses: spicy flavoured flowers and leaves can be eaten in salads and sandwiches; seeds can be pickled as imitation capers – clean seeds, put in a jar with vinegar, close lid tightly and store in a cool place
Other: dies back in Winter but usually self seeds in Spring; if nasturtiums get aphids, this can be an indication of a lack of lime in the soil

Oregano / Wild Marjoram (Origanum vulgare)
Description: very bushy variable perennial herb, with purple brown stems and often red flushed leaves; purple pink flowers in Autumn; grows to 45 cm in height and spread
Care: requires full sun and fairly dry soil
Uses: culinary herb, with stronger flavour than marjoram; use in stews, sauces and soups; rub into meat before roasting

Parsley (Petroselinum crispum)
Description: biennial herb
Care: prefers part shade and medium soil
Companions: asparagus; roses; tomatoes
Uses: culinary herb with edible leaves and roots; high in iron; leaves are used as breath freshener, reducing garlic odour

Mint (Mentha spp.)
Description: perennial herb; several varieties including: Mint (M. viridis) – found on roadsides near streams and under trees; Corsican Mint (M. reqieni) – creeping plant with minute round leaves; Peppermint (M. piperita) – leaves have small stalks; Spearmint (M. spicata) – hairless leaves; Applemint (M. rotundifolia) - hairy round leaves; Watermint (M. aquatica); Long Leaved Mint (M. longifolia) – hairy long leaves
Care: prefers moist conditions and part shade; in late Autumn cut down and mulch
Uses: flavouring for many foods including fresh fruit, peas, salad, squash; make drinks and teas; combine with lemon balm for lemon vinegar mint sauce; repels cabbage butterfly caterpillars and may control aphids
Other: invasive -restrict this by planting in a container or drum inserted in the soil

Rosemary (Rosmarinus officinalis, R. o. prostrates)
Description: perennial herb; R. officinalis grows up to 1 metre in height; R. o. prostrates is trailing
Care: grows well in poor, light soils, with ample lime and full sun; easily grown from cuttings
Companions: carrots; sage
Uses: culinary flavouring in soups, stews, when cooking potatoes and turnips; sprinkle on meat before roasting; hedging – can be pruned

Sage (Salvia officinalis)
Description: perennial herb; grows 50 cm in height; many varieties but short lived
Care: prefers full sun and sandy soil
Companions: cabbage; rosemary
Uses: in stuffing, soups, salads, with meat, fish and cheese dishes; helps repel white butterflies from brassicas

Seaweed
Uses: useful fertilizer; can make into liquid fertilizer or use as a mulch
Other: the invasive *Undaria* species is a threat to our native species in Otago, but is edible – for more information contact the *Marine Studies Centre* at Portobello

Sorrel (Rumex acetosa)
Description: perennial herb
Care: prefers moist position
Uses: lemon flavoured leaves eaten raw or made into soup

Thyme (Thymus vulgaris)
Description: perennial herb; various species
Care: prefers full sun and dry conditions; likes sweet, sandy soils with a stone mulch; harvest when plant is in flower
Companions: cabbage
Uses: culinary with meat, fish, vegetable and egg dishes, and in stuffings

Weeds

Description: there are many plants we call 'weeds', but they are usually just the wrong plant in the wrong place and can be useful

Uses:

- Deep rooted weeds, such as dock, bring up minerals from the subsoils and make them available to other plants and breaking up hard clay pans
- Weeds conserve nutrients that would otherwise be leached from the ground
- Weeds add organic matter, improve aeration and contribute water
- Some weeds are edible, for example: Dandelion, Ferns (pikopiko), Blackberry, Elderberry, Sow thistle (Sonchus oleraceus) – young shoots eaten raw or cooked and Nettle – in soups and tea (**N.B:** not the native nettle (Ongaonga or Urtica ferox) which is extremely toxic!)
- Indicative of certain conditions, for example: Chickweed – warming soils in late winter; Yarrow – dry, poor soils; Ragwort in paddocks – not grazed by sheep (usually cattle or deer paddocks)
- Beware that some weeds, such as dock, will grow from even the tiniest part of the root system!
- Nearly all weeds can be rotted down in water and made into weed tea

FRUIT AND NUT TREES AND SHRUBS

Apple (Malus cultivars)
Description: tree; grows 5 metres in height by 5 metres wide, but dwarf varieties available
Care: likes full sun and good drainage
Companions: chives (protects against scab); nasturtium (against woolly aphids)
Keep away from: potatoes; grass roots while tree is young
Uses: fruit for humans and livestock; attracts beneficial insects
Other: choose old varieties for best disease resistance; don't store apples and carrots together

Blackberry (Rubus fruticosus)
Description: wild fruiting thorny shrub
Care: only pick berries when truly ripe
Uses: edible; good bee forage
Other: elderberries can attract birds away from blackberry; thornless varieties available

Blueberry (Vaccinium spp.)
Description: fruiting shrub
Care: prefers acidic well drained soil; mulch well with oak leaves or pine needles
Uses: edible; good bee and poultry forage; informal hedge

Cherry (Prunus cerasus) **Sour Cherry** (P. avium)
Description: fruit tree
Care: needs full sun and shelter; prefers well drained soil; requires little pruning
Keep away from: potatoes; wheat
Uses: edible; attracts birds; resistant to disease, insect damage; tolerates drought
Other: sour cherry is less attractive to birds than Sweet Cherry

Chilean Guava (Myrtus ugni)
Description: fragrant fruiting bush, similar to cranberry
Care: tolerates wet soils and clay
Uses: edible raw berries ripen duing winter

Currants (Ribes nigrum and others)
Description: fruiting shrub; black, red and white varieties
Care: hardy – tolerates partial shade and neglect
Uses: fruit for eating raw or jams, jelly, juice and wine; forage food for birds, bees and other wildlife; black currants are very high in vitamin C
Other: tend to ripen during Christmas school holidays

Fruit trees
Companions: borage; calendula; chives; garlic; horseradish; marigolds; nasturtium; spring bulbs; stinging nettle; tansy

Keep away from: grass especially when young
Uses: edible; excess and windfall fruit can be stock fodder

Gooseberry (Ribes grossularia)
Description: fruiting shrub
Care: hardy and can tolerate neglect; prefers full sun; older varieties and invicta are tolerant of powdery mildew
Uses: edible raw; make into jellies and jams

Grapes (Vitis vinifera and others)
Description: fruiting vine
Care: aided by 15% mustard with legumes as an intercrop; can climb up elm trees; prefer a slightly acidic soil; likes potash; trellis necessary in second year; annual pruning required
Companions: elm
Uses: fruit can be eaten raw, or made into juice or wine; young leaves can be wrapped around food e.g.: Greek dolmas; seeds make excellent cooking oil

Hazelnut (Corylus avellana)
Description: small nut tree
Care: prefers well drained fertile soil
Uses: edible nuts; can be grown as a hedge; repels flies

Pear (Pyrus cultivars)
Description: fruit tree; grows 6 metres in height by 3 metres
Care: prefers good drainage and full sun but is hardy and wind tolerant; root tip growth is suppressed by grass root excretions – keep tree well mulched
Uses: edible; attracts beneficial insects

Plum / Greengage / Prune (Prunus domestica and others)
Description: deciduous tree
Care: full sun; well drained soil; requires little pruning
Uses: edible fruit

Rhubarb (Rheum)
Description: hardy perennial
Care: manure well as gross feeder; pull rather than cut stalks when harvesting; lift and divide every four years
Companions: aquilegia (granny bonnets)
Uses: edible stems; seldom troubled by pests or disease
Other: beware that the leaves are toxic

Strawberry (Fragaria spp.)
Description: small, hardy, perennial plant with berry fruit

Care: protect fruit from birds with netting; mulch with pine needles - an organism in the rotting needles inhibits Botrytis fungus which makes berries go mouldy; fresh plantings advised every 2 or 3 years; plant in Autumn
Companions: calendula; dwarf beans; lettuce; lupins; marigolds; peas; spinach; thyme
Uses: edible fruit
Other: Alpine strawberries produce smaller red and white fruits, and tend to be less attractive to birds

Sunflower (Helianthus annuus)
Description: tall growing flower
Care: prefer light soils and full sun; hang heads in airy barn to dry; when dry thoroughly, rub to remove seeds
Companions: cucumbers
Keep away from: potatoes
Uses: high protein seed for humans and livestock alike – whole sunflower heads can be given to poultry; oil can be made from the seeds for cooking and salads; good shelter for other crops

4: What to Do When

This is a twelve month cycle specifically for the coastal Otago bioregion, but will be relevant for parts of Southland as well. It is intended as a guide only and local gardeners in your area will be able to assist further. Be aware that climatic patterns contributed to Climate Change result in 'false seasons' and can upset the regular cycle of nature. Furthermore, by creating your own microclimate and by placing plants under frost protection, growing seasons can be extended.

JANUARY

Sow Seeds

Root crops: beetroot; radish; turnip
Leaf crops: Chinese cabbage; salad greens (lettuce, mizuna etc.); mustard; silver beet; sprouting broccoli

Plant Seedlings

Root crops: leek
Leaf crops: celery; silver beet; winter greens (broccoli, Brussel sprouts, cabbage, curly kale, savoy cabbage)

Thin beetroot, carrots, parsnips, radishes, turnips

Remove dead / yellow leaves from tomatoes under glass and pinch out young shoots – not necessary for Russian Reds

Liquid Manure tomatoes, zucchini

Harvest

- potatoes and sow green manure crop (blue lupins, mustard, oats), if ground not required, or an put in late crop potatoes if early January
- beetroot, brassicas, broad beans, carrots, cucumber, globe artichoke (pick before fully open), herbs, peas and beans, radish, salad vegetables, silver beet spinach, zucchini, currants, gooseberries

FEBRUARY

Sow Seeds

Root crops: onions; turnips (warm sheltered spot)
Leaf crops: cabbage; parsley; silver beet; spinach

Plant Seedlings

Leaf crops: Chinese cabbage; salad greens (landcress, lettuce, mizuna etc.); dwarf beans; mustard; silver beet; spinach, sprouting broccoli

Harvest

- herbs
- onions and garlic when leaves turn yellow and dry up – bend tops, if necessary, to assist in checking top growth and hasten maturity of the bulbs; dry in a sunny place then string into bunches to store onions
- potatoes and sow area with green manure crop
- beetroot, brassicas, carrots, cucumber, herbs, peas and beans, radish, salad vegetables, silver beet, spinach, zucchini
- Glass house tomatoes - finish ripening in a brown paper bag if necessary
- plums

Liquid Manure and Water Well celery, leeks, winter greens

Remove Seeds from herbs and rhubarbs (unless seed saving)

Remove

- old wood from blackcurrants finished fruiting
- leaves shading fruit clusters on tomatoes and pinch out any side shoots

MARCH

Sow Seeds

- spare ground with barley, blue lupins, mustard or oats as a green manure crop or mulch well with pea / lucerne straw, autumn leaves etc
- onions

Plant Seedlings

Root crops: onions (sunny spot)
Leaf crops: broccoli, lettuce in a warm spot (can cover young plant with a cloche in late April), parsley, spinach, silver beet, spring cabbages, strawberries
Strawberries: rooted runners

Harvest

- potatoes once leaves have turned yellow - store in cool, dark, dry place in sacks
- peas and beans – plant green manure crop in their place
- glass house tomatoes – finish ripening in a brown paper bag if necessary
- early pears or apples – can complete ripening inside especially if trees are prone to wind
- beetroot, brassicas, carrots, cucumber, salad vegetables, zucchini

Liquid Manure cauliflower, celery, French runner beans, leeks and other crops

Remove leaves shading fruit clusters on tomatoes and pinch out any side shoots – not necessary for Russian Reds

Cover cauliflower centres as they mature with a lettuce leaf to preserve natural whiteness and this also deters pests

Thin spinach

Earth Up celery and leeks

Prune blackberries– cut out canes that have just borne fruit and train young canes

Prepare Ground for planting apples, pears, plums and other fruit trees by clearing grass. Fruit trees can be transplanted as soon as leaves turn yellow

APRIL

Sow

Leaf crops: spinach, peas, broad beans (long pod variety) by Anzac Day, cabbage (under glass), lettuce (under glass)

Plant

Leaf crops: cabbages, cauliflower (warm site), strawberries
Root crops: onions (sunny spot)
Small fruit canes: of loganberry – raspberry group (keep free from docks) for fruit in second season, not first season
Strawberries: rooted runners

Harvest

- main crop potatoes – potatoes for seed are best lifted before tops have died down. Place in shallow boxes with eyes and upwards and expose to light, but sheltered from frost
- glass house tomatoes -– finish ripening in a brown paper bag if necessary
- carrots – clamp in dry sand or soil horizontally to store
- beetroot – clamp as for carrots
- walnuts as they fall to the ground (branches can be shaken to dislodge); husk if necessary; dry by spreading a thin layer on a shed floor
- pears and apples – can complete ripening inside especially if trees are prone to wind

Earth Up celery, leeks

Fresh Animal Manure can be applied to vacant ground

Lift older rhubarb crowns and leave in the sun to ripen and rest

MAY

Sow

Root crops: garlic and shallots (weather permitting) – go over crop at least once to secure any bulbs that have pushed themselves out of the ground by the action of fast developing roots
Leaf crops: broad beans (long pod varieties) in locations where can shelter tender early spring crops

Plant

Leaf crops: cabbage, cauliflower, mizuna, lettuce (under glass), strawberries before too wet and mulch with pine needles

Harvest

Root crops: carrots, parsnips, beetroot, turnips, Jerusalem artichokes as required (top growth useful shelter)

Remove

- weeds and grass from around fruit trees and mulch (not right up to the trunk as this will rot)
- any remaining tomatoes from glasshouse – hang entire plants upside down to complete ripening, and sow green manure crop in glass house
- any remaining root crops in the ground (except Jerusalem artichokes and parsnips); store carrots layered in sawdust or sand boxes and potatoes in brown paper bags

Prepare herb beds – many can be propagated by root division (thyme, marjoram, tarragon)

Grow cuttings insert cuttings of gooseberry; red / white / blackcurrants; and other plants

Heavy manure rhubarb

Trim hedges (not those of pine, cypress variety)

Clean Up glass house – excessive moss and green slimy matter can result in plant loss

Compost only healthy crop residue as the compost heap is very cool now and not able to destroy infective spores of fungoid disease and eggs of insect pests

JUNE

Sow

Leaf crops: broad beans

Plant

Root crops: garlic, shallots
Trees and shrubs (including berry canes): plant or transplant

Harvest

Root crops: Jerusalem artichokes and parsnips as required

Liquid Manure

Leaf crops: cabbages, leeks

Prepare

- asparagus bed by mulching area heavily with seaweed
- seed potato by placing in shallow boxes with eyes and upwards and exposed to light, but sheltered from frost

Replant / Extend rhubarb bed (division and replanting advisable every 4 years)

Prune

- orchard trees now until August – young trees of pip fruits should not be encouraged to bear fruit until pruned into a sturdy framework; plum and cherries require little pruning
- old wood from blackcurrants and gooseberries – prune hard new plantings of gooseberries (always prune gooseberries to an upward pointing bud to encourage upward growth)
- red and white currants – prune young plants hard; mature plants to have leaders reduced by one third
- newly planted raspberry / loganberry / boysenberry / youngberry canes to 30cm from the ground

Grow cuttings - insert cuttings of gooseberry; red / white / blackcurrants; and other plants

Compost - protect compost heap from heavy rain and turn

Cut

- green manure crops when at least 15cm high and allow to rot down
- fronds of asparagus close to ground and leave top growth on the bed

Look for good mulching materials – autumn leaves, softwood hedge clippings, seaweed, sawdust, lawn clippings etc

JULY

Plant

Root crops: Jerusalem artichokes; and depending on weather conditions small quantities of early potatoes in a warm position, mulched well to protect from frost
Trees and shrubs (including berry canes): plant or transplant

Grow cuttings - insert cuttings of gooseberry; red / white / blackcurrants; and other plants

Protect maturing head of broccoli from rain and frost by covering with larger outer leaves or a lettuce leaf

Prepare seed potato by placing in shallow boxes with eyes and upwards and exposed to light, but sheltered from frost

Maintenance

- sharpen tools & service lawn mower

Build / Repair

- garden furniture, glass house, shelves, seed boxes

Review

- your planting regime: Did you plant at the right time for your microclimate? Consider improving shelter, raising beds to assist, etc.
- stock take seeds for the coming season

AUGUST

Sow Seeds

- *Depending on weather conditions and in warm locations small quantities of*

Root crops: radish, beetroot, carrot (early shorthorn variety), early potatoes (cover potatoes with mulch to protect from frost), onions
Leaf crops: mustard, cress, broad beans, peas (early and main crop), rhubarb, asparagus

- *Inside sowings of*

Root crops: onions, leeks
Leaf crops: silver beet, cabbage and other brassicas, cape gooseberries, lettuce, cauliflower, peppers, pumpkin, spinach, sweet corn, tomatoes, zucchini

Plant

- onions as soon as ground warms (chickweed and cress growth are sure signs)
- **Under cloches / glass:** salad vegetables

Prepare Glasshouse for Spring plantings – dig in any green manure crops, check watering systems, bring in plenty of compost, wash down walls if necessary

Cut remaining green manure crops and allow to rot

SEPTEMBER

Sow

Root crops: beetroot, carrots, leeks, onions, radish, swedes, turnips, second early potatoes (Desiree, Ilam Hardy) and main crop potatoes (Desiree, Ilam Hardy, Rua, Red King)
Leaf crops: successive sowings of peas (once a fortnight), spinach (plants go to seed at any time if there is a lack of moisture), broad beans, parsley, silver beet, Brussels sprouts, cabbage, cauliflower and other brassicas, lettuce, celery, mustard, cress
Inside in peat / paper pots ready to plant outside after frosts have passed: pumpkin, cucumber, tomato, sweet corn, celery, zucchini, beans
In glasshouse: cape gooseberries, cucumber, tomato, peppers, basil - may want to include 1 or 2 zucchini plants for early produce

Plant

Leaf crops: cabbages, cauliflower and other brassicas, lettuce, spinach, silver beet

Liquid Manure and Water all crops

Keep asparagus bed free from weeds

Prune newly planted raspberry / loganberry / boysenberry / youngberry canes to 30cm from the ground

Mulch and Water fruit trees, bush and cane fruits

OCTOBER

Sow

Most vegetables after it has rained and liquid manure
Root crops: beetroot, carrots, leeks, parsnips, radish, swede, turnips, second early potatoes (Desiree, Ilam Hardy) and main crop potatoes (Desiree, Ilam Hardy, Rua, Red King)
Leaf crops: Parsley, lettuce, peas and beans successively, asparagus, Brussels sprouts, cabbage, cauliflower and other brassicas, celery, mustard, cress

Plant

Leaf crops: Cauliflowers, cabbages, silver beet, lettuce

After frosts have passed, or protected from them: pumpkin, cucumber, tomato, sweet corn, celery, zucchini, beans
In glasshouse, if not already done: cape gooseberries, cucumber, tomato, peppers, basil

Liquid Manure and Water all crops

Earth Up and Mulch potatoes

Mulch well blackcurrants, raspberries and other cane fruits

NOVEMBER

Sow
Seeds for autumn and winter vegetables
Root crops: beetroot, carrots, leeks, parsnips, radish, swede, turnips, main crop potatoes (Desiree, Ilam Hardy, Rua, Red King)
Leaf crops: savoy cabbage, broccoli, Brussels sprouts, cauliflower and other brassicas, silver beet, kale, leeks, parsley, lettuce, peas and beans successively, celery, mustard, cress

Plant
Leaf crops: cauliflowers, cabbages, silver beet, lettuce, celery, zucchini, beans

Liquid Manure and Water all crops

Earth Up and Mulch Potatoes

Summer Prune young gooseberries to allow sun to penetrate to the centre of the bush

Mulch Strawberries with pine needles after they flower

Thin
- beetroot, carrots, parsnips, radishes, turnips
- apples, peach and plums nectarines on trees bearing heavily

DECEMBER

Sow
Root crops: carrots, radish, turnip, yams
Leaf crops: lettuce, parsley, peas, spinach, silver beet

Plant
Leaf crops: beans, Brussels sprouts, cabbages, cauliflower and other brassicas, silver beet, kale, leeks, parsley, lettuce, celery, mustard, cress

Liquid Manure tomatoes (once fruit have formed) once a week

Water thoroughly or not at all

Stake peas, runner beans, tomatoes

Cease harvesting asparagus and rhubarb by end of month to allow plants to build up reserves of food in roots for next season – mulch well

Thin
- beetroot, carrots, parsnips, radishes, turnips
- any fruit trees requiring this
- new shoots on raspberry canes

Mulch
- berries
- young fruit trees well, but remove weeds and keep mulch away from trunk

Harvest
- early potatoes, radish, zucchinis, salad vegetables, spinach, peas, broad beans, carrots, silver beet, brassicas

After Harvesting
- blackcurrants – remove old branches that have fruited for two seasons
- red / white currants – shorten all young shoots except leader to 10cm
- loganberries / boysenberries etc – remove fruiting branch to 10cm

5: Liquid Fertilizers, Manures, Mulches

It is recommended that soils are tested regularly to check which trace elements are missing from the soil. To supplement any lacking trace elements, liquid fertilizers, compost, mulches and manures can be added to improve soil fertility.

LIQUID FERTILIZERS

Animal Manure

How to make: most animal manures are suitable; steep a sack full in a drum of water for a month or so

How to use: dilute 1:3; refill the drum with water (can steep the same sack full a number of times)

Comfrey

How to make: steep a sack full in a drum of water for a month or so

How to use: dilute 1:2

Seaweed (sea lettuce is excellent for this)

How to make: fill drum half full of seaweed; top with water; add a rotten banana to assist the decomposition process; wait until everything is liquid

How to use: use 1 cup diluted in a bucket of water

Worm Juice

How to make: collect liquid from a worm farm

How to use: use 1 cup diluted in a bucket of water

MANURE

Animal Manure

The general rule with animal manure is to allow it to break down for a few months before using in the garden. Try to avoid using manure from animals that has been drenched with chemicals. Most manure is suitable, with cow manure particularly useful. Be aware that some manure such as chook manure is high and nitrogen and too much will produce forked carrots and lots of green growth and few flowers (and hence seed) in leguminous plants

Green Manure

Green manure is plants grown on unused garden beds and then dug into the soil a couple of months before planting the next crop. Leguminous plants are most suitable, such as lupins, beans, clover, alfafa (lucerne), but other plants such as nasturtiums, oats and mustard are also useful.

Wood Ash

High in potassium and phosphorus, so small quantities are good for root crops. Do not use ash from coal or treated timber (Treated timber should not be burned!)

MULCHES

Pine Needles are an excellent strawberry mulch and around other plants that prefer acidic soil eg: blueberries and rhododendrons

Sawdust can be used as a mulch but robs the soil of nitrogen

Oak leaves take a long time to break down and are good around shrubs, but avoid as a mulch on vegetable gardens

Other leaves make a good mulch on the vegetable garden

Pea straw and **Lucerne** are excellent mulches as they are high in nitrogen, but are expensive if they need to be purchased

Shredded Paper can also be used as a mulch, but needs to be well watered or else it blows around in the wind

Stones make an attractive mulch, and can act as a heat sink, warming the soil.

6: Pest Traps and Sprays

Pest traps and sprays are considered the 'last straw', and are recommended only as a last resort. It is much better to spend time improving the soil so that it is healthy and will therefore grow healthy plants. Interplanting with a variety of plants (including flowers) and rotating crops can also assist in preventing infestations of pests. Some plants such as Queens Anne Lace, parsnips and carrots that have gone to seed and other umbelliforous plants, actually attract useful insects such as predator wasps that eat pests such as aphids.

PEST TRAPS

Beer Trap

How to make: stale beer in a bottle or container
How to use: immerse in soil at 45 degrees with opening just over surface, so pests falling in won't be able to escape
Traps: slugs, snails

Sugar Traps

How to make: mix generous amount of sugar with water and cool
How to use: ¼ fill a bottle, place near house or sheds
Traps: wasps

Orange Traps

How to make: cut an orange in half and place cut side down in the garden
How to use: in the morning collect pests
Traps: slugs

White Cabbage Butterfly Traps

How to make: soapy water in yellow container
How to use: place in garden
Traps: white cabbage butterfly

MORE ON SLUGS…

Slugs can be repelled from gardens by broken eggshells, slugs or sawdust sprinkled around plants.

SPRAYS
Homemade sprays may be stored in sterilized jars.

Chilli / Red Pepper
How to make: soak 50g chilli or hot red capsicums in 100ml water for 24 hours; strain and dilute 1½ tsp in 1litre water; use a little soap as a sticking agent
Controls: aphids and caterpillars

Garlic
How to make: soak 4 cloves of garlic in 1litre of cold water for several days and then blend
How to use: spray
Controls: fungus - club root (water down rows in early summer) and pests – red spider; slugs; snails

Lettuce
How to make: boil in water and strain
How to use: spray on brassica leaves
Controls: white cabbage butterfly
Alternatives: place lettuce leaf on brassicas such as cauliflower

Milk
How to make: use 1 part milk to 9 parts water
How to use: spray at planting time then every 10 days
Controls: viruses on cucumbers; lettuce; tomatoes

Pest Tea
How to make: grind up large numbers of pests and mix with water
How to use: spray
Controls: their friends and family

Soap
How to make: dissolve 2 tablespoons of pure soap in 1 litre of water, or use bath water or water from washing clothes
How to use: spray
Controls: white cabbage butterfly, caterpillars, aphids

Rhubarb
How to make: boil 500g of rhubarb leaves in 1 litre water (not in an aluminium pan) for 30 minutes, then cool; dissolve 50g soft soap in 1 litre water and cool; mix the two
How to use: spray on brassica seedlings; rainwater increases effectiveness
Controls: aphids; club root
Alternatives: can use tomatoes stems or stinging nettles instead of rhubarb; can put a rhubarb leaf under a seedling when planting instead of spraying ***NB:*** **Rhubarb leaves are toxic!**

Water
How to use: Hose, with reasonable pressure to knock insects from plants
Other: add lime to water and apply around beets and cabbages to reduce scab, club root and cabbage maggot fly; add salt to water to deter cabbage caterpillars; use warm water for soft skinned insects e.g. aphids, caterpillars
Controls: aphids, caterpillars

Wormwood Tea
How to make: 1 tbsp of wormwood leaves in 600ml water and bring to the boil; remove from heat immediately
How to use: when cool, dilute 1 part with 4 parts water and immediately pour around vegetables
Controls: slugs and snails

7. Heritage and Disease Resistant Varieties

There is increasing evidence that heritage varieties not only taste better, they are also more disease resistant and have higher nutritional value than commercially available fruits and vegetables. Koanga Gardens in Northland have conducted research in this field. In addition, seed saved from heritage plants will grow true to form as they have not been hybridised.

When choosing fruit and nut trees consider:

- *appropriateness for your soil and microclimate*
- *fruiting times of varieties (early, mid and late) as required – usually a range is best*
- *the purpose for the trees (dessert, cooking, juice, forage)*
- *availability*
- *rootstock*

Highly Recommended Apple Varieties
Liberty; Priscilla; Redfree; Freedom; Akane; Discovery; Novamac; Tydeman's Red

Recommended Apple Varieties
Beauty of Bath; Bramley's Seedling; Cornish Aromatic; Egremont Russet; Florina; Gavin; Hetlina; Jonafree; Lawfam; Laxton's Epicure; Laxton's Fortunate; Lundbytorp; Macfree; Merton Russet; Merton Worcester; Nova Easygro; Priam; Prima; Reinette de Thorn; Sir Prize; Splendour; Sunset; Telstar; Tydeman's Late Orange

Recommended Pear Varieties
Brockworth Park; Comice; Douglas; Doyenne de Comice; Duchess d'Angouleme; El Dorado; Fan-stil; Kieffers Hybrid; Luscious; Mac; Magness; Maxine; Moonglow; Red Bartlett; Red Beurre d'Anjou; Seckel; Starking Delicious; Starkrimson; Sugar; Sure Crop; Waite; Winter Nelis

Recommended Peach Varieties (in order of preference)
Red Bird; Sunbeam; Mayflower; Orange Cling; Carmen; Elberta; Greensboro; J.H.Hale; Sneed; Black Boy
**all are resistant to brown rot and peach leaf curl*

Recommended Walnut Varieties
Chandler; Eureka; Franquette; Hartley; Howard; Pedro; Tehama; Vina
** all fairly tolerant of blight*

USEFUL HERITAGE SEED AND PLANT SOURCES

South Coast Environment Centre
154 Palmerston Street, Riverton, Southland
Tel /fax: 03-2348717
Email: info@sces.org.nz
Web: www.sces.org.nz

Sutherland Nursery
Jason Ross, 6 McLachlan Street, R.D. 2, Waitati, Otago 9085
Tel: 03-4822625
Email: jason@sutherlandnursery.co.nz
Web: www.sutherlandnursery.co.nz

Dunedin Community Gardens
Shetland Street, Kaikorai Valley, Dunedin
OPEN: 10am-2pm Tuesday and Thursday
A/H: Tel: 03-4780311

Blueskin Nurseries
State Highway 1, Waitati, Otago 9085
OPEN: Seven Days a Week
Tel: 03-4822828
Fax: 03-4822838

Southern Seed Exchange
Martin Tickner, Kotare Vale, Harmen's Track, Little River 7591
Tel: 03-325 1312
Email: southernseed@paradise.net.nz

Koanga Gardens
R.D.2 Maungaturoto, Northland
Tel: 09-431 2732
Fax: 09-431 2745
Email: info@koanga.co.nz
Web: www.koanga.co.nz

8: References

USEFUL WEBSITES FOR SCHOOLS

http://www.e4s.org.nz/efs/
http://www.edibleplaygrounds.co.uk/
http://www.ediblegardens.org.uk/
http://www.fao.org/docrep/009/a0218e/a0218e00.htm

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