# Monash Gardens for Harvest

A practical guide to growing your own fresh food

CITY OF MONASH

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MONASH

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Cover photo: Mary Trigger

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Monash Council acknowledges the traditional owners of the land that is now known as Monash and pays respect to their elders past, present and emerging.

**Monash Language Assist**

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|---|---|---|---|
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# Contents

# Why grow your own produce?

Growing your own delicious fresh food is rewarding, healthy and fun.

From a simple container to extensive garden beds, you can plan to grow seasonally fresh and naturally ripened food that tastes delicious and is nutritionally better for you.

*Gardens for Harvest* provides you with practical advice on how to grow your own produce at home; from designing and planning your garden, to planting and harvesting your own fresh fruit and vegetables. Growing your own food is a great way to get fresh air and exercise while providing fresh and healthy food for your family. It also helps to reduce food packaging, transportation and chemical use, which is all good for the planet.

*Gardens for Harvest* will also provide you with information on how to connect with other food growers in your local area.

# Planning

## Start small…but plan BIG.

### Practical considerations

Taking the time to plan your produce garden will save you time and money. In planning your produce garden you need to consider what you have, what you would like to end up with and how you are going to get there. **And remember, it doesn't all have to be done immediately, but rather according to a well thought-out garden plan.**

## 1. What exists?

Have a good look at your garden, preferably at varying times of the year. Sketch out a plan of your garden and mark in the physical elements. Where are your sunny and shady areas in summer and winter? Produce should have at least five hours of full sun per day. Are there any areas that get water logged? Where are your taps and underground pipes? Do you have steep slopes that would need to be levelled if you put in produce beds? Is your compost bin convenient to access? Mark in any of the following: existing garden beds, clothesline, play equipment, garden shed, paths, rainwater tanks or tap locations, which way is north, slopes, wet areas, underground pipes.

## 2. What do you want?

What do you like to eat? Do you want to supplement your family's diet? Do you just want some fresh herbs and a lemon tree? What about fruit trees? Do you have space to grow a wide range of vegetables and herbs? Do you want raised vegie beds or just combine productive plants within ornamental beds? Do you want to have chickens? How much time do you have for ongoing maintenance?

## 3. Do some background research

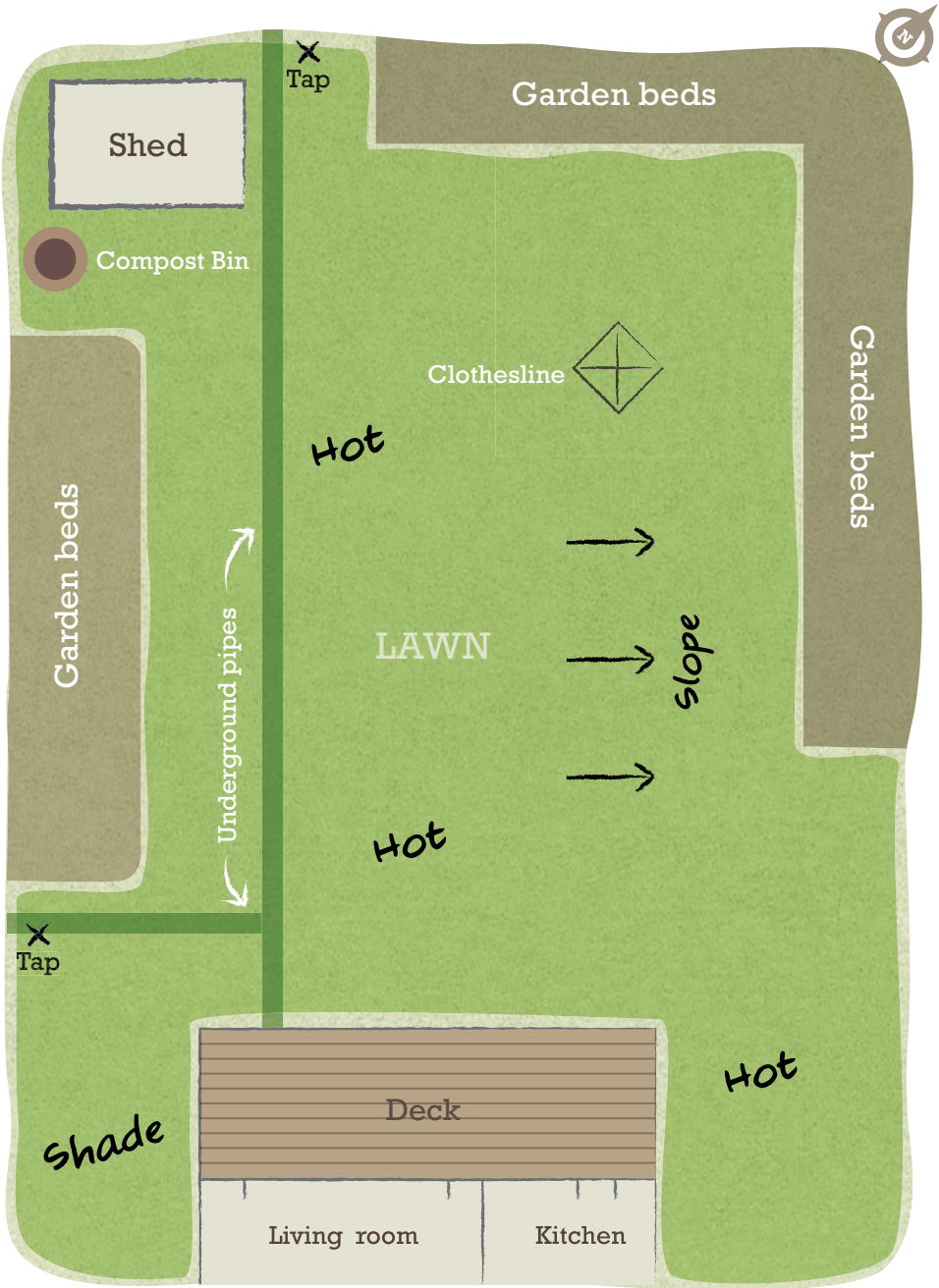
List down any major structures you want to include in your garden. Can you do it yourself, or will you need a professional builder or plumber? Make an estimate of the cost of materials for elements such as raised vegie beds, paving, soil and mulch, fruit trees or a rainwater tank. Do you have the time and money to do it all at once or is it more realistic to take a staged approach?

## 4. Develop a plan

Once you have decided on what you want and what you can realistically achieve and afford, you can play with your garden plan exploring different options. Tracing paper overlays can work well at this stage. Decide what needs to be done first; this is normally structural changes such as levelling a site for a raised bed or laying down paths. Focus on one area at a time so you are not overwhelmed.

## Site analysis

Example of a typical backyard site analysis with major features drawn in.



# Garden plan for a food garden

Example of a garden plan to introduce a wide variety of produce and chickens to the backyard.

# Installation

In general, you have multiple options for where you can grow your produce. An important consideration is what you want to grow and what sort of soil depth it will require. If you want to grow leafy produce, climbers, low growing bushes and dwarf fruit trees, your soil depth only needs to be 30cm deep. If you want to grow root vegetables and large fruit trees you will need a soil depth of at least 100cm.

## Container growing

Growing herbs, vegetables and dwarf fruit trees in containers is a great option for small spaces such as courtyards and balconies, or if you are renting. You will need to take into account a few considerations specific to containers.

### Type of container

You can buy or upcycle a wide range of containers; from pots, boxes, crates, grow bags, hanging baskets or old bathtubs!

When repurposing a container, do some research on its suitability to grow food. For example, some metal cans, treated timbers, certain plastics and rubber tyres can leach chemicals and should be avoided.

Ensure your container has drainage holes and the plant has ample space to spread its roots.

Terracotta pots are more porous than glazed pots and will tend to dry out faster. Add pot saucers or use self-watering pots.

### Position

Containers look great when they are grouped together with pots of all different shapes and sizes closely clustered.

All produce plants will do best in full sun. It is a good idea to put your pots on a plant caddy so they can easily be wheeled around to catch the full sun across the seasons.

Growing produce in containers close to the kitchen will make it easy to reach them while you are cooking.

If you have limited space, consider growing strawberries in hanging baskets or herbs in vertical wall pots.

Avoid putting too many large pots on your balcony. Containers get even heavier when you water them. Balconies can also be quite exposed to high wind, potentially resulting in pots toppling over or plants dehydrating. Select plants that do not grow too tall and avoid light plastic pots.

### Potting mix and mulch

Do not use garden soil in pots! It can drain poorly and tends to break down quickly. Use an organically certified potting mix.

Good organic potting mixes will break down over time, so you need to top them up with fresh potting mix every so often.

Mulch the top of your pots with a straw-based mulch to slow down water loss and add nutrients to your soil. Ensure you leave enough room inside your container for your mulch or it will blow away.

## Traditional vegie patch

A good size for a vegie patch is about 1.2m wide and 3m long. Mark out the bed with a string line and start digging! The soil must be dug to a depth of 30cm with all weeds removed as you go. Cover the dug over soil with about 10cm of aged animal manure and dig this in. Water well and cover with a straw-based mulch.

## Pottager garden

If you incorporate your fruit trees, vegetables and herbs into your existing ornamental garden beds, you are creating a pottager garden. Adding produce will create diversity, texture and colour to your beds. You will first need to incorporate a significant amount of organic matter into your soil for your nutrient-hungry produce. As indigenous plants thrive in low nutrient soil it is not advisable to add produce to native plant beds.


Plant caddy


Raised bed

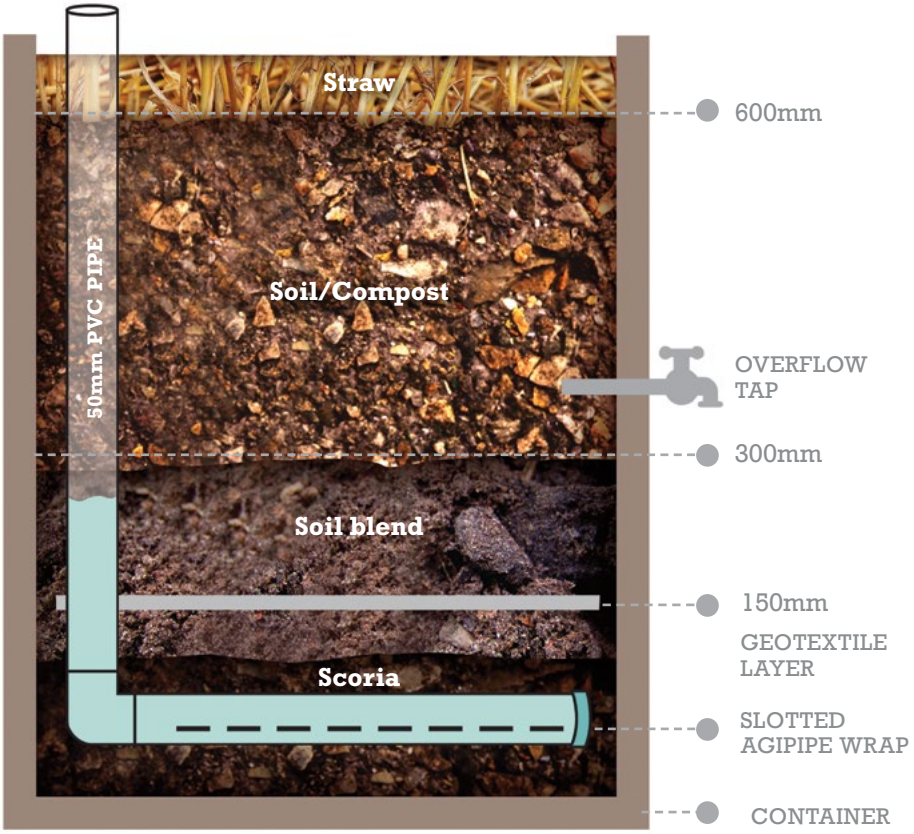

Vegie patch

## Wicking beds

A wicking garden bed is designed to draw water up from a reservoir below, hence 'wicking' the water through the soil directly to the plant roots. It is one of the most efficient ways to deliver water to your thirsty vegies. There is also the added advantage of reducing the incidence of fungal growth on plant foliage by watering to the roots. As the majority of produce plants' roots grow in the first 300mm of soil, it is a good idea to mix compost through this layer of soil to maximise growth.

For a wicking bed to work it does need to be constructed with care, ensuring your bed has the correct depth and appropriate medium, both for drainage and growing your plants. For a vegetable wicking bed you will need a flat location in full sun. They can be built on the soil of your garden, on hard surfaces in a courtyard or even using a polystyrene box.

### Wicking bed diagram



## Raised garden beds

Building up is an excellent option if you have poor quality or compacted soil, concrete, limited space, a bad back or want to create a kitchen garden feature in your garden. Raised beds can be constructed from a variety of materials including large fruit crates, straw bales and bricks, with timber sleepers and galvanised iron being two of the most popular materials. If you use sleepers, make sure they are CCA (Copper Chrome Arsenate) free timbers and avoid treated pine. There are also a number of recycled plastic sleeper products available commercially. Check with your local garden centre or hardware store.

The height of raised beds can vary depending on what is comfortable for you. To grow large fruit trees you will need a depth of at least 100cm. If you want to grow dwarf fruit trees you will need a minimum depth of 30-50cm. Width can be an issue for accessing plants easily. If you can only reach the plants from one side, aim for a bed width of around 50-60cm. If you can access both sides, a width of 1-1.2m should be comfortable.

When your raised bed is in place, all you have to do is fill it up. You can buy some garden topsoil from your garden centre, add a layer of well-rotted animal manure or compost, top with a straw-based mulch and start planting. Or you can fill your raised bed by the no-dig method of layering materials.

The height of raised beds can vary depending on what is comfortable for you.

Mackie Road House Community Garden

## No-dig garden bed

A no-dig garden is filled with layers of material that break down over time to produce a nutrient-rich soil that retains water well and produces heat to accelerate plant growth. As the name suggests, no digging required! Ideally, no-dig gardens should not be planted into immediately to give the organic matter time to break down. If you construct your no-dig bed in late summer/autumn, it will be perfect for planting in spring.

*No digging required!*

**Once your raised bed frame is in place, fill using the following no-dig method:**

1. Create a weed barrier by laying about 2cm of overlapping newspaper, unwaxed cardboard or carpet as a base. Wet down.
2. Add about 10cm of organic waste e.g. grass clippings, vegetable scraps or chopped up garden waste.
3. Cover with 10-15cm of aged animal manure or compost.
4. Add a layer of straw-based mulch to a depth of 20cm.
5. Repeat 2. to 4. if you have a high raised bed.
6. Lightly spread more animal manure to a depth of 2cm.
7. Water well.
8. Let the bed rest for a season.
9. Plant out with seedlings and mulch to a depth of 3-5cm.
10. Top up the bed with more organic matter from time to time.

# Maintenance

Good maintenance practices lead to a more productive harvest. Young plants need to be nurtured with a balanced soil, nutrients and a consistent water supply to grow strong and healthy.

# Soil

Soils are broadly classified as sand, loam or clay (or variations of these like sandy loam). Produce thrives in soil that is dark and crumbly, as it holds water and nutrients to feed the plants. Before you plant, find out what soil type you have by taking a handful of slightly moist soil from your garden and squeezing it in your hand.

**If your soil becomes a smooth ball…**

It is clay soil! Clay soil has lots of water and nutrients, but it can become too wet or too dry for your plants. Get some gypsum and compost from your local nursery and sprinkle it over the soil.

**If your soil falls apart…**

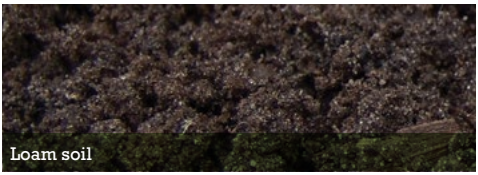
It is sandy soil! Sandy soil does not hold water and nutrients very well, and can become very dry. Regularly put mulch and compost on your garden to keep your plants well fed.

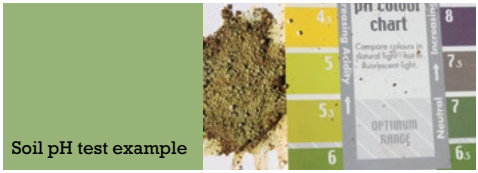
**If your soil holds together in your hand but falls apart when you squeeze…**

It is loam soil! This soil is the best for growing in. It is still good to put mulch and compost on your garden to make sure your plants are getting plenty of nutrients.


Clay soil


Sandy soil


Loam soil



Soil pH test example

## Have you heard of pH?

Soil should have a pH level between 6.0 and 7.5 so that your plants get plenty of nutrients. Use a pH testing kit from your local garden centre before planting to check your soil.

**Over 7.5:** Apply sulphur from a garden centre.

**Under 6.0:** Apply dolomite or lime. Wait for about six weeks, test the level again, and begin planting!

Always follow the manufacturer's instructions and ask at the garden centre if you need some help.

# Fertilisers

Produce requires large amounts of nutrients for optimum growth. This is particularly true for fast growing annual crops. Adding compost and aged manures to your vegie garden soil will provide most of your plant's nutritional needs.

If fertilisers are necessary, feed the soil rather than the plant. This allows the plant to take up what it needs as it needs it. Before the autumn and spring growing periods begin, apply slow release pelletised fertiliser. Then during the growing period apply supplementary organic fertilisers fortnightly. Choose an organic liquid fertiliser such as worm tea, weed tea, manure tea or fish emulsions. Avoid synthetic fertilisers as these often have synthetic nitrogen and the high salt content can burn young seedlings.

Avoid the overuse of fertilisers as they have the potential to leach into the soil polluting groundwater, streams and bays. In addition, fertiliser at high concentrations can be harmful to your plants. Always follow the manufacturer's instructions.

For information and treatment of some common plant nutrient deficiencies, refer to page 24.

**Make your own weed tea** (For your plants to drink, not humans!)

**You will need:**

- **A pile of weeds**
- **A bucket or bin with a lid**
- **A large porous sack (an old pillow slip works well)**

Method:

1. Stuff your weeds into the porous sack and submerge into a large bucket or bin of water.
2. Seal your bucket with a lid as the brew will start to smell very pungent.
3. Leave your tea to brew for five or six weeks, or until the weeds have decomposed into a brown sludge. (This means the nutrients and minerals in the weeds have been released into the water).
4. Remove your "teabag" and allow to drain. The tea bag material can now be placed in your compost or worm farm.
5. Dilute approx. one part tea to 10 parts water (it needs to look like weak tea).
6. Apply your "liquid gold" to any nutrient-hungry plants you have, such as fruit trees and vegetables, and watch them thrive.

# Organic waste

Food scraps make up about 48% of household waste sent to landfill, throwing away a potentially valuable resource and increasing methane gas emissions.

Composting food scraps, grass and garden clippings not only reduces waste sent to landfill, but it also creates a valuable source of nutrients for your garden. If soil quality is low, compost can be dug into the ground; otherwise it can be laid on top. Composting is now even easier for Monash residents, as discounted compost bins, worm farms and Bokashi bins are available for purchase through a Council rebate.

If your garden doesn't have the space for a compost system, you can still keep food waste out of landfill. Monash residents can put food scraps in their green waste bin - this is the same bin used for garden waste.

More information about composting and food waste in the green bin can be found on the Monash Council website **www.monash.vic.gov.au/food-waste**

## ADD to your compost

- **Fruit and vegie scraps**
- **Coffee grounds**
- **Tea bags**
- **Leaves**
- **Egg shells** (crushed)
- **Pizza containers**
- **Egg cartons**
- **Vacuum cleaner dust**
- **Onion** (outer skin)
- **Finely chopped citrus peel**
- **Grass clippings** (thin layers 3-4cm)
- **Chopped prunings**
- **Weeds** (not bulbs / seedheads)
- **Shredded newspapers**

## PUT in the green bin

- **Grass**
- **Garden prunings**
- **Fruit**
- **Vegetables**
- **Food leftovers**
- **Meat**
- **Fish**
- **Eggs**
- **Coffee grounds**
- **Paper towels**
- **Dairy**
- **Bread**
- **Rice**
- **Pasta**

## THROW in the waste bin

- **Non-recyclable plastics**
- **Ceramics**
- **Soiled paper**
- **Nappies** (wrapped)
- **Broken glass and crockery** (wrapped)

# Compost options for your home

## Kitchen fermentation kits

If you have a small garden or live in a flat and produce a small amount of mainly kitchen scraps, a kitchen fermentation kit is small enough to sit on your kitchen bench or under the sink. These kits are a fermentation system that converts waste into a nutrient rich soil conditioner for your garden. The system is air tight and requires you to sprinkle a handful of the manufacturer's rice husk and wheat bran that has been infused with micro-organisms over a layer of kitchen waste to rapidly break down food scraps. The system produces a solid fermented product that can go into your green bin or can be dug into soil, where it continues to break down. Regularly drain the juice produced using the tap.

## Compost bins

Compost bins are a compact, closed system which restrict vermin access. Locate in a position that is shaded in summer and sunny in winter. Under a deciduous tree is ideal. Place on soil so that liquid drains well and worms can enter the bin to aid composting. Fasten a piece of mesh wire under the bin to prevent rats and mice digging underneath. Add alternate layers of high nitrogen ingredients (e.g. food scraps, manure, grass clippings, soft prunings) to low nitrogen ingredients (e.g. dry leaves, straw, garden waste, shredded newspaper). Aim for layers of 1 bucket of high nitrogen followed by 3 buckets of low nitrogen. Keep moist but not too wet. Cover with a layer of hessian to retain heat and moisture. The compost should be ready in 12-16 weeks.

## Compost heaps

This is an open system that requires more space and will attract vermin if kitchen scraps are added. The system needs to be a minimum of $1m^3$ in order to generate enough heat to work. Build a large heap of organic materials 1.2m high by 1.2m wide. This can be on soil or on a hard surface. Alternate your organic materials between high nitrogen (e.g. garden cuttings, lawn clippings and aged animal manures) and low nitrogen (e.g. dry leaves, straw, shredded newspaper) with each layer being 10-20cm deep. As you build, spray each layer so that the materials are moist but not saturated. Cover your finished heap with hessian and secure. Turn your heap twice a week. The heap should generate enough heat to obtain compost in 6-8 weeks.

# Worm farming

## Worm farms are a great option if you have limited space and predominantly want to dispose of food scraps.

You can buy worm farms that come with instructions, bedding and special composting worms. They consist of three containers that sit within each other and a lid. The bottom layer, which has a filter and tap, is where the nutrient-rich worm tea and castings accumulate. The middle container is for collecting the worm castings, another rich fertiliser. The top layer is where the worms live. You can also build your own worm farms from polystyrene fruit boxes or an old bathtub.

### Location

It is important to locate your worm farm in a place that is convenient to access and is away from direct sunlight and rain. Too hot (over 30°C) and your worms will die. Cover your worms and kitchen scraps with damp newspaper or hessian to keep them cool and moist. Too cold (less than 10°C) and wet, they will die. A layer of old carpet on top will help in winter. Adding shredded newspaper or pea straw with food scraps will balance out the pH and reduce small vinegar flies in the top layer or dead worms in the bottom layer.

### Food

Worms love finely cut or blended fruit and vegetable scraps, tea leaves, coffee grounds, wet shredded newspaper and aged manures. Avoid citrus, onion peel, garlic, meat and bread. Don't overdo it, especially when you first set up your farm, and monitor regularly. If your farm starts to smell the food is rotting rather than being eaten, reduce the amount of food you are adding to your worm farm.

### Worm fertiliser

The liquid that drains from the tap in the worm farm needs to be diluted by adding lots of water before adding to the soil. It should look like tea. Dilute to 1 part worm farm liquid to 10 parts water before you add to your plants.

Worm castings are less potent and can be scooped up and added directly to your soil.

# Watering

Water is essential for growing healthy herbs and vegetables. Produce requires a large amount of water compared to native plants. How and when you water is important for growing productive plants and reducing pest and disease problems.

## Water harvesting

### Rainwater Tanks

Collecting your own rainwater is essential if you want to maintain a produce garden throughout the year. Rainwater collected in a tank is not subject to any water restrictions in times of low rainfall. There are a wide range of rainwater tanks on the market from steel, concrete and plastic, to slimline, round and bladder. It comes down to the size you need, the space available in your garden and your budget.

For information on choosing the size and type of rainwater tank visit **www.sgaonline.org.au**

Monash Council encourages the installation of rainwater tanks. In most instances, a permit is not required, however it is important to be aware of regulations regarding tank siting to ensure that your tank does not interfere with the amenity of adjoining properties.

### Greywater

Greywater is any waste water that comes from your bathroom, laundry and dishwasher. Untreated greywater can be applied to the garden under some circumstances, however it should never be applied to herbs and vegetables that are grown as food crops. Greywater can contain bacteria and other pathogens that can cause illness if consumed through eating herbs and vegetables. It can be applied sub-surface to fruit trees. Untreated greywater cannot be stored for more than 24 hours and if you are using it on fruit trees, you should use phosphorous free, low sodium detergents and flush the soil regularly with mains water.

More information on Rainwater tanks and greywater is available at **www.monash.vic.gov.au/Building-Planning/Building/Installations/Rainwater-Tank**

Rainwater tank

Greywater pipe

## Stormwater

In the natural environment rain slowly seeps into the soil and eventually into our waterways through the groundwater table. The water flow rate is slowed down and as the water passes through the soil, excess nutrients and pollutants are removed. This process results in high quality water entering our streams and creeks.

In urban landscapes many surfaces are covered by hard surfaces such as roads, roofs, driveways and paved patios that are impervious to water. When it rains, large volumes of water rapidly enter our drains carrying pollutants into waterways, affecting flow rates and eroding river banks.

## Downpipe diversion

A downpipe diverter is fitter to a downpipe running from the roof to the ground. It contains a valve that enables you to divert the stormwater from your downpipe to an attached hose that enables you to water your garden beds.

A downpipe diverter can easily be fitted by a licensed plumber.

## A vegetable raingarden

Water from a downpipe can also be diverted to a planter box for vegetables. The water is delivered sub-surface into the planter box that consists of gravel and soil to filter the water before it seeps into the ground below. By adjusting the flow rate you can ensure the soil has sufficient water for healthy vegetable growth.

For further information visit: **www.melbournewater.com.au/raingardens**

Stormwater is a valuable resource that can be utilised by gardeners. Rainwater tanks capture and store stormwater from our roof but there are other ways of using this resource.

Downpipe diversion

### Test your soil before you water

Don't just water for the sake of watering. Test your soil before watering by inserting a finger into the soil. If the soil sticks to your finger, the soil is damp and doesn't need watering. If it doesn't stick to your finger, water. This is especially important in the cooler months when overwatering can lead to root rot, fungus and mildew.

### Water application

How water is delivered to your plants is important. Use a drip line watering system which reduces waste by ensuring that the water only goes to the base of your plants where it is needed. Check and clean your irrigation system every spring to ensure dripline holes are not blocked up with soil.

If you are using a hose, use a trigger nozzle with an adjustable spray. Do not use a concentrated spray as this will destroy the soil structure.

Water to the base of the plant, not the foliage. It is the plant roots that absorb the water.

Water in the early morning so your plants are not distressed through the heat of the day: this will also prevent fungal diseases and moulds.

Install garden tap timers to reduce over-watering.

Use a rain sensor so that watering does not occur automatically. Ensure the system is turned off if rain is predicted.

Give your plants a long, deep water and make sure they are grouped according to their water needs.

### Mulch

A layer of mulch, particularly in summer, will reduce surface water evaporation from the soil.


Trigger nozzle


Dripline irrigation

Tap timer

# Mulching

Mulch is organic material which can be spread on your garden bed. It serves a number of vital functions in growing healthy produce.

Mulch protects the roots of plants from the sun, while helping to regulate soil temperature so that plants are not too hot or too cold. It also conserves water by reducing surface evaporation and reducing weeds which compete with your produce for nutrients. Finally, mulch breaks down into organic matter, giving your produce plenty of nutrients.

A straw-based mulch is best as it breaks down fairly quickly and is high in nutrients for your produce plants. Avoid using grass clippings as a mulch - put them on your compost heap or in the green bin instead.

It's important to top up your mulch at the start of the growing season (autumn and spring). First remove weeds and wet the soil. Then lay your mulch to a depth of 5cm, at least 4cm away from the stems of your plants to avoid fungal diseases.

## Frost and sun protection

While mulch helps to protect your plants, seedlings in particular can be badly damaged by sun or frost. A shade cloth or old sheet attached to stakes over your crops can help protect them from extreme heat or cold. You can also purchase cloches (plastic covers) from garden centres and hardware stores.

Straw-based mulch

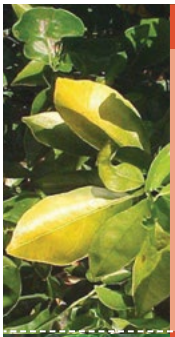
Commercial cloche

# Garden health

## Prevention is better than the cure!

Just like people, strong, healthy plants are more resilient to pests and diseases. Produce grown at home needs at least five hours of sunlight a day, frequent watering, and access to a number of vital nutrients. When plants do not get the nutrients they need to be healthy, they may be attacked by a range of diseases, moulds and pests.

# Example of plant deficiencies

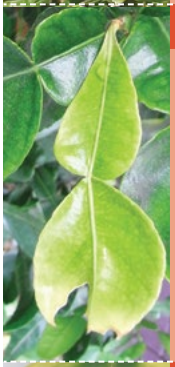


## NITROGEN DEFICIENCY

Spindly plants or pale leaves early in their growing season. Nitrogen is very soluble and easily washed out of the soil in heavy rains, leaving the soil deficient. This is particularly problematic in sandy soils.

**Treatment:**

- Short term, apply high nitrogen fertilisers like fish (carp) or animal manures
- Long term, continually fertilise your soil with aged manures and compost to improve the nutrient holding capacity of your soil.

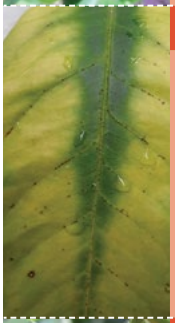


## IRON DEFICIENCY

Yellowing will occur between the veins on young leaves, or the entire leaf turns yellow. Can result from waterlogged or cold soil, damaged roots, or soil pH higher than 7.0.

**Treatment:**

- Check soil drainage
- Ensure your plant is receiving at least five hours of sunlight a day
- Test and adjust your soil pH (if too high, add sulphur or mulch with pine needles)
- Avoid alkaline mushroom and poultry fertilisers.



## MAGNESIUM DEFICIENCY

Yellowing between leaves similar to an iron deficiency but the base of the leaf remains green, and older leaves are affected rather than young leaves. Results when the soil pH is less than 5.5.

**Treatment:**

- Check soil drainage
- Test and adjust your soil pH (if too low, add dolomite or lime)
- Spray Epsom Salts on the leaves
- Add organic fertiliser in spring and autumn.

## CALCIUM DEFICIENCY - BLOSSOM END ROT

A nutrient disorder due to a calcium deficiency caused by acidic soil, insufficient water in the growing season, waterlogged soil or application of high nitrogen fertilisers.

**Treatment:**

- Test and adjust your soil pH
- Water regularly and check drainage
- Use a straw-based mulch
- Apply a fertiliser that contains calcium like a calcium nitrate solution.

If you think your plant may have a nutrient deficiency, take a leaf sample to your local garden centre and seek their advice.

# Crop rotation

When vegetables from the same plant family are planted in the same place year after year, they gradually strip the soil of the nutrients needed by that crop, and pests and diseases can build up in the soil. To understand crop rotation first we need to know the different vegetable families.

| Family | Type | Nutrients |
|---|---|---|
| Solanaceae | Tomato, capsicum, chilli, potato and eggplant | Heavy Feeder |
| Brassiaceae | Asian greens, cabbage, broccoli, brussel sprout, cauliflower, turnip, mustard and radish | Heavy Feeder |
| Cucurbitaceae | Pumpkin, zucchini, cucumber and melon | Heavy Feeder |
| Amaranthaceae | Spinach, chard and silverbeet | Heavy Feeder |
| Asteraceae | Lettuce and artichoke | Heavy Feeder |
| Poaceae | Sweetcorn and maize | Heavy Feeder |
| Chenopodiaceae | Beetroot | Light Feeder |
| Apiaceae | Carrot, coriander, parsley, parsnip, dill and caraway | Light Feeder |
| Alliaceae | Onion, garlic, shallot, chive and leek | Light Feeder |
| Fabaceae | Pea and bean (legumes) | Nitrogen Producer |

The vegetable family a plant belongs to gives us an indication of how much nutrients it needs.

**Heavy feeders** require a lot of nutrients and will deplete the soil of nutrients to produce a crop.

**Light feeders** are mainly root vegetables that need little or no fertiliser in good garden soil.

**Nitrogen producers** are legumes (pea and bean) that put nitrogen back into the soil.

**There are two main rules to crop rotation.**

**1.** If you plant a crop from one family e.g. eggplant from the *Solanaceae* family, the next crop you plant in that bed should be from a different family e.g. carrot from the *Apiaceae* family, or leek from the *Alliaceae* family.

**2.** Plant a nitrogen producer to restore soil fertility before planting a heavy feeder. Follow with a light feeder. It is recommended that you 'rest' a bed by not growing a crop for a season, but instead focus on adding compost and aged manures to replenish the soil.


| | SEASON 1 | SEASON 2 | SEASON 3 | SEASON 4 |
|---|---|---|---|---|
| BED1 | Nitrogen Producer | Heavy Feeder | Light Feeder | Rest |
| BED 2 | Heavy Feeder | Light Feeder | Rest | Nitrogen Producer |
| BED 3 | Light Feeder | Rest | Nitrogen Producer | Heavy Feeder |
| BED 4 | Rest | Nitrogen Producer | Heavy Feeder | Light Feeder |

# Disease, mould and pest control

There are a multitude of microorganisms, fungi and insects living in our produce garden. Many of them are necessary for the health of our plants, but some may ultimately damage your produce. There are some simple practices you can undertake to reduce the impact these things have on your garden.

**In general, make sure you:**

- Check your garden regularly for signs of disease, mould or pests.
- Practice crop rotation.
- Plant a diverse range of plants in your garden.

**To avoid disease or mould:**

- Water plants in the morning, preferably using dripline irrigation.
- Space plants out to ensure good ventilation.
- Pick up any fallen fruit.
- Ensure your pruning tools are sharp to avoid tearing stems and branches.
- Use a rag soaked in eucalyptus oil to wipe down your secateurs' blades before moving on to each plant.
- Prune back dead or damaged parts of your plants.
- If you are treating a plant for a disease e.g. peach leaf curl, make sure you collect any fallen leaves and put them in the waste bin. Do not compost them.

**To deal with pests, it is important to:**

- Correctly identify the pest.
- Know how the pest will affect your plants.
- Understand the severity of the infestation.

**To minimise pest infestations:**

- Avoid using high nitrogen fertilisers that produce soft, sappy growth that attracts pests.
- With a gloved hand squash or remove pests such as caterpillars and snails (chooks love them!).
- Traps can be purchased to attract snails, slugs and earwigs if they are infesting your garden.
- Cut off heavily infested plant parts. Do not compost.
- Cover crops with wildlife-friendly netting. (Refer to pg 36).

Ladybird eating powdery mildew

## Companion planting

Expert gardeners swear by the benefits of growing so-called companion plants alongside their produce. These plants improve the health and productivity of surrounding produce.

Companion planting also helps by attracting wildlife that preys on pest insects. A diverse range of plants in your garden, particularly aromatic and flowering plants among your produce, attracts beneficial insects which will prey on pests or even on plant diseases. For example, ladybirds feed on both aphids (small pest insects) and on powdery mildew.

They also enjoy the pollen of flat-topped flowers, such as coriander, fennel, marigold and dill. Ladybirds drink frequently, so add a shallow bowl of water with small stones above the water level to prevent drowning.

## Home remedies

Gardeners have discovered a variety of natural remedies for the control of pests and plant diseases. A few examples of home remedies are included in the tables on the next few pages, but there are plenty more to discover.

Look online, in gardening books, or even ask other gardeners, to find out more about both companion planting and natural remedies.

A healthy biodiverse garden will have a broad mixture of different plants.

Marigolds are a great companion plant for your vegie garden.

# Common moulds and diseases

## BACTERIAL WILT OF TOMATOES

This bacteria rapidly kills plants in the *Solanaceae* family. Healthy plants wilt and die. If you cut the stem in half it will be brown and if placed in water will exude a milky sap. Prevention is essential.

**Treatment:**

- Buy seeds and plants from a reputable outlet
- Practice crop rotation to avoid a build up of bacteria in the soil
- Follow a *Solanaceae* crop with a mustard crop to fumigate the soil.

## APPLE SCAB (BLACK SPOT)

A fungal disease that attacks apple trees, particularly with high spring rainfall. Leaves develop dark spots that become raised and corky. Fruit marked with scabs.

**Treatment:**

- Remove infected leaves and fruit from tree and ground
- Spray tree at leaf burst with lime sulphur or oxychloride. Repeat at bud burst
- Lay fresh mulch in spring and autumn to act as a barrier to fungal spores
- Apply water via dripline irrigation.

## POWDERY MILDEW

A fungal disease that occurs in shady areas during warm, humid spring and autumn weather. Powdery white bloom appears on all plant parts. Particularly affects *Cucurbitaceae* family.

**Treatment:**

- Avoid high nitrogen fertilisers that produce soft, sappy growth
- Spray the infected plant with 1 part milk to 9 parts water when mildew appears
- Spray the infected plant with potassium bicarbonate
- Apply water via dripline irrigation in the early morning
- Encourage ladybirds that love to graze on powdery mildew by planting companion plants.

# Common moulds and diseases

## SOOTY MOULD

Affected plants appear covered in a dark soot, particularly on the leaves and stem. The appearance of this fungus usually indicates the plant is under stress from insect attack e.g. scale and aphids.

**Treatment:**

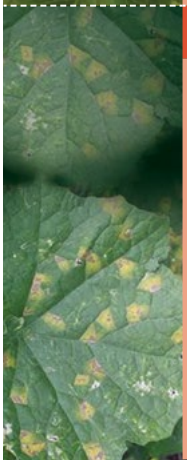
- Prevent infestations of aphids and scale
- Hose the plant down with jets of water
- Use a cloth to wipe the branches clean of fungus.

## PEACH LEAF CURL

A fungi that affects stone fruit trees resulting in leaf thickening and young leaves turning pale.

**Treatment:**

- Spray the leaves in early winter at leaf fall and again in spring at bud burst with copper oxychloride or lime sulphur
- Remove infected leaves and spray plant with potassium bicarbonate
- Remove and bag any infected leaves or fruit
- Apply water by dripline irrigation in the morning
- Mulch with clean straw in autumn and spring.



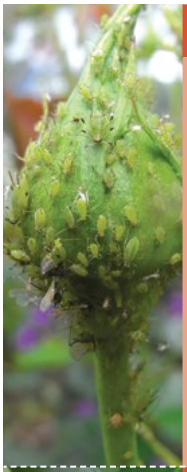
## DOWNY MILDEW

Angular yellow spots appear on the upper leaf surface before enlarging and becoming brown. The under surface has white cotton-like fungi.

**Treatment:**

- Plant in full sun with good air circulation between plants
- Always water to the base of the plant, not the leaves
- Remove diseased leaves. Do not compost
- Spray with bicarbonate soda and water.

# Common pest insects



## APHIDS

Aphids are sap sucking insects that affect the growing tips of plants resulting in distorted leaves, flowers and fruit, and possibly yellowing and wilting.

**Treatment:**

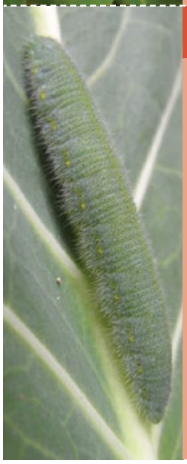
- Squash aphids by hand
- Hose off with a water jet
- Spray with a homemade garlic and oil spray
- Use an insecticidal soap Dilute in water as per the manufacturer's instructions and spray directly on the aphids
- Encourage predatory insects and birds.

## CITRUS LEAF MINER

The larvae of a moth that burrows under the leaf cuticle. Usually found on citrus tree leaves, particularly in late summer and autumn.

**Treatment:**

- Remove infected leaves; do not compost them
- Spray leaves with a commercial botanical oil spray
- Avoid using high nitrogen fertilisers.



## CABBAGE WHITE BUTTERFLY CATERPILLAR

Caterpillars hide on leaf veins during the day and feast on seedlings by night.

**Treatment:**

- Plant scented herbs e.g. mint
- Plant white violas or place egg shells amongst seedlings
- Remove by hand
- Cover bed with wildlife friendly netting, when adult white butterflies are first noticed.

# Common pest insects

## CITRUS GALL WASP

The adult female wasp emerges from the gall (calluses) in late winter and lays her eggs in the soft stem of the same tree. The larvae grow in the stems until they pupate and reinfest the tree.

**Treatment:**

- Avoid high nitrogen fertilisers in late winter and spring
- Use a vegetable peeler or paring knife to cut the gall open. When the larvae is exposed to the air it dies.
- Remove infected leaves; do not compost them.

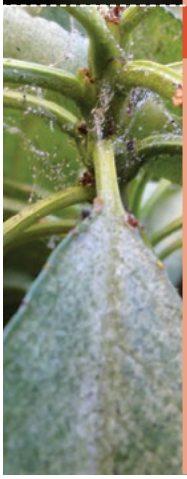
## EUROPEAN EARWIGS

Earwigs are active at night and hide in mulch during the day. They mainly feed on seedlings.

**Treatment:**

Trapping earwigs is the most effective control. Try:

- Fill upturned pots with scrunched newspaper and empty each morning
- Place covered snail traps with fish or linseed oil in garden beds
- Put rolled up newspapers in garden beds and empty daily.



## MITES

Mites are tiny spiders. Empty egg casings on the underside of leaves are easier to spot than the mites. Webbing appears on the tips of plants and silvering on the leaves.

**Treatment:**

- Hose with water jet
- Remove infected leaves and plant parts
- Use crop rotation
- Clean up weeds and leaf litter around the plant base
- Spray with botanical oil or insecticidal soap.

# Common pest insects

## PEAR AND CHERRY SLUG

This slug is the larvae of the sawfly wasp. It rasps across the upper surface of leaves peeling off the cuticle leaving the leaf skeletonised. Leaves dry out and turn brown.

**Treatment:**

- Remove with a gloved hand
- When the slugs first appear dust the leaves with a sprinkling of lime or potash. Repeat a month later. Don't use too much or you will alter your soil pH.

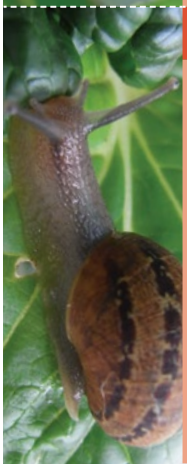
## SCALES

There are many different types of sap sucking scale; hard, soft or fluffy. Each scale lives beneath its own casing that appears on leaves and stems.

**Treatment:**

Early control of scales is effective through a combination of:

- Remove with a soft toothbrush or by flicking off
- Spray with botanical oil or insecticidal soap
- Cut off heavily infested plant parts and destroy
- Encourage predatory insects and small birds to your garden.



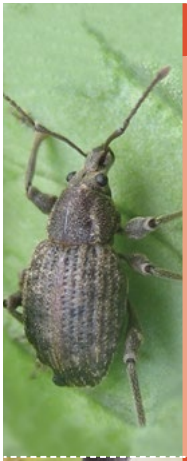
## SNAILS AND SLUGS

These molluscs are active at night and hide in moist, shady places during the day.

**Treatment:**

- Hand removal
- Spray plants regularly with black coffee
- Sprinkle used coffee grinds around seedlings
- Place snail traps with beer or soapy water at soil level
- Create a barrier around plants with an exclusion band of copper tape
- Encourage predatory insects and small birds to your garden.

# Common pest insects

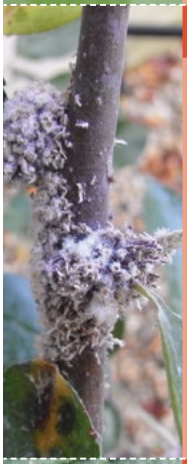


## WEEVILS

These long-nosed insects feed at night and shelter in the day. Larvae feed on plant roots often wiping out seedlings. The adults feed on stems and leaves causing a distinctive scalloped edging.

**Treatment:**

- Adults can be removed by hand but eradicating larvae from the soil is more difficult
- Turn over the soil to disrupt larvae
- Allow beds to rest for a season. Remove all weeds
- Avoid planting brassicas, a favourite of weevils.

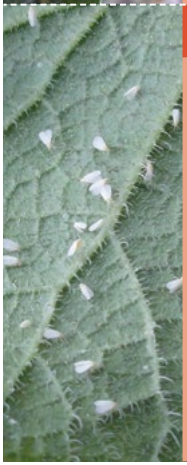


## WOOLLY APHID

Heavy infestations of these sap-sucking insects look like cotton wool on your apple tree. They weaken the tree and affect the quality of fruit produced.

**Treatment:**

- You can buy apple trees resistant to woolly aphid (*Rootstock M102 or M106*)
- Use a cloth to wipe off infestations
- Paint aphids with methylated spirits
- Spray with botanical oil or insecticidal soap
- Encourage predatory insects.



## WHITEFLY

Sap-sucking insects that cause silvering on leaves, potentially leading to leaf curl and wilting. Whiteflies can be difficult to control because they swarm about when disturbed.

**Treatment:**

- Hang yellow sticky traps near infected plants
- Vacuum whiteflies from the plant
- Use botanical oil or insecticidal soap
- Encourage predatory wasps.

# Protecting your crop from wildlife

For as long as we have been gardening, birds, possums, rats and bats have been helping themselves to our produce. While most gardeners are happy to share some of their produce, unfortunately our wildlife is more inclined to feast on our roses, fruit and vegies, leaving little behind. There are a large number of products available on the market to try and address this problem.

**Scare Devices:**
High audio scare devices, roost inhibitors, plastic owls, scarecrows, rubber snakes, CDs, plastic bags, whirligigs… there are a lot of devices out there that work to varying degrees. The most important thing is to move them about regularly to avoid your wildlife getting used to them.

**Fruit Protection Bags:**
These are available commercially or you can make your own with plastic bags or orange mesh bags. Use the bags to cover individual fruit and secure firmly to the tree branch.

Information and photographs supplied by Wildlife Friendly Netting.

Grey-headed Flying-fox

Brushtail Possum

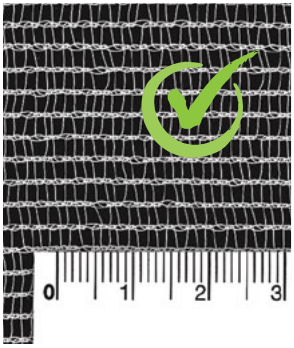
**Tree Collars:**
Attach a ring of hard plastic or thin metal around the trunk of your trees to prevent wildlife climbing up and down.

**Fencing:**
You can enclose your garden beds in a fence of floppy chicken wire with the top curved outwards. The wire roll should be about 80cm wide with the bottom 20cm buried. String high tensile fencing wire between your posts and attach chicken wire loose enough so that if an animal attempts to climb it the wire will sway. For smaller areas you can build a portable wire frame to cover your plants.

**Netting:**
If you use netting you should buy densely woven nets. Loosely woven netting can trap and harm the animals, rather than keeping them away from your produce. As a rough guide, if you can insert your finger through the netting it is capable of trapping wildlife. Choose netting with a maximum mesh size of 5mm x 5mm. Ensure that your netting is securely fixed to the ground or tied around the base of your tree above ground level. Remove nets when they are not required e.g. after fruiting.

If you find an injured animal, call Wildlife Victoria on **03 8400 7300**. Their website (**www.wildlifevictoria.org.au**) also provides more information on dealing with a possum problem.

Portable wire frame




If you use netting, choose a densely woven net with a mesh size of 5mm x 5mm.

Tree collar

# Preparing your garden

Now that you have a plan for your garden, have prepared your soil, and know how to deal with any problems that could affect your produce, it is time to get to the fun part - planting!

Autumn and spring are the main planting seasons for produce. In autumn the hot summer temperatures that burn young seedling roots have decreased, and in spring the warming up of the soil results in an increase in plant growth.

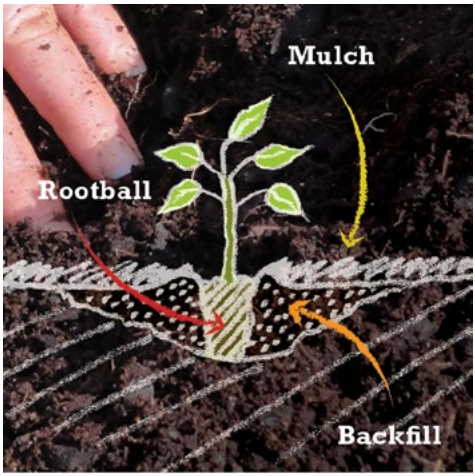
# Seeds and seedlings

**SEEDS:**

- Collecting vegetable seeds at the end of the growing season is more cost effective than buying seedlings.
- Popular produce such as tomato, pea, bean, pumpkin and lettuce are self-seeding.
- Organic seeds are now commercially available, as are a wide range of vegetable varieties.
- To sow seeds, rake over the soil and roughly level it. Water well. Make a shallow trench about twice the depth of the seed width.
- Large seeds, such as pea and corn, are placed in the trench about 15cm apart.
- Fine seeds, such as carrot and lettuce, are sprinkled in a very shallow trench.
- Carefully cover your seeds with soil and water as gently as possible.
- Keep your seeds moist, but not wet.
- Once your fine seeds have germinated and have two sets of leaves, thin them out so that you have one seedling for every 10cm.
- Fertilise with weak liquid fertiliser (manure or worm tea) solution.


**SEEDLINGS:**

- Punnets of seedlings are popular because they are convenient, are more advanced in growth and allow you to grow only what you need.
- Avoid seedlings that have spindly growth and a lot of roots coming from the base of the punnet.
- Prior to planting water well. Dig a hole as deep as the rootball and just as wide. Water the hole and let it drain.
- Gently remove your seedling and place in the hole. Replace soil and firm down.
- Water gently. Keep moist, but not wet.
- Fertilise with weak liquid fertiliser solution.

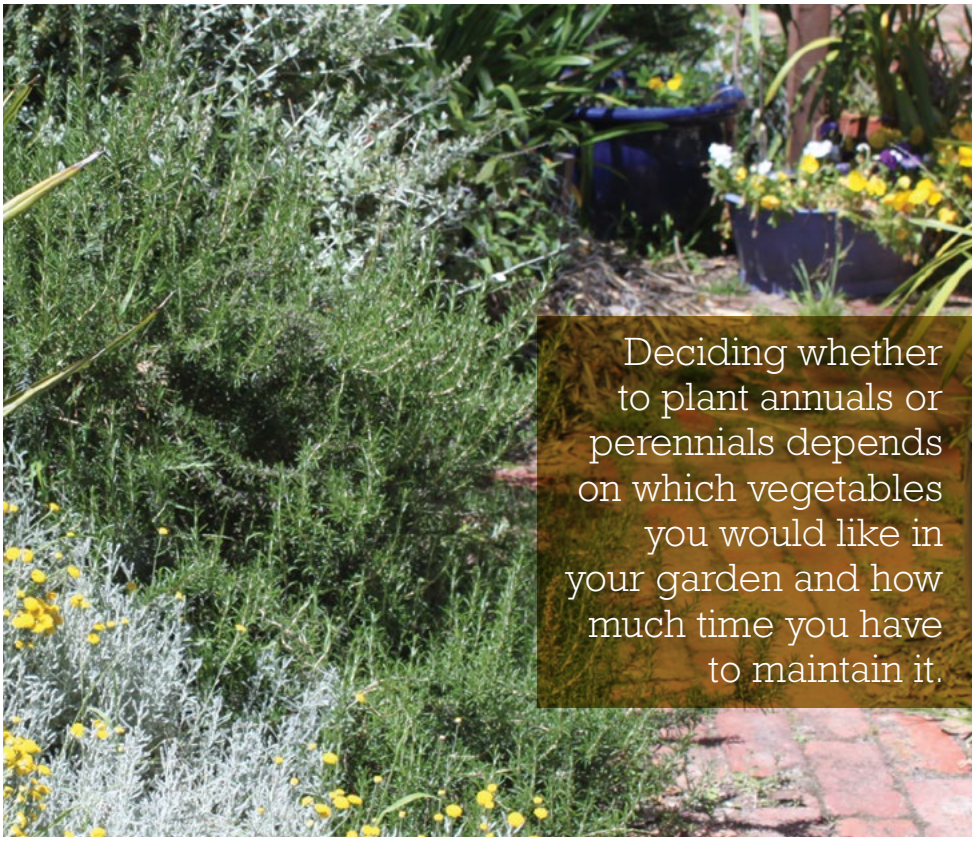


# Annuals and perennials

Annuals are plants that are grown for one season and need to be replaced the following year. This includes most of our productive crops such as lettuce, broccoli and tomato.

Sometimes annuals self-seed and you may get a new crop e.g. tomatoes. Other annuals such as parsley and chilli are productive for two years before losing productivity. Annuals are usually planted in a dedicated vegie bed because they tend to require higher amounts of water and fertiliser. Annuals also have a fast turn-around that will cause soil disturbance that may result in damage to the rootzone of permanent plants.

Perennials are plants that will grow in your garden for a number of years. They include rosemary, mint, oregano, sage, rhubarb and asparagus. Perennials can be planted in your ornamental garden beds and are best planted in autumn or spring in order to establish before the more extreme winter cold or summer heat. For more detail on growing herbs refer to page 49.



Deciding whether to plant annuals or perennials depends on which vegetables you would like in your garden and how much time you have to maintain it.

# Annual seedling planting guide

| PLANT | J | F | M | A | M | J | J | A | S | O | N | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Asian Greens* | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Asparagus | | | | ● | ● | ● | ● | ● | ● | | | |
| Basil* | ● | ● | | | | | | | | | ● | ● |
| Bean* (summer) | ● | | | | | | | | | ● | ● | ● |
| Beetroot | ● | ● | ● | | | | | | ● | ● | ● | ● |
| Broad Bean* | | | ● | ● | ● | ● | ● | ● | ● | | | |
| Broccoli | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Brussel sprouts | ● | ● | ● | ● | | | | | | | | ● |
| Cabbage/Kale | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Capsicum | | | | | | | | | | ● | ● | ● |
| Carrot* | ● | ● | ● | | | | | | ● | ● | ● | ● |
| Cauliflower | ● | ● | ● | ● | ● | ● | | | | | ● | ● |
| Celery | | | ● | ● | | | | ● | ● | ● | ● | |
| Chilli | | | | | | | | | | ● | ● | ● |
| Coriander | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | |
| Cucumber | ● | | | | | | | | | ● | ● | ● |
| Eggplant | | | | | | | | | | | ● | ● |
| Endive | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Globe Artichoke | | | ● | ● | ● | ● | ● | ● | ● | ● | | |
| Leek | ● | ● | | | | | | | | ● | ● | ● |
| Lettuce | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Onion | | | | | ● | ● | ● | ● | | | | |
| Parsley | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Parsnip* | ● | ● | ● | | | | | | ● | ● | ● | ● |
| Pea* | | | ● | ● | ● | ● | ● | ● | ● | ● | | |
| Potato | | | | | | | | ● | ● | ● | ● | ● |
| Pumpkin | ● | | | | | | | | | ● | ● | ● |
| Radish* | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Rocket | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Silver beet | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Spinach | | | | ● | ● | ● | ● | ● | ● | | | |
| Spring onion | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Sweet corn | ● | | | | | | | | | | ● | ● |
| Tomato | | | | | | | | | | ● | ● | ● |
| Zucchini | | | | | | | | | | ● | ● | ● |

*Best grown from seed

# Autumn Growing Guide

Plant as seedlings, or seeds you have propagated into seedlings, during autumn to harvest as a delicious winter crop.

**Asian Greens** (Bok Choi and Pak Choi) **and Winter Lettuce (Mignonette and Mesclun)**

- Soil pH of 6.0 to 7.0.
- Plant in full sun.
- Water frequently as these plants are shallow rooted.
- Apply manure or worm tea fertiliser fortnightly.
- Premature bolting and bitterness can be caused by damaged roots at planting, or lack of water and fertiliser.
- Harvest the outer leaves after about 6-8 weeks of growth. This will encourage more growth.
- Companion plants include bean, cabbage and pea.

**Garlic**

- Soil pH of 6.5 to 7.0 and full sun.
- Buy organic garlic bulbs with large cloves.
- Store in the fridge for a month before planting.
- Plant garlic cloves pointy end up in about 7cm of well-drained soil.
- Keep your soil moist and fertilise weekly.
- Garlic is ready for digging up when the leaves start to yellow and die off. Harvest when there are still 4-5 green leaves left on the stem.
- Withhold water for a few days prior to harvesting to promote storage life.
- Garlic should be hung to dry for about two weeks for the skins to harden.
- Companion plants include cabbage, broccoli and cauliflower.

**Broccoli, Brussel sprout, Cauliflower, Cabbage and Kale**

- Soil pH of 6.5 to 7.5. Add plenty of poultry manure and compost to the soil about five weeks before planting. At planting time add a small handful of dolomite or lime per plant.
- Plant in full sun and protect from strong wind. Stake plants if they grow top heavy.
- As the plants grow, mound up the soil around the base to provide support.
- Water deeply and consistently.
- Apply manure or worm tea liquid fertiliser weekly.
- Harvest between 10-14 weeks.
- Companion plants include bean and lettuce.

**Onion**

- Soil pH of 5.5 to 6.5 and full sun.
- Plant seedlings about 2cm deep in rich well-drained soil.
- Keep your soil moist and fertilise weekly.
- Harvest onions when the leaves wither and collapse.
- Allow two weeks for your onion to dry out after harvesting.
- Companion plants include cabbage, broccoli and cauliflower.


Spinach

**Spinach** (English and European)

- Soil pH of 6.0 to 7.0. Add well-rotted compost to the soil about a month before planting.
- Plant once the temperature has dropped below 20°C in a sunny spot that receives 3-4 hours of sun a day.
- Spinach needs lots of water and should never dry out.
- Apply manure or worm tea fertiliser every three weeks to prevent plants setting seed too early.
- Harvest after about six weeks, as soon as outer leaves are mature.
- Companion plants include cauliflower and pea.


Snow pea

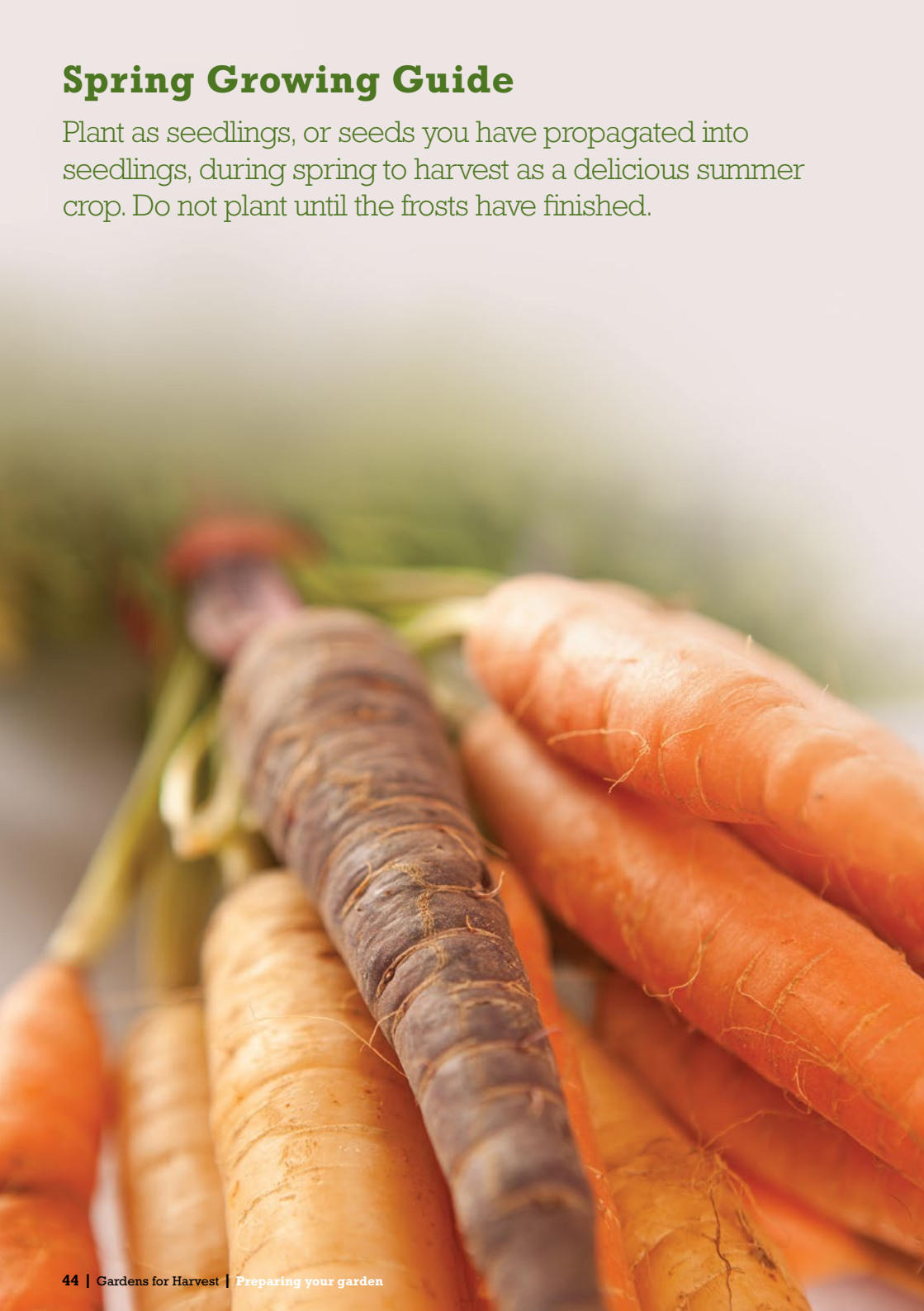

Onion

**Pea** (Snow, Sugar Snap and Shelling)

- Peas like a soil pH of 6.5 to 7.5. Add plenty of poultry manure and compost to the soil about five weeks before planting. At planting time add a small handful of dolomite or lime per plant.
- Plant in full sun and protect seedlings from any frost.
- Most peas are climbers, so provide a stake or trellis for them to climb as they grow.
- Avoid over-watering.
- You can apply manure or worm tea fertiliser every 3-4 weeks.
- Most peas are ready to harvest between 10-16 weeks. The more you pick, the more they produce.
- Companion plants include lettuce, cabbage and cauliflower.

# Spring Growing Guide

Plant as seedlings, or seeds you have propagated into seedlings, during spring to harvest as a delicious summer crop. Do not plant until the frosts have finished.



### Summer Bean

- Soil pH 6.5 to 7.5. Add plenty of poultry manure and compost to the soil about five weeks before planting. At planting time add a small handful of dolomite or lime per plant.
- Plant in full sun, but provide temporary shade cover if hot and windy.
- Most beans are climbers, so provide a stake or trellis for them to climb as they grow.
- Avoid over-watering, especially when young. Yellow leaves can be a sign of this. An occasional deep watering is best.
- Apply manure or worm tea fertiliser at flowering to promote production.
- Harvest after 12-14 weeks. Pick daily to increase yield.
- Companion plants for beans include carrot, sweet corn and cucumber.


Beetroot


Eggplant


Bean

### Capsicum, Chilli and Eggplant

- Soil pH of 5.8 to 6.8. Add plenty of poultry manure to the soil about four weeks before planting. At planting time add a small handful of dolomite or lime per plant.
- Plant in full sun, but provide temporary shade cover if hot and windy.
- Deep rooted plants, so they need regular, deep soakings.
- Harvest as the fruit ripens. Picking encourages more fruit.
- Companion plant with tomato, carrot and basil.


Chilli


Capsicum

### Beetroot

- Soil pH of 6.5 to 7.0. Add plenty of poultry manure and compost to the soil about eight weeks before planting. At planting time add a small handful of dolomite or lime per plant.
- Plant in full sun or part shade.
- Water consistently to prevent the beetroot going woody.
- The faster beetroot grows the tastier it will be. Apply manure or worm tea fertiliser weekly.
- Harvest after 4-6 weeks.
- Companion plant with lettuce and bean.

## Carrot and Parsnip

- Soil pH of 6.0 to 7.0. A deep, loose soil will produce straight vegies.
- Plant in full sun.
- Avoid over-watering.
- You can apply manure or worm tea fertiliser fortnightly. Avoid applying too much fertiliser as this will produce excessive top growth at the expense of the root.
- Plant the whole pack of parsnip seeds at the same time, because parsnips are very irregular germinators, and the seeds don't store well.
- Harvest can begin at eight weeks.
- Companion plant with cucumber, tomato, bean and lettuce.


Celery


Cucumber


Parsnip


Carrot

## Celery

- Soil pH of 5.8 to 6.8 preferred. Apply compost to the soil prior to planting.
- Plant in full sun in early spring or late summer.
- Celery has shallow roots and requires a lot of water and a weekly feed of liquid fertiliser.
- Nutrient-stressed plants will be tough and stringy.
- Harvest individual stalks as you need them.
- Companion plant with bean and cucumber.

## Cucumber

- Soil pH of 6.0 to 7.0. Mound up soil/compost mix about 40cm across and plant two seedlings per mound.
- Plant in full sun, but provide temporary shade cover if hot and windy.
- Cucumbers are essentially a vine and need support, so supply a trellis or plant next to sweet corn.
- A thirsty plant so water long and deep. Prone to fungal disease, so water via sub-surface dripline irrigation or early in the morning.
- Apply manure or worm tea fertiliser weekly.
- Ready to harvest after 6-8 weeks.
- Companion plant with bean, basil, carrot, sweet corn and lettuce.


Lettuce


Potato


Pumpkin

**Potato**

- Buy seed potato which are tubers with 'eyes'. Expose to light a week before planting.
- Plant in full sun.
- Mix compost with aged manure and straw, lay to a depth of 20cm and water. Lay out your seed potatoes about 25cm apart and cover with 15cm of the same mix. Water. When shoots begin to appear through the mix, add another 15cm of your mix and water. Keep repeating until your mound is about 60cm high. Do not use tyres as chemicals leach from the rubber.
- Water occasionally and add liquid fertiliser when flowering.
- When the lower leaves begin to yellow it's time to harvest.
- Companion planting with bean, sweet corn and eggplant.

**Pumpkin**

- Soil pH of 5.5 to 7.0. Plant in full sun.
- Pile up mound of compost and plant two seedlings. Pumpkin will send out vines that will root when they come into contact with the soil. Pumpkins need at least 1m² of space.
- Provide an ample supply of water.
- Supplementary feeding not needed if planted into compost.
- A pumpkin is ripe when the skin feels hard, the tendril closest to the fruit is dead and you knock on it and it sounds hollow. Cut off with about 10cm of stalk.
- Companion plant with sweet corn, eggplant and bean.

**Summer lettuce (Cos, Oak, Red and Green-Leaf, Rocket and Mizuna)**

- Soil pH of 6.0 to 7.0.
- Plant in full sun after the frosts have finished. Protect with shade cloth in hot weather.
- Water frequently as these plants are shallow rooted.
- Apply manure or worm tea fertiliser fortnightly.
- Premature bolting and bitterness can be caused by damaged roots at planting, or lack of water and fertiliser.
- Harvest the outer leaves after about 6-8 weeks of growth. This will encourage more growth.
- Companion plants include bean, cabbage and pea.

## Sweet Corn

- Soil pH 6.0 to 7.0. Add well-rotted compost to the soil about a month before planting.
- Full sun and protected from strong winds.
- Plant in blocks to encourage cross-pollination. Apply liquid fertiliser after planting.
- Pile up compost around the base as the corn grows to an eventual height of around 20cm. This will support the plant and increase production.
- Water frequently and deep.
- When the tassels on top of the cob become brown and shrivelled and the husk loses its gloss, they should be ready for harvest.
- Companion plant with cucumber, potato, pumpkin, carrot and bean.


Zucchini


Corn


Tomato

## Tomato

- Soil pH of 6.5 to 7.0. Add a handful of dolomite or lime per plant mixed through the soil prior to planting.
- Plant in full sun and deep in the soil up to the first set of leaves. This will encourage additional roots providing good anchorage. Add stakes or trellis to support growth. Ensure good airflow.
- Water management is important with tomatoes. Don't let the soil dry out and don't overwater. Sub-surface dripline irrigation first thing in the morning is ideal.
- Apply liquid fertiliser every 2-3 weeks.
- Pick when fruit has changed colour but is still firm and a little green. Leave them to ripen on the kitchen bench. Never put them in the fridge as this destroys their structure and flavour.
- Companion plant with sweet corn and basil.

## Zucchini

- Soil pH of 6.5.
- Plant seedlings in mounds of 3 compost to 1 soil.
- Full sun and frost free.
- Water long and deep and apply liquid fertiliser after planting and at first harvest.
- Harvest after about six weeks when about 15cm long. Cut zucchini off the vine rather than pull them.
- Companion plant with sweet corn and summer bean.

# Herbs

Grow your favourite herbs in a pot or garden bed and you will never have to throw away a half used bunch of soggy herbs again! The herbs you choose to grow depends on the flavours you like and the foods you eat.

Popular perennial herbs include rosemary, sage, chives, mint, marjoram, oregano and thyme. While parsley lasts for around two years it usually self-seeds to keep you in constant supply. Rosemary, sage, chives and thyme require full sun, an occasional water in hot weather and liquid fertiliser at flowering. Marjoram, oregano and parsley also prefer full sun, but need regular watering and liquid fertiliser at planting and flowering. Mint can be invasive so grow it in a pot in full sun or part shade. They can be quite thirsty and benefit from an occasional application of liquid fertiliser.

Two of the most popular annual herbs are basil and coriander.

### Basil

- Prefers a soil pH of 5.5 to 6.5. Add lots of compost before planting and avoid poultry manure.
- Plant in full sun, but provide shade on hot windy days.
- Keep the soil moist.
- Apply liquid fertiliser fortnightly.
- Companion plants include tomato, capsicum and chilli.

Basil

### Coriander/Cilantro

- The leaves of the plant are called cilantro, the spicy seeds coriander.
- Be very careful with these seedlings as they are quite delicate - it may be best to grow them from seeds.
- Soil pH of 6.5 to 7.5 and add compost prior to planting.
- Plant in full sun.
- Keep the soil moist. Erratic watering might make the plant stop producing its tasty leaves.
- Apply liquid fertiliser every three weeks.
- Companion plants include carrot, lettuce and tomato.

Coriander

# Berries

Berries such as strawberries, blueberries and raspberries picked straight off the plant taste incredibly good. They are also packed with healthy antioxidants.

**Strawberries** are one of the most popular berries to grow and with so many varieties available it is possible to grow them all year round. If you maintain your strawberry plant you can usually get around four years produce from each plant.

- Strawberries need to be planted in full sun or part shade.
- Prepare your soil a month or two in advance. They need a well-composted, slightly acidic soil of 6.0 to 6.5 pH. Avoid mushroom compost and poultry manure on strawberries.
- Mound up the soil to provide good drainage and space your plants about 20cm apart.
- Buy virus-free strawberry runners with healthy white roots. Remove any old roots and leaves from the crown. Plant in the top of your mound and fan out the roots over the mound before covering with soil. Ensure the crown is not buried.
- Mulch well, as good weed control around strawberries is vital. Pine needles mixed with straw will help maintain an acidic pH.
- Strawberries have a shallow root system and are prone to drying out quickly. Ensure the soil is always damp. Because you also want to avoid watering the leaves that are prone to moulds and fungus, dripline irrigation works best.
- Apply liquid fertiliser about three weeks after planting and again at flowering.
- If frost is predicted, cover your strawberries with a cloche (plastic cover).
- After harvest gently dig up your plant and remove old runners leaving only the strong, young runners. Cut back the leaves also. Replant, water and fertilise well. Continue to water and the leaves will grow back luxuriantly to feed the crown that forms next season's flowers and fruit.

Strawberry

## Raspberries

Sweet and juicy raspberries are packed with nutrients and a delicious snack for children when picked straight off the plant.

- Raspberries grow on canes that are planted out from late autumn to winter.
- They are usually sold in nurseries as bare rooted stock with little or no leaves and pruned down to around 20cm.
- Edging your garden bed can stop the plants spreading too much.
- Raspberries are usually grown on a wire trellis about 1.5m high and 2m long with 2-3 wires stretched between two well-anchored posts.
- Like most berries, raspberries prefer an acidic soil. It is a good idea to prepare your soil about two months before planting. Dig in plenty of compost and aged manure. If you have a heavy clay soil, build the beds up to improve drainage or add gypsum to open up the soil before planting.
- Plant your raspberries about 30-50cm apart facing north or north-east.
- Mulch heavily with straw to protect the surface roots in hot weather and to hold the moisture in the soil.
- Fertilise with compost, aged manure or blood and bone in autumn and early spring.
- Canes are dormant in winter and usually bare. In spring, canes grow vigorously. Some fruit may be produced on fruiting buds in the first year, depending on variety, but don't expect a significant harvest until the following year.

There are two types of raspberries:

**'Summer-bearers'** which produce fruit once a year in summer on the second year canes. This is a cane that has sprouted on the previous year's cane. Once established, you will have a plant that has second year canes as well as first year canes. The first year canes come via new shoots from the ground and are easily recognised by its lush green growth. Each year after fruiting, cut any second year cane back to the ground, leaving the new first year cane ground shoots to produce their own second year canes for fruiting the following season.

**'Ever-bearers'** which produce fruit twice a year, in summer on the second year canes and in autumn on the first year canes. These plants require less maintenance. Cut all of the plant back to the ground after fruiting each year. To produce more fruit, after a few months of rapid spring growth, you can also prune plant growth slightly to encourage more fruiting.


Raspberry

## Blueberries

Blueberry fruit is delicious and packed with vitamin C. The plant is also an attractive shrub with lantern-like pink-white flowers in spring and vibrant red autumn leaves. They are long-lived and grow from 1-2m.

To produce lots of fruit blueberries require a good chill in winter. Varieties such as Northern Highbush and Rabbiteye are suitable for Melbourne's climate.

The best time for planting is between late autumn and early spring, when plants are sold bare-rooted and are less likely to suffer from transplant shock than at other times of the year.

Location is important. Blueberries will tolerate some shade but prefer a sunny spot protected from hot summer winds.

Soil is also critical to success. Blueberries need well-drained acidic soil with lots of organic material. Prepare your soil a month or two in advance of planting and add lots of organic matter such as compost and aged animal manure. Avoid chicken manure as this has a high pH. Test your pH and ensure your soil pH is between 4.5-5.5 prior to planting.

Maintain your soil pH by occasionally adding used coffee grounds and pine needles.

If you have a heavy clay soil, build the beds up to improve drainage or add gypsum to open up the soil before planting.

Blueberries have shallow-rooted, fibrous roots that dry out easily. You need to keep them moist. Apply a deep 10cm layer of organic mulch such as straw and use dropline irrigation. Ensure the mulch is about 5cm clear of the base of the plant to prevent fungal growth such as collar rot.

Do not over fertilise your blueberries, additional compost and manure (not chook manure) through the growing season is sufficient. The liquid seaweed or fish emulsions are also beneficial. Little and often is best with fertilising blueberries.

Insect pollinators such as bees are essential for a good fruit set, so consider companion planting.

In the first year you want your plant to put its energy into root and branch growth. In the first two years prune branches by about a third in winter and remove any spindly branches at the base. Remove the flowers in spring to prevent fruit set.

From the third year onwards prune branches in winter to shape your shrub and remove dead wood.

The fruit ripens in clusters, but unevenly. They ripen over 5-6 weeks, and you need to select the largest berries in each cluster to pick. Repeat this process each week and enjoy.

Blueberry

## Planting

1. Soak your tree in a bucket of water and mild liquid fertiliser for a few hours before planting.
2. Dig a hole that's wider than it is deep and add some compost.
3. Make a small mound of soil in the base of the hole and spread the roots evenly.
4. Gently back fill the hole and water well to remove air pockets.
5. Mulch, but not right up to the trunk, as this can lead to collar rot.

Apple

# Growing fruit trees

What can be better than picking a crisp apple or sweet apricot fresh from the tree? Fruit trees also provide wonderful shade in your garden.

- All fruit trees require plenty of sun and good drainage.
- Most fruit trees prefer a neutral pH of 6.0 to 7.0.
- Prepare your soil in advance by adding lots of compost.
- Apply liquid fertiliser at bud burst and during fruiting.
- Avoid high nitrogen fertiliser e.g. poultry manure, as this produces soft sappy growth that attracts pests and disease.
- Water to the base of the tree.
- When choosing a fruit tree it is important to check whether it is self-fertile e.g. apricot, or requires another tree for pollination e.g. apple.
- Think about the space you have available and how big your tree will grow. There are many dwarf varieites now available which fruit prolifically and are effective space-savers. Prune your fruit tree to a pickable height which also makes it easier to net fruit.
- Prune back your fruit trees by a good third over winter to promote vigorous growth in spring; summer prune before or after harvest to keep a tree compact.

## Deciduous trees

Shed their leaves every year, so are best bought and planted in winter.

- Examples include apple, apricot, cherry, fig, nectarine, peach, pear and plum trees.
- Trim any damaged roots and cut back the branches by about a third before planting.
- Prune these trees in a 'vase shape', by cutting out the middle branch.
- Ask your nursery about 'winter washing' your stone fruit trees when you buy the plant.


Plum tree

## Evergreen trees

- Keep their leaves all year round, so are best bought in late winter and planted in spring when the soil is warmer.
- Examples include lemon, lime, olive, orange, mandarin and grapefruit trees.
- Before planting and in late winter, prune new branches so the tree only has three or four main branches.
- Prune the tips of the branches to keep the tree compact.


Orange tree

## Espalier trees

To espalier a fruit tree, you prune your tree of any branches at the back and front of the tree. The remaining horizontal branches are attached to a wire or trellis so your tree grows 'flat', usually along a wall or fence. This method allows fruit trees to be grown in small spaces where they are not only productive, but very ornamental. Just about any deciduous or evergreen fruit tree can be espaliered. Check with your local nursery.


Apple tree

# Beyond the vegies

A harvest garden can be so much more than a place to grow your vegetables.

# Gardening with children

Adults often speak fondly of their first gardening experiences as children, playing in the vegie patch with parents or grandparents. Spending time in nature helps children understand the world around them, provides a fun and productive hobby, and gives them an opportunity to exercise outside. Children can learn fun tasks like planting seeds, mulching and picking produce.

## Building a safe and child-friendly garden

- Give children their own space to be responsible for
- Ensure children have their own protective gear – a hat, sunscreen, gloves, enclosed shoes, wet weather gear
- Provide children with tools that are a suitable size and model safe use of tools
- Ensure that tools, equipment and chemicals are stored safely
- Teach your children to only eat plants that they have planted themselves or that they know are safe to eat.

outdoor adventures

## Great ideas for gardening with children

- Get some garden inspiration by visiting community gardens or the Ian Potter Children's Garden at the Royal Botanic Gardens Melbourne.
- Grow some interesting plants such as sunflowers, corn, pumpkins, strawberries or tomatoes.
- Grow some heritage varieties, such as purple carrots, purple broccoli, chocolate capsicums, black tomatoes, giant Russian sunflowers.
- Plant their very own fruit tree and watch their delight when they pick their first fruit.
- Make a scarecrow.
- Use recycled materials to make bird scarers that wave in the breeze.
- Make a bean teepee.
- Grow a themed garden such as a summer pizza garden with tomato, basil, capsicum, zucchini and silver beet or spinach.

# Chickens

Keeping chickens is one of the best things you can do for you and your garden. You get an entertaining pet, a kitchen waste eating machine, a garden pest patroller, a garden fertiliser producer, and they provide your family with lovely fresh eggs.

## Choosing your chooks

You do not need a permit to keep chickens, but council law means that you can only have up to five chickens. You are not allowed to keep roosters.

To determine how many hens you need, work on a ballpark figure of six eggs per hen a week. Hens lay most of their eggs in the first three years, after which the number of eggs decline. As hens prefer a flock, you would require a minimum of two hens.

There are hundreds of varieties of chickens which can be mixed and matched into a flock. You can buy them 'at the point of lay' from chicken breeders, just make sure they have been vaccinated.

### Test run

Why not try before you buy? You can rent a small coop and a few hens and see how you get on. Search the web for companies.

## Food and water

Monash residents need to provide all pets, including chickens, with access to food and water.

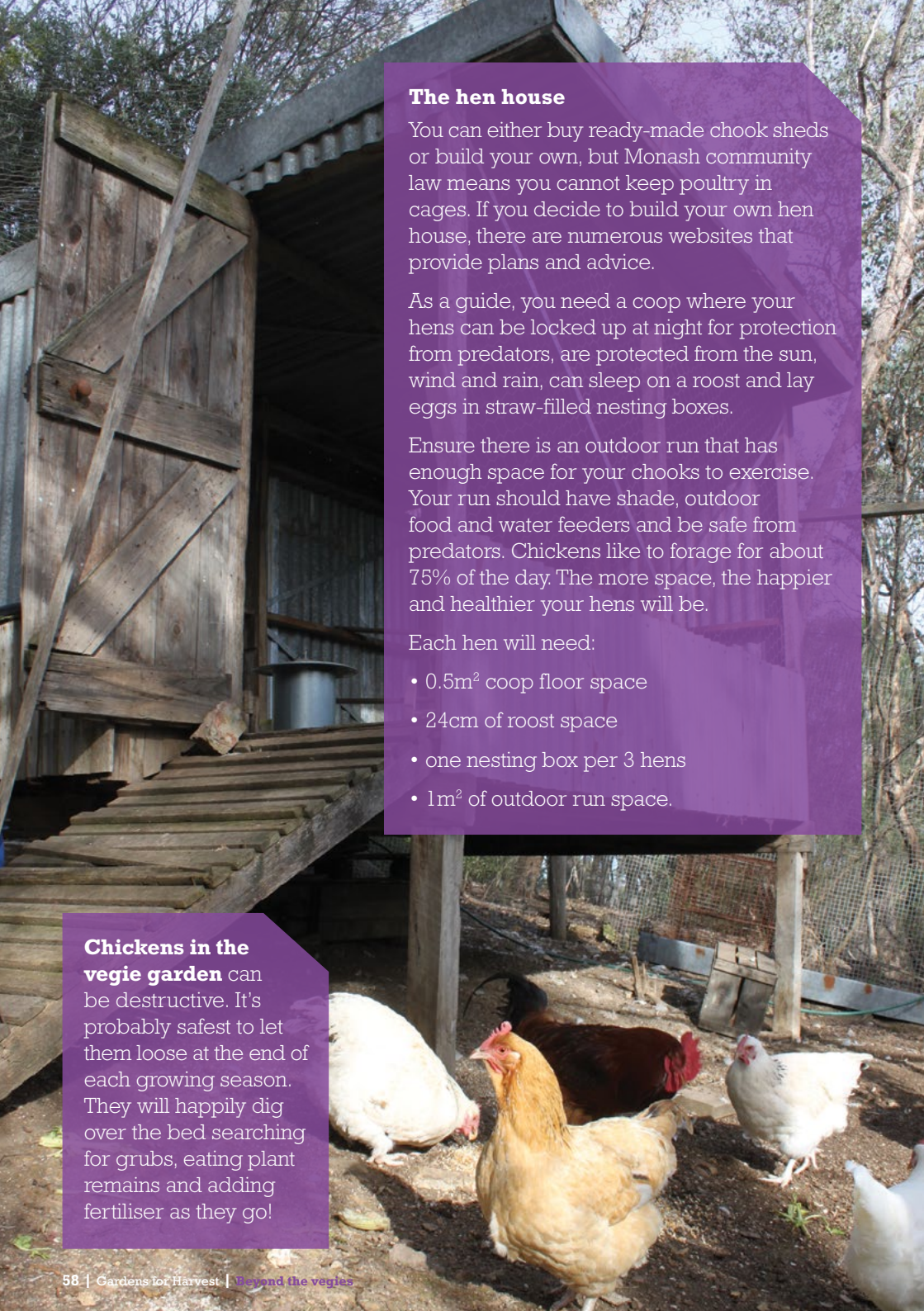
Chickens need a constant supply of fresh water. Make sure they cannot easily knock over their water container.

For a healthy diet chickens need a daily supply of:

- shell grit
- mixed seeds
- layer pellets
- greens (kitchen scraps and garden weeds).

**NEVER feed your chickens:**

- mouldy food
- dairy products
- raw meat
- onion
- avocado
- potato
- dry beans
- leaves from the potato, tomato, capsicum, eggplant and rhubarb plant.



## The hen house

You can either buy ready-made chook sheds or build your own, but Monash community law means you cannot keep poultry in cages. If you decide to build your own hen house, there are numerous websites that provide plans and advice.

As a guide, you need a coop where your hens can be locked up at night for protection from predators, are protected from the sun, wind and rain, can sleep on a roost and lay eggs in straw-filled nesting boxes.

Ensure there is an outdoor run that has enough space for your chooks to exercise. Your run should have shade, outdoor food and water feeders and be safe from predators. Chickens like to forage for about 75% of the day. The more space, the happier and healthier your hens will be.

Each hen will need:

- 0.5m$^2$ coop floor space
- 24cm of roost space
- one nesting box per 3 hens
- 1m$^2$ of outdoor run space.

**Chickens in the vegie garden** can be destructive. It's probably safest to let them loose at the end of each growing season. They will happily dig over the bed searching for grubs, eating plant remains and adding fertiliser as they go!

# Pollinators

Pollinators are insects which transfer pollen between plants, fertilising them so that they can produce flowers, fruits and crops. It is estimated that about 65% of all flowering plants need insects for pollination. Pollinators are an essential part of nature, and there is plenty you can do to encourage them to visit your garden.

### Bees

Bees have specially evolved to become the ideal pollinators. Though you might recognise the European honey bee best, there are over 1,600 species of bees which are native to Australia. They make small amounts of honey and don't live in hives, but they do still pollinate. Encouraging native bees, especially by providing them with nesting spots, is a great way to help your produce garden grow healthy and productive.

### Other pollinators

Wasps, ants and sawflies also move pollen between plants, like bees. There are over 8,000 known species of these insects which are native to Australia. Be careful when you find these in your garden, as they can have a painful sting.

Species of beetles, flies, thrips, butterflies and moths are also pollinators.

Provide water that is accessible for invertebrates that can't swim (they need to stand on the edge, a plant or floating material). Plant a range of plants that flower across the seasons.

### Encouraging pollinators

- Plant a diverse range of flowering plants in your garden.
- Reduce your use of chemical sprays, which can kill pollinators as well as pests.
- Flowering plants like Sweet Bursaria, Thryptomene, Tea-tree and Purple Coral-pea are full of nectar and so very attractive to native pollinators.
- Create spots in your garden where pollinators can nest – dead wood or plant stems, small areas of bare sandy ground, leaf litter patches, or bee hotels!

Hover fly on Bulbine Lily

## Build your own bee hotel

There is no one way to build a bee hotel for native bees, so you can get creative! You will need natural materials with a hole of varying size through the middle, like twigs, plant stems, garden canes or bamboo.

Densely pack the materials inside a timber box which has one open side. The box does not need to be very large, or any deeper than 15cm. It does need to have a sloping roof with a generous overhang to protect inhabitants from the weather. The hotel must be placed in a warm, sunny and sheltered spot between 1 and 2 metres above the ground – either attached to a wall or hanging from a pole.

Rather than making one large bee hotel, you can also make many smaller ones for different insects. Tie the hollow sticks together tightly, using a cable tie for example, and place the bundles around your garden as little spaces for insects to live in.


Bee hotel


Chequered Cuckoo-bee (MJS)


Leafcutter bee (MJS)


Blue-banded Bee (MJS)

# Further information

## Connect with other food growers in your area

## Community gardens

Community gardens are a great place to meet new people and share knowledge and experience. They are also ideal if you have limited space to grow food at home. For a reasonable membership fee you have access to your own plot. Community gardens are run by a committee of management that is made up of members who ensure the gardens run smoothly.

**Ashwood High School Permaculture Food Garden**
50 Vannam Drive,
Ashwood
Phone: 0425 758 209

**Chadstone Food Forest**
43 Batesford Road,
Chadstone
Phone: 9807 2625 or 9807 0570

**Dixon House Community Garden**
2 Dixon Street,
Clayton
Phone: 9543 8911

**Monash University Permaculture Food Garden and Community Farm**
Student-run permaculture club
Email: permaculture@monashclubs.org

**Mackie Road House Community Garden**
36-42 Mackie Road,
Mulgrave
Phone: 9548 3311

**Power House Community Garden**
54 Power Avenue,
Ashwood
Phone: 9807 3589

**Waverley Community Gardens**
Salisbury Reserve,
Salisbury Road,
Ashwood
Phone: 0425 758 209



## Community gardening groups

**Waverley Garden Club**
47 Miller Crescent,
Mount Waverley
Phone: 0418 110 345

**SVJ Green and Brown Thumbs Garden Club**
23 Police Road,
Mulgrave
Phone: 9546 0327

**Monash University Permaculture Club**
Student-run permaculture club
Email: permaculture@monash.org

## Neighbourhood houses

Plenty of houses run workshops and special interest groups - contact them to find out if they have any gardening groups to join!

**Power Neighbourhood House**
54 Power Avenue,
Ashwood
Phone: 9807 3589

**Amaroo Neighbourhood Centre**
34 Amaroo Street,
Chadstone

**Dixon Neighbourhood House**
2 Dixon Street,
Clayton
Phone: 9543 8911

**Wadham House**
52 Wadham Parade,
Mount Waverley

**Kerrie Neighbourhood House**
36 Kincumber Drive,
Glen Waverley
Phone: 9887 6226

**Mount Street Neighbourhood House**
6 Mount Street,
Glen Waverley
Phone: 9803 8706

**Waverley Community Learning Centre**
5 Fleet Street,
Mount Waverley
Phone: 9807 6011

**Mackie Road Neighbourhood House**
36-42 Mackie Road,
Mulgrave
Phone: 9548 3311

**Notting Hill Neighbourhood House**
37 Westerfield Drive,
Notting Hill
Phone: 9561 0114

## Where to find out more

If you're interested in learning more about gardening, libraries have valuable resources that you can access. Your local nursery is also a great place to find gardening experts who can answer your questions.

### LIBRARIES

**Clayton Library**
9-15 Cooke Street,
Clayton
Phone: 9541 3120

**Glen Waverley Library**
112 Kingsway,
Glen Waverley
Phone: 9518 3030

**Mount Waverley Library**
41 Miller Crescent,
Mount Waverley
Phone: 9518 3950

**Mulgrave Neighbourhood Library.**
36-42 Mackie Road,
Mulgrave
Phone: 9518 3502

**Oakleigh Library**
148 Drummond Street,
Oakleigh
Phone: 9518 3970

**Wheelers Hill Library**
860 Ferntree Gully Road,
Wheelers Hill
Phone: 9265 4877

### WEBSITES

**Sustainable Gardening Australia**
sgaonline.org.au

**Gardening Australia**
abc.net.au/gardening

**The Diggers Club**
diggers.com.au

**Organic Gardener**
organicgardener.com.au

**Urban Food Gardener**
urbanfoodgardener.com

**Penny Woodward**
pennywoodward.com.au

**Victorian Bee Keepers**
vicbeekeepers.com.au

**Garden Insects**
backyardbuddies.org.au/explore/bugs-and-insects

**Garden Pest ID**
annettemcfarlane.com/pestID

# Glossary

**Acidic soil:** soil with a pH less than 7.0.

**Alkaline soil:** soil with a pH greater than 7.0.

**Bolting:** when a vegetable prematurely flowers and seeds due to growing conditions.

**Bud burst**: period of rapid new growth, usually in spring.

**Canopy:** the area covered by the plant's leaves.

**Cloche:** plastic cover to protect plants from frost.

**Cross-pollination:** the transfer of pollen from one variety of plant to a different but related plant (e.g. two different varieties of apple) to ensure fruit.

**Deciduous:** plants that shed their leaves at the end of the growing season.

**Dolomite or Lime:** mineral fertilisers and soil conditioners that raise pH.

**Drainage:** the ability of the soil to retain or shed water. Good drainage enables the water to flow easily through the soil. Poor drainage results in water pooling in the soil creating soggy ground.

**Dwarf trees:** grow much smaller than the normal variety.

**Espalier:** to prune and train a plant to grow flat against a support.

**Evergreen:** plants that retain their leaves year round.

**Fertiliser:** material added to the soil to improve the supply of nutrients and promote plant growth.

**Gypsum:** a mineral soil conditioner that adds calcium to the soil but does change its pH.

**Organic:** material derived from plant and animal matter.

**Organic growing:** growing plants using only natural fertilisers and pest control.

**Organic matter:** any material derived from something once living.

**pH:** a measure of acidity or alkalinity of a solution or soil.

**Plant caddy:** flat metal or wood disk with locking castor wheels attached.

**Pollinators:** something (e.g. an insect) that fertilises plants by carrying pollen from the male to the female parts of a flower.

**Repurpose:** to use something other than its intended original use.

**Secateurs:** small hand-held garden scissors used for cutting plant stems.

**Self-pollination:** male and female occur on the one plant.

**Sleepers:** a support system to hold soil.

**Sulphur (Sulfur):** a mineral fertiliser that lowers pH.

**Synthetic fertiliser:** made artificially from non-natural materials.

**To dig over:** to turn over the soil with a shovel mixing soil and compost.

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