

Gardennote

Growing vegetables and herbs in home gardens in Western Australia

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There are many reasons why people grow vegetables and herbs in their home gardens. These can be picked at the optimum stage for best flavour and are fresher than bought vegetables. Surplus produce of many vegetables can also be frozen or processed and kept for many months. Producing your own vegetables requires some knowledge and skill, but is not too difficult. Gardening is therapeutic and provides healthy exercise. Growing vegetables helps to provide a balanced diet and saves on food costs. Many vegetables can be grown without using pesticides and home gardeners know exactly how their vegetables have been grown. Some vegetables, such as lettuce, parsley and silverbeet, are ornamental and can be incorporated into the main garden. Unusual vegetable varieties, that are not available in shops, can also be grown.



Good nutrition, sufficient water and sunlight are the basic requirements for healthy vegetables.

This Gardennote outlines the basic techniques for growing healthy vegetables and should be read in conjunction with Gardennotes 124 and 126. These deal with the main pests and diseases of vegetables in the home garden. See Bulletin 4629 for detailed information on growing vegetables in Western Australia, on the following website: http://www.agric.wa.gov.au/content/hort/veg/cp/bull4629_part1.pdf

Planning and site selection

Choose a protected, well drained, site which has no known history of nematodes and other soil diseases. The site should be protected from wind and animals.

The pH of the soil (by the water system of measurement) should be between 6 (slightly acidic) to 7 (neutral). Nutrients are more available in the soil at this pH range. Soils that are too acidic (below pH 5.5) should be limed. Sulphur can be applied to soils that are too alkaline (more than pH 7.5). Determine the pH by using a testing kit, which is relatively inexpensive (See Gardennote 174).

Loamy soils are best for gardening, but sandy soils can be improved annually by incorporating organic matter, animal manures, or compost at 2.25 kg/m² (3 L/m²) in the top 15 to 20 cm of soil.

The water-holding properties of sandy soils can be improved by incorporating clay or loam soils. Although expensive, proprietary water absorbent gels can also be used to help to retain water in sandy soils (See Gardennote 232).

It may be necessary to apply a proprietary wetting agent to sandy soils every year, especially if the soil remains dry after watering.

Buildings and evergreen trees can cause excessive shade in gardens, especially in winter. Vegetables need at least six hours sunlight per day. Tall growing vegetables such as asparagus, sweet corn and staked crops (runner beans, snow peas and tomatoes) should be planted at the southern end of the bed to avoid shading of small plants.



Make sure that vegetables, which need support do not shade smaller plants.

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Where vegetables have sufficient light, but are still affected by root competition from surrounding trees and shrubs, a proprietary impervious barrier, 400 to 500 mm deep and 25 mm above the soil surface, should be installed facing trees and shrubs.

Examine the data from your nearest weather station (see www.bom.gov.au/). Frost and low temperatures will adversely affect many vegetables. High temperatures can be damaging in summer, especially in northern areas.

A greenhouse can be used for raising seedlings and growing warm season crops out-of-season. Plants can be grown in greenhouses in pots or in soil. With the latter, soil diseases can become a problem after a few years. In this case, a hydroponic system can then be used. This involves growing plants in a media or in bare channels without soil. Plants such as basil, beans, capsicums, Continental/Lebanese cucumbers, eggplant and tomatoes are especially suited to growing in greenhouses. Plants grown in greenhouses have less pests and diseases and higher yields and quality compared with plants growing outdoors.

Protected cultivation (overhead and side) using shade-cloth can also be used throughout the year. This will moderate temperatures and reduce damage from wind and radiation. The type of shade cloth should reduce the light intensity by only 20 to 40 per cent and should not be too dense (over 50 per cent of light reduction).

Vegetables can be grown in cylindrical or round corrugated steel tanks, coated with zinc, which can be installed to fit into any small garden area. The tanks should be less than 2.0 m in diameter and less than 1.0 m high. Well-drained soil can be placed at the bottom and the top 40 to 50 cm filled with a mixture of compost, potting mixture, loamy soil and sheep manure or granulated poultry manure. A tank provides a well-drained area with good soil/media which is easily accessible, especially for people with bad backs. Vegetables in tanks are less subject to attack from animals and are more easily protected from snails and slaters.

Using a good potting mixture, vegetables can also be grown in pots and hanging baskets. A proprietary soil moisture gel can be applied to these containers to help with moisture retention.

Determine how many plants of each variety you need for your families' needs (see Bulletin 4629).



Recycled water tanks filled with rich, disease-free soil can be used to grow healthy vegetables. Managing raised beds like these causes less back strain.

Main vegetables and herbs, suitable for Western Australia

Vegetables and herbs must be grown in the right season. The table below shows the main growing times, (also see Bulletin 4629). Warm season vegetables are mainly planted between September and January in southern areas of the State, but are planted from January to August from Carnarvon northwards.

All seasons	All seasons	All seasons
Asparagus*	Spring onions	Broad beans
Beetroot	Silver Beet	Brussels Sprouts
Broccoli	Spinach	Celeriac
Cabbage	Thyme*	Coriander
Carrots	Warm Season	Endive
Cauliflowers	Basil	Fennel
Celery	Beans	Garlic
Chives*	Bitter melon	Kale
Choy sum	Capsicums/chillies	Leek
Globe Artichokes*	Choko*	Onions
Jerusalem Artichokes*	Cucumber/gherkins	
Lettuce	Eggplant	Potatoes
Marjoram*/oregano*	Mint*	Spinach
Mizuna	Okra	Swedes
Pak choy	Pepino	Turnips
Parsley	Pumpkin/butternut	Wombok
Parsnips	Rockmelons	
Peas/snow peas	Sweet corn	
Radish	Tomato	
Rhubarb*	Water chestnuts*	
Rosemary*	Watermelons	
Sage*	Zucchini/Squash	
Shallots		

*perennial crops

Some crops are affected by day length. These are planted at a cool time of the year and need increasing daylight hours to produce their crops. For instance, broad bean (seeds), garlic (cloves) and brown onion (seeds) are planted in April/May, March/April and June to September, and harvested in September to October, October to December and February to March respectively.

Establishment

Seed should be stored in a cool place. Seed of some varieties are viable for only 1 to 2 years. Do not save seed from hybrid varieties as they will not be true to type.

Most vegetables and herbs can be grown from seeds planted directly in the soil at the right depth (see seed packet label). Some vegetables, such as broccoli, cabbage, capsicums, cauliflower, eggplant and tomatoes are initially grown from seeds in small cell-packs or pots and then transplanted. Some vegetables, such as cucumber, lettuce, melons and silverbeet can be planted either from seed or transplants.

Raise your own transplants until they are sturdy, but not too tall, or buy plants from a reputable source. Plants should be raised in a recommended potting mixture. This produces good growth and allows transplants to be easily removed from their cells without the root mass falling apart.

Before transplanting, remove any protective shade cloth and 'harden' the plants in the open for 2 to 3 days. Transplant seedlings in the evening and water-in sufficiently. A transportable plastic tunnel or cloche can be used in winter/early spring, or loosely installed shade-cloth used in summer, to give better establishment of plants for the first few weeks.



Trickle irrigation supplies water directly to the transplants without encouraging disease through excessive wetting.

Most perennial vegetables (see Table), can be propagated by divisions from the main plant. Rosemary and pepino are propagated by cuttings. Choko is grown by planting the whole fruit. Potatoes, Jerusalem artichokes and garlic are propagated from tubers or cloves.

Do not crowd your vegetables (see Bulletin 4629). Space and later thin according to instructions on the packet. Crowded vegetables provide more favourable conditions for pests and diseases. Some vegetables such as runner beans and tomatoes are grown on stakes.

Growing

Water vegetables every one to three days, depending on season, rainfall and a hand test for soil moisture. Water plants in the morning before 9 am. Avoid evening watering, as diseases thrive in moist conditions.

Use drip or sprinkler irrigation or water by hand on non-rostered days. Do not over-water, or let the soil dry out. Drip irrigation gives the most efficient use of water. Irrigation is more efficient if the soil is mulched to a depth of 5 to 10 mm with organic matter, black plastic mulch or newspaper topped up with sawdust. This will also suppress weeds. Ensure the mulch layer does not touch the plant base as this can encourage rots.



The combination of trickle irrigation and mulch is a step towards optimising water use.

Public water supplies usually have a suitable quality with less than 500 ppm total soluble salts. Garden bores usually have a higher salinity. If greater than 1000 ppm of total soluble salts, some vegetables will have lower yields and quality and salt tolerant vegetables such as asparagus, beetroot, broccoli and tomatoes will give the best results (see Gardennote 194). The quality of water decreases progressively as the salinity increases above 1500 ppm of total soluble salts. This poor quality water should not be used for growing vegetables.

In general, apply a complete NPK fertiliser at 50 g (one handful)/ square metre every 10 to 14 days followed by a light watering to avoid leaf-burn. A complete NPK fertiliser includes the main nutrients (nitrogen, phosphorus and potassium), usually all of the medium nutrients (calcium, magnesium and sulphur) and most or all of the trace elements, (boron, copper, iron, manganese, molybdenum and zinc). Sheep manure/ cow manure and granulated poultry manure also give good results when applied at 0.6 kg/square metre and 0.2 to 0.4 kg/ square metre respectively. They are slow acting and supply lower amounts of nutrients than a NPK fertiliser, but also add useful amounts of organic matter. Poultry manure is quicker acting. To reduce flies, it should only be used in winter, at 1 kg/square metre.

A soluble NPK fertiliser can also be applied weekly through the irrigation system, or with a watering can onto the soil and leaves of plants.

Slow release fertilisers can be used for plants growing in containers.

Weeds, pests and diseases

To avoid the build up of pests and diseases on the same ground, do not successively crop closely-related plants in the same area. Aim for a break of at least 3 years before planting closely-related plants on the same ground.

Avoid the use of strong pesticides which will kill the natural enemies of insect pests such as parasitic wasps, ladybirds, lacewings, lizards and frogs.

Hoe weeds to a shallow depth in and around your vegetable garden, especially when the vegetables are small. Weeds compete with plants for water, nutrients and light and can harbour pests.

Infected plants should be placed into rubbish bins and should not be composted.

Soil pH and plant health in the home garden. Gardennote 174. Department of Agriculture and Food.



Interplanting vegetables and aromatic herbs (companion planting) discourages build up of insect pest, which thrive in monocultures

Acknowledgement

Photos were taken at Fremantle Environmental Resource Network (FERN) and Kensington Secondary School.

Further reading

Vegetable growing, a guide for home gardeners in Western Australia., Bulletin 4629, Department of Agriculture and Food. (Out of print, only available on website: http://www.agric.wa.gov.au/content/hort/veg/cp/bull4629_part1.pdf)

Main insect pests of vegetables in the home garden. Gardennote 126, Department of Agriculture and Food.

Main diseases of vegetables in the home garden. Gardennote 124, Department of Agriculture and Food

Water quality in home gardens. Gardennote 194. Department of Agriculture and Food.

Soil conditioning reduces pests and diseases in the home garden. Gardennote 232. Department of Agriculture and Food.

Seen something unusual?

Exotic pests are a concern for the citrus industry as many citrus pest insects established in the Eastern States are not present in Western Australia. Please report anything unusual to the Pest and Disease Information Service.

When sending or delivering samples the following information is required:

- Collectors name, location (where the specimen was found), full address, telephone number and e-mail address, description of the damage and date collected.

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