

CROP ROTATION

for the home and community gardener



Crop rotation

Crop rotation moves different types of vegetable through the same garden bed over time.

These are annual or biennial vegetables that go through their lifecycle, from seed to seed, within one or two years.

...you need to know what plants are related to each other...

Why rotate vegetables?

Avoid plant disease

- Vegetables are rotated through a garden bed to reduce infection by plant diseases carried in the soil. Plants affected are usually those in the same botanical family, such as tomato and potato, which are both members of the *Solanaceae* family.

Maintain plant health by reducing nutrient loss

- Different plant types, such as leafy green vegetables or root crops, may make use of different nutrients in the soil. Continual cultivation of the same crop in the same place in the garden may, over time, result in nutrient deficiencies in the plants unless soil fertility is maintained in other ways. It may help to grow tomatoes every 4-5 years, brassicas every 3-4 years and bean every 3 years, only once in the same garden bed.
- Crop rotation helps our plants to grow strong and healthy. Planting a different type of crop in the following growing season – such as a root crop (eg. potato) after a leafy green (eg. silverbeet) – reduces the likelihood of nutrient overuse and depletion.



A gardener thins leafy green annual vegetables that have been planted into a composted and mulched garden bed.



Garden beds planted to leafy green, fruiting and legume vegetables

A process over time...

In crop rotation, different types of plants are alternated through the same garden bed over time:

- there are different types of crop rotation, such as:
 - **rotation by plant type:**
 - legume* (peas and beans) then
 - fruiting vegetable* (eg. capsicum) then
 - leafy green vegetable* (eg. lettuce, cabbage) and,
 - finally, *root crop* (eg. potato)
 - **rotation by plant family:**
 - set up eight beds with these plant families:

Brassicaceae (cabbage, cauliflower, broccoli, brussels sprouts, kohlrabi, radish, swede, turnip, rocket, mustard greens, mizuna, bok choy)
Solanaceae (tomato, capsicum, potato, eggplant)
Fabacaceae (broad bean, bean, peas)
Cucurbitaceae (cucumber, squash, pumpkin, zucchini, watermelon, rockmelon)
Apiaceae (carrot, celery, coriander, dill, fennel, parsnip, parsley, mitsuba)
Chenopodiaceae (silver beet, beetroot, spinach)
Asteraceae (endive, lettuce, salisfy, globe artichoke, jerusalem artichoke, sunflower)
Amaryllidaceae (onion, shallot, leek).



The easy four bed crop rotation system...

The best way to learn about crop rotation is to start simply, with the four bed **rotation by plant type**.

First

Prepare the soil for planting either by the no-dig, sheet mulch, double-dig or Biointensive garden bed preparation method.

Ensure the soil is loosened to allow air and water to move through it and that it has plenty of compost added to provide nutrients for the vegetables.

Next

Plant a bed of legumes, then leafy green, then fruiting vegetable, then finally root crops in four separate beds. Next season these crops will be moved into the following bed.

<p>GARDEN BED 1 PLANT LEGUMES – the pod of which we eat. These will grow in soil of average fertility. They will leave traces of nitrogen in the soil which will be used by the crops that succeed them.</p>
<p>GARDEN BED 2 PLANT LEAFY GREEN VEGETABLES – those of which we eat the leaf. These need high levels of nitrogen to grow fast and sweet.</p>
<p>GARDEN BED 3 PLANT VEGETABLES THAT PRODUCE EDIBLE FRUITS. These require a humus-rich soil with a balanced fertility.</p>
<p>GARDEN BED 4 PLANT ROOT VEGETABLES – those that produce an edible root, tuber or rhizome (the underground parts of the plant). These require less of the nutrient nitrogen, but more potassium for good root growth.</p>

<p>1. LEGUME VEGETABLES beans – bush and climbing (warm season) peas – dwarf and climbing (cool season) broad beans (cool season)</p>
<p>2. LEAFY GREEN VEGETABLES lettuce chicory silverbeet endive chard spinach cabbage chinese greens celery</p>
<p>3. FRUITING VEGETABLES tomato cucumber chilli eggplant capsicum squash corn pumpkin melon</p>
<p>4. ROOT VEGETABLES potato turnip radish swede onion oca carrot yacon beetroot jerusalum artichoke</p>

Next planting season, rotate crops by planting them into the following garden beds as shown by the direction of the arrows.

PERENNIAL CROPS – those that take more than one or two years to complete their life cycle – are planted into a separate garden bed

Move the last crop type to the bed at the other end of the garden

USING FALLOW AND GREEN MANURE (slash & mulch)...

Some organic gardeners improve the soil by:

- 'resting' the soil in a garden bed for a growing season, producing no crops from it for that time although they may add compost, so giving the soil time to build up nutrients; you will need to make an additional 'fallow' bed
- planting a 'green manure' crop such as a legume or a legume-fibrous grass combination, like vetch and oats. These are grown then slashed just on flowering and left as mulch or turned into the soil to add organic matter, to increase nutrients and help retain moisture in the soil.

REFERENCES

Green Harvest, organic garden supplies: www.greenharvest.com.au
Handreck K, 1993, *Gardening Down-Under*; CSIRO, Australia
The Home Vegetable Garden; 1991, NSW Agriculture and Fisheries; NSW Australia

STAY WELL, STAY HEALTHY...

Compost contains living organisms that, on rare occasions, may cause illness. Precautions include:

- moistening compost to avoid micro-organisms becoming airborne
- wearing gloves to protect broken skin
- washing hands after handling compost
- wearing a dusk mask if you suffer from asthma or respiratory disorders
- if you handle animal manure, such as found in stable sweepings, consider vaccination against tetanus
- protect yourself from sunburn with suncream and hat
- drink plenty of water while gardening.



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