



## Growing snow peas and sugar snaps in Western Australia

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Peas (*Pisum sativum*) are in the legume family (Fabaceae). Three main types are grown in Western Australia. The newer types of pea are the snow pea and the sugar snap pea. These differ from the traditional garden pea, as they have less fibre in the pods and both the pods and peas (seeds) may be eaten whole.

They produce better yields and quality under higher temperatures, compared with garden peas. They are a good source of fibre, vitamin A and vitamin C. They may be eaten raw, lightly boiled, steamed or used in 'stir-frys'. Snow peas are the main type of fresh pea grown in Western Australia, and sugar snap peas are mainly grown in home gardens. Snow peas are sweet and crisp and popular in Asian cooking. The shoots from established plants may also be used for Asian cooking and in salads.

The snow pea (*Pisum sativum* var. *Macrocarpon*) is known by this name in Australia and the USA, but in England and France, it is called 'mange-tout', which means 'eat-all'. The main area of production in Western Australia is in Wanneroo. Including imports, about 500 t of snow peas are marketed per year through Market City, Canning Vale. The pod is flat and is eaten before the seeds develop and start to swell.

The sugar snap pea (*Pisum sativum* var. *saccharatum*) is a pea which snaps like a green bean. The edible pods have thick walls and are sweet. Unlike the snow pea, the sugar snap pea is picked more mature and is fully rounded.

With the traditional garden pea, the pod is not eaten and the peas are frozen, canned or eaten fresh. This type is mainly grown in the south-west for processing. About 50 t of fresh garden peas are marketed per year through Market City, Canning Vale. Greenfeast and Early Crop are common bush varieties.

Pea sprouts have become popular in the past 10 years, especially in Asian cooking and are falsely marketed as 'snow pea sprouts'. They are grown under protected soil-less cultivation with or without a special media

### Climate

Snow peas and sugar peas can be produced throughout the year in the Perth area, but produce best yields and quality in spring and autumn. Temperatures above 30°C will cause poor pollination, early maturity and lower yields.

Cold temperatures will cause curled pods. The plants are not affected by frost, but this may damage flowers and pods.

### Soils

Peas thrive on a wide range of soil types, as long as the soil is well drained. The ideal pH range is 6.0 to 7.0 (water system of measurement). The minimum soil temperature for growth is 10°C. Lime if the soils are too acid and below pH 5.5 (water system of measurement).

### Varieties

Cultivars can be either the bush type which are usually grown without a trellis or the tall type. The latter are mainly grown in Western Australia and require trellising, as they may grow to 2 m high.

There are several commercial varieties of snow peas and sugar snap peas. Check with the suppliers for new varieties. Dwarf Oregon is a common variety of snow pea in the Perth Metropolitan Area and grows to 1.0–1.8 m high. Growers can keep their own seeds, as there are no hybrids, but seeds are cheap and are usually purchased.

### Spacing

Peas are sown directly into the soil. About 10 kg of seed is needed for 1000 square metres. Sow seeds 2 to 3 cm deep. Spacing within the rows should be 7 to 10 cm. The distance between rows of bush varieties should be 60 to 70 cm. For trellis production of tall varieties, rows should be 1 to 1.5 m apart. Plants are spaced wider in winter to reduce diseases.

### Trellising

Snow peas are vigorous plants and trellising is necessary to manage the growth, to keep the pods off the ground and to facilitate harvesting. Trellising is constructed using 50 to 100 x 25 to 50 mm posts every 6 to 10 m and a strainer post at each end. Two tie wires or strings are then run at vertical intervals of 20 to 40 cm to support the vines as they grow. Growers may have three to seven tiers of pairs of wires or strings, which are pulled tight on each side of the plant so they are only about 5 cm apart. The tops may be pinched out if they are too high.

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## Fertilisers

Apply the following rates of magnesium and trace elements to the soil before planting:

50 kg/ha magnesium sulphate to supply magnesium;

20 kg/ha manganese sulphate to supply manganese;

18 kg/ha borax to supply boron;

18 kg/ha iron sulphate to supply iron;

18 kg/ha copper sulphate to supply copper;

18 kg/ha zinc sulphate to supply zinc; and

2 kg/ha sodium molybdate to supply molybdenum.

The use of compost at up to 50 cubic metres per hectare to other crops in the rotation will be beneficial. It will supply organic manure, add nutrients and help to retain moisture in the soil.

Before planting, apply double superphosphate at 0.6 t/ha. Levels of double superphosphate can be reduced if a soil test shows that phosphorus levels are high. Double superphosphate is preferred to superphosphate, as the latter contains higher levels of cadmium, which is a toxic heavy metal.

Peas are a legume crop, and so are capable of manufacturing their own nitrogen, but to do this the seeds need to be inoculated with a suitable *Rhizobium* bacterium. However, growers do not do this in practice.

One week after planting, apply urea at 30 kg/ha or ammonium nitrate at 40 kg/ha, plus sulphate of potash at 20 kg/ha and continue at weekly intervals. If too much nitrogen is applied, growth can become vegetative and poor flowering and pod set may result.

It is recommended that nutrient analyses are made of the soil and irrigation water before planting, plus one to two analyses of the youngest mature leaves after planting. This will enable some adjustments to the fertiliser program and provide information on nutrients that are deficient or toxic. Some of the suggested nutrients in the programs in this publication may be deleted or reduced, if it is obvious that they are sufficiently high in the irrigation water and soil, including sources from compost and fertilisers from previous cropping.

Do not apply excess fertilisers, because nitrogen, phosphorus and potassium are easily washed through sandy soils by rainfall and irrigation. This may lead to groundwater pollution in rivers and estuaries.

## Irrigation

High level sprinklers are mainly used for irrigation in the Perth area. Drip irrigation is also suitable for snow peas. Peas must be kept well-watered, particularly at flowering and pod development.

## Pests

The pests most likely to damage pea crops are thrips (spotting of pods), *Heliothis* spp. caterpillars (leaves and pods), redlegged earth mite (base of stems and young leaves), two spotted mites (leaves), aphids (leaves), thrips (pods), cutworms and root knot nematodes (roots).

## Diseases

The main diseases that affect peas are downy mildew, powdery mildew, black spot on the leaves and *Fusarium* root rot (roots) and *Rhizoctonia* (base of stem). There should be an interval of three years between successive pea crops, in order to reduce root diseases.

## Weeds

There are several herbicides registered for green peas, but these are not registered for snow peas and sugar snap peas. These appear to be more sensitive to herbicides and it is therefore necessary to weed by hand.

## Harvesting

Peas are self-pollinated and snow peas are harvested approximately 10 days after flowering.

Harvesting commences at 8 to 12 weeks after planting and may continue for 8 to 10 weeks. Pods may average 7 g in weight. Pickers can harvest approximately 11 kg per hour. This may take longer in wet weather in winter, as the old flowers may stick to the pod. Yields of snow peas range from 2 to 7 t/ha.

Snow peas are harvested every two days when the pods are flat, without any development of seeds and are 7.5 to 10 cm long and 2.5 cm wide. Old pods should be picked and discarded.

Sugar snap peas are harvested when the pods are up to 7.5 cm long and the seeds are almost at full size. These may be harvested for four to six weeks. A good picking rate is about 20 kg per hour per person.

## Marketing

Pods of snow peas and sugar peas may be marketed in 22 litre containers, or cartons, or polystyrene containers. After they have been pre-cooled to 2°C, they may also be prepacked into polystyrene trays of varying sizes from 175 g to 2 kg and covered with plastic wrapping. Snow pea shoots are tender and must also be kept cool.

Local production is lower in late winter and early spring and there are large imports of fumigated snow peas from Zimbabwe and South Africa at this time. These are of good quality and, unlike Western Australian production, they are trimmed at both ends, as they have cheap labour.

Snow peas may be stored at 0 to 2°C and 90 to 95 per cent relative humidity for up to one to two weeks in a high humidity coolroom.