

Snow peas and sugar snap peas

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INTRODUCTION

Three main strains of the garden pea (*Pisum sativum*) are grown in Australia. The green pea is grown for shelling, the peas being frozen, dehydrated, canned or eaten fresh. The other two strains are the snow pea and the sugar snap pea. These are known as edible podded peas because they do not have the same cross fibre in

the wall of the pod as the common garden pea and can be eaten whole.

The **snow pea** (*Pisum sativum* var. *macrocarpon*) is a distinct botanical cultivar or subspecies of *Pisum sativum*. The pod is slab sided and is eaten before the string develops and the peas start to swell.

Demand for snow peas and sugar snap peas has grown steadily in recent years as consumers use them increasingly to add appeal and value to Asian and traditional meals.



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The modern **sugar snap pea** is the progeny of a cross between a snow pea and an unusual pea that was tightly podded with thick walls. The cross was made in the late 1960s by a Gallatin Valley (USA) plant breeder, Calvin Lamborn. The result is a pea that breaks or snaps like a green bean; the pods have thick walls, are sweet, and are edible (except for the strings). Unlike the snow pea, the sugar snap pea is allowed to mature and become fully rounded.

These edible podded peas are closely related to the common garden pea, so their culture is similar in many respects.

The information in this Agfact relates to both the snow pea and the sugar snap pea; where there are differences, such as in cultivars and time of harvesting, they have been treated separately.

GROWING ENVIRONMENT

Climate

Edible podded peas do best under cool, moist growing conditions. The crop is sensitive to heat, and temperatures above 30°C will cause early maturity and lower yields. Day temperatures from 15° to 18°C average, with a maximum of 24°C and a minimum of 7°C, are ideal.

Stems and foliage are seldom affected by frost, but damage may occur if a cold snap follows a period of warm weather. Flowers are made sterile by frost. Pods also are susceptible to frost; affected pods have a white, mottled skin. The sowing date must be chosen to ensure that frost will not strike crops at a susceptible stage.

The ideal temperature for germination is 22°C; the minimum is 5°C. At temperatures above 24°C

Table 1. Sugar snap and snow pea cultivars—features of the popular lines

Snap peas

Cultivar	Maturity (days)	Node where flowering begins	Vine height (cm)	Pod length (cm)	Pod shape	Peas per pod	Pods per node (see footnote)	Disease tolerance	Pod colour
Sugar Bon (dwarf)	59	11	50	7.6	Blunt	7–8	1–2	1, 3	Green
Sugar Ann (dwarf)	58	10	52	7.6	Blunt	7–8	1–2	1	Green
Honey Pod	70	16	51	7.6	Blunt	7	2	1	Green
Climbing Sugar Snap	75	16	125	8	Blunt	7	1–2	1	Green
Cascadia	65	*	100	7.6	Blunt	*	2	1	Green

*No information available at time of writing.

Snow peas

Cultivar	Maturity (days)	Node where flowering begins	Vine height (cm)	Pod length (cm)	Pod width	Pods per node	Disease tolerance (see footnote)	Pod colour
Oregon Sugar Pod (II) (dwarf)	65	15	90	10	2	2	1, 3, 4, 5	Green
Oregon Giant (dwarf)	65	16	100	10–13	2.5–2.8	2	3, 4, 6	Dark green
Yakumo (climbing)	90	19	200–250	13	2.8	1–2	Nil	Light green
Sumo (climbing)	68	13	100–150	13	3	1–2	Nil	Light green
Mammoth Melting (climbing)	69	16	97	10	2	1	Nil	Green

Disease tolerance

1 Common wilt (Race #1)	2 Near wilt	3 Powdery mildew	4 Enation mosaic virus
5 Western pea streak virus	6 Fusarium race 1	7 Fusarium race 5	8 Fusarium race 6
9 Pea leaf roll virus	10 Bean yellow mosaic virus		

Source: Luke Jewell, formerly of Syngenta Seeds Pty Ltd, and Ray Smith, Sunland Seeds Pty Ltd. Seed companies can be consulted for up-to-date information.

germination is rapid but seedling losses may increase because of soil-borne diseases. Time from sowing to harvest in pea crops depends on the time of year and cultivar. Crops take longer to mature in the cooler months than in spring and autumn.

Soils

Peas thrive on a wide range of soil types, as long as the soil is well drained with good depth. The ideal pH range is 5.8 to 6.8 (in water).

CULTIVARS

Features of the popular snow pea and sugar snap pea lines are shown in Table 1.

Snow peas

There are several commercial snow pea cultivars available.

Dwarf or semi-determinate

Depending on vigour, growers may use a low trellis for these cultivars.

- **Oregon Giant** (or Snowman) is the most popular cultivar as it has high yields of long, straight pods and strong powdery mildew

resistance (PMR). This cultivar grows to at least 1 m and many growers use a trellis. The plant is a strong grower and the pods are very sweet.

- **Oregon Sugar Pod** (OSPID) is a standard line that crops reliably, grows to at least 90 cm and has PMR.

Indeterminate

These cultivars are less popular with growers. Purple flowering types dominate seed sales.

- **Yakumo** and **Sumo** are the most popular purple flowered lines. Yakumo grows to 2 to 2.5 m high and Sumo 1.2 to 1.5 m high. Trellising is required.
- **Mammoth Melting** is a white flowered cultivar that is also used for edible leaf harvesting, edible sprouts and fresh cut flower trading. It grows to 1.8 to 2 m high, so trellising is required.

Many of the snow peas grown in the Sydney Basin are from seed of various origins. New planting material is propagated each year by the growers themselves.

Snow peas





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Sugar snap peas

Sugar snap peas

Several cultivars of sugar snap peas have recently become available in Australia. The cultivars grown are usually dwarf types, and seem to give reasonable yields of quality pods. Popular cultivars are Sugar Bon, Sugar Ann and Honeypod.

Snap peas are similar in habit to dwarf snowpeas and are commonly grown without a trellis.

- **Sugar Bon** (dwarf) is the most popular cultivar as it has early maturity, high yields, good pod quality and PMR.
- **Sugar Ann** (dwarf) is a very sweet cultivar and is widely grown but lacks PMR.
- **Honeypod** is a very sweet popular cultivar, but lacks PMR.
- **Climbing Sugar Snap** will need a trellis, and lacks PMR.
- **Cascadia**, a new cultivar, grows to 1 m high, sets doubles, can be harvested over a long period, but lacks PMR. A very sweet pea that is best grown on a trellis.

CROP ESTABLISHMENT

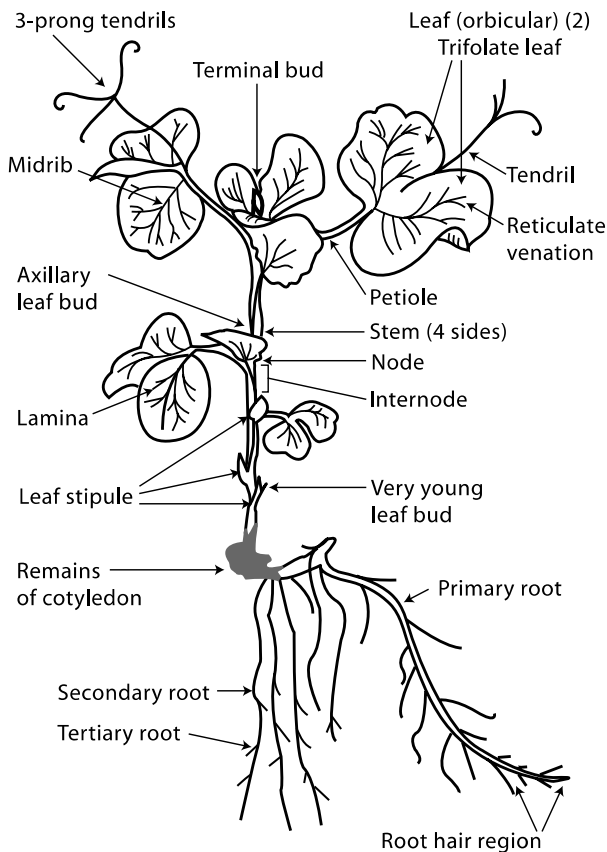
Cultivars can be either semi-determinate, determinate or indeterminate. The semi-determinate cultivars can be grown without a trellis as a ground crop, whereas the indeterminate types require some form of trellising.

Plant spacing

When spacing within the row, aim for one plant every 8 to 10 cm (range up to 15 cm for snow peas and down to 5 cm for sugar snaps). The distance between the rows for determinate types is usually 60 to 80 cm, depending on the tractor and equipment used. For trellis production, rows should be 2 m or more apart so that cultivation and harvesting equipment can pass.

Seedbed preparation

It has been traditional to prepare a well-worked seedbed of fine tilth and good depth to a minimum of 30 cm, and this is the recommended method for growing peas. Peas will, however, germinate and grow with a minimum of tillage provided weeds can be



The young snow pea, a dicotyledon plant, at 2.5 weeks old.

controlled. It is possible to sodseed peas and get satisfactory plant densities that will produce profitable yields.

Sowing time

Peas are sown from March to July on the coast and from September until late January on the tablelands. Plantings should be scheduled over the sowing period to spread out harvest and avoid extreme air temperatures.

Trellising

The indeterminate varieties will need some form of trellis. As peas are generally poor climbers, a single-layer mesh trellis is not suitable. The normal system used on the coast is a two-wire tomato trellis. This is constructed by using a 50 × 50 mm post every 3 m and a strainer post at each end of the row. Two tie wires are then run at vertical intervals of 20 cm to support the vines as they grow. An alternative system is illustrated in the photograph at right.

NUTRITION

The main nutrient required by peas is phosphorus. Lesser amounts of nitrogen and potassium are generally an option. The amount of each nutrient applied will depend on the paddock history, local experience and natural fertility of the soil.

A soil test (full analysis) is recommended 8 weeks before planting to provide guidance.

Most soils in pea growing areas are low in phosphorus unless they have a history of vegetable growing and high phosphorus application. Hence it is advisable to apply 40 to 50 kg/ha of phosphorus by preplant broadcast. Alternatively, if equipment is available, this amount can be banded down the row for more efficient use.

Peas are a legume crop, and so are capable of manufacturing their own nitrogen. Unlike other legumes they are not normally inoculated with rhizobium bacteria. If the paddock is low in nitrogen, a small amount of nitrogen—say

Well grown snow peas being supported by plastic mesh secured to steel intermediate posts. Poly twine is also used every 20 to 50 cm to guide the crop as it grows upwards.



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20 kg/ha—should be applied before planting. If plants are light green during growth, another 20 kg/ha can be applied no later than 3 weeks before flowering. If too much nitrogen is applied, growth can become vegetative and poor flowering and pod set may result. (Snow peas are particularly susceptible.) On the other hand, sugar snap peas seem to require larger amounts of nitrogen.

Potassium is an important nutrient for peas and a soil test will identify soil and crop requirements.

Soil pH should always be checked at least 8 weeks before sowing. Adjust soil if acidic to a minimum of 5.8 (in water) by applying a quality dolomite or agricultural lime.

WEED CONTROL

There are several herbicides registered for green peas in New South Wales, but none has registration for the edible podded peas. Experience has shown that snow peas in particular are more susceptible to these herbicides, and it is recommended that you do not use them. Weed control is therefore achieved by cultivation, hand-hoeing and mulching.

IRRIGATION

Although many pea crops in New South Wales are grown on dryland, to get high production of quality pods an effective irrigation system must be available. Satisfactory soil moisture must be maintained throughout the life of the crop, particularly at flowering and pod sizing, to harvest economic yields of quality pods.

HARVESTING

Snow peas

The harvesting of snow peas is the most critical and costly part of growing the crop. The consumer requires the pods to be of maximum size but without any development of the seeds. The pods must be completely flat, as at this stage they contain no cross-fibres and the whole pod can be eaten. Under most conditions this will necessitate harvesting every 3 days.

When seeds begin to develop the pod should still be picked, but discarded. Under mild spring conditions it takes about 8 to 10 days from pollination to full pod size. A reasonable crop of trellised snow peas could be expected to yield about 4000 to 5000 kg/ha under good growing conditions. A good picking rate is 12 kg per hour per person.

Sugar snap peas

In contrast to snow peas, sugar snap peas are harvested when the pods are fully developed and are like a normal garden pea in appearance. The number of harvests and the interval between them will depend on the variety and whether it is determinate or indeterminate. Determinate cultivars will be harvested in 2 or 3 picks over 3 weeks. A good picking rate is 20 kg per hour per person.

MARKETING

Consult buyers to determine product specifications, packaging, presentation and any marketplace regulation (for example, requirements to list the grower's name and address and the product weight on packages) well before planting.

In the wholesale markets, for example, snow peas and sugar snap peas are usually prepacked into plastic bags of varying sizes from 1 to 2 kg and then placed into 10 kg produce containers. For loose packs the most common container is the 10 kg general produce container of either cardboard or polystyrene, into which 6 kg of snow or sugar snap peas can be packed. Table 2 shows the quantities of cartons and packs of snow peas

Table 2. Source of supply of snow peas to Flemington markets, 1997–98*

	Cartons (6 kg)		Packs (1 kg)	
	1997–98	1999–2000	1997–98	1999–2000
NSW	29 520	Nil	14 804	Nil
Vic.	17 246	Nil	Nil	Nil
Qld	147 417	121 283	12	Nil
SA	Nil	12 673	Nil	Nil

*Source: NSW Agriculture Flemington Markets Reporting Service

supplied to Flemington markets by different States in 1997–98.

Before packing, snow or sugar snap peas should be precooled to 2°C in a high-humidity cool room to prevent condensation build-up in the bags. If prepacking is used, each plastic bag must have its own label showing the grower's name and address, the minimum net weight, and the words 'snow peas' or 'sugar snap peas'.

Market research is a priority and will help identify windows of opportunity and profitability. For access to the latest prices in Sydney and interstate, phone the Sydney Market Reporting Service on 02 9764 4798 or 0416 108 639.

Figures 1 and 2 give examples of market information (for Flemington) that can help producers.

PESTS AND DISEASES

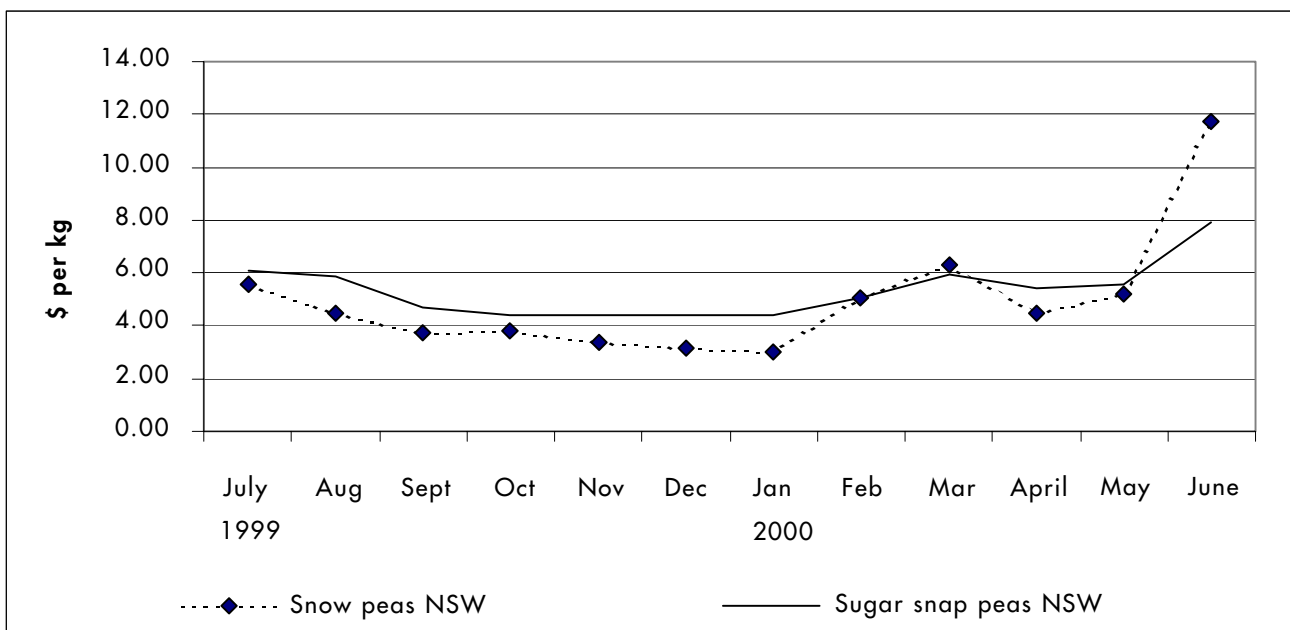
Edible podded peas are closely related to the common green pea and are attacked by the same pests and diseases, which can cause heavy losses. Regular crop monitoring, early detection and correct diagnosis are important for successful pest and disease control.



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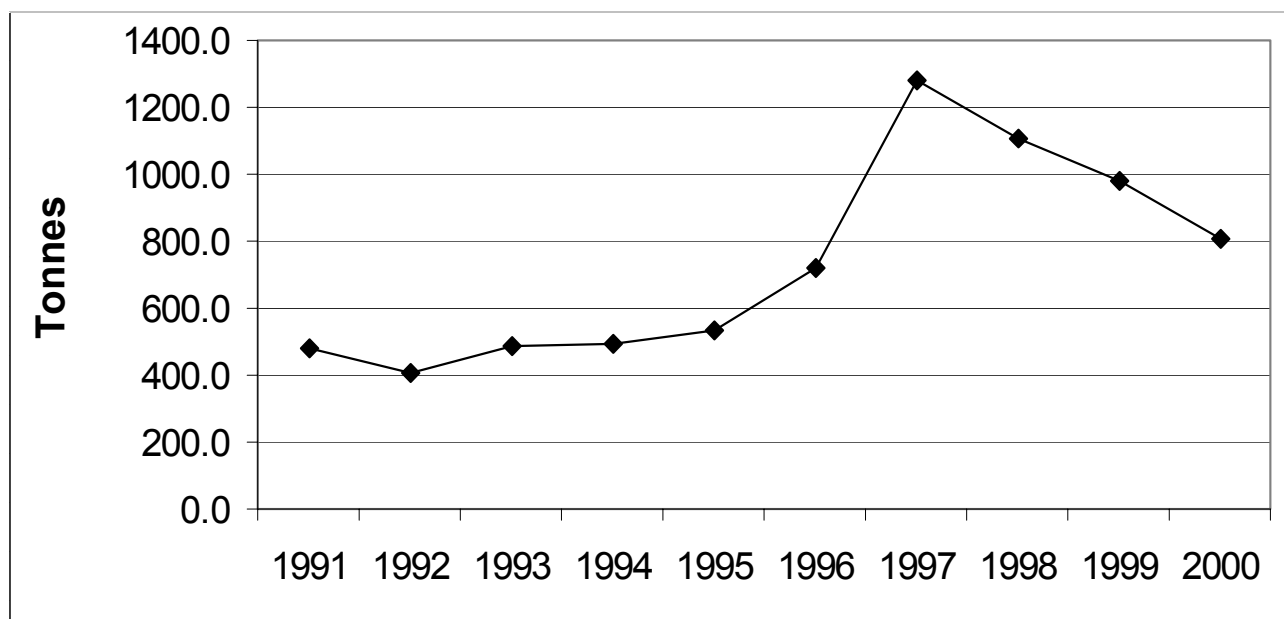
Mrs Kate Dickson from Borenore, near Orange, packs snow peas for capital city markets.

Figure 1. Average monthly prices (\$ per kg)*



*Source: NSW Agriculture Flemington Markets Reporting Service

Figure 2. Snow pea intake into Flemington Markets (tonnes)*



*Source: NSW Agriculture Flemington Markets Reporting Service

Insect pests

The insect pests most likely to damage pea crops are onion thrips (*Thrips tabaci*), budworms (*Heliothis* spp. caterpillars), blue oat mite (*Penthaleus major*), red-legged earth mite (*Halotydeus destructor*), cowpea aphid (*Aphis craccivora*), potato aphid (*Macrosiphum euphorbiae*) and cutworms (*Agrotis* spp.).

Diseases

The main diseases that affect green peas are ascochyta and mycosphaerella blight, foot rot (*Pythium* spp.), bacterial blight, downy mildew, powdery mildew, top yellow and pepper spot.

Cultivars vary in disease resistance or tolerance (see Table 1), and it is important to research this information before you purchase seed.

Disease control is helped by using disease-free seed, as well as seed protectants and crop rotation.

FURTHER INFORMATION

For further information contact your local office of the NSW Agriculture.

The Internet: For links to search engines and other government agencies go to the NSW Agriculture site at <http://www.agric.nsw.gov.au>.

Acknowledgment

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DISCLAIMER

The information in this publication is provided on the basis of understanding and knowledge at the time of writing, May 2001. However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check the currency of the information with the appropriate officer of New South Wales Department of Agriculture or the user's independent adviser.

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