PARSNIPS

CROP PRODUCTION GUIDES
December 2007
Ref: 020109

Parsnips (*Pastinaca sativa*) belong to the Apiaceae family (also referred to as the carrot family) and although known here for thousands of years, it is said that parsnips originated in the Mediterranean area. This biennial root is closely related to parsley and carrots and is very popular in healthy diets as it is high in dietary fibre, manganese and Vitamin C and B but low in saturated fat, cholesterol and sodium.

SITE

Well-drained, deep soils are required for parsnips with a loose, sandy texture without stones to enable optimal development of the root. Compared to carrots, parsnips are more sensitive to acidic soils and ideally require a pH between 6.0 and 6.8. Parsnips do not need full sun exposure and can be grown in lightly shaded plots. Be aware that parsnips have a long growing season and may occupy the ground for almost a year.

VARIETIES

There are several different varieties available mostly they differ in size, skin properties and canker resistance. A heavy yielding variety is "White Gem" other common varieties include "Gladiator" and "Tender and True".

PLANTING

Parsnips are grown from seed. Sowing can take place between February and May, but seeds are often slow to germinate with early sowings. More uniform germination will be achieved by sowing after the last risk of frost. Parsnips are sown in rows with a width of approx. 40cm apart. With an interval of 15 – 30 cm, about 3 seeds are sown per station at a depth of 0.6 to 1.2 cm. Pelleted seed is available for a mechanised sowing process. The spacing depends on the variety, the smaller the variety, the closer the spacing should be. Root development also depends on the spacing: smaller roots develop in narrow gaps, the root will expand more when sown at a wider spacing. Spacings should be determined in relation to the variety sown and desired size at harvest. Only fresh seeds should be used as their viability declines rapidly.

NUTRITION

Do not plant parsnips on land which has recently been manured. It is best to sow them after a crop which was well manured. Parsnips have relatively high Potash requirements, but otherwise are not a nutrient hungry crop. Standard fertiliser recommendations are shown in Table 1 below. One common problem with parsnip is magnesium deficiency, which is indicated through yellow leaves.

Table 1 – Fertiliser recommendations for parsnip from RB209

	SNS, P, K or Mg Index						
	0	1	2	3	4	5	6
				kg/ha			
Nitrogen	150	100	50	0	0	0	0
Phosphate (P_2O_5)	200	150	100	50M	0	0	0
Potash (K_2O)	300	250	200(2-)150(2+)	60	0	0	0
Magnesium (MgO)	150	100	0	0	0	0	0

Source: Defra – Fertiliser recommendations for agricultural and horticultural crops (RB209)

MANAGEMENT

Although parsnips are deep rooting, irrigation is needed especially in dry periods to maintain the skin quality. Weed control is also necessary. Pre-emergence herbicides such as linuron or pentanochlor can be considered. Pesticide regulations change frequently and up to date advice should always be sought before applying any chemicals.

PESTS AND DISEASES

Wire worms can occur with parsnips. The 2.5 cm brownish shiny larvae feed on the roots and they are especially present following grass and on ill maintained fields. Symptoms are regular holes in the roots and the appearance of the larvae themselves.

Carrot fly (*Psila rosae*) is not as common with parsnip as it is with carrots but can cause economic damage. It is attracted by the smell so for small production it might advisable to plant garlic or onions close by. For organic production physical barriers such as fine mesh can also be used for protection.

There are several insecticides available but good crop rotation management will also help to minimise soil borne pests and diseases. Care has to be taken when planning the crop rotation system as there are some pests which attack several species of the Apiaceae family. These crops should not follow each other within the rotation cycle.

Canker is caused by a fungal infection (e.g. by *Itersonilia pastinacae*) and will affect the crop especially in rainy years or on wet soils and often follows physical damage as the spores can penetrate through the damaged tissue. There are different forms but black canker is the most common form. Symptoms include dark patches on the roots and light green spots on the foliage.

HARVEST

Traditionally, harvesting started after the first frost (about mid October) and went on until April (depending on demand). Nowadays harvesting starts as early as June. Crop yield varies depending on the variety used as well as sowing densities and can range between 15 to 30 tonnes per hectare or even more. For harvesting, special parsnip harvesting machines are available but adapted potato or carrot (top picker) harvesters can be used as well. If they are dug by hand gloves are advisable as the foliage can cause severe skin irritations.

STORAGE

Traditionally, parsnips were kept in the soil as they tend to shrivel and lose weight quite easily. Another advantage of keeping them in the soil over winter is the improvement in taste which occurs when exposed to frost as it turns the starch into sugar. Parsnips harvested before the first frost can be stored for at least 2 weeks in a cool place (at 0°C) to get the sweet taste. If they are stored indoors, cut the foliage off and ensure they are in a dark, cool place, stored in sand without touching each other. At 0°C and 90% humidity they can be stored for up to 6 months.

Indicative margins for one hectare of parsnip production

	Item	Quantity	£/Unit	£ Total
Outputs				
Crop Sales	tonne	20	340	6,800
			Total Outputs	
Costs				
Casual Labour	Grading/planting	120	6.00	720
	Harvesting/packing	60	6.00	360
Fertiliser Costs	Fertiliser	1		120
Other Costs	Packaging/Transport/…	1		1,500
Seed Costs	Seeds (bags of 25,000)	10	22	220
Spray Costs	Pesti-/Herbicides	1		60
			Total Costs	2980
			Gross Margin	**£3820**

Source: Various