

Seeds are mostly dry matter of up to around 85 %. It is therefore important that the storage is dry and cool to keep the seed from drawing in moisture. Parsnip seeds do not store well and generally won't keep for longer than 2 years.

***Cage system.** It is possible to grow several parsnip seed crops in close proximity by erecting a cage over the crop. Fine environ mesh is used for the cage and bumble bee hives or blow flies are placed in the cage and are used to pollinate the crop. It is important to ensure no other flying insects can get in, checking that the netting is secure all round, as this will otherwise cause cross pollination and deterioration of pure line varieties.

Elite seeds are seeds from positively selected plants and should be used for elite seed or standard seed production. There are

approximately 300 - 500 seeds to the gram. Seed yield pr square meter aprox. 50 – 60 grams

Seed to seed method: elite seed should be sown later in the season, mid May – mid June and will give smaller plants. These plants can overwinter in the ground even if they freeze and be thinned out in the following spring to about 20 - 30 cm between plants and 75 - 90 cm between rows. Roughing should be done before flowering eliminating the smaller and weaker plants.

The crop is otherwise treated in the same way as the root to seed method.

Seed from the seed to seed method is called **standard seed** and is what generally is sold in seed packets.

For more in detail information see also: The Organic Seed Grower by John Navazio. ISBN 978-1-933392-77-6

****Seed cooperative**

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www.open-pollinated-seeds.org.uk

Growing parsnips for seed



Using open pollinated varieties

Parsnip: *Pastinaca Sativa*. The parsnip has its origin in the Mediterranean regions and was in Greek and roman times cultivated for both food and medicine. By mid sixteenth century its cultivation was widespread in Europe but only then later to be replaced by the potato.

Flower biology: Parsnips are perfect flower plants which carry stigmas and pollen in the same flower. Flowers are greenish yellow producing nectar attracting the insects.

Pollination: Parsnips are cross and insect pollinated and will cross with wild and other cultivated varieties. They can also cross with themselves. They are biennial flowering in their second year.

Isolation distance. Ideally a distance of between 800 – 1600 meters should be observed between two different flowering parsnip crops, however in more sheltered areas with hedges, trees and other barriers, a shorter distance of 800 meters can be used. Using cage systems* allows for more than one crop to be grown in close proximity.

Minimum number of plants. It is important to maintain the genetic diversity of the many different traits of parsnips. But a minimum of 20 plants for home grown situations is to be recommended. For professional seed growing 50 plus plants would be recommended, however the more the better.

Crop characteristics: There are not nearly as many parsnip types as carrots types, but none the less it is important to pay good attention to the root shapes, skin smoothness and sizes, root colour, leaf stand and disease resistance, especially canker. As with carrots it is important to know from the outset the variety you are growing. Remember you can-not save seed successfully from F1 hybrids to give you ‘true to type’ roots.

Agronomy. (Year 1) Good seed depend on good crop production and good crop production depends on suitable soil and soil preparation. Parsnips can seem quite forgiving but can also be temperamental or tricky to grow. They require enough space, sufficient moisture and good soil.

Positive selection: (year 1) At harvest time positively select the best and most true to type

roots selecting also for smooth skin texture and avoid rounded shoulders. Twist off or cut leaves at 2 cm above growing point.

Only the best and disease free roots with single taproot in place should be selected and put aside for growing seeds.

Storage: Then store the parsnips in moist cool conditions, either in nets or sand which is ideal. Make sure to **label clearly** your selected and stored roots. Discard damaged or rotting parsnips during storage.

Year 2 (root to seed method) In the following spring plant out the stored roots in March / April so that the shoulders of the parsnips are level with the ground. Planting distances should be 30 - 45 cm apart in rows and 90 cm between rows.

Crop support: When the shoots are growing and the first flowers appear, support the plants with 5ft stakes at each end of the bed and place strong canes at 6 ft intervals in the row. Then tie several rows of string along the outside of the crop to keep stems in and supported.

Rouging: Any plants which fail to grow well, which look weak or are aphid insect infested should be pulled out and discarded **before flowering** . This is called rouging.

Flowering and Seed harvest: During June and July the crop will continue to flower, and the first seed harvest can start in August depending on location, with manual harvesting taking place over several weeks. An indication of seed maturity can be seen by seeds starting to ‘separate out or splitting’.The primary and center bigger umbels will mature first and should be

bronze brown in colour. These umbels are called the ‘kings head’ and carry bigger and better seeds. Use secateurs to cut umbels with about 3-4 inch of stem into paper sacks. Lay seed heads to dry on drying frames in a warm, dry and airy place. Keep harvesting all umbels as they mature. Keep primary umbel seeds separate for **elite seed** use. The entire parsnip seed crop can be harvested in one go once the secondary umbels have matured or when 60% of the seed crop has matured. The harvested crop is then left to dry further indoors.

Caution when harvesting: Parsnip stems and leaves produce a toxin called furanocoumarin. When harvesting it is advisable to wear overalls or long sleeved shirts and gloves to protect the skin from direct contact as the toxin can cause a rash of the skin which can last for several weeks.

Threshing: Once seed heads have dried the seeds need to be separated from the stem material. The seeds shatter easily, and threshing can be done by wearing gloves, rubbing the umbels into a large container.

Cleaning: Sieve the seeds carefully using meshed sieves to separate out small stems, bits of leaf and soil. For larger scale and bulk seed cleaning the seeds are run through a seed cleaner**. When growing larger seed quantities SHS** can help to facilitate bulk cleaning and grading.

Once seeds have been cleaned and graded they should be stored in paper bags and labelled well.