

FROM SEED TO SEED

Educational films on seed production



SPINACH

Spinach belongs to the Chenopodiaceae family and to the *Spinacia oleracea* species. They are annual or biennial plants cultivated for their leaves. Certain varieties of spinach are winter crops others grow in spring or summer.

▶ Pollination

Spinach is a dioecious species, meaning that there are male plants that disseminate pollen and female plants that bear the fertile seeds. The female flowers are discreet and located at the axil of the branches. The male flowers are at the top of the plant and begin flowering before the female plants.

Spinach is allogamous, meaning that cross-fertilisation takes place between different plants. It is wind-pollinated. It is a ?daylength plant? which means that it will start forming its flowers once the days last 10 to 14 hours. Flowering lasts 2 to 3 weeks. To avoid cross-fertilisation, grow two varieties of spinach 1km apart. You can reduce this distance to 500m if there is a natural barrier, such as a hedge.

There are different methods that enable you to cultivate two varieties in the same garden. You can stagger out the times when you sow out different varieties, thereby ensuring that their flowering will not coincide, but you must make sure that the full seed to seed cycle can be completed. You can also use the mechanical isolation method, covering each variety with mosquito nets that you open alternately. For details about these methods,

consult the isolation techniques chapter in the 'ABC of Seed production'.

▶ Life cycle

When growing spinach for seeds, the cultivation techniques differ according to the variety:

- spring varieties are sown out early in the season. They will blossom and produce seeds in the summer of the same year. They cannot be cultivated in winter since they will not survive the cold.

- winter varieties are sown out in autumn. They develop in winter, and blossom and produce seeds in the following spring.

It is important to grow 25 to 30 plants for seeds to ensure good genetic diversity. Choose healthy plants that correspond to the variety's specific characteristics. A good criteria for winter species is resistance to the cold and above all to root asphyxia which results in the leaves turning yellow. This is a common phenomenon in winter. It is better not to harvest too many leaves from plants grown for seeds.

The flowering spikes of spinach can grow to as high as 80 cm but they do not need staking. The male plants will dry out first. It is better to uproot them. The female flowers can be recognised by their light sandy colour. Cut the flowering spikes after the dew once the seeds are mature.

It is best to continue the drying process in a dry and well ventilated place.

▶ Extracting - sorting - storing

Extract the seeds by rubbing the stems between your hands. It is better to wear gloves. You can also walk on the stems, or beat them with a stick. Sift the seeds through a coarse sieve that will retain the debris. Then use a finer sieve that will retain the seeds and get rid of the dust. Finish by winnowing the seeds. You can either blow on the surface to get rid of the last debris, or use the wind.

Always put a label with the name of the variety and species as well as the year inside the sachet, as writing on the outside may rub off. Leave the seeds in the freezer a few days to kill parasite larvae.

Spinach seeds have a germination capacity of 5 years, sometimes it can last 7 years. To keep them longer, store them in the freezer. One gram contains about 100 seeds.