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# FROM SEED TO SEED

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Educational films on seed production



## FENNEL

Fennel belongs to the Apiaceae family and the *Foeniculum vulgare* species. It can be annual, biennial and under certain conditions perennial. There are two different types. Fennel with a bulb called Florence fennel and herb fennel without a bulb, cultivated for its leaves and seeds, used for medicinal or aromatic reasons. There are both early and late varieties. Fennel is a photoperiodical plant, which means that long days encourage flowering.

### Pollination

The inflorescence of fennel is an umbel composed of small yellow flowers that are usually hermaphrodite. The stamen, the male sexual organ, matures before the pistil, the female organ. Self-fertilization does not therefore occur within the same flower. Yet since the flowers do not bloom at the same time, self-fertilization is possible within the same umbel or between two umbels on the same plant. Fertilization also occurs between the umbels of different plants. Fennel is therefore an allogamous plant that is mainly pollinated by insects. There is a risk of cross-pollination between different varieties. Fennel can also cross with wild fennel, which is very common in certain regions of the world.

To avoid cross-pollination, two varieties of fennel should be grown one kilometer apart. This distance can be reduced to 500 meters if there is a natural barrier such as a hedge. The varieties can also be isolated by alternately opening and closing mosquito nets or by placing small hives with insects inside a closed mosquito net (for this technique, see the module on isolation techniques in 'The ABC of seed production').

## Life cycle

Herb fennel does not form a bulb. It is perennial in most regions. It is sown in spring, it flowers and produces seeds in the first year. It resists well to frosts and can stay in the ground over winter. The amount of seeds produced will be greater in the second year of cultivation.

Bulb fennel can be grown in different ways. In a mild climate spring varieties are grown as annual plants. They are sown early in spring, in March, which gives them time to form a bulb before they flower. In most cases, bulb fennel grown for seed is cultivated as a biennial. Summer varieties are sown after 20 June when the days start getting shorter. This will prevent them from flowering too early. They will have the time to form their bulbs before winter. They will flower and produce seeds in the second year.

Only plants with the typical characteristics of the variety that have formed bulbs are chosen for seed. Plants that flower too early are removed. Select the bulbs for seed production according to the specific characteristics of the variety: colour, shape, vigour.

In a cold climate, the bulbs may freeze in the ground. This is why you should remove the leaves above the last bud and put the bulbs in a jar or pot with their roots and soil, protected from the frost and too much humidity. You should check the bulbs throughout the winter and eliminate any that have started to rot. They will be replanted in spring when the risk of a hard frost has passed. Fifteen to twenty plants are required to ensure good genetic diversity.

In mild regions, bulb fennel can be left in the ground over winter. It will continue to grow in the spring of its second year and then flower.

Fennel plants have very high floral stalks that tend to fall over. They should be staked. The umbels are cut with a piece of the stalk when the first mature seeds start to fall. They can be cut earlier; the seeds will continue to mature slowly during the drying process. In any case, they should continue to be dried in a dry and well ventilated place.

## Extracting - sorting - storing

Rub the umbels between your hands to remove the seeds. To sort the seeds use first of all coarse mesh sieves that retain the chaff. Then the seeds are retained by a finer sieve that allows dust to pass through. Finally winnow the seeds by blowing on them. This will get rid of any remaining chaff.

Always include a label with the name of the variety and species as well as the year in the bag as writing on the bag can be rubbed off. Storing the seeds in the freezer for several days kills certain parasite larvae.

Fennel seeds have a germination capacity of four years. Sometimes this can be extended to seven years. This will be further prolonged by storing the seeds in the freezer. One gram contains around 300 seeds.

*Longo mai*

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