

FROM SEED TO SEED

Educational films on seed production



KALE

Kale is a member of the Brassicaceae family, the Brassica oleracea species and the acephala subspecies. The brassica oleracea species also includes kohlrabi, broccoli, cabbage, Brussels sprouts, cauliflower and the Savoy Cabbage.

Kale is a type of cabbage that does not form a head and usually has a central stalk along which leaves develop. There are varieties that have several branches. It is an autumn and winter vegetable. Most varieties are resistant to the frost which changes the taste of the leaves by transforming starch into sugar. Ongoing periods of hard frost can, however, destroy the plants.

There are a great variety of kales that are distinguished by their height, ranging from 40 cm to 1.5 m, the structure of their smooth or curly leaves and their colour, ranging from light green or yellow green to light or dark purple. Kale is used as fodder for small animals as well as for human consumption, or for craft products such as walking sticks or even for roof rafters.

▶ Pollination of all the cabbages of all the Oleraceae species

The flowers of the Brassica oleracea species are hermaphrodite which means that they have both male and female organs. Most of them are self-sterile: the pollen from the flowers of one plant can only fertilize another plant. The plants are therefore allogamous. In order to ensure good pollination it is better to grow several plants.

Insects are the vectors of pollination. These characteristics ensure great natural genetic diversity. All of the cabbage sub-species of the *Brassica oleracea* species can cross with each other. You should therefore not grow different kinds of cabbage for seeds close to each other.

To ensure purity, different varieties of the *Brassica oleracea* species should be planted at least 1 km apart. This distance can be reduced to 500 meters if there is a natural barrier such as a hedge between the two varieties. The varieties can also be isolated by placing small hives with insects inside a closed mosquito net or by alternately opening and closing mosquito nets. For this technique, see the module on isolation techniques in 'The ABC of seed production'.

▶ Life cycle of kale

Kale is a biennial plant that forms stems with leaves in the first year of cultivation and then flowers in spring, producing seeds in the summer. Kale plants for seed are grown in the same way as those for consumption. You should select 10 to 15 plants to ensure good genetic diversity.

Producing kale seed requires healthy plants that have been observed throughout the growth period to identify the characteristics of the variety: size, colour, vigour, rapid growth, resistance to diseases, leaves along the entire stem, resistance to cold. It can remain in the ground during winter. In the second year, they flower in spring and produce seed in summer.

▶ Extracting - sorting - storing of all the Oleraceae species

The seeds are mature when the seed pods turn beige. The seed pods are very dehiscent, which means that they open very easily when mature and disperse their seed. Most of the time, the stalks do not all mature at the same time. To avoid wasting any seed, harvesting can take place as each stalk matures. The entire plant can also be harvested before all of the seeds have completely matured. The ripening process is then completed by drying them in a dry, well-ventilated place. Cabbage seeds are ready to be removed when the seed pods can be easily opened by hand.

To extract the seeds, the seed pods are spread across a plastic sheet or thick piece of fabric and then beaten or rubbed together by hand. You can also put them in a bag and beat them against a soft surface. Larger quantities can be threshed by walking or driving on them. Seed pods that do not open easily probably contain immature seeds that will not germinate well. During sorting, the chaff is removed by first passing the seeds through a coarse sieve that retains the chaff and then by passing them through another sieve that retains the seeds but allows smaller particles to fall through. Finally, you should winnow them by blowing on them or with the help of the wind so that any remaining chaff is removed.

All seeds from the Brassica oleracea species resemble one another. It is very difficult to distinguish between, for example, cabbage and cauliflower seeds. This is why it is important to label the plants and then the extracted seeds with the name of the species, the variety and the year of cultivation. Storing the seeds in the freezer for several days eliminates any parasites.

Cabbage seeds are able to germinate up to 5 years. However, they may retain this capacity up to 10 years. This can be prolonged by storing them in the freezer. One gram contains 250 to 300 seeds depending on the variety.

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