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# FROM SEED TO SEED

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Educational films on seed production



## BEAN

Beans are annual plants of the Fabaceae family. There are several species of beans, the most common of which are *Phaseolus vulgaris* and *Phaseolus coccineus*. *Phaseolus vulgaris* includes different kinds: such as dwarf beans, semi-climbing beans and climbing beans. These two types of crops include beans grown for their pods such as green beans or for their seeds, eaten fresh or dried. There are also other species such as *Phaseolus coccineus* or runner beans which are all climbing beans. They have very beautiful red or white flowers and are suited temperatures below 25°C during fructification. You can distinguish between both these two species thanks to the pods. *Phaseolus coccineus* has thicker pods. Those of *Phaseolus vulgaris* are thinner and smoother.

### Pollination

The flowers of the *Phaseolus vulgaris* species are hermaphrodite and self-fertilising, meaning they have male and female organs in the same flower. They are autogamous. Insects may nonetheless cause cross-pollination between different varieties. This risk is more or less great depending on the variety. To reduce this risk, you should leave a distance of at least 5 or 10 meters between two varieties of dwarf beans. Leave at least 50 meters between two varieties of climbing beans. And finally leave at least 10 meters between dwarf and climbing beans. To preserve maximum varietal purity despite a lack of space, cover each *Phaseolus vulgaris* variety with a mosquito net. Be careful to place the

net before flowering starts to avoid any cross-pollination.

The flowers of *Phaseolus coccineus* are hermaphrodite, which means that male and female organs are within the same flower. To pollinate, beans with red flowers require insects such as bees and bumblebees. Beans with cream-coloured flowers, on the other hand, can self-pollinate. To avoid cross-pollination between two varieties of *Phaseolus coccineus* keep a distance of 500 meters. This distance can be reduced to 150 meters if there is a natural barrier such as a hedge. Leave a distance of 300m between a *coccineus* climbing bean and a *vulgaris* climbing bean. And a 50m distance between a *coccineus* climbing bean and a *vulgaris* dwarf bean.

## ▶ Life cycle

The technique for growing beans for seeds is the same as for growing them for food. They require warm soil for sowing. For the green bean, it is better to divide the crop into two sections: one for food and one for seed production. Harvesting for food is done throughout the season, whilst harvesting the seeds must be done only when all pods are mature. If you only keep the pods that mature at the end of the season, you will end up with a late-season variety. To harvest the seeds, wait until the pods have dried. For certain varieties, including climbing beans, harvesting time can be spread out. For certain species of dwarf beans, all pods dry at the same time, meaning that the seed harvest can be done in one go by cutting all of the plants.

If the weather is damp and the seed-bearing plants are not completely dry, you can put them to dry in a well ventilated shed. It is important to protect them from insects with a net. Leave the seeds to dry for two or three weeks after harvest. To check they are ready, bite one slightly: if this leaves no mark, drying is complete.

## ▶ Extracting - sorting - storing

For small quantities, shelling can be done by hand. For larger quantities, you can beat the pods with a stick. You can also walk on them. Once they have been beaten, you can sieve the beans. The sieve will retain the beans and larger waste which can easily be removed. To get rid of the remaining smaller waste, you will need to winnow or ventilate what is left. You can ventilate either by blowing on it yourself or by using a ventilator or small compressor. Remove those that are of a different type, they are a sign of cross-pollination. Remove also damaged or badly formed beans and those infested by weavils. The bean weevil (*Acanthocelides obtectus*) is a small insect that lays its eggs inside the pod on the plant. An easy way to get rid of them is to leave the seeds in the freezer for a few days.

Always write the name of the species and the variety, as well as the year of harvest on a label and put it inside the bag with the seeds. Writing on the outside may rub off. Putting the bag in the freezer for a few days kills the larvae of parasites. Bean seeds germinate very well for three years. To prolong their germination capacity, keep them in the freezer.

*Longo mai*

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