FROM SEED TO SEED

Educational films on seed production

PEPPER

Sweet peppers and chilli peppers belong to the Solanaceae family. The genus Capsicum includes 5 cultivated species : capsicum baccatum, capsicum chinense, capsicum frutescens and capsicum pubescens. The vast majority of cultivated varieties belong to the Capsicum annum species, of which there are thousands of varieties, including sweet peppers, mild chilli peppers and very spicy chillis. There is a great diversity in size, shape and colour of peppers.

Pollination

The flowers of pepper plants are hermaphrodite and self-fertilising, which means that the male and female organs are in the same flower and are compatible. They are therefore autogamous. The flowers can however also be fertilised by pollinating insects such as bumblebees and bees.
They are sensitive to changes in temperature : if at night, the temperature is too high (29°) or too low (5°), the flowers will fail, meaning they will not be pollinated. As a consequence, the peppers will have few or no seeds, which will greatly influence the size of the fruit. The best fructification is when night temperatures vary between 12 and 16°C. To encourage self-fertilisation, you can regularly shake the plants during the flowering season.

All species of the Capsicum genus can cross-pollinate, with the exception of the Capsiscum pubescens species. To avoid cross-pollination between two varieties in temperate climates, leave 100m between them. This distance can be reduced to 50m if there is a natural barrier such as a hedge. In tropical climates, keep 1km between two varieties. And 500m if there is a hedge.
To avoid cross-pollination by insects, you can also isolate plants using nets, either in a tunnel or under a permanent mosquito net. But watch out, peppers need a lot of light. Too tight and restrictive cages will hinder plant development and reduce fruit and seed production. See the module on mechanical isolation techniques in the ABC of seed production.

Life cycle

Peppers are annual plants in most cases, but some species are perennial in tropical climates. It is a plant that needs a lot of heat to develop well.
Peppers grown for their seed are cultivated in the same way as those for food. Grow 6 to 12 plants of each variety to ensure good genetic variety. Once the flower is in bloom, it will take between 60 and 100 days, depending on the variety, for the fruit to be ready for consumption.
The plants you select for seed production should be healthy and vigorous ones that you have been able to observe throughout their growth and that correspond to the desired selection criteria. For the plants, look for regular and strong growth, numerous flowers, a good fructification and branches that do not break. For the fruits, look for the best tasting ones, the variety's typical shape, size, colour and thickness of the flesh and the skin.
You should avoid extracting seeds from already harvested peppers, as this does not enable you to check all of the characteristics linked to the growth of the variety. To harvest the seeds, wait until full maturity: the green fruits will have become red, brown, orange or yellow. The pale yellow fruits will have turned dark yellow, orange or red. At this stage the seeds are yellow and are mature.
Don?t pick the seeds of immature fruits as their germination capacity will be much lower. It is best to harvest the seeds from the first ripe fruits of a plant. Those taken from later fruit tend to have a lower germination rate. Never harvest seeds from sick peppers.

Extracting - sorting - storing

Watch out! It is important to extract spicy chilli seeds in a well ventilated space and if possible outside to avoid emanations of capsaicin. These can induce eye, throat and nose irritations. It is also important to use thick rubber gloves and even safety goggles. Cut the peppers in two and remove the seeds using a knife. Place them in a bowl full of water, the empty seeds will float. Remove them with a sieve. Finish cleaning the good seeds in the sieve under running water. It is then important to dry the seeds within two days. To do

that, place them on a fine-meshed sieve or a plate in a dry, airy and warm place (between 23° and 30°C).
Another method for small quantities is dry them on coffee filters, as they are very absorbing and the seeds do not stick to them. Place at most a small teaspoon of seeds on each filter and write the name of the variety and the species on the filter using a marker pen. Hang the sachets on a clothes' rack in a dry, airy, shaded and warm place. Avoid exposing the seeds to the sun, and don?t dry them on paper to which they could stick.
Write the name of the variety and species, as well as the year, on a label and place it inside the sachet. Writing on the outside often rubs off. A few days in the freezer will kill any parasite larvae.
The germination capacity of chilli and pepper seeds is 3 to 6 years. To lengthen it, keep the seeds in the freezer.