

FROM SEED TO SEED

Educational films on seed production



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The sunflower belongs to the Asteraceae family and to the *Helianthus annuus* species. It is an annual plant grown for its seeds, from which we make oil, or for its flower heads. There are several varieties of sunflower. Only one perennial species is used for its edible tuber: the Jerusalem artichoke, *Helianthus tuberosus*.

Pollination

The flower of the sunflower is called a capitulum. It is composed of very many florets that bloom one after another starting from the periphery. Each flower is hermaphrodite. The male organ comes out first, and releases pollen for one day. The flower then changes and the female organ appears to receive the pollen. Insects, in particular bees and bumblebees pollinate each flower by carrying the pollen from one floret to another. Sunflowers mainly cross pollinate since most varieties are auto-incompatible. This means that the florets of one plant can only be fertilised by those of another plant. You should therefore grow several sunflower plants together to ensure good pollination. Some varieties of sunflower are auto compatible, meaning their florets can be fertilised by other florets from the same flower head. All varieties of sunflower cross fertilise. There are wild sunflowers in some regions which can fertilise cultivated ones. The same occurs with the Jerusalem artichoke, a close species, botanically speaking.

To avoid cross-pollination between varieties, grow two varieties of sunflower 1km apart. You can reduce this distance to 700 metres if there is a natural barrier such as a hedge between them. If your garden is close to a large sunflower field or if you want to grow several varieties close to each other in the same garden, you will need to pollinate the flowers manually to protect the purity of each variety.

It is quite simple to pollinate flowers manually. You need to wrap each flower head in a solid and waterproof paper kraft bag before the flowers start blossoming. When they are in bloom, take the bags off two plants that are next to each other. While you do this, watch out for bees and bumblebees that will constantly try to come and visit unprotected flowers. Gently rub the flower heads against each other. When you have finished, put the bags back on. Blossoming lasts 5 to 10 days, so you must do this every day during this period. You can leave the sachet in place until you harvest the seeds.

Life cycle of the sunflower

Sunflowers grown for seed production are cultivated in the same way as those for their seeds or flower heads. To ensure good genetic diversity, it is better to grow at least 10 plants for their seeds.

Be careful to select the seed-bearing plants according to the criteria specific to the variety, such as height, size and colour of the flower heads as well as the quality of the seeds.

The seeds are formed progressively, starting from the periphery of the flower head and going towards the centre. Harvest the sunflower when the head is full of seeds and the petals have started to fall. Birds are very fond of sunflower seeds, so don't wait until the whole plant has dried before harvesting as all the seeds may have gone! Rub the heads to remove the dried flowers and let them fall to the ground. Also, cut the outer petals so that the flower heads can dry better. Then put them in a dry and airy place, with the seeds facing upwards to avoid mould or fermentation.

Extracting - sorting - storing

Rub the flower head and the seeds will fall. You can also put a metal mesh on a bucket and rub the flower heads on it. Leave the seeds to dry fully in a dry and well-ventilated area. To make sure drying is complete, try to fold a seed. If it breaks, it is ready to be stored. To finish, winnow the seeds to remove unwanted debris. To do this, place the seeds on a plate or a winnowing basket and blow on top of it. This will remove the lighter waste.

Place the seeds in a sachet and add a label inside indicating the species and variety as well as the year of harvest. Leaving the seeds in the freezer for a few days will kill any parasite larvae.

Sunflower seeds have an average germination capacity of 7 years. Storing them at a low temperature can lengthen this period.

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This text is the voice-over of an educational film about seed production, hosted and downloadable on www.diyseeds.org