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# FROM SEED TO SEED

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## Educational films on seed production



### MANUAL POLLINATION OF CUCURBITACEAE

The flowers of Cucurbitaceae can be pollinated by hand to prevent unwanted cross-pollination. The advantages of this method are its simplicity and the fact that it enables you to grow several different varieties of the same species in the same garden without having to isolate them.

Let us first look at manual pollination of flowers of larger Cucurbitaceae.

The evening before you carry out manual pollination, you should identify female and male flowers of the same variety that are about to open. At this time, they are a characteristic creamy yellow colour and have not yet opened. The flowers only bloom for one day. Female flowers have a small baby fruit on their stem that has not started to develop. Male flowers have a slender stem that does not bulge out.

The female flowers that you have chosen on several plants are closed using a clothespin, adhesive paper tape or a small piece of string loosely tied to avoid damaging the flowers. To ensure good genetic diversity, for every female flower chosen three male flowers on different plants are closed in the same way. This prevents insects from entering the flowers early in the morning. To make it easier to find the selected flowers the next morning, they can be marked with stakes.

The next morning, the male flowers are removed and applied to the female flowers that were chosen the previous evening. It is necessary to start well before the heat of the day. Otherwise, the pollen will ferment, it will no longer be fertile, and the flowers will close up again. The petals of the three male flowers are carefully torn off. The female flower is unclipped and opened gently and the pollen of the three male flowers is applied to the stigma of the female flower.

If a bee has the bad idea of coming and collecting the nectar from the female flower that is currently being pollinated, the flower should be removed. Bees carry a mixture of pollen from other plants and cross-pollination would be inevitable.

Once manual pollination is complete, the female flowers are gently closed and they are tied shut again as they were the previous evening. To find the manually pollinated fruit at harvest time, the peduncle is marked with a label or a coloured piece of string.

Manual pollination of Cucurbitaceae whose flowers are far smaller requires much more meticulous care and patience. With melons, where 80% of the female flowers abort spontaneously, manual pollination is less efficient than insects. A success rate of no more than 10-15% can be expected. In contrast, the success rate of manual pollination of watermelons is 50-75%. The rate for cucumbers is 85%. Other kinds of plants such as corn and sunflower require a slightly different method. Refer to the modules on each specific vegetable.