



# VARIETY CREATION

## What is variety creation?

The creation of a new apple variety is a long process. Indeed, 15 to 20 years are necessary to complete all the operations. From the choice of the varieties to be crossed to the selection and tasting of the apples, we present here the main stages of this process which requires precision and patience on the part of the breeder.

### POLLINATION April, year 1

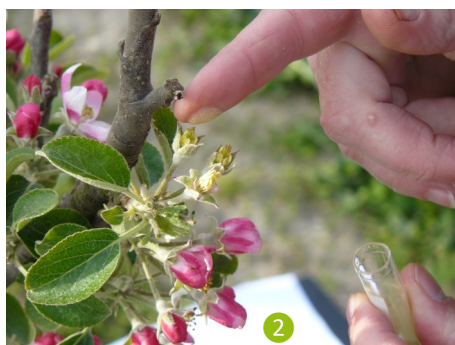
Before blossom, **IFO\*** determines the parents to be crossed. For example, to obtain a green variety resistant to scab, the parents chosen will be a green variety on the one hand and a resistant variety on the other hand.

At the early stage of blossom, after removing the petals, the breeder pollinates the flower of the first parent with the pollen of the second parent, with his finger or with a brush.

The pollinated flowers are then protected from bees and wind with sleeves. This ensures that no other pollen ends up on the selected flowers.



① Pollen harvest ② Pollen from the 1st parent is placed on the pistil of the 2nd parent ③ The pollinated flowers are protected by sleeves.



### STRATIFICATION January, year 2

The apples are harvested in the autumn, the seeds are removed and put into stratification, i.e. they are potted with wet sand at a temperature of 1 to 2°C to satisfy the cold requirements before germination.

### SOWING February, year 2

The seeds are sown in a glasshouse. Each seed is a potential new variety (hybrid).



④ The seedlings from the pips

**\*IFO** is the research and development station of Dalival.



## SCAB SCREENING March, year 2

The young seedlings are sprayed with a solution containing scab.

Susceptible hybrids develop scab and can therefore be excluded from the selection.

The hybrids from this first selection are transplanted.

5 Before screening 6 After screening



## NURSERY August, year 2

The hybrids are budded in the nursery.

## PLANTATION December, year 3

The plants are removed from the nursery and planted in the experimental orchard.

## VARIETY EVALUATION AND SELECTION Years 4 to 15

During these years, a rigorous monitoring of the hybrids is carried out. Different characteristics are evaluated, such as eating qualities, fruit texture, colour, as well as architecture, vigour and yield of the tree. Disease resistance/tolerance are also observed. Few varieties pass this selection.

When a hybrid looks interesting, branches are cut to propagate 4 trees (because at this stage there is still only one tree of each variety). On these trees, the repeatability of the previous criteria is checked, but other observations are added: the blossom date, the consistency of production, etc. The fruits are harvested and preserved to evaluate their storage capacity.

For the best hybrids, branches are again cut to propagate larger quantities of trees:

- **IFO** checks all the criteria mentioned above (agronomy, taste, storage, etc.) on about 50 trees. **IFO** can start showing the fruit to growers and marketers who can plant the variety. At the same time, the steps for the protection of the variety and the registration in the catalogue are taken.
- **IFO** sends test trees to different countries / partner stations to check the adaptation of these varieties under different soil and climatic conditions.

## COMMERCIAL LAUNCH Years 15 to 20

Trees of the new variety are multiplied in the nursery to be sold and planted in commercial orchards and the promotion of the new variety can fully begin.



7 A row of hybrids from the same cross. The variability can be very high

8 Scoring and tasting in the test orchard.

More information: <https://www.youtube.com/watch?v=2TW6Sfbuluo>

[www.dalival.com](http://www.dalival.com)

