MILRAC, A NEW SHALLOT CULTIVAR

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Abstract

The shallot selection began at the Centre des Fougères in 1979 spring, aiming at a stable, healthy and highly valuable material. Today, thanks to the co-ordinated works of several sections (vegetable growing, vegetal production, virology, plant upbreeding, seed control and registration), the "Recherche Agronomique de Changins" is able to present a new variety: MILRAC.

Primary material and selection process

The selection started from 2 populations of halflong red skinned shallot (Jersey type), of French origin, sold in Swizterland in 1979. On autumn 1979 and 1980, electronic microscopy revealed 2 viruses in most of the plants of both populations: onion yellow dwarf virus (OYDV) and shallot latent virus (SLV). The less tolerant plants show typical symptoms of the onion slash disease (slashed feeding of the leaves, which take a crook shape). As for the shallot latent virus, it does not show any disease symptom.

A. Granges and P. Bochud (then J. Perko since 1985) selected the shallot as follows:
From 1200 mother bulbs (500 of the first population and 700 from the second one) planted in spring, 230 clones were chosen in autumn 1979 for the best bulb form, plant habit and yield. The clonal selection method was applied to these 230 clones during the 4 following years, as experienced with the shallot by MESSIAEN: independant cultivation and selection of the clones, elimination in the field of the diseased plants.

Mother bulbs are planted in the end of March; each one gives 8-18 daughter bulbs, 5 months later. As this multiplication rate is strongly correlated to the size of the mother bulb, we use bulbs of the same size for replanting the clones. In this first cycle of 4 years, when the clones were numerous, we planted each year a maximum of 150 bulbs per clone.

In the second cycle, we are keeping only 20 clones and planting them in 3 replicates of 150 bulbs (4 lines beds, spacing of 30 x 20 cm between plants).

The shallot clonal selection needs a 5 years cycle in order to avoid increasing heterogeneity and decreasing productivity, owing to the frequent mutations found in the Allium, when vegetatively multiplicated.

Description of the MILRAC

Breeder: RAC, Centre des Fougères
Origin : two populations of half-long red skinned shallot

Morphological features

Bulbs : half-long, slightly asymetric, thin external skin of copper red colour.
Leaves: light green, straight upward in the beginning then bending down.

Agronomic features

Yield	: good to very good, 2-3 kg/m^2.
Multiplication rate	: 6-9 with small mother bulbs, 12-15 with average mother bulb.
Weight of bulb	: middle, 20-30 g.
Taste	: typical, agreeable, well favoured.
Storage capacity	: good, stays easily 6 months in ordinary conditions.

Disease and pest sensibility

- tolerant to onion yellow dwarf virus.
- moderately sensitive to Allium white rot (Sclerotium cepivorum) and to root neck rots (Botrytis cinerea at allii),
- sensitive to Ditylenchus dispachi; check that the soil is free of them, before planting.

Next steps

The Centre des Fougères carries on with shallot selection as follows:

1. keeping the best possible homogeneity and high yield of the MILRAC variety, along with a quest for the most specific flavour,
2. using in vitro micropropagation techniques, from meristems taken from the bulbs, in order to obtain virus free shallot,
3. using the numerous seeds collected from autumn plantations (the half-long shallot is prone to running to seed in these conditions), in order to enlarge the genetic variability (as the shallot is an allogam) and to find a new variety.