



S U C C E S S S T O R Y



## PEST-RESISTANT POTATOES

As part of the initiative proposed through the Ecophyto Plan, IGEPP teams from Rennes and Ploudaniel have contributed to improving the competitiveness of the potato production process by identifying genes that are **resistant to the main pathogenic agents** found in this species: potato blight, cyst and scab nematodes, black leg disease, and other pathogens. The researchers focused on identifying the relevant genes on the basis of precious collections of wild potato growths belonging to the *Tuberous solanaceae* family, in order to create innovative plant material designed to be introduced into the selection programs of breeders of **new varieties of potato**.



### ► PLANT2PRO® BODIES

Unité Mixte de Recherche Institut de Génétique Environnement et Protection des Plantes, IGEPP (Rennes)

### ► CREATION CONTEXT

Since the 1980s, the potato group research activities of the IGEPP have involved molecular biologists and geneticists, pathologists and nematologists, generating **729 innovative lines usable for selection** purposes, 80 % of which carry new resistant genes. Since 1995 these lines have been transferred to French potato selectors, who have used this plant material in their selection programs with a view to developing new resistant varieties. The establishment of public/private partnerships has led to the inscription in the catalogue of **13 resistant potato varieties** by French plant breeders since 2008.

### ► ADDED-VALUES FOR COMPANIES

While potato production was once one of the sectors with the highest consumption of pesticides, the new varieties today make it possible to reduce their use, thus leading to important financial gains for all the professionals involved. Growing these new varieties considerably reduces chemical inputs in soils contaminated by nematodes. The reduction of pesticides to limit the development of potato blight is of the order of 50 % of the usual dose. These innovations have helped the maintenance of the competitiveness of the industry, with a positive effect on companies' turnovers.

### ► FUTURE PROSPECTS

The genetic diversity available will provide more solutions to a wide range of objectives:

- The development of innovative plant material on the basis of new sources of resistance;
- The acquisition of knowledge about pathogenic populations and their reaction to the deployment of resistant genes (i.e. an analysis of the durability of the resistance achieved);
- The study of the interactions between the resistant plant and the parasite;
- The generation of pre-breeding material usable for the selection and creation of innovative varieties;
- The promotion of agricultural practices that are more respectful of the environment.



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