

Sharing the initial results of the Root2Res project during record-breaking Potato Europe 2024 fair show

The 2024 edition of Potato Europe, hosted in Villers-Saint-Christophe (Aisne, France) and co-organized by ARVALIS and its partners, set a new attendance record with over 18,000 participants. This milestone underscores the vitality of the potato sector and highlights the cutting-edge research being conducted, attracting visitors from around the globe. Workshops throughout the event addressed key production challenges, with a particular focus on climate change resilience.

The event also served as a valuable platform for disseminating the first outcomes of the Horizon Europe project, Root2Res (2022-2027), coordinated by ARVALIS along with the James Hutton Institute (Scotland). The project aims to create practical tools for improving crop adaptation to climate change by enhancing the integration of root traits in varietal selection processes.



In this sense, ARVALIS experts held a conference in front of more than 80 people, mainly farmers, advisors, breeders and economic operators. Katia Beauchêne and Florent Chlebowski presented the progress made so far on developing a potato root phenotyping toolbox that the project aims to provide to research communities and breeders for the creation of more resilient cultivars for farmers. This stems from a literature review and potato industry breeders look for varieties that can withstand environmental stresses such as water stress and nutrient stress.

Root2Res has already reviewed and developed a variety of tools for measuring root systems in both field conditions (such as shovelomics, root coring, soil pits, and minirhizotrons) and controlled environments (including pots, rhizotrons, and filter paper methods). These tools were tested in various environments—field sites in the UK, France, Slovenia, and Morocco—across different soil types and species, such as barley, faba beans, potatoes, and sweet potatoes. Additionally, a rhizosphere phenotyping toolbox is being developed to address

aspects like root exudates, mycorrhizal symbiosis, and the rhizosphere and endosphere microbiome. The most effective tools will be used to screen large populations in future trials.

ARVALIS' scientific and technical expertise was at the heart of Potato Europe 2024, with over 40 experts present in the technical area. In particular, it was an opportunity to demonstrate to the numerous participants coming from all over the globe, with 80 nationalities represented, how soil pits and minirhizotrons work and the root-related information they enable to capture.



PotatoEurope 2025 will take place on September 3 and 4, 2025 in Lelystad, the Netherlands.

What is the Root2Res project?

The Root2Res project (Root phenotyping and genetic improvement for rotational crops resilient to environmental change), funded in large part by the European Union, coordinated by ARVALIS and co-directed with the James Hutton Institute, has a budget of €8.8 million and involves 22 partners in 13 countries. It will run for 5 years, until 2027. The aim of the project is to help crops adapt to climate change by taking better account of root traits in varietal selection schemes.

After validating the relevance and robustness of the tools, the Root2Res project will offer a phenotyping toolbox that can be used in the field and under controlled conditions, with methods that are accessible to breeders and agronomists. Two other toolkits will be delivered on modelling and genetics.

To follow the results of the project, visit the Root2Res website: www.root2res.eu



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