Towards more climate-resilient potatoes: productive exchange between ARVALIS and TEAGASC

A look back at the visit of an Arvalis delegation at the Teagasc in Ireland to research on potato root systems, a collaboration made possible by the European Root2Res project.

Roots: Key to potato survival in the face of climate change

Potatoes are facing new challenges due to climate change. Droughts, heavy rainfall, heat waves, and extreme weather events are becoming more frequent, jeopardizing production and threatening food security in many parts of the world. To address these issues, ARVALIS is focusing closely on the plant root system, a crucial factor in environmental adaptation. This focus is in line with the objectives of the European research project Root2Res, which aims to improve the resilience of crops, particularly in potatoes, by selecting varieties with root traits adapted to abiotic stress.

Franco-Irish synergies for more resilient agriculture

In July, an ARVALIS delegation visited the TEAGASC site at Oak Park in Carlow, Ireland, to strengthen collaboration within the Root2Res project. The visit provided an opportunity to share progress made by both organizations in root phenotyping, variety selection, and rhizosphere studies. Researchers shared insights on their methodologies for field root phenotyping, preliminary results, and future perspectives. One objective was to standardize protocols for observing potato root systems using spade sampling to accurately measure root traits involved in abiotic stress tolerance and to predict variety performance under different agro-pedoclimatic conditions.

This productive exchange highlighted the complementary expertise of ARVALIS and TEAGASC and opened new avenues for collaboration.

The potential of collaboration between ARVALIS and TEAGASC

The collaboration between ARVALIS and TEAGASC, initiated through the Root2Res project, offers numerous opportunities to advance root system research and improve crop resilience. The sharing of expertise, data, and material resources is a major advantage of this partnership. By pooling their skills and geographical specificities, both organizations can accelerate the development of new tools and methods for evaluating root traits, selecting high-performing varieties under abiotic stress, and better understanding plant-soil-microorganism interactions. In addition, this collaboration will encourage the emergence of new European research projects, thereby strengthening the position of France and Ireland in the field of sustainable agriculture. Ultimately, this research should enable farmers to have access to more climate-resilient varieties, more carbon-sequestering cropping systems, and more input-efficient practices, thus promoting sustainability and respect for the environment.

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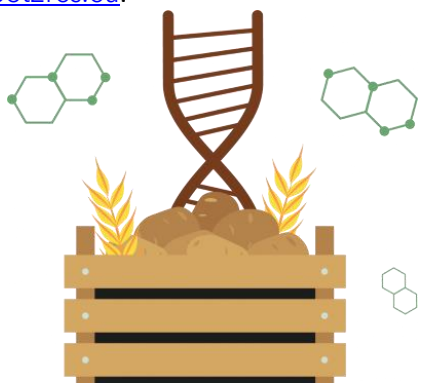
What is the Root2Res project?

The Root2Res project (Root phenotyping and genetic improvement for rotational crops resilient to environmental change), funded mainly by the European Union, is coordinated by ARVALIS and co-led by the James Hutton Institute. With a budget of €8.8 million, it brings together 22 partners from 13 countries and will run for five years until 2027. The project aims to improve crop adaptation to climate change by better integrating root traits into varietal breeding programmes.

After a phase of validating the relevance and robustness of the tools, Root2Res will deliver a toolkit for field and controlled environment phenotyping with methods accessible to breeders and agronomists. Two additional toolkits will be made available for modelling and genetics.

Project updates can be found on Root2Res website: www.root2res.eu.



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