

# Neiker-Tecnalia is researching the potato genes that best adapt to climate change

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Neiker-Tecnalia is currently conducting research into the potato genes that best adapt to the anticipated climate change conditions, characterised by a reduction in rainfall and increased extremes of hot and cold temperatures. The aim is to identify the most resistant genes in order to create new potato varieties that will adapt optimally to future climate conditions. The research is also seeking to find out how the current potato varieties will behave in a situation of greater drought and higher and lower temperatures.

This research is part of the PAPA CLIMA project being developed by an international consortium made up of Neiker-Tecnalia and R&D centres and universities of Argentina, Uruguay, Bolivia, Peru, Ecuador and Costa Rica. This group is looking for new, more resistant [potato varieties](#) as it is a crop that is highly susceptible to climate change and is a staple food for millions of people worldwide.

In the PAPA CLIMA project commercial varieties, native potatoes from South America, old varieties from the Canary Islands and wild species are researched. NEIKER-Tecnalia has evaluated how all these varieties behave with respect to drought and high and low temperatures by means of greenhouse trials, under controlled conditions and by means of field trials carried out in Alava-Araba and Salamanca. In all these trials identical potatoes were sown in order to compare their production under different environmental conditions. The parameters analysed included output, chlorophyll and water content.

NEIKER-Tecnalia technicians have gathered genetic information on each variety at the moment when the plant is under stress; in other words, when subjected to adverse conditions of drought, cold and heat. That way it is possible to observe which genes are being expressed when the plant is under a specific stress. The technique allows the specific genes of the genome participating in the response mechanisms to drought, cold and heat to be identified.

Identifying the genes that make the plant more resistant to drought, cold and heat is essential as a first step towards developing new varieties that will adapt to future climate conditions. It also constitutes essential information to find out how the current varieties will behave when faced with the effects of [climate change](#).

The plant material used in the PAPA CLIMA/CLIPAPA projects included 74 commercial varieties belonging to the species *S. tuberosum*, *S. andigena* and *S. chaucha* (including native varieties from Spain and the Canary Islands), 32 wild species from the NEIKER-Tecnalia germplasm bank, 14 native varieties of South America, 10 advanced clones from NEIKER-Tecnalia's breeding programme, and 45 wild potato inputs collected in Costa Rica.

Provided by Elhuyar Fundazioa

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