

Resilient native potatoes: Safeguarding food security

The initiative preserves the genetic
diversity of native potatoes in Bolivia
and Peru, strengthening food security
against climate variability.



Costa Rica /Bolivia /Peru

-  **+2**
Tolerant varieties validated
and distributed
-  **638**
Target direct beneficiary
farmers
-  **+2**
Expected genomes to be
sequenced
-  **1**
Native potato catalogs to be
developed
-  **+1**
Expected dataset for
physicochemical soil analysis
-  **+2**
Target producer training
events per region
-  **+4**
Target experimental
validation plots
-  **4**
Local technicians to be
trained in aerial
photogrammetry



Protecting native potato diversity

Initiative

We will focus on the recovery and strengthening of native potato crops in Bolivia and Peru, where these varieties play a fundamental role in food security and cultural identity. In collaboration with the Universidad Mayor de San Andrés (UMSA) in Bolivia and the National Institute of Agrarian Innovation (INIA) in Peru, the project combines ancestral knowledge

with modern technology, such as marker-assisted genetic improvement and crop monitoring with drones. Through training farmers in sustainable practices and promoting the native potato market, the project seeks to promote climate resilience and socio-environmental and economic sustainability, safeguarding a key genetic resource.

Innovation in crop improvement and sustainable practices

Tech solution

Through molecular marker-assisted genetic improvement, the project identifies and develops potato cultivars with high tolerance to drought and thermal stress conditions. The varieties are evaluated in experimental plots comparing zero tillage systems with conventional tillage, integrating the use of ancestral agricultural terraces and

synchronization with lunar phases. Additionally, unmanned aerial vehicles equipped with RGB and multispectral cameras are used to monitor the phenological vigor of the crops. Through farmer field schools, local producers validate the use of these methodologies, fostering the efficient management of water and soil resources.

MORE INFO



Impacts and Results

By combining ancestral knowledge with scientific knowledge, we hope to achieve better production of native potatoes, benefiting producers and promoting the revalorization of a genetic resource of great importance for the future of our countries. The project achieved the official registration and distribution of two new cold-tolerant varieties ("Miren" and "Violeta"). By the end of execution, it expects to generate a catalog detailing the agronomic, genomic, and organoleptic attributes of

selected native ecotypes and to sequence whole genomes to identify resistance markers. Additionally, hydrological inventories and phytosanitary diagnostic databases will be created. Through a regional agricultural innovation network, the institutions will transfer these capabilities to environmental technicians and local producers, fostering the transition toward sustainable agroecological production systems.

Main Donors



Organizations

