STORIES
OF CHANGE

Photo: S. de Haan/CIP

Peru:

New potato varieties prove vital for the survival of mountain communities

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Science for a food secure future

Excessive rains and an increased presence of late blight disease devastated the Cusco region of Peru in 2010, which was declared a national emergency area. The following season, the food security of communities in the Paucartambo province of that region was maintained in large part thanks to two improved potato varieties, called Pallay Poncho and Puka Lliclla.

Developed by the International Potato Center (CIP), these two varieties are resistant to late blight disease. Late blight is particularly severe in warm, humid conditions and is increasingly threatening potato production in the Andes.

Making the difference

"Three years after their formal release, the yield of these two potatoes was about 8-times higher than any of the 150 native potato varieties grown in the Cusco region," explains Stef de Haan, CIP potato breeder, adding *"It made the difference between having enough to eat, or not."*

Pallay Poncho and Puka Lliclla give yields of approximately 15-16 tons per hectare, compared to 5 tons per hectare with the traditional native potatoes. Following the floods of 2010, the improved variety yields held strong, while those of the traditional varieties was only around 2 tons per hectare, due to high damage from late blight.

Going up the mountain

Back in 2003, CIP joined forces with the Peruvian Ministry of Agriculture and Peru's National Institute of Agrarian Innovation (INIA) after late blight wiped out the native

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potato harvest of a large farming community in Paucartambo, Peru. It was the first time that late blight had occurred at such a high altitude.

"The rise in temperature due to climate change makes formerly untouched areas fall victim to the potatoes most feared disease, late blight, which is causing more damage with each year," says CIP agronomist, Manuel Gastelo.

The improved varieties were chosen through a participatory selection process with 200 farming families in the affected area from 20 Andigena clones with expected late blight resistance. After 5 years of testing, the two clones with the best properties and performance were chosen in collaboration with the community. They were officially released by INIA as Pallay Poncho and Puka Lliclla.

Long-term investments equal big payoffs

While this example is notable, it is not unique. All over the world, the investment in breeding of improved varieties is showing huge payoffs. A recent study from CIP analyzing survey data from 23 national potato breeding programs in developing countries showed that a rate of return on investment in breeding of approximately 20% per one dollar spent. The net economic benefits were equal to more than $121 million. The study also found that more than one million hectares of land in developing countries were planted with CIP-linked varieties, with most of the benefits (e.g., increased yields, better nutrition, food security, and higher incomes) accruing to poor producers and consumers.

However, the trend toward lower investment in long-term global research initiatives, such as breeding, is threatening to compromise such advances. Likewise, pressures from donors to produce short-term results for targeted programs are moving investment away from upstream research that takes numerous years, but may produce the biggest impacts in the longer run.

Story prepared by

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