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MiamiHerald.com 

Posted on Mon, Sep. 15, 2008

Peru's potato farmers adapt to climate change

BY ELIZA BARCLAY

For the first half of his life, Gregorio Huanuco farmed to a rhythm that dictated the survival of his grandparents and ancestors for thousands of years. He waited for the rains to fall on his small parcel of land in this village at 11,000 feet in the Cordillera Blanca, or White Range, of the Andes in central Peru, and planted native varieties of potatoes as well as cereal crops like quinoa. When the crops ripened, Huanuco, 45, harvested what he needed and sold what he didn't in the city of Huaraz several hundred feet below in the valley.

Climatologists say global warming's impact was first documented in the Peruvian Andes in 1970, but 1990 is the year Huanuco says he began to notice disruptions, first in small, bizarre, anomalous forms: a battering hailstorm, two months without rain, a warm winter. Then the quirky weather became more consistent and other oddities began to appear: rats nibbling away at his cereal crops and a fungus, known as late blight, blanketing his potatoes.

LAND ONCE FERTILE

"Before, we planted all year long, any month we wanted to," Huanuco said, dubiously eyeing his tiny plot, recently sown with potato seed. "Now we only get water a few times a year and so we cannot plant as much, and the pests and diseases keep coming."

As part of an international strategy to boost the profile, production and trade of the potato, the United Nations Food and Agriculture Organization designated 2008 the International Year of the Potato. The Peruvian government is also promoting the potato as a poverty alleviation strategy by increasing production for internal and external markets.

But increasingly, farmers like Huanuco, who depend heavily on a predictable climate, are finding themselves vulnerable and ill-prepared to handle new pests and diseases that have materialized as temperature and rainfall patterns have shifted. Climate change is creating new challenges that may threaten the potato's chance to become a key export product unless farmers learn to adapt.

"Climate change is bringing new and more frequent diseases during the harvest," said Cesar Portocarrero, a civil engineer who has been studying the effects of climate change on the Peruvian Andes for decades. "As the plagues and the temperatures increase, the farmers are forced to go higher and higher up the mountains to avoid them. Eventually they'll have nowhere to go."

According to climate models, temperature in the Andes will increase at a rate more than two times

the global average. This extreme change is expected to irreversibly affect the highland ecosystem.

SHIFTING CROPS

According to a September 2007 study on climate change, agriculture and poverty by the Overseas Development Institute, if governments can shift technical support from crops vulnerable to climate change to more climate change-proof ones, countries like Peru could avoid declines in export agriculture. That transformation is emerging as a critical issue for farmers around the world vulnerable to climate change with dreams escaping poverty.

Though Peru is the birthplace of the potato and Peruvians have been cultivating and consuming them for more than 7,000 years, today the potato barely competes with coffee and asparagus in exports.

Less than 5 percent of potatoes are traded internationally, and prices are mainly driven by local tastes, rather than international demand. The global potato trade has floundered in part because of the difficulty of transporting them: raw potatoes are heavy, susceptible to disease and can rot in transit.

But while the majority of the world consumes white potatoes, a Peruvian government program called Sierra Exportadora now wants to boost exports of native Peruvian potatoes, like yellow potatoes and *ollucos*, which are more nutritious and colorful and appeal to adventurous eaters in developed countries. It has also pledged to provide technical assistance to the 1.8 million potato growers in Peru.

The Lima-based International Potato Center, or CIP, also is also trying to market the native potato and is assisting poor farmers in improving yields, which are generally very low, according to CIP.

But for Huanuco, the dream of a higher potato yield that could help pay for his children's education is slipping further from reach because of climate change.

PAST IS FUTURE

Peru's Agriculture Ministry has begun to take a simpler approach: working with farmers to determine which traditional crops will be most hearty in the face of daunting climate variables that are expected to multiply.

"What we're seeing is that the future is in the traditional crops the farmers already know," said Donato Sandoval Cuisano, an agronomist with the Ministry of Agriculture. "Those are the crops that will be able to persist."

But the export potential of those crops remains questionable until farmers are able to produce greater quantities, and many farmers, like Huanuco, lack the technical know-how or the capital to invest in the necessary inputs and seeds.

Tito Guillen Rosales is the 27-year-old mayor of Coyllur and a small producer of artichokes and potatoes, which he hopes to sell to a middleman for export.

"We know that climate change means we need to try new things, but we don't know how," Rosales said.

LEARNING TO ADAPT

Rosales, Huanuco and some of their neighbors recently began working with a Lima-based organization called Practical Action -- Technologies Defying Poverty, or ITDG in its Spanish acronym, to experiment with new farming and rainwater harvesting techniques.

The World Bank, funded by the Global Environment Facility, also has a climate-change adaptation pilot project for farmers underway, financing seeds and inputs for alternative crops for export.

"The highland regions and potato farmers of Peru are largely ignored by the government," said Miluska Ordoñez of ITDG. ``If we don't push the agrarian problems to the forefront, these areas are going to disappear. People are already leaving because the local climactic conditions aren't allowing them to survive and stay on their land."

Huanuco, for his part, plans to stay on his land and hopes to learn to adapt his farming practices to climate change, access climate-resistant breeds and eventually produce enough potatoes sell on the market.

"We are suffering now, but we are learning that we have to change and adapt," he said.

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