

# POTATO FARMERS IN THE ANDES MAINTAIN BIODIVERSITY

Farmers in the Andes are keeping the genetic variety of the potato going by cultivating up to one hundred different local cultivars. So says Stef de Haan, who did field research between 2003 and 2006 in eight farming communities in the Peruvian region of Huancavelica.



*The great variety of potatoes in Peru is the basis of a healthy diet for the population. Photo: Roel Hoekstra, CGN*

De Haan plotted the genetic biodiversity of local potato species in terms of morphological characteristics, molecular markers and chromosome counts. He counted 557 morphological and 406 genetically unique cultivars in the area. This diversity in the field pretty much corresponded to that of the collection in the Peruvian potato institute CIP where De Haan was working. The CIP collection was put together around 1975.

So De Haan concludes that there has been no genetic erosion over recent years. This is remarkable, thinks Roel Hoekstra of the Dutch Centre for genetic resources (CGN). 'You would expect the diversity to go down'

The Andean farmers keep the diversity going by growing many different cultivars on a patchwork of separate potato patches. This patchwork ensures that risks of disease and pests are spread. Vulnerability to things like frosts, drought and hail is also reduced by this varied cultivation system.

A variety of potatoes is also the basis for good nutrition among the local population, as local cultivars contain more protein and iron.

There is malnutrition in the region, but it is mainly due to lack of vegetables, fruit, meat and milk.

With the exception of traditional fallow systems, the cultivation methods of these farming communities have stayed intact over recent decades, although the area sown with bred cultivars increased between 1995 and 2005, says De Haan.

This happened through the expansion of high altitude cultivation, and not through a replacement of the existing farming system.

De Haan's extensive study has provided the first update in a long time of the gene pool in the birthplace of the potato. For twenty years the Andes area of central Peru was practically inaccessible to researchers because of the conflict between the Peruvian government and the Shining Path guerilla movement. / **Albert Sikkema**

*Stef de Haan is due to receive his PhD on 16 March from Jos van der Maesen, Professor of Plant taxonomy.*