ILEIA research
Highlights Peru

The Peruvian Andes are characterised by several different altitude zones and this has given rise to considerable agricultural diversity. Farmers in the region have had long experience in growing potatoes. They are the staple crop of the region and are cultivated on valley floors and hillsides during the rainy season (September-April) and, under irrigation, during the dry season (May-August).

However, despite their long history and their prominence in the local diet, the potato yields of small Andean farmers are generally low. This is largely due to pest and disease related losses. Intensified potato production, less reliance on local species and varieties, and the indiscriminate use of pesticides has resulted in a high incidence of pests and diseases.

Early in 1997, the ILEIA programme in Peru initiated a PTD process amongst farmer groups in Huancayo (Central Peru) and Cajamarca (Northern Peru). The majority of these groups identified potato pests as a major constraint in agricultural production. It was decided to carry out a series of experiments on controlling late blight (*Phytophthora infestans* - one of the main problems in potato cultivation all over the world), and in the control of the potato moth (*Phthorimaea operculella*), a pest which generally attacks the crop during storage. Farmers have allied with local NGOs and research institutes such as INIA (National Institute for Agricultural Research) to design and evaluate these experiments.

Two different trials on ways of controlling the potato moth, and thus reducing the damage it inflicts on stored potatoes, have already been finalised and evaluated. One trial, conducted by a farmer group in Cajamarca and supported by INIA, involved four different methods of storage:
a) storage in sand,
b) storage in barley straw,
c) storage in quinua chaff, and
d) plain storage, the traditional method of storage that served as a control.

The moth inflicted most damage in the control method, with the result that there was a considerable loss and a low percentage of sprouting. There was virtually no incidence of pest found in the other categories of storage. However, the number and quality of sprouts varied considerably. Straw treatments resulted in a large number of short sprouts with seemingly burned ends whilst potatoes stored in sand had a small number of long sprouts that were easily damaged during planting.

In Huancayo, a farmer group supported by *Grupo Yanapai* and INIA tested three different storage methods: a) plain storage, the traditional method serving as a control, b) use of herbal ashes, and c) use of petrol traps. Generally speaking, farmers considered treatment with ash to be the best. The problem with petrol traps was that petrol often spilled from the traps and damaged the potatoes.

New trial designs for 1998 have been formulated on the basis of these results. The exchange of results between the two different farmers' groups and the support of research institutes such as INIA (for example, in terms of training on the life cycle of the moth, plus monitoring and evaluation of results) has been an important stimulus.

However, the question of what strategy farmers will adopt towards controlling pests in the near future remains an open one. The government has eliminated the tax on pesticides making them more easily available to farmers. PTD as it is being implemented at present concentrates on one specific agricultural problem and technique. The challenge to ILEIA and its partners is to extend beyond this technique to sustainable development of the farming system as a whole. To this end, ILEIA is monitoring and analysing the economic and ecological performance of a limited number of ecological and conventional farming systems within Peru. This research will not only broaden our understanding of these farming systems and their management strategies, but will also provide information on the economic and ecological costs and benefits involved. Hopefully, this will give us more insight into the bottlenecks and opportunities for sustainable agricultural development - our ultimate objective!

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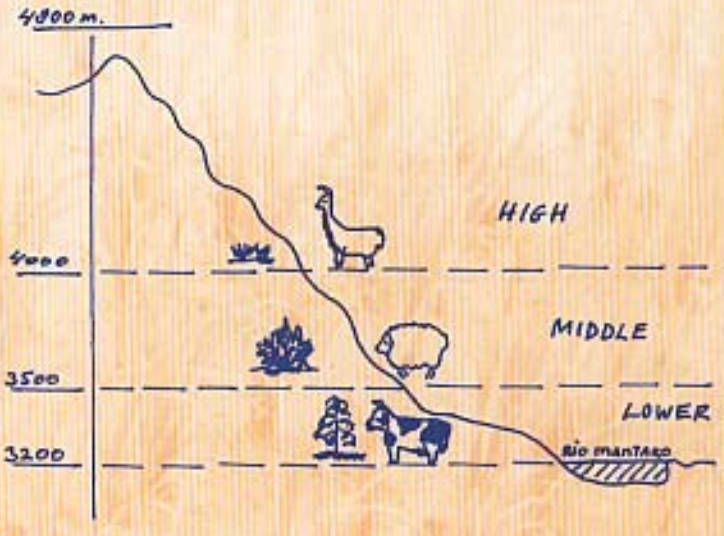

Agro-ecological zones of the Valle del Mantaro