les dossiers
d'AGROPOLIS INTERNATIONAL

Expertise of the scientific community in the Languedoc-Roussillon region (France)

Family farming

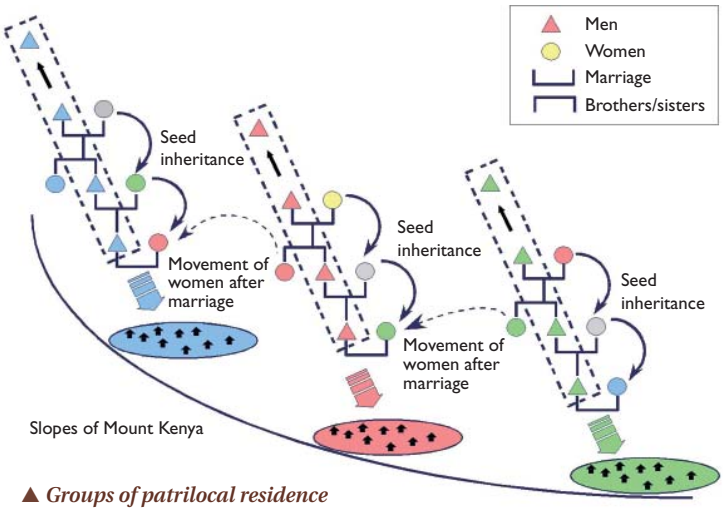
Number 19

Intergenerational seed management in Kenya

Insight into factors that structure the diversity of genetic resources *in situ* is essential to optimize sampling and conservation strategies. Very little is currently known, for instance, on the anthropological factors involved. The diversity of species and varieties cultivated by Meru farmers on Mount Kenya was studied through a combined social anthropology/population genetics analysis.

Studies* carried out by UMR AGAP researchers, in collaboration with French and Kenyan partners, have shown how the social organization of farmers—with their marriage, residence and seed exchange practices—contributes to shaping the genetic diversity of cultivated plants by promoting their adaptability to environmental conditions. The conventional genetic-environment interaction (G×E) was broken down into a triple interaction (G×E×S) to specify the social component (S) in order to explain the observed variability.

This model revealed the different environmental and cultural effects on the organization of diversity. Among the social organization levels, neighbourhood groups were found to represent an essential sociological unit with respect to heritage and seed exchange practices and were thus a key factor in agrobiodiversity organization. However, clans and age had less of an impact. The mother- to daughter-in-law seed legacy practices, combined with residency rules, promoted variety adaptation to local conditions, especially in response to climatic variations. The community history and differentiation patterns were thus reflected in the cultivated species and varietal patterns.



▲ *Groups of patrilocal residence on the slopes of Mount Kenya.*
After their marriage, each woman can have her own field on her husband's farm. She inherits seeds from her mother-in-law. Seeds are thus transmitted from mothers- to daughters-in-law over the generations. Varieties are preserved at the same elevation, hence favouring their adaptation.

The study of the social factors structuring genetic resource diversity is therefore an important prerequisite for the collection, conservation and improvement of these resources in a participatory framework, while providing a basis for the recognition of farmers' rights.

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* in the following projects:
- AfriCrop: *Étude de l'histoire évolutive des plantes domestiquées africaines* (French National Research Agency, ANR)
- ARCAD: Agropolis Resource Center for Crop Conservation, Adaptation and Diversity – Subproject 3. Cereals in Africa: from advanced to under-utilized crops. www.arcad-project.org
- PICREVAT: Predictability of climatic information to reduce the vulnerability of tropical agriculture (ANR)
- ATP CIRAD: *Reproduire des plantes, reproduire une société*

Role of cooperatives in family farming dynamics in Peru

P. del Socorro Olaechea Silva © Costach

▲ *The Costach cooperative, an organization to enhance the income of affiliated farm families.*

Under the Empowering Smallholder Farmers In Markets (ESFIM) programme, European research agencies (CIRAD, Wageningen University, Natural Resources Institute) are conducting studies in 11 countries in collaboration with market-oriented farmers' organizations. Family farming changes and innovations should be thought out and managed collectively. Cooperatives have a pivotal role in local dynamics as a means of collective action.

In this setting, UMR Innovation collaborated with the *Tallán-Chusis* cooperative (Costach), which has been developing in northern Peru since 2007, with the aim of reviving the Pima cotton sector through economic solidarity. Despite the fact that the cotton grown in this area is of exceptional quality in terms of the fibre length, strength and fineness, the cropping area decreased from 60 000 ha to only 1 500 ha (2010) in 30 years. This was due to the fact that the local textile industry benefitted from the reduction in import taxes and replaced this local cotton by a poorer quality imported cotton, while still flaunting their exported textiles as being made with local cotton. In collaboration with the cooperative, UMR Innovation demonstrated that local Pima cotton is a very attractive niche product, but the market and production systems have to be reconstructed.

Costach must therefore focus on building regional and international relationships and regaining some of the added value by championing different parts of the cotton sector in order to compete with local industries. Costach was finally recognized by different stakeholders (Ministry of Agriculture, investment banks, municipalities) in 2011, and managed to negotiate purchase prices and arrange for its members to benefit from seasonal loans and preharvest advances. In 2012, the cooperative had 5 600 family farmer members (3-5 ha, cotton with a relay food crop) and was able to increase the Pima cotton cropping area to 12 000 ha. On the strength of this experience, Costach will build its own cotton ginning and spinning mill, supervise variety testing, begin a process to register the denomination of origin and thus help to revitalize the local economy.

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For further information: www.esfim.org/collaborative-research/peru