

les dossiers d'**AGROPOLIS** INTERNATIONAL

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



Family farming

Farming and livestock *production systems*

Family farming feeds three billion people in developing countries, not through improvised techniques, but rather on the basis of precise technical systems and sophisticated skills. Ninety-five percent of the world's cocoa cannot be produced without advanced expertise. Nineteen billion animals cannot be raised without a sophisticated herd feeding strategy. Tropical farmers have thus developed efficient technical systems founded on gradually enhanced, tested and proven local know-how. An analysis of these farming systems revealed amazing features: Cameroonian and Thai farmers grow cocoa and rubber trees outside of the usual cropping areas delineated by agronomists; Egyptian family farmers produce 80% of the milk supply for the Cairo metropolis; smallholder family rubber plantations in Thailand account for 95% of the country's total rubber cropping area, etc.

These and other examples highlight how researchers of Agropolis member organizations take local technical knowledge and stakeholders' practices into full account in their research. They show that it is possible to co-build and design tailored and enhanced technical systems in collaboration with farmers so as to boost agricultural production without disturbing rural areas. Ongoing research on farming and livestock production systems also take the now essential agroecological dimension into consideration. The latest results show that agricultural production can be achieved using ecological principles and without a heavy environmental impact. Rather than promoting protected areas, agroecology applied to family farming supports efforts to combine production and protection (land sparing vs. land sharing): on modern family farms imagined by these researchers, environmental resources are protected and people are fed. The research units and examples presented in this section illustrate this challenge:

- Who would have imagined that soil from termite mounds could be used as fertilizer? UMR LSTM has. This soil is applied by women in vegetable crop plots to enhance plant growth and reduce attacks of certain pests.
- In Cameroon, UPR Performance of Tree Crop-Based Systems showed that, despite obtaining lower yields than on commercial palm plantations, oil palm is an essential crop for family smallholders. The crop is managed in association with food crops, so as to ensure a long-term source of income.

- Horticulture is a key to achieving global food security and balance. In Guadeloupe, UPR HortSys developed cover crop techniques to reduce herbicide treatments in citrus plantations.
- Conservation agriculture is a promising technique that combines minimum tillage, cover crops and crop rotations. UPR AIDA is investigating ways to integrate soil-enhancing properties.
- Natural rubber is a high quality renewable resource that can reduce nonrenewable fossil fuel consumption. In Thailand, UMR Eco&Sols revealed that on some soils cover crops provide substantial natural fertilization for tree crops. UPR Performance of Tree Crop-Based Systems showed that family rubber plantations are capable of adapting to global warming while producing high quality rubber.
- Urbanization in Central Africa places heavy pressure on fuelwood resources. UPR B&SEF encourages assisted natural regeneration of trees with the aim of enhancing slash-and-burn agriculture practices and reducing deforestation risks.
- Research carried out by UMR SELMET on the traditional buffalo milk sector in the Cairo region highlighted its crucial role in supplying milk to this urban centre.
- Research conducted by UMR INTREPID revealed that traditional fish farming provides a supplementary source of income for family farmers.
- In Morocco, UMR G-EAU supports discussions between irrigators and institutions to explain different irrigation strategies geared towards saving water.
- Through participatory epidemiology studies, UPR AGIRs and UMR MOISA combine disease monitoring and insight into economic factors influencing disease management by family livestock farmers.

The regional scientific community's in-depth knowledge on farming and livestock production systems of family farming is a mark of the respect these systems deserve and contributes to their protection. Not all of those systems will survive, but at least their awareness will be enhanced.

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