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

Family farming

Number 19

Small-scale food processing in developing countries

The joint research unit *Integrated Approach to Food Quality* (UMR QUALISUD, CIRAD/Montpellier SupAgro/UM1/UM2) conducts research in the agrifood sector—from postharvest or postslaughter food quality development to the assessment of the food's sensory (taste) and nutritional qualities, health benefits and safety. The unit has thus adopted a multidisciplinary approach while also taking the heavy constraints that prevail in developing countries into account—energy costs, water access, manufacturability and equipment maintenance, raw material specificity and variability—in order to:

- control dynamic food quality-building mechanisms, which requires full knowledge of the food matrix and its interaction with the environment
- eco-design of robust inexpensive processes in compliance with the raw material and end product qualities.

UMR QUALISUD is structured in three teams working in three research areas: food quality determinants, controlling food chain contaminants, and processing procedures.

Foods are often manufactured on a small scale in developing countries. QUALISUD thus aims to meet the needs of food processing stakeholders on family, small-scale and small company levels. The unit's main issues on these topics are: how to bring added value to family production units while reducing losses and controlling quality?
Many examples illustrate the research carried out by QUALISUD regarding family food processing:

- supporting small producers in cocoa and coffee sectors in Africa and South America to help them enhance their production so that they will obtain better prices
- improving postharvest technologies for tropical cereals (fonio, millet, sorghum, rice, etc.), roots and tubers (cassava, yam, etc.)
- promoting small-scale fruit processing technologies to enable families to consolidate their small-scale activities
- improving and developing traditional African products and associated know-how.

UMR QUALISUD is present in developing countries with agents posted in overseas partner institutions (Réunion, French Guiana, Guadeloupe), South America (Costa Rica, Colombia, Mexico) and Asia (Thailand, Vietnam). It has long-standing collaborations in Africa via partnerships with universities and national research centres. ■

African food tradition revisited by research

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▲ *Sun drying onions in Dogon country, Mali.*

The aim of the African Food Tradition Revisited by Research (AFTER) project is to improve traditional African food products and their associated know-how while sharing European and African knowledge and techniques in order to benefit consumers and producers on both continents.

This European Union funded project (FP7/2010-2014) is coordinated by UMR QUALISUD. It involves partners from seven African countries—Benin, Cameroon, Ghana, Egypt, Madagascar, Senegal and South Africa—and four European countries—France, Italy, Portugal and the UK.

By studying traditional food products, the AFTER project intervenes at the interface between know-how (often of families) and food production by small food production companies that aim to market their products on African and European markets.

The project first acquired scientific knowledge on know-how, technologies and processes regarding the studied products. Based on these data, the team was able to suggest improvements to traditional processes through reengineering* of unit operations with the aim of improving food security and the nutritional quality of traditional products while preserving or controlling their organoleptic characteristics.

Consumer studies were also conducted in Africa and Europe to determine objective criteria regarding the acceptance of traditional products and to ensure that some products could be marketed in the European Union.

Throughout the project, regulatory and ethical aspects and the protection of intellectual property rights of African people were taken into account. The results were presented so as to be ready-to-use by small-scale African food processing stakeholders: families, craftsmen and small food companies.

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For further information: www.after-fp7.eu

* Food process reengineering: redesigning processes to substantially improve the quality of the food product.