

Cinzana Agricultural Research Station

Crop research project



Quality Seed for The Sahel

Throughout the world, but particularly in the Sahelian countries, expanded production of cereals appears to be the most efficient solution to increasing food shortages. Cereals provide the greatest amount of food with near-balanced nutritional value. Agricultural research has made great progress in increasing and stabilizing cereal yields, notably in rice. Thanks to these research successes productivity increases, previously possible only through extensive cultivation on good soils, can now be achieved with intensified cultivation on marginal soils as well. For parts of the world such as The Sahel this is a highly important progress.

International research focuses its attention on rice, wheat and maize. But these crops alone cannot cover the growing food needs of the poor countries. They are neither the most nutritious grains nor - measured by the conditions they require in terms of climate, irrigation, soil quality, tillage, and so on - do they produce the highest yields. This situation is all the more regrettable because crops indigenous to The Sahel - above all millet and sorghum - are potentially the best sources for increasing local agricultural production.

In Mali, even though around 1.5 million hectares, or about 75% of its cultivable soil, are planted with millet and sorghum, there is still a shortage of food. The high population growth rate, stagnation in agricultural output and low income levels among the rural population are all obstacles to food security. Moreover, average yields vary considerably, between 300 to 1000 kg per hectare, depending on the region and the annual rainfall. Hardest hit by food shortages are those who live in Mali's arid regions, already the country's poorest to begin with.

The challenges posed by a rapidly growing population and the shrinking or increasingly barren areas suitable for cultivation are huge. This is why millet and sorghum varieties that enable

higher and more stable yields are so important.

Since it is becoming more and more difficult to expand the area of land under cultivation, finding new ways of increasing yields per hectare takes on greater and greater urgency. Securing those yields is the next priority. Breeding programs aimed at increasing and securing yields can prove decisive for developing countries in a number of respects:

First, improvements resulting from seed research and breeding can be incorporated into existing agricultural production systems without having to wait for necessary but notoriously sensitive political and economic reforms. If the introduction of new, drought-resistant millet varieties makes it possible to grow food again on land where traditional varieties no longer thrive on account of erratic rainfall, then for the people of The Sahel this is a positive development. And this first improvement can be built upon, even if extension services for small farmers, prices, and other economic and social factors (unfortunately) remain unchanged. Breeding is also cost-effective. In addition, it is readily accepted by the rural population which, as a rule, is traditionally well acquainted with breeding.

Despite its obvious importance as a staple food for large segments of the population in the semiarid and arid tropics, up to the mid-1970s millet got scant attention in research and breeding programs. This want in respect of The Sahel's most important food crop was one of the arguments for setting up the [Agricultural Research Station in Cinzana, Mali](#).

Further reading

- [Survival In the Sahel. An ecological and developmental challenge](#). (Eds.: Leisinger, Klaus M./ Schmitt, Karin M. (Hrsg.) / International Service for National Agricultural Research (ISNAR)), The Hague 1995. ISBN 92-9118-020-3. 202 Seiten. (*also available in [French](#) and German*)
- **Transfer de technologies des cultures sèches par la Station de Cinzana en milieu paysan**. By Robert Berlin 1996, École Suisse d'Ingenieurs en agriculture internationale. 3052 Zollikofen/CH.
- **Mali: The Millet Story**. Video produced by UNDP, 1996. Duration of film: 10 min. Available as PAL and SECAM tapes; languages: German, English, French and Spanish