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AFRICA TAKES A FRESH LOOK AT TRADITIONAL FOODS

by Jean-Marc Fleury

In Bambey, Senegal, the woman carrying two bags of millet flour newly purchased from the pilot flour mill, says "Neex na sakan na!"... "This is good, we got our money's worth!"

In Kaduna, Nigeria, the manager of the state-owned National Grain Production Company, which markets flour produced from local maize, says "If we produced twice as much, we could probably begin to meet the demand."

And in Pitsane, Botswana, the new sorghum mill had no sooner started production than it was unable to keep up with demand.

Each of these mills sells flours made from cereals -- millet, sorghum, and maize -- grown locally in the countries where the mills are located. In each case the key to the mills' success was a simple, efficient dehuller developed by the Prairie Regional Laboratory (PRL) of the National Research Council of Canada with support from IDRC.

The PRL dehuller can remove the seed coats of tropical cereal grains (millet, sorghum, and maize) as well as tropical grain legumes (cowpeas, pigeon peas, and soybeans). Once dehulled, grain can be pounded in conventional hammer mills to produce the sort of local flours that are rapidly winning over consumers. Thanks to this new mechanical milling system, present-day Africa is re-acquiring a taste for its native cereals.

Ironically, the food grains that are easiest to grow in Africa are difficult to prepare for consumption. Using traditional processing methods, African women spend from two to five hours a day dehulling and grinding sorghum or millet grain by hand with a mortar and pestle. This is the picture of

traditional Africa: women laboriously pounding grain.

In some buildings, African architects actually still set aside special areas for this activity, but fewer and fewer women can find the time and energy to devote to pounding grain these days. Traditional cereals are losing ground to foods that require little or no preparation, such as rice and bread.

Vendors of sorghum or millet flour processed the traditional way are easy enough to find in any marketplace. But these flours deteriorate quickly, explains Hyacinthe Mbengue, manager of the pilot dehulling/milling unit in Bambey, Senegal. "In the traditional process, we add about 600 grams of water for every kilogram of millet to be dehulled -- the seed coat of the grain is easier to remove when it is wet. The grain is then left to dry in the wetting gourd, but the resulting flour still contains 30 percent water."

Flour prepared the traditional way starts turning rancid the moment it is dehulled. It must be used within two days of purchase. Generally speaking, local cereals are not available in a form that allows consumers to store them at home in a convenient ready-to-use form.

The mechanization of the milling process, during which the dehulled grains are ground into flour, has come a long way. Throughout Africa, homemakers can take their cereals -- after they are dehulled -- to small neighbourhood mills and have them processed to order. Until recently, however, there was no appropriate device for mechanically dehulling the grains, and this created a serious bottleneck in the marketing of local cereals and legumes.

Sturdy and simple, the PRL dehuller offers many advantages. Basically, the machine consists of a metal housing containing a series of rotating Carborundum stones similar to those used to sharpen cutting tools. The seed coat of the grain is worn off as it rubs against the stones, the rough panels of the dehulling chamber, and the other grains. No water is used. Grains of various sizes can be processed without complicated adjustments, and it is also very easy to adapt to different types of grain by regulating the input and output rates.

Since the prototype was manufactured in 1973, several versions of the "PRL" mills have been tested in a dozen countries. In trials matched against all other devices on the market in Ethiopia, Mali, Senegal, and the Sudan, the machine proved to be the best suited to processing tropical cereals and grain legumes.

In Bambey, a small city of some 10 000 inhabitants not far from the National Centre for Agronomic Research, the pilot dehulling/milling unit began selling its flour products last October.

In Nigeria, the most populous nation in Africa, the prospects raised by the new milling system are as vast as the country itself. The influx of petrodollars has catapulted 90 million Nigerians into the twentieth century and agriculture, once flourishing, is reeling under the impact of imported commodities, including rice and wheat. Young people are leaving the land and many fear the country will be dangerously dependent on imported food when the oil boom is over. "Our imported food bill has reached such proportions that we're in danger of becoming a nation of starving people," says B.F. Iyiola, head of warehouse operations at the National Grains Production Company (NGPC) head office in Kaduna.

The IDRC has supported NGPC since 1972 to develop an up-to-date technology for processing Nigerian cereals and food legumes. The first model of the PRL dehuller was, in fact, designed for Nigeria. From 1973 to 1978, the first pilot flour mill in Maiduguri, in the north, produced flour from sorghum and maize. At the same time it was forced to close its doors because of management difficulties, another pilot mill -- this one equipped with two PRL dehullers -- was opening in Kaduna.

Until now, apart from the consumers' initial mistrust of any new product, the main stumbling block to marketing composite flour products has been the problem of inadequate supplies of local cereals. In Upper Volta in 1974 and in Senegal in 1980, the sale of bread incorporating, respectively, 30

percent sorghum and 30 percent millet had to be suspended for want of sorghum and millet.

However paradoxical it may appear now that the processing technology is perfected, inadequate supplies of local cereals may become the main obstacle in Africa to the spread of mills such as those found in Bambey, Kaduna, and Pitsane. Millers are experiencing enormous difficulties in buying enough grain of good quality to keep their mills in constant operation.

Local cereals, in fact, have not found their way into the modern commercial channels. Most of the millet, sorghum, and maize is consumed by the farmers themselves who, from generation to generation, have been growing their "own" varieties. City-dwellers must thus turn to imported cereals. The commercial channels may bustle with the movement of cash crops such as peanuts, cotton, cocoa or coffee, but no comparable market structures have been established for local food crops. The new millet, sorghum, and maize mills should contribute to the formation of modern marketing networks. But it will take time.

One strategy to speed the process is to move the mills closer to the producers. This was done in Kanye, a small town in Botswana where the PRL dehuller was modified to process small batches of grain. Thus, each family can have its own grain ground into flour, ensuring that it eats the kind to which it is accustomed. The dehuller can process as little as 10 kg at a time, the average quantity found in the bags used in the surrounding countryside.

The "public" flour mill in Kanye, as opposed to the other "continuous-flow" mills, eliminates the supply problem because the customers supply the raw material. The success of this approach also proves that the technique is cost-effective on a small scale.

But perhaps even better is the "mini" version of the PRL dehuller that can mill as little as two to five kg of grain at a time. This is roughly the

same amount that thousands of village women throughout Africa manually pound each day. In Mali, technicians from the FAO and the Mali office of research on food crops and oilseeds proved that the "mini-PRL" outperformed all other existing devices in terms of energy consumption, time, and quality of dehulling.

Whether it be at the industrial level as in Pitsane and Kaduna, at the semi-industrial level as in Bambey and Kanye, or at the neighbourhood or village level as in Mali, there now exists a mechanical milling system capable of processing Africa's own grains.

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