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Millet has many faces

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Report Highlights:
Read why millet is such a vital crop for rural Senegal. It's not only a hardy and nutritious staple, but one associated with life's major events. Financed by USDA/Foreign Agricultural Services (FAS) Food for Progress program, the Cooperative League of the USA (CLUSA) helps millet farmers improve yields and address food security.

General Information:

Millet has many faces

A visit to CLUSA's millet project, supported by USDA's Food for Progress, September 26-27, 2011

Healthy millet, thick heads.
(Source: FAS Dakar)

USDA/FAS Food for Progress assistance. Joani Dong, Regional Agricultural Attaché for West Africa for USDA/ Foreign Agricultural Service (FAS) (based in Dakar, Senegal with the U.S. Embassy), paid a visit on September 26 -27, 2011, to USDA's *Food for Progress* (FFPr) financed millet project, led by Alphonse Faye, the National Cooperative Business Association's (NCBA) Cooperative League of the USA (CLUSA) country director for Senegal.

This three year program was to have begun in 2009, but because of delays stemming from the 2008 global food crisis; CLUSA had to wait a year for authorization to monetize. USDA picked up the tab for ocean freight from the Gulf to Dakar. Finally, in April 2010, CLUSA sold 4,200 tons of USDA donated soy oil for $3.6 million. An additional $1.0 million from CCC provided $4.6 million to run the program and establish a microcredit guarantee fund. CLUSA has asked FAS Washington for a "no-cost extension" to prolong the program to 2013 to make up for the delay.

The U.S. government's global hunger and food security initiative called "Feed the Future" (FtF), led by the U.S. Agency for International Development (USAID), designed to finance and support country-driven approaches to address the causes of poverty, hunger and under nutrition focuses on Senegal as one of its priority countries. Under FtF and the government of Senegal's National Agriculture Investment Program (PNIA), the millet value chain was chosen as one of the most important staples to which resources would be directed. In fact, the PNIA production target is 1.0 million tons per year by 2015.

Agronomic survivor. So why does CLUSA focus on millet? This amazing crop beats out other major staples such

as rice and sorghum as the most drought resistant, vital to subsistent rural communities where soil fertility is poor and rain is fickle. About 1.0 million hectares or one-third of Senegal's arable land is devoted to this commodity. CLUSA works in the Senegalese regions of Kaolack, Kaffrine and Fatick where most of the country's millet and peanuts are grown, typically on sandy soil. In fact, millet is interchanged with peanuts from one year to the next. This relationship is vital as peanuts help fix nitrogen into the soil.

Stand-ins, but not replacements. There are alternate crops such as manioc, cassava, cowpea, sesame and bissap, but they have their limitations. Manioc (cassava) cannot be substituted as a staple since it is a tuber. Cowpeas can't be grown in big quantities, and they are subject to Maruca pod borer infestations. Sesame is not as versatile as millet. Bissap is harvested after millet and peanuts so there are problems with livestock trampling over unfenced fields. Sorghum is a major staple and drought resistant, but its deeper roots need better moisture retaining soil.

Pounding away to dehull millet, baby In tow.
(Source: FAS Dakar)

Nutrition and culture. Besides agronomic reasons, millet is nutritious, i.e., high in ash, calcium, iron and protein. Also, it has deep cultural roots. In this region, millet is the man's responsibility in the field. Women help with post harvest activities to: 1) remove grains from heads (thresh); 2) remove the outer layer from grains (dehull); and 3) trans- form dehulled grains into flour. Women may work together over a mortar and take turns pounding pestles in a rhythmic pattern. Post was told that it takes over an hour for a woman working alone to dehull two kilograms of millet.

In villages, millet flour, mixed with water and sugar create a drink to fight fatigue. The sick may be given a salty dish made of broken millet flavored with peanut sauce and limes (or bissap for a sour taste) to generate energy and appetite. Millet is consumed on major family and religious celebrations by all ethnic and religious groups. For example, there are sweet porridges (known as "bouillie") including Laax, offered when a bride visits her new husband's parents for the first time or during a breakfast for the naming ceremony of a newborn; Nàkk, served to guests offering condolences at funerals; Ngalax, eaten for Easter. Millet is made into couscous and served with various sauces such as tomato, peanut or leaves from the "sap-sap" tree. Couscous made with tomato and

chicken is served on the eve of the Muslim New Year known as Tamkharit. Lastly, a mature head is roasted on an open fire like corn on the cob, the grains removed and eaten as a snack.

Shortage. The challenge is Senegal doesn't grow enough given climate change, population pressures and the need for more governmental and private sector involvement. For example, according to the Economic Growth Project study in 2009 (funded by USAID), in Kaffrine (rural community of Touba Béléle) and Kaolack (rural community of Thiaré), 65 and 50 percent of all households respectively only produce millet to feed a family for three to four months. Major West African producers are Nigeria, Niger, Burkina Faso and Mali so there is likely informal trade from nearby Burkina Faso and Mali. India is the predominant supplier of Senegalese imports. Millet farmers have to learn how to improve yields to feed their families, and that's where CLUSA comes in.

Campaign Year	**2008/2009**	**2009/10**	**2010/2011**
Millet Production (metric tons)	678,171	810,121	813,295
Imports - (all from India) (10.08.20.00.00)	21,700	7,888	5,912
Exports (10.08.20.00.00)	Not available	Not available	364

Source: Agence National de Statistique Demographique (ANSD)/Douanes

CLUSA's role. CLUSA works through producer organizations - usually there's one per village - to teach farmers

when and how to plant; how to use conservation farming techniques; how to use microcredit to purchase fertilizer; the importance of using improved seeds; how to multiply seeds; develop new products; and how to market. In turn, farmers train other farmers. CLUSA seeks to link big buyers such as processors to producer organization suppliers. It works with governmental organizations to source technical help on such topics such as soil fertility, seeds and literacy. In the first year of operation, CLUSA has worked with 2,000 farmers; plans to add 3,600 in year two; and another 3,600 in year three.

Couscous and beef in sauce (*left*). Millet at a wholesale market in Tambacounda (*right*).
(FAS Dakar)

Microcredit. CLUSA convened a meeting in May 2011 and invited microfinance institutions to make their pitches. MEC-CCIAK and UIMCEC were chosen. Savings accounts were opened to encourage farmers to systematically save and pay back loans. Eighty producer organizations (2,046 farmers) each obtained a loan at 12 percent per annum interest. They collectively put 10 percent down and received financing for 118,817,500 FCFA ($264,000). CLUSA provided guidance, and these organizations decided that loans for year one (45,000 FCFA per farmer or about $100) would go towards buying enough improved fertilizer and seeds for one hectare, a manageable amount to start with commensurate to the price of a 5-6 month old sheep that could be sold to cover the loan. Producer organizations also decided upon the type of fertilizer and seeds to purchase. CLUSA used funds supplied by FFPr to establish a guarantee fund of 40 million FCFA ($89,000) to cover the three year program. Depending on credit needs; financial capability of farmers; and needs of the microcredit institution, at least 100 loans should be approved in year two and 130 loans in year three. Nonpayment penalties were set by rules established by each producer organization.

Crop cycle and yields. Typically, millet seeds are planted in May-June before the rains, and the crop is harvested in October. The rainy season usually starts in mid-June and runs through September or October. The "hungry season" occurs in August to mid-September when there are no stocks left, and millet has not yet been harvested. Food is scarce, and people go hungry. On average, a farmer may grow 700 kg./hectare, but the disastrous effects of the parasitic striga plant that feeds on millet roots and stunts growth can bring yields down to 200-300 kg./hectare. Millet is especially vulnerable to striga when it grows in poor soil that lacks nutrients. Use of goat or sheep excrement as fertilizer, rich in nitrogen, nourishes the soil and therefore permits millet to develop roots that dig deeper where its hard for striga to reach. This serves to inhibit the growth of striga. Chemical fertilizers also have a similar inhibiting effect. CLUSA has demonstrated how to grow up to 1,200 kg./hectare using better fertilizer, seeds and farming techniques. In fact, its objective is to increase yields from the average 700 kg./hectare by 75 percent. The ideas is that extra production will pay for quality inputs; provide extra millet to feed the family and share with others; have some to sell for cash to pay for expenses,

i.e., associated with family and religious gatherings, schooling and medicine.

FAS Dakar visit. FAS Dakar visited producer organizations in the rural communities of Keur Mandongo (Kaolack region), Lour Escale and Ribot Escale (both Kaffrine region) where Post viewed test plots that measured the effects of not using conservation farming and fertilizer; using conservation farming without fertilizer; conservation farming with fertilizer; phosphate and composting; and goat excrement to fight striga. When plants are healthy, heads are thick with numerous and weighty grains. That is, 1,000 grains together should weigh more than 8 grams.

Post paid an interesting visit to a village storeroom for millet, from which sacks had been distributed in May-June to producer organization members from 12 surrounding villages. Women were entitled to 50 kgs while men could receive 30 kgs. Members were expected to return the same amounts in January-February.

Millet farmers of Ribot Escale. The village chief sits left of center in blue.
(Source: FAS Dakar)

Farmer opinion. Post talked to many farmers appreciative of CLUSA efforts to teach them better production techniques; obtain credit to purchase improved seeds and appropriately formulated fertilizer. Farmers looked forward to receiving more advice on marketing and storage.

One farmer stressed the need to plant more trees to fight drought and wanted help with packaging and labeling millet for sale. There were comments about the current low market price of millet, but price depends on timing and availability. For instance, prices are especially high in August during the hungry season when there is little or no millet available.

Conclusion. CLUSA's focused approach to improve critical millet yields, while encouraging established organizations to work together, also provides a platform for good governance. The goal is to leave a legacy of sustainable results. Food security depends on it.