CASE STUDIES: UPGRADING FOR THE DOMESTIC MARKET AND FOR TRADITIONAL EXPORT COMMODITIES

in quality upgrading are important and can have significant impact on farmer revenues, trade competitiveness, and the total value added by the national industries.

CASE 3: BREWING UP PRODUCTIVITY AND INCOME GAINS LINKED TO SORGHUM

Upgrading Production and Marketing Arrangements

In SSA, sorghum is still largely a subsistence food crop. Its production is crucial to food security given its unique characteristics to resist drought and withstand periods of high temperature. It also grows well in subtropical Africa, characterized by intermittent rains and by brief periods of very high rainfall. In fact, sorghum is not only drought-resistant, it can also withstand periods of waterlogging (Taylor 2010). In Uganda, the crop is mainly grown in drier areas in the eastern, northern, and southwestern regions and is, together with maize and millet, one of the most important staple cereals in the country.

Over the past decades, sorghum production has increased steadily in Uganda, from nearly 350,000 tons in the mid-1980s to almost half a million tons in 2009 (figure 6.2). However, the increase in production has been partly a result of increasing area under cultivation rather than an improvement in yield. Sorghum is mainly used for food and brewing. In an attempt to improve food security and incomes among the rural poor households, SAARI has generated a number of technologies among which are Sekedo and Epuripur improved sorghum varieties released in 1995.

The latter, Epuripur, is a white-seeded sorghum hybrid variety suitable for milling and baking, and was developed for improved processing and diversified utilization of sorghum in the food industry. It matures in about 110 days and yields between 2,500 and 3,000 kg/ha. Sekedo is a brown-seeded variety developed by SAARI, which has been developed to improve on household food security in dry areas of Uganda. It also has good brewing qualities and could be used in the beer brewing industry. It can yield up to 3,500 kg/ha under average management, or higher under good management.

In the early 2000s, Epuripur was the basis for an attractive innovation in the commercialization of sorghum in Uganda, led by Nile Breweries Limited (NBL), a subsidiary of South African Breweries (SAB) Miller. In 2001, the company started its search for the local ingredient to reduce reliance on imported malt, and therefore make affordable nonmalt beer for Ugandan consumers. Low-cost raw materials would represent important cost reductions to the company that would then be passed on to the consumer in the form of a lower price. Epuripur sorghum was identified as a promising ingredient, and after undertaking pilot brewing in South Africa, it was found to have excellent brewing qualities for high-quality clear beer. This innovation gave origin to a new product “Eagle Lager,” which would become a few years later, the second largest brand for the company in Africa (SAB Miller 2008).

Based on its former experience of smallholder sourcing under contracts, NBL decided to establish a partnership with the National Semi Arid Resources Research Institute, Serere (NaSARRI), for the multiplication of the hybrid seed for distribution among the farmers. During the second


Source: Calculations based on FAOSTAT data.

84 Sekedo is a brown-seeded variety developed by SAARI, which has been developed to improve on household food security in dry areas of Uganda. It also has good brewing qualities and could be used in the beer brewing industry. It can yield up to 3,500 kg/ha under average management, or higher under good management.

85 The company established in South Africa in the 1990s its first contract farming scheme to encourage local barley production to reduce reliance on imports.

ECONOMIC AND SECTOR WORK
season of 2002, the company provided 10 metric tons of seeds to farmers in four districts—Soroti, Kumi, Katakwi, and Kaberamaido—initiating the first contract farming scheme for sorghum production in Uganda.

The scheme has benefited from the engagement of other organizations, all playing critical roles. For example, SAB Miller/NBL, together with NARO, NaSARRI, and NAADS, have respectively provided the financial and technical assistance required for the smooth running of the contract scheme; and Afro-Kai Limited (a seed and commodity broker, who joined the scheme in 2003) is responsible for seed multiplication and distribution, as well as for the procurement of the harvested product from the farmers, including transport and storage. Afro-Kai multiplies Epuripur seeds on its own farms and through organized growers. Seeds for planting are then distributed by Afro-Kai via farmers’ associations and governmental and nongovernmental organizations. NBL/Afro Kai does not enter into direct forward contracts with farmers but with district farmers’ associations. The GoU supported the initiative through removing the excise duty paid by NBL on beer produced under the contractual scheme (Eagle Lager and Eagle Extra Lager)—this was increased from zero at the beginning of the scheme to 20 percent in 2006.86

The initial pilot comprised only 350 farmers from four traditional sorghum producing districts. In the season 2002/2003 the number of farmers participating in the scheme increased to 1,133 and reached 8,326 farmers in 2006, generating a supplemental or seasonal labor demand for about 58,238 rural workers. Prior to 2005, the double seasonal production of sorghum by contracted farmers resulted in undersupply—below the projected production quantities, with several factors responsible for this including the reluctance of farmers to adopt the seeds and civil disturbance in 2003.

As a result, Afro-Kai initiated a more aggressive strategy to increase the volume of product reaching NBL’s plant by expanding the number of farmers recruited into the contract scheme, including the recruitment of relatively large-scale farmers. NBL was then a victim of its success, with the 2006 harvest causing oversupply. Increased confidence of a reliable market at a guaranteed price, a better understanding by farmers of the need to buy seeds, access to extension services, and volatility of markets of other cash crops such as cotton, contributed to many farmers embracing the scheme, and, with ample seed available, to the delivery of sorghum supplies more than double NBL’s requirements.

The company honored the contracts and ensured that farmers were informed that the company was not going to buy sorghum in the next season, and it supplied farmers with maize and rice seeds to ensure that their incomes wouldn’t drop off significantly. Yet it also started to put in place a strategy to prevent oversupply in the future, including selective distribution of seeds to limit harvests, indentifying specific communities for long-term relations and more timely communication with farmers. In 2007/2008, the number of farmers involved in the scheme dropped to 1,071. Yet, since then the company’s brewing capacity has been expanded and some 5,800 farmers were involved in the scheme in 2009.

Benefits Accruing to Farmers

Clearly the farmers that have been able to participate in the scheme have benefited from an assured or reliable market, an additional source of cash income, and increased adoption of improved sorghum technologies. Afro-Kai/NBL remains the single largest buyer of Epuripur sorghum, with the other marketing channels available offering lower prices and trading lower volumes. There have been, however, a few occasions when alternative marketing channels have become more attractive. For instance, due to the huge demand for grain in South Sudan some Epuripur sorghum has found its way there.

Since the inception of the contract scheme, NBL has paid over US$5 million to the players involved. Of this total payment, about 56 percent of it has been received by farmers (figure 6.3). Farmers have evidently used this money to meet their household needs (e.g., nutrition, education, health, clothing, entertainment, etc.) and to procure household assets (e.g., land, livestock, bicycle, radio, house, etc.).

**FIGURE 6.3: Percent Distribution of NBL Payment**

<table>
<thead>
<tr>
<th></th>
<th>Percent Distribution of NBL Payment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farmers</td>
<td>56%</td>
</tr>
<tr>
<td>Processors (Utilities)</td>
<td>8%</td>
</tr>
<tr>
<td>Transporters</td>
<td>10%</td>
</tr>
<tr>
<td>Bag suppliers</td>
<td>7%</td>
</tr>
<tr>
<td>Others</td>
<td>19%</td>
</tr>
</tbody>
</table>

Source: Afro-Kai (Reported by Elepu and Nalukenge, 2007).

86 Significantly lower than the duty paid on other beers, which could reach 60 percent.
Other actors also benefit. The company estimates the beer sales revenue at US$43 million per year in Uganda (SAB Miller 2008), generating revenues to the Ugandan government estimated at nearly US$6.8 million on excise duty and VAT of US$4.8 million in 2007/08. Eagle Lager has been part of SAB Miller’s success in Uganda.

The company estimates that farmers have received over US$3.8 million through the program over the past four years, providing a supplemental income of around $250 per farmer over and above their subsistence farming, with each farmer supplying an average of 1.4 tons of sorghum each year.

The introduction of Epuripur sorghum, and its contractual production arrangements, has led to its widespread adoption by farmers. Previously, the adoption of improved sorghum technologies such as improved varieties had been low mainly due to the lack of output markets. For example, improved sorghum varieties that have been developed before but have not been widely adopted include Serena, Seredo, and Sekedo.

Although the scheme does not operate without problems, it does certainly constitute an example of the upgrading possibilities available to private actors, the government, and development partners to leverage poverty outcomes through upgrades at levels 1 and 2. In the example cited, the market served may not have the capacity to engage thousands of small-scale producers; however, it illustrates the power of markets to leverage supply-chain improvements. In Africa, a number of improved hybrid varieties of sorghum are available that can help improve yields (Olembo et al. 2010). The experience in Uganda illustrates how combining improved technology with strong market links can provide a powerful boost even for a crop that is not generally considered a cash crop in Africa.

SAB Miller has recently highlighted the learning that the experience in Uganda has provided to the company’s operations in other locations. In 2005 the company initiated a similar operation in Zambia, operating almost entirely through an in-sourcing model benefiting around 2,600 producers in 2007/08. The operations in Tanzania and South Africa have been implemented through an in-sourcing model, with the company providing directly the support and leading the operation. In Uganda, and most recently in India, the programs used a partnership model, with various levels of engagement by the company, which they believe have provided better results. The partnership model avoids the company taking over responsibilities that are outside its core competencies, but also allows it to get a certain level of control, to be able to get the grip with emerging problems.

CASE 4: AFRICA’S GROUNDNUT TRADE AND EUROPEAN UNION (EU) MYCOTOXIN STANDARDS

Compliance with EU Aflatoxin Standards: A Barrier to SSA Trade to Europe?

Awareness of the safety risks associated with the consumption of products contaminated with mycotoxins—aflatoxins in particular—has increased significantly since the late 1980s, when the International Agency for Research on Cancer (IARC) placed Aflatoxin B1 on the list of human carcinogens. In response, countries have established a set of regulatory measures to reduce risks associated with consumption of products contaminated with aflatoxins. The European Union’s adoption of harmonized standards for aflatoxins in groundnuts and groundnut products in 1998, above the levels that were proposed/discussed at the Codex Alimentarius Commission, has been one of the most controversial food safety regulatory interventions in international trade. It has been argued, and discussion remains ongoing, that the strict EU standards would not significantly lower the health risk to consumers, but they would impose serious costs or technical difficulties on the suppliers. The discussions have also questioned EU methods of sampling and analyzing aflatoxins. It is empirically difficult to determine definitively how one country or region adopting new or more stringent standards affects trade, because of the many repercussions of such

87 Partners in the initiative include the NGO CARE, the Cooperative League of the United States of America (CLUSA), and CHC Commodities, a grain dealer and brokerage firm.

88 For a more detailed analysis of this case see Diaz Rios and Jaffee (2008).

89 EU maximum limits for groundnuts to be subjected to sorting, or other physical treatment, before human consumption or use as an ingredient in foodstuffs were set at 8.0 ppb for B1 for 15.0 ppb for Total aflatoxins. The maximum limit for groundnuts and nuts, and processed products thereof, intended for direct human consumption or use as an ingredient in foodstuffs were set at 2.0 ppb for B1 for 4.0 ppb for Total aflatoxins. Codex maximum limit for peanuts intended for further processing (hereafter referred to as “Codex limit”) was set at 15 ppb.

90 Criticism has also extended to the maximum levels set by Codex, as the recommendations resulting from the risk assessment carried out by JECFA compared relatively low levels (10 ppb and 20 ppb), with critics arguing that the developing-country perspective—that such levels would be very challenging to achieve and would not greatly reduce risk—was not considered during the process of setting the Codex International Standard.