

Community based seed supply in Sudan

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More than 75 percent of the population in North Kordofan state, in western Sudan, depend on agriculture as their main source of food and income. The farming systems in the area are predominantly rainfed, traditional, and operate with limited resources. They are characterised by the small size of holdings, being dependent on manual family labour, and using few or no external inputs such as fertilizers, chemicals or seeds. Farmers have poor access to information and relevant research results, and yields obtained are very low.

Over the last three decades the area has been severely affected by repeated droughts, which has resulted in partial or complete reduction of farmers' seed stock. In addition, the rainy season is becoming shorter (about 90 days), while some of the traditional varieties of millet, sorghum and cowpea are late maturing, requiring about 120 days to mature. This means that planting traditional varieties can be very risky. Farmers are well aware of this problem, and they no longer prefer these traditional varieties. Moreover some of these varieties are no longer available. Many farmers in the area became heavily dependent on relief programmes for the provision of food and seed. In several surveys conducted in the area, communities identified availability of seed as the most important constraint, and seed as the input most needed to raise productivity.

Between 2002 and 2005, CARE International in Sudan implemented a project to enhance the food security status of approximately 65 000 rural families in Sheikan and Enhoud, two localities in North Kordofan. Some of the main components of the project were to improve seed availability through distribution of high quality seeds of improved varieties released by research, capacity building and training of local communities, and the promotion of seed multiplication at community level.

EIObeid Research Station is a local agricultural research organisation established in 1983 to serve the small scale farmers in the traditional rainfed sector. They gave technical backstopping to the CARE project through providing appropriate seed varieties; training farmers and project staff on production technologies;

Table 1. Average yield increase as a result of using quality seeds of improved varieties

Crop	Yield (kg/feddan)		Percentage increase	
	Enhoud	Sheikan	Enhoud	Sheikan
Groundnut	247	327	30	24
Millet	165	111	66	67
Sorghum	135	190	27	10
Sesame	116	109	19	57
Cowpea	193	96	67	52

One feddan = 0.42 hectare



Photo: Author

Khirat bringing groundnut to the local seed company.

developing an appropriate extension program; assisting implementation of the improved technologies and developing a training manual.

The research station adopted the Farming System Research approach, conducting both on-station and on-farm trials. Their research programme started with participatory diagnostic surveys, working with farmers to identify production constraints and their order of importance. From this, the station went on to develop a number of improved, early maturing, stable, and drought tolerant varieties of millet, sorghum, groundnut, sesame and cowpea, which were later used for distribution and multiplication in the three year project. The majority of the farmers in the area had acknowledged the benefits of using these varieties, but the main reason for not using them before 2002 was the non-availability, poor accessibility and lack of extension advice.

Seed distribution

During its three years of operation, the project distributed 136 tonnes of sorghum, 138 tonnes of millet, 447 tonnes of groundnut, 27 tonnes of sesame, and 9 tonnes of cowpea. Each household was provided with 2.5 kg of sorghum, 1.5 kg of millet, 15 kg of groundnut, 1 kg of sesame, and 2 kg of cowpea. The amount of seed provided was enough to plant about 1.5 hectares. Seed distribution was co-ordinated through linkages with relevant government institutions such as the Ministry of Agriculture, agricultural research stations, and community organisations. As these quality seeds of improved varieties became available, yields increased at both project localities (Enhoud and Sheikan); increases ranging from 10 to 67 percent (Table 1). The seed distribution activity was the initial step needed in improving food security in this region, and has improved farmers' accessibility to quality seeds and enhanced the spread of the improved varieties.

Seed multiplication

The next step was to promote the role of local farmers in the continued provision of quality seeds at household and community levels. To achieve this, the project conducted several trainings to strengthen farmers' capacity and knowledge regarding technical aspects of seeds and seed production. Topics covered included quality (e.g. genetic and physical purity, germination rates, absence of weed seeds and diseases),

testing, storage, multiplication, and certification. Researchers and specialists from local seed inspection services participated in these trainings. As a result, farmers have become more aware of the importance of high quality seeds, new varieties, and seed multiplication techniques.

Some farmers showed willingness to produce seeds and follow the necessary multiplication regulations and standards. Multiplication standards such as isolation distance, roguing (removal of weaker plants and weeds), standard cultural and harvesting practices, as well as packing, are not difficult for farmers to follow and attain. Farmers used part of their land for seed production, as land availability is not a problem in the area. Their farms were inspected by the Seed Management Administration of the Ministry of Agriculture, to guarantee production of quality seeds. Inspection fees were paid by the farmers. Other field inspection duties were shared between project staff and research staff. These farmers have since become a source of quality seeds of the improved varieties, and were also able to sell their inspected seeds to the project, to individual farmers, and to formal seed sector companies. This brought many benefits for the communities involved: for example, it was then possible to purchase seeds locally instead of buying externally produced seeds, and transport and seed distribution costs were reduced. Another benefit was that the prices the farmers were able to charge for the seeds became an incentive for promoting and establishing the informal seed production sector. This in turn improved local community income.

Seed repayment

To ensure the continued dissemination and supply of the improved varieties the project adopted a seed repayment system. The purpose of local seed multiplication and seed repayment was to promote the tradition of seed exchange among farmers

One farmer seed producer's experience

Khيرات Salim Khيرات is a 27 year old farmer from Um Diressa village, 35 km west of EI Obeid town. He is the head of the Village Agricultural Committee. Khيرات has been involved in seed production for the last three years. He attended four trainings organised by the project in different aspects of seed production. In the 2005/06 season Khيرات planted and produced:

Crop	Area (Mkh)	Yield (kg) per Mkh
Sorghum ('Yarwasha')	3	360
Sorghum ('Arf Gadmak')	16	405
Groundnut ('Sodiri')	3	540
Groundnut ('Guebish')	2	675
Cowpea ('Ainalgazl')	1	300

*Local variety names are in brackets.
One Mkh = 0.725 ha.*

Khيرات mentioned that he continued to follow seed multiplication regulations and standards such as proper isolation and cultural practices, as it has been taught in the trainings. His fields were inspected twice and an endorsement certificate was issued to him. He managed to sell seeds to neighbouring farmers, a local seed company, projects and the Farmer's Bank. Prices offered were 15 percent more than the regular grain prices. The manager of the seed company in EI Obeid said that the company had purchased about 17 million Sudanese dinar (US\$ 85 000) worth of seed from the seed producer farmers during 2006. Khيرات indicated that about 15 farmers in the area are involved in the seed multiplication business and this has opened an avenue for agricultural development in the area.

and reduce dependence on external sources for provision of inputs and to develop local self-reliance. Once the improved varieties entered the system, seeds returned through repayment were further redistributed. However, total seed repayment rates were low, ranging from 29 percent for millet, to 78 percent for groundnut. The main reasons for low repayment were the poor availability of storage facilities, little monitoring and follow up, and lack of awareness in general. In addition, because several relief programmes in the area had distributed food for free, the concept of repayment needed some time to be deepened, understood and accepted. Farmer-to-farmer seed exchange is now common, especially for the new desired varieties. Through training, the project increased awareness about the benefits of repayment and helped the communities to build stores to keep the returned seeds until redistributed. Community-based organisations, known as Village Agricultural Committees, were established and were responsible for record keeping, storage and redistribution of repaid seeds.

Sustainability

The seed repayment concept was initiated, implemented and accepted at several sites, and the project has contributed to establishing improved seed supply and variety dissemination systems at the community level. In addition, this has provided income-generating opportunities for farmer seed producers. However, sustainability is a major problem with many projects implemented by NGOs, and this project is no exception. To help sustain this system after the project's lifetime the most important factors to be considered are:

- Supporting the formation and capacity building of the community-based organisations;
- Continue decreasing dependency on external resources;
- Increasing the involvement and interaction of government counterparts and strengthening their linkages with the communities; and
- Improving seed repayment rates and building seed storage facilities.

One of the main difficulties encountered during this project was the low seed repayment rates. However, this has been addressed, and a sustainable supply of seed has been enhanced through establishing community-based organisations such as Village Agricultural Committees, and strengthening the links between these committees and other stakeholders, including the Ministry of Agriculture, the Farmers' Union, local seed companies and EI Obeid Research Station. The station now advises farmers associations or development projects that are planning to multiply or distribute seeds.

For small scale farmers, the development and maintenance of a sustainable community-based seed supply system is essential to improve their food security, especially in conditions where their seed stocks have been severely affected, or farmers have become dependant on relief aid. The project has been very effective in spreading new early maturing varieties, but has also built on this through farmer multiplication activities. With its local distribution channels, this community-based system is very effective in improving the dissemination, accessibility and availability of quality seeds of the adopted improved varieties. The newly introduced varieties become part of the farmer stock, and the importance of the multiplication, repayment and exchange system is well recognised by the farmers after their experience with this project.

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