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NourishZambia

QUARTERLY NEWSLETTER OF THE ZAMBIA FEED-THE-FUTURE RESEARCH & DEVELOPMENT PROGRAM

Photo by JT Oliver, IITA.

In this issue:

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Success stories from the field

In this issue of *Nourish Zambia*, we put the spotlight on selected farmers and entities who have shown exceptional performance and success under the the Zambia Feed-the-Future Research & Development Program. Their actions and initiatives have resulted in positive impact not only on their own lives but also on the lives of the people and communities around them.

The stories herein are based on actual field visits and interviews of the featured personalities and organizations. These were carried out by the Communication Unit of the Zambia FTF R&D Program Coordination Office with the help of the project field staff and local agriculture and extension officers.

We will be bringing you more of these success stories in future issues of *Nourish Zambia*. In the meantime, enjoy reading!

- Zambia *FTF R&D Program Coordination Office*

Farmers need not be poor

A woman farmer proves that through innovation -- and a bit of enthusiasm -- good things can happen

People in her community in Chanje, Chipata District in the Eastern Province of Zambia describe Rachel Mbewe -- a farmer-beneficiary of the FTF R&D Program -- as a born leader and farmer innovator. Unlike other farmers who participate in just one or two of the Program's six component projects, Rachel, mother of six, is actively involved in virtually all of them. She practices technologies being espoused by the different R&D projects on her 7 acre (3.5 ha) farm. Asked why, she replied, "I am willing to try anything if it means a better way of life for my family."

Rachel first learned about the Program in 2011 through a community sensitization activity by staff of ICRISAT, which leads the I-FINITE Project, and ZARI's Msekera Research Station. "I was immediately interested in the program," Rachel said, "Especially when they talked about setting up a seed multiplication program and that they needed groups to work with."

At that time Rachel was already the leader of a woman's group affiliated with a government-run fertilizer program. "Our group fit the requirements of the seed multiplication program, so we joined." From 15 members in 2011, the seed multiplication group has grown to 35 in 2013.

(Top) Rachel with some of her children at her groundnut field; (bottom) Rachel in one of her maize fields.

Rachel says that members of the group have seen an average increase in their household incomes of at least 500 Kwacha per year because of their activities. The extra income has enabled families to send their children to school, buy farm inputs, or improve their houses.

At almost the same time that the seed multiplication program started, the

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Farmers need not be poor... from page 1

I-FINITE Project introduced hand-operated groundnut shellers to the community. This equipment significantly reduced the labour involved in shelling the groundnuts while enabling farmers to process more groundnuts in a day.

One hand sheller was given to her group to start a 'business' venture. The group rents out the sheller to individual farmers at 2.50 Kwacha for every 50 kg sack of unshelled groundnuts that is produced.

"In 2013, the sheller brought in 1500 Kwacha for the group," Rachel said. "We bank the earning from the sheller. Then under the Farmer Input Support Program, we access the money to buy fertilizer for the group, with each member receiving 1 bag," she added.

"When we started the hand sheller venture in 2011, did not have any groundnut farmers in our group. Today, we have about 300 of them, including the Chief," she exclaimed.

Rachel was referring to Chief Chanje, the head of the community. When the Chief heard about the sheller technology and how it was helping the community, he asked for one for his farms. The Chief is also a member of the seed multiplication group.

Aside from leading the women's group, Rachel also practices the various interventions introduced by the Program in her own farm. Aside from soybean and groundnuts, she also raises maize–both white and orange–orange-fleshed sweet potato, sunflower, and cotton. This year, she says that she also plans to do cassava trials.

She also employs technologies such as conservation agriculture being promoted by SIMLEZA. For example, she has fields that compare different weed control practices including the use of herbicides as well as different planting densities and intercropping.

So what did she learn from conservation agriculture? Rachel simply answered, "Even without rain, it is still possible to harvest – and eat – something."

She also cited the training that she got through SIMLEZA on soybean processing and its health and nutrition benefits. In September 2013, during a site visit to Chanje by the FTF R&D Program implementers and donors, she exhibited some of the high-value soybean products that her group produced.

She has been asked by the community to form and lead soybean nutrition and utilization groups in coordination with the SIMLEZA Project and the DACO's Office.

"Thanks to the FTF R&D Program, I not only gained new farming knowledge and techniques but I also earned extra income for my family," Rachel narrated. "Just this year (2013), I sold 250 kg of soybean at 8 Kwacha per kg. I used the money to pay for my children's school fees and other household expenses, as well as to build an extension to my house. I also used to have challenges of buying fertilizer, but not anymore."

"I was also able to buy a goat to provide milk for my family," she proudly added while pointing to the goat tethered to a tree.

"This year, when I harvest and sell my crops, I plan to replace the plastic-thatch roof of my house with iron sheets. I might also buy another goat, some pigs, and chicken to start some livestock farming. I also plan to buy cattle and a plough to help me with my farming," she ended, smiling.

(Top to bottom) Rachel (in red) explaining about the soybean food products her group produced during the site visit to Chanje of Program implementers in September 2013; Rachel and her children with the goat she recently bought from her earnings from the Program; Rachel and her family in front of the house extension that she was able to build from the income she got from the Program; in front of her main house, the plastic-thatch roof of which she hopes to replace with iron sheets soon.

Winter farming, anyone?

In Chikando Camp, Chipata District, one farmer took on the challenge of 'winter farming' and got dividends for his extraordinary effort

In Zambia, the cropping season corresponds to the rainy season, which begins around October or November and lasts until April or May. This is followed by the dry cold season – or winter – which lasts from May to September, and then by the hot dry season from September to October/November. During this long dry season, no farming usually takes place.

Mr Gibson Soko, 43 and father of 5 children, is a farmer who grows maize, sunflower, and groundnuts. And just like any other farmer, his farming activities stop during the winter months. To tide his family over, he takes on odd jobs until the next cropping season.

"For us poor farmers, it is very difficult during the dry season since we do not have a regular source of income and we usually do not have enough to eat," Gibson bemoaned. "We mainly do piecework during this time, for which we only get about 15 Kwacha daily and for really laborious work!"

He first heard about Orange Maize in 2010 when it was being introduced by HarvestPlus through the Camp Officer and over the radio through Breeze FM. Interested to know more, he attended a workshop on Orange Maize organized by HarvestPlus under the FTF R&D Program in Chipata where he learned about the crop's potential benefits.

"I was hooked to Orange Maize when I learned about its health and nutrition benefits," Gibson related. "I also learned that we can harvest Orange Maize in just 2.5 months compared to the 3 or more months for white maize. This, plus the idea of vitamin A-enriched orange *nshima*, got my interest going," he added.

During the 2010-2011 cropping season, he grew Orange Maize on a small plot of his 10 ha farm as a trial. It performed very well that from his harvest he saved 500 g of seed, which he planted the next cropping season.

The following season (2011-2012), he planted 10 lines of Orange Maize following a planting distance of 70 cm x 20 cm. Then during the 2012-2013 planting season, he further increased his Orange Maize stands to 28 lines following the same planting distances. For this, he used 1.5 kg of seed that he saved from his previous harvest.

Then the idea of winter farming struck him. "My Orange Maize was performing really well, so I thought why not try to grow it during the cold period, maybe it will perform just as well," Gibson recalled.

During the winter season of 2013, he planted white and Orange Maize in his garden in July. To help ensure his crops' survival, he watered them weekly and also applied fertilizer. By November, his maize crop was ripe for the picking.

"I harvested about 1500 cobs of maize, which I sold for 1 Kwacha each, earning me a total of 1500 Kwacha," he recounted. "Of course, I also left some for my family's consumption."

"And this 'winter maize' sold really fast! Normally, during the

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Gibson Soko with his current crop of maize. He is already preparing for his next winter cropping using the seeds from this batch of maize.

regular cropping season when there is a lot of maize available in the market, I never get the same amount for my crop. Sometimes I even have to beg for people to buy my maize," Gibson said.

"With my winter maize, people were lining up in front of my garden to buy them, especially the Orange Maize, as there was no fresh maize available in the market at that time," he happily narrated.

"I used the money that I got from my winter maize to pay for my children's school fees as well as to buy fertilizer and seeds of white maize. My family was so happy."

Asked if he will do it again, he exclaimed, "For sure! Even now I am already preparing to save some seed that I will plant this coming winter. And I plan to plant on a larger area than last year's."

As the leader of a group of 75 farmers under the Chikando Multipurpose Cooperative, he said that he has shared his experience and knowledge in winter farming to his fellow farmers so that they, too, would be able to earn income even during this period. So far, he has trained 40 members of his group and he has also shared seeds of his winter white and Orange Maize.

"I want other farmers in my community to benefit from my experience in off-season farming. If all farmers practice this, there will be less hunger and poverty in Zambia," Gibson concluded.

Gibson Soko (center) with two of his group members: Scot Daka (in orange shirt) and Richard Soko (in orange pants), who he has trained on maize winter farming.

Katete Farmers' Training Center (FTC): showcasing possibilities, building capacities

In Zambia, Farmers' Training Centers (FTCs) primarily function to showcase the latest technologies, innovations, and practices in agriculture, as well as to disseminate and transfer these to farmers. Under the FTF R&D Program, FTCs play a crucial role in building the capacities of farmer-beneficiaries.

The Katete FTC, located at the Katete District in the Eastern Province of Zambia, is one of the Program's active partners. Mr Modesto Mbewe, Katete FTC Officer-in-Charge, says that the FTC was established in the mid-1980s and has a total land area of 15 ha, of which 8 ha is arable. Its main activities include farmer training on crop production, livestock raising, and food processing. They also conduct agronomy trials and demos of products and technologies for NGOs and seed companies, as well as hold field days for farmers.

"We started working with the FTF R&D Program during the 2012-2013 cropping season," says Mbewe. "This year (2013-2014) will be our second year of hosting the Program."

Modesto Mbewe, OIC of the Katete FTC, explaining how the center functions.

"The FTF R&D Program-related activities that we have include demos for Orange-Fleshed Sweet

Potato (OFSP), Orange Maize, and Conservation Agriculture (CA) as well as farmer participatory variety selection (PVS) and agronomy trials on groundnuts and soybeans."

"Since we started conducting demos and trials of the different projects of the FTF R&D Program, we noticed a significant increase in the interest of farmers, evidenced by the large number of farmers trooping to our FTC to see the and learn about the technologies," he added.

"For example, when we held a field day for OFSP and Orange Maize in March 2013, more than 400 farmers from Katete and surrounding communities attended. I think that is the largest delegation that we ever had in this FTC," Mbewe recounted.

During that same field day, the FTC also exhibited processed products from OFSP. "The products generated a lot of interest that farmers requested us for training on processing OFSP and Orange Maize," he said. In 2013, the Katete FTC organized two training courses on processing OFSP and Orange Maize, which benefitted more than 300 farmers in 3 camps.

Zambia FTF R&D Program implementers, donors, and partners visiting trials at the Katete FTC. The FTC hosts a number of field trials and demos of the Program for showcasing to farmers in the community and adjacent areas.

"We also conducted training-of-trainers (TOT) on OFSP and Orange Maize in those 3 camps involving 10 women from each camp," Mbewe added. "For 2014, we already lined up 5 training courses on OFSP and Orange Maize."

When farmers saw Orange Maize during the field day, they were amazed. "Farmers were really interested in the crop and the products made from it, especially orange *nshima*," Mbewe narrated. "By the end of the day, many were asking for seeds of Orange Maize. They said that they wanted to try it out in their fields, particularly when they learned of its nutrition and health benefits."

The Katete FTC also holds trials and demos of CA technologies being espoused by the SIMLEZA Project. "Here at the FTC, we test and compare different planting population technologies being promoted by the FTF R&D Program, for example between single row and double row planting," Mbewe

Researchers looking at trials of both introduced and local varieties of Orange -Fleshed Sweet Potatoes (foreground) and Orange Maize (background)

explained. "We also conduct trials related to weeding practices as well as field techniques that help reduce the level of aflatoxin contamination in the field, the latter in connection with the Aflatoxin Mitigation Project component of the R&D Program."

"The idea here is to show farmers the different configurations and possible results of the technologies and let them decide what will suit them best given their own unique farming conditions."

"As part of our effort to promote these CA technologies, we conducted two workshops in 2013 in which about 80 farmers participated. This year, we are planning to hold two CA-themed field days here at the FTC. This is on top of four training events on related agronomy techniques that we are also targeting to organize," Mbewe revealed.

For the groundnut PVS and trials, Mbewe said that they are currently testing three varieties: Virginia, Valencia, and Spanish. "Again, the principle behind this is to let farmers choose what they think is the best for them based on what they see here at the FTC. And for this project, we are planning to have combined training on processing groundnuts, OFSP, and Orange Maize."

Apart from the FTF R&D Program, the Katete FTC also currently hosts trials and demos for the Conservation Farming Unit (CFU), Profit Plus, and private seed companies such as SeedCo, MRI, Kamano Seeds, ZamSeed, PANA, DK, and Pioneer.

Asked how the FTC sustains its operations, Mbewe replied, "Our operational funds mainly come from the rental of our dormitories and facilities during training events, as well as from the sale of seeds from the demos and trials. In the future, we are looking at renting out our tractor to individual farmers and setting up a piggery and poultry business here at the FTC."

Two more demonstration trials under the Zambia FTF R&D Program hosted at the Katete FTC: (above) demo on groundnut weed control technologies; (bottom) Aflatoxin Mitigation in Maize and Groundnuts.

"And of course," Mbewe added, "Any help from our partners such as the FTF R&D Program is very much appreciated and will go a long way in ensuring that our farmers get the best possible training and knowledge so that they can help themselves and others, too, attain a better life."

The Eastern Province Farmers' Cooperatives, Ltd:
hand-in-hand with farmers for progress

Two of the most important goals of the Zambia FTF R&D Program are: (1) empowering smallholder farmers; and (2) giving them access to better seeds and markets. To help bring these about, the Program actively partners with the private sector, and one key partner is the Eastern Province Farmers' Cooperatives, Ltd (EPFC, www.easternprovincefarmers.com). The EPFC collaborates in two of the Program's projects: I-FINITE and Aflatoxin Mitigation.

EPFC is a Zambian privately-owned seed company that operates as a community business out of Chipata in the Eastern Province of Zambia. Its major crops – groundnuts and beans – are grown through contracted smallholder farmers in Chipata and Ketete districts. The EPFC caters to domestic, regional, and international markets, and its farmer-members grow modern reliable varieties and specialize in seed production both for sale and for maintaining a high-quality seed stock.

"We started in 2007 with an initial membership of about 200 farmers," said Whytson Sakala, EPFC Team Leader. "Currently we are about 5000-farmer strong, and we intend to grow our farmer base to 10,000 by 2015," he added. "For groundnuts, our farmers primarily grow MGV 4, MGV 5, and Chishango."

"We mainly work through farmers' groups headed by a farmer leader, who is a volunteer. About 45% to 50% of the groups are comprised of women. You see, here in the Eastern Province, groundnuts are considered a 'women's crop' – groundnut production and processing are women's domains," he explained.

"Our core business is linking farmers and to markets. Right now the bulk of what our farmers produce go to South Africa, but it has not always been easy to penetrate this market segment because of the aflatoxin content of our groundnuts."

"When we started in 2007, we found that the aflatoxin level of the groundnuts that farmers produced in the Eastern Province was at 11-12 parts per billion (PPB), which was really high," Sakala described. "The minimum acceptable level for South Africa, for example, is 10 PPB. So we worked hard to bring the aflatoxin levels down to meet this standard."

"Eventually, we were able to reduce the aflatoxin level of local groundnuts to just 4 PPB, which is way below the 10 PPB international standard. In 2013, we exported 130 MT of commercial-grade groundnuts to South Africa. This year, we target to export 1,250 MT. And if things really turn out well, we also plan to start exporting to countries in Europe," Sakala proudly exclaimed.

"Here in Chipata, EPFC has a small laboratory where we conduct aflatoxin content analysis of our groundnuts. The standards that we use are in line with what the Zambia Bureau of Standards and South Africa use." Currently, EPFC's seed customers include SeedCo-Zambia, SeedCo-Malawi, ZamSeed, and local NGOs while its grain customers are COMACO, Junglebeat, and GWK Ltd, South Africa.

"In this regard, the FtF R&D Program has been extremely

Mr Whytson Sakala showing the groundnuts produced by their farmer-cooperators stored in their warehouse and destined for the South African market.

Ms Janet Zulu, Laboratory Technician and Database Officer of EPFC, demonstrating how they analyze groundnut samples for aflatoxin content at their in-house aflatoxin lab.

valuable to us. For example, the Aflatoxin Mitigation Project provides training to our field staff and our farmers on modern technologies to reduce aflatoxin contamination in farmers' fields, during post-harvest, and in storage. The project also provides vital technical advice and support, especially to our aflatoxin laboratory and analysis protocols," he added.

"On the other hand, ICRISAT, through the I-FINITE Project, has given us certified seeds of improved, high-yielding groundnut varieties as well as mechanical hand-operated shellers and trained our farmers on how to use them. Using these shellers, our farmers are able to produce 30 to 80 kg of shelled groundnuts per day, compared to just 6 kg when shelling manually. Not only has this technology reduced the drudgery of shelling groundnuts, but also put us on track to meet our export volume target this year."

"The I-FINITE Project has also trained our farmers in various post-harvest technologies, specifically on the *Mandela Crok*," Sakala said.

In order to entice farmers to sell to them rather than to other traders, the EPFC buys farmers' groundnuts at a price higher than prevailing local market prices. "If, say, the current market price for groundnuts is 4 Kwacha per kg, we buy at 4.20 Kwacha."

EPFC further assists farmers by collecting their produce from local bulking centers as well as paying for transport, packaging, and other associated costs, and providing farmers with equipment and marketing requisites. It also "loans out" seeds to farmers at a 1:2 repayment scheme – for every 2 kg of seed that a farmer borrows, he or she should return 1 kg from their harvest, which in turn are pooled and loaned to other farmers. This not only benefits more farmers but also helps ensure the sustainability of the seed lending scheme.

Asked about the future direction of EPFC, Sakala replied, "We will continue to fulfil our motto of 'Growing Innovations' – of providing smallholder farmers new and exciting ways to improve their lives, whether in building their capacities or linking them to better markets. Through all these, we are looking forward to expanded partnership with the FTF R&D Program. I am confident that, together, we will be able to give Zambian farmers a brighter future."

A woman-farmer being trained on using the hand-operated groundnut sheller.

Zambia FtF R&D Program **Implementing Partners**:

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