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Innovation Brief

Sustainable Market Engagement: Ethiopian Farmers' Participation in Informal Seed Multiplication



The pilot project *PSNP Plus: Linking Poor Rural Households to Microfinance and Markets* builds on the Government of Ethiopia's Productive Safety Net Program (PSNP) and aims to improve and enhance targeted PSNP households' resiliency and livelihood assets as a means towards achieving graduation from chronic food insecurity. The project links the PSNP beneficiaries with micro-finance services and functional markets, while developing their productive, organizational and business capabilities. Operating from October 2008 to December 2011, the \$15 million USAID project was implemented by a CARE-led consortium including Catholic Relief Services (CRS), Relief Society of Tigray (REST), and Save the Children UK (SC/UK), with technical support from the Netherlands Development Organization (SNV) and the Feinstein International Center at Tufts University.

Context

In Ethiopia, grain legumes (pulses) such as faba beans, haricot beans, and field peas, are produced by small-scale farmers for both subsistence and income. The pulses are produced on small plots with minimal inputs; more than 98% of pulse seed planted in the country is through informal seed delivery or farmer produced. The two most economically important types are white and red haricot beans, not only for their role in soil fertility restoration and maintenance and as an alternative crop when others fail due to erratic rainfall patterns, but also for the export market (white bean), domestic market (red bean), and consumption.

The Southern Nations, Nationalities, and Peoples Region (SNNPR) is the largest red haricot bean producing region in Ethiopia, and, within SNNPR, the Sidama zone is consistently the highest producing area. Red beans are among the most important grain legume in the Loka Abaya and Dale *woredas* (districts) within Sidama. With increased awareness of the importance of beans and an increasing population, there is growing market demand for beans both locally and regionally within drought-prone areas of Kenya, as prices improve and demand increases for larger quantities and better quality within the last several years. Local growers mention there is no problem selling the product. Rainfall is ideal in the area for bean production and the government is interested in providing technical support, among other enabling environmental conditions.

However, for roughly 30 years, the same variety of red bean has been produced in Sidama, especially in Loka Abaya. This variety is no longer highly productive or adaptable to changing climatic

events. While government research centers have been developing new seed varieties for years, multiplication and distribution within the formal, centralized seed system is not able to cover more than 10% of the national demand. The potential of the crop to provide increased income and food security is high, yet local farmers continue using the 30-year-old variety and are reluctant to adopt new, improved ones because of limited access and awareness.

Furthermore, as the bean is produced mainly for household consumption or unregulated trade with Kenya, producers are not familiar with export market quality standards and lack strong cooperatives with the capacity to determine supply and demand and prices. Lastly, other downstream value chain actors are unaware of the availability of improved varieties and of the productive potential of the land. Therefore, in the Sidama zone, this value chain is unable to adequately meet the growing market demand.

There is a great challenge in commercializing smallholder farmers as a means of eradicating poverty. The process implies adopting a market-oriented production and exchange of goods which not only requires setting the right prices, but also requires greater access to productive technologies and adequate private goods in order to produce a marketable surplus. Furthermore, without increasing seed multiplication of newer, more climate resilient varieties in the region, the small landholder farmers will not be able to effectively engage in the market nor will the market reach its budding potential.

Human Impact

Jufare Basa, from the Desse *kebele* (neighborhood) of the Loka Abaya *woreda* in SNNPR, is a widow and the head of her household with four children. She has been a participant of the government's PSNP since 2005. In 2010, she participated in the PSNP *Plus* project and joined a VSLA group (Village Savings and Loan Association), where savings and borrowing funded her petty trading activities. Presented the opportunity to participate in the Desse Farmers Research Group (FRG) for red beans, she systematically researched five varieties on her farm and, combining results with the rest of the FRG, prioritized the top three varieties suitable for adoption and seed multiplication within the *woreda*.

The first year she harvested 92 kg and sold 80 kg of seed to more than 20 farmers for higher prices than traditional local seed, making \$52 USD, used to buy her first heifer. She also started fattening small livestock with the increased income. During the second year, she planted the preferred variety, produced 300 kg, and sold 200 kg for a total of \$83 USD. Now a seed producer and disseminator within her community, she notes there is a growing demand among neighbors for higher quality "CARE Seed", a name given by the community for the improved seeds. Jufare further comments, "With the training I received, I now save my beans and wait for the prices to go up instead of selling at low prices." Through all of these activities, she is now able to send three of her children to school.



Preliminary PSNP *Plus* project value chain analysis, headed by technical partner SNV, identified the value chain opportunities and constraints outlined above. Initial regional Multi-Stakeholder Platforms (MSPs) confirmed the findings. The project realized that in order to have a functioning market in which the rural poor could participate, providing improved seed, from the government research centers and other formal sources to organized value chain Production Marketing Groups (PMGs) would, not be sufficient. Therefore, the project identified the need for a broader, participatory seed multiplication intervention in order to raise awareness and adoption among all stakeholders, improve seed availability, strengthen market linkages, and ensure related viable economic opportunities for food insecure households.



Response

Given the high potential for productive land use, dedication to red bean production already in place, and organized seed cooperatives, CARE and its partners identified the Loka Abaya *woreda* of SNNPR as a prime location to facilitate a red bean value chain strengthening process for the PSNP *Plus* project. In order to ensure a functioning red haricot bean market in which poor, rural households could participate, the PSNP *Plus* team realized that developing a sustainable informal seed multiplication system with improved seed varieties was need-

ed. To improve seed and food security in an area where 98% of the seed is farmer produced, local seed technology development should be built on farmers' knowledge to increase yields through improved quality of the farmers' seed and diffusion of the improved practices and seeds. Therefore, two strategies were developed to achieve this goal:

- Increase adoption of improved varieties among all haricot bean producers in the *woreda*, through an informal, participatory research and development approach.
- Create a seed producer specialization among community farmers, by improving the seed production of a selected group of farmers.

CARE staff brought a government crop expert to the regional Hawassa Research Center to discuss the idea of introducing the new seed varieties within the communities and worked directly with the farmers to identify the best adaptable seed for the area. A letter of agreement was signed. Thus, the Farmers' Research Group (FRG) was born. The goal of the research was: to conduct an on-farm trial to develop varieties and crop practices for high stress environments, in particular drought, low nitrogen and pests; involve farmers in that process; and increase awareness of improved seed availability throughout the region, in order to increase likelihood of adoption by all and access to quality seed for improved market integration.

After identifying the most suitable land for quality seed multiplication, CARE and research experts, together with the *kebele* task forces (including government and development agents), identified farmers from three *kebeles* willing to participate in the research groups. A total of 45 households were selected to participate in the implementing, monitoring and evaluation of the five selected varieties on their own land. CARE then discussed with the selected households how to continue with the research. The farmers identified key criteria on which to judge the seeds. Then, CARE and the research center made an action plan. The objectives of the FRGs were to: introduce the improved red bean varieties to all relevant actors in the Loka Abaya *woreda*, to conduct farm trials on the five available varieties, select the best performing ones according to the farmers' criteria, and adopt these varieties for scaling up through an informal seed multiplication system.

From this point, several activities were undertaken to establish an informal, farmer-driven seed multiplication system in Loka Abaya:

Training of the research group participants:

First, formal training was provided at the Hawassa Research Center with the 45 farmers, two extension experts and three development agents from the *woreda*. This training included data collection methods within a controlled setting and the entire seed multiplication process for improved quality and quantity. Then, the research center provided each household 1 kg each of the five varieties to plant on their 200 square meter plots alongside a control group of the traditional seed variety.

Production and Management: Once the farmers arrived to their fields, they received practical training on how to sow in rows, maintain and fertilize the seeds. From July to September 2010, they planted and researched the seeds' growth. Throughout the growing period, the research center followed up with the farmers. The farmers were responsible for observing the differences according to their own criteria and collecting data at each growing stage (flowering, early pod, mature pod and post-harvest).

Harvesting and Results: Once the beans were harvested, each group evaluated their data and prioritized the varieties. All three groups independently came up with the same results, based on their selection criteria: productivity, resistance to water logging, early maturity, bush stand, color, and easiness for management.

Farmers' Field Day event: This event was organized by project staff with the goal to increase awareness among all stakeholders on the improved seeds available in their area and to

validate and disseminate the FRG selected varieties to all the *kebeles* in the *woreda*.

The 106 participants included: the 45 FRG members (who explained their research), at least two farmers from each *kebele*, three bean researchers from Melkasa and Hawassa Research Centers, a coordinator for the Tropical Legume II Gates Foundation SNNPR project on informal seed multiplication, a monitoring advisor from Uganda, seven *woreda* officials, and experts from Agriculture, Administration, Women's Affairs, development agents, and Cooperatives and Marketing, and other *kebele* officials. All shared their experiences and knowledge and discussed the farmers' research results. And, because the beans would also be used for increased consumption as well, a taste test of all five varieties was held. The group validated the farmers' findings, prioritizing three bean varieties to scale up for the entire *woreda*.

Informal seed multiplication at the household level:

Because of the formal seed system constraints and to ensure sustainability for the target beneficiaries to participate in the value chain, focus was given to the informal seed multiplication process. After the 2010 trial, the FRG members continued producing and disseminating seeds on their own - selling some, reinvesting some for the next season, and training other interested farmers in quality production methods (see human impact story).

Additionally, the research center identified three *kebeles* within Loka Abaya that were ideal for seed multiplication. One of the *kebeles* had households with previous seed multiplication experience; therefore, the local task force, along with the experienced households, recruited new households to participate, increasing the total to 86 households within the one *kebele*. Within these 86 households, 45 implemented the "clustered approach", whereas all neighbors with bordering land would use the same seed with no inter-cropping in order to maintain quality and good management. A similar process was undertaken in a neighboring Dale *woreda kebele* that also had previous experience, adding 25 interested households.



Jufare Basa and her family, in Desse *kebele*.

Using the FRG members as training models, the government's Agriculture and Rural Development Office crop experts (who attended the FRG training) trained a total of 134 households in the two *woredas* to become seed multipliers. The farmers then received 22.5 quintals (1 quintal = 100 kg) of seed from the Melkasa Research Center supply (which they will pay back in-kind to their respective cooperatives and revolve for the next season to other multipliers), bought their own fertilizer, and started planting the top picked seed, Nasser. After a delayed start of the rainy season, the farmers planted the seeds in August 2011. During this time, farmers received technical support from Melkasa Research Center, CARE, and SNV. Harvesting took place in early December 2011.

Creating formal market linkages to informal seed multiplication: For the individual seed sellers, the project provided four weighing scales at the central market, so that farmers can weigh their seeds to ensure a proper price. However, the seed multiplier households all became members of local cooperatives in their respective *woredas* to maintain quality, increase negotiating power, and ensure a sustainable market. In 2011, the PSNP *Plus* project facilitated two agreements. First, the primary cooperative will buy the seed from the producers with a 10% price mark-up included. Second, the project negotiated a "fair price" and a binding agreement for the primary cooperative to sell seed to the regional Sidama Elto union after the next harvest. While formal linkage has not been achieved yet, this is the first time that such an agreement has been made. If the cooperatives successfully sell to the union, then linkage will be achieved and multiplication will be strengthened along with quality assurance.

Results

In order to increase the effectiveness of the red bean value chain for food insecure households in a region where there was a growing interest and market for the commodity, the PSNP *Plus* team approached relevant partners to introduce a functioning seed multiplication system that included the local farmers who would benefit from inclusion. Results from this intervention included:

- **Increased producer outreach:** In total to date, the number of farmers who have accessed improved seed is 932 male and 204 female headed households, totaling 1,136 households, and was sourced by the FRG members, seed multipliers, and revolving seed bank recipients (as part of the value chain activities).
- After the first production period, the original 45 FRG members informally worked with over 186 additional HHs through farmer-to-farmer training, selling, gifts, and exchange. This fact verifies that informal seed multiplication is being replicated and has increased local access to improved seed varieties.
- Building off of previous NGO work on seed multiplication with groups in both the Loka Abaya and Dale *woredas*, 134 HHs were then identified to expand the seed multiplication system, received training, planted the Nasser improved seed, and plan to harvest, sell, reinvest and consume the crop starting in December 2011.
- **Increased producer productivity:** In total, 179 farmers have been formally trained in improved seed multiplication, including improved production techniques for higher quality and yield. This work has resulted in strengthened ties with two regional research centers and, after two cycles, a 50% increased yield of seed stock equaling 28,600 kg - on the market or being disseminated within the *woredas*.
- **Seed Multiplication as a Livelihood Option:** Therefore, this network of farmers is now generating additional income from their production of the "CARE Seed", or improved seed, which is not only more accessible to local community members now but also commands a premium, swiftly selling at higher prices than other seeds on the market.



Farmers Field Day in Loka Abaya.

- **Food Security and Nutrition:** In addition, the production expansion of the new, climate resilient, higher yielding seed is improving food security and nutrition of households in the area, as many participating households reported increased consumption and food security.
- **Enabling Environment:** Through the awareness created via the Farmers Field Day and the range of stakeholders' involvement in that event, various trainings, and MSPs, relevant value chain actors are aware of the improved seed availability and are supporting the informal seed multiplication and red bean market strengthening processes. As such, talk of creating a formal system for the export market is occurring while ties between red bean cooperatives and the local union are being strengthened for future selling arrangements after this current production cycle.



Lessons Learned

Through this innovative approach to increase seed multiplication in an area resistant to improved seed adoption, some overall challenges were encountered. First, changing a mainly subsistence farming system into a commercialized one is a constant challenge. Second, there was a lack of awareness on the availability of improved varieties in the area. Stakeholder awareness needed to be increased. Third, farmers were resistant to adopt a new variety without sufficient access to quality seed or knowledge of proper multiplication methods. Lastly, without proper value chain analysis or participation of key actors, there had been some failed experiences in the past with seed multiplication.

Therefore, several lessons were learned through this project intervention:

FRGs: On-farm trials provide: important diagnostic information about farmers' problems, preferences, and livelihood strategies; realistic input/output data for assessing the profitability of certain practices; evaluation of the biophysical performance of a practice under a wider range of conditions than is available at a research station. This blend of a community-based approach coupled with progressive research centers demonstrated improved results in an otherwise difficult context.

Farmers Field Day: This event revealed that: the full spectrum of value chain actors must be made aware of the availability of improved seed in their area and of the feasibility of seed multiplication for increased market production. Including farmers in the research process not only increases their ownership and adoption of the process but it also instills confidence in the other VC actors of rural, poor households' ability to improve production, quality and quantity of market-ready beans

Seed Multiplication as a Business: Through initiation of the informal seed multiplication process, actors realized that farmers lacked the relevant skills and knowledge to conduct seed multiplication as a business. While this was an area that was strengthened through this innovative approach, it is also an area that requires more investment and time to evolve.

All of these factors led to increased likelihood of adoption and dissemination by farmers, increased buy-in from other value chain actors, and increased future inclusion of food insecure households in the value chain market.

Road Ahead

Based on the successful experience with the project-created FRGs, the government agencies, along with the research centers, established a second FRG and conducted the same trial in another potential *kebele* in Loka Abaya. This trial, and its Farmers Field Day verification, had the same results as the CARE-initiated one. Therefore, the government and research centers will continue implementing this activity in the region.

The regional union, Sidama Elto, has confirmed that it is ready to buy the second season of produced seeds from the seed multipliers in order to distribute them through the revolving seed bank for a new group of multipliers. After several seasons of this farmer-led multiplication process, the union will request a new round of starter seed from the research center and begin the process again to ensure continued quality of the improved seed. Therefore, this innovative breakthrough in improved seed adoption is beginning to solve the problem of continued use of the unproductive 30-year-old variety.

Furthermore, concerning value chain activities, while agreements have been signed between the producers, cooperatives and regional union, the success of commercial market linkage is yet to be fully realized. This component, as well as creation of a formal export market for the red haricot bean, needs continued strengthening.

In sum, this form of improving value chain linkages through informal seed multiplication holds great potential for food insecure households to better integrate into viable markets and produce alternative income-generation activities.

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