

Common Bean Value Chain Actors Share Their Feeling About TL Projects in Tanzania

3

Apart from groundnut, Tropical Legumes I, II, and III also focused on common beans in Tanzania. In early April 2018, we visited Selian Agricultural Research Institute in Arusha, which is in the Northeast of Tanzania, and about 100 km from the Kenyan border. We also visited Mbeya, a town in the Southwest of Tanzania, just about 100 km from both Malawi and Zambia borders. Here, we found the first collaborator of Michael Kilango at Tanzania Agricultural Research Institute-Uyole who took us to meet different people in Mbeya and Mbozi areas.

3.1 TL Projects Enhance the Effectiveness of Breeding of Common Beans in Tanzania

3.1.1 Researcher Shares Perceptions of TL Projects' Achievements

Ms. Shida Nestory (Fig. 3.1), an experienced agricultural research officer and common bean breeder at Selian, presented the projects' achievements for common bean breeding program in different areas. For accessibility of the new germplasm, new materials can be accessed sufficiently through the International Center for Tropical Agriculture (CIAT), the local collections (landraces), and other national stations (Uyole, Maruku). *"Thanks to TL projects we are now able to advance six generations of bean varieties each year. The new breeds that we are developing have traits like better resistance to diseases, a higher nutritional value (iron), early maturity, and ability to survive drought periods. We have 8 old varieties of beans that are aged more than 10 years since the time they were registered; we also have 7 new registered varieties which gained registration in 2018, also underway is an additional 8 lines that are under multi-location trials. Through TL III, we have been able to release a total of 15 varieties up to date. Of the 15 varieties, five are climbing bean types. The 15 varieties have reached farmers across the Tanzanian farming regions. Currently,*



Fig. 3.1 Ms. Shida Nestory (Squatting left) inspecting crosses in the crossing block at TARI-Selian in Arusha, Tanzania (Photo: Ndichu J)

we can produce about 7 tons of breeder seeds on an annual basis. TL Project can be said to have played a dominant role in our breeding process, 60% of the resources that we own and use have come from the TL Program. The new varieties are very superior in that they have higher yields; they mature much faster and have a higher nutritional value in comparison with the old ones,” Shida ended.

3.1.2 Nutrient-Dense Common Beans Available to Improve Malnutrition

The varieties that we develop have different quality traits, but we have noted that there is a great affinity of bean seeds that are rich in iron and zinc. This is because malnutrition is very high in this region, and thus the need for beans that improve the nutrient quality of meals. There is also preference of bean varieties that can withstand harsh weather conditions such as drought without leading to huge losses in the farming process.

3.1.3 TL Projects Have Increased Research on Beans Seed Systems

The TL projects have played a significant role in the seed sector improvement scientifically. Prior to the TL projects, the research conducted on the bean seed was very little and bore very minimal outcomes on improving the quality of the bean seed. Ms. Edith Kadenge (Fig. 3.2) who is a seed researcher and the coordinator of the TL projects at Selian Research Institute in Arusha Tanzania does not shy away from stating the positive changes that have emanated from the TL projects. Following the inception of the TL programs, there has been a great increase of seed demonstrations conducted in the regions that grow bean seeds. Kadenge reported to us during our study that there has been an average of 15 demonstrations conducted in every district that grows beans meaning that there has been a great outreach to farmers in the regions around Arusha, Tanzania.

Ms. Sylvia Monica (Fig. 3.3) who works with CIAT-Arusha stated that they have been able to release over seven varieties of beans which have improved traits to the farmers. According to Ms. Monica, under TL projects, the institute released varieties of beans once in every 2 years.

Before the TL projects, she says, there were no seed companies that were involved in the production of the bean seed, but after the rollout of this project, many companies have taken up the role of production and sale of seeds. In collaboration with us, companies that solely produced maize seeds have taken up the beans seed production role. The Tanzanian government has also taken up the role of improving quality and quantity of bean varieties in Tanzania and through the Agricultural Seed Agency across the country.

According to Monica, ever since the TL projects started in 2007, the production of beans seed has improved immensely. In 2015 alone, for instance, there was a production of over 104.2 tons of beans seed produced by different institutions within Tanzania. Ms. Monica says this is a very high number as compared to past years. Noting that there was no single seed company that was involved in the production of bean seeds around Arusha, the current five companies and over 80 groups of farmers that are solely involved in bean seed multiplication and sale is a great milestone. This development can be attributed to the TL projects that brought the much-needed changes.

Fig. 3.2 Ms. Edith Kadenge, Researcher, Selian Research Institute in Arusha, Tanzania, shares how many seed companies have taken up the role of production and sale of improved bean variety seeds (Photo: Ndichu J)



Fig. 3.3 Ms. Sylvia Monica, MLE officer, CIAT-Arusha, Tanzania, shares her insights in bean production (Photo: Ndichu J)



Through our study, we realized that women involvement in beans farming is high. Ms. Monica told us that beans were known to be a crop for women in Tanzania. Despite the huge improvement and commercialization of the seed, in recent times women are the ones who mainly deal with the farming process. It was however noted that males take up the produce after harvest and do the selling. Ms. Monica reported that they had been able to reach to over 5000 female bean farmers in the southern and northern zones in Tanzania, therefore noting that the number of women farming beans is higher as compared to the males involved in the same.

In the past, farmers were not able to access improved beans seed since there were no proper networks for this to happen. The government body tasked with production and distribution of bean seeds in Tanzania is the Agricultural Seed Agencies (ASA) which was not in a capacity to supply the demands of the farmers in Tanzania. Through the TL projects, farmers are now able to access the seeds that have been improved, and in turn the overall farming of the bean seed has improved greatly, and this is said to go on in the future leading to the improvement of the lives of bean farmers in Tanzania.

The spread of new data on bean growing is more accessible to the farmers, as compared to days before the inception of the TL projects. Kadenge states that there is the use of local radios; for instance, farmers in the Northern Zone in Tanzania get access to information on beans through Radio: Sauti ya Injili, Radio Utume Fm, and Habari Njema FM that broadcast across the region. This use of the radio broadcast system has been aided by organizations such as the Farm Radio International which aims at disseminating useful farming information to farmers.

Through radio shows, researchers and agricultural stakeholders under the TL projects have successfully offered information on the best farming practices from the initial planting process to the final stages of production, and on storage of beans after. As Kadenge reports, the outcomes of these programs have been great, and farmers are harvesting better crops and hence more profits and benefits from the beans they plant. On average there is a direct reach of over 50,000 farmers annually in the Northern Zone through the media. This number is great as it causes a ripple effect on the state of bean farming in the entire region. In recent time there has also been an increase in dissemination of better farming practices of beans using local television broadcast in Tanzania. The overall effect of the use of media in promoting

better farming of beans can be seen everywhere; Kadenge emphasized the fact that all these efforts have emanated from the TL projects.

There are many training sessions that the team led by Kadenge have conducted to farmers across the Northern Zone about beans. The farmers have been taught on the best ways of multiplying the new breed varieties that are provided to them by breeders. There are many new bean variety seeds that have better traits which have been recommended to farmers. For instance, the information has helped farmers in Mburu, Babati, Arumeru, Siha, Hahi, Same, and Moshi regions of Tanzania to enhance agronomic practices. These demonstrations have enabled the creation of networks with seed producers, agro-dealers, and NGO's that have at the end brought benefits to the farmers. *"We have been supporting production of Mark 44 and ARA W3225 (they are climbers and require support). Farmers are happy with CAT P1 and Ngolole varieties which they prefer and say that it cooks fast and is palatable,"* Ms. Kadenge reported.

In light of the endeavors to improve bean farming in Tanzania, there are numerous challenges that people in this program have faced. Ms. Kadenge stated that one challenge in improving the breeds of beans is that the farmers who at times have low economic ability tend to sell all the seed that they are given for multiplication due to poverty leading to a discontinuity in the growth of the new breeds. Climatic challenges also affect the promotion of better bean planting, for instance, drought at times leads to huge losses to farmers. As Kadenge reported, the demand for the improved bean seeds at times is higher than the capacity to produce leading to shortages and thus farmers resort to planting the old varieties. A few seed companies have been skeptical in the production of new varieties which has hampered the speed of seed multiplication.

3.1.4 TL Projects in Tanzania Factor in Issues of Gender in Bean Production

As previously seen in this report, the bean seed was previously considered a crop for women and one that was planted for subsistence use only. Following the inception of the TL projects in Tanzania, a lot has changed on the issue of beans and the gender aspects that are related to it. To understand this comprehensively we sought information on changes that are related to gender that have emanated from the TL projects involvement in bean seed systems. We interviewed Mrs. Ms. Eunice Zakayo (Fig. 3.4), a gender and social economic expert from Tanzania. Zakayo has studied the issue of gender and its connection with legumes in Tanzania.

She stated, Based on the value chain, we have different stages of the seed production and in those stages, there are different opportunities. Men are mostly owners of the farms, so they are the decision makers. They prepare the fields with tractors or cow ploughs, spray herbicides for weed control, and ferry materials from the farm to the stores. They are also involved in pricing. Women, on the other hand, do not have much say in these matters. Actually, women just intercrop for home food and seed production. During planting, they use ploughs while men sometimes broadcast the seeds. The women also weed the crops, twice or thrice depending on the field condition. They often do this in groups. Harvesting

Fig. 3.4 Ms. Eunice Zakayo, Gender scientist, Selian Agricultural Research Institute, Arusha, Tanzania, shares about involvement of women in revolutionizing bean value chain (Photo: Ndichu J)



the crops and piling is also done by women as they wait for the men to ferry the harvest. They make sure the harvest is dried and packaged and wait for the decision maker to come with a buyer.

With Zakayo's response, it was clear that the gender involvement in beans production had changed, thanks to the involvement of TL project in beans. The beans seed as Zakayo told us in the study was mainly produced in small scale and was just farmed for home use. In the past, men did not involve themselves at all in the farming of beans. This has however changed and now there is a lot of division of labor in beans production as business where men are now taking up the role of major decision-making such as determining the amount to be planted and also negotiating the sale of the produce. The men also get involved in the masculine tasks that are involved in the bean farming process. The women, however, do the better part of the work in farming of the bean crop.

In the study, Zakayo told us that, *"Sometimes men prefer the marketable crops while women prefer high yields and palatable crops. Decision making has improved especially in Kagera. They get their training in groups, share the farms, learn together, and adopt the teachings into their community which turn to high yields. They know which fertilizers to use and what to do in which stages of crop developments. Ways in which they spend the money have seen these women's households improve and get access to better seeds. Women have better results from what they do on the farms. Formerly, women did not have any knowledge on farm inputs on certain varieties or did not have access to information. Now they can get the information, network while looking for a market, and have groups which help them organize themselves and assess what they do."*

The betterment of the bean seed systems has emanated from the efforts of the TL projects. There has been a transition of bean farming as a subsistence crop to a commercial crop, and this has in turn led to the economic empowerment of the women. Before, the women were not able to make as much money that they make now from the seed farming. This fact indicates that female farmers have now become financially stronger like their male counterparts. Zakayo reported to us that men are now appreciating the work done by the women and have since started working hand in hand with the women. The overall ripple effect is that females have gained more appreciation in the society.

Zakayo brought about the issue of resistance to adoption of new technologies in the bean farming process due to cultural norms. She stated, *“There are cultural barriers which hinder us from getting the most out of these innovations. We have people on the ground that are helping us tackle these issues in driving women forward and everyone has a role to play in making sure that no one’s beliefs or norms have been violated in the process. We promote collective decision making among a man and a woman which makes a strong household. We have multi-stakeholders who involve different groups of farmers, who are invited to see machines and help them understand the markets and approaches.”*

In view of Zakayo feedback, women at times are hindered from making so much advancement economically, adoption of farm mechanization being one of those things that seem to go against the norms in the society in Tanzania. Through the TL projects, there are plans to suppress these norms in a way that demean the progress of females in Tanzania. When we asked about the efforts that were in place to empower or change the situation of women who farm beans through the TL projects, Zakayo responded that, *“We have multi-stakeholders which involve different groups of farmers who are invited to see machines and help them understand the markets and approaches. We also found that women are aggressive in asking questions. We also found that women numbers are growing so when we go to the fields, we encourage them to go to markets and get information on prices and compare them. They are now motivated and aggressive in getting information. We have platforms for marketing and seed production. This makes them more aware of what is going on. For instance, there is a lady who has been growing beans for several years, and before she got the training, she used to get very little harvest. She is now doing really well as the produce has increased. We often go there to promote her and use her case for demonstrations. She now supplies grains to a wildlife reserve despite not having the capital.”*

Following the rollout of the TL projects, there is a notable paradigm shift in the relation and value of genders. Prior to the projects the females were seen as less productive, but after the positive changes that emanated from these projects, women have become more financially able and are improving the lives of their families in ways that they could not do before. With this, the men are seen to respect the women more and even involve them more in major family decisions unlike in the past.

There are some challenges that Zakayo reported which were an impediment to the good progress incepted by the TL projects. The quantity of seed that the farmers require is still not adequate and the multiplication process is still not efficient.

3.2 Research Technicians in Common Beans Production Get Specialized Tools of Work and Trainings Under TL Projects

The process of ensuring that the best varieties with high yield, better resistance to drought, pest and diseases, as well as high nutritional value requires so much inputs to achieve. To understand the technicalities involved in the bean seed production in Tanzania, we interviewed Mr. Alex Christopher Kisamo who is a research technician. Kisamo has been in this field for the past 15 years. He was quick to point out that a lot has changed ever since the TL projects were inception in this region. He stated, *“I have been involved in the TL Projects ever since they were inception in this region. I was taken through training during the project that took place in Ethiopia, where I learned how to select the best beans varieties and guide the farmer on the best seed for planting. Later I was taken through another training in Malawi where I gained more experience in seed selection process. I can say that prior to this project, it was very difficult for people like us to gain the necessary skills that we utilize while conducting research and training farmers.”* The people who are responsible for training the farmers and conducting research require frequent training, and as Kisamo revealed, this only happened after the TL projects were inception.

Kisamo also noted that in past years, there was limited access to the necessary equipment in research in the beans field. He told us, *“The equipment that we lacked for conducting our research process was availed to us after the inception of the TL Projects. We were able to obtain quality weighing machines, soil analysis machines and other equipment that we use in the research process. I can attest that through the acquisition of this equipment, our work has become easier and the results are better. Initially, we would take a lot of time to develop a bean variety; however, after the availing of the new equipment we have been able to develop eight new improved varieties in a very short period.”*

There has been seven new bean varieties that have been developed since the inception of the TL projects in 2007. Kisamo (Figs. 3.5 and 3.6) stated that the equipment they had in the past were outdated and gave them an uphill task in the research process. The equipment that they had prior to the TL projects did not

Fig. 3.5 Mr. Alex Christopher Kisamo using a digital device to collect data on beans in Arusha, Tanzania (Photo: Ndichu J)



Fig. 3.6 Mr. Alex Christopher Kisamo displays a tablet that TARI Selian in Arusha, Tanzania, acquired through TL projects (Photo: Ndichu J)



provide instant data and took them days to produce results. He noted that thanks to the TL projects, they could take samples from the ground, run tests, and get accurate and instant results. The trips to and from the lab to synthesize data have since been done away with. Kisamo stated that the logistic costs had also become lower, and in turn the cost of research went down greatly as the results went up. The effect of this better equipment and training of stakeholders in the research process has resulted in the increase in quality of the beans being produced. The beans being harvested by farmers have better yields and are of more nutritional value. Kisamo states that if it were not for the TL projects, the quality of bean being planted and consumed by farmers would still be very low. He did not shy away from expressing his appreciation of these projects and insisted that the legume sector could be improved to the optimum level leading to overall growth of the Tanzanian economy that depends heavily on farming.

Challenges are still there as Kisamo told us. He stated, *“Our production of the improved bean seeds is still very low in comparison with the demand by farmers. Due to the evident value of the beans and its increase in price at the market, there has been a great demand by farmers who seek to reap profits from the new varieties; this is a challenge to us in the multiplication of the seeds of varieties that we develop.”*

3.3 Research Centre Directors Attest the Increase of Resources and Infrastructure Under TL Projects

Following the inception of the TL projects, there has been many changes seen in the research centers. Those that run these institutions are not shy of expressing their joy for to the positive changes brought by TL projects. One such person is Rama Ngatoluwa, research coordinator for the Selian Agricultural center. He spoke to us on behalf of the institute’s director. Selian is the headquarters for the Northern Zone research center. It has a sister center that deals with horticultural research. The center has three research departments: one that handles soil fertility issues; another one that deals with all crop-related research such as breeding, weed science, and post-harvest; and the department that links research and extension for packaging information and taking it to the intended audience.

We were also able to get an exclusive interview with one of the research center directors, Dr. Tulole Legendo (Fig. 3.7). Dr. Legendo, the zonal director of research and development in the Southern Highlands, based in Tanzania Agricultural Research Institute (TARI)-Uyole, within Mbeya, Tanzania. He mentioned that due to the expansiveness of his zone, it covers nearly all climatic conditions and thus all plants that can grow within East Africa grow in this zone. Dr. Legendo pointed out that TL projects had played a big role in improving farming of beans in Tanzania. *“TL Projects has facilitated quick research that has enabled TARI-Uyole, for instance, to develop new bean varieties.”*. *“The research center has released over 23 types of beans varieties that have better traits than their predecessors,”* he added.

Like Dr. Legendo, Dr. Ngatoluwa (Fig. 3.8) was also very eager to express the benefits that emanated from the TL projects. He stated, *“Our institute started engaging in Tropical Legume projects in 2007 where we did the projects in phases. Our engagement with the projects has enabled increases in productivity. We have broadened the variety of seeds in the country and have also been able to increase the nutrition value of the product; the bean has seen an increase in zinc and iron content.”*

On infrastructural advancement, Ngatoluwa said, *“TL projects helped us improve on transport and stationary equipment”* (Fig. 3.9). The TL projects are seen to have brought many changes in the phase of agriculture in Tanzania as Dr. Ngatoluwa rightly say.

Despite the huge success of the project, there are also a few challenges that still face the bean industry as Dr. Ngatoluwa emphasized. *“The major challenge is the increase in demand that at times we are unable to meet. Also, seed accessibility by farmers is an issue as we are not able to reach all the farmers due to lack of proper infrastructure like adequate roads. Sometimes the production of the seed is very low compared to the outputs due to certain issues like diseases and pests and weather conditions.”*

This notwithstanding, like most stakeholders in the beans sector, Dr. Ngatoluwa closing remarks were credits to the TL projects and stated that since its inception, the farmers have been able to meet the basic family need that they could not meet before due to the production of the improved varieties.

Fig. 3.7 Dr. Tulole Legendo, Zonal Director of research and development, Southern Highlands, TARI-Uyole, Mbeya, Tanzania (Photo: Ndichu J)



Fig. 3.8 Dr. Rama Ngatoluwa, the zonal director of research and development, based in Tanzania Agricultural Research Institute, (TARI)-Selian, Arusha, Tanzania (Photo: Ndichu J)



Fig. 3.9 Printers and laptops, some of the other equipment Selian Institute in Arusha have benefited from TL III project (Photo: Ndichu J)

3.4 Agricultural Extension Officers in the Bean Crop Tell of Their Benefits Under TL Projects in Tanzania

Extension officers in Tanzania have also benefited a lot from the TL projects. Mr. Clay Salehe Sarumbo (Fig. 3.10) is an agricultural officer in Ruanda region, Mbozi District in Songwe Province. Sarumbo narrated the progress before and during the implementation of TL III projects in bean farming in this region. He stated, *“I remember when we started the project in 2007, we were able to sell only 5 tons of bean seeds at the time and a kilo of the seed was going for 1050 Tanzanian shillings. The following year the amount increased greatly to over 28 tons and 33.5 tons the following year. Following the introduction of the improved varieties, our farmers have been able to reap between 600 to 900 kilos per acre where in past years they would only get 100 kilos.”* Sarumbo noted that following the inception of the TL Program, the productivity of the bean seed has increased tremendously, and farmers are making fortunes from their farm which was not the case in the past where beans were just a subsistence crop.

In his region alone Sarumbo reported that he is involved in the training of over 171 groups of farmers, and the major form of training that is given by Sarumbo is through field demonstrations. He stated that the farmers have been very cooperative upon seeing the good returns from the improved variety seeds. The farmers are

Fig. 3.10 Mr. Clay Salehe Sarumbo, an agricultural officer at Mr. Daudi Bukuku's Homstead in Ruanda, Mbozi District, Tanzania (Photo: Ndichu J)



Fig. 3.11 Mr. Clay Sarumbo (extreme right) at Mr. Daudi Bukuku's home in Ruanda, Mbozi District, where sun drying of beans was taking place in early April 2018 (Photo: Ndichu J)

quick to inquire in case they feel they need professional assistance from the likes of Sarumbo. This situation had never been witnessed before and Sarumbo credits this development to the TL projects.

However, Sarumbo (Fig. 3.11) has observed as an extension officer that more still needs to be done in changing the farming culture in Tanzania. Changing people's mindset is always difficult and requires a lot of persistence. Since farmers were deep into the past ways of farming beans, making them apply the new farming techniques and seeds is at times met by rebellion. Also, due to the good performance of the improved varieties it has been difficult for the seed producers to meet the demand in the market. Sarumbo hopes that all the relevant bodies including the government will aid in production and distribution of the improved beans and thus alleviate the shortages seen now.

3.5 Non-Governmental Organizations Working Hand in Hand with TL Projects to Develop Production of Common Beans in Tanzania

There are many NGO's that are involved in the improvement of agriculture in Tanzania. In our study, we interviewed Ms. Jacqueline Sanga (Figs. 3.12 and 3.13), a Monitoring and Evaluation Officer at *Action for Development Program* (ADP), an NGO in Mbozi, Tanzania, that was started in 1986. ADP is involved in educating farmers on the best farming practices that are there and how they can conduct farming in a sustainable manner. Sanga stated, "*We were initially focused on the production and storage processes in farming improvement but when we realized that farmers were now able to successfully revamp these stages in farming, we moved to the marketing sector. At the end of the day, we seek to improve farming in order to bring profits to the farmers in this region.*"

Sanga noted that her organization was working with farmers from over eight regions in Tanzania. She told us that the TL projects have been very instrumental in their endeavors to improve agriculture. Sanga stated, "*we have worked with TARI-Uyole in many instances to aid farmers in improving their farming. We were able to access bean seeds that had been heavily researched and invested on by TARI-Uyole. We promoted these varieties to the farmers and this led to the huge success in bean farming which is the current situation.*" She emphasized how the TL projects were key to improving the state of bean farming and the whole agriculture in general. Since the TL projects started, Sanga stated that the organization had benefited a lot, their extension officers got training which they, in turn, disseminated to the farmers. She noted that as an NGO they were not able to develop improved bean varieties and thus it was a great contribution by TARI-Uyole through the TL projects that allowed research and development of beans.

There has been a creation of a network such that the TARI-Uyole team does all the development of varieties and us and other NGO's channel the seed to farmers, she told us.

Sanga added, there are challenges that we have faced in the course of our work; climatic conditions sometimes are not in favour of the bean seed farming and there are also issues of crop diseases and pests' infestation leading to losses. Therefore, more research is welcome.

Fig. 3.12 Ms. Jacqueline Sanga, Monitoring and Evaluation Officer at Action for Development Program (ADP), an NGO in Mbozi, Tanzania (Photo: Ndichu J)





Fig. 3.13 Establishment of ADP Mbozi offices in Mbozi District, Tanzania (Photo: Ndichu J)

3.6 Private and Public Seed Enterprises Flourishing in Common Bean

3.6.1 Private Seed Companies Venture into Multiplication and Distribution of Improved Bean Varieties

Like is the case with groundnut, the seed business has attracted major players in the industry. Private individuals have set up businesses to fill the gap left in the market. As the popularity of beans grew, demand grew as well and since demand had not been adequately met, a business opportunity cropped up and the private sector took advantage of this. To give more insights into this, we interviewed Abel Samuel Byda, the Managing Director of Byda Agrovet Co. in Mbulu, Manyara District (Figs. 3.14 and 3.15). The company has five different outlets in Tanzania and has employed 24 workers. Byda specializes in selling seeds directly to farmers. He started this business 5 years ago and has been going strong ever since. He gets his seeds from TARI-Selian. He also has a 5 ha piece of land that he has planted to beans.

“My living situation all round has drastically improved since I am getting good profits. I started off with one retail shop, but I have now expanded to four more shops. My harvests are growing gradually as seasons go by.” He told us that his clientele is exclusively farmers since they are the ones who use his produce largely.

We also met Ms. Cecilia Magesa, Meru Agro’s Regional Manager in Arusha. She stated that the company produces various types of beans varieties which are distributed in the north part of Tanzania. They have been largely involved in the production of two varieties, namely the *Yamugo 90* and the *Uyole Njano*. Meru Agro (Figs. 3.16 and 3.17) has been in business for 7 years where together with TARI-Selian they have worked hand in hand in getting parent seeds and sponsoring activities such as breeding the varieties and looking for seed markets. *“We have also gotten help from NGO’s which have bought these seeds from our region and taken them to Kadira (this region does not get much of the seeds). Our work in the south is not much since the weather over there is not favorable,”* she says. In the last harvesting season, they were able to produce 120–200 tons.



Fig. 3.14 Establishment shot of one of the Bayda Agro-Vet co. Shops in Mbulu, Manyara District, Tanzania (Photo: Ndichu J)



Fig. 3.15 Mr. Abel Samuel at one of his shops in Mbulu Manyara District, Tanzania (Photo: Ndichu J)

This, however, is not reflective of the challenges they face since it is way low from the set goals. The crops are often attacked by diseases and ravaged by the weather. *“Our customer base is really vast since we sell our products to institutions and NGOs,”* she concludes.



Fig. 3.16 Establishment of Meru Agro-Tours & Consultants Co. Ltd. shop in Arusha Mjini, Tanzania (Photo: Ndichu J)



Fig. 3.17 Ms. Cecilia Magesa, Meru Agro's Regional Manager in Arusha at the Company Shop, Tanzania (Photo: Ndichu J)

3.6.2 Public Seed Companies in Tanzania, Agricultural Seed Agency (ASA) Takes Up Multiplication of Improved Varieties of Beans in Partnership with TL Projects

As mentioned earlier, the government of Tanzania, through the Agricultural Seed Agency (ASA), has been able to catalyze the efforts by TL projects in multiplying and distributing new improved bean varieties in the country. This public institution

is run by agricultural officers. Their duties are multiplying seeds for the purpose of satisfying the seed demand around Tanzania. We managed to have a sit down with Mr. Eliud J. Musumi (Fig. 3.18), an agricultural officer (ASA-Mbozi Farm) who emphasized that their main goal is seed production. *“Previously we only dealt with maize seeds, but we decided to expand our horizons into bean seed production,”* added Musumi. *“Our decision to include bean was a success.”*

Last season, the agency planted 45 ha of land but they decreased this number to 10 ha due to high amount of labor required. After harvesting the crop, Mr. Musumi explains that the product undergoes certain stages, the first one being preparing it for storage. The beans are taken out of their pods and stored in large stores. *“We finally weigh them where some weight is lost due to the drying process that takes place.”*

We also visited ASA-Arusha where we met up with Mr. Marco Martin (Figs. 3.19–3.21), a breeder at the government-owned agency. Here, they plant a variety of beans and their produce has seen a gradual increase over the period that he has been working. Martin expects close to 200 tons of beans this harvesting season. He told us that they have planted on over 500 acres of land in which they have designated some part for maize and the other for beans. *“We collaborate with research institutes who advise us which variety works best on certain conditions in order to optimize our harvests,”* he says.

Marco adds that they try to make their seeds accessible, so they look into their distribution channel down to the ward level. They even collaborate with farmers to try and sell the seeds. Last season they farmed on 30 acres with the farmers who received subsidies. When it comes to selling their produce, they package the seeds into 2 kg to 50 kg packages which they sell to farmers.



Fig. 3.18 ASA Mbozi Offices in Mbozi, Tanzania (Photo: Ndichu J)



Fig. 3.19 Mr. Marco Martin, a breeder, ASA-Arusha, at the institution’s farm, Tanzania (Photo: Ndichu J)



Fig. 3.20 Workers at ASA-Arusha in improved Bean farm at the Tanzanian Government-owned institution (Photo: Ndichu J)

Marco is candid in sharing what he goes through in form of challenges. The seed demand curve often dips without any indication. Farmers can go through losses due to this uncertainty. Their farms are surrounded by pastoralists who more often than not lead animals onto their lands for grazing causing conflict and losses. These are some of the encounters they go through, but all in all great millage has been covered through their efforts as an agency.



Fig. 3.21 Establishment of ASA-Arusha Farm in Arusha, Tanzania (Photo: Ndichu J)

3.6.3 Agro-Dealers Find Business in Improved Bean Varieties Through Efforts by TL Projects in Tanzania

The sales and supply business cannot be completed without the retailers or, in this case, agro-dealers. To get a firmer grip on this, we talked to Ms. Frazia Mbwaga (Figs. 3.22 and 3.23) in Mbeya town. She specifically sells bean seeds in a shop that is part of the chain of shops by Beula Seed Company within Tanzania. Mbwaga who handles two types of seeds *Uyole Njano* and *Uyole 96*, packages her produce as well. She started doing this mid last year and has gone on to become a revered retailer. The relationship that Mbwaga has formed with her customers has made business so easy that she can now operate on credit. She goes on to inform us that beans are a seasonal crop, so she tries to get the most out of it when the time comes. *“The market drifts for this product and you need adequate preparation for the credit to come in handy,”* she added.

Demand also varies; when the market is saturated with beans, demand dips, making retailers almost go out of business, but when the beans are scarce, the demand is high which also has its negative effects. Despite the trying times which can happen for any business, Ms. Mbwaga has managed to stay afloat for the most part. She packs her product in 2 kg bags to 50 kg bags. Her clientele ranges from retailers to farmers.



Fig. 3.22 Beula Seed Company Agrovet Shop in Uyole, Mbeya, Tanzania (Photo: Ndichu J)

Fig. 3.23 Ms. Frazia Mbwaga at Beula Seed Company Agrovet Shop in Uyole, Mbeya, Tanzania (Photo: Ndichu J)



3.7 Farmer Groups Improve Their Livelihoods Through Production of Improved Bean Varieties in Tanzania

Groups offer help to young farmers who do not have as much high level of reach as that of established farmers. This often encourages more people to delve into the agricultural sector. We caught up with Zinduka Women Group in Mshewe, Mbeya. Formed in 2011, the group has 20 members, all women, and is chaired by Ms. Witness Sikayanga (Figs. 3.24–3.26).

She says, “*Apart from growing beans as a group, we also grow individually though we put a target of about 600 kg per acre per person.*” The women were part of individuals who benefited from the education provided on farming techniques back in the year 2013. They produce seeds with the sole purpose of selling them. They normally plant seeds according to their demand in their local market. They were once involved with the traditional varieties of bean but decided to jump ship

Fig. 3.24 Zinduka Women Group chairperson, Ms. Witness Sikayanga shows us a drier at Mshewe Village Aggregation Center (VAC) donated by Rafael Group Ltd and other partners in Mshewe, Mbeya, Tanzania (Photo: Ndichu J)



Fig. 3.25 Electricity connection at Zinduka Women Group chairperson, Ms. Witness Sikayanga's homestead in Mshewe, Mbeya, Tanzania (Photo: Ndichu J)

since they did not have good yields. The newly released varieties have had a positive impact on the farmers. Since the group solely involve women, changes around them have been visible to the general public. They can now cash in on home amenities such as improving the level of their living standards, buying more arable land for farming, and connecting their homes with electricity (Fig. 3.25).

The road has been bumpy though; the bean market has been monopolized by the sole buyer who ends up setting up poor prices on beans and the technology to help in the growth of beans is also expensive for the group.



Fig. 3.26 Ms. Rhoida Nsagaje, a member of Zinduka Women Group outside her house which she built through proceeds from Beans farming, Tanzania (Photo: Ndichu J)

3.8 Bean Grain Market Fed with New Varieties

3.8.1 Grain Farmers Embrace New Bean Varieties After Rollout of TL Projects in Tanzania

Small seed dealers often come up in new business environment. They normally limit themselves to a small-scale supply of grains. Such is the case for Ms. Neema Dick Malasusa in Nanyala, Mbozi (Fig. 3.27), who started farming in 2008. She reported that she initially started by planting the traditional varieties which ended up having a detrimental effect on her income. She then switched to the improved varieties which have seen her revenue stream take a turn for the better.

Fig. 3.27 Ms. Neema Dick Malasusa selling beans in Nanyala, Mbozi, Tanzania (Photo: Ndichu J)



3.8.2 Processors in a New Niche in Improved Bean Varieties

Achievements made in improving bean varieties in Tanzania cannot be overemphasized. With such advancements come new opportunities like value addition. This is where processors come in. Ms. Andusamile Mbandile (Fig. 3.28), secretary of Zinduka Women Group, which we featured here, reported that they too have ventured into value addition of the bean. “We mostly handle the new varieties which we first pluck from the plant, get them out of the pods, clean them and boil them in salty water,” says Ms. Mbandile. “This takes place for about 30 minutes then we take them out to dry in a bid to improve their quality in preservation. This type of quality has its pull-on consumers since we improve its taste.” The women have been able to increase their income through this venture, and they say, there is no turning back.

3.8.3 Beans Lovers in Tanzania Now Consume Improved Varieties Courtesy of TL Projects in the Country

Beans have garnered popularity among the folks of Tanzania. There has been this notion by the elderly in Tanzania that a meal is not complete if it is not accompanied with beans. Most households in Tanzania often have the crop in their daily meals, a practice our team also witnessed in most restaurants. We talked to Ms. Christina Danson Kalupale (Fig. 3.29), a telephone operator at ARI-Uyole since 1978. Kalupale secured a tender to run catering services in the institution about 6 years ago.

She informs us that through her extensive experience in the catering industry, beans have more consumers than meat. Christina sells cooked food and she reported that the new improved varieties attract more consumers than the old varieties. She has the variety locally referred to as *Kablanketi*, which is preferred because of its thick soup and aroma. This has had positive effects on her business because she



Fig. 3.28 Ms. Andusamile Mbandile (right), secretary of Zinduka Women Group, with other group members at their farm in Mshewe, Mbeya, Tanzania. (Left) Members of Zinduka Women Group at their Farm in Mshewe, Mbeya (Photo: Ndichu J)

Fig. 3.29 Ms. Christina Danson Kalupale at the Kitchen in her cafeteria at ARI-Uyole in Mbeya, Tanzania (Photo: Ndichu J)



grows the beans she sells, hence optimizing her income. She goes on to state that during her entire time in the business, she has been handling the new varieties. Christina adds that the yellow variety is specially requested because it gets ready quickly and has a sweet taste. These beans have played a huge role in her life as far as providing for her family's basic and development needs are concerned.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

