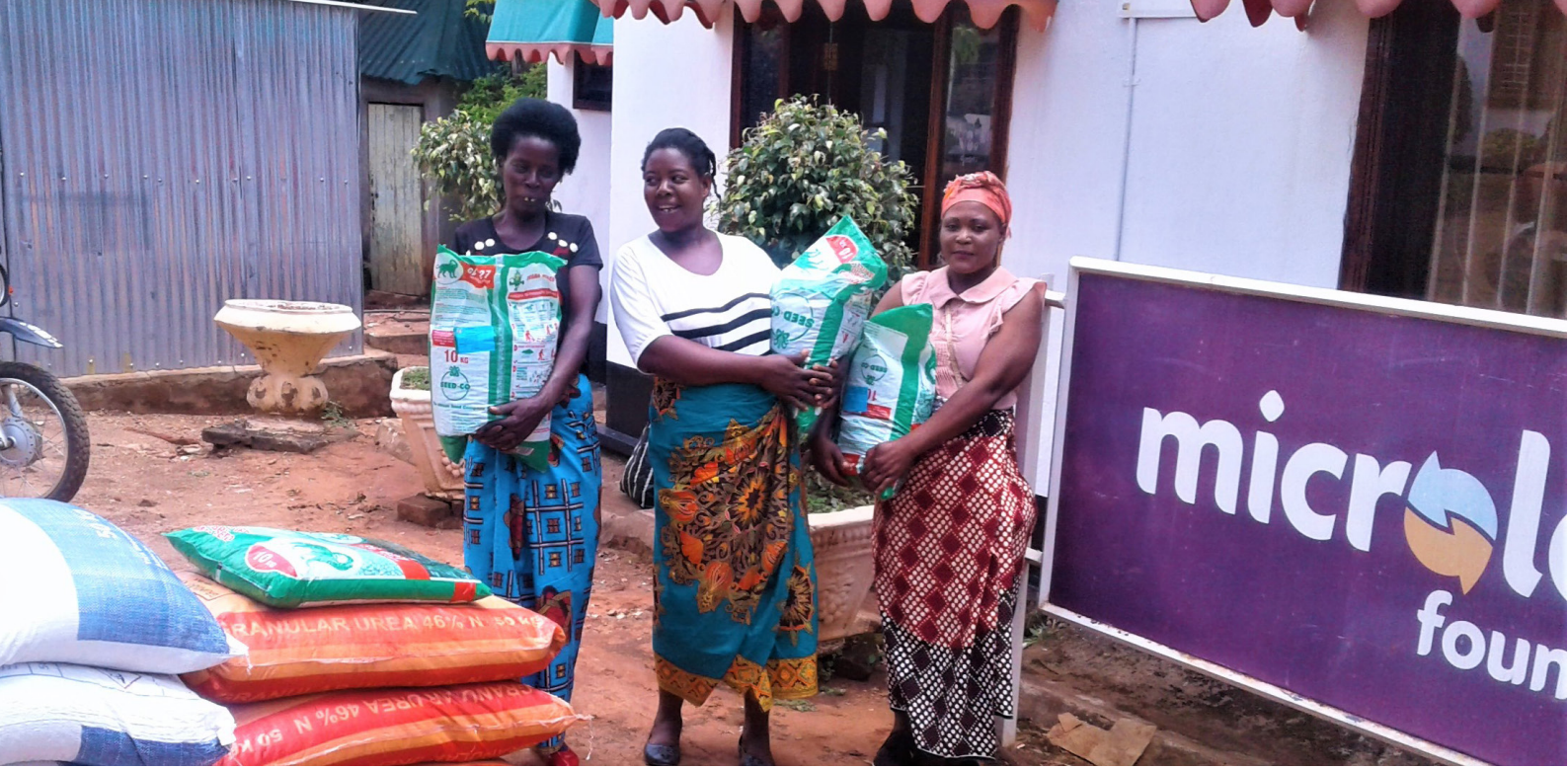
microloan foundation

2017-2020 Maize and Soya Pilot Project Zambia

August 2020



Background

MicroLoan Foundation's maize pilot project in Zambia aims to support poor female smallholder farmers through financial inclusion, poverty alleviation and food security. In Zambia, 58% of the population of 17.4 million people live in poverty on less than US$1.90/day according to 2018 UNDP Human Development Indices data, and 57% live in rural areas where poverty is more severe. Zambia's 7th National Development Plan 2017-2021 aims to reduce the national poverty headcount to less than 20% of the population by 2030. Though the country has a favourable climate and fertile land, population density is very low and only 15% of arable land is under cultivation, with yields of rain-fed crops grown by smallholder farmers persistently low. One of the National Development Plan's key priorities is a focus on rural development to reduce growing regional inequalities.

According to Finscope's 2015 Zambia Survey, financial inclusion in Zambia has reached 59% of the adult population, but women are disadvantaged when compared to men. Rural households have lower rates of formal inclusion (banks and microfinance institutions) than urban counterparts, and smallholder farmers are more excluded than non-farmers or wealthier farmers. Women farmers are the backbone of Zambian agriculture, providing labour on their husband's land and on their own smaller plots. They are generally the most financially excluded group especially in terms of formal services.

Smallholder farmers face barriers such as a lack of suitable and affordable inputs and training, and of opportunities to adopt improved techniques. As a result, they fail to increase their productivity that ensures food security and that could provide a surplus and potential for cash income. Technical know-how and access to affordable financial services directly influence women's roles in agriculture and their ability to advance. Women usually do not have equal decision-making authority and exhibit less control over money and assets.

MicroLoan's services for poor rural women combine loans and financial literacy and business training with agricultural input loans and training in conservation farming techniques. As a result:

- women become economically empowered
- women earn an income to provide for the basic needs of their families
- women build up their resilience against financial shocks through savings
- women ensure good food security for their family through increased maize yields
- women increase their confidence and decision-making power in the household

Project context

MicroLoan first developed and piloted its agricultural loan and training programme in Malawi in 2012. This past growing season 493 women joined the programme in Malawi in Kasungu, Ntcheu and Dedza. Over the years, yields have been consistently higher than those of control group farms, even in years where farmers were affected by floods, droughts and infestations. Our beneficiaries and their husbands have gradually become more confident in applying our conservation farming methodology as they have tangible evidence that it is effective. We have also seen the wider community adopt the methodology the to the point where we are no longer able to compare yields against control groups. The demand for the programme is ever increasing, and we are only limited in scope by available funding.

The Headley Trust kindly agreed to fund a three-year maize pilot programme in Zambia. This report gives an overview of the third and final year of the pilot project. Following a feasibility study conducted in 2017, a successful mini-pilot was completed with 67 beneficiaries planting maize on one-acre plots at the Chipata branch to improve the food security. In the first year the programme was managed locally by Edward Jere and overseen by UK-based agricultural expert Leslie Lyle. In the second and third year of the pilot Crop Officer, Sililo Sitali, has been responsible for community engagement and recruitment of farmers into the programme, input procurement, technical training, compliance monitoring, and reporting. Leslie Lyle continues to oversee the programme. The loan administration is done by our regular Loan & Training Officers at the Chipata branch.

Year 3 pilot results

Recruitment of farmers and disbursements of inputs

In 2019/20, we increased the number of loans and acreage cultivated, and expanded to growing soya. Following a successful soya-maize project in Malawi, we wanted to introduce soya to this programme to replicate its success. Soya is a cash crop with significant nutritional benefits, and it is particularly beneficial to maize when in rotation, enabling a potential reduction in commercial fertiliser. Women will need to have access to land with a reasonable soil quality and have a profitable business so that they will be able to pay off both their business and input loans. The input loan consists of 10 kg of hybrid seed (Seedco 637), one 50kg bag of basal compound fertiliser and one 50 kg bag of top dressing (urea). For one acre of soya, women required 25 kg of seed and two packets of inoculant, which is used to improve yields and increase the fixation of nitrogen. In order to reduce costs and explore a sustainable method of distribution, this season we asked the women to arrange their own transport and collect their inputs from the branch office in Chipata.

MicroLoan's target in year 3 was to reach 200 women and we reached a total of 231 women who joined the programme with a total of 250 acreage.

Overall, our target was to reach 325 women for this pilot programme and we have exceeded this by reaching 484 women, many of whom are keen to join the programme in the next growing season.




Women preparing soya bean recipes such as porridge and milk

Training

Once women have committed to the programme it is compulsory for them to attend the conservation farming training sessions that are provided at relevant times in the growing season.

The modules are:

- Land evaluation and measurement
- Land preparation, removing ridges where appropriate
- Planting of nurseries and fields with correct spacing
- Basal fertiliser application and first weeding
- Top dressing application, integrated pest management (IPM) and second weeding
- Maize harvesting, shelling and storage
- Soil improvement using residues and crop rotation
- Compost making
- Establishing an agro-forestry nursery and transplanting
- Preparing and using soya for household consumption

This programme's key objective has been to encourage food security through the agricultural loans by promoting the conservation methodology which is endorsed by the Ministry of Agriculture and other conservation organisations. This type of farming aims to mitigate the effects of climate change. It minimises tillage; reduces the need for commercial fertilisers; reduces soil erosion; and improves soil quality.

Compliance monitoring and results

The Crop Officer provides support to the women throughout the season to make sure they are adhering to the prescribed methodology. Compliance monitoring exercises were done at three different stages followed by a final visit to measure yields:

1. After land preparation
2. After planting and first weeding
3. After application of top dressing fertiliser
4. After harvest to measure yields

We found that the overall adoption of each aspect of the methodology for both maize and soya was good. In Zambia, the farmers use a technique called, 'ripping', where a plough is used to 'rip' out the lines where the seeds will later be sown so that plant roots can penetrate the pan. The rip lines help enhance infiltration and minimises soil erosion. The farmers can either plant at regular intervals or else create basins which retain rain well and then plant 2-3 seeds per basin. We discovered that a significant portion of farmers were continuing to plant more than one seed per station which we inform the farmers is unnecessary and uneconomical during training. We have noticed that this occurs when the planting has been executed by family members or paid labour where the farmer has not supervised the planting. It was a similar situation with planting nurseries. When growing maize, the farmers are taught to make nurseries from which they can transplant where seeds have not germinated. We realised that 50% of farmers had not created these nurseries but we were fortunate to have had a good season and their yields were unaffected. We will be prioritising this process next season and ensure that all farmers understand the importance of this step.

This year, there were very few incidences of pests, with army worms being the most prevalent. The farmers are trained to identify an infestation and advised to act quickly. Initially, they will sprinkle soil on the infestation but if they are unsuccessful, they contact the Crop Officer who provides guidance and helps them obtain a suitable chemical.

Early monitoring of the maize planting found that group work was widespread. It improves the chances of the methodology being followed correctly, speeds up the task of individual farmers, and reduces the need for paid labour. However, the Crop Officer later discovered that when the women were working in groups, some do not turn up. Upon investigation, we found that those who did not turn up paid others in the group to perform the labour on their plots. The money from this labour in turn goes towards their repayments. There appeared to be a rotation of this labour in the groups so that all women who work on others' fields are paid for their labour.

Labour costs for soya were very low. Maize is a staple crop, takes priority and planted first with the rains and hired labour is sometimes used. Soya is planted later when the farmers can take their time and use their own labour. The monitoring of the soya planting showed that there needs to be more emphasis on spacing between rows and at planting.

Agroforestry

This season, MicroLoan has introduced agroforestry to our programme and it has been a hugely successful endeavour. Our farmers were taught and encouraged to grow glyricidia, an agroforestry crop with leaves that provide a rich source of nitrogen. It can be a major component of pit manure or it can be transplanted from a nursery to grow in rows between a crop. Furthermore, when it is harvested, the wood can also be used as firewood. Agroforestry is a particularly exciting addition to our programme, and we would like the use of glyricidia to eventually replace commercial fertiliser. The seeds were obtained from other stakeholders such as Community Markets for Conservation (COMACO) and Conservation Farming Unit (CFU) and monitoring on the ground found excellent adoption of this process and we intend to continue the education and support in agroforestry next season.

Yields

In the 2019/2020 growing season maize yields were exceptional, averaging 4.7 tonnes which is equivalent to 94 x 50 kg bags. This is the highest we have ever recorded in Zambia or Malawi. It is higher than the average yield in Year Two (92 x 50 kg bags), and significantly higher than the average yield in Year 1 of the pilot (47 x 50 kg bags). The success is down to a number of factors such as the quality of the inputs; adherence to the methodology taught to the women; and close supervision by the Crop Officer. The women were also very lucky to have had ideal rains and fortunately, were not badly affected by the devastating drought at the end of 2019.

Compared to maize, the yields for soya averaged at a lower 608 kg per acre, which is equivalent to 12 x 50g bags. This was expected because the quality and germination of the seed was poor. The seed that was originally secured by MIcroLoan was then acquired by the government for their needs, leaving MicroLoan to wait for more seeds to become available which turned out to be of a much inferior quality. Despite this, MicroLoan farmers achieved double the yield of control group farmers, who achieved an average yield of 259 kg per acre. This si a result of control group farmers being more likely to use low quality farm saved seeds and not having access to conservation farming training.

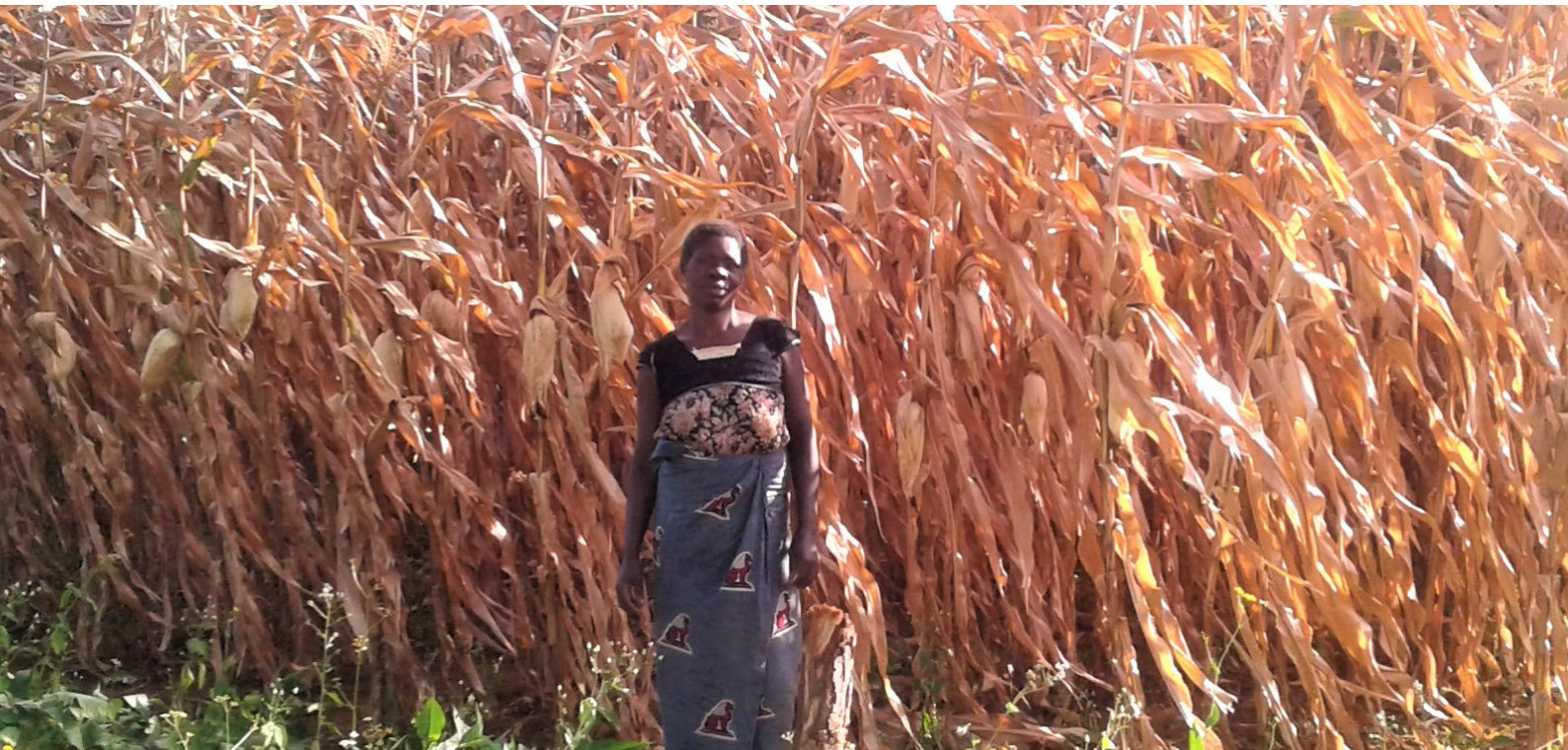
Our research show that the use of herbicide appears to make only a marginal difference. The control group farmers who did not use herbicides to control weeds on the maize fields had slightly higher labour costs and slightly lower yields compared to MicroLoan programme farmers.

MicroLoan farmers are strongly discouraged from selling their surplus maize too soon after the harvest with heavy emphasis on maintaining food security for their families and the market price for maize being at its lowest at this point. Due to the impact of COVID-19 and the economic uncertainties perpetuated by the pandemic, we anticipate that many clients will have to sell some of their maize. However, the return on investment (ROI) for MicroLoan farmers is an impressive 440%, which is a testament to the methodology and perseverance of the women who have worked so hard. For soya, the cost of inputs is much lower as there is no use of commercial fertiliser, and the market price as of early June is ZMW 4.5/kg but there is a chance that this may rise to ZMW 8/kg later in the year. The ROI for soya is 326%, making the introduction of this crop to the programme a resounding success.

Table 1: Results Year 3 Maize Pilot Programme Zambia	Programme farms	Control group farms	Soya
Average yield (kg/acre)	4,751	4,671	608
Average yield (50 kg bags/acre)	94	93	12
Average total cost of production (incl. loan plus interest)	ZMW 2,111	ZMW 2,194	ZMW 642
Average production cost per kg (at a market price of ZMW 1.5/kg)	ZMW 0.44	ZMW 0.47	ZMW 1.06
Average potential income from sale of excess crops (keeping 30 bags for own consumption) at current market price of ZMW 2.4/kg (maize) and ZMW 4.5/kg (soya)	ZMW 7,680	ZMW 7,560	ZMW 2,736
Average potential profits (as per the above)	ZMW 5,569	ZMW 5,366	ZMW 2,094

Loan repayments

The total loan amount was determined to be ZMW 1,230 per acre, and the women were given a grace period of four months before starting their regular fortnightly loan repayments. The women were asked to make a down payment on the loan once they received the inputs, and they were encouraged to make small repayments during the grace period if they were able to. The total loan cycle duration is nine months. An interest charge of 5% per month on the loans was applied which helps to pay for in depth training, expenses of the programme and for support from the Lusaka head office staff. At the time of monitoring yields and costs, the arrears were high, averaging 25% of total loan (including interest). We expect the pandemic to have an additional impact on repayments as the economy and market access is impacted.



Challenges

Business loans vs. agricultural input loans

Presently, the agricultural programme requires each participant to have an existing business loan with MicroLoan. This was put in place to protect the farmers from over indebtedness and preserve MicroLoan's loan book as it ensures each farmer's repayment history is sound and they are able to take on the additional responsibility. The farmers use their business profits to make repayments on the agricultural loans as there are no returns on the maize and soya until after their harvest. However, there is a danger that repayments for both loans can be too onerous, and it is evident that MicroLoan will need to reconsider the size of the business loans we provide.

Inputs

Sourcing inputs has proven difficult each season for several reasons:

- Inputs must be sourced early and therefore MicroLoan must have enough funding for the agricultural project to be able access these. This also means that MicroLoan funds are tied up for a longer time than the length of the agricultural loan, which is already much longer than the business loans.
- Foreign exchange fluctuations (devaluation and inflation of Zambian Kwacha) mean that the cost of inputs increases and therefore loan sizes increase, which becomes harder for our clients to accept.
- Sourcing inputs can be time-consuming for the Crop Officer, especially at a time when his focus should be in recruiting, sensitising and training clients.
- Furthermore, the distribution of the inputs has always been challenging as it is very labour-intensive and an additional cost to the organisation. This season, we trialled a different system, asking the women to arrange their own transport in their groups and collect them from our office in Chipata. The women were initially enthusiastic about this process but in practice, they were unable to organise themselves in the groups. MicroLoan will be exploring other approaches to ensure women can access the inputs easily and labour costs for MicroLoan remain low.

To tackle these challenges, we are moving towards cash loans which would enable MicroLoan to focus on reaching more women and refining the programme to best suit the communities in which we operate. Cash loans present different challenges:

- Finding suitable and trustworthy agricultural merchants who will distribute the inputs.
- Some clients may mistakenly divert all or a part of their loan into other areas and therefore, will require some training and education on they must do with the agricultural cash loans
- A new system will have to be created to monitor the inputs distributed by the merchants. This will take some time, trial and accurate reporting in order to be effective.

Methodology adoption

We are finding that some clients are not transferring their learning of conservation farming to all aspects of their farming. MicroLoan monitoring shows that a farmer will only use MicroLoan farming methodology for the portion of land that corresponds with the inputs we provide and then revert to previous methods on remaining land, despite knowing that this will reduce their yield.

The challenge with introducing a cash crop like soya is that it is difficult to convince the women to retain some bags for their households' nutritional needs. It is widely regarded as currency as it commands a good price in the market at a time in the year when women are most likely to be in desperate need of cash. We anticipate that this will certainly be the case during this pandemic.

End of project recomendations

Agricultural cash loans

MicroLoan needs to reconsider the terms of the agricultural loans. Presently, we are exploring cash loans to enhance this programme. With this, we hope to overcome the issues of sourcing and distributing inputs as well as encouraging the women to have greater autonomy. We plan to add another module to the training which will teach clients how to manage their cash loan, both at the time of receipt and their repayments through the loan period. An important next step is to begin researching and approaching agricultural merchants who understand and meet our clients' needs and once we find an appropriate partner, do random checks on the quality of inputs distributed. Alongside this, we will have a monitoring system in place to ensure that the women's inputs are available at a designate distributor.

Specific training for loan officers

All Loan & Training Officers will need to receive specific training to understand the needs of women who have an agricultural loan and the training should reinforce the training provided by the Crop Officer to the women. Due to the popularity of this programme, we anticipate that the demand to join will continue to grow. As this happens, there will be an increasing need for the Crop Officer to receive additional support, and we will be allocating additional time during repayment meetings for loan offers to advise, remind and monitor clients. This will also provide increased support for women.

Knowledge Transfer

As mentioned earlier in the report, our monitoring data shows that some women are not transferring the conservation methodology to their other farming. Mr. Kennedy Kanenga, a MicroLoan board member who also works in the Ministry of Agriculture has provided some direction in how we might be able to improve our standing with the community and adopt a truly bottom-up approach. He has recommended that MicroLoan considers either a Participatory Rural Appraisal (PRA) or a Rapid Rural Appraisal (RRA). Both appraisals are intended to identify the actual needs of women in the communities in which MicroLoan operates. We will use this learning to ensure our programme truly takes a bottom-up approach and allows women to fully commit to the methodology. At present, there is insufficient funding to implement the appraisal but we will be approaching funders with an interest in agriculture to obtain a grant because this study is fundamental to the programme's future development.

Growth

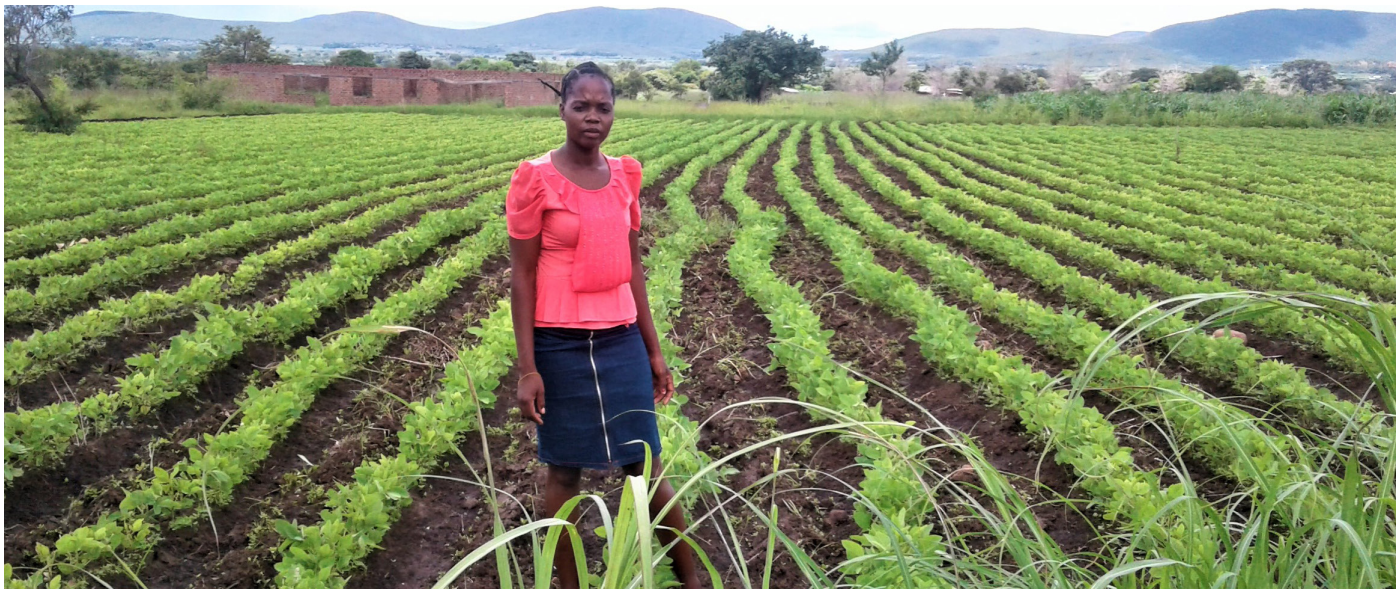
The recommendations we must take forward will require substantial alterations to our method of working and as such, MicroLoan will not increase the amount of loans provided beyond 350, and we will continue providing this service in Chipata during this time. This is so we can trial these recommendations in a controlled environment and with the Crop Officer based in Chipata, we can be sure that he will be on hand to immediately attend to any issues that come up.

Following the outstanding results from the agroforestry programme, we plan to continue extending this to all women as it is a source of manure which we hope to replace with commercial fertiliser. Alongside this, the success of the soya adoption provides an excellent opportunity for MicroLoan to educate our clients in its nutritional benefits as a rich source of protein. We will be looking at ways emphasise the use and preparation of soya earlier in the season in order to encourage women to retain more soya for home consumption.

Finally, MicroLoan understands that if clients are to grow cash crops such as soya (and ideally, MicroLoan would like to introduce other cash crops in the future) then we will also need to help them create linkages to market or find ways of adding value. This is a very difficult challenge when working among subsistence farmers with small and unpredictable harvests and lack of transport. However, as farmers take on larger loans and grow more cash crops there will be a need to assist them in these areas. We will use our expertise and relationships with relevant decision-makers so that our clients are able to access markets.

MicroLoan continues to explore opportunities to expand our working knowledge of the field and loan products, and we are currently looking to introduce an agricultural loan evaluation system in Malawi – the first of its kind in the country – and once fully tested, we intend to expand our learnings to Zambia.

Feedback from beneficaries



Lesinart standing in her soya field

Lesinart Chandamali is a smallholder farmer of the Thamanga loan group and prepared her fields early August. She is extremely thankful for the knowledge being imparted to her and her loan group. She was particularly keen to learn and implement the conservation farming methodology because it has helped her prepare her fields early enough in the season that she would still have a chance to rest while she waited for the rains. The length of time it takes to complete the methodology is longer, but the labour is distributed evenly across this period, which means she can rest and plan the subsequent activities with ease.

"This also saved costs and helped us plant early because we planned our activities well."

Lesinart Chandamali also benefited from a soya bean loan and is delighted to have achieved food security for her family and be able to sell some of the soya and improve her family's income level.

"I am also going to retain some bags of soya which I am going to be using for porridge for my family this will also improve food security and nutrition."

Magrete standing in her maize field

Magrete Banda of the Malachi loan group is grateful to MicroLoan for having received inputs early and thinks that MicroLoan's agricultural programme is a good programme for rural women. She notes that her family is now food secure and she is able to continue with her income-generating business while also supporting her children financially so they can attend school.

"This programme is going to improve our livelihood because most of us are predominantly farmers who lack access to agricultural inputs."

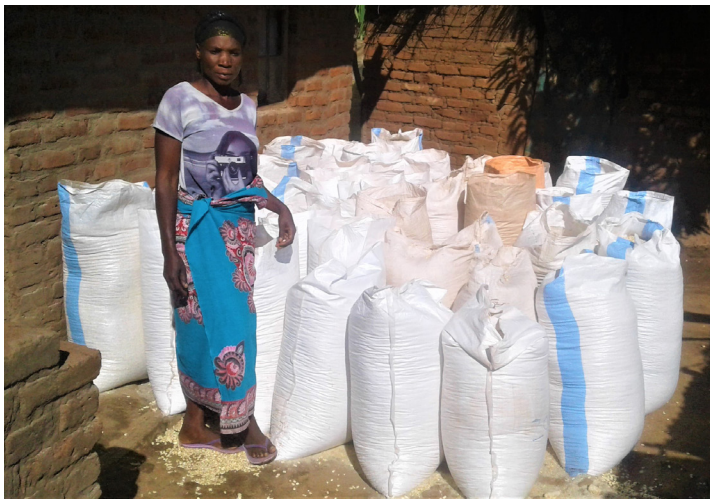
Catherine Lungu of the Progress Salvation loan group managed the field demonstration plot for MicroLoan and has been with us for three years. She says she is very happy to have learned about conservation farming gives credit to our methodology for her knowledge of making compost manure and preparing land and this year, she also learned about creating a nursery for gliricida sepium.

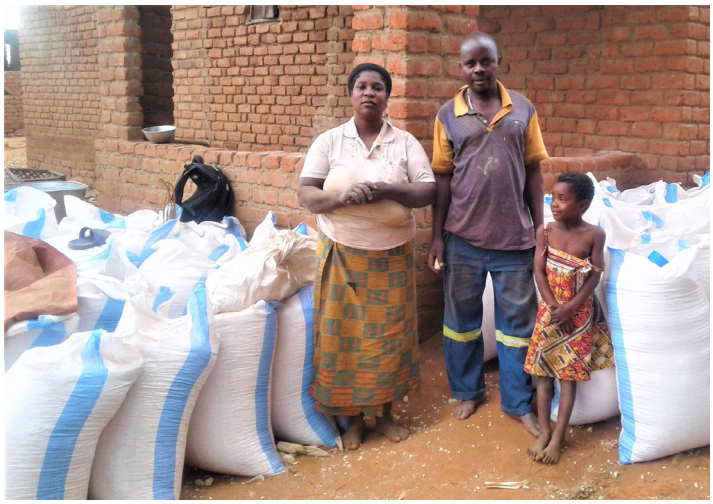
"For the first time I am going to have trees in my field. Through the knowledge learnt from MicroLoan my yields have been improving for the past three years and I would like MicroLoan to continue providing the inputs and the extension services to rural women. It is clear the MicroLoan methodology is paying off significantly and increasing our yields. My farm is going to improve as you can see. I have glyricidia tree species which will be contributing to fertility of my soil and I can use it to make compost manure".

Fanela preparing soya beans to take to the market

Faneli Phiri is also going to sell some bags of soya and retain some for household consumption, She says she has been struggling to support her children's education and usually is not able to pay for their school fees at this time of the year.

"I am very happy for the support. Now that I can access MicroLoan's inputs to grow soya beans I am not going have such challenges anymore because at least we can grow a cash crop like soya beans. This is a very good program for us rural women".





Matilda and Charity with their yields

Matilda Phiri and Charity Phiri are both from the Kagunda loan group and are enormously happy with their yields. They attribute this to early planting and the compost manure they applied before planting. They say that they experienced bigger stems and cobs than before.

"Now we have enough for our food security and can still sell a few bags to the market for us earn an income. We want to thank MicroLoan for the support they are giving to women."

End of grant conclusion

Zambia is primarily an agrarian economy and approximately 90% of MicroLoan's beneficiaries are smallholder farmers. The success of this programme is testament to the importance of access to finance for agricultural purposes. If female farmers are supported well and taught how to grow crops using the conservation methodology, they are likely to have and increase their ROI. Furthermore, the introduction of agroforestry has been a particularly exciting component of this project, with the introduction of glyricidia as a form of fertiliser that can be grown by the women. MicroLoan will use the learnings from this project to refine the product to tackle the key challenges facing the poorest segment of the population: poverty and food security. We continue to work towards improving methodology adoption and are looking ahead to the 2021 season in which we will be conducting a Rapid Rural Appraisal. The study will help us identify further ways to ensure our approach is truly bottom-up and that the methodology can be adopted fully. We also look towards improving our agricultural loan product to fit female smallholder farmers better while enabling MicroLoan to be cost and time efficient.

Support from The Headley Trust has enabled MicroLoan to introduce an agricultural financial product to women in Zambia and prove that the conservation farming methodology paired with agricultural loans is beneficial to the poorest segment of the population. MicroLoan is grateful to the Trust for providing us with the funding to embed this project within Zambia.