MUSIKA

Making Agricultural Markets Work for Zambia

AN ASSESSMENT OF THE EFFECTS OF IMPROVED MARKET ACCESS

A CASE STUDY OF A LEGUME INTERVENTION IN EASTERN PROVINCE

Faith Lubinga

Table of Contents

FOREWORD iii

EXECUTIVE SUMMARY iv

ABBREVIATIONS AND ACRONYMS vi

1.0 Introduction 1

1.2 Methodology 2

2.0 RESULTS AND KEY FINDINGS 3

2.1 Background Characteristics: Demographics 3

2.2 Legume Crop Production: Harvest, Sales and average Income generated. 3

2.3 Legume Crop Production: Access to Extension 5

2.4 Legume Crop Production: Sales 6

2.5 Decision Making and Income Use Over legumes. 7

3.0 Social and Economic Welfare 8

Impact on both farmers participating in improved markets and on the wider community 8

3.1 Time spent on agricultural activities due to access to improved markets 8

3.2 Demand for labour by farmers' accessing improved markets 10

3.3 Participants & Non-participants changes due to the intervention in economic status within the wider community due to access to improved agricultural market activity 10

3.4 Participants changes due to the intervention in social-welfare within the wider community due to access to improved agricultural market activity 12

4.0 Non-Participants Benefits. 13

Recommendations 13

Conclusion 14

References 15

List of Figures

Figure 2. 1: Legume Crop Production: Harvested and Sold (Kg) 4
Figure 2. 2: Legume Crop Production: Access to Extension Services 5
Figure 2. 3: Legume Crop Production: Source of extension Service 6
Figure 2. 4: Legume Crop Production: Decision Making on Income Use 7
Figure 2. 5: Legume Crop Production: Income Use 8
Figure 3. 1: Farmers' observed decrease in time spent. 9
Figure 3. 2: Farmers attribution to decrease in time spent. 9
Figure 3. 3: Mainly engaged for additional labour 10
Figure 3. 4: Increase in the amount of money spent 11
Figure 3. 5: Economic benefits observed. 11
Figure 3. 6: Changes in time spent on social activities due to the intervention. 12
Figure 4. 1: Non-Participants: Market participation Benefits 13

List of Tables

Table 2. 1: Background Characteristics: Demographics 3
Table 2. 2: Average income generated from sale of crop (ZMW) 4
Table 2. 3: Main Buyers of Legume 6
Table 4. 1: Agricultural activities of Non-participants 13

FOREWORD

This report was generated to serve as a reference document for Musika and its implementing partners. Musika Development Initiatives Zambia Ltd (Musika) is a non-profit company that works to stimulate private sector investments in rural and agricultural markets. It achieves this by helping businesses to develop mutually beneficial and transparent commercial relationships with smallholder farmers that integrate the provision of information and technology adoption, and provide confidence and long term incentives for smallholders to invest in their farming business. It provides its corporate clients with high quality, commercially focused technical advice, business model support and where relevant, smart subsidies to bring down some of the initial risks in doing business with the smallholder market. Musika also supports innovative market-based solutions to environmental issues and strives to ensure women are key participants in improved agricultural markets. Musika acknowledges and appreciates the financial support from the Swedish Embassy in Lusaka

EXECUTIVE SUMMARY

Musika's methodology involves facilitating the creation of a beneficial market environment that supports improved access to markets that in turn stimulates higher levels of farmer investment in production and productivity. The changes in farmers' levels of production, productivity, incomes and general livelihoods as a result of their access to improved markets [1]have all been measured, and positive results have so far been recorded. However, through this survey, Musika sought to identify the indirect spin-off effects, if any, of its interventions on the socio-economic status of the communities within which the interventions are taking place. In theory, with improved incomes, farmers can have the capacity not only to re-invest in their production and employ additional labour, but to engage more in the purchase of food and non-food goods within the community which can have a 'spin-off' or economic multiplier effect within the local community.

In order to determine the presence and the characteristics of any 'spin-off' effects, Musika conducted a survey in Eastern Province of Zambia. It focused on farmers working with the agribusinesses it supports, which provides an output market for leguminous crops through an out grower scheme arrangement.

The study captured a total of 136 farmers from both intervention and non-intervention areas but the majority of the farmers interviewed (124 farmers) were from the intervention area, 2016/17 agricultural season was used as a reference period. The study had particularly looked at the benefits, challenges and overall community welfare[2] that could be attributed to the improved market access by farmers. A summary of the key findings is as follows:

- The majority of the farmers (92%) observed an improvement in welfare as a result of having access to improved markets. This was evident in the economic activities observed to be taking place in the communities by farmers. Of the total number of farmers interviewed with improved market access, 89% observed an increase in the number of non-agricultural traders whilst 81% observed an increase in number of shops in their communities. Furthermore, 74% observed an increase in the number of agricultural traders in their communities. These increases were attributed to improved market access, which brought about an increase in the number of economic activities in their communities,

- Farmers generally recorded a decrease in the amount of time they spent on agricultural activities such as tilling, planting, harvesting, spraying etc. The study showed that the majority of the

[1] Improved market services are defined as not simply 'buy' or 'sell' transactions but the integration into the transaction of other 'value added' services such as extension and information delivery, technology transfer, assured access to off-take markets, facilitating access to finance, etc.

[2] Welfare here refers to the wellbeing of individuals or groups of individuals in relation to their income earnings, availability of food, health, housing, education and general security.

farmers mainly attributed the decrease in time spent on agricultural activities to increased access points for improved markets (34%), access to improved production methods (30%), additional human labour (15%) as well as access to extension services (27%).

- Some farmers (28%) used the additional income earned due to improved access to markets to start up small businesses such as selling fritters, talk time, clothes, and grocery stores, engage in livestock and/or horticultural production. The implication of this is that farmers have diversified their income sources, which has a potential of safeguarding households against economic and climatic shocks.

- About 42% of the farming households had at some point since the inception of the intervention hired additional labour for their agricultural activities. Of the farmers that engaged additional labour, it was discovered that 42% of the labour employed were women and 40% were youths.

- The majority of the non-intervention participants (92%) stated they observed an improvement in the welfare of their communities due to the intervention, while 67% observed an increase in off-farm employment and 58% cited an increase in non-agricultural traders.

- The study further revealed that 58% had at least once received assistance from fellow farmers who were accessing improved markets. The forms of assistance received were said to be information on better production practices as all the farmers cited the aforementioned.

ABBREVIATIONS AND ACRONYMS

CSO	Central Statistical Office
HH	Household
Kg	Kilograms
Km	Kilometre
Musika	Musika Development Initiatives Zambia Ltd
PEA	Private Extension Agent
SME	Small and Medium-sized Enterprise
SSF	Small Scale Farmer
USG-GFSS	United States Government -Global Food Security Strategy
YALI	Young African Leaders Initiative
ZMW	Zambian Kwacha

1.0 Introduction

Agricultural development has helped over 200 million people lift themselves out of poverty. It has helped increase household incomes, improve nutrition, and increase access to education, better housing, improved sanitation and health care (YALI 2018). In Africa alone, it has helped increase life expectancy by more than 10 years since 2000. Society cannot advance without food security and a strong agricultural sector (USG-GFSS, 2016). The implementation of interventions in rural agricultural communities has the potential of either directly or indirectly guarantee increased productivity and income as well as improved market systems for the rural poor, thereby enhancing the access to improved inputs and services and improved access output markets. However, these interventions also have other spill-over effects and benefits to the intervention participants and non-participants. This case study will endeavour to highlight the spin-off effects to both the interventions' participants and non-participants under legume crop production, an intervention that is being implemented in the Eastern Province.

The intervention is aimed at providing an assured legume crop output market for the farmers in Eastern Province, in a sector previously dominated by ad hoc, informal trade. A legume out-grower scheme by the firm offers a guarantee to an off-take market for the smallholder farmers and scales up support to increase productivity and quality through the provision of extension, input supplies and commodity markets through aggregation points/centres.

The Musika supported legume intervention provided extension through the Private Extension Agents (PEAs), who are local lead farmers that have undergone agronomic training of production and grading of seeds and are tasked to disseminate this information to fellow farmers within strategic areas of their local communities or camps. Other than the provision of extension, the scheme also guarantees an off-take market for the legume produce at strategic points in the camps. The out-grower scheme has been able to upscale support to over 2,000 farmers across a number of districts within Eastern Province.

It was against this background that Musika sought to conduct a study to assess the effects of improved market access on the social and economic welfare of the rural households directly engaged with this improved market, and those living in the rural communities alongside those households. The main objectives of this study were to;

1. Determine whether access to improved markets had led to a change in rural households' annual disposable income [3]and if so, what it was spent on.

[3] Annual disposable income in this case means any money that remains to be/was spent on household expenses, health services, education services, agricultural and non-agricultural assets, and general savings.

2. Determine whether access to improved markets had led to a change in rural households' engagement in off-farm employment for both direct and indirect intervention participants.

3. Assess as to whether access to improved markets led to a change in labour requirements of rural households regarding field preparations, planting, weeding, harvesting, etc. And if so, determine what made up the change in labour requirements (e.g. youth, women, animal power, hired mechanization etc.)

4. Ascertain whether access to improved markets had led to a change in rural households' investment of resources in social (education, health etc.) and/or economic activities (new businesses, etc.)

5. Ascertain whether access to improved markets by smallholder farmers had led to indicative changes in the economy of the community (more shops, more non-agricultural traders, more money circulating, etc)

6. Assess whether access to improved markets had led to a change in the range of income generating activities that farmers engaged in.

1.2 Methodology

The study adopted a quasi-experimental design as participants were not randomly assigned to the study regions, intervention implementers (i.e. legume out grower scheme) identified areas which were targeted for farmer trainings through PEAs. The survey had also captured non-intervention participants in Eastern Province who were identified within implementation areas. A total of 136 participants were purposively selected from 2 districts in Eastern Province. The survey covered the 2016/17 agricultural farming season. To collect the quantitative and qualitative data, structured interviews were administered to households using mobile phone-based questionnaires. The household was used as the main unit of analysis.

2.0 RESULTS AND KEY FINDINGS

2.1 Background Characteristics: Demographics

Table 2.1 below presents the demographic characteristics of the households that participated in the survey from 2 participating districts: Vubwi and Kasenengwa. The study showed that from the total of 136 households which were captured in the survey, 85% were male headed and 7 was the average household size, while 41 years was the average age of the household head for both districts. The study further showed that the majority of participants were married (89%). Although tertiary was the highest level of education recorded, the majority of farmers (49%) only managed to attain primary level of education and this was closely followed by secondary level of education at 32%. The study also highlighted that households in both Vubwi district and Kasenengwa district had to cover on average of 3.8km to the nearest aggregation point in Eastern Province in order to access an assured crop output market in their communities.

Table 2. 1: Background Characteristics: Demographics

Variable	**Total/ Average**	**Vubwi**	**Kasenengwa**
Number of Households	136	84	52
Household size	7	7	6
Age (Years)	41	41	41
	HH's Gender		
Male	85%	85%	87%
Female	15%	15%	13%
	Marital status		
Single	1%	1%	0%
Married	89%	89%	88%
Divorced	3%	4%	4%
Widowed	6%	4%	8%
	Education level		
None	18%	23%	10%
Primary	49%	48%	52%
Secondary	32%	28%	38%
Tertiary	1%	1%	0%
Distance to Aggregation point (Km)	3.8	4.4	3.2

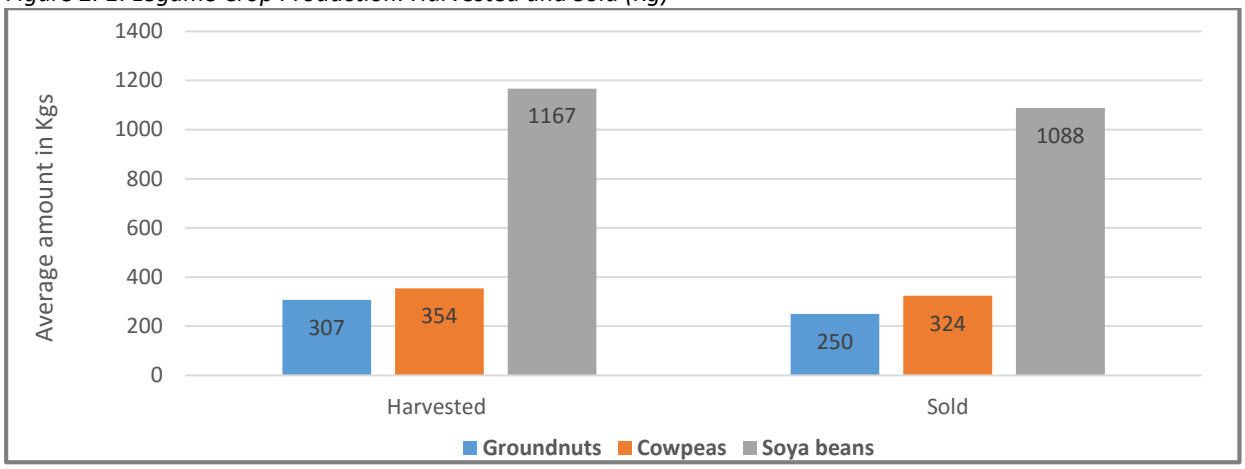
Source: Spin-off Survey 2018

2.2 Legume Crop Production: Harvest, Sales and average Income generated.

In this study, the small holder farmers participated in the assured crop outputs markets for cowpeas, groundnuts and soya beans. Soya beans generally had both higher quantities harvested and sold,

with an average of 1,167kgs and 1,088kgs harvested and sold respectively. Most farmers particularly sold this crop because of its demand from small scale buyers (vendors) and other large scale buyers (Musika supported legume intervention & another large private buyer), with an average income of ZMW2, 536 generated from the crop sales. Groundnuts had lower production and sells with 307kgs and 250kgs harvested and sold respectively.

Figure 2. 1: Legume Crop Production: Harvested and Sold (Kg)



Source: Spin-off Survey 2018

Most farmers cultivate groundnuts for consumption purposes whilst a part of it is sold to the Musika supported firm, generating an average income of ZMW1, 020 from sales, as seen in figure 2.1 above and table 2.2 below. A boost in the production of both cowpeas and groundnuts was necessitated by two factors: firstly, the firm only purchases one legume crop per camp or community, secondly because of this condition, it creates demand for other buyers to purchase the legume crop produce that the firm does not purchase in that particular season and through the increase in the number of private buyers offering crop output market, as was seen in camps in Vubwi district most of the farmers' sold to small scale buyers (Vendors) from Malawi, however, it is important to note that these small scale buyers do not only dictate price but also do not contribute to bridging the (production and price) knowledge gap of small holder farmer.

Table 2. 2: Average income generated from sale of crop (ZMW)

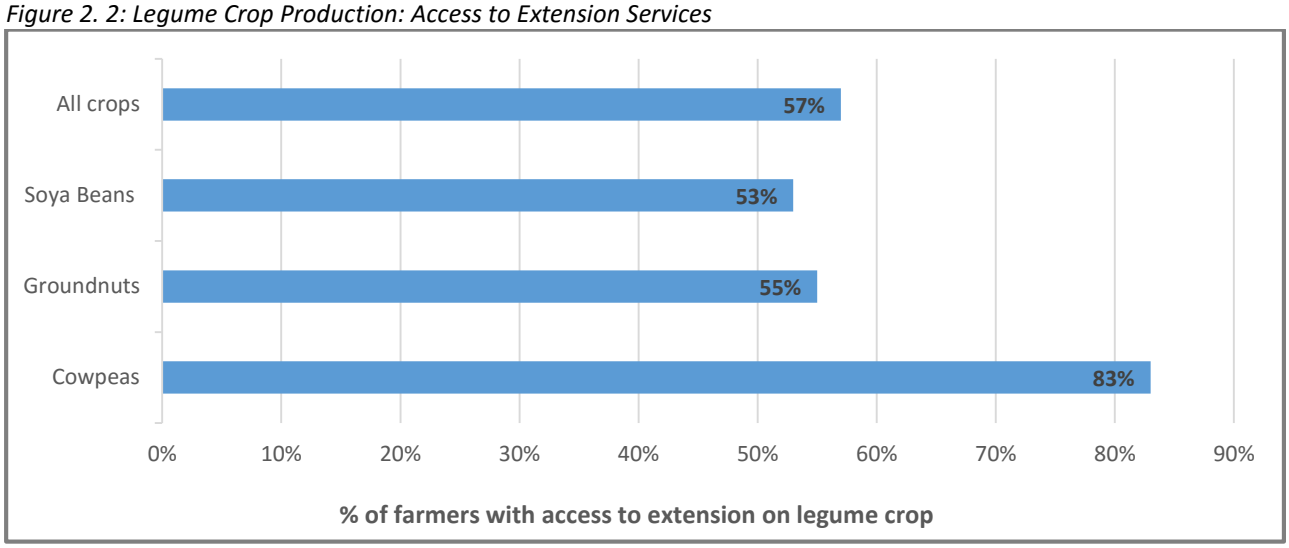
Legume Crop	Amount(ZMW)
Soya Beans	2,536
Cowpeas	1,310
Groundnuts	1,020

Source: Spin-off Survey 2018

2.3 Legume Crop Production: Access to Extension

Access to technical information is essential to ensure quality production and post-harvest handling of the produce as most of it is used as seed export. The study revealed that 57% of the farmers (or any member of their household) received extension services on legumes that they cultivated in 2016/17 farming season, (as seen in the figure 2.2 below). This was due to the fact that one of the camps in Vubwi district had not yet joined the scheme during the 2016/17 farming season. Further, 83% of the cowpea farmers indicated that they received specific extension information on the crop and 53% of Soya beans farmers indicated having received extension information for the crop during the reference period. This is evident because the Musika supported firm purchases soya-beans in lesser volumes compared to other legumes from the farmers in both Kasenengwa and Vubwi districts.

Figure 2. 2: Legume Crop Production: Access to Extension Services

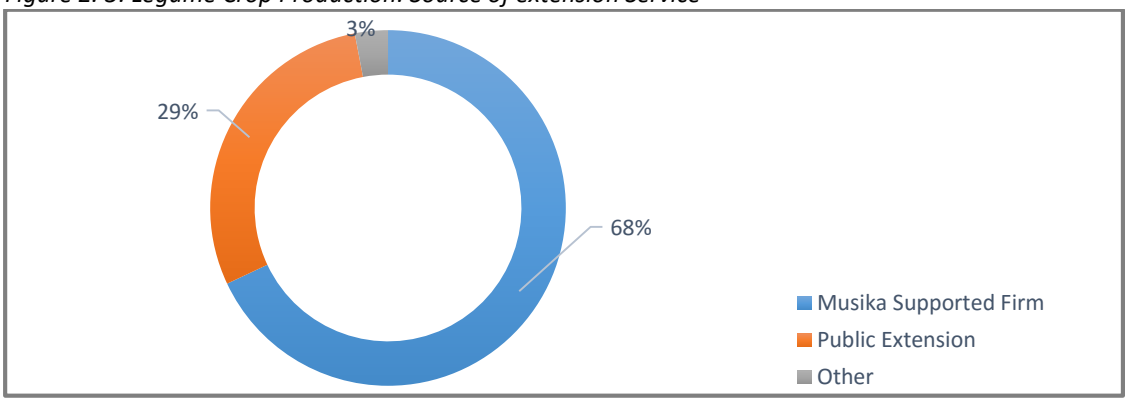


Source: Spin-off Survey 2018

The major source of extension services for any member of the farmers' household on legumes that they cultivated in 2016/17 farming season was the Musika supported firm in both districts with 68% of the farmers stating the firm as a major source followed by 29% citing public extension services. Further, 96% of the farmers that cultivated cowpeas received extension services from the firm through its Private Extension Agents (PEAs), followed by 36% of the farmers that cultivated groundnuts, as can be seen in the figure 2.3 below; from the study conducted and as can be seen in figure 2.2, there is need to offer more extension in the other legume crops from both public and

private extension service providers, in order to ensure high quality seed produce as well as increase household income.

Figure 2. 3: Legume Crop Production: Source of extension Service



Source: Spin-off Survey 2018

2.4 Legume Crop Production: Sales

Access to improved markets not only ensures income from sale of produce but also indirect change on the general livelihood and welfare of rural households if the income is used on socio-economic factors that enhance a households' welfare. In this study, smallholder farmers had access to an assured crop output market for their legume crop produce, with 59 % of the smallholder farmers selling their produce to small scale buyers followed by Musika supported firm with 29% of SSF citing having sold their legume to the firm on all three legume crops. This is the case because the firm only purchases one legume crop per camp or community and not all three legume crops that were assessed in this study. A further breakdown of sales by crop however shows that 86% of the small scale farmers cultivating cowpeas in both districts sold their produce to Musika supported firm, while 72% and 65% of the small scale farmers cultivating groundnuts and soya beans respectively sold to small scale buyers, as seen in table 2.2 below.

Table 2. 3: Main Buyers of Legume

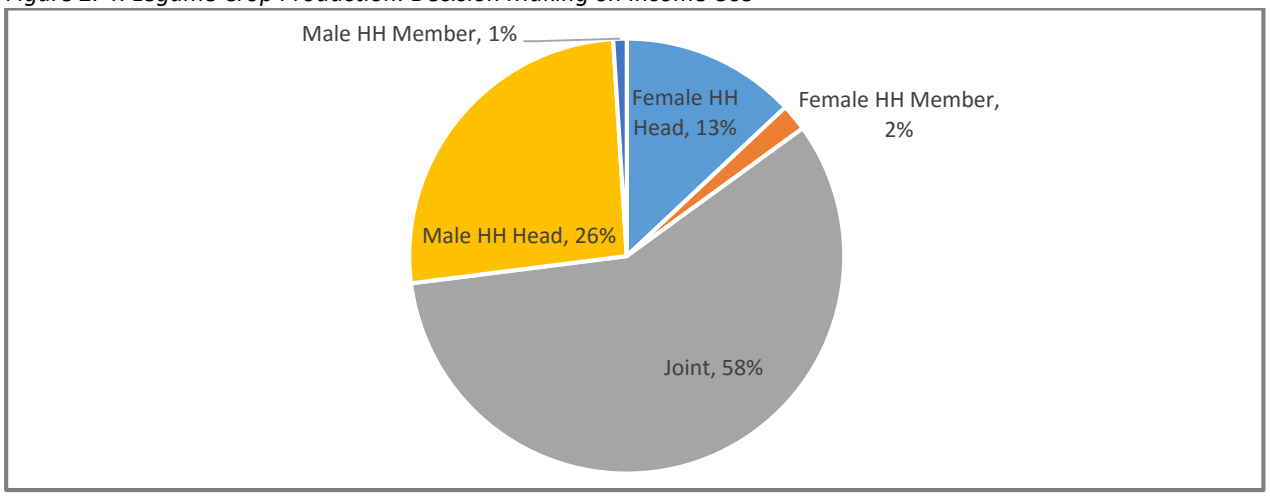
Legume Main Buyers				
	Musika supported Firm	Large Scale Buyers	Small scale Buyers	Other HH
SSF Cultivating Cowpeas	86%	0%	10%	4%
SSF Cultivating Groundnuts	13%	5%	72%	9%
SSF Cultivating Soya Beans	24%	11%	65%	0%

Source: Spin-off Survey 2018

2.5 Decision Making and Income Use Over legumes.

It is critical in the scrutiny of intervention intended and unintended spill-overs to assess the levels of power in decision making for households' income and therein the use of the income generated from crop sales. In this study 58% of the farmers made decisions jointly with their spouses on the use of income derived from legume sales, 26% and 13% of the farmers made decisions individually as the male and female household head respectively as seen in the figure below;

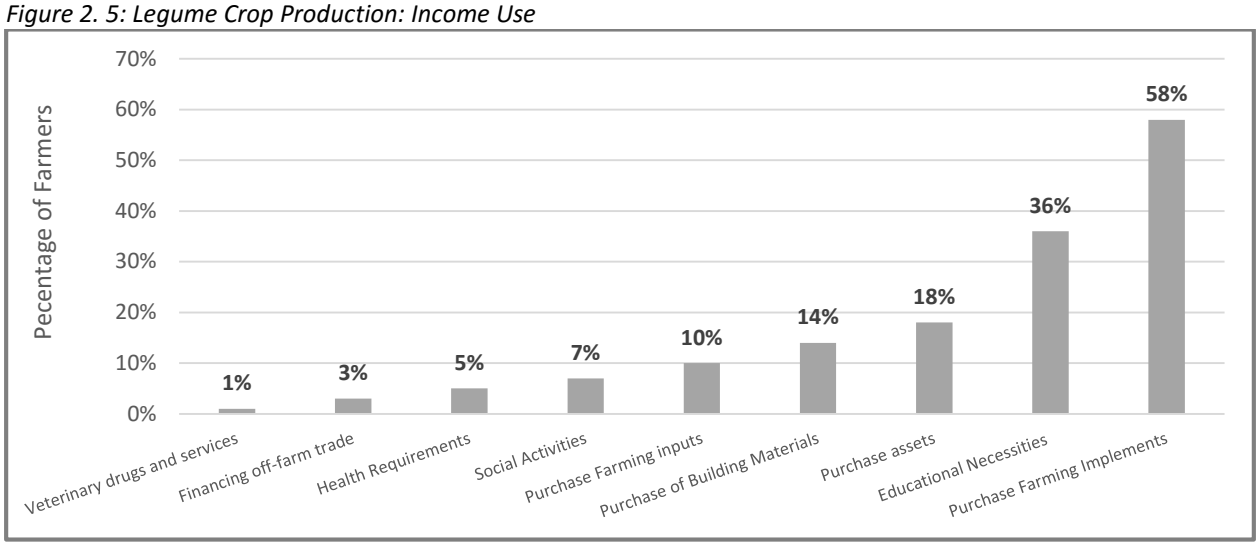
Figure 2. 4: Legume Crop Production: Decision Making on Income Use



Source: Spin-off Survey 2018

A further breakdown reveals that 58% of the small scale farmers spent their income on purchasing farming implements, followed by 36% citing educational necessities and 35% spending on other (which encompasses savings, household expenses, furniture), with the lowest been veterinary drugs and services cited at 1%, as seen in the figure below;

Figure 2. 5: Legume Crop Production: Income Use



Source: Spin-off Survey 2018

Further, while 74% of the farmers cited having had access to improved markets for their legume crop production, 8% stated having a decrease in their household income, reasons given were; low prices from the small scale buyers (vendors), farmers did not sell all legumes they cultivated to Musika supported firm as the firm only purchased one legume per camp and not all three legume crops as well as only extension for that particular crop per season.

3.0 Social and Economic Welfare

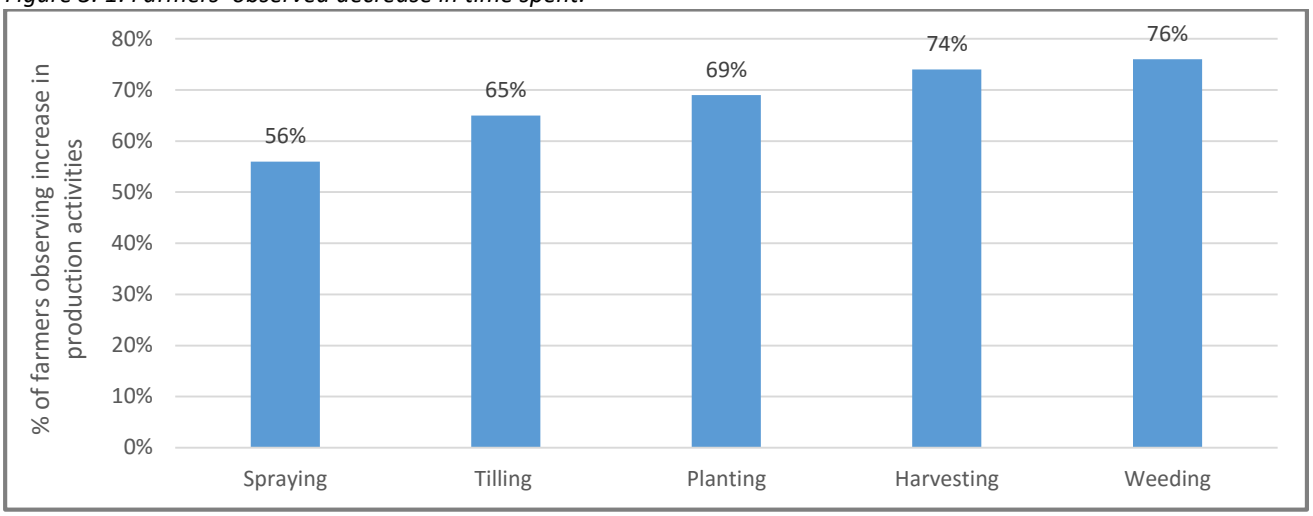
Impact on both farmers participating in improved markets and on the wider community

In order to fully assess the level of impact of the intervention in the communities in which it is implemented, it is imperative to ascertain the level of impact the intervention has had on the participants. However, the impact is assessed using various socio-economic factors in order to assess the change in livelihood, welfare, household income and investments.

3.1 Time spent on agricultural activities due to access to improved markets

In this study the participants were asked to assess the change on the time spent on agricultural production activities and if the change observed would be attributed to the intervention. 76% of the farmers interviewed observed a decrease in the time spent on weeding activities, while 56% observed a decrease in spraying, as can be seen in figure 3.1 below. This entails that the farmers could have more time available for other social and household activities.

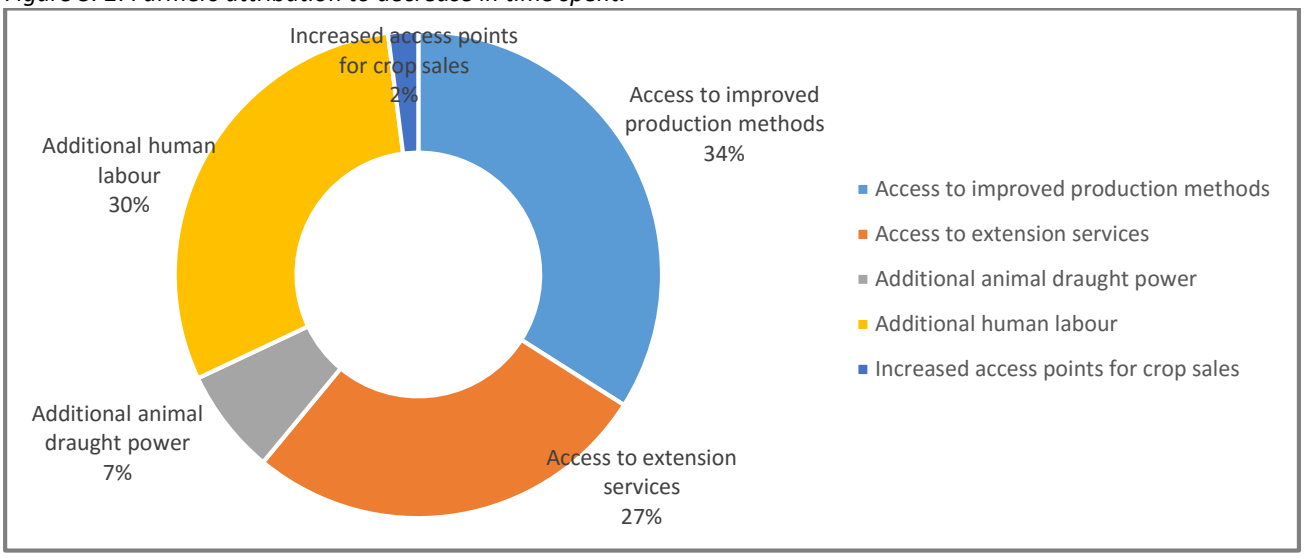
Figure 3. 1: Farmers' observed decrease in time spent.



Source: Spin-off Survey 2018

Further the farmers attributed the decrease in time spent on the agricultural to various factors due to the implementation of the intervention. 34% cited having access to improved production methods, while 30% stating this was due to the additional human labour they engaged on their legume fields and 27% cited having access to extension from both the firm and the public sector, as can be seen in figure 3.2 below. This could in turn improve households' production, income and investments.

Figure 3. 2: Farmers attribution to decrease in time spent.

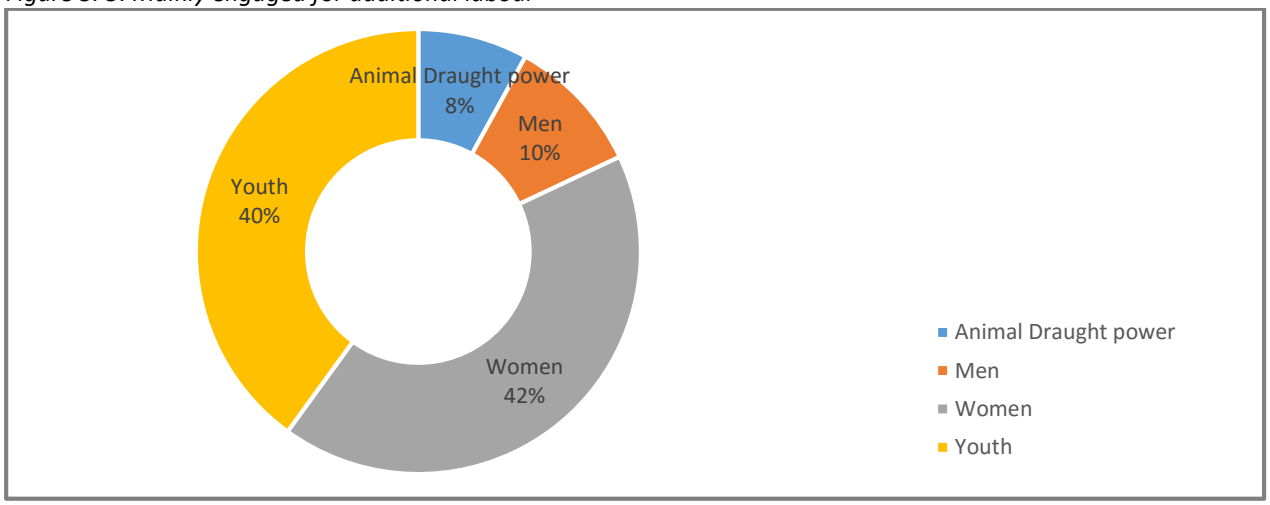


Source: Spin-off Survey 2018

3.2 Demand for labour by farmers' accessing improved markets

In this study women were engaged more as additional labour for legume crop production, with 42% of the farmers interviewed citing having engaged women for additional labour as women tend to incline more to leguminous crops in agricultural production. It is important to highlight the positive effects on households' disposable income as the women would earn extra disposable income for household and personal expenses, as can be seen in figure 3.3 below, while 40% cited the having engaged youth for additional labour.

Figure 3. 3: Mainly engaged for additional labour

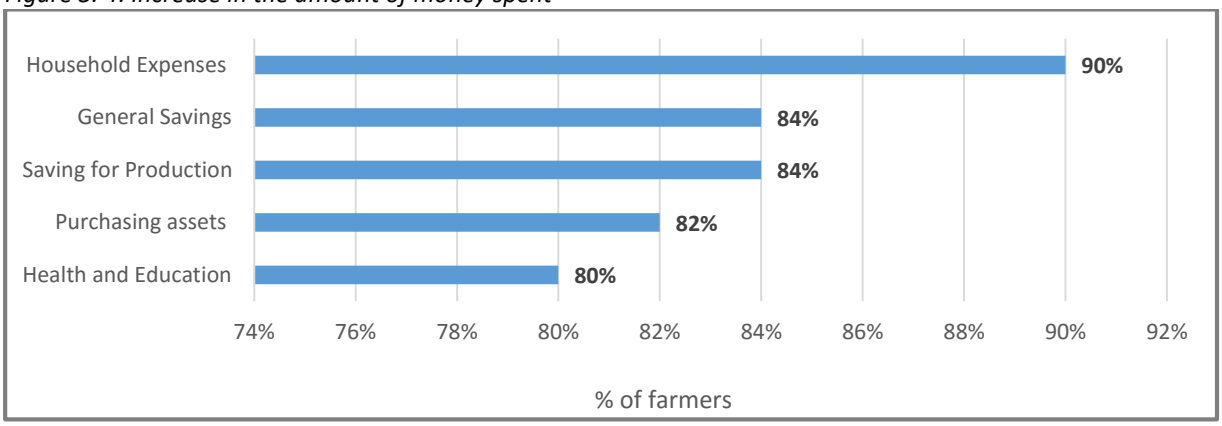


Source: Spin-off Survey 2018

3.3 Participants & Non-participants changes due to the intervention in economic status within the wider community due to access to improved agricultural market activity

Farmers were also asked to assess the change in the amount of money spent on some of the households' day-to-day expenditures. The income used on this expenditure was earned from crop sales from the intervention. 90% of the farmers interviewed observed an increase in the amount spent on household expenses, while 84% spent the income on general savings and production for the next season respectively, as can be seen in figure 3.4 below. Further, farmers were also asked to assess changes in other economic activities within the community, 56% participant farmers also observed an increase additional sources of income due to the intervention, while 23% observed an increase in the inflow of private players offering similar service in their communities due to the implementation of the intervention of the community,

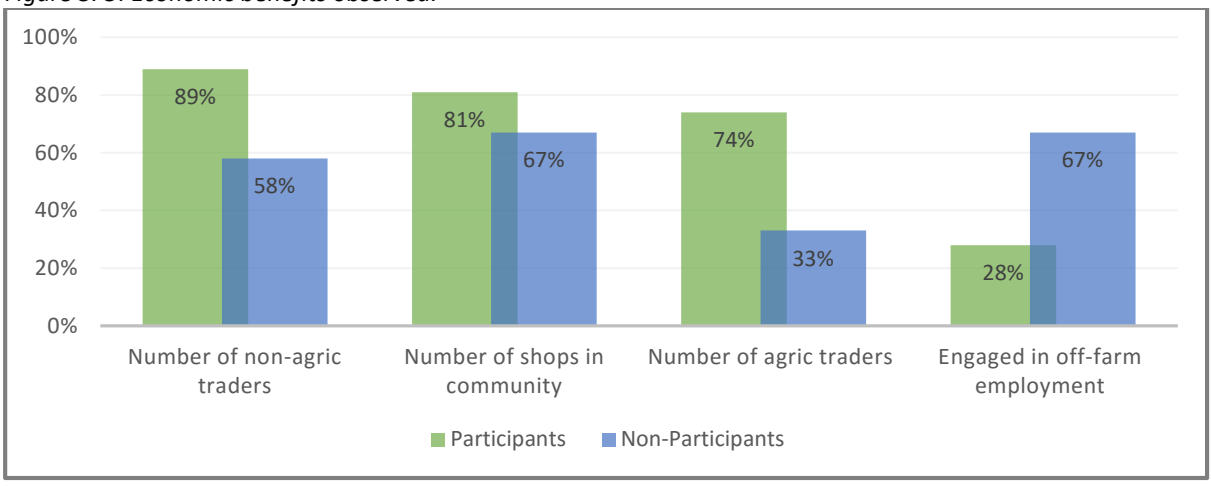
Figure 3. 4: Increase in the amount of money spent



Source: Spin-off Survey 2018

As much as income earned is a good indicator of spin-off benefits, farmers were also assessed on other socio-economic benefits that could be attributed to the implementation of the intervention. 94% of the farmers participating in the intervention interviewed observed an improvement in general community welfare, while 92% of farmers not participating in the intervention interviewed observed improvement in general community welfare. 89% cited having observed an increase in the number of non-agricultural traders in their communities compared to 58% of the non-participant farmers. However, it is interesting to note that more non-participants farmers interviewed cited having been engaged in off-farm employment, with 67% citing the aforementioned compared to 28% of the participant farmers, as can be seen in figure 3.5 below;

Figure 3. 5: Economic benefits observed.



Source: Spin-off Survey 2018

A further look at the benefits to farmers during the intervention shows that 28% started up micro business enterprises with income earned from the implementation of the intervention, thereby

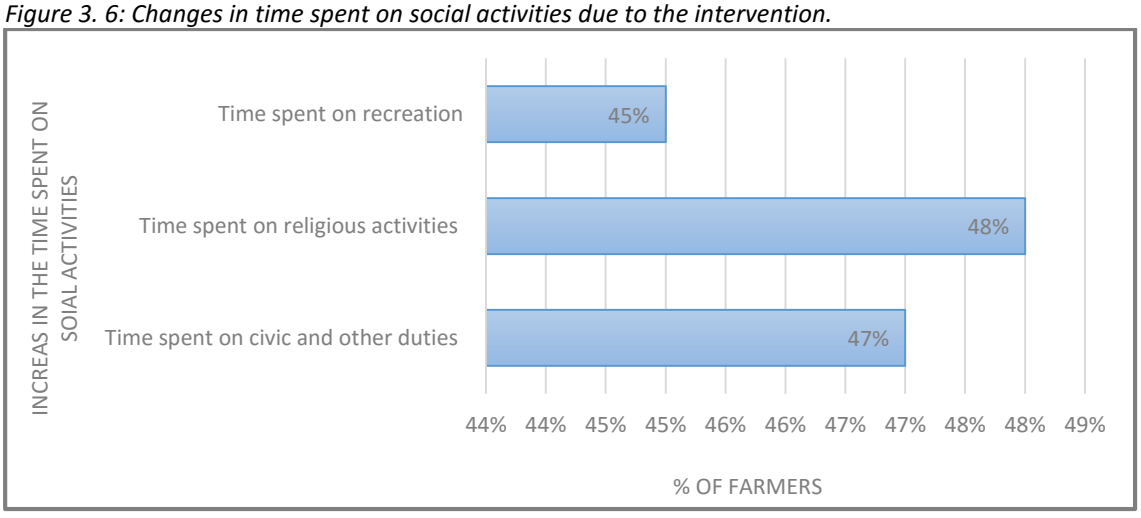
contributing to their local economy. Further, some farmers were able to setup diversified income streams due to the income they attained from their participation in the out-grower scheme. Some of the income streams started by the farmers includes; grocery shops, livestock rearing, gardening and fresh produce sales, initiation of village bank savings groups, selling of airtime and fritters, etc.

Non-intervention participants were also asked to rate the changes in socio-economic welfare due to the implementation of the intervention in their communities and livelihoods, while 33% stated having observed an increase in the number and/or influx of agricultural traders, while 33% cited an increase in their households' financial status.

3.4 Participants changes due to the intervention in social-welfare within the wider community due to access to improved agricultural market activity

Intervention participants were also asked to rate the changes in the time spent on social and community-based activities due to the implementation of the intervention in their communities and livelihoods, 48% stated having observed an increase in the amount of time spent on religious activities, while 45% cited an increase in the amount of time spent on recreation. This could have been possible because of the reduction in the time spent on agricultural activities, it would be safe to make an assumption that the participant farmers would have diverted the extra time to social activities.

Figure 3. 6: Changes in time spent on social activities due to the intervention.



Source: Spin-off Survey 2018

4.0 Non-Participants Benefits.

The major agricultural activity that non-intervention participants were involved in maize production (42%), followed by soya beans production (33%). As can be seen table 4.1 below

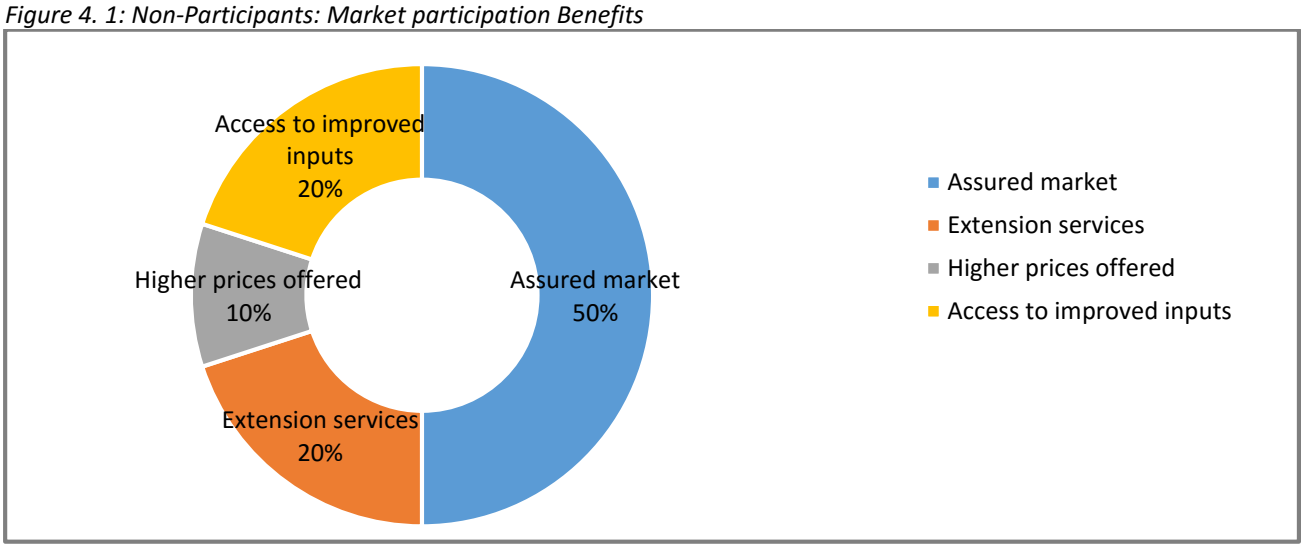
Table 4. 1: Agricultural activities of Non-participants

Non-Participants: Main Agricultural Activities	
Main Production	
Maize	42%
Soya Beans	33%
Cotton	25%

Source: Spin-off Survey 2018

Non-intervention participants were also assessed on their observations regarding any spin-off benefits or challenges of the intervention. 80% of the non-participants stated they observed spin-off benefits, with 50% citing an assured crop output market, as can be seen in the figure 4.1 below, other benefits included; access to high yielding varieties, extension of good production practices and favourable prices.

Figure 4. 1: Non-Participants: Market participation Benefits



Source: Spin-off Survey 2018

Recommendations

Extension: There is need to offer more conceited effort in extension from both public and private extension service providers, in order to ensure high quality seed produce as well as increase in income and household food security.

Access points: There is need to increase number of access points as it leads to increase in income which in itself does not guarantee change in welfare, however, it promotes power sharing in decision making at household level, and ensures increase in household investment in assets, educational and health. It is therefore imperative to engage more output markets firms to address the ever-growing demand so as to increase access to improved markets and livelihoods.

Conclusion

The study was aimed at assessing the impact of providing an assured legume crop output market for the farmers in Eastern Province as there was lack of or little access to improved output markets, as well as ascertain if there were any spill-over socio-economic benefits to the farmers and their communities due to the implementation of the intervention.

The Musika supported firm in this study only purchases one legume crop per camp, there is need to increase number of access points as it intends to engage more farmers on other legume crops**,** as this increase in number of crops the firm will be able to purchase will lead to increase in income which in itself does not guarantee change in welfare, however, it promotes power sharing in decision making at household level, and ensures increase in household investment in assets, education and health. It is also therefore imperative to engage more output markets firms to address the ever-growing demand so as to increase access to improved markets. There is also need to offer more conceited effort in extension from both public and private extension service providers, in order to ensure high quality seed produce as well as increase in income and household food security, it would also be necessary for more private firms to be engaged and extension so as to boost production and increase diversification in income generating activities and access to improved livestock service and output markets

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