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Smallholder pig value chains development in Uganda: Catalysing the emerging smallholder pig value chains to increase rural incomes and assets

Report on the evaluation of business and enterprise development capacity development intervention

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Introduction and rationale

Pig production is a major source of livelihoods for over 1.1 million households in Uganda. Mainly kept by smallholder farmers under backyard systems, the pig is preferred because it grows fast, and eats leftover food and crop residues. Hence, it is able to convert poor resources into a high-value animal-source food for sale or home consumption. The pig also acts as a living bank, providing quick cash to meet domestic financial needs. Through an in-depth screening process, the Livestock and Fish CGIAR Research Program (L&F CRP) led by the International Livestock Research Institute (ILRI), identified the pig sector in Uganda as one of the livestock options where research investments are most likely to make a major difference to the livelihoods and diets of poor people. Over the past three decades pig production has become increasingly important in Uganda as indicated by the rapid increase in pig population from 0.19 to 3.6 million between 1980 and 2014 (Figure 1).

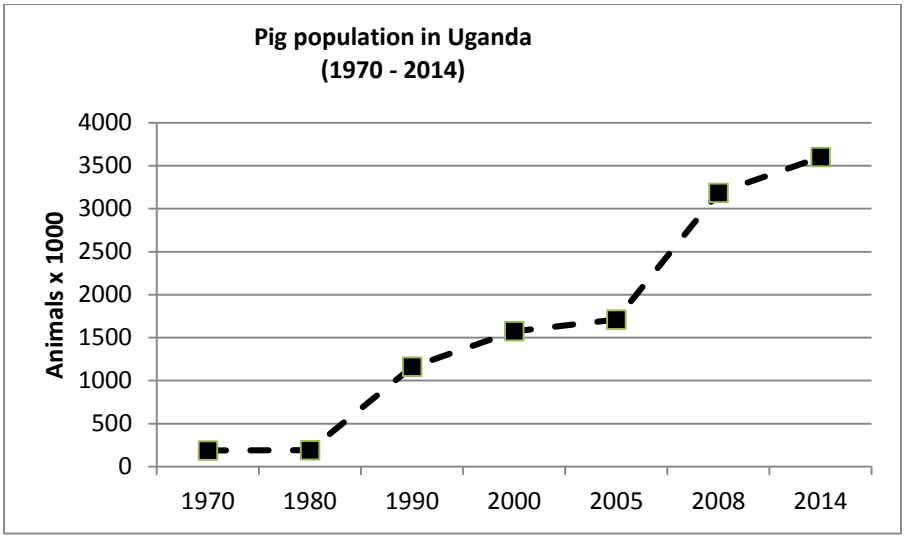


Figure 1: Pig population in Uganda 1970-2014
Source: FAOSTAT, 2015

Although Uganda's per capita consumption of pork is the highest in East Africa at 3.4 kg per capita per year, growth of the pig value chain is limited by various production, marketing, policy and institutional constraints.
With funding support from the European Commission, the International Fund for International Development and Irish Aid, L&F CRP has worked in Uganda with partners to develop and test interventions to overcome these constraints, through the Smallholder Pig Value Chain Development (SPVCD) program.

ILRI's SPVCD program has been pilot testing a pig business hub model as part of the value chain interventions to improve value chain linkages and enhance value propositions to the actors. The model addresses constraints that affect pig farmers in accessing necessary inputs and services to operate their enterprise. The constraints were identified from the pig value chain diagnostic work documented in Ouma et al (2015).The hub model is aimed at enhancing access by farmers to business development services such as feeds and veterinary

inputs, extension services, finances, output markets as well as technical support for their pig enterprise. This is done by facilitating linkages between a pig farmer collective and service providers on a check off agreement and negotiated terms. ILRI has been piloting the business hub model with Kyanamukaaka- Kabonera pig farmers' cooperative in Masaka district. However, several business and governance capacity gaps on the part of the farmers, the cooperative and farmer groups have been identified (Kabagabu, 2015). These capacity gaps may hinder farmers from profitably engaging in the value chain and may also affect the operations of initiatives involving farmer collectives such as the hub model.

In order to address the capacity gaps, SPVCD program contracted Enterprise Uganda Foundation Ltd (Enterprise Uganda) to deliver the entrepreneurship, business management, and leadership and governance training intervention to 8 pig farmer groups and Kyanamukaaka- Kabonera pig farmers' cooperative in Kabonera and Kyanamukaaka subcounties in Masaka district from April 2015 to May 2016. The training targeted members of the farmer groups and cooperative though specific leaderships and governance training were offered to Executive Committee members of the 9 farmer collectives. A total of 150 farmers were trained in business and entrepreneurship, marketing and savings and investment. This brief attempts to assess the changes in Knowledge, Attitude and Practices as a result of the intervention.

Methodology

The participants were trained in the following focus areas:

i. **Business and Entrepreneurship** - To enable participants to become familiar with behavioural competencies of successful entrepreneurs; look for, recognize and adapt those behaviours [3];
ii. **Leadership and governance** - To enable participants to become familiar with good association governance practices; look for, recognize and adapt the practices within their groups [4].
iii. **Marketing** – To help the participants improve their business productivity through better marketing by strengthening their marketing skills in order to enable sustainable marketing of their products.
iv. **Savings and Investment** – To make participants aware of what it takes to save and importantly, how to start and run a business oriented investment club.
v. **Business Leadership and Governance specialized training sessions** - Specialized training for the leaders to enable them to respond to the leadership challenges identified during the business diagnostic stage.
vi. **Mentoring and counseling services for group leaders and individuals members** - to enable the participants to provide personalized support in helping the hubs develop their abilities and insights as they grow their own business.

Using a structured pre-tested questionnaire, an initial survey of the business and entrepreneurship Knowledge, Attitudes and Practice (KAP) of members of Kyanamukaaka Kabonera pig cooperative as well as 2 other cooperatives and farmer groups was carried out. A final survey was also carried out, focussing on some members of the cooperatives as well as farmer groups/associations that were trained. Results were cross tabulated and simple descriptive statistics were used to compare the KAP of farmers before and after the intervention. Differences between frequencies were assessed using the Chi-square test at 95% level of significance.

Results and Discussion

Knowledge and skills

Over 60% of respondents in the final survey had received business skills training within the past six months. Although a big proportion of respondents initially reported to have received training, the topics were other than on business skills (Table 1). This is an indication that there was lack of business and entrepreneurial skills, hence confirming the observation that approximately 80% of new business in Uganda collapse within 24 months and 90% of those which survive never live beyond 5 years under the founder due to wrong business mind-set and poor management.

The fact that a big proportion of farmers had attended training on animal production may indicate that there is still a high demand for livestock production technologies. If this gap is filled and coupled with agri-enterprenurial skills, improved productivity and increase in incomes from agricultural enterprises can be achieved.

Respondents interviewed before the intervention had received most of the training from farmer groups and NGOs while those interviewed after the intervention received most of the training from ILRI and Enterprise Uganda. This was not surprising since there was a project implemented by ILRI and Enterprise Uganda. However, the generally strong presence of farmer groups shows that strengthening them would sustainably improve farmers' access to knowledge and skills.

Table 1- Number of participants within the Kyanamukaaka- Kabonera hub who had received training during the previous six months

	After intervention		Before intervention `	
	No of Resp	% of total respondents	No of Resp	% of total respondents
Training received*				

Trained	113	63.1	180	81.4
Untrained	66	36.9	46	18.6
Total	**179**		**226**	
Topics covered				
Savings	56	31.3	0	0.0
Leadership & governance	16	8.94	3	1.3
Enterprise & business skills	67	37.4	0	0.0
Business planning	60	33.5	2	0.9
Marketing skill (credit access/financial)	0	0	41	18.1
Animal husbandry	0	0	70	31.0
Animal health	0	0	114	50.4
Animal breeding	0	0	67	29.6
Animal feeding	0	0	152	67.3
Other topics	51	28.5	26	11.5

*A respondent may have received training in more than one topic.

Change in Knowledge of entrepreneurship

The participants seemed to have a better understanding of the term agri-enterprenuer compared with market driven agri-enterpreneurship. Surprisingly, respondents showed a better understanding of market driven agri-enterpreneurship before the intervention. This aspect requires further investigation (Table 2).

Table 2 – Respondents' responses regarding their knowledge of entrepreneurship

A. Knowledge of agri-enterpreneur

	After intervention		**Before intervention**	
Response	**No. of respondents**	**% of total respondents**	**No. of respondents**	**% of total respondents**
Correct answer*	130	72.6	183	81.0
Incorrect answer	48	26.8	36	15.9
Don't know	1	0.6	7	3.1
n	179		226	
P		**0.04646048**		

*Someone who is committed to agriculture and recognises it as a business with tremendous potential for innovation

B. Knowledge of market driven agri-enterpreneurship

	After intervention		**Before intervention**	
Response	**No. of respondents**	**% of total respondents**	**No. of respondents**	**% of total respondents**

	Correct answer*	55	30.7	144	65.5
	Incorrect answer	111	62.0	66	30.0
	Don't know	13	7.3	16	7.3
	n	179		226	
	P		**7.12356E-11**		

*Starting an agri business based on knowledge of the market (prices, competition etc.)

Agri-entrepreneurial skills

Following the intervention, there was striking increase in proportion of farmers with each of the skill, particularly in the areas of business management, utilization of improved technologies and establishing and maintaining linkages (Table 3). Furthermore, the proportion who rated their agribusiness skills as good increased after the intervention (from approx. 21 to 34%) while the proportion who rated their skills as poor decreased (from approx. 23% to 11%) (Table 4)

Table 3 - Agri-enterpreneurship skills found among farmers in the Kyanamukaaka- Kabonera hub before and after the intervention

	After intervention		Before intervention	
	No. of respondents	**% of total respondents**	**No. of respondents**	**% of total respondents**
Primary skill				
Use of mechanised equipment	54	30.2	45	19.9
Taking calculated risks in my farming	108	60.3	60	26.5
Setting goals for achievement	157	87.7	54	23.9
Taking initiative in all my operations	139	77.7	33	14.6
Working closely with other farmers	157	87.7	15	6.6
None	1	0.6	8	3.5
Don't know	0	0.0	6	2.7
Other	11	6.1	7	3.1
Medium skill				
Raising money for my agribusiness	119	66.5	112	49.6
Aware about quality inputs or equipment	88	49.2	58	25.7
Use of high-breed varieties	114	63.7	22	9.7
Use of technology in my business	76	42.5	3	1.3
Costing and Pricing mechanism	112	62.6	0	0.0
Investment pattern to follow	102	57.0	7	3.1
Don't know	6	3.4	14	6.2
Other	2	1.1	10	4.4
Enterprise level skill				
Technical, production and quality control skills	77	43.0	71	31.4
Financial and administrative skills	110	61.5	40	17.7
Recognizing & realising business opportunity	92	51.4	36	15.9
Developing and evaluating a business strategy	60	33.5	12	5.3
Networking and utilising contacts	123	68.7	36	15.9
Effective Product Marketing skills	106	59.2	7	3.1
Investment pattern to follow	79	44.1	6	2.7
Don't know	13	7.3	25	6.6
Other	4	2.2	3	1.3
n	**179**		**226**	

Table 4 -Rating of individual agri-entrepreneurial skills by farmers in the Kyanamukaaka- Kabonera hub before and after the intervention

		After intervention		Before intervention	
	Skills rating	**No. of respondents**	**% of total respondents**	**No. of respondents**	**% of total respondents**
	Good	60	33.5	47	20.8
	Fair	99	55.3	118	52.2
	Poor	20	11.2	52	23.0
	None	0	0.0	1	0.4
	Don't know	0	0.0	8	3.5
Total		**179**		**226**	
	P*	**8.29345E-05**			

*The ratings "poor", "none" and "don't know" were combined for the chi-test so the % of good was compared with the combined group (poor, none, don't know).

Change in acquisition of agri-entrepreneurial (AE) skills

Prior to the intervention, majority of farmers possessed only one skill in any of the categories primary, medium or enterprise level agri-enterpreneurial skills. After the intervention, majority had acquired at least three skills in all the categories (Figure 2).

The intervention may have had a two pronged effect; actually imparting skills to the farmers and also creating awareness of the need for skills, hence causing the farmers to seek for knowledge and skills.

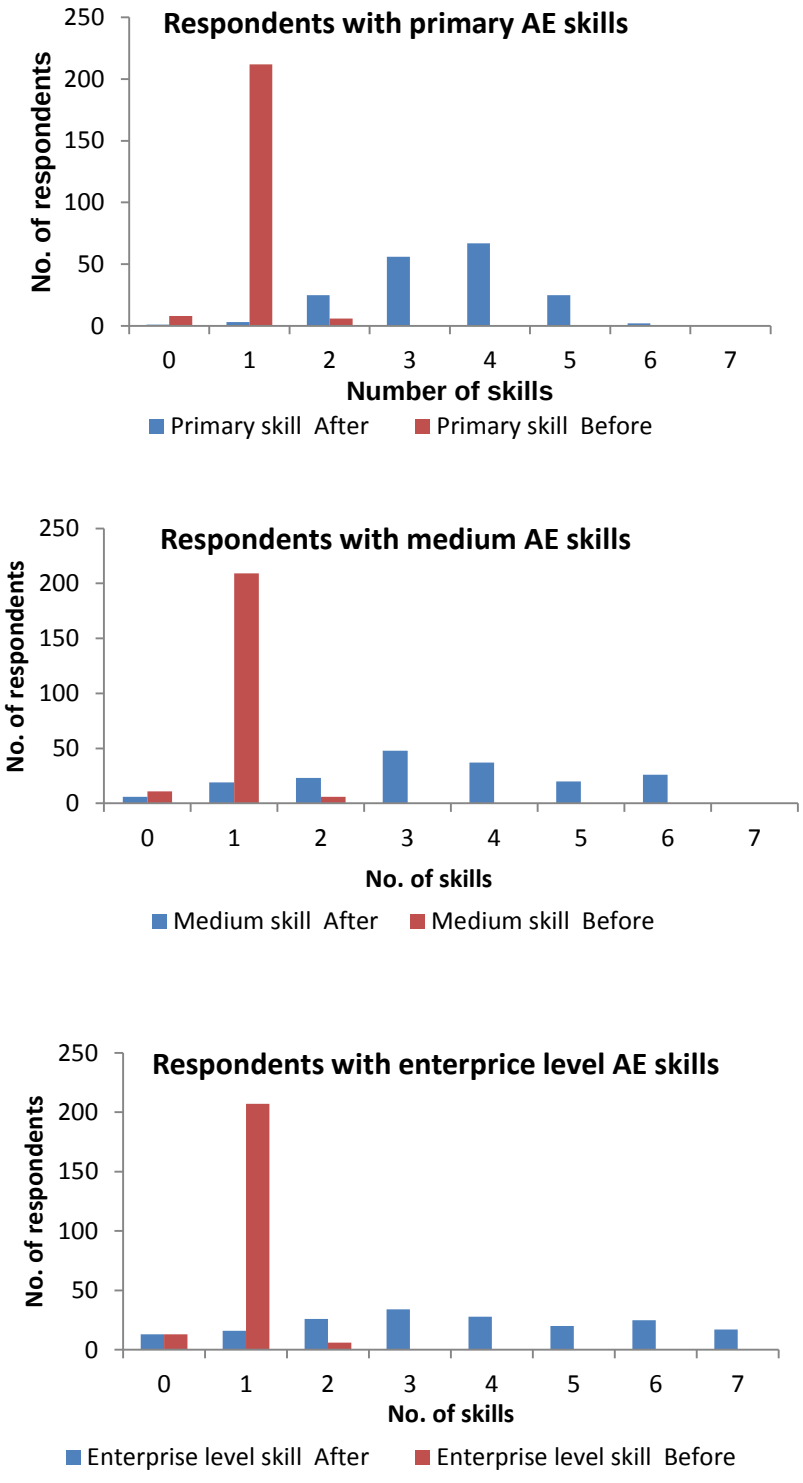


Figure 2 - Number of farmers in the Kyanamukaaka- Kabonera hub with different agri-entrepreneurial skills before and after the intervention

Attitude towards the business

View of agri-entrepreneurship

Generally, the respondents had a positive view of agri-enterpreneurship before and after the intervention (Tale 5). This was not surprising, owing to the fact that agriculture is a major source of livelihood to the majority of rural households. Agri-enterpreneurship was viewed by a majority of respondents as source of livelihood and as being profitable (Figure 3). This signifies that there is potential for positive livelihood outcomes due to investment in agricultural innovations and building entrepreneurial skills around such innovations. A few of the respondents viewed agri-enterpreneurship as a risky business.

Table 5 - How agri-enterpeneurship was viewed by farmers in the Kyanamukaaka- Kabonera hub before and after the intervention

	After intervention		Before intervention	
View	**No. of respondents**	**% of total respondents**	**No. of respondents**	**% of total respondents**
Positive	168	93.9	214	96.8
Negative	10	5.6	6	2.7
Don't know	1	0.6	6	2.7
n	**179**		**226**	
P		**0.718248**		

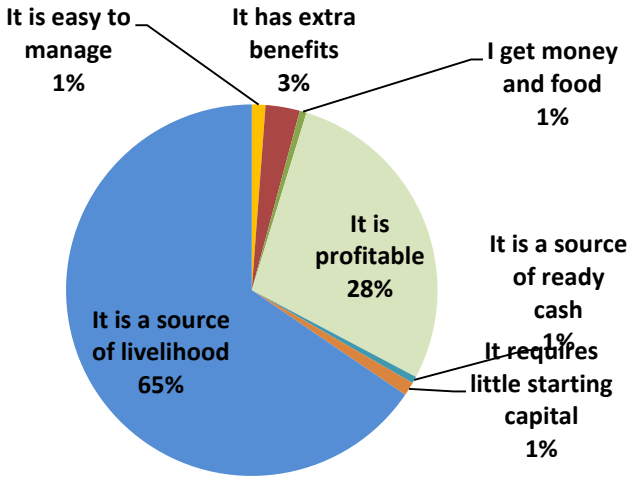


Figure 3 - Reasons why agri-enterpreneurship is viewed positively by farmers in the Kyanamukaaka- Kabonera hub

Awareness of agri-entrepreneurship services and opportunities

There was a marked difference in farmers' awareness of the available opportunities and services before and after the capacity building intervention. Before the training, majority of farmers were not aware of opportunities in agri-entrepreneurship but this proportion significantly reduced after the trainings. On the other hand, majority of farmers were aware of the agri-entrepreneurship development services they need both before and after the trainings; however after trainings, the proportion of farmers who were aware significantly increased while that of those who were not aware decreased (Table 6). The change may have resulted from the interactions farmers had with the trainers and/or among themselves. Apart from group trainings, the farmers also undertook a study tour and all these activities may not only have given the farmers wide exposure but also stimulated exchange of ideas.

Table 6 - No. of farmers in the Kyanamukaaka- Kabonera hub who were aware/not aware of AE opportunities and services

	No. of respondents			
	After intervention	**% of total respondents**	**Before intervention**	**% of total respondents**
Agri-enterprenership opportunities				
Aware	139	77.65	98	43.4
Not aware	40	22.35	128	56.6
p	**9.34826E-06**			
Agri-enterprenership dev. services				
Aware	135	75.42	128	56.6
Not aware	44	24.58	98	43.4
p	**9.07966E-11**			
n	**179**		**226**	

Challenges in agri-entrepreneurship

There was no evident change in most of the constraints but after trainings a larger proportion of respondents cited low production volumes, lack of access to resources and other factors (the major one being diseases) as a challenge (Table 7). Lack of capital was a major challenge to a big proportion of the farmers both before and after the trainings. Indeed, lack of financial resources particularly among women was cited as a major reason for non-implementation of what formers had learned. Other important challenges were lack of technical training and market for their products. A large proportion (58%) of farmers cited other challenges they faced, the major ones being diseases (particularly African Swine Fever (ASF)) and climate change. The challenge of ASF was not surprising since there had been a major outbreak the region during the year. Notably, farmers did not cite gender discrimination as a challenge. However, in their reflections after the trainings, women were reportedly more constrained by lack of capital. Further, gender sensitization was

recommended. There is need for further research in this aspect. Generally, farmers were able to articulate their challenges better after the training.

Table 7 – Challenges faced in the effort to improve agribusinesses and livelihoods as cited by farmers in the Kyanamukaaka- Kabonera hub

	No. of respondents			
Challenge	**After intervention**	**% of total respondents**	**Before intervention**	**% of total respondents**
Lack of business skills	13	7.3	4	1.8
Lack of leadership in the area	1	0.6	7	3.1
Lack of technical training	14	7.8	26	11.5
Lack of capital to start/expand the agri- business	99	55.3	93	41.2
Lack of market for products	50	27.9	20	8.8
Lack of advice /information on agribiz. options	7	3.9	7	3.1
Lack of group cooperation/cohesion	9	5.0	3	1.3
Low production volumes	33	18.4	11	4.9
Gender discrimination	0	0.0	2	0.9
Lack of access to resources in the local area	45	25.1	3	1.3
Other	105	58.7	18	8.0
Have not faced any challenges	3	1.7	2	0.9
Don't know	0	0.0	0	0.0

The type of job preferred

It is worth noting that nearly all the farmers preferred to be self-employed either as commercial farmers or as businessmen/women regardless of the training intervention, with the majority preferring to be commercial farmers (Table 8). This may be an indication that farmers are clear about their objectives and life goals. It is also an indication that farmers have confidence in agriculture/agri-business as a source of livelihood and hence there is high potential to adopt agricultural innovations.

Table 8 – The type of jobs preferred by farmers in the Kyanamukaaka- Kabonera hub

	No. of respondents			
Job preference	**After intervention**	**% of total respondents**	**Before intervention**	**% of total respondents**
Commercial farmer	92	51.4	144	63.7
Civil servant	15	8.4	12	5.3
Politician	1	0.6	0	0.0
Businessman/woman	50	27.9	40	17.7
Employed in the private/NGO sector	0	0.0	0	0.0
Any other	20	11.2	23	10.2
Don't know	1	0.6	7	3.1
P*		0.032115361		
n	179		226	

*For the t-test, comparisons were made only for commercial farmer, civil servant, businessman/ woman and any other job categories only.

Business practices

Livelihood steps

A substantial proportion of farmers both before and after training had expanded their agribusiness during the previous year. However, training had resulted in a marked difference in acquisition of skills and saving or enrollment into cooperatives. There was also a marked reduction in the proportion of farmers who did not take any step to improve their livelihoods (Table 9). The fact that farmers were continually expanding their agribusiness operations is an indication of the dire need for knowledge and skills that would help them to make informed decisions and to take steps that are sustainable.

Table 9 - Farmes in the Kyanamukaaka- Kabonera hub who had undertaken steps to improve their livelihoods in the previous year

	No. of respondents			
Livelihood step*	**After intervention**	**% of total respondents**	**Before intervention**	**% of total respondents**
Done nothing	4	2.2	30	13.3
Expanded my agribusiness operations	129	72.1	103	45.6
Diversified into other business ventures	73	40.8	40	17.7
Started Saving/ member of co-operative[I]	111	62.0	18	8.0
Learnt new agribusiness skills	110	61.5	13	5.8
Other	18	10.1	15	6.6
Don't know	3	1.7	3	1.3
n	**179**		**226**	

*It was possible for a farmer to have taken more than one step. [I]Possibly this % refers to started saving rather than being a member of a cooperative.

Change in business management practices

Budgeting

Agricultural businesses and indeed all potential businesses should use budgets to project how profitable an enterprise may be before undertaking the investment. This is particularly important because one of the most common causes of new business failures is not having enough cash to meet expenses, especially in the first 6-12 months of starting. In the Kyanamukaaka- Kabonera hub, there was a significant change after the trainings in the proportion of farmers who calculated the costs and revenue before engaging in an agribusiness enterprise (Table 10). This may be an indication that building the capacity of farmers to make business management decisions can go a long way in enabling farmers to undertake sustainable agribusinesses.

Saving

Savings from agri-business provide the means for expansion and/or diversification through investment in other enterprises. Saving was a common practice in the Kyanamukaaka-Kabonera hub before and after the trainings, with over 70% of the respondents saving weekly or monthly. Surprisingly after the trainings, the proportion of respondents saving monthly reduced while those saving weekly increased but the overall proportion increased slightly. This flexibility may probably be associated with the high preference for SACCOS and village saving associations (Table 11). However, this conflicts with the proportion of farmers obtaining financial support and the reason being that conditions are too tough. The respondents may possibly have been referring to financial support from sources external to their SACCOs and VSLAs such as banks, MFIs, etc.

Table 10 - Number of farmers in the Kyanamukaaka- Kabonera hub who calculated the cost and revenue before engaging in agribusiness

	No. of respondents			
Cost calculation	**After intervention**	**% of total respondents**	**Before intervention**	**% of total respondents**
Yes	143	79.9	113	50
No	36	20.1	113	50
p	**5.85253E-10**			
n	179		226	

Table 11 - proportion of farmers in the Kyanamukaaka- Kabonera hub who saved and the saving methods

	No. of respondents			
Saving frequency	**After intervention**	**% of total respondents**	**Before intervention**	**% of total respondents**
Daily	4	2.2	11	4.9
Weekly	78	43.6	62	27.4
Monthly	68	38.0	111	49.1
Don't know	3	1.7	2	0.9
Annually	1	0.6	1	0.4
Never	23	12.8	36	15.9
Quarterly	2	1.1	3	1.3
n	179		226	
Saving method*				
Traditional methods e.g. box at home	25	14.0	31	13.7
SACCO/ Village saving Association	126	70.4	116	51.3
Bank Account	30	16.8	21	9.3
By giving to a trusted family/friend	3	1.7	1	0.4

*It was possible for a respondent to use more than one saving method.

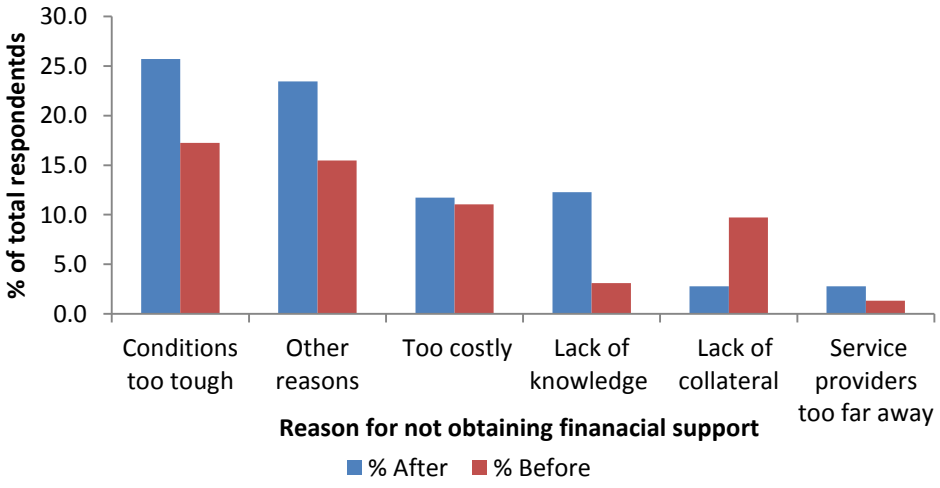
Cooperative membership and financial support

Cooperative membership was remarkably high (slightly over 80%) both before and after the trainings and majority of the farmers saved their earning through cooperatives. This confirms the fact that trainings led to increase in savings rather than cooperative membership. Furthermore, the proportion of farmers with good access to financial support increased after training, while those with no access reduced, indicating that the trainings are likely to have created awareness of sources of financial support. However, despite about

60% of the farmers having good or fair access to financial support, the proportion of farmers who had received agribusiness financing in the previous year was much lower (Table 12). High cost and tough conditions were the major reasons for not obtaining financial support (Figure 4). Cooperatives offer among other services, financial support to the members in terms of loans and credit facilities; but it was not clear in the area in reference what the conditions for obtaining such support were. There is probably a need to further investigate the role of the cooperatives in improving financial access to the farmers in the Kyanamukaaka- Kabonera hub.

Table 12 – Cooperative membership and access to financial support among farmers in the Kyanamukaaka- Kabonera hub

	No. of respondents			
	After intervention	**% of total respondents**	**Before intervention**	**% of total respondents**
Coop membership				
Members	157	87.7	188	83.2
Non-members	22	12.3	29	12.8
Finance access				
Good access to finance	52	29.1	45	19.9
Fair access to finance	58	32.4	68	30.1
Don't know	64	35.8	79	35.0
No access to finance	4	2.2	32	14.2
Poor access to finance	1	0.6	2	0.9
n	**179**		**226**	



*Other reasons were mainly few years in business and fear of taking the risk

Figure 4 - Reasons why farmers in the Kyanamukaaka- Kabonera hub had not obtained financial support in the previous year before and after trainings

Earnings

Majority (about 60%) of the respondents had a monthly earning of between UGX 20, 000 and 200,000; while about 33% earned above UGX 200,000. Respondents interviewed after the trainings showed a remarkable increase in those earning UGX 101,000 - 150,000 and a decrease in those earning UGX 20,000 – 100,000 (Table 13). The increase in earnings may probably have been as a result of improved managerial skills and market linkages. However, it will be important to investigate the changes after a substantial period of at least two years to assess the actual impact [5].

Notably, about 80% of the respondents viewed their earnings as insufficient and despite the fact that over 30% earned over UGX 200,000 per month, less than 15% viewed their earning as sufficient (Table 13). Agri-enterprenuers and generally business people always strive to expand and earn more from their enterprise; hence it is not surprising that majority of respondents viewed their earning as insufficient. This is also an indication that there is high potential for adoption of business improvement interventions.

Table 13 - Monthly earnings in (UGX) of farmers in the Kyanamukaaka-Kabonera hub

	No. of respondents			
	After intervention	**% of total respondents**	**Before intervention**	**% of total respondents**
Monthly earning				
Below 20,000	12	6.7	15	6.6
20,000 - 50,000	34	19.0	49	21.7
51,000-100,000	22	12.3	36	15.9
101,000-150,000	28	15.6	13	5.8
151,000-200,000	18	10.1	26	11.5
Over 200,000	59	33.0	76	33.6
None	6	3.4	6	2.7
Earning sufficiency				
Insufficient	139	77.7	186	82.3
Almost sufficient	15	8.4	14	6.2
Sufficient	25	14.0	26	11.5
n	**179**		**226**	

Correlation between knowledge, attitude and practice

Attitude is a key construct to understand an individual's trend to adopt and maintain certain practice, hence misconceptions or misunderstandings may represent obstacles to the activities that extension agents would like to implement and potential barriers to behaviour change. Low knowledge levels and negative attitudes towards a technology are known to be major factors that interfere with its adoption. In general correlation between variables with respect to farmers in the Kyanamukaaka- Kabonera hub were very low or none especially before the trainings (Table 14 a & b). The high correlation between different types of skills and the total number of skills before the trainings is due to the fact that majority of respondents possessed only one skill. Correlation between skills after the trainings may indicate that the trainings created awareness of the need for more skills; hence the farmers strived to acquire more. This is also reflected in the number of respondents with different types of skills in Figure 1. After trainings, there was correlation between the skills respondents possessed, their view of how sufficient their monthly earnings were and saving frequency. This may suggest that farmers used the skills and knowledge to make managerial decisions which led to increase in earnings and hence savings. It may also have enabled farmers to better articulate their objectives and goals and hence the ability to determine the level of sufficiency of the earnings. Saving frequency was correlated with the respondents' view of their level of access to finances. This may not be surprising because the cooperative may be more likely to favour members with large amount of savings when it comes to issue loans or any other financial support since the savings can act as collateral.

a) After intervention

	Primary skills	Medium skills	Ent level skills	Total Skills	Coop membership	Finance access level	Monthly earning	Earning sufficiency	Monthly saving	Saving frequency
Primary skills	1.0									
Medium skills	0.5	1.0								
Entrepreneurship level skills	0.4	0.7	1.0							
Total Skills	0.7	0.9	0.9	1.0						
Coop membership	0.1	0.0	0.0	0.0	1.0					
Finance access level	-0.3	-0.3	-0.3	-0.4	-0.1	1.0				
Monthly earning	0.3	0.4	0.5	0.5	-0.1	-0.3	1.0			
Earning sufficiency	0.1	0.3	0.3	0.3	0.0	-0.3	0.3	1.0		
Monthly saving	0.1	0.2	0.3	0.3	-0.1	0.1	0.2	0.3	1.0	
Saving frequency	-0.3	-0.3	-0.2	-0.3	-0.4	0.3	0.0	-0.2	0.1	1.0

b) Before intervention

	Primary skills	Medium skills	Ent. level skills	Total Skills	Coop membership	Finance access level	Monthly earning	Earning sufficiency	Monthly saving	Saving frequency
Primary skills	1.0									
Medium skills	1.0	1.0								
Entrepreneurship level skills	1.0	1.0	1.0							
Total skills	0.9	1.0	1.0	1.0						
Coop membership	-0.1	-0.1	-0.1	0.0	1.0					
Finance access level	0.1	0.1	0.1	0.1	0.1	1.0				
Monthly earning	0.0	0.0	0.0	0.0	0.0	-0.3	1.0			
Earning sufficiency	-0.1	-0.1	-0.1	0.0	-0.1	-0.2	0.2	1.0		

Table 14 - Correlation between knowledge, attitude and practice among the farmers in the Kyanamukaaka- Kabonera hub

Monthly saving	0.1	0.1	0.1	0.1	0.2	0.3	-0.1	0.0	1.0	
Saving frequency	0.2	0.2	0.2	0.1	-0.1	0.1	0.0	0.1	0.6	1.0

Conclusion

The capacity development intervention resulted in an increase in the number of entrepreneurial skills possessed by an individual farmers and this led to changes in business management practices such as budgeting, business planning and saving. These changes were also reflected by livelihood steps taken, particularly business expansion and diversification. This may have led to an increase in earnings and hence savings. There was also increased awareness of agri-enterprenureship opportunities, which may have prompted the step towards diversification. There was correlation between knowledge, attitude and practice after the trainings, which suggests that farmers may have utilised enterprenurial skills in managing their enterprises. However, would take time for the changes in knowledge, attitude and practice to translate into long term livelihood impacts; hence it will be important to measure the variables after a time lapse in order to realise the impact of the intervention the livelihood.

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