



**NORTHERN UGANDA RESILIENCE INITIATIVE
CLIMATE SMART AGRICULTURE MONITORING SURVEY**



Prepared By



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Executive Summary

This report is the outcome of a survey conducted in Agago district, Northern Uganda from September 13th to 20th, 2021 for Northern Uganda Resilience Initiative's (NURI) Climate Smart Agriculture (CSA) programme, which aims at increasing the agricultural outputs of small-scale farmers classified as new national farmers. CSA is one of the three initiatives aimed at enhancing resilience and equitable economic development in Northern Uganda. The other two initiatives are Rural Infrastructure (RI) and Water Resource Management (WRM). NURI is supported by the Government of Denmark as part of Uganda Programme on Sustainable and Inclusive Development of the Economy (UPSIDE), which is one of the two thematic programmes of the Danish Country Programme for Uganda (2018-2022), for which a bilateral agreement has been signed between the Government of Denmark and the Government of Uganda.

NURI is being implemented in districts in West Nile and Acholi sub-regions in Northern Uganda from 1/1/2019 to 31/12/2022. The implementation of output 1 activities started in 2019, with support targeting farmer groups classified as old and new national farmer groups. Agago District is now in its final year of implementation of NURI activities under CSA and according to the M&E framework, it is planned that outcome and impact assessment is conducted this year 2021, hence this assessment.

The survey applied mixed methods as a strategy and a cross-sectional/survey design. The population for the survey was households in the farming communities from 13 sub-counties in Agago district, Northern Uganda, where NURI is implementing CSA and RI initiatives. The respondents were household representatives who are members of farmer groups classified as new national farmers and stakeholders in the project context. A total of 554 households (primary respondents) and 100 stakeholders (secondary respondents: 24 key informants and 76 focus group discussion participants) were sampled using multi-stage cluster and purposive sampling methods respectively. The respondents were sampled from 6 randomly selected sub-counties of Lira-Palwo, Wol, Omiya-Pacwa, Arum, Lapono and Adilang. Data for the survey were collected using structured interviews (for primary respondents), focus group discussion with selected members of the farmer groups, key informant interviews with key stakeholders in the programme, documentary review and unstructured observation.

The survey report considered 12 themes under which the findings are presented, which are; (1) Socio-demographic profile of the respondents and the households (2) increase in average annual agricultural cash income; (3) percentage of households reporting a reduction in the period of food insecurity; (4) availability of production assets in the households; (5) land ownership and preparation techniques; (6) access and use of improved agricultural inputs; (7) increase in average yields for strategic crops; (8) access to market and marketing information; (9) participation in village savings and loans association (VSLA); (10) gender and youth participating in agricultural production; (11) sexual reproductive health and rights and gender based violence; and (12) staff performance.

Socio-demographic profiles

The survey sample for the new national farmers for the endline shows that 70.2% of the primary respondents were female; youths according to the programme classification of 18-29 years old constituted 20.2%. For the level of education, 27.3% of the respondents never attended school/formal education, the majority (56.3%) attained primary level of education (lower and upper primary). Also, 99.3% of the respondents practice farming as their main occupation. For household characteristics, the proportion of households that is male-headed is 81.8%. The average household size is 8 (baseline 8). The average household size, however, is almost double if compared with the national average of 4.7. Overall, the characteristics of the respondents and the households are similar in many respects at both baseline and endline.

By implication, the CSA programme supported more women; level of education means programme information should be simplified and preferably delivered in the local language; targeting agriculture was a relevant programme decision as the majority of the households practice farming as the main occupation; and the high average household size means more pressure on household resources.

Change in agricultural cash income

It emerged that although the overall average annual agricultural cash income reduced in 2020 by 12.6%, at least 64.6% of the households earned income in the range of UGX 200,001 to UGX 1,400,000 per year from agricultural sources. This finding is up from 53% at baseline and represents an 11.6% increase in households in the income range. Earning from non-agricultural sources decreased for 84.4% of the participating households, mainly due to the Covid-19 pandemic lockdown in 2020. In addition, 99.3% of the households regarded the sale of crops as their main income source in 2020. This finding represented a 16.3% increase from the baseline. Overall, more households moved from lower to higher income ranges.

Gender comparison of the household heads also revealed that male-headed households earned more income than female-headed households in 2020, and heads of households in the age range of 39 to 48 years old had the highest average annual agricultural cash income in 2020.

Reduction in food insecurity

At least 45.1% of the households reported experiencing food shortages, particularly from May to August. Although the baseline did not specify the percentage, respondents acknowledged that more households experienced food shortages in 2018 compared to 2020. The reduction was due to improved farming skills, access to quality seeds, favourable weather and fertile soil. On the number of meals per day in the participating households, which is a proxy measure of food availability, it was found that on average, 78.7% of the households had at least two meals per day in 2020.

For households reporting food shortages, the major causes were drought, family selling most crops produced, sickness in the households which disrupted production, and water logging in some communities. As for coping strategies, households resorted to reducing the number of daily

meals, selling household items, reducing the quantity of food consumed, and borrowing from neighbours.

Production assets in the households

Overall, the total value of production assets in the households increased by 7.0% in 2020 and the number of assets increased by 29.1%. At least 84.9% of the households confirmed an increase in production assets in 2020. Amongst the tools considered as production assets, ownership of basic garden preparation tools such as hand hoe and panga is over 95% in the households at the endline. For the modes of acquisition, at both baseline and endline, the majority of the participating households purchased production assets using household income. Comparatively, more farmers purchased production assets in 2020 compared to 2018.

Land ownership and preparation techniques

The average land acreage cultivated in 2020 was 6.5 acres per household (baseline was 7.5, based on a smaller household sample size for Agago). Most of the average acreage of land cultivated (85.9%) was land owned by the respective households and acquired through inheritance. This finding is similar to that at baseline.

For the land opening for the first tillage, at least 50.8% of the households used both hand hoe and ox-plough, 47.1% of the households still used hand hoe only, 23.5% used ox-plough only, and 22.1% used tractor. The number of households that used hand hoe only in 2020 decreased to 46.5% from the baseline (95.6%). Comparatively, the use of ox-plough and tractor are more effective than hand hoe in the opening of gardens for the first tillage. Also, the main source of labour for 64.1% of the acreage of land cultivated in 2020 was family labour, although 30.1% of the cultivated land also used hired labour. Therefore, much as family labour remained the dominant source of labour, there was a slight increase in the use of hired labour by 6.1% from the baseline year.

In addition, 39.5% of the households experienced challenges relating to land access in 2020. 11.2% reported that the challenges affected their participation in the CSA programme. Key challenges identified were land disputes, high price for hiring land and limited land for cultivation in some households. Despite the challenges, at least 68.2% of the households acknowledged cultivating more land in 2020 compared to 2018.

Access and use of improved agricultural inputs

The survey established that up to 84.5% of the participating farmers used improved agricultural inputs in 2020 compared to 58.1% in 2018 (baseline). The most common inputs used were production tools (100%) and crop seeds (98.1%). Improved tools and seeds usage increased from the baseline year from 36% to 58%. Major sources of improved inputs in 2020 has been the group's demonstration plots (mainly seeds), input dealers, and home saved inputs. As for the quality of the main inputs (seeds and tools), households maintained a "high quality" rating for both endline and baseline, with seeds rated high at 88.7% at endline compared to 76% at baseline. For tools, the "high quality" rating is at 84.9% at the endline (baseline was 73%). To

ensure that farmers gain the necessary skills and knowledge on the use of inputs, NURI CSA supported the farmers through extension services. Up to 97.8% of the farmers acknowledged acquiring advice on input use from NURI extension workers. This initiative has paid off as indicated by positive variance for “good” and “fair” ratings for most of the inputs (See Table 11). Another knowledge source with a fair score was friends and relatives (29%), which is a potential sustainable source of skills and knowledge in the community.

Yield for strategic crops

Overall, the average yield of crops produced in 2020 was higher than in 2018 as indicated by largely positive variance. For strategic crops (sesame, sunflower, soybean and cassava), only cassava reduced in yield at endline. Also, farmers reported that other than cassava, the other three strategic crops are the most preferred(See Table 12).

Access to market and marketing information

Although marketing strategies was not assessed at baseline for each of the seven districts covered, at endline, findings indicated that much as the majority of the farmers still market their crops individually, a sizeable number of households have adopted collective marketing in 2020 (See Figure 5). To promote collective marketing, several farmer groups are adopting an initiative introduced by the NURI programme i.e. construction of a joint store where members collect their produce and sell collectively. The initiative involves a 50% contribution from the farmer group and 50% from NURI programme.

For market information, the sources in 2020 were NURI extension workers (55.9%) market places (47.1%), and friends/relatives (43.2%). Baseline findings found key market sources being mainly from market places (56%) and friends/relatives (42%). It was also found that at least 50.4% of the farmers are facing marketing challenges, particularly low prices of outputs (68.4%), lack of transport to the market (31.8%), distance to the market (28.8%) and limited market information (2.3%). Overall, 76.7% of the farmers reported better marketing situation in 2020 compared to 2018 despite the restrictions due to the Covid-19 pandemic lockdown.

Participation in VSLA

The survey established that up to 98.5% of the households participating in the CSA programme are actively involved in VSLA activities. Active participation at baseline was only 38.0%. Therefore, the increase represents 60.5%. It also emerged that 99.3% of the actively participating farmers received training from NURI's Community Based Trainers (CBTs), which represents a bigger shift from baseline in which 61% of the farmers received training from other NGOs, and 29% of the VSLA participants in the district learnt from each other (intra-group learning). Equally important was the participation of youth (18 - 29 years old) which was rated as “high” by 68.9% of the households (baseline rating for high was 35%). Also, 72.3% of the farmers acknowledged saving more money in 2020 compared to 2018 due to more farmers moving to higher income ranges in 2020. Similarly, 95.2% of the farmers in the VSLA groups borrowed loans from the group, and the average amount borrowed in 2020 was UGX 174,366/= compared to the baseline average of UGX 77,797/=, representing a 124% increase in borrowed amount.

The use of the loan from VSLA has been for agricultural production (76.7%), school requirements for children (58.7%), petty trading (58.5%), acquisition of household assets (52.6%) and meeting the cost of health care services for the households (50.4%). See Figure 8 for comparison with baseline.

Gender and youth participation in agricultural production

The survey found that female and male adult members of the households participated more than any other age group in mobilizing for the different stages of agriculture production in 2020. Between the female and male adults, male adults participated more in opening land/garden, planting, harvesting, marketing, planning for the new season and use of income from the sale of the agricultural outputs. On the other hand, the participation of female adults was higher during weeding and post-harvest handling. Youth participation was equally high at 77.7% (baseline was 74.0%).

Sexual reproductive health and rights and gender based violence

It was found that 85.3% of the respondents received training on SRHR compared to 88% at baseline. However, this should not be considered a decrease in the number as the baseline sampled for Agago was 72 respondents only, compared to 554 respondents for endline value.

In 2020, NURI staffs were the main providers of information on SRHR in the farming community compared to government health workers who were responsible for only 31.8%, and yet government health workers were the main providers of training on SRHR at baseline in 2018. The reason for this variation, in addition to the fact that SRHR and GBV are only mainstreamed in the CSA programme, health workers contact with the community was drastically reduced due to the Covid-19 pandemic lockdown that limit access and contacts. However, despite the Covid-19 pandemic lockdown, NURI extension workers maintained contact with the farmer groups, hence the opportunity to provide more information on SRHR and GBV. Also, of the 85.3% of respondents who received awareness training on SRHR, 96.5% acknowledged that the training they received was helpful in their household and the community.

Staff performance

To ensure quality implementation of the programme activities, the intervention in addition to developing manuals to guide the Resilience Agricultural Unit (RAU), the unit staff have been subjected to various training such climate smart agricultural practice, monitoring and evaluation, financial management, human resource management, post-harvest handling, VSLA, production and marketing, plant clinic and demonstration plot establishment. The staff acknowledged that the skills and knowledge improved their capacity to deliver on the planned activities. However, other areas for improvement include further training in report writing, teamwork, performance management, and communication skills.

Recommendations

It is recommended that for the remaining period of implementation and any such intervention in the future, extension workers should include training in land conflict resolution in extension services; linkages between farmers and input dealers should be strengthened; access to market information should be strengthened, especially from sources such as radio, mobile SMS, and from farmers organizations to enable farmers to find high paying market for their agricultural products; cash security for VSLA saving should be improved through encouraging VSLA groups to securely keep accumulated savings with the deposit accepting financial institutions such as banks and micro-finance; equity in gender participation at different stages of agricultural productions should be promoted; and a similar intervention needs to give adequate consideration in the design and execution of the programme baseline study at the inception stage by ensuring adequate sample size and other design considerations.

Conclusion

Overall, the intervention made commendable contributions to the well-being of the farmers who are participating in the CSA programme in terms of improving the level of household income, reducing food insecurity, increasing production assets, promoting access to improved inputs, provision of marketing information, promotion of VSLA, contributing to awareness on SRHR and GBV, and building the capacity of Resilience Agricultural Unit (RAU) to provide better services to the farmers. However, it also emerged that not all the sub-counties of intervention are at the same level of performance. For instance, for the sub-counties sampled in the endline survey, Lira-Palwo and Wol are categorized as high performing, Omiya-Pacwa and Arum categorized as medium performing and Lapono and Adilang as low performing. Therefore, if not for the ending of the programme period, additional support to the medium and low performing sub-counties would elevate them to a similar level of high performance with a comparatively greater impact on the wellbeing of the households.

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Acronyms

CSA	Climate Smart Agriculture
FGD	Focus Group Discussion
MoU	Memorandum of Understanding
NAADS	National Agriculture Advisory Services
NURI	Northern Uganda Resilience Programme
RAU	Resilience Agricultural Unit
RI	Rural Infrastructure
SEA	Sexual Exploitation and Abuse
UBOS	Uganda Bureau of Statistics
UGX	Uganda Shillings
UPSIDE	Uganda Programme on Sustainable and Inclusive Development of the Economy
VSLA	Village Savings and Loans Association
WRM	Water Resource Management

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This report is the outcome of a survey conducted in Agago district, Northern Uganda from September 13th to 20th, 2021 to establish outcomes of activities implemented under Output 1 (Climate Smart Agriculture) of the Northern Uganda Resilience Initiative (NURI) programme. Output 1 aims at increasing agricultural outputs of small-scale farmers categorized as new national farmers. The assessment was specifically intended to identify changes that have occurred in the beneficiary households between the baseline year (2018) and endline year (2020), and record other general issues that emerged during Climate Smart Agriculture (CSA) implementation in the district.

1.1 Programme Background

The Northern Uganda Resilience Initiative (NURI) is one of three engagements under the Uganda Programme on Sustainable and Inclusive Development of the Economy (UPSIDE). It is one of the two thematic programmes of the Danish Country Programme for Uganda (2018-2022), for which a Memorandum of Understanding (MoU) has been signed between the Government of Denmark and the Government of Uganda.

NURI pursued enhanced resilience and equitable economic development in Northern Uganda, including for refugees and host communities, by supporting: (1) Climate Smart Agriculture (CSA), (2) Rural Infrastructure (RI), and (3) Water Resources Management (WRM). Refugees and host communities are among the beneficiaries as NURI is designed to support Uganda's progressive refugee policy and the nexus between development and humanitarian action.

Geographically NURI covers 13 districts in West Nile and Acholi sub-regions of Northern Uganda. The districts are Agago, Kitgum and Lamwo in Acholi sub-region and Arua, Madi-Okollo, Terego, Pakwach, Nebbi, Zombo, Moyo, Adjumani, Obongi and Koboko in West Nile sub-region. Besides targeting nationals in these districts, NURI work with refugee settlements within some of the selected districts. Selected settlements are Rhino Camp in Arua District, Imvepi in Terego District, Palorinya in Obongi District, 5 selected settlements in Adjumani District and Palabek Refugee Settlement in Lamwo District.

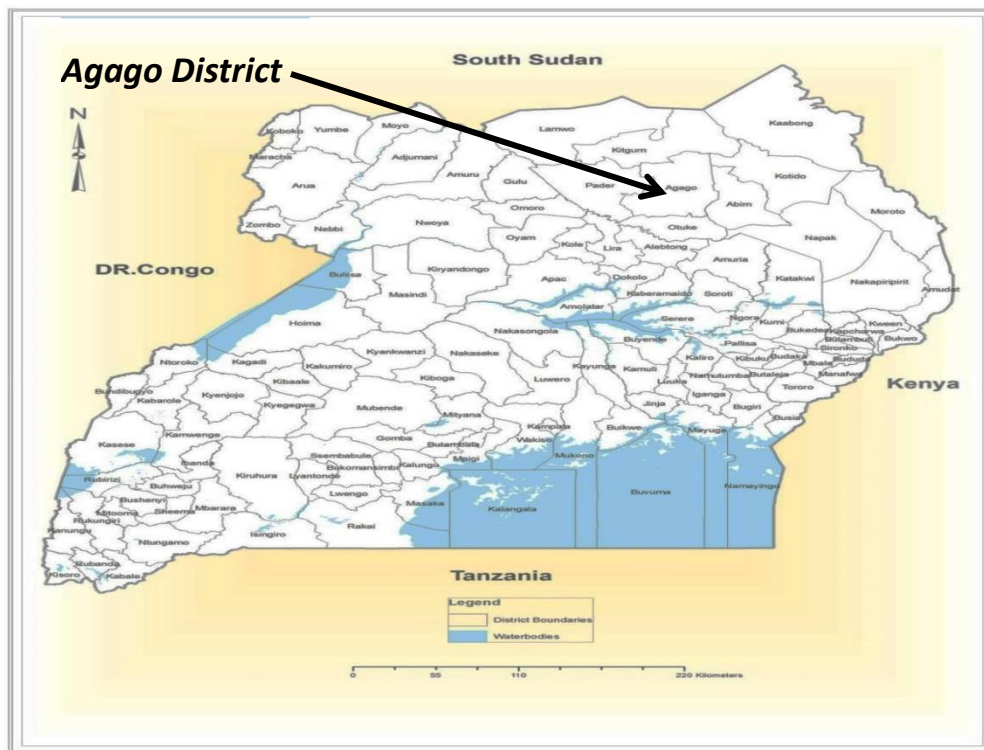
NURI is being implemented in districts in West-Nile and Acholi sub-regions from 1/1/2019 to 31/12/2022. The implementation of activities for output 1 started in 2019 with support targeting farmer groups categorized as old and new national groups. Agago District is now in its final year of implementation of activities under CSA and according to the monitoring and evaluation framework, it is planned that outcome and impact assessment is conducted this year 2021, hence this survey.

1.2 Agago Programme Context

Agago District is located in Northern Uganda and is inhabited predominantly by the Acholi tribe. The district is bordered by Kitgum in the North, Otuke in the South, Abim to the East, Kotido to the North-East and Pader to the West. According to the 2014 National Population and Housing Census, Agago district has a population of 227,792 people living in 43,376 households and 97% of the households practice agriculture (UBOS, 2017).

The district is a beneficiary of two NURI programme components of Climate Smart Agriculture (CSA) and Rural Infrastructure (RI). The main focus of this survey was CSA which is covering 13 sub-counties and is intended to benefit 7,200 individual household members organized in 240 farmer groups.

Map 1: Location Map of Agago District



The key programme activities of CSA are; supporting the farmer groups with setting up demonstration plots for strategic crops (sesame, sunflower, soybeans and cassava); advisory services to the farmer groups; training and mentoring of farmer groups in village savings and loans association (VSLA) methodology, sexual reproductive health and rights (SRHR) and gender based violence (GBV) prevention and response; and supporting farmer groups with marketing information.

1.3 Survey Methodology

The methodology described how the survey was designed and executed with a focus on survey strategy and design; survey population; survey respondents; sample selection and size; data collection methods; data processing and analysis; ethical consideration and limitations of the survey.

Strategy and design: mixed methods was applied as a strategy to guide the overall conduct of the survey. The method is a combination of quantitative and qualitative research strategies. Mixed methods allowed for the exploration of the quantifiable programme variables while at the same time identifying the qualitative (verbal and non-verbal) narratives that explained the trends in the programme variables.

For the design, a cross-sectional/survey design was applied. The design involved the collection of data (Quantitative/qualitative) from multiple new national farmers and stakeholders at a single point in time to provide quantifiable and qualitative data on variables assessed. The data was then analysed to detect patterns of association to answer the key survey questions.

Survey population: The population for the survey was households in the farming communities from 13 sub-counties in Agago district, Northern Uganda where NURI is implementing CSA and RI initiatives.

Survey respondents: These were households who are members of farmer groups categorized as new national farmers. The household respondents constituted the *primary respondents* and were sampled from six randomly selected sub-counties of Lira-Palwo, Wol, Omiya-Pacwa, Arum, Lapono and Adilang (the baseline conducted in 2018 sampled only 3 sub-counties of Adilang, Lira-Palwo and Omiya-Pacwa). *Secondary respondents* constituted stakeholders in the programme context. The stakeholders covered included District Production Officer, Local Council III chairpersons, sub-county Community Development Officers, Sub-county Senior Assistant Secretaries, Sub-county Agriculture Officers, Parish Chiefs, Resilience Agricultural Unit (RAU) staff and members of selected farmer groups other than those from which primary respondents were sampled.

Sample selection: The selection of the sample for the survey was conducted using two methods: *multi-stage cluster and purposive sampling methods*. *Multi-stage cluster sampling* was used in the selection of representative households from the farmer groups. The clusters comprised of local government administrative divisions of sub-county and parish. Overall, the survey sampled 6 sub-counties (Lira-Palwo, Wol, Omiya-Pacwa, Arum, Lapono and Adilang), 21 parishes, 60 new national farmer groups (from which the individual farmers were randomly selected). The sampled households were represented by adult members who are also members of the farmer groups. *Purposive sampling*, which involved the selection of respondents based on possession of characteristics considered relevant to the programme was used in selecting the key informant and focus group discussion (FGD) participants. Key informants included District Production Officer, Local Council III chairpersons, sub-county Community Development Officers, Sub-county Senior Assistant Secretaries, Sub-county Agriculture Officers and Parish Chiefs. For the FGDs,

members of selected farmer groups were identified to participate. FGD participants were selected from groups other than the one from which respondents for household interviews were sampled.

Sample size: The study sampled 554 individual households, 24 key informants and 76 FGD participants (who participated in 6 FGDs). Note that the baseline study conducted in 2018 sampled only 72 households from 3 sub-counties of Adilang, Lira-Palwo and Omiya-Pacwa.

Data collection methods: Data was collected through structured interviews for household members, who were members of the farmer groups, focus group discussion with selected members of the farmer groups, key informant interviews with key stakeholders in the programme, documentary review and unstructured observation.

Data processing and analysis: *Quantitative data* collected using structured questionnaires from the households were checked for the correctness of responses and entered in the computer using EPI-DATA software and analysed using STATA software. *Qualitative data* was re-written, typed, edited, coded and analysed using NVIVO (qualitative data analysis software).

Ethical considerations: Ethical standards were observed at every stage of the study. For instance, the consent of the respondents was sought at the time of data collection and the respondent's identity was kept confidential during analysis and report production. Other ethical considerations included:

- Adherence to zero tolerance to sexual exploitation and abuse (SEA) & fraud;
- Neutrality throughout the interviews;
- Commitment to managing risks and avoidance of harm.

Survey limitations: the main limitation of the assessment is the small sample size and sample distribution for the baseline survey conducted in 2018 in which only 72 households were sampled from 3 sub-counties of Adilang, Lira-Palwo and Omiya-Pacwa) to represent the district. This assessment sampled 554 households/farmers from 6 sub-counties of Lira-Palwo, Wol, Omiya-Pacwa, Arum, Lapono and Adilang. This presented a challenge in comparisons as this endline has a higher mean. However, this did not over skew the comparison of the findings between the two studies because the farmer communities are homogenous in their characteristics and evenly spread out within the 13 sub-counties of implementation in the district.

The assessment findings are presented in twelve themes, which are in line with the programme indicators and the emerging issues assessed. Throughout the themes, where feasible, comparisons were made with findings at baseline (2018). The themes and the subsequent discussions are presented from sub-section 2.1 to 2.12 below.

2.1 Socio-demographic characteristics of the respondents and the households

The characteristics of the respondents considered were gender, age, level of education and main occupation. Household characteristics assessed were gender and categories of households, age of household heads and household size. These characteristics are summarized and presented in Table 1 below.

For the gender of the respondents for the endline survey, females constituted 70.2%. The proportion of females in the endline study was higher than that covered in the baseline study (54.2%). Overall, for both baseline and endline, there were more females than males in the sample, which is also a reflection of the proportion of men and women in the farmer groups. This finding for the programme implies that more women are being supported compared to men.

The age of the respondents sampled for the endline study shows that the proportion in the age range of 29-38 years was higher than all other age categories (28%). For the baseline, there were more respondents in the age category of 39-48 years (31.9%). Youths according to the programme categorization of 18-29 years old were 20.2% and 15.3% for endline and baseline respectively. Overall, the average age of the respondents (supported farmers) is 41 and 40 for endline and baseline respectively.

For the level of education, 27.3% of the respondents never attended school/formal education. The majority (56.3%) only attained primary level of education (lower and upper primary). The findings did not vary much from what was established at baseline. Therefore, for the programme, the lack of formal education and the low level for the majority means extension services and any other information to support the farmers should be simplified and more preferably delivered in local language for ease of comprehension.

Also, the main occupation for 99.3% of the respondents is farming. Similarly, as with other characteristics, this did not vary much from the baseline in which 100% of the respondents were practicing farming as their main occupation. Therefore, CSA targeted the main occupation for the majority of households in the district and thus makes the intervention more relevant and aligned with what the majority of the intended beneficiaries are already engaged in or practicing.

For the gender of the household heads, the majority (81.8%) of the households are male-headed. This finding too is similar to that of the baseline in which up to 94.4% of the households were male-headed. The average age of the household heads is 45 (43 for baseline).

The average household size for the endline is 8 persons per household, which is also similar to the finding at baseline in which the average number of people in a household was 8 persons.

However, the average household size above is almost double if compared with the national average of 4.7 according to the National Population and Housing Census of 2014. Therefore, by implication, households targeted by the programme have more members to support than the national average and this, therefore, places more pressure on the existing household resources.

Overall, the characteristics of the respondents and the households at both endline and baseline are largely similar in many respects. The homogeneity therefore to some extent reduces the skew effects of the sample size for the two studies when comparisons of findings are made between the endline and baseline that sampled 554 and 72 primary respondents respectively.

Table 1: Socio-demographic profiles of the sampled new national farmers and households

Socio-demographic characteristics		Baseline		Endline	
		Frequency (#)	Percentage (%)	Frequency (#)	Percentage (%)
Gender of respondents	Male	33	45.8	165	29.8
	Female	39	54.2	389	70.2
Age of the respondents	19-28	11	15.3	112	20.2
	29-38	19	26.4	155	28.0
	39-48	23	31.9	123	22.2
	49-58	18	25.0	100	18.1
	59+	1	1.4	64	11.6
	Average age in years	40		41	
Highest level of education attained by respondents	No formal education	12	16.7	151	27.3
	Lower primary (P1-P4)	17	23.6	129	23.3
	Upper primary (P5-P7)	24	33.3	183	33.0
	O-level (S1-S4)	17	23.6	78	14.1
	A-level (S5-S6)	1	1.4	2	0.4
	Tertiary institution	1	1.4	2	0.4
	University education	0	0.0	0	0.0
The main occupation for respondents	Business	0	0.0	3	0.5
	Civil servant	0	0.0	1	0.2
	Farming	72	100.0	550	99.3
Gender and category of household heads	Male headed	68	94.4	453	81.8
	Female-headed	2	2.8	95	17.1
	Female managed	2	2.8	5	0.9
	Male-child headed	0	0.0	1	0.2
Age of household head	19-28	9	12.5	65	11.7
	29-38	12	16.7	131	23.6
	39-48	25	34.7	133	24.0
	49-58	24	33.3	101	18.2
	59+	2	2.8	124	22.4
	Average age in years	43		45	
Household size	1-3	2	2.8	3	1.3
	4-7	32	44.4	198	38.2
	8-10	28	38.9	323	47.4
	11+	10	13.9	30	13.1
	Average household size	8		8	

2.2 Increase in Average Annual Agricultural Cash Income for Participating Households

The focus of the intervention in this respect is to increase the average income of the households through improvement in production and marketing of agricultural products with emphasis on CSA techniques which the targeted households were to adopt and practice. To assess the endline status of this indicator, the survey determined the change in income status for both agricultural and non-agricultural sources. The income was compared with the age and gender of the household heads to determine if there is any relationship, which is essential in understanding and planning any such future intervention where gender and age are a consideration.

It was found that that 64.6% of the households at endline had an average annual income in the range of UGX 200,001 and UGX 1,400,000 per year from agricultural sources. This is up from 53% at baseline. The change, therefore, represents an 11.6% increase in the number of households from baseline. Similarly, there were 10.6% of the farmers whose average annual earnings from agricultural products range from UGX 2,600,001 and above. Worth noting is that much as at least 11.6% of the participating farmers move to a higher income bracket, the overall average income of the households from agriculture decreased by at least 12.6% between the baseline and endline. Similarly, for non-agricultural sources, there has also been a reduction in income for 84.4% of the households in 2020 in comparison with earnings from 2018, although the overall average income from the sources shows a slight increase.¹ Table 2 below presents the summary of agricultural and non-agricultural sources of income for the participating households between the baseline year (2018) and endline (2020).

As to what caused the reduction in the average income, especially from non-agricultural sources, farmers attributed it to the Covid-19 pandemic lockdown measures which restricted movement and other economic activities for most of the months in 2020; as such households have to embark on mainly agricultural activities with the restrictions also affecting market access for agricultural products.

¹ The variation in the income situation in which more households moved to the higher income bracket while the average income reduced and vice versa could be a result of the effect of fewer farmers earning more income than the majority.

Table 2: Agricultural and non-agricultural sources of income for the participating households

Sources of income	Income range (UGX)	Baseline		Endline	
		No.	%	No.	%
Agricultural related Household income	< 200,001	6	8	23	4.2
	200,001-600,000	17	24	150	27.1
	600,001-100,0000	10	14	112	20.2
	1,000,001-1,400,000	11	15	96	17.3
	1,400,001-1,800,000	4	6	55	9.9
	1,800,001-2,200,000	5	7	42	7.6
	2,200,001-2,600,000	3	4	17	3.1
	2,600,001+	16	22	59	10.6
	Average/mean (UGX)	1,540,540		1,345,623	
Non-agricultural related household income	< 200,001	33	48	276	49.8
	200,001-600,000	23	33	147	26.5
	600,001-100,0000	11	16	45	8.1
	1,000,001-1,400,000	0	0	9	1.6
	1,400,001-1,800,000	0	0	6	1.1
	1,800,001-2,200,000	1	1	5	0.9
	2,200,001-2,600,000	0	0	7	1.3
	2,600,001+	1	1	59	10.7
	Average/mean (UGX)	425,983		530,467	
Overall income (UGX)	1,948,774		1,840,083		

To establish the most reliable source of income from the agricultural sources of income identified, households were to identify what they consider the most reliable source; up to 99.3% of the households identified the sale of crops as their main source of income. This finding represents a 16.3% increase in the number of participating households considering agriculture as their most reliable source of income. The baseline status was established at 83%.

During the survey, the team was able to visit some of the farmers to ascertain how their involvement in the programme has improved their income and any linkage to their wellbeing. The visits established that the wellbeing of several participating in CSA has improved as in the case of Betty below from Lukole sub-county.

Betty is a 30 year old farmer from Odong Pa-lutino village in Kiteng Parish, Lukole Sub-county. She and her husband have 3 children. The household joined the NURI CSA programme in 2019 through one of the farming groups supported by NURI in her village. Before joining the programme, Betty and her household lived in a grass thatch house, which house she has lived in her entire life up until the time she joined the NURI programme.

Upon joining the supported farming group, Betty became an active member by participating in all the group activities such as agricultural extension training provided by NURI's Resilience Agricultural Unit (RAU) field staff, preparation of demonstration garden for the group and VSLA activities. Betty selected soybeans as her strategic crop for 2019 and 2020. In her 5 acre piece of land cultivated, she was able to produce 2.5 tons, earning her approximately UGX 3.2 million.

From the earning, the family decided to build an iron sheet roofed house, which is much better than the grass thatch according to her and the income stability of the household also improved. This year 2021, the family expects to harvest 1 ton of soybeans, with a vision of investing more in farming to complete the remaining part of the house by 2022, and finally acquire their pair of oxen and other production assets.



Photograph 1: Betty (L) and her son(C) and one of the enumerators in front of their new house

To further explore income dynamics, the survey considered income by gender and age of the household heads. This analysis however is only considered for the endline. It was not possible to make a comparison with the baseline findings because the baseline did not desegregate the variables for each of the seven districts assessed in the Acholi and West Nile sub-regions.

Nonetheless, this finding still gives a good understanding of the relationship between income and gender and the age of the household heads.

Findings on income and gender of household heads show that overall, male-headed households earned more income from agricultural production in 2020 compared to female-headed households. However, some variation was observed when the income range is considered. For instance, female-headed households earned more income for the income range of UGX 200,001 to 1,000,000, UGX 1,400,001 to 1,800,000 and UGX 2,600,001 and above. Table 3 below summarises the findings.

Table 3: Gender of household head and agricultural cash income in 2020

Total household income in 2020 (UGX)	Gender of Household head - Endline			
	Male-headed households ²		Female-headed households ³	
	No. of household	%	No. of household	%
< 200,001	15	3.3%	0	0.0%
200,001-600,000	76	16.7%	21	21.0%
600,001-100,0000	88	19.4%	24	24.0%
1,000,001-1,400,000	83	18.3%	12	12.0%
1,400,001-1,800,000	44	9.7%	14	14.0%
1,800,001-2,200,000	37	8.2%	5	5.0%
2,200,001-2,600,000	26	5.7%	5	5.0%
2,600,001+	85	18.7%	19	19.0%
Average annual agricultural cash income (UGX)	1,857,000		1,762,100	

For the age of the household heads, it was found that household heads in the age category of 39 to 48 years earned more income in 2020 (UGX 1,931,440) than all other age categories. This was followed by heads of household in the age bracket of 59 years and older (UGX 1,888,402). Youth earned the least (UGX 1,695,444). Details of the findings on this variable, including by income range are presented in Table 4 below.

² Includes male child-headed households

³ Includes female managed and female child-headed households

Table 4: Age of household head and agricultural income in 2020

Total household income in 2020 (UGX)	Age of household head: Endline									
	19-28		29-38		39-48		49-58		59+	
	No. of household	%	No. of household	%	No. of household	%	No. of household	%	No. of household	%
< 200,001	2	3.1	2	1.5	5	3.8	3	3.0	3	2.4
200,001-600,000	7	10.8	24	18.3	15	11.3	14	13.9	37	29.8
600,001-100,0000	19	29.2	25	19.1	28	21.1	17	16.8	23	18.6
1,000,001-1,400,000	13	20	20	15.3	22	16.5	23	22.8	17	13.7
1,400,001-1,800,000	7	10.8	15	11.5	15	11.3	11	10.9	10	8.1
1,800,001-2,200,000	3	4.6	13	9.9	14	10.5	7	6.9	5	4.0
2,200,001-2,600,000	8	12.3	6	4.6	9	6.8	4	4.0	4	3.2
2,600,001+	6	9.2	26	19.9	25	18.8	22	21.8	25	20.2
Average annual agricultural cash income (UGX)	1,695,444		1,866,982		1,931,440		1,719,133		1,888,402	

Overall, from the foregoing quantitative and interaction with farmer groups during FGDs, it can be deduced that much as some of the farmers remained in the same income bracket, at least 11.6% of the participating households were able to move to a higher income bracket during the period assessed. This figure could be expected to be higher had it not been due to the disruption caused by the Covid-19 pandemic lockdown that affected movement and market access.

2.3 Percentage of Households Reporting Reduction in Period of Food Insecurity

The indicator was assessed by establishing months households experienced food shortages in 2020, the average number of meals per day the households were having in 2020 (with emphasis on breakfast, lunch and supper as the key course of meals), causes of food shortage during the period and the coping strategies. Where feasible, comparisons were made with the findings at baseline (2018).

It was established that 45.1% of the households reported experiencing food shortages in 2020, mainly during the month of May to August. Although the baseline did not establish the specific percentage of households that experienced food shortages in Agago district, focus group participants observed that more households had food shortages in 2018 than in 2020. FGD

participants attributed the reduction in the number of households reporting food shortages to improved farming skills as a result of the CSA training and extension services, access to quality seeds, favourable weather and fertile soil.

The above positive changes in the farming practice in the community which resulted in a reduction in food insecurity are also causing a pull factor for farming households from the bordering districts in Karamoja sub-region, particularly Kotido district as evidenced by the case below.

In Kotomor, Omiya Pacwa and Lapono Sub-counties, at least 3 farmer groups admitted supporting by hiring out land for farmers from Karamoja sub-region, mainly from Kotido district. The farmers, mainly women with their young girls would come into the community, rent huts and hire land for cultivation from the local community. Once they have planted and harvested the crops, they would migrate back to Karamoja. Their main food crops of choice are mainly maize, beans and sorghum.

In one of the interviews, the Chairperson of Ogen Rwot Farmer Group in Layita Parish, Omiya-Pacwa sub-county noted that during the earlier years, Karamojong were all viewed as spies intending to launch cattle raids and theft. But that has changed with very isolated cases of cattle theft. Since 2019, they have been coming to their community peacefully to farm, barter or buy food crops and other items. In the community, the farmers welcome and support them with seeds, tools and even offer basic farming skills, much as they are not members of the local farming groups.

Therefore, the CSA and RI initiatives in the district have created a pull factor for the Karamajong households, which with over 7,000 individual farmers trained in CSA, access to better seeds, fertile soil and good access roads connecting the districts, the farming households in Karamoja are moving in to benefit from the opportunities.



Photograph 2: One of the Karamojong households that moved and now cultivating in Agago district

On the number of meals per day in the participating households, which is a proxy measure of food availability, it was found that on average, 78.7% of the households had at least two meals per day in 2020. This may appear slightly below the baseline (81%), but as previously mentioned in the study limitations, the baseline sample was based on a low sample of only 72 households, hence the challenge with comparison. Table 5 below presents the proportions of participating households and the respective number of meals per day and months during which food shortages were experienced.

Table 5: Number of meals households had and months of food shortage in 2018 and 2020

Number of meals and month of food shortage		Baseline (2018)		Endline (2020)	
		Number of households	Percentage (%)	Number of households	Percentage (%)
Average number of meals consumed per day	1	2	3	50	9.0
	2	58	81	436	78.7
	3+	12	17	68	12.3
Month during which food shortage was experienced					
January		0	0	7	2
February		0	0	6	2
March		1	1	8	3
April		2	3	12	4
May		17	24	49	15
June		49	68	212	66
July		55	76	222	69
August		25	35	84	27
September		4	6	18	6
October		3	4	7	2
November		2	3	6	2
December		2	3	6	2

For households reporting food shortages, the causes were drought (29%), families selling most crops (26.1%), sickness in households that disrupted labour for production (17.6%) and water logging in some communities (10.1%). As for coping strategies, households resorted to reducing the number of meals consumed (34%), selling other household items (25.5%), reducing the size of food consumed daily (20%) and borrowing food from neighbours (17.8%).

Overall, during the assessed period, the percentage of participating households reporting food shortages reduced. The improved situation as depicted in the case study is attracting farmers from other neighbouring districts, especially from Karamoja sub-region.

However, when respondents were asked to compare the period of food shortage between baseline and endline, 72% acknowledged that the food situation improved in 2020 compared to 2018. This was attributed to improved farming skills, quality seeds, favourable weather and fertile soil.

Further, the study desegregated the number of meals by age and gender of the household heads to gain a deeper understanding of the situation. This finding is presented in Table 6 below which shows that households whose heads are in the range of 19 to 38 years were able to have more meals per day in all the three categories of courses meals considered in 2020 compared to the older age range. Also, the comparison of the number of meals and gender of household heads shows that male-headed households constituted a higher proportion in all the three courses of meals assessed.

Overall, therefore, household heads under 38 years and male-headed were able to afford more meals compared to the older age group and female-headed households.

Table 6: Number of meals per day desegregated by age and gender of household heads

Age categories	One meal		Two meals		Three or more meals	
	No	%	No	%	No	%
19-28	12	24	79	18.1	21	30.9
29-38	13	26	123	28.2	19	27.9
39-48	10	20	101	23.2	12	17.8
49-58	9	18	83	19	8	11.7
59 or more	6	12	50	11.5	8	11.7
Gender of household head						
Male-headed	50	100	347	79.6	57	83.8
Female-headed	0	0	89	20.4	11	16.2

2.4 Availability of Production Assets in the Households

The intervention in respect to production assets aimed at ensuring that participating households/farmers have the necessary tools for garden preparation and high quality improved seeds capable of producing high yields. Upon receiving the support, especially improved seeds that were multiplied in the demonstration plots, the farmers are expected to multiply the seeds and also re-invest income from the sale of agricultural products to increase the volume of production assets in their respective households.

This indicator was assessed by establishing the production assets that were available in the households in 2020 and their respective value, and mode of acquisition. This was compared with the status at baseline to determine whether there was any change. Tables 7 and 8 below presents the available production assets (and the average values) and mode of acquisition respectively.

Table 7 shows that for the production assets considered, in 2020 the number of farmers possessing such assets have increased for some and decreased for others as indicated by the variance. Some of the assets considered and the number of farmers possessing them increased include panga (95.5%), radio (92.6%), motorcycle (50.7%), other cattle (42.6%), sheep (28.9%) and spray pump (9.2%). Also comparatively, the average total value of production assets increased to UGX 2,580,230/=, which represents a 7.0% increase from the baseline value.

For both FGDs and key informant interviews, it was observed that from the perspective of farmers and stakeholders, production assets refers to basic equipment for garden preparation such as hand hoe, pangas, ox-plough and axes, which is a limited definition when compared with what the programme considered. Except for ox-plough and axes (which was not included on the list of the assessed assets in this endline survey), ownership of these basic garden preparation tools in the households is over 95%.

Table 7: Production assets in the households

Production assets	Baseline		Endline		Variance	
	No.	%	No.	%	No.	%
Hoe	72	100.0%	552	99.6%	480	-0.4%
Panga	52	72.0%	529	95.5%	477	23.5%
Ox-plough	43	60.0%	318	57.4%	275	-2.6%
Spray pump	5	7.0%	51	9.2%	46	2.2%
Bicycle	45	63.0%	251	45.3%	206	-17.7%
Motorcycle	4	6.0%	281	50.7%	277	44.7%
Radio	19	26.0%	513	92.6%	494	66.6%
Telephone	49	68.0%	242	43.7%	193	-24.3%
Oxen	46	64.0%	231	41.7%	185	-22.3%
Other cattle	25	35.0%	236	42.6%	211	7.6%
Goat	60	83.0%	179	32.3%	119	-50.7%
Sheep	7	10.0%	160	28.9%	153	18.9%
Pig	31	43.0%	229	41.3%	198	-1.7%
Poultry	60	83.0%	394	71.1%	334	-11.9%
Other	18	25.0%	123	22.2%	105	-2.8%
Average total value of production assets						
Value in UGX	2,410,000		2,580,230		170,230	

For the modes of acquisition, as indicated in Table 8, households purchased them using household income; this is an encouraging practice that promotes self-reliance and sustainability of the farming practice. Comparison of the mode of acquisition with baseline also revealed that over the period, more farmers were able to purchase the assets for their households using their income. This is an encouraging sign of empowerment and improved capacity of the farmers that could be associated with the programme. Overall, 84.9% of the farmers when asked to compare

the value of their production assets between 2018 and 2020 observed that their assets increased in value.

Table 8: Mode of production assets acquisition

Mode of acquisition of production assets		Baseline		Endline	
		No.	%	No.	%
Hoe	Purchased	69	97	537	97.30
	Others	2	3	15	2.7%
Panga	Purchased	46	89	495	93.6
	Others	6	12	34	6.4
Ox-plough	Purchased	42	98	310	97.2
	Others	1	2	8	2.8
Spray pump	Purchased	5	100	47	90.4
	Others	0	0	4	9.6
Bicycle	Purchased	42	93	237	94.4
	Others	3	7	14	5.6
Motorcycle	Purchased	2	67	277	98.6
	Others	1	33	4	1.4
Radio	Purchased	19	100	513	100
	Others	0	0	0	0
Telephone	Purchased	47	100	242	100
	Others	0	0	0	0
Oxen	Purchased	42	96	227	98.6
	Others	2	5	4	1.4
Other cattle	Purchased	19	76	231	98.3
	Others	6	24	5	1.7
Goat	Purchased	52	90	179	100
	Others	6	10	0	0
Sheep	Purchased	7	100	157	97.5
	Others	0	0	3	2.5
Pig	Purchased	27	96	225	98.5
	Others	1	4	4	1.5
Poultry	Purchased	50	91	394	100
	Others	5	9	0	0
Other	Purchased	18	100	98	79.7
	Others	0	0	25	20.3

Overall, the production assets have increased by 29.1% in the households and for most of the assets, the majority of the households were able to purchase them using their income at endline (2020). The average positive increase (positive variance) and the fact that the majority of households can acquire the assets using their resources are positive outcomes for this intervention indicator.

2.5 Land Ownership and Preparation Techniques

Land is considered one of the essential factors of production. The assessment considered the total average acreage of land cultivated in 2020, how the cultivated land was acquired, methods used to open the cultivated land, sources of labour for cultivation of the land, challenges in accessing land and whether the challenges affected the participation of the households in CSA programme. As with the previous sections, comparisons were made with the baseline year.

In a rural agricultural community, most times the size of land owned and cultivated determine the level of outputs. Therefore, the more acreage a household can open and prepare for planting, the more likely they will realize more crop outputs. The baseline average acreage cultivated for Agago was established at 7.5 acres. The assessment established that the 2020 average acreage cultivated was 6.5 acres. This may seem lower than the baseline, but as earlier noted, the measurement for 2020 had a higher household sample (554) than the 2018 baseline (72). Therefore, the level of precision of 2020 is comparatively higher compared to the baseline. FGD and key informant respondents noted that group performance was better in 2020 due to favourable weather, fertile soil, use of improved seeds and better farming skills provided by NURI extension workers.

On land acquisition, the assessment identifies the various means through which the households acquired the land they cultivated. Key means of the acquisition were family-owned (inherited), family-owned (purchased), communally owned, hired land, borrowed land, and government-protected land. Table 9 below summarized the average size of land cultivated (mean acreage) and how the households acquired them.

Table 9: Method of land acquisition in the households

Method of acquisition	Baseline (Mean acreage)	Endline (Mean acreage)
Family-owned (Inherited)	6.5 (85.0%)	5.5 (85.9%)
Family-owned (Purchased) ⁴	-	3.4 (7.4%)
Communally owned	14.0 (3.0%)	2.7 (2.4%)
Hired land	2.7 (7.0%)	3.2 (20.4)
Borrowed land	3.0 (6%)	2.4 (3.6%)
Government protected area	5.0 (1.0%)	0.0 (0.0%)

Table 9 shows that 85.9% of the land cultivated in 2020 were inherited. Except for the increase in land hiring from about 7% and cultivation in government-protected areas in 2018 (baseline), the ownership/acquisition methods for land cultivated at the endline are similar to that at baseline. The dominant method of acquisition, which is inheritance bring some stability in planning land opening and preparation as a household can plan without having to worry for next

⁴ Family-owned (purchased) was not measured at baseline

season as it could be in the case with hired/borrowed land, or in the case where the land is on the government-protected area, which could be subject to change in land use.

For the cultivated land for the first tillage, the survey assessed the different methods used to open the land. It was found that the common methods of land opening were through the use of hand hoe (47.1%), ox-plough (23.5%), a combination of ox-plough and hand hoe (50.8%) and tractor (22.1%). At baseline, the percentages of the methods used were 95.6% for hand hoe and 20% for ox-plough. There was no use of tractors and a combination of hand hoe and ox-plough was not measured. Comparatively, therefore, in 2020, there was an increase in the use of ox-plough and tractor, which are more effective than the use of hand hoe only.



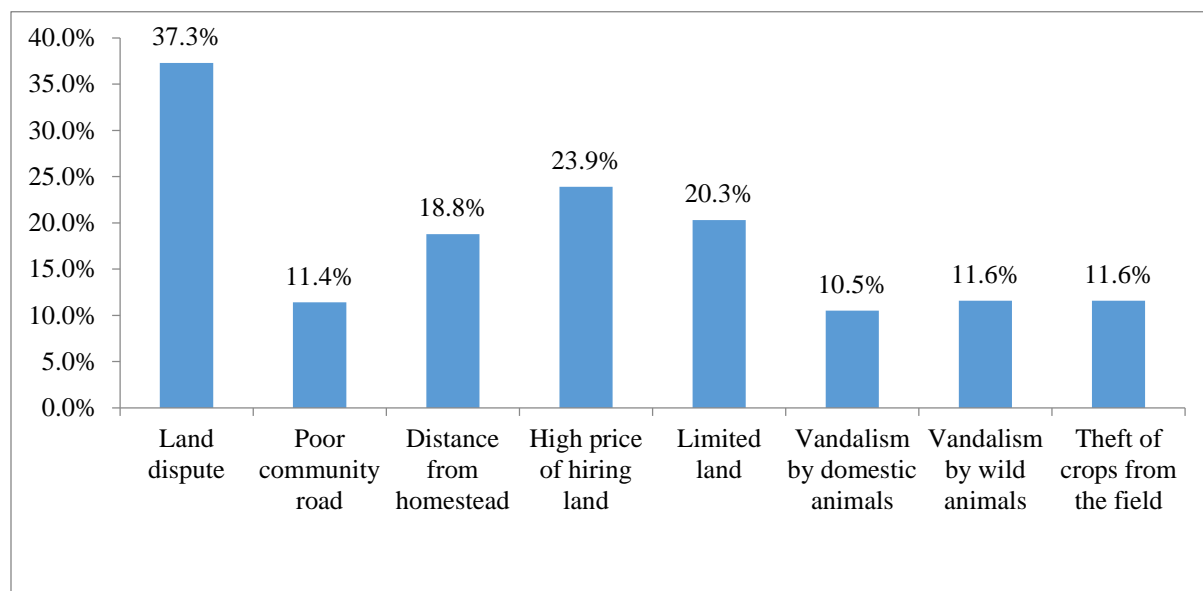
Photograph 3: Households are increasing using ox-plough in the land opening since the introduction of the programme in the district.

Sources of labour for cultivation of the land were assessed by establishing how the households acquired the labour for the acreage cultivated in 2020. Key sources identified were family labour (64.1%), hired labour (30.1%), a combination of family and hired labour (35.9%) and group rotational labour commonly known locally as *aley*a (12.4%). At baseline the use of family labour was 67%, hired labour was 24% and group rotational labour was 11%. Therefore, at the endline, except for the use of family labour, there was an increase in the use of the hired and group rotational labour sources. Overall, family and hired labour remained the major sources of labour for the participating households.

For challenges in accessing land and if it affected participation in the CSA programme, it emerged that at least 39.5% of the households experience challenges relating to land access and 11.2% acknowledged that the challenges affected their capacity to participate in the CSA programme, mainly through households not having adequate land for cultivation. This disruption was reported in 19.7% of the households. Common challenges households experienced are

presented in Figure 1 below which shows that the common challenges were land disputes, high price for hiring land, limited land size for the households and distance to the garden from the homesteads. Worth noting is that these challenges affected 39.5% of the households. However, up to 68.2% of the households acknowledged that in 2020 they were able to cultivate more acreage of land compared to 2018.⁵

Figure 1: Land access challenges in the participating households



Therefore, with the pattern of ownership (inherited mainly), and if land opening can be made easier in future intervention through the use of methods such as ox-plough and tractor, the level of production of agricultural outputs are bound to increase hence to ripple effects on variables such as food security, income and savings.

2.6 Access and use of Improved Agricultural Inputs for Production

One of the NURI CSA programme approaches was to introduce and promote the use of improved agricultural inputs as a way of boosting production and outputs. For instance, farmer groups are supported with improved seeds for strategic crops (sunflower, sesame, cassava and soybeans) in the group demonstration plots. With support from the NURI field extension workers, the farmers are supported to multiply the seeds. The assessment examined the use of improved agricultural inputs in the households, type of inputs, how the inputs were acquired, quality of inputs, and knowledge of farmers on the use of the inputs.

On the use of improved agricultural inputs, it was found that up to 84.5% of the farmers used improved agricultural inputs in 2020 compared to 58.1% in 2018. Households used different

⁵ Acknowledgement of opening more acreage of land by representative households despite the comparatively more land opened at baseline than at endline could be explained by the low sample size for the baseline.

kinds of improved inputs. Figure 2 below summarizes the common type of inputs and the proportion of households using them at baseline and endline.

Figure 2: Use of improved agriculture inputs in 2018 and 2020

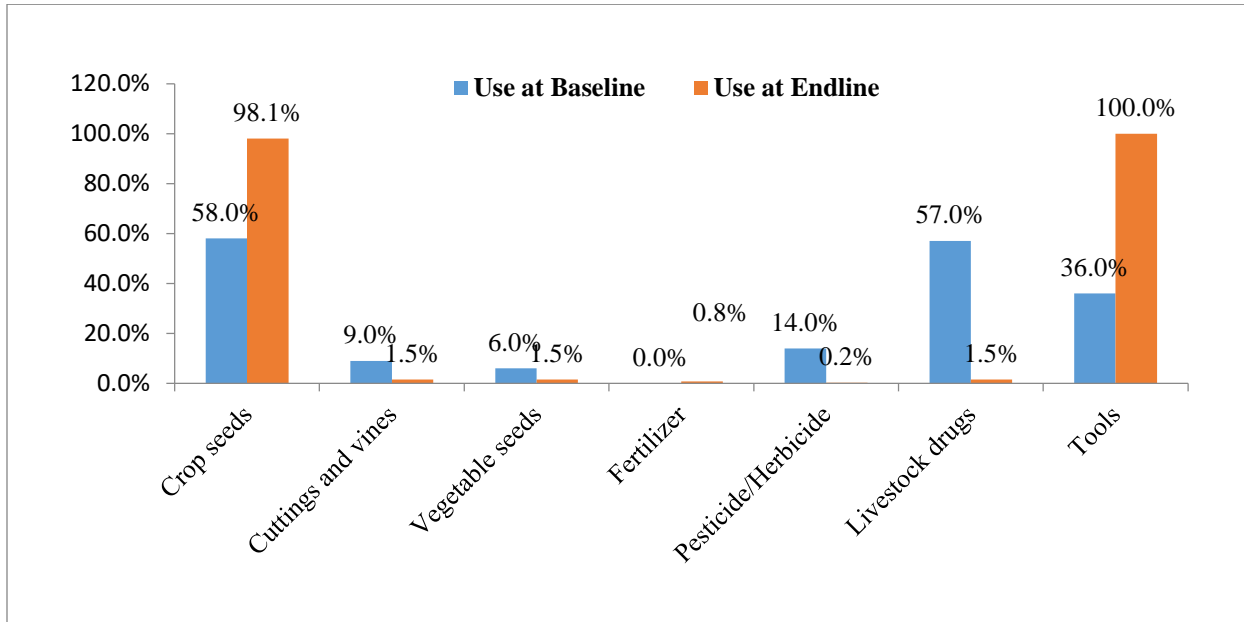


Figure 2 indicated that the most common type of improved agricultural inputs used by the farmers at both baseline and endline are tools (such as tarpaulins, gumboots, hoes etc) and crop seeds. Comparatively, the farmers used more of these inputs in 2020 than in 2018. The Figure also revealed a pattern where the use of some inputs such as cutting and vines, vegetable seeds, fertilizer, pesticide/herbicide, and livestock drugs in agricultural production drastically reduced among the participating farmers. As to how the farmers acquired these inputs, Figure 3 below summarises the findings.

Figure 3: Sources of agricultural inputs in 2020

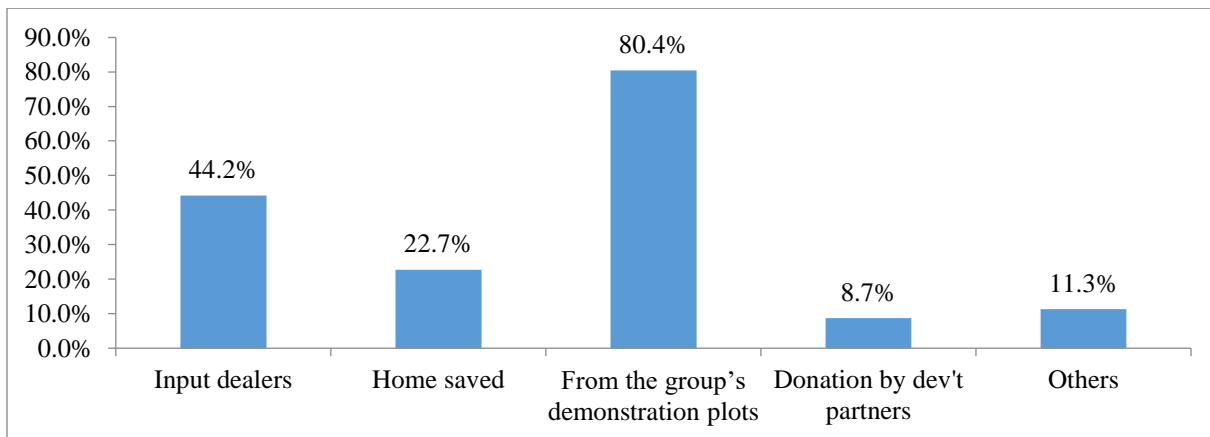


Figure 3 indicates that improved inputs (particularly seeds and tools) are obtained from the group's demonstration plots and input dealers. A good proportion of the farmers also obtained

improved inputs from the home saved initiative (22.7%) where farmers keep some of the improved seeds after harvest for the following planting season. The baseline findings, which assessed the sources for each of the inputs in Figure 2 indicated that at base year, 78% of farmers obtained their seeds from input dealers and the proportion of tools obtained from input dealers was 39%. Another source was home saved (15%).



Photograph 4: Home saved seeds providing a reliable source of improved seeds to households

Further, farmers were asked to rate the quality of the inputs used in their agricultural production in 2020. The ratings were based on a Likert scale of high, medium and low. As prior noted, the common inputs most farmers acquired in 2018 and 2020 are crop seeds and tools. For crop seeds, the rating remained high at both baseline (76%) and endline (88.7%) years with endline year receiving a higher rating than the baseline. For tools, the rating is high for endline (84.9%) compared to baseline (73%). Table 10 below summarized the comparative ratings for all the essential improved inputs farmers used during the baseline and endline period.

Table 10: Quality of agricultural inputs

Input	Use at Baseline			Use at Endline		
	High	Medium	Low	High	Medium	Low
Crop seeds	76.0%	24.0%	0.0%	88.7%	10.8%	0.5%
Cuttings and vines	67.0%	33.0%	0.0%	16.5%	82.9%	0.6%
Vegetable seeds	100.0%	0.0%	0.0%	13.5%	86.5%	0.0%
Fertilizer	0.0%	0.0%	0.0%	4.6%	94.7%	0.7%
Pesticide/Herbicide	100.0%	0.0%	0.0%	21.1%	74.9%	4.0%
Livestock drugs	79.0%	18.0%	3.0%	33.2%	63.6%	3.2%
Tools	73.0%	19.0%	8.0%	84.9%	15.1%	0.0%

For improved agricultural inputs to effectively boost production, farmers should be able to know how to use them effectively through the acquisition of the necessary skills and knowledge. NURI CSA promoted this through extension advisory services to the group farmers in which the extension workers advice on which input to use for a given purpose and the farmers then get the instructions as to how to use from the dealers. This initiative has paid off as demonstrated by the largely positive variance in “good” and “fair” ratings for most of the inputs presented in Table 11 below. A positive variance denotes the percentage increase in rating of knowledge between baseline and endline

Table 11: Rating of knowledge on use of improved inputs

Inputs	Ratings	Baseline	Endline	Variance
Crop seeds	Good	54%	92.9%	38.9%
	Fair	18%	7.1%	-10.9%
	Poor	28%	0.0%	-28.0%
Vegetable seeds	Good	19%	23.6%	4.6%
	Fair	23%	74.5%	51.5%
	Poor	59%	1.9%	-57.1%
Cuttings & vines	Good	31%	29.1%	-1.9%
	Fair	17%	69.5%	52.5%
	Poor	51%	1.3%	-49.7%
Fertilizers	Good	3%	3.5%	0.5%
	Fair	16%	87.7%	71.7%
	Poor	81%	8.8%	-72.2%
Pesticides/herbicides	Good	10%	20.2%	10.2%
	Fair	20%	69.7%	49.7%
	Poor	70%	10.1%	-59.9%
Livestock drugs	Good	27%	29.7%	2.7%
	Fair	30%	63.2%	33.2%
	Poor	43%	7.1%	-35.9%
Tools	Good	31%	85.9%	54.9%
	Fair	21%	14.1%	-6.9%
	Poor	48%	0.0%	-48.0%

From Table 11, it is clear that farmers are more knowledgeable in the use of improved seeds and tools. For these two inputs, the percentage of farmers reporting improved knowledge increased exponentially in comparison with the baseline. The variance shows a 38.9% and 54.9% increase in the percentage of farmers rating their knowledge level for the use of improved crop seeds and tools respectively as “good”. This positive change is commensurate with the efforts made by the NURI extension staff in supporting the farmers with seed multiplication and crop production for the strategic crops, and the use of farm tools in production. Further, there is also a positive "fair" knowledge increase for vegetable seeds, cutting and vines, fertilizer, pesticide and livestock drugs. Overall, the increase in "good" knowledge of seeds and tools directly correlates with the CSA programme extension activities.

The survey also assessed the various sources of knowledge on the use of improved agricultural inputs and the findings are presented in Figure 4 below.

Figure 4: Sources of information on the use of inputs

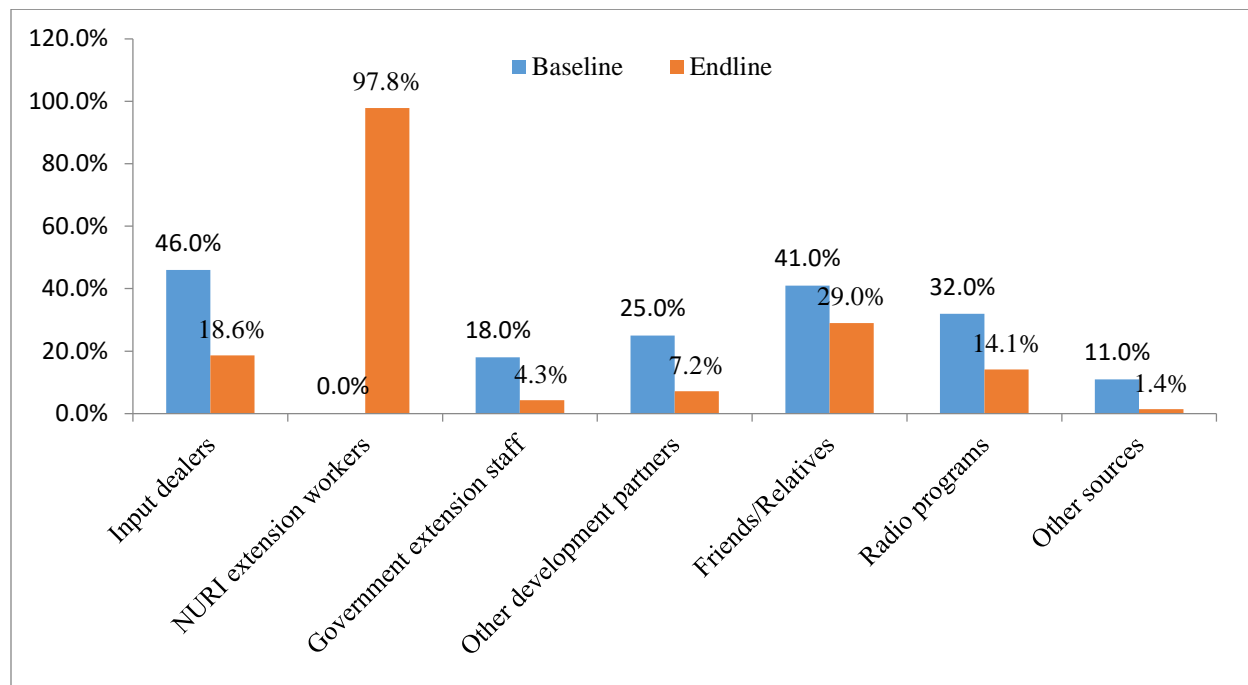


Figure 4, which compare the various sources of knowledge between baseline and endline year shows that at baseline, the common sources of knowledge on the use of inputs were input dealers, friends/relatives and radio programme. However, with the intervention of the programme 97.8% of the farmers acknowledged getting knowledge and skills on the use of improved inputs from NURI extension workers, which is one of the commendable contributions of the programme to the agricultural production in the district. Also, 95.1% of the farmers who are in the farmer groups supported by the NURI programme acknowledged that the knowledge and skills of group members on the use of inputs is much higher compared to other non-group members in their communities.

2.7 Increase in Average Yields for Strategic Crops

The CSA intervention is promoting the production of four strategic crops i.e. sunflower, sesame, cassava and soybeans in Agago district. The programme supports farmer groups to specialize in one of the crops and promote the multiplication of seeds in the group through group demonstration plots from which members shared the improved seed harvested and continue multiplying in their gardens. The survey assessed the average yield and value of the crops produced in 2020, including strategic crops. This was compared with production at baseline (2018).

The summary of findings on this indicator is presented in Table 12 which shows that overall, the average yield of crops produced in 2020, including for strategic crops, except cassava, are higher than in 2018 as indicated by the positive variance.

Table 12: Yield of crops produced in 2020 and 2018 (baseline), including strategic crops

Crop grown	Baseline		Endline		Variance	
	HH	Mean (Kg)	HH	Mean (Kg)	HH	Mean (Kg)
1. Sesame	31	105	412	680	381	575
2. Beans	14	154	243	590	229	436
3. Maize	43	294	276	823	233	529
4. Soybeans	5	157	222	298	217	141
5. Sunflower	55	258	375	546	320	288
6. Rice	1	80	13	892	12	812
7. Groundnuts	43	173	302	503	259	330
8. Cassava	11	2687	193	723	182	-1,964
9. Sorghum	65	322	357	623	292	301
10. Millet	41	268	167	726	126	458
11. Pigeon Peas	27	69	129	906	102	837
12. Sweet Potatoes	12	1647	47	523	35	-1,124
13. Irish Potatoes	1	60	13	15	12	-45
14. Onions	0	0	10	324	10	324
15. Banana	0	0	34	1,520	34	1,520
16. Other crops	0	0	16	24	16	24

2.8 Access to Markets and Marketing Information

For markets and marketing of the agriculture produce, the programme promotes collective marketing from which the farmers could bargain for better prices for their crop outputs. Collective marketing was expected to be easy to adapt with already the programme approach of encouraging farmers to form groups and each group specialized in the production of only one of the strategic crops. The survey explored the modes of marketing of the strategic crops produced by the participating households, sources of market information and marketing challenges. Further, farmers were asked to compare the marketing situation between baseline (2018) and endline (2020).

The survey confirmed two approaches to marketing strategic crops in the district i.e. farmers either market their crop produce individually or collectively as a group. This was also found to

be varying from one strategic crop to another and also between groups. Figure 5 below presents the relative significance of the two modes of marketing for each of the strategic crops.

Figure 5: Mode of marketing strategic crops

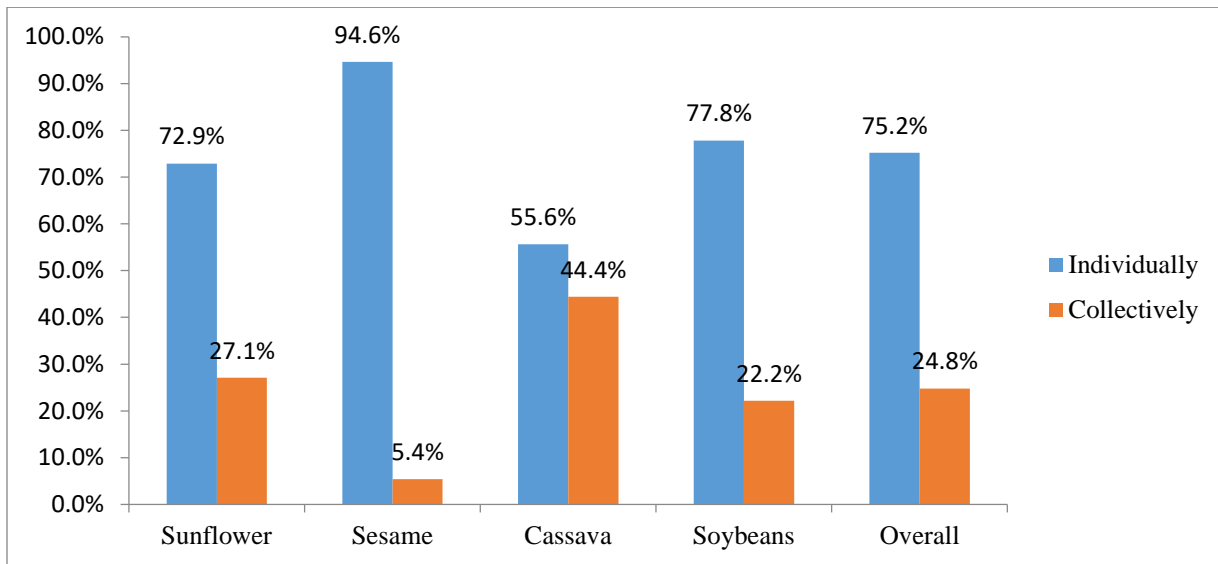


Figure 5 show that although the mode of marketing the strategic crops was not measured specifically at baseline, the report noted that collective marketing was rare in the districts. Therefore, these endline findings present a significant shift in the marketing strategies. Similarly, as a promotion of collective marketing, the endline survey established that several farmers groups are adopting an initiative introduced by the NURI programme i.e. construction of a joint store where members collect their produce and sell collectively. The initiative involves a 50% contribution from the farmers and a 50% contribution from the NURI programme.



Photograph 5: One of the collective stores constructed using the joint venture initiative

For market information, it was found that in 2020, the major sources of market information were from NURI extension workers, market places and friends/relatives. Except for NURI extension workers as a source that was not yet operational at baseline, the latter two main sources were equally the major ones. Other sources such as radio adverts have also gained significance in 2020. Table 13 below summarises the findings for all the viable market information sources identified in the district.

Table 13: Sources of market information

Source of information	Baseline		Endline	
	Number of households	Percentage	Number of Households	Percentage
Radio adverts	7	10.0%	98	18.2%
Company agents	16	22.0%	86	15.9%
Market places	40	56.0%	154	47.1%
Farmer organizations	10	14.0%	35	6.4%
Friends/relatives	30	42.0%	233	43.2%
Development partners	1	1.0%	8	1.4%
NURI extension workers	0	0.0%	302	55.9%
Others sources	2	3.0%	1	0.1%

Given the different modes of marketing and sources of market information, the survey asked farmers whether they had any challenges with marketing in 2020. It emerged that at least 50.4% of the farmers faced marketing challenges. Key challenges reported are presented in Figure 6 below.

Figure 6: Marketing challenges facing farmers in 2020

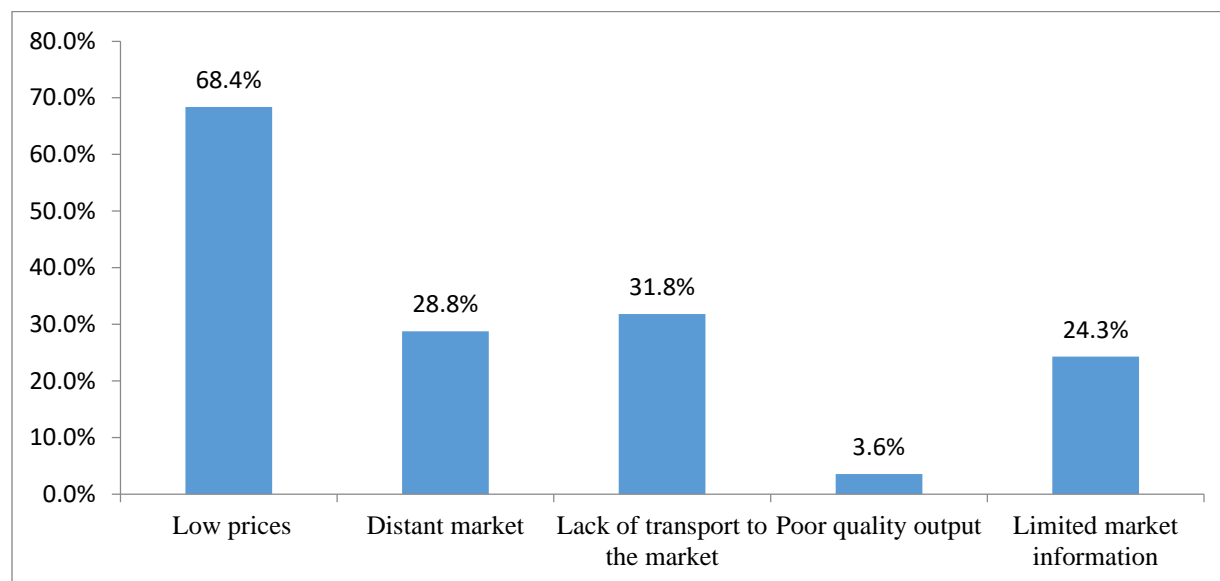


Figure 6 revealed that the major marketing challenges were low prices for the produce, lack of transport means to the market, long distance to the market and limited market information. At baseline, marketing challenges were not specifically measured, hence the absence of comparison at endline. However, overall, when farmers were asked to compare marketing situations between baseline (2018) and 2020, 76.7% reported that the situation was better in 2020 compared to 2018.

2.9 Household Participation in Village Savings and Loan Association (VSLA)

NURI programme support farmer groups to form or strengthen existing village savings and loans associations to allow members to save to earn interest and borrow money for different purposes, including for the purchase of agricultural inputs and expenses relating to production processes. The survey assessed the participation of households in VSLA, access to and quality of VSLA training, youth participation in VSLA, access of the participating members to other credit facilities other than VSLA, savings and borrowing patterns, and the use of loans.

The endline survey established that up to 98.5% of the farmers are actively participating in VSLA activities. Baseline report established that 78% of the farmers have participated in VSLA at some point but only 38% were formally/actively participating. The endline findings, therefore, represent a 60.5% increase in active participation in VSLA activities. The few farmers who are not actively participating in VSLA activities attributed it to the absence of VSLA in their villages and lack of training in VSLA methodology.

Of the farmers (98.5%) who are actively participating in VSLA activities, 99.3% received training in VSLA. Table 14 below presents the various sources of VSLA methodology training.

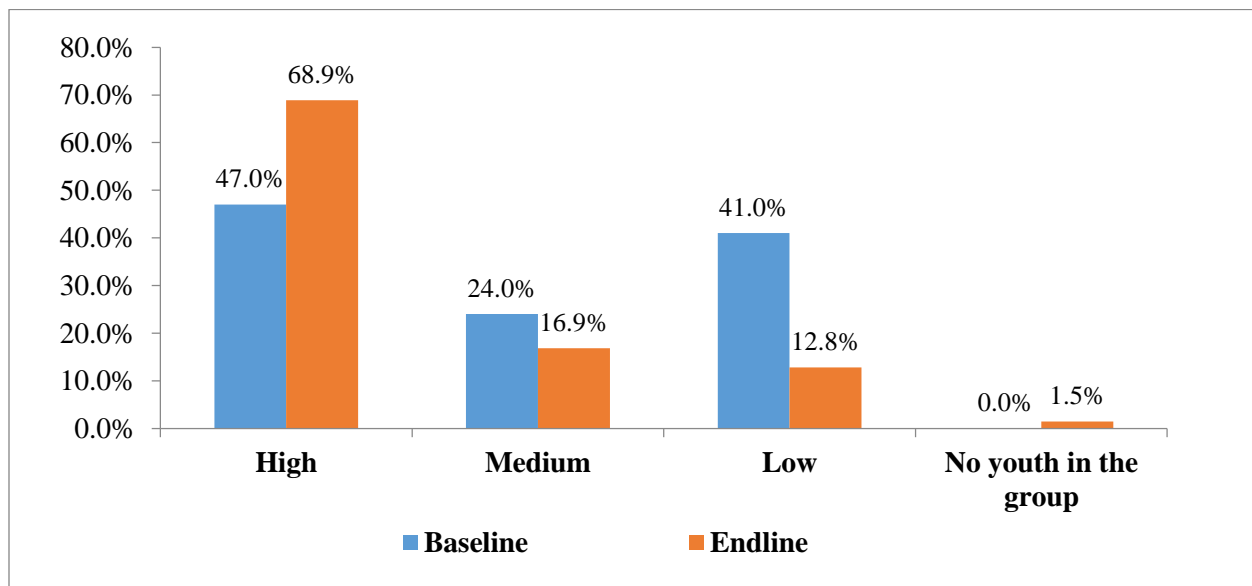
Table 14: Sources of VSLA methodology training

Sources of training	Baseline	Endline
Community Based Trainers (CBTs) from NURI	0.0%	98.7%
Trainers from other NGOs	61.0%	1.1%
Learnt from another group	29.0%	0.2%
Other sources	10.0%	0.0%
Total	100.0%	100.0%

The above Table shows a huge variation in the sources of training on VSLA methodology between the baseline and endline with the endline indicating that most of the training (98.7%) were provided by NURI CBTs. As to the rating of the training being provided by CBTs, 67.8% of the farmers who received the training rated the quality as “very good” and 31.8% as “good”.

The participation of youth was assessed by asking respondents to rate on the scale of high, medium, low and unable to rate because there is no youth in the group. Overall, youth participation was rated as high (68.9%), medium (16.9%), low (12.8%) and no youth in the group (1.5%). These ratings, particularly the high and medium presents a significant improvement from the baseline period as presented in Figure 7 below.

Figure 7: Youth participation in VSLA



In addition to VSLA, the study also assessed access of the farmers to other credit facilities in the community such as microfinance institutions, banks, individual savings etc. to finance agricultural activities in the last two years. It was found that the key sources of finance for agricultural activities remained the sale of agricultural produce (79.8%), individual savings (48.8%), and borrowing from family and friends (22.3%). These findings did not vary much from the baseline, which much as it covered 7 districts in West Nile and Acholi sub-regions, it found similar sources with the sale of agricultural produce constituting 67%, and individual households savings constituting 64%. Comparatively, the sale of agricultural produce and savings remain the key sources, which imply the more farming households can produce, the more likely they will earn and save more and subsequently more finance for boosting agricultural production. This is already evidenced by the production pattern and household income examined in sub-section 2.2 and 2.7.

Comparison of savings also indicates that 72.3% of farmers were able to save more money in 2020 due to more farmers moving to a higher income range in 2020 compared to 2018 when they just joined the programme⁶. The baseline average savings in Agago was UGX 138,411/= . The 2020 average savings for Agago was established at UGX 225,709/=, which is a 63% increase from the baseline.

During the programme period of 2019 and 2020, 95.2% of the farmers participating in VSLA acknowledged borrowing from the group. The average borrowing for 2018 (baseline year) was UGX 77,797/= and UGX 174,366/= for 2020 (endline year). This increase in average borrowing, therefore, was 124%. The farmers during FGDs attributed the increase in savings and borrowings

⁶ Note that much as the average household income for the households decreased in 2020, the number of farmers moving in the higher income range increased by 11.6% for the income range of UGX 200,001 to 1,400,000 and 2.2% for the income range of UGX 1,400,001 to 2,200,000. (See Section 2.2).

to VSLA methodology training provided to the group by the RAU and the increase in household income from the improved production outputs. Worth noting here however is the fact that much as the average income for 2020 decreased, more households moved from lower to higher income range, hence the explanation for the reported increase in income, savings and borrowing in 2020.



Photograph 6: Farmers during their weekly VSLA session

As prior mentioned, the savings and sale of agriculture outputs are the major sources of finance for finding household agricultural production. For members of the farming groups participating in VSLA and happened to borrow money, the use to which the loans are subjected is summarized in Figure 8 below.

Figure 8: Use of VSLA loans

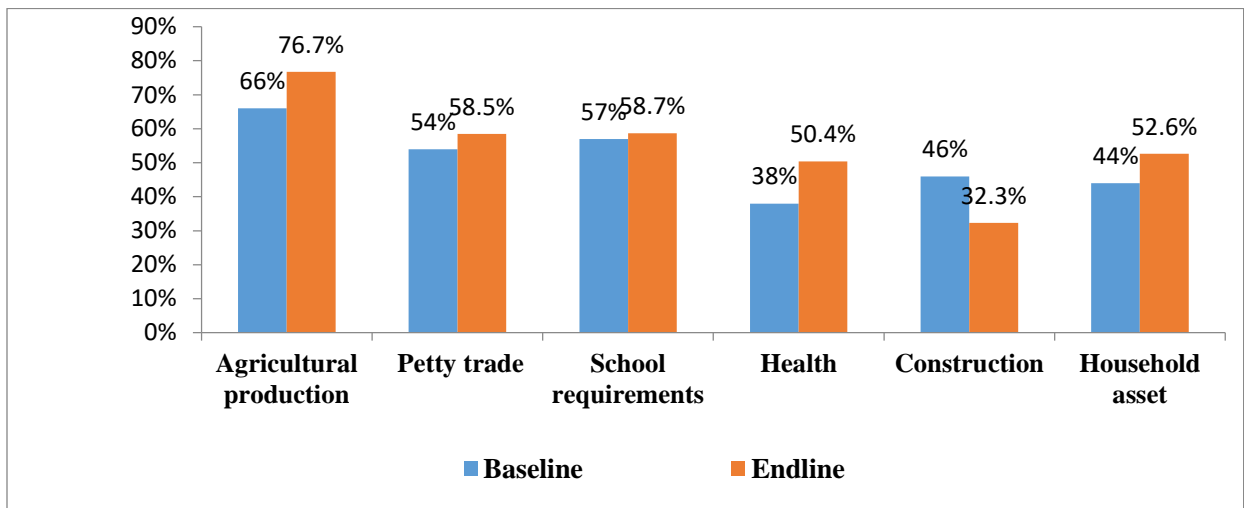


Figure 8 indicates that agricultural production remained the major activity in which loans are invested. This is followed by school requirements, petty trading and purchase of household assets. However, comparatively the amount of loans borrowed and allocated to the different assets has increased between the baseline and endline period except for the amount allocated

for construction. The survey team was able to identify some successful purposes (especially agricultural production) to which members of the groups invested the loans as in the case of Janet below.

Before 2018, Janet and her husbands were both seasonal farmers with the husband taking on fishing to supplement the household income. In 2019, they both joined Nen Anyim farmer group in Adilang Sub-county and took loans from the group's VSLA. Janet bought 6 piglets and successfully raised and sold them. From the proceeds, she bought her pair of oxen and ox-plough. She also bought 6 goats and within the last two years, she was able to set up a paddock for the goats.

Today, on average the family earns approximately UGX 3 million per year. The Husband has also acquired a new motorcycle to use as boda boda (local motorcycle transport). Also, Janet recalled that before 2019 her husband and she were experiencing gender based violence in their family, but the SRHR and GBV training provided in the group helped them greatly in reducing and eliminating the violence. The elimination of the violence was further reinforced by good guidance and counselling from the elders in the group. She said the increased and stable income reduced the level of household tension and uncertainty. She now enjoys her life and marriage profoundly.



Photograph 7: Janet (L) in her goat paddock with a NURI field staff (C) and a group member (R)

2.10 Gender and Youth Participation in Agricultural Production

Gender and youth participation was considered for different stages of agricultural production, challenges faced during the division of roles, and how the participating households tried to address the challenges.

Participation of different members of the household in agricultural production was assessed by asking the respondents representing the households to list the members of the household involved at a given stage of production and mention who is responsible for mobilization for the activities. Table 15 below presents the summary of the findings.

Table 15: Participation of household members at different stages of agricultural production

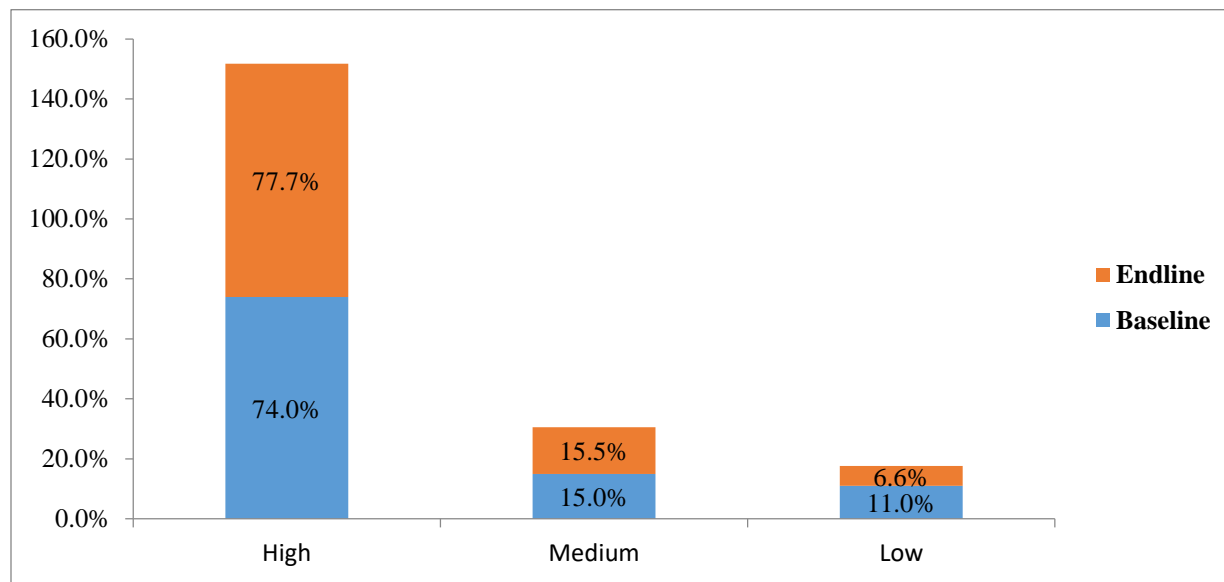
Stages of Agricultural production	Adult female		Adult male		Children		Adult female and adult male		Adult female and children		Adult male and children		All household members	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Land opening and preparation	128	23	373	68	0	0	42	7.6	5	0.9	0	0	3	0.5
Planting	91	17	332	63	0	0	91	17.2	5	0.9	0	0	10	1.9
Weeding (1 st and 2 nd)	357	65	132	24	0	0	41	7.5	4	0.7	0	0	14	2.6
Pest and disease management	140	28	259	52	8	1.6	25	5	3	0.6	1	0.2	9	1.8
Harvesting	210	38	227	41	0	0	0	0	5	0.9	0	0	38	6.9
Post-Harvest handling	296	54	153	28	1	0.2	55	10	5	0.9	0	0	36	6.6
Marketing	109	20	341	62	1	0.2	79	14.3	2	0.4	0	0	17	3.1
Planning for the new season	91	17	332	63	0	0	91	17.2	5	0.9	0	0	10	1.9
Use of income from production	210	38	227	41	0	0	0	0	5	0.9	0	0	38	6.9

Table 15 shows that female and male adult members of the households participate more than any other age group in mobilizing at the different stages of agriculture production. Between the female and male adults, male adults participated more in mobilizing for land opening (68%), planting (63%) harvesting (41%), marketing (62%), planning for the new season (63%) and use of income from the sale of the agricultural outputs (41%). On the other hand, the participation of female adults in mobilizing is higher during weeding (65%) and post-harvest handling (54%). A similar pattern was confirmed by FGD participants and key informants. However, this endline survey was not able to compare the endline situation with that of the baseline as the baseline

report provided only aggregate instead of district-specific status for both Acholi and West Nile sub-region districts.

For the case of youth, their participation is rated as high overall during both baseline and endline. Figure 9 below presents the baseline and endline comparison with increased participation of youth during endline to 77.7% from 74% at baseline.

Figure 9: Youth participation in agricultural activities



2.11 Sexual Reproductive Health and Rights and Gender Based Violence Prevention and Response

Sexual reproductive health and rights (SRHR) and gender based violence (GBV) prevention and response are cross-cutting activities mainstreamed in the programme to promote health, peace and harmony in the households of the participating farmers. Much as CARE International in Uganda is the lead agency for these mainstreamed activities, NURI field extension staff also promotes awareness on SRHR and GBV in the farmer groups they work with.

The survey in assessing these mainstreamed activities assessed access to awareness training from NURI programme and other partners; how the awareness training improved SRHR services and GBV awareness, prevention and response; and access to SRHR and GBV services.

Access to awareness training on SRHR is essential in increasing knowledge and potential demand for services. Respondents were asked whether they received such training during their participation in the NURI programme and who provided the training. It was found that 85.3% of the respondents received training on SRHR compared to 88% at baseline. This however should not be necessarily considered as a decrease in the number as the baseline sample for Agago was only based on 72 respondents, compared to 554 respondents for endline value. SRHR training in the community is provided by different stakeholders summarized in Table 16 below.

Table 16: SRHR service providers in Agago

Agencies Providing SRHR training	Baseline	Endline
Care international (Sector lead)	0.0%	19.6%
Trainers from other NGOs	31.0%	16.9%
Government health workers	78.0%	31.8%
Family and friends	12.0%	8.6%
NURI Extension staff	0.0%	75.7%
Other agencies(including government officials)	7.0%	0.0%

Table 16 comparison of sources of training between baseline and endline revealed an interesting pattern. For instance, in 2020, NURI staff was the main providers of information on SRHR compared to government health workers who were responsible for only 31.8% and yet government health workers were the main providers of training on SRHR in 2018. The reason for this variation, in addition to the fact that SRHR is only mainstreamed in the programme, was because health workers contact with the community was drastically reduced due to the Covid-19 pandemic lockdown that limited access and contacts. However, NURI extension workers maintained contact with the farming groups, hence the opportunity to provide more information on SRHR than other partners. A similar reason can explain the lower percentages of training by CARE International and other NGO partners in the district.

Of the 85.3% of respondents who received awareness training on SRHR, 96.5% acknowledged that the training they received on SRHR and GBV has been helpful in their communities. Some of the benefits of the training include reduction in GBV; improved relations in the families; improved knowledge of SRHR services and where to access them; and improved knowledge of GBV referral pathways.

To ascertain whether the SRHR awareness resulted in increased service uptake, the assessment examined the utilization of family planning services in the households and where households access such services. A comparison between endline and baseline are summarized in Table 17 below.

Table 17: Use of family planning and sources of service

Use of family planning in the households	Baseline	Endline
Household using family planning	49.0%	51.4%
Sources of family planning services		
Health facilities	88.0%	78.9%
Local clinics	3.0%	11.8%
Family and friends	13.0%	7.8%
Development partners centres	3.0%	0.4%

For the households not using family planning, the main reason provided was fear of side effects.

2.12 Staff Performance

The implementation of the CSA programme at the district level is conducted by RAU, which comprises a coordinator, extension supervisor and extension officers. This is the team that is in constant contact with the farmer groups. To ensure quality implementation of planned activities, the programme had a provision for staff capacity development. The survey sampled five of the RAU staff to assess the nature of capacity development, the usefulness of the acquired skills and knowledge, and gaps to be addressed.

Findings on the nature of capacity development indicated that all the recruited staff received trainings relevant for the performance of their duties. Key capacity development trainings provided were in the area of climate smart agricultural practice, monitoring and evaluation, financial management, human resource management, post-harvest handling, VSLA, production and marketing, plant clinic and demonstration plot establishment. In addition, the programme developed manuals for the various programme components such as VSLA, financial management, post-harvest handling, and collective marketing among others to guide the staff in their activities.

As to the usefulness of the acquired skills and knowledge, RAU staff confirmed that they were able to use the acquired skill to effectively perform their duties. The key areas for improvement proposed were further trainings in report writing, teamwork, performance management and communication skills.

3.0 Conclusion and Recommendations

3.1 Conclusion

Overall, the intervention contributed commendably to the well-being of the farmers who are participating in CSA in terms of improving the level of household income, reducing food insecurity, increasing production assets, promoting access to improved outputs, provision of marketing information, promoting VSLA, contributing to awareness on SRHR and GBV, and building the capacity of Resilience Agricultural Unit (RAU) to provide better services to the farmers. However, it also emerged that not all the sub-counties of intervention is at the same level of performance. For instance, for the sub-counties sampled in the endline survey, Lira-Palwo and Wol are categorized as high performing, Omiya-Pacwa and Arum categorized as medium performing and Lapono and Adilang as low performing. Therefore, if not for the ending of the programme period, additional support to the medium and low performing would elevate these sub-counties to a similar level of high performance with a comparatively greater impact on the wellbeing of the households.

3.2 Recommendations

The following recommendations are proposed to guide the intervention in the remaining implementation period and similar future interventions:

1. Extension services to farmers should include training in land conflict resolution to equip the farmers with knowledge and skills in land conflict resolution mechanisms. This will go a long way in mitigating impacts such as disruption of agricultural production. The survey noted that land dispute was one of the main challenges affecting land access in the households and has affected the participation in the programme for at least 11.2% of the participating households.
2. There is a need to improve market linkages between farmers and input dealers in a similar intervention as one of the initiatives. Currently, farmers are having challenges accessing inputs as they have to move long distances. Input dealers are not readily accessible in the community.
3. There is a need to strengthen access to market information from other sources such as radio, mobile SMS, and farmer organizations to enable farmers to find high paying markets for their agricultural products, which would result in higher income as farmers can link up with buyers offering higher prices. This initiative should go hand in hand with further strengthening collective marketing which is still low in the community as indicated in Figure 5.
4. There is a need to encourage VSLA groups to save their accumulated cash savings up to a range they feel cannot be securely kept in the cashier's household in a cash box, with financial institutions such as banks and deposit receiving microfinance institutions in the district. The survey noted that a number of the groups still keep a substantial amount of cash in metal boxes which, much as the locking arrangements between members is a good initiative, it can still be vulnerable to theft and vandalism. Already many financial institutions have developed financial products to cater for the savings needs of VSLA groups, which should be explored.
5. Equitable gender participation in agricultural production required additional promotional effort especially mobilizing for stages such as weeding, post-harvest handling, planning for the new season and use of income from the sale of outputs. This can be emphasized to the farmers for instance, during the extension visits by the extension workers and could gradually get adopted. Currently, mobilizing for weeding and post-harvest handling are done mainly by women while men are more involved in planning for the next season and use of income from the sale of outputs.
6. A similar intervention needs to give adequate consideration to the design and execution of the programme baseline study at the inception stage. The baseline study for this intervention, specifically in the case of Agago district for which this endline study focused was based on a smaller sample size of 72 households compared to 554 households at the endline. Much as the population targeted was considered homogeneous, the smaller baseline sample affects precision in measurement, especially where comparison of the status of indicators has to be undertaken between baseline and endline period. Additionally, all baseline indicator variables need to be desegregated, especially where more than one district is involved to allow comparison. This was because some of the baseline data were presented at the aggregate level only.

4.0

Appendix

4.1 References

1. Uganda Bureau of Statistics 2017, The National Population and Housing Census 2014 – Area Specific Profile Series, Kampala, Uganda
2. NURI – FC, 2018. Development Engagement Document. 2018 – 2022. Royal Danish Embassy, Kampala, Uganda
3. Ministry of Foreign Affairs, Danida, Northern Uganda Resilience Initiative (NURI). Agago District Monitoring Survey Plan, 2018 – 2022. Kampala, Uganda.

4.2 Indicator Summary Table

S/No.	Indicator	Baseline Status	Endline Status
Annual agricultural cash income			
	% increase in average annual agricultural cash income of participating households	UGX 1,540,540	-12.6%
	% increase in the number of households that earned income in the range of UGX 200,001 to 1,400,000.	53.0%	64.6%
	% increase in the number of households that earned income in the range of UGX 1,400,001 to 2,200,000.	6.5%	8.7%
	% of households regarding agriculture as their main source of income	83.0%	99.3%
Reduction in the period of food insecurity			
	% of households reporting period of food insecurity	Not specifically measured	45.1%
Availability of production assets			
	% of farmers/households reporting an increase in production assets.	Not applicable	84.9%
	% increase in the value of production assets in the households.	Not applicable	7.0%
	% increase in the quantity of production assets in the households	Not applicable	29.1%
Access and use of improved agricultural inputs			
	% of farmers using improved agricultural inputs	58.1%	84.5%
	% of framers reporting acquiring skills on the use of inputs from NURI extension staff	NA	97.8%
Yield for strategic crops			
	Cumulative percentage increase in average	NA	16.3%

yields per acre for strategic crops		
Access to market and market information		
% of farmers adopting collective marketing strategy for strategic crops.	Not measured	24.8%
Household participation in VSLA		
% of farmers actively participating in VSLA activities	38.0%	98.5%
% of households that received training in VSLA methodology	67.0%	99.3%
% of households reporting high youth participation in VSLA activities	47.0%	68.9%
% of VSLA loans used for agricultural purposes by farmer groups	66.0%	76.7%
% of farmer groups that report increased savings by at least 20% compared to the previous year	Not applicable	72.3%
Gender and youth participation in agricultural production		
% of households reporting high youth participation in agricultural production	74.0%	77.7%
Sexual reproductive health and rights and gender based violence		
% of participating households receiving training in SRHR and GBV	88.0%	85.3%
Staff performance		
% of staff reporting increased ability to meet their performance	NA	100%