THE REPUBLIC OF UGANDA

MINISTRY OF AGRICULTURE, ANIMAL INDUSTRY & FISHERIES

FARMER REGISTRATION REPORT

KALUNGU DISTRICT

MAY 2020

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CHAPTER ONE: BACKGROUND

1.1 Introduction

This report presents findings of the farmer registration pilot exercise that was conducted by the Statistics Division team of the Ministry of Agriculture Animal Industry and Fisheries in collaboration with the Agriculture Cluster Development Project (ACDP) Coordination Unit team that provided technical guidance. The first chapter presents the objectives as well as the methodology that forms the basis of presentation of the survey findings, it also presents the scope and field organization as well as a brief on the data cleaning and analysis. The second chapter presents the findings from the activities that were implemented. Chapter three presents the achievements realized to date while Chapter four presents the challenges and recommendations for the next phase of implementation.

1.2 Background

Over the years, the Agricultural Sector has suffered from lack of reliable, accurate and timely data to inform decision making. Agricultural data are required by a broad spectrum of stakeholders including; Government; the private sector; the NGO's; Academia; the Donor community and the wider public including the farmers for a variety of purposes. Although there are many producers of Agricultural data in the country, they are not coordinated and the Agricultural statistics system remains fragile, vulnerable and not fully developed. This is reflected in the lack of consistent, reliable and data from the several players in the agricultural sector. This prompted Government to establish a one stop center for Agriculture data in the Ministry of Agriculture, Animal Industry and fisheries under the National Food and Agricultural Statistical System (NFASS) Project.

The Ministry's ASSP 2015/16-2019/20 identifiedd setting up an efficient National Food and Agricultural Statistics System as one of the sector priorities if the sector is to provide timely and accurate data for policy and decision making. The overall goal of the NFASS is to ensure that data related to the Agricultural sector is accurate, timely, consistent, disaggregated and accessible so as to facilitate planning, and decision making. The NFASS focuses on; utilizing the data collected optimally so as to reduce the cost of data collection; harmonizing data collection protocols across MDAs and institutional partners; and, establishing a permanent field data collection system. The NFASS is implemented in 3 components namely; the Institutional component, The Data center which houses the database; and, the Routine Agriculture Administrative Data System. The Ministry started implementing the NFASS

project in FY 2015/16 which was mainly government funded and with the help of USAID-EEA was able to set up a state of the art Data center at MAAIF headquarters and also set up a MAAIF data base.

The Ministry in collaboration with the World Bank started implementing the Agriculture Cluster Development project (ACDP) in 2016 to support activities that will raise both productivity and production of maize, beans, cassava, rice, and coffee in 57 districts clustered into 12 high-potential agricultural areas. The project is implemented through four components namely; (i) support for intensification of on-farm production; (ii) value addition and market access; (iii) policy, regulatory and institutional support; (iv) Project coordination and ICT platform.

In 2018, the ACDP project was restructured and added a subcomponent 3.3 to support the implementation of the National Food and Agricultural Statistics System. Under this sub-component, all administrative data; surveys including systematic surveys of the number and capacity of inputs producers and producer organizations and systematic monitoring and transparent reporting on farmers and efforts to bulk their demand for inputs; sector studies; pest and diseases surveillance data; and any other sector data were to be undertaken.

Implementation of subcomponent 3.3 began in 2019 with all efforts focused on setting up the Routine Agricultural Administrative Data System (RAADS) and in order to set up the RAADS, there was need to have a sampling frame from which sample households for data collection will be drawn. The need for the sampling frame together with the national requirement to register farmers prompted the development of the National farmers register which was to be administered to all farming households in the country. After registration of farmers is completed, data collection using the already developed tools can then commence in the districts.

The Statistics division with assistance from the ACDP-PCU started piloting the Farmer register in 5 pilot districts including Kalungu to draw lessons that can be used in the roll out to the rest of the districts in the country.

1.3 Objectives

The primary purpose of this activity was to register and have a central database in the Ministry Data Center of all farmers in the country who practice agriculture for planning purposes.

Specifically, the Farmers' Registration exercise will provide;

1. Government with an estimate of the number of farmers in the country engaged in different Agricultural enterprises or values chains relevant for planning purpose and making investment decisions;
2. A sample frame for the routine data collection
3. A detailed understanding of the agricultural technology adoption in Uganda.
4. Provision of background information about the farmers (ie name, location, farm size, enterprise involved in, etc.) in Uganda

1.4 Methodology, Scope and Field Organization

The exercise started with the training of the 39 Parish Chiefs and 7 Extension staff which was conducted at Town Council Hall of Kalungu District. During the training, emphasis was put on articulating instructions regarding interviewing techniques and field procedures and a detailed review of the farmers register. The trainings mainly used English but translations were constantly done to ensure accurate re-translation and adequate understanding in order to assist in application during translation to local languages in the farmer registration exercise.

The training also involved use of visuals and power point presentations. The Parish Chiefs and Extension Staff were also taken through an illustration that they used as a field scenario example. At the end of the training, the parish chiefs and extension officers were commissioned to their respective Parishes/Sub counties to start the actual farmer registration. The registration exercise utilised the Paper Assisted Personal Interviewer (PAPI) where by the farmers' register books were printed and distributed across parishes.

During the actual data collection, teams consisting of cluster supervisors from the Ministry headquarters were routinely dispatched to the field after having been trained in data quality control procedures and field work coordination. They were also provided with a supervisor's manual to assist in carrying out their duties. At District level, supervision was also carried out by the District Production & Marketing Officers and the District Agricultural Officer (ACDP focal persons)

The procedures for supervision and communications between the Statistics Division and the interviewing teams during data collection were specified in the manuals and discussed during training for the farmer registration exercise. Close communication was maintained at all times between the Statistics Division and ACDP- PCU.

The registration covered all farmers in all villages to enable construction of the sampling frame for use in subsequent routine data collection.

The completed farmer registration books were assembled at the Sub county headquarters and the Extension staff entered the data in tabs using the Computer Assisted Personal Interviewer (CAPI). The data was subsequently sent to the Ministry headquarters for Cleaning and Analysis

1.5 Data cleaning and analysis

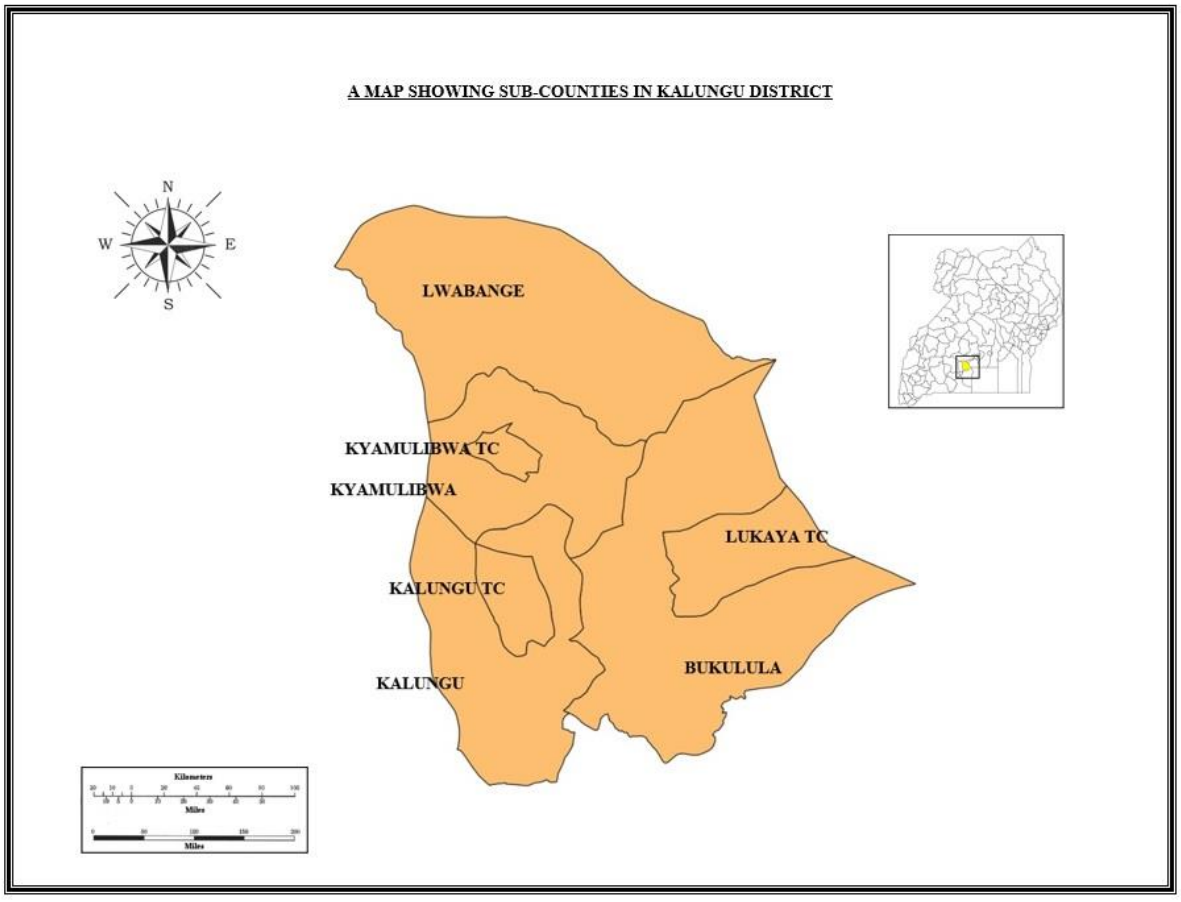
After data collection, the Statisticians extracted and merged all data from the different Pilot districts and exported to STATA. Cleaning was done to check out for inconsistencies and outliers. Data was analysed using STATA to obtain statistical outputs including frequencies and percentages in tabular and graphical forms. The statistical outputs were later extracted and presented in more acceptable tables ready for interpretation

CHAPTER TWO: SOCIO ECONOMIC CHARACTERISTICS

2.1 Introduction

This chapter presents information on; the distribution of Administrative units registered; distribution of Agriculture households by Sub County; the classification of Agriculture households by sex and age of household heads by Sub County; and type of farming activity involved in and the main purpose.

2.2 Map of Kalungu District showing Sub counties



2.3 Distribution of Administrative Units registered

A total of 24,766 farming households from 271 Villages, 39 Parishes/Wards and 7 Sub Counties including Town Councils were registered during the exercise as shown below. At the time of registration, Kalungu district consisted of four (4) sub counties and three (3) Town councils (TC).

Table 1: Number of administration units registered

Sub-county/TC	Parish	Village
Bukulula S/C	8	70
Kalungu S/C	9	54
Kalungu T/C	4	15
Kyamulibwa S/C	5	39
Kyamulibwa T/C	5	14
Lukaya T/C	4	19
Lwabenge S/C	4	60
Total	**39**	**271**

2.4 Gender disaggregation of Farming households

Table 2 below shows that 13,547 (54.7%) of farming households registered were male headed while 11,219 (45.3%) were female headed. Kyamulibwa TC, Bukulula, Kalungu, Kyamulibwa and Lwabenge had a higher proportion of male-headed farming households while Kalungu TC and Lukaya TC had a higher proportion of female headed farming households.

Table 2: Number of farming households by Sub County and sex of household head

Sub County	Male Proportion	Female Proportion	Total Number
Kyamulibwa T/C	50.5	49.5	957
Bukulula	51.5	48.5	7,791
Kalungu	54.9	45.1	4,349
Kalungu T/C	47.7	52.3	1,116
Kyamulibwa	52.5	47.5	3,430
Lukaya T/C	47.4	52.6	1,582
Lwabenge	64.7	35.3	5,541
Total	**54.7**	**45.3**	**24,766**

A total of 3,541 farming households were headed by youths (18-30years). Majority of farming households (11,219) were headed by individuals aged between 31 and 50 years. Crop cultivation was the most common type of farming activity across all age groups followed by livestock rearing.

Table 3: Number of farming households by Sub County and age of household head

Sub County	18-30	31-50	51-70	71 &Above	Total

Bukulula	13.8	45.2	30.9	10.1	7,791
Kalungu	10.9	43.2	36.1	9.8	4,349
Kalungu T/C	12.9	40.7	32.5	13.9	1,116
Kyamulibwa	13.6	44.1	33.4	9.0	3,430
Lukaya T/C	18.9	53.0	24.9	3.2	1,582
Lwabenge	17.1	46.9	27.9	8.1	5,541
Kyamulibwa T/C	14.4	44.5	31.8	9.3	957
Total	**14.3**	**45.3**	**31.2**	**9.1**	**24,766**

2.5 Disaggregation by Farming activity

Findings revealed that majority of the farming households in Kalungu district were involved in crop cultivation (96.7%). Kyamulibwa TC had the highest proportion of households engaged in crop cultivation at 100%. Overall, 75.5% of households were involved in livestock rearing with Kalungu TC having the highest proportion at 84.5%. Less than 1% of households were involved in aquaculture with Lukaya TC having the highest proportion at 0.9%. Overall, 0.58% of households were involved in apiculture with Kyamuibwa Sub County having the highest proportion at 1.43%.

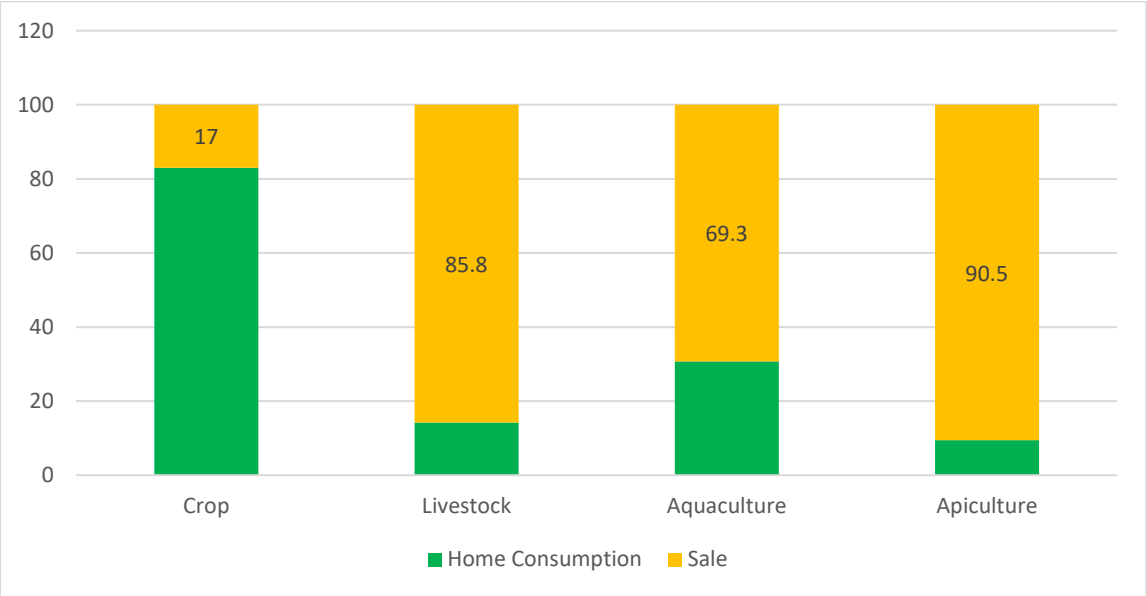
Table 4: Proportion of households practicing each farming activity by Sub County

Sub County	Crop	Livestock	Aquaculture	Apiculture
Bukulula	93.2	63.8	0.08	0.44
Kalungu	98.2	80.1	0.07	0.23
Kalungu T/C	99.6	84.5	0.00	0.36
Kyamulibwa	99.9	87.1	0.12	1.43
Lukaya T/C	94.1	66.8	0.88	1.39
Lwabenge	98.1	80.1	0.18	0.42
Kyamulibwa T/C	100.0	84.6	0.21	0.21
Total	**96.70**	**75.50**	**0.16**	**0.58**

2.6 Main purpose of the farming activity

Figure 1 reveals that fifty two percent (52%) of farming households in Kalungu are involved in agriculture activities with the main purpose of acquiring food (subsistence farming). Most (83%) of the farming households that grow crops mentioned home consumption as the main purpose of the farming activity while the main purpose of livestock farming is sale (86%). A higher proportion of apiculture and aquaculture households reported the main purpose of the farming activity as sale.

Figure 1: Main Purpose of farming activity



CHAPTER THREE: CROP CULTIVATION

Introduction

The results revealed that Cereals were the most commonly grown crop category in Kalungu district followed by leguminous crops. Fruits and vegetables were the least commonly grown crops in the district. On average, less than 22% of households grow Vegetables and Fruits.

Kyamulibwa Sub County had the highest proportion of households growing oil seeds and palm (63.6%), plantains (95.7%), Root Tubers (96.8%) and Tree Crops (94.2%). Kalungu TC had the highest proportion of households growing fruits at 34.3% while the majority of households in Lukaya TC grow Vegetables (39.9%). Furthermore, a higher proportion of households in Kyamulibwa TC grow Cereals and leguminous crops at 97.7% and 96.9% respectively.

Fruits were the least commonly grown crop category in all Sub Counties except Kalungu TC where Vegetables were least commonly grown.

Table 5: Proportion of households growing the different Crop Categories by Sub County

Sub County	Cereals	Leguminous	Oil seeds &Palm	Vegetables	Root Tubers	Fruits	Plantains	Tree Crops
Bukulula	82.3	79.5	36.9	25.9	70.9	16.8	65.0	53.9
Kalungu	83.5	79.9	32.7	11.0	70.1	9.6	89.8	78.4
Kalungu T/C	92.4	88.7	52.9	17.6	89.3	34.3	90.5	80.6
Kyamulibwa	95.7	93.4	63.6	29.5	96.8	25.4	95.7	94.2
Lukaya T/C	81.7	72.6	38.3	39.9	71.5	33.7	62.2	61.5
Lwabenge	94.4	91.3	41.3	13.9	87.8	11.6	83.6	81.8
Kyamulibwa T/C	97.7	96.9	46.0	21.3	94.3	9.7	93.5	93.3
Total	**88.1**	**84.8**	**42.0**	**21.5**	**79.9**	**17.1**	**79.9**	**73.3**

3.1 Households involved in Crop Production

3.1.1 Cereals

The study results in Table 6 below revealed that maize was the most commonly grown cereal in all Sub Counties with Kyamulibwa TC having the highest proportion at 97.7%.

Overall, less than 1% of the households grew Wheat while Sorghum, Rice and Finger Millet were grown by only 1% of households in the district. Lukaya TC had the highest proportion of households growing Rice at 3.3% while Kalungu TC and Lwabenge had the highest proportion growing Finger Millet at 0.8%.

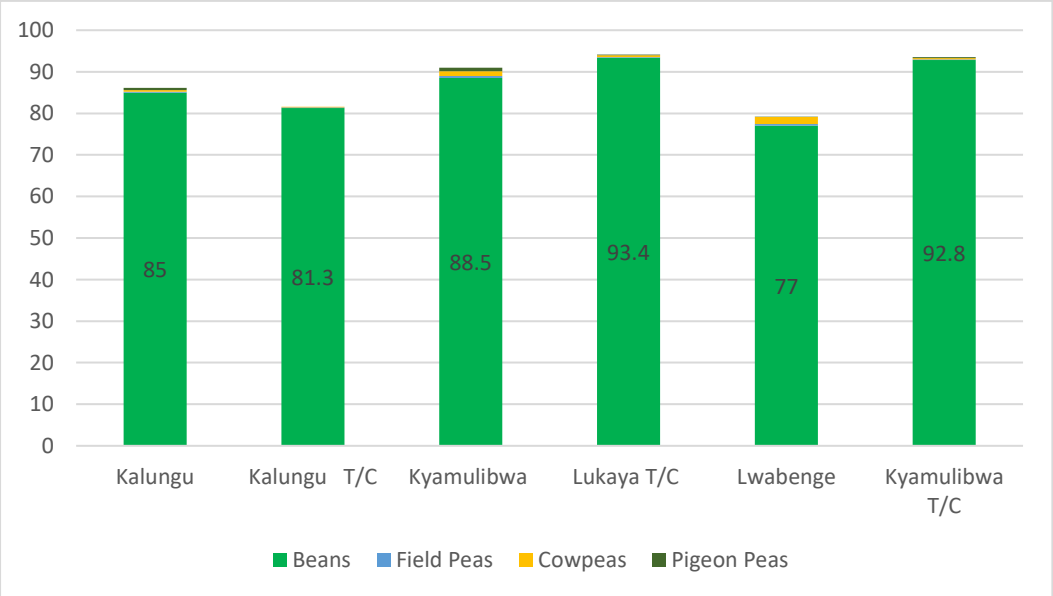
Table 6: Proportion of households growing cereals by Sub County

Sub County	Cereal Crops				
	Wheat	**Rice**	**Maize**	**Finger Millet**	**Sorghum**
Bukulula	0.1	0.3	87.9	0.4	0.7
Kalungu	0.1	0.2	84.7	0.2	0.7
Kalungu T/C	0.1	0.2	92.6	0.8	0.8
Kyamulibwa	0.1	0.3	95.6	0.4	1.1
Lukaya T/C	0.1	3.3	86.2	0.7	0.9
Lwabenge	0.2	0.3	95.9	0.8	0.5
Kyamulibwa T/C	0.1	0.2	97.7	0.4	0.3
Total	**0.1**	**0.5**	**90.8**	**0.5**	**0.7**

3.1.2 Legumes

Beans were the most commonly grown legumes by the households in all Sub Counties. Lukaya Town Council and Kyamulibwa T/C had the highest proportions of households growing beans (93%) while Lwabenge Sub County had the lowest proportion. Less than 1% of households grew Field Peas, Cowpeas and Pigeon peas.

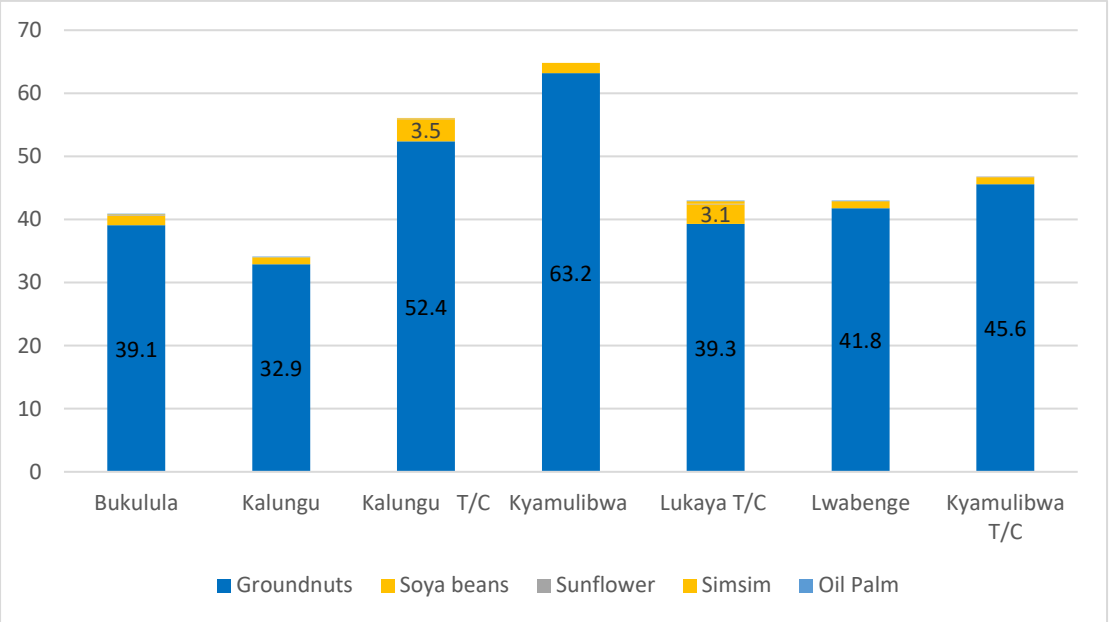
Figure 2: Proportion of households growing legumes by Sub County



3.1.3 Oil seeds

According to the study results in the graph below, Ground nuts were the most commonly grown Oil seeds in all Sub Counties while less than one percent (<1%) of the households grew Simsim, Oil Palm and Sunflower. Kyamulibwa Sub county had the highest proportion of households growing Ground nuts at 63.2% while Kalungu Tc had the highest proportion growing Soya beans at 3.5%.

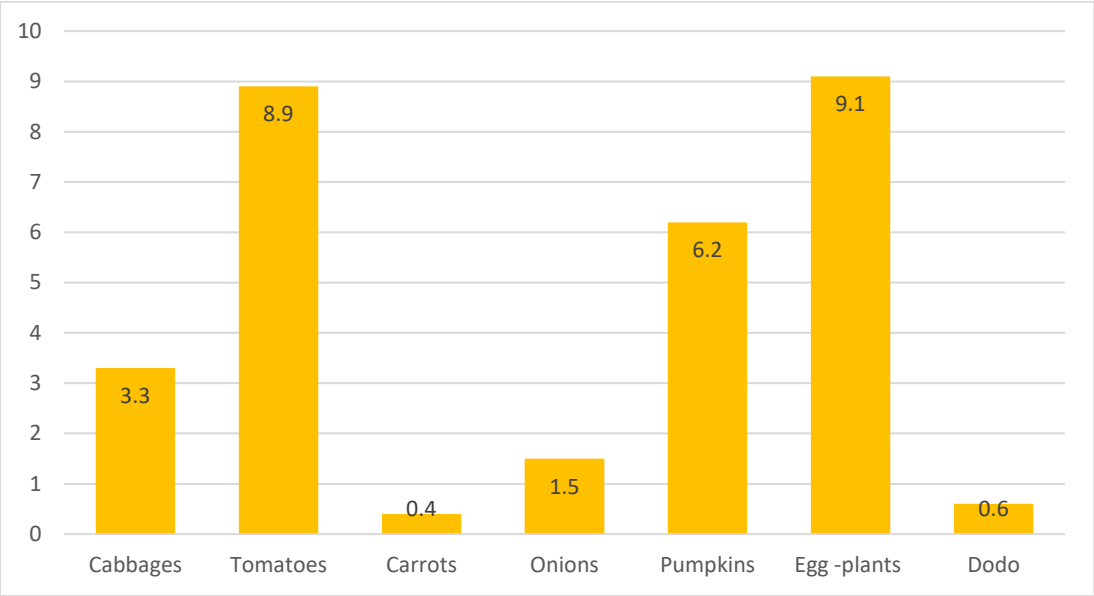
Figure 3: Proportion of households growing Oil Seeds by Sub County



3.1.4 Vegetables

In Kalungu district, 21.8% of the households were involved in vegetable growing. Egg-plants were the most commonly grown vegetable followed by tomatoes in the district. Tomatoes were most commonly grown in Bukulula, Kalungu, Lukaya TC, and Kyamulibwa TC while Eggplants were most commonly grown in Kalungu TC, Kyamulibwa and Lwabenge. Lukaya tc had the highest proportion of households growing Cabbages (11.3%), Tomatoes, (21.3%), Carrots (1.9%), Onions (7%), Pumpkins (15.8%), Eggplants (20.4%) and Dodo (3%). Dodo was least commonly grown in Bukulula and Kyamulibwa TC while Carrots were least commonly grown in Kalungu, Kalungu Tc, Kyamulibwa, Lukaya Tc and Lwabenge at less than 1%.

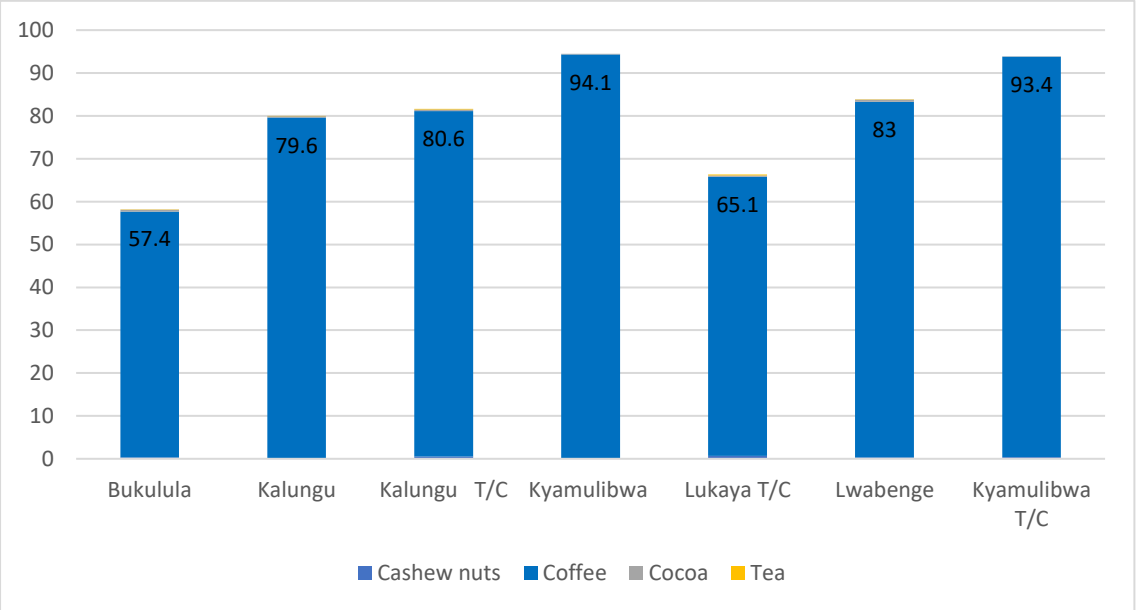
Figure 4: Proportion of households growing Vegetables by Sub County



3.1.5 Tree Crops

Findings in Table 8 below, reveal that Coffee was the most commonly grown Tree crop in all Sub Counties at an average of 75% with Kyamulibwa S/C having the highest proportion growing the crop at 94%. Less than one percent (<1%) of the households grew Cocoa, Tea and Cashew Nuts.

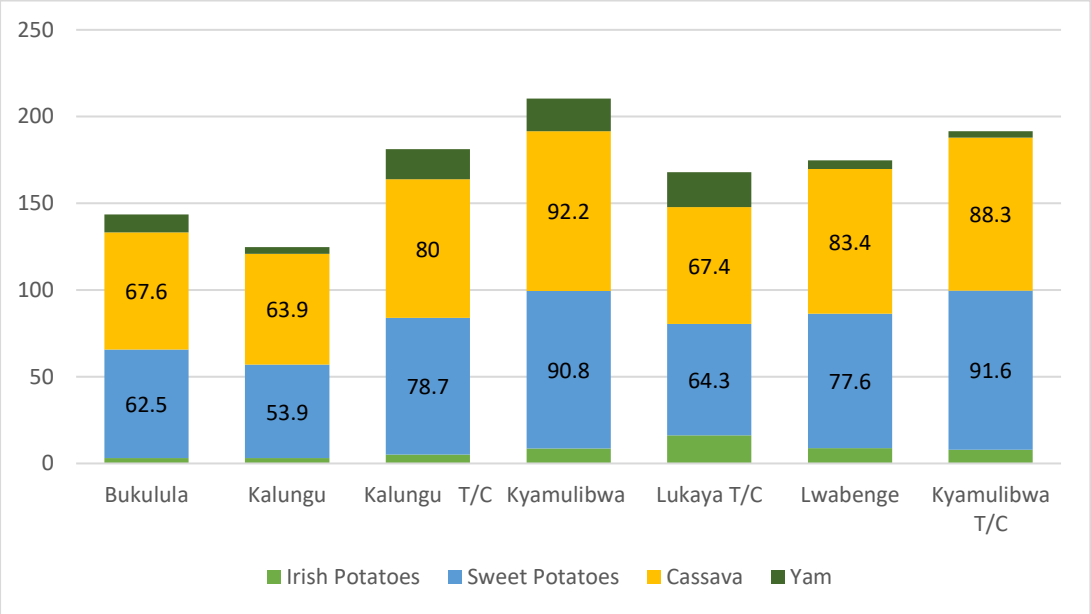
Figure 5: Proportion of households growing Tree Crops by Sub County



3.1.6 Root crops

The most commonly grown Root crop in Kalungu district by households was cassava (75.4%) followed by sweet potatoes (70.5%). The results revealed that Cassava was most commonly grown in Bukulula, Kalungu, Kalungu Town Council, Kyamulibwa, Lukayatown Council and Lwabenge while Sweet potatoes were most commonly grown in Kyamulibwa TC at 91.6%. Kyamulibwa Sub County had the highest proportion of households growing Cassava (92.2%) while Lukaya TC had the highest proportion of households growing Irish Potatoes (16.2%) and Yam (20%). Furthermore, a higher proportion of households in Kyamulibwa TC grew Sweet potatoes (91.6%).

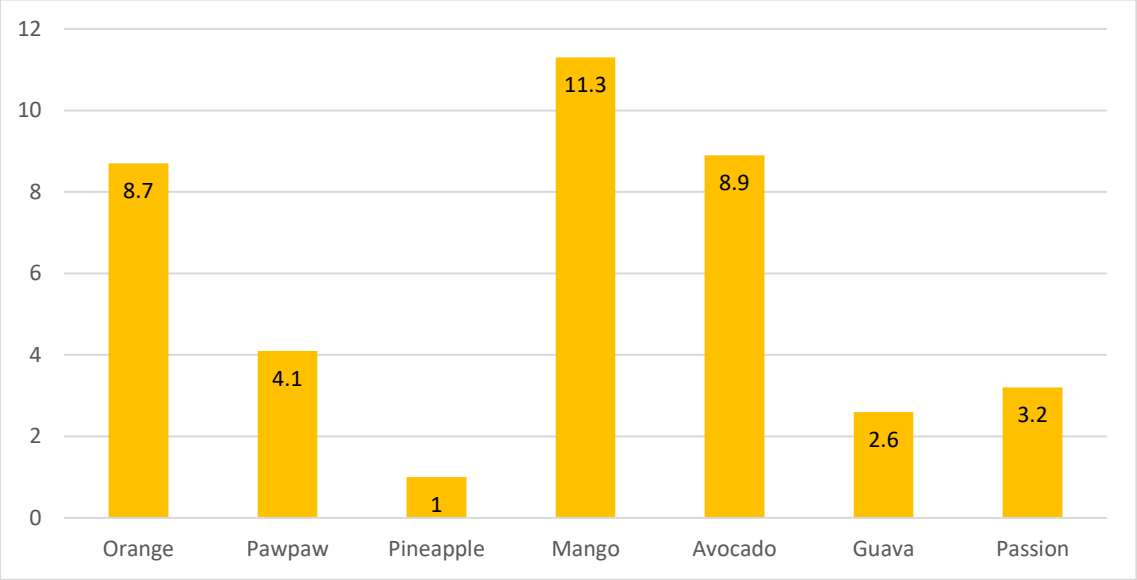
Figure 6: Proportion of households growing Root Crops by Sub County



3.1.7 Fruits

Figure 7 shows that Mangoes were the most commonly grown fruits in all Sub Counties except Kyamulibwa where oranges were most commonly grown at 17.6%. Lukaya TC had the highest proportion of households growing pawpaw (10.3%), mangoes (26.2%), guava (6.9%), apples (0.3%) and passion fruit (10.5%). A higher proportion of households in Kalungu T/C grew Oranges (21.4%), Pineapple (3.8%) and Avocado (20.3%). Apples were the least commonly grow fruits by all Sub Counties at less than 1%.

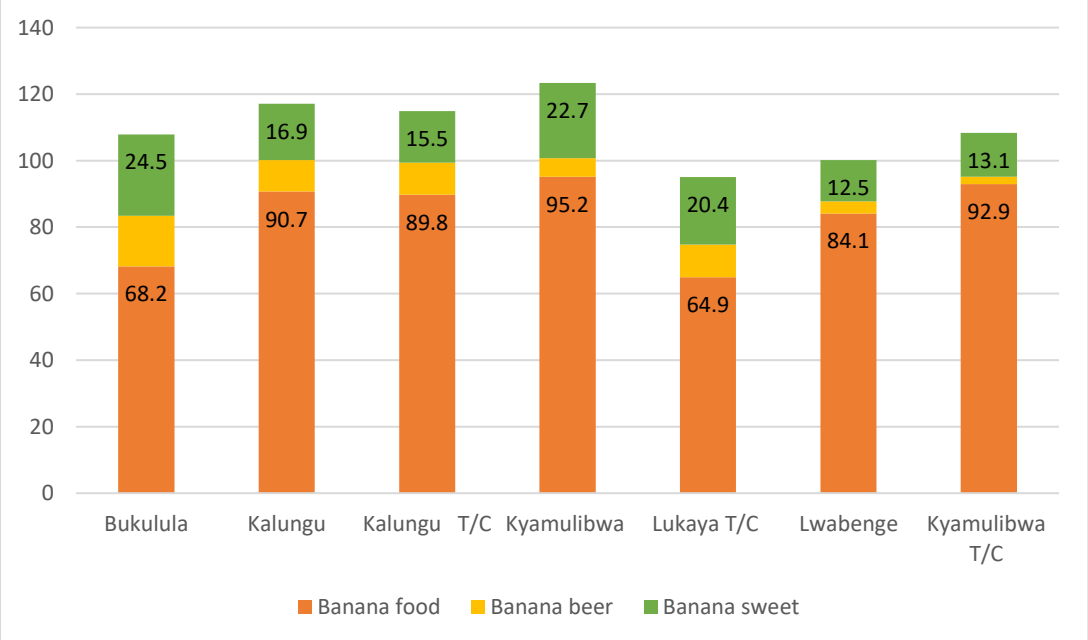
Figure 7: Percentage of households growing Fruits by Sub County



3.1.8 Plantains

The results in the graph below reveal that Banana Food were the most commonly grown plantain by the households in all Sub Counties at an average of 81%. Banana Beer was least commonly grown plantain by all Sub Counties at an average of 9%. Kyamulibwa had the highest proportion of households growing Banana Food in the district at 95.2% while Bukulula had the highest proportion of households growing Banana beer and Banana sweet at 15.2% and 24.5% respectively.

Figure 8: Percentage of households growing Plantains by Sub County



3.1.9 Sugar Cane, Vanilla and Cotton

According to the study results in Table 7 from the graph below, Sugar cane was the most commonly grown crop by all Sub Counties in the district at a total of 6.3% while 2.3% of households grew Vanilla. Kalungu TC had the highest proportion of households growing Sugar cane at 16.5% while only 1.4% of households in Kalungu sub county grew the crop.

Less than 1% of households on average grew Cotton. Kyamulibwa had the highest proportion of households growing Vanilla at 8%.

Table 7: Percentage of households growing Sugar cane, Vanilla and Cotton by Sub County

Sub County	Sugarcane	Cotton	Vanilla
Bukululа	5.7	0.1	1.0
Kalungu	1.4	0.0	2.3
Kalungu T/C	16.5	0.1	2.6
Kyamulibwa	12.3	0.1	8.0
Lukaya T/C	14.4	0.5	2.5
Lwabenge	2.8	0.1	0.8
Kyamulibwa T/C	7.3	0.1	0.4
Total	**6.3**	**0.1**	**2.3**

3.2 Area under crops in acres.

According to the Agriculture Annual Survey (AAS) 2018, the National Mean Plot Size (MPS) was estimated to be 0.3 Ha amongst the 10 ZARDIs. Kalungu belongs to the specific ZARDI of Mukono. The district had an estimated MPS of 0.32 Ha.

3.2.1 Banana food

The area under banana food was estimated to be 8,402 ha. Table 8 shows that the estimated number of plots under banana food were 26,256. Out of these, 9,046 (34.5%) were under pure stand while 7,210 (65.5%) were under mixed stand.

3.2.2 Sweet Potatoes

The area under Sweet potatoes was estimated to be 6,555 ha. Table 8 shows that the estimated number of plots under Sweet potatoes were 20,483. Out of these, 12,156 (59.3%) were under pure stand while 8,327 (40.7%) were under mixed stand.

3.2.3 Beans

The area under Beans was estimated to be 6,933 ha. Table 8 shows that the estimated number of plots under beans were 27,732. Out of these, 5,560 (20.05%) were under pure stand while 22,172 (79.95%) were under mixed stand.

3.2.4 Rice

The area under Rice was estimated to be 63 ha. Table 8 shows that the estimated number of plots under rice were 150. Out of these, 91 (60.7%) were under pure stand while 59 (39.3%) were under mixed stand.

3.2.5 Irish Potatoes

The area under Irish potatoes was estimated to be 554 Ha. Table 8 indicates that the estimated number of plots under Irish Potatoes was 1,731. Out of these, 778 were of pure stand (44.9%) while 953 (55.1%) were of mixed stand.

3.2.6 Ground Nuts

The area under Ground nuts was estimated to be 3,978 Ha. Table 8 shows that the estimated number of plots under Ground Nuts was 12,432. Out of these, 4,084 (32.9%) were of pure stand while 8,348 (67.1%) were of mixed stand.

Table 8: Area under Crops

Crops	Pure	%Pure	Mixed	%Mixed	Total	Area (Ha)	Mean Plot Size (MPS) AAS,2018
Banana food	9,046	34.5	7,210	65.5	26,256	8,402	0.32
Sweet Potatoes	12,156	59.3	8,327	40.7	20,483	6,555	0.32
Beans	5,560	20.05	2,172	79.95	27,732	8,874	0.32
Rice	91	60.7	59	39.3	150	48	0.32
Irish Potatoes	778	44.9	953	55.1	1,731	554	0.32
Ground nuts	4,084	32.9	8,348	67.1	12,432	3,978	0.32
Coffee	10,606	39	16,576	61	27,182	8698	0.32

CHAPTER FOUR: AQUACULTURE

4.1 Introduction

There were 39 households (0.16%) practicing aquaculture farming in the district. Lukaya T/C had the highest proportion (0.9%) of aquaculture farmers across all the sub counties.

Tilapia was the most common type of fish stocked among aquaculture households. 84% of ponds were stocked with Tilapia while 25% were stocked with Cat Fish. Only 7% of the ponds were stocked with Mirror cap.

4.2 Production Systems

4.2.1 Fish Ponds

Fish ponds were the most common type of production systems in Kalungu with over 83% of the ponds being stocked as shown in the table below. However, Fish cages and Fish Tanks were not found in the sampled households. At Sub-County level, Lukaya T/C had the highest number of fish ponds in the district while Kyamulibwa T/C and S/C had the lowest number of ponds. The findings also reveal that all fish ponds in Lwabenge were stocked. Notably there were no ponds in Kalungu T/C.

Table 9: Number and proportion of fish production systems stocked by Sub-County

Sub-County	**Ponds**		
	Stocked	**Un stocked**	**Proportion stocked**
Bukulula	15	6	71.4
Kalungu	9	1	90.0
Kyamulibwa S/C	3	1	75.0
Lukaya T/C	35	9	79.5
Lwabenge	31	0	100.0
Kyamulibwa T/C	2	2	50.0
Total	**95**	**19**	**83.3**

CHAPTER FIVE: LIVESTOCK REARING

5.1 Introduction

Results from the farmer registration revealed that 18,520 households reported to keeping livestock with the majority keeping poultry (71%), followed by pigs (57%). Results revealed that 33% of households keep cattle while 44% of households keep goats. Only 6 % of households keep sheep while 3% keep rabbits.

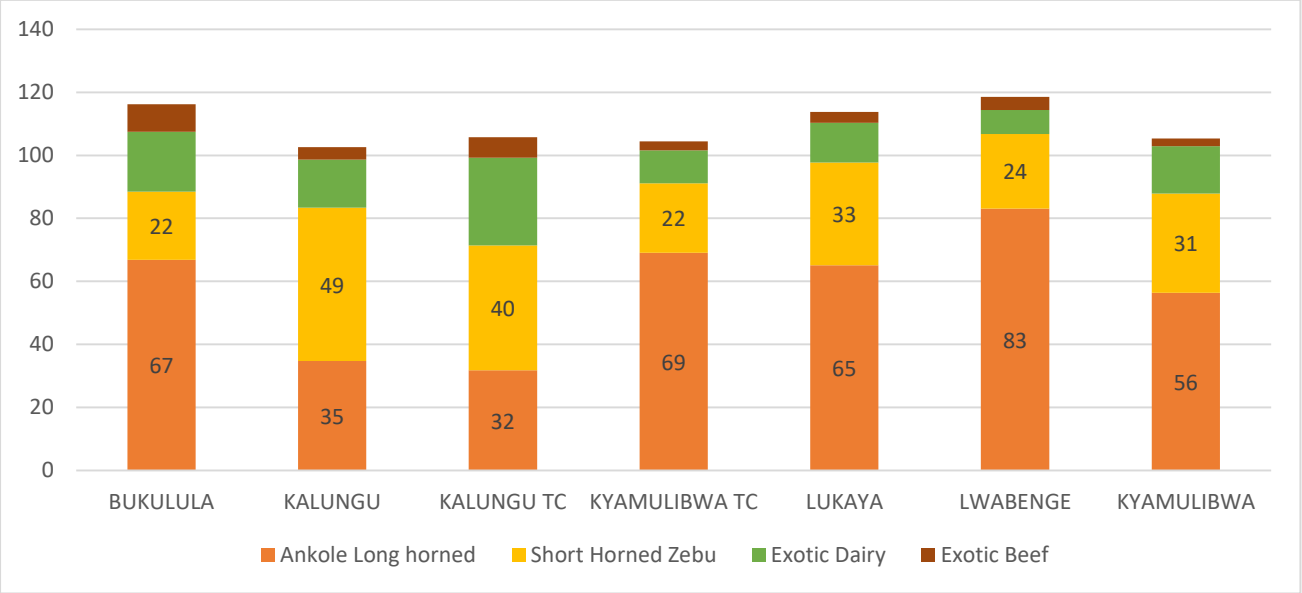
Table 10: Number of households keeping livestock

Sub County	Cattle	Goats	Sheep	Pigs	Rabbits	Dogs	Poultry
Bukulula	1,652	1,889	341	2,527	284	662	3,424
Kalungu	955	1,569	157	2,293	62	386	2,388
Kalungu T/C	280	402	40	552	34	83	698
Kyamulibwa T/C	1,173	1,763	129	1,757	80	321	2,388
Lukaya T/C	399	509	70	464	65	75	736
Lwabenge	1,388	1,627	284	2,440	82	341	2,922
Kyamulibwa	280	385	44	468	7	44	606
Total	**6,127**	**8,145**	**1,065**	**10,501**	**614**	**1.912**	**13,163**

5.1.1 Cattle Keeping

According to farmer registration results, over 65% of the livestock-keeping households in Bukulula, Kyamulibwa T/C, Lukaya, and Lwabenge T/C keep indigenous cattle with majority of households keeping Ankole-long horned cattle. Kalungu S/C and Kalungu T/C were found to have more short horn zebu cattle (49% and 40% respectively) compared to all other sub counties. Kalungu T/C had the highest proportion (28%) of households with exotic dairy followed by Bukulula S/C (19%). Exotic beef cattle was extremely rare with Bukulula having the highest proportion of households at 9% followed by Kalungu T/C at 6%.

Figure 9: Proportion of Households keeping Cattle



5.1.2 Cattle population by breed

Findings revealed that Farmers kept more numbers of indigenous cattle (Ankole Long Horned and Short Horn Zebu) than exotic /improved cattle in the district. According to pilot study findings in Table 12 below, there were more numbers of Ankole long horned cattle than Short Horned Zebu in Bukulula, Kyamulibwa, Lukaya T/C, Lwabenge and Kyamulibwa T/C. However, there were more numbers of Short horn Zebu in Kalungu Sub county and Kalungu TC. Lwabenge Sub County had the highest number of Ankole Long Horned Cattle with each household keeping on average 3 cattle while Bukulula had the highest number of Short Horned Zebu; each household keeping on average 3 cattle.

In the case of Exotic cattle, there were more numbers of exotic dairy cattle kept in all Sub Counties than exotic beef. The highest numbers of Improved Dairy and Improved Beef breeds were found in Bukulula Sub County, each household keeping on average 4 cattle.

Table 11: Cattle population

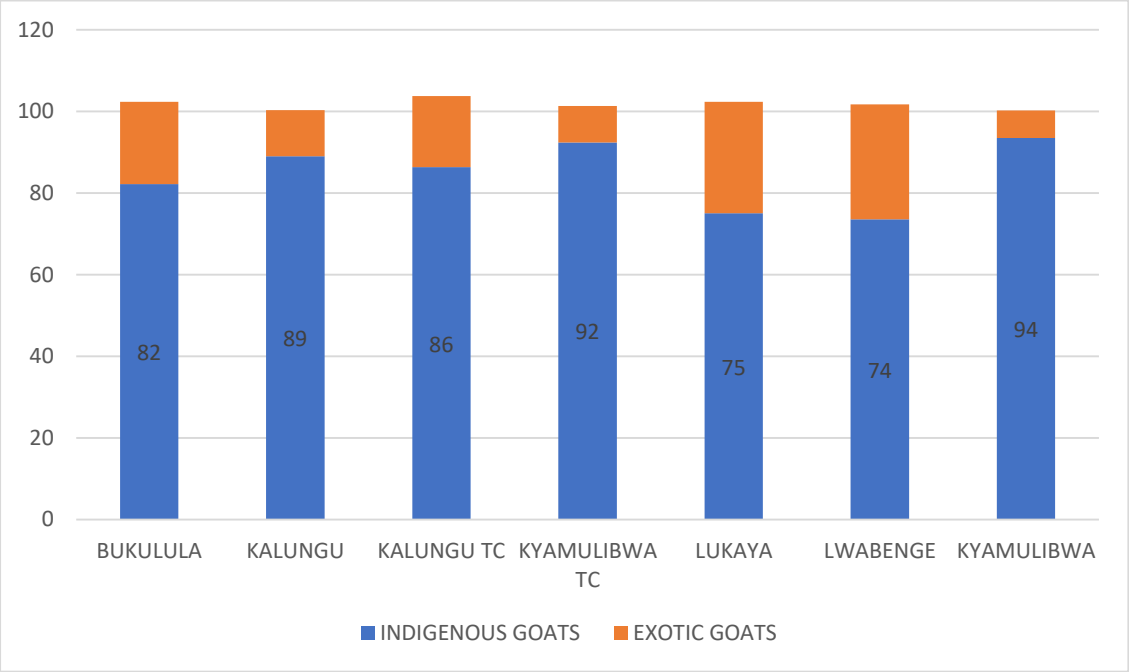
Sub County	Cattle - Ankole Long Horned	Cattle - Short Horn Zebu	Cattle Exotic/Improved - Diary	Cattle Exotic/Improved - Beef
Bukulula	3,056	898	1,335	600
Kalungu	684	828	450	63
Kalungu TC	153	168	149	25
Kyamulibwa	1,440	522	289	163
Lukaya TC	1,498	681	104	36
Lwabenge	3,623	703	412	240

Kyamulibwa TC	320	194	79	12
Total	**10,774**	**3,994**	**2,818**	**1,139**

5.1.3 Goats

Farmer Registration results indicate that majority of the households with Goats in all Sub Counties reported to keeping indigenous breeds of goats with Kyamulibwa S/C having the highest proportion of households keeping indigenous goats at 94%. Lwabenge had the highest proportion (28%) of households keeping exotic goats followed by Lukaya T/C (27%) in the district.

Figure 10: Households keeping Goats



5.1.4 Goat Population by breed

Generally higher numbers of indigenous goats than exotic breeds were kept across all Sub Counties. Bukulula had the highest number of indigenous breeds (5,075) and Exotic goats (1586). Lukaya T/C and Kyamulibwa T/C had the least number of exotic(1,046) and indigenous (77) goats respectively.

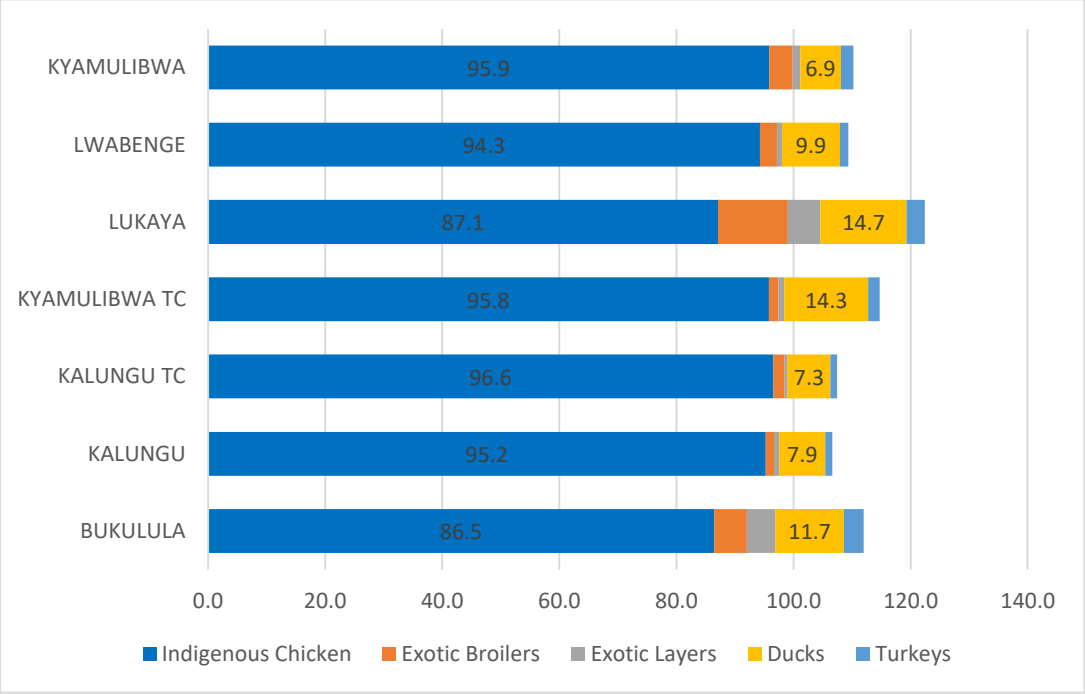
Table 12: Goat population by breed

Animal Types	Goat - Exotic/Improved	Goat - Indigenous
Bukulula	1586	5075
Kalungu	579	4036
Kalungu Tc	219	1046
Kyamulibwa	450	4892
Lukaya Tc	681	2225
Lwabenge	1417	3802
Kyamulibwa Tc	77	1083
Total	**5009**	**22159**

5.1.5 Poultry

It can be seen from the table below that a higher number of households in all the Sub Counties keep indigenous chicken compared to other poultry breeds. Ducks were second most kept type of poultry in Kalungu district with Lukaya T/C having the highest proportion followed by Kyamulibwa T/C. Exotic broilers were mainly kept by farming households in Lukaya T/C. Breeder Broilers were least kept poultry type in the district.

Figure 11: Households keeping Poultry



5.1.6 Poultry Population

Generally, higher numbers of indigenous poultry compared to other poultry breeds were reported being kept in Kalungu, Kalungu T/C, Kyamulibwa, Lwabenge and Kyamulibwa TC

while higher numbers of Breeder layers were kept in Bukulula. Higher numbers of Exotic Broilers were reported to being kept in Lukaya TC.

Bukulula Sub County reported to keeping the highest numbers of all poultry breeds except for Exotic Broilers while Lukaya TC kept the highest numbers of exotic broilers; each Household on average keeping 193 birds.

Households with ducks had an average of 5 birds and turkeys an average of 4 birds.

Table 13: Poultry Population

Sub County	Poultry - Indigenous	Poultry Exotic - Broilers	Poultry Exotic - Layers	Poultry Breeders- Broilers	Poultry Breeders – Layers	Ducks	Turkeys
Bukulula	23,844	6,975	17,618	3,613	46,314	1,805	461
Kalungu	19,495	3,789	10,353	552	2,249	844	104
Kalungu TC	5,327	199	292	382	202	194	22
Kyamulibwa	18,734	1,415	4,824	1,754	52	1,684	159
Lukaya TC	10,270	16,940	15,468	2,045	867	719	120
Lwabenge	21,142	851	665	93	84	1,105	165
Kyamulibwa TC	4,710	1,039	827	55	251	185	67
Total	**103,522**	**31,208**	**50,047**	**8,494**	**50,019**	**6,536**	**1,098**

5.1.7 Other livestock

Results from the farmer registration revealed that 56% of the households kept pigs with Kalungu S/C having the highest proportion (66%) of households keeping them followed by Kyamulibwa sub county and Kalungu T/C respectively. Sheep and rabbits were the least kept livestock type in Kalungu district. Ten percent of the households in the district keep dogs.

Table 14: Households keeping other Livestock

Sub County	Pigs	Exotic Sheep	Indigenous Sheep	Rabbits	Dogs
Bukulula	50.9	2.1	5.0	5.7	13.3
Kalungu	65.9	0.8	3.8	1.8	11.1
Kalungu T/C	58.1	0.7	3.5	3.6	8.8
Kyamulibwa	58.8	0.5	3.9	2.7	10.8
Lukaya T/C	43.9	2.5	4.6	6.2	7.1
Lwabenge	55.3	2.2	4.4	1.9	7.7
Kyamulibwa T/C	57.8	0.7	4.7	0.9	5.5
Total	**56.3**	**1.5**	**4.3**	**3.3**	**10.3**

5.1.8 Other livestock Population

It was reported that there were higher numbers of pigs being kept than other livestock by all Sub Counties in the district totalling to 34,799 pigs. Bukulula reported to keeping the highest numbers of all the livestock as shown in Table 16 below. There were more numbers of indigenous sheep kept in all Sub Counties than exotic sheep.

On average, a household with pigs had an average of 3 animals, a household with sheep reported 3 animals and those with rabbits had an average of 5 animals.

Table 15: Other livestock population

Sub County	Sheep - Exotic/Improved	Sheep - Indigenous	Pigs - Indigenous/Exotic/Improved	Rabbits	Dogs
Bukulula	392	692	9429	2033	1077
Kalungu	61	266	7635	378	517
Kalungu TC	15	74	1615	223	128
Kyamulibwa	30	293	5362	764	517
Lukaya TC	110	168	2662	680	157
Lwabenge	302	479	6379	518	731
Kyamulibwa TC	11	105	1717	39	66
Total	**921**	**2,077**	**34,799**	**4,635**	**3,193**

CHAPTER SIX: APICULTURE FARMING

6.1 Introduction

There are 144 (0.58%) households practicing apiculture farming in the district. Kyamulibwa S/C had the highest number (49) of apiculture households followed by Bukulula (34).

6.2 Type of Beehives

6.2.1 Local beehive

Local beehives were the most common type of beehives in the district. Seventy-six percent (76%) of the local beehives were colonized at the time of registration. At Sub-County level, Bukulula had the highest number of colonized Local beehives while Kalungu T/C had the lowest number. Study findings further reveal that for households with Local beehives in Lwabenge, on average, 79% of households had colonised beehives.

Table 16: Local Beehives colonized

Sub-County	Local		
	Number colonized	**Number Un-colonized**	**Proportion colonized**
Bukulula	194	91	68.1
Kalungu	120	19	86.3
Kalungu T/C	6	0	100.0
Kyamulibwa S/C	148	42	77.9
Lukaya T/C	54	16	77.1
Lwabenge	46	12	79.3
Kyamulibwa T/C	7	0	100.0
Total	**575**	**180**	**76.2**

6.2.2 Kenya Top Bar Bee hive

In the case of Kenya Top bar, Bukulula and Kyamulibwa Sub Counties were found to have the highest number of Kenya Top Bar beehives amongst all the sub counties including the Town Councils while Kalungu and Kyamulibwa T/C did not have any Kenya Top Bar beehives. Overall, 76% of the Kenya Top bar bee hives were colonised.

Table 17: Kenya Top Bar beehives colonised

Sub-County	Kenya top bar		
	Number colonized	**Number Un-colonized**	**Proportion colonized**
Bukulula	25	12	67.6
Kalungu T/C	2	0	100.0
Kyamulibwa S/C	25	5	83.3
Lukaya T/C	15	5	75.0
Lwabenge	1	0	100.0
Total	**68**	**24**	**75.6**

6.2.3 Langstroth Beehive

Only 2 Sub-counties, Bukulula and Lwabenge had Langstroth Beehives, Bukulula having a much higher number (147) than the rest of the Sub-counties in Kalungu.

Table 18: Langstroth beehives colonised

Sub-County	Langstroth	
	colonized	**Un colonized**
Bukulula	82	65
Lukaya T/C	1	2
Total	**83**	**67**

CHAPTER SEVEN: ACCESS TO AGRICULTURE TECHNOLOGIES AND SERVICES

7.1 Adoption of Improved Technologies

Results from the farmer registration pilot study revealed that the commonest type of technologies adopted were fertilizers, pesticides and improved seed. The least common type of technologies adopted were tractors, ox ploughs and milk coolers in Kalungu district.

At Sub-county level, Kyamulibwa T/C and Lwabenge S/C had the highest proportion of households that adopted pesticide use. Kyamulibwa T/C and Lukaya T/C had the highest proportion of households that adopted inorganic fertilizer use. Kalungu T/C and Kyamulibwa S/C had the highest proportion of households that used organic fertilizers. Lukaya T/C and Kyamulibwa S/C had the highest proportion of households that had adopted the use of improved seed.

The use of tractors was highest in Lukaya T/C while the use of Ox ploughs was highest in Kalungu S/C. Lukaya T/C had the highest proportion of milk coolers.

Overall, there was low adoption of artificial insemination in the district with only 3.3% of households having used it. Results revealed that Kalungu Sub-County had the highest proportion of households that had used artificial insemination.

Results also showed that 10.7% of households in Kalungu district used irrigation; Lukaya T/C having the highest adoption.

Results showed that 14.3% of livestock keeping households in Kalungu district vaccinated their livestock. Kyamulibwa T/C had the least number of vaccinated animals.

Table 19: Adoption of improved technologies

Technology	Bukulula	Kalungu	Kalungu T/C	Kyamulibwa	Lukaya T/C	Lwabenge	Kyamulibwa T/C	Total
Tractor	0.6	0.6	0.3	0.4	1.3	0.6	0.3	0.6
0xplough	0.2	0.7	0.1	0.4	0.4	0.4	0.2	0.4
Milk Cooler	0.8	0.7	0.4	0.6	1.0	0.8	0.4	0.7
Irrigation	12.3	11.0	7.3	7.9	17.7	8.9	8.8	10.7
Organic Fertilizer	55.0	56.8	62.8	62.9	56.6	52.1	52.2	56.1
Inorganic Fertilizer	35.9	51.0	51.2	40.8	54.1	50.5	59.0	45.2
Pesticides	47.3	58.7	56.6	52.0	60.2	66.7	72.0	56.5
Improved Seed	37.9	40.8	38.5	49.1	52.0	41.4	32.1	41.5
Vaccination	14.8	14.0	13.4	16.8	15.0	14.0	3.3	14.3
AI	2.0	7.6	3.0	1.1	3.0	3.3	1.7	3.3

7.2 Access to Agricultural support services.

From table 21 below, 31% of the farming households received extension services and 12% of the households belonged to farmer groups. Kalungu S/C had the highest proportion (72%) of farming households that accessed Extension services while Kyamulibwa S/C had the least(12%). The results further revealed that 8% of the farming households in Bukulula and Kyamulibwa sub counties belonged to farmer groups and 2% were able to access agricultural credit in Kyamulibwa S/C and Kyamulibwa T/C. Only 6% of the farming households were able to access credit.

Table 20.Agicultural support services by Sub-County

Sub County	Farmer group	Agric credit	Extension services
Bukulula	8.3	5.7	20.3
Kalungu	13.1	13.1	72.4
Kalungu Town Council	22.1	14.3	42.7
Kyamulibwa	8.6	1.6	12.9
Lukaya Town Council	26.6	7.8	10.3
Lwabenge	11.0	3.8	29.1
Kyamulibwa Town Council	21.4	2.1	19.1
Total	**12.1**	**6.4**	**30.7**

7.3 Access and Source of free/subsidized inputs

Results in table 22 revealed that a higher percentage (56.6%) of the households in Kalungu district reported to not receiving free inputs. Over 83% of farmers in Kyamulibwa T/C reported to not having received free inputs.

Overall, 43.5% of households reported to receiving free inputs. Over 50% of households in Bukulula, Kalungu, Lukaya TC, Lwabenge, and Kyamulibwa TC reported to not having received free inputs. Of the households that reported to receiving free inputs, 84.3% received them from NAADS or OWC. Over 93% of households in Kyamulibwa T/C reported to receiving inputs from NAADS. The findings also revealed that on average, 10% of households in Kalungu District reported Shops/ Local as the source of the free inputs. Kalungu T/C had the highest proportion of households that received free inputs from Shops at 15.2%. Furthermore, less than 1% of households in the district received free inputs from NGOs.

Further analysis on whether farmers used the free inputs showed that 98% of households used them fully. Less than 1% of households in the district reported to not having used the inputs.

Table 21: Access and Source of free/subsidized inputs by Sub-County

Sub County	Received Free/ Subsidised inputs	Source of Inputs						Household use of inputs	
		NAADS/ OWC	Cooperatives	NGOs	Shops/ Local	Politicians	Other	used	did not use
Bukulula	35.1	89.8	1.4	1.1	5.5	2.2	0.0	99.4	0.6
Kalungu	44.8	81.7	0.6	1.0	15.2	1.5	0.1	99.9	0.1
Kalungu T/C	63.5	68.1	0.7	0.6	28.5	1.8	0.3	98.6	1.4
Kyamulibwa	59.0	87.0	0.6	0.4	10.7	1.1	0.1	99.9	0.1
Lukaya T/C	38.2	73.8	1.6	1.1	18.1	3.3	2.2	99.9	0.1
Lwabenge	46.6	85.2	0.9	0.3	3.8	9.8	0.0	99.8	0.2
Kyamulibwa T/C	16.1	93.3	2.3	0.3	2.8	1.2	0.0	99.7	0.3
Total	**43.5**	**84.3**	**0.9**	**0.7**	**10.5**	**3.4**	**0.2**	**99.7**	**0.3**

7.4 Reason for non-use of inputs

The major reason cited for non-use of free inputs in the district was lack of rainfall. The percentage of farmers who cited this as the main reason for non-use was 48.8%. The second major reason was the poor quality of inputs supplied to the farmers.

Households in Bukulula and Kalungu Sub-counties cited the poor quality of inputs supplied as the main reason for non-use of free inputs while lack of rainfall was the major reason cited in the Sub-counties of Kalungu T/C, Kyamulibwa, Lukaya T/C, Lwabenge and Kyamulibwa T/C.

The results further show that 19% of farmers in Kalungu reported to not being interested in receiving the free inputs.

Table 22: Reason for non-use of inputs

Sub county	No knowledge	No rainfall	Poor quality	Not interested	Other
Bukulula	9.3	28.9	53.1	5.7	3.1
Kalungu	5.8	29.0	46.4	18.8	0.0
Kalungu T/C	0.0	51.9	47.1	1.0	0.0
Kyamulibwa	0.0	71.4	28.6	0.0	0.0
Lukaya T/C	2.3	81.8	13.6	0.0	2.3
Lwabenge	0.0	73.8	18.5	5.8	1.9
Kyamulibwa T/C	0.0	100.0	0.0	0.0	0.0
Total	**4.2**	**48.8**	**39.6**	**5.7**	**1.7**

CHAPTER EIGHT: CHALLENGES, RECOMMENDATIONS, CONCLUSION

8.1 Challenges

a) There was refusal and biased responses from some farmers which slowed down data collection. This was mainly due to fear of taxation in additional to the Coffee Bill that was passed at the time of registration considering Kalungu is a Coffee growing District.

b) Late deployment of responsible officers slowed down data collection in some areas of the district. For example Lwabenge is among one of largest Sub counties within Kalungu, yet Kiti Parish (largest parish in Lwabnge) had no parish chief at the time of registration hence slackening data collection activity.

c) It was identified that the workload for complete farmer registration was too much for some the parish chiefs, especially those Sub counties that had over 60 villages and above. This contributed to slow and incomplete data enumeration.

d) Most of the parish chiefs were not able to either complete the exercise in time or complete the registration at all. For some the exercise was not of interest to them while others were too busy. This was partly because the Parish Chiefs had other responsibilities and activities assigned to them. Some parish Chiefs enumerated about 20% of the Households in their parishes.

e) Some books were destroyed due to poor handling and others stolen from Parish Chiefs hence incomplete data entry.

f) Lack of adequate equipment for data entry. The pilot was run with data collection being done through paper-based registers which were later on given to extension staff to enter. This was mainly due to the lack enough tablets which could only be given to sub county extension staff. Additionally, even those at the sub county were not enough to cover all staff in the district but had to be shared amongst the extension staff.

8.2 Recommendations

a) There is need to carry out rigorous sensitization of the farmers on the importance of the farmer registration exercise and the benefits therein for less resistance henceforward easier data collection while in the field. There should be collaboration between MAAIF and the district teams (including political leadership) in carrying out these sensitization activities.

b) Creating awareness and dissemination of the guidelines for the extension grant which clearly highlights the role of the extension staffs and parish chiefs in the data collection activities and facilitations for seasonal data collection. This will ensure / support sustainability of the data collection processes and activities with in the Lower Local Governments.

c) It is therefore important to note that, several challenges were faced while using the parish chiefs in registering the farmers. But the use of enumerators/research assistants can ensure prioritization of the farmer registration exercise by the parish chiefs while still carrying out their day to day activities. This can be achieved by enumerators undertaking the first complete enumeration of the farmers as a onetime activity and annual updates thereafter done by the parish chiefs routinely on the farmer register.

d) The parish chiefs should be facilitated according the amount of work they have to undertake. This is attributed to the fact that some parishes have more villages than others.

8.3 Planned Way Forward

- Roll out the crop and livestock tools in the second season of 2020 in Kalungu District. The tools are to be administered by the Parish Chief with support from Extension Workers and LC1 Chairpersons
- Dissemination of the farmer register report to the District Officers for input and ownership.

8.4 Conclusion

The design of RAADRS is a well thought put process that can solve the problem of regular data collection in the agricultural sector. However, the process needs to be incorporated not only the government structures but also in the “culture” of work within the LGs. This calls for a concerted effort from all relevant authorities right from the lowest level of administration up to MAAIF.

ANNEX

Number and Proportion of Aquaculture Farmers

Sub counties.	**Number**	**Proportions**
Bukulula	6	0.08
Kalungu	3	0.07
Kyamulibwa S/C	4	0.12
Lukaya T/C	14	0.88
Lwabenge	10	0.18
Kyamulibwa T/C	2	0.21
Total	**39**	**0.16**

Number and Proportion of Apiculture Farmers

Apiculture Framers	**Number**	**Proportions**
Bukulula	34	0.44
Kalungu	10	0.23
KalunguT/C	4	0.36
Kyamulibwa S/C	49	1.43
Lukaya T/C	22	1.39
Lwabenge	23	0.42
Kyamulibwa T/C	2	0.21
Total	**144**	**0.58**

Average Number of Animals

Animal Types	Bukulula	Kalungu	Kalungu TC	Kyamulibwa	Lukaya TC	Lwabenge	Kyamulibwa TC
CATTLE - Ankole long horned	3	2	2	2	6	3	2
CATTLE - Short horn Zebu	3	2	2	2	5	2	2
CATTLE Exotic/Improved - Diary	4	3	2	2	2	4	2
CATTLE Exotic/Improved - Beef	4	2	1	5	3	4	2
GOAT - Exotic/Improved	4	3	3	3	5	3	3
GOAT - Indigenous	3	3	3	3	6	3	3
SHEEP - Exotic/Improved	4	2	2	2	4	3	2
SHEEP - Indigenous	3	2	2	3	3	2	3
PIGS - Indigenous/Exotic/Improved	4	3	3	3	6	3	4
Rabbits	7	6	7	10	10	6	6
Dogs	2	1	2	2	2	2	2
POULTRY - Indigenous	8	9	8	8	16	8	8
POULTRY Exotic - Broilers	37	111	15	36	193	10	43
POULTRY Exotic - Layers	105	471	73	201	377	26	103
POULTRY Breeders- Broilers	86	32	64	110	102	4	18
POULTRY Breeders - Layers	965	112	101	9	67	8	50
Ducks	5	4	4	5	7	4	4
Turkeys	4	4	3	3	5	4	5

Average Number of Animals by sex of Household Head

Livestock Type	Sex of HHead	Kalungu
Cattle - Ankole Long Horned	Male	3
	Female	3
Cattle - Short Horn Zebu	Male	2
	Female	2
Cattle Exotic/Improved - Diary	Male	3
	Female	3
Cattle Exotic/Improved - Beef	Male	4
	Female	3
Goat - Exotic/Improved	Male	4
	Female	3
Goat - Indigenous	Male	3
	Female	3
Sheep - Exotic/Improved	Male	3
	Female	3
SHEEP - Indigenous	Male	3
	Female	2
PIGS	Male	3
	Female	3
Rabbits	Male	8
	Female	6
Dogs	Male	2
	Female	1
POULTRY - Indigenous	Male	9
	Female	8
POULTRY Exotic - Broilers	Male	92
	Female	34
POULTRY Exotic - Layers	Male	224
	Female	87
POULTRY Breeders- Broilers	Male	82
	Female	45
POULTRY Breeders - Layers	Male	756
	Female	52
Ducks	Male	5
	Female	5
Turkeys	Male	4
	Female	4

Number of farmers who received free/subsidized inputs in the last 12 months

Input	Bukulula	Kalungu	Kalungu T/C	Kyamulibwa	Lukaya T/C	Lwabenge	Kyamulibwa T/C
Pature Seed	39	11	6	1	4	21	0
Maize Seed	1213	909	283	1034	328	1105	100
Bean Seed	780	513	232	805	195	479	77
Rice Seed	10	2	0	3	1	5	1
Coffee	2300	1583	362	1796	465	2230	114
Tea Seedling	7	2	0	2	0	8	1
Mango	766	392	176	443	106	500	86
Orange	891	466	303	641	133	555	91
Apple	1	0	3	4	0	8	0
Cocoa	0	0	0	1	0	0	0
Passion Fruit	10	14	2	5	28	1	1
Pineapples	0	0	0	2	2	0	0
Banana Food	104	285	88	64	92	215	45
Cassava	125	436	74	93	102	219	42
Pesticides	49	139	153	421	54	37	8
Artificial Fertilizers	65	182	96	96	42	64	14
Poultry	35	18	8	7	31	4	2
Veterinary Services	13	48	96	193	22	3	2
Artificial Insemination	5	9	3	2	1	2	1
Fish Fry/Fingerings	2	1	1	0	0	1	1
Dairy Cattle	20	11	14	1	24	16	4
Beef Cattle	2	0	0	0	5	3	1
Goats	24	50	2	6	13	2	4
Pigs	46	94	9	7	21	14	6
Total	2708	1912	703	2012	603	2562	151