THE REPUBLIC OF UGANDA

MINISTRY OF AGRICULTURE,

ANIMAL INDUSTRY AND FISHERIES

Performance Review Report

FINANCIAL YEAR

2015 to 2016

Foreword

This agricultural sector annual performance report prepared by the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) covers the period July 2015 to June 2016. The report fulfills annual requirements under the Comprehensive African Agricultural Development Program (CAADP) and the New Partnership for African Development (NEPAD) commitments. The abridged version of this report was submitted to the Office of the Prime Minister (OPM) and Ministry of Finance, Planning and Economic Development (MoFPED) to constitute the agriculture chapter of the Government Annual Performance Report (GAPR) for the Financial Year (FY) 2015/16.

The MAIF performance report incorporates stakeholders' comments, observations and recommendations made during the Joint Agricultural Sector Annual Review (JASAR) for FY 2015/16. The report provides an assessment of the sector performance and the results of public spending during the FY 2015/16. It also highlights responses of MAAIF and Agencies to undertakings agreed to in the JASAR 2015 workshop.

The information presented covers the MAAIF structure and mandate, *Crops, Livestock; Fisheries* sub-sectors performance as well as of the *Agencies* in addition to that of institutional development and reforms. The document is an annual publication through which key statistical information derived from routine monitoring visits and administrative records of the Ministry Department and Agencies (MDAs) are also disseminated.

The Ministry appreciates contributions of all stakeholders in implementation of the FY 2015/16 sector initiatives and the political leadership as well as the agricultural sector Development Partners for their guidance.

The Ministry welcomes constructive comments from stakeholders that aim at enhancing the quality of its future publications. At their convenience, readers are encouraged to send constructive comments to the under signed, and or the editorial team. This report can be down loaded from the Ministry website at www.agriculturee.go.ug.

It is my sincere hope that the information in this publication is used to make informed decisions.

P. Wakabi
PERMANENT SECRETARY

Table of Contents

List of Tables

List of Figures

ACRONYMS

ACDP	Agriculture Cluster Development Project
ADB	African Development Bank
AFAAS	African Forum for Agricultural Advisory Services
AFALU	Association of Fishers and Lake Users
AFCA	Africa Fine Coffees Association
AgiTT	Agriculture Technology Transfer
AGRA	Alliance for a Green Revolution in Africa
AIV	African Indigenous Vegetables
ASYCUDA	**A**utomated **Sy**stem for **Cu**stoms **Da**ta
ASWG	Agriculture Sector Working Group
ATAAS	Agriculture Technology and Agribusiness Advisory Services
AU	African Union
AU-IBAR	African Union Inter-African Bureau for Animal Resources
BAC	Bukalasa Agriculture College
BBW	Banana Bacterial Wilt
BUL	BIDCO Uganda Limited
CAADP	Comprehensive Africa Agriculture Development Programme
CAIIP	Community Agriculture Infrastructure Investment Program
CBPP	Contagious Bovine Pleura Pneumonia
CBSD	Cassava Brown Streak Disease
CDO	Cotton Development Organzation
COCTU	Coordinating Office for the Control of Trypanosomiasis in Uganda
CoE	Centre of Excellence
COMESA	Common Market for East and Southern Africa
CSO	Civil Society Organzation
CWD	Coffee Wilt Disease
CWD-R	Coffee Wilt Disease - Resistant
DAES	Directorate of Agriculture Extension Services
DDA	Dairy Development Authority
DfID	Department for International Development
DFR/DFR	Directorate of Fisheries Resources
DRC	Democratic Republic of Congo
DSIP	Development Strategy and Investment Plan
EAAPP	East Africa Agriculture Productivity Project
EADD	East Africa Dairy Development Project
EEA	Enabling Environment for Agriculture
EURTTEP	European Union Regional Tsetse and Trypanosomiasis Eradication Project
FAO	Food and Agriculture Organization
FETF	Fisheries Enforcement Task Force
FEW	Field Extension Workers
FFB	Fresh Fruit Bunches
FFS	Farmer Field School
FIP	Framework Implementation Plan
FS	Frame Survey
FSSP	Fisheries Subsector Strategic Plan

FTI	Fisheries Training Institute
FVIP	Fishing Vessel Identification Plates
FY	Financial Year
GAFSP	Global Agriculture and Food Security Program
GAFSP	Global Agriculture and Food Security Program
GDP	Gross Domestic Product
GEF	Global Environment Fund
GEF	Global Environment Facility
GMO	Genetically Modified Organisms
GoU/GOU	Government of Uganda
Ha	Hectare
HQ	Headquarters
HRM	Human Resource Management
IAEA	International Atomic Energy Agency
ICT	Information Communication and Technology
IDA	International Development Agency
IDB	International Development Bank
IDB	Islamic Development Bank
IEC	Information Education Communication
IFAD	International Fund for Agricultural Development
IGAD	Inter-Governmental Authority for Development
IITA	International Institute for Tropical Agriculture
IPC	Integrated Food Security Phase Classification
JASAR	Joint Agricultural Sector Annual Review
JICA	Japan International Cooperative Agency
JTC	Joint Technical Committee
KAFACI	Korea-Africa Food and Agriculture Cooperation Initiative
KASICA	Kawanda Silk Crafts Association
Kg	Kilogram
KOICA	Korea International Cooperative Agency
LAGBIMO	Lake George Basin Integrated Management Organization
LAKIMO	Lake Kyoga Integrated Management Organisation
LG/s	Local Government/s
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries
MBAZARDI	Mbarara Zonal Agricultural Research and Development Institute
MCC	Milk Collection Centre
MGLSD	Ministry of Gender Labor and Social Development
MLN/	Maize Leaf Necrosis/Disease
MoES	Ministry of Education and Sports
MoFPED	Ministry of Finance Planning and Economic Development
MoPS	Ministry of Public Service
MoU	Memorandum of Understanding
MPMPS	Meat Production Master Plan Study
MT/Mt	Metric Ton
MuZARDI	Mukono Zonal Agricultural Research and Development Institute
MWE	Ministry of Water and Environment

NAADS	National Agricultural Advisory Services
NaCoRI	National Coffee Research Institute
NaCRRI	National Crop Resource Research Institute
NADDEC	National Animal Disease Diagnostic and Epidemiology Centre
NAEP	National Agriculture Extension Policy
NAES	National Agriculture Extension Strategy
NAGRC&DB	National Agricultural Genetic Resource Centre and Data Bank
NAITS	National Artificial Insemination Technology Strategy
NaLiRI	National Livestock Research Institute
NAP	National Agriculture Policy
NARL	National Agricultural Research Laboratories
NARO	National Agricultural Research Organization
NaSARRI	National Semi-Arid Resources Research Institute
NDP	National Development Plan
NEMA	National Environment Management Authority
NFP	National Fisheries Policy
NSC	National Sericulture Centre
NTR	Non Tax Revenue
OWC	Operation Wealth Creation
PACA	Partnership for Aflatoxin Control in Africa
PARIs	Public Agriculture Research Institutes
PASIC	Policy Action for Sustainable Intensification of Cropping
PMU	Project/Program Management Unit
PPP	Public Private Partnership
PRiDe	Promotion of Rice Development
SACCO	Savings and Credit Cooperative Organisation
SCAA	Specialty Coffee Association of America
SCAE	Specialty Coffee Association of Europe
SCAJ	Specialty Coffee Association of Japan
SLM	Sustainable Land Management
SNV	Netherland Development Agency
SOP	Standard Operating Procedures
SPS	Sanitary and Phyto Sanitary
TAD	Trans boundary Animal Diseases
TDS	Technology Development Sites
TPM	Top Policy Management
TUNADO	Uganda National Apiculture Development Organisation
TV	Television
UAE	United Arab Emirates
UBOS	Uganda Bureau of Standards
UCDA	Uganda Coffee Development Authority
UNDHS	Uganda National Demographic Household Survey
UDHS	Uganda Demographic Health Survey
UEAWCP	Uganda Egypt Aquatic Weed Control Project
UFFCA	Uganda Fisheries and Fish Conservation Association
UFPEA	Uganda Fish Processors and Exporters Association

UFROT	Uganda Fishing Industry Rescue Operation Team
UGX	Uganda Shillings
UMPCU	Uganda Meat Processors Cooperative Union
UNBS	Uganda National Bureau of Standards
UNHS	Uganda National Household Survey
UNICEF	United Nations International Children Education Fund
USA	United States of America
USAID	United States Agency for International Development
USD	United States Dollars
USPA	Uganda Silk Producers Association
VF	Vote Function
VODP	Vegetable Oil Development Project
WB	World Bank
WFP	World Food Program
WHO	World Health Organization
ZARDI	Zonal Agricultural Research and Development Institute

Executive Summary

Uganda is signatory to the Comprehensive Africa Agriculture Development Programme (CAADP) and the New Partnership for African Development (NEPAD) arrangements formulated under the aegis of the African Union (AU). Implementation of CAADP and NEPAD requires utilization of a mutual accountability tool in the form of national level Joint Sector Reviews (JSRs). The reviews provide a forum for collective multi-stakeholders' assessments of sector performance and mutual agreement on priority interventions for subsequent improvement. It is in this context that Uganda' second National Development Plan (NDP) II for the Financial Years (FY) 2015/16-2019/20 implementation modalities oblige sectors to conduct comprehensive reviews based on ***their annual performance reports***. Accordingly and in line with this requirement, the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) has in collaboration with agriculture sector stakeholders been organizing Joint Agricultural Sector Annual Reviews (JASARs) since 2011 with 6 reviews conducted to date and the latest held on the 29th and 30th September 2016.

The mandate of MAAIF is to *support, promote and guide production of crops, livestock and fisheries so as to improve quality and increased quantity of agricultural produce and products for domestic consumption, food security and export.* The structure for the Ministry of Agriculture, Animal Industry and Fisheries in the Financial Year (FY) 2015/16 constituted; four directorates with 13 departments; 4 standalone departments and 3 specialized units as the main organizational entities of the Ministry. MAAIF also has 7 semi-autonomous Agencies, 3 Agricultural Training Institutes (ATI) and District Agriculture Training Information Centres (DATICs) that are located in District Local Governments (DLG). In the FY 2015/16 overall sector performance is summarised as follows.

Budget Performance

Overall, the sector had an approved budget in FY 2015/16 of UGX 476.168Bn (excluding taxes, arrears and Non Tax Revenue (NTR)). By the end of June 2016, UGX 425.811Bn had been released of which UGX 416.195Bn was spent on various activities under the different institutions in the sector. Most of the funds under the Government of Uganda (GoU) budget component for the agriculture sector were released by the Ministry of Finance, Planning and Economic Development (MFPED) to the various departments and agencies to the tune of 98.7%. MAAIF and its agencies managed to absorb 98.4% of the GoU funds for the various planned activities and outstanding commitments. However, there was a low budget outturn under the Donor Development budget component of the sector budget (only 51.3%). This was mainly attributed to delays for major projects like; *Enhancing National Food Security through increased Rice Production in Eastern Uganda; Agriculture Cluster Development Project and the Regional Pastoral Livelihood Improvement Project.* All vote functions except Diary Development Authority (DDA) received over 80% of their approved budgets from the MFPED. Furthermore, the vote function of Cotton Development Organization (CDO) had a budget outturn of 157.8 % because they received a supplementary budget/release to take care of cotton buffer stock financing.

Trends and Progress Measured Against ASSP Outcome Indicators 2015/16

The Uganda's economy in real terms expanded to UGX 55.7Tn in FY 2015/16, up from UGX 53.2Tn registered in the previous FY 2014/15 representing a 4.6% GDP growth rate that was lower than 5.0% in FY 2014/15. In the budget speech delivered on the 8th June 2016, the Honorable Minister of Finance Planning and Economic Development attributed this to the following factors:-

i. The sharp fall in international commodity prices such as coffee, tea, minerals, which form the bulk of the country's exports;
ii. The decline in private sector credit growth as a result of high interest rates which constrained domestic economic activity; and

iii. The depreciation of the Uganda shilling which increased the cost of imports, thereby constraining business cash flows and fueling domestic inflation.

The agriculture sector grew by 3.2% up from 2.3% in FY 2014/15 driven by positive growth in all sub-sectors and contributing to expansion of the economy. In FY 2015/16, average headline inflation was 6.6% as compared to 3.0% in FY 2014/15. The trend in annual inflation progressively increased in the first half of the year to a high of 8.5% in December 2015. However, the falling international commodity prices, local food prices and energy prices helped to hold back inflation in the rest of the FY, despite the impact of exchange rate depreciation.

The annual average food and non-food inflation rates were 8.4% and 5.7% respectively. Food items includes food crops such as maize, beans, cassava, matooke and nonfood crop items such as meat, dairy products and processed foods. The shilling opened the FY 2015/16 trading at an average official exchange rate of Uganda Shillings (UGX) 3,360 against the United States Dollar (USD) in July 2015 and closed at an average of UGX 3,368 in June 2016. The depreciation of the exchange rate during the year was largely attributed to the USD which gained strength against other major international currencies with which Uganda conducts trade. In addition, the stagnation in export receipts led to rapid weakening of the UGX. This development is important because, a weaker shilling would normally stimulate economic activity and farmers would therefore enjoy higher commodity and export prices. But Uganda's agricultural exports are mainly in raw form, and primary goods do not command a high price in the international market. And, as already noted above, international commodity prices for agricultural exports also fell due to oversupply and weak global demand.

Over the ASSP implementation period, the agriculture sector aims at achieving the following 3 outcomes:-

Outcome 1	Increase productivity by farmers to at least 50% of the yields at research stations for the 12 priority commodities;
Outcome 2	Transform subsistence farmers into enterprise farmers and transform smallholders farmers into commercial farmers;
Outcome 3	Increase agriculture exports to at least USD 4Bn per year.

For **outcome** 1, the *Level of household agricultural income and percentage of labour force in agriculture* indicators were not assessed. As for *Percentage change in agricultural contribution to total GDP* indicator, the share was 23% in FY 2014/15 and 22.4% in FY 2015/16 (Background to the Budget, MoFPED 2016) which was a fall of 0.6%age points. For **outcome 2,** *Transform subsistence farmers into enterprise farmers and transform smallholder farmers into commercial farmers* the percentage change in the labour force in subsistence production indicator was not assessed. However for the *Percentage annual growth in agricultural value added* indicator indicated that the agricultural sector grew from 2.3% in FY 2014/15 to 3.2% in FY 2015/16 (Background to the Budget, 2016/17), an increase of 0.9 percentage points. For **outcome 3,** *Increase agriculture exports to at least USD 4Bn per year* indicator, *v*alue in 2014 was USD 1.29Bn (ASSP document) while the value in 2015 was about USD 1.31Bn (Bank of Uganda (BoU) statistics). For the *Percentage change in ratio of agricultural exports to total exports* indicator, the ratio was 57% in 2014 (ASSP document) and with preliminary estimates in 2015 at 58% using Bank of Uganda statistics, representing a 1% point increase. The *Percentage change in ratio of agricultural exports to agriculture GDP* indicator was not assessed.

The ASSP sector outputs are as follows; *Increasing agriculture production and productivity; increasing access to critical farm inputs; Improving agricultural markets and value addition for the 12 prioritised commodities and strengthening institutional capacity of MAAIF and public agricultural agencies*. The ASSP

outlines indicators under each of these outputs but for the majority of them data was not available. This report used proxy indicators in some cases to indicate changes in outputs in FY 2015/16 as compared to FY 2014/15.

The ASSP lists 8 indicators for all these outcomes, however data was available for only 4 of them because the recommended sources did not have updated data even with alternative sources. The recommended sources include the Uganda National Household Survey (UNHS) and Statistical Abstract with the most recent UNHS data available only for 2012/13 while the 2016 Statistical Abstract had not been published. In cases where data could not be accessed to assess the current status of the indicator, it is indicated as ‘‘not assessed” wile for some of the indicators whose status was assessed, alternative sources were used, including the Background to the Budget report for FY 2016/17 and BoU data.

For the *quantity and change in the production of priority and other commodities*, the general observation is that all commodities that had updated data, registered positive change in quantity produced. As for *increasing access to critical farm inputs,* over 9,800MT of crop seed *(maize, beans, rice, soybean, groundnuts)* distributed to households expected to cover at least 700,000 acres. Furthermore, vegetative materials for various commodities were distributed across the country expected to cover over 190,000 acres. For the *Water for Agricultural Production* indicator, 163 valley tanks were constructed through partnerships and 3 small scale irrigation systems of 4 acres each were installed and operationalized. For the *Improving agricultural markets and value addition for the 12 prioritised commodities output* indicator*,* all commodities that had data registered increases in volumes, however coffee and fish registered declines in value.

As for *strengthening institutional capacity of MAAIF and public agricultural agencies,* at MAAIF Headquarters, out of 886 of the approved establishment, 559 positions have been filled representing 63.9%; Out of 995 approved establishment for NARO, 859 positions are filled representing 86.3%; In NARO 4 scientists were sponsored for PhD and MSc Degrees and 5 staff PhD students were supported to undertake research to complete their degrees. There are 1,443 approved agricultural technical positions on LGs structures for production and marketing at district headquarters and 3,236 positions at the sub county; the process of recruitment for these positions is planned for in the FY 2016/17. A number of activities were undertaken to strengthen linkages and collaboration with LGs through dissemination of information and increased collaboration. To improve linkages and collaboration with semi-autonomous agencies, strengthening of the Agricultural Sector Working Group (ASWG) was done through holding more regular meetings and sharing of information. As for mainstreaming ATIs into MAAIF, a development project (identified and approved in FY 2014/15) to comprehensively revamp the training institutions in a phased manner is underway. MAAIF also initiated the project for construction of the new Headquarters, plans have been approved and funds are currently being sought to start construction. MAAIF in collaboration with MoFPED also harmonized the budget of the agricultural Sector to support the implementation of revamped extension system.

The planned outputs under capacity building were largely dependent on the implementation of the new MAAIF structure some modest progress was made as follows; MAAIF prepared a 3 year Capacity Building Plan (CBP) for the agricultural sector well aligned with the ASSP objectives. The CBP highlighted the financing modalities for development of agricultural sector personnel. The proposal was approved by the World Bank and MAAIF is looking for funds to support some of the priority areas identified by the CBP. In the meantime, during the FY under review, professional training opportunities were extended to the Ministry staff through bilateral arrangements.

The performance per subsector was follows.

Crop Subsector (12 Commodities)

1. Coffee

In the FY 2015/16, 158 million seedlings were generated and distributed in 89 LGs to 571,608 households while coffee quality improved reflected in the specialty and screen volumes. The volume of coffee exported was 3.563 million 60Kg bags valued at USD 352Mn while new markets that were penetrated included Korea, Australia and Ecuador.

2. Cotton

Cotton production in FY 2015/16 was 20,339MT as compared to 17,275MT that was produced in FY 2014/15 while the quantity of lint exported was 19,905MT as compared to 15,450MT exported in FY 2014/15.

3. Tea

Tea production was expanded in both traditional and new tea growing areas of *Zombo, Nebbi, Isingiro, Shema and Ntungamo* and just like coffee, only 6% of tea produced in Uganda is consumed locally. There are currently 28 active tea processing factories In Uganda while new tea production areas particularly Kisoro and Kabale Districts have already achieved the minimum hectarage of planted tea and therefore qualified for allocation of tea processing factories. Uganda Development Corporation (UDC) has advertised for bidders to supply the equipment for constructing the two tea processing factories.

4. Cocoa

In the FY under review, there was an increase in cocoa production from 24,008MT in FY 2014/15 to 24,800MT in FY 2015/16, with all the cocoa produced exported earning the country USD 69.4Mn compared to USD 67.2Mn in FY 2014/15. However, no domestic processing of cocoa into final products takes place in the country.

5. Vegetables Oil Crops

Between January 2010 and June 2016, the project disbursed a total of UGX 41.01Bn to the smallholder oil palm farmers of which UGX 7.5Bn has been repaid. Between January 2010 and December 2015, BUL and Oil Palm Uganda Limited (OPUL) have paid UGX 565Bn in Value Added Tax and Income Tax to GoU. As at the end of June 2016, 710 smallholder farmers had mature oil palm gardens from which they harvested 62,535MT tons of oil palm Fresh Fruit Bunches (FFB) valued at UGX 25.4Bn for the period January 2010 to June 2016. Uganda is now producing 21,000MT of crude palm oil per year valued at UGX 40Bn.

6. Rice

The rice industry in Uganda is growing at a rate of about 5%-7% per annum with local rice production estimated at 237,000MT of un-milled rice equivalent to about 154MT of milled rice which enables Uganda to save about USD 74Mn. The local demand or consumption in Uganda is estimated at 331,857MT of un-milled rice with the deficit accounted for by imports.

7. Maize, Beans and Cassava

Maize production in the year under review increased by 4.4% while beans production increased by 7.4%. On the other hand, Maize Lethal Necrosis Disease (MLND) incidences were brought down to less than 3.4% from 11.3% in the maize growing districts.

8. Fruits

Activities mainly focused on provision of extension services and ongoing construction of fruit processing factory for citrus and mangoes in *Soroti District* whose completion is expected to be by 2017.

9. Pests and Diseases Control

There were new pest invasions in the country like the Tomato Leaf Miner (*Tuta absoluta)* and the Bronze Bug (Eucalyptus Lice) with the potential to cause substantial yield loses in tomatoes and eucalyptus trees; with the former causing up to 100% yield loss. 3 main diseases of economic importance namely Banana Bacterial Wilt (BBW), Maize Lethal Necrosis (MLN) and Coffee Leaf Rust (CLR) were controlled with the prevalence rates now at 7.8%, 3.4% and 9.6% respectively.

10. Crop Inspection and Certification

Various old and new activities were implemented during the FY under review and included; investigation and prosecution of persons with illegal imports contravening the Agricultural Chemicals (Control) Act, counterfeiting (product and or labels) and sales of unregistered pest control products. In total, 11 cases were investigated out of which only 1 went through the court process with the accused person convicted and fined UGX 960,000. Another case involving counterfeiting seed was investigated and court convicted the person to community service. In addition a number of in-service trainings for staff were conducted while other members of staff underwent training on self sponsorship at post graduate level. 65 farmers from western Uganda, prison staff, UPDF officers and other stakeholder were trained on pasture seed growing at Mbarara University of Science and Technology (MUST). In addition, 33 district production staff were trained on inspection and enforcement of regulatory functions. An Electronic Certification System (ECS) was piloted to facilitate dissemination of information on the regulatory framework to all users and other interested parties. Application forms for registration of products and premises as well as forms for processing imports and exports can be downloaded for use from the website. MAAIF also developed standard training curriculum for farmers, agro-dealers, spray service providers, seed companies and growers as well as community based *Quality Declared Seed* production.

11. Food and Nutrition Security

MAAIF led a multi sector Food and Nutrition Project (FNP) initiative supported by the Global Agriculture and Food Security Programme (GAFSP) with the main objective of increasing production and consumption of micronutrient rich foods in farmer households. The other key sectors involved in project implementation are Ministry of Health (MOH) and Ministry of Education and Sports (MOES). The Project is being implemented in 15 districts including; *Bushenyi, Isingiro, Kabale, Ntungamo, Namutumba, Bugiri, Iganga, Nebbi, Maracha, Yumbe, Arua, Kabarole, Kiryandongo, Kyenjojo and Kasese*. In addition, the Partnership for Aflatoxin Control in Africa (PACA) facilitated the Ministry to establish a Mycotoxin Steering Committee that will guide the development of an Aflatoxin National Action Plan (ANAP) with the main objective of integrating necessary actions in the ASSP.

Fisheries Subsector

Total fish production from capture and aquaculture declined by 10.7% from 572,759MT in 2014 to 511,224MT in 2015. Decreases in total fish production were caused by significant reduction of capture fisheries output of mainly nile perch attributed mainly to rampant use of illegal and indiscriminate fishing gears and methods. As a result the value of fish caught fell by 49% from UGX 2,908Bn in 2014 to UGX 1,490Bn in 2015 (at beach level). Capture fisheries production fell by 14.6% from 461,730MT in 2014 to 394,224MT in 2015. The decrease was mainly attributed to reduced catch of Nile perch although tilapia and small pelagics catch increased. Overall, capture fisheries at 77%, was the major proportion of total fish production. The main commercial species caught included nile perch, tilapia and mukene. On the other hand, aquaculture production is steadily rising, in FY 2015/16, aquaculture production increased by

5.4% from 111,033MT in 2014 to 117,000MT in 2015. Tilapia was the predominantly farmed specie in addition to catfish and mirror carp. With regard to exports, in the FY 2015/16 exports of various fish products to international markets increased by 5.4% from 17.597MT in FY 2014/15 to 18.555MT in FY 2015/16. However, there was a decline in export value by 7.8% from USD 134.791Mn to USD 124.314Mn.

The ASSP targets agricultural growth of 5% every FY over its 5 year implementation period translating into projected fish production for aquaculture of 300,000MT and 530,000MT from capture by the year 2020. A comparison of production figures for 2014 and 2015 show that aquaculture production grew by 5.4% while capture fisheries production fell by -14.6%. The decrease in production from capture fisheries is mainly attributed to suspended enforcement activities resulting in rampant use of indiscriminate fishing gears.

Analysis of DFR projections along current trajectories of aquaculture and capture fisheries production compared with the ASSP targeted growth rate of **5% per year**, suggest that the fish production targets of 300,000MT for aquaculture and 530,000MT for capture fisheries by 2020 ***will not be met***. The data projections along current production trajectories with modest positive assumptions instead suggest a **deficit** of 150,625MT and 26,859MT to be registered for aquaculture and capture fisheries respectively. Projections and analysis suggest that meeting the fish production targets in the ASSP by 2020 will require boosting annual growth rate to 20% for aquaculture and 6% for capture fisheries with the ***important*** provision that interventions will require significant financial injections.

Livestock Subsector

Data from the 2015 Statistical Abstract shows that livestock population increased by about 2.5% to 3% per annum since 2008. The estimated current livestock population consists of 14.031 million cattle, 15.311 million goats, 4.198 million sheep, 3.916 million p*igs* and 45.144 million poultry birds.

1. Dairy Production

a) Milk production has grown from 1.96Bn litres in 2014 to 2.08Bn litres in 2015 while there are currently, 355 Milk Collection Centers (MCCs) with a total capacity of 1.5Mn litres and with the number of dairy processing plants continuing to grow. Approximately 33% of the marketed milk was processed in 2015 compared to 20% processed in 2014 registering an increase of 13% points. Currently, the number of milk processing companies which include cottages, small, medium and large scale stands at 79 with an installed capacity of 1.9Mn litres. Marketed milk increased from 70% of total milk production in 2014 to 80% of total production in 2015 while the value of marketed milk also increased from USD 521Mn in 2014 to USD 716Mn in 2015. Milk and milk products export value increased from USD 28.6Mn in 2014 to USD 50Mn in 2015 and the exports were mainly Ultra Heat Treated (UHT) milk, milk powder, casein protein, ghee and butter oil. The performance reflected good performance against dairy imports that stood at USD 5.4Mn;
b) The major dairy exports markets were USA for Casein, India for Ghee and others were COMESA, UAE, Rwanda, Congo, South Sudan, Kenya, Omen, Bangladesh and Nepal.

2. Meat and Meat Products

The beef, goat/mutton, pork and egg production in the year under review (2015) was estimated at 210,000MT, 49,000MT, 25,000Mt and 49,000MT respectively. Trends in exports of meat and meat products for 2015 show a decline in wet blue hides, beef, pork, Leather and dressed chicken compared to levels in 2014. NAGRC&DB and the private sector facilitated by MAAIF continued to undertake breeding of fast growing exotic and local goats and distributing them to beneficiary farmers for multiplication. Hybrid breeds of chickens that can perform very well under free range are now available. Pig production

was constrained by lack of good breeding stock which has resulted into widespread inbreeding also leading to poor performance

3. *Apiary*

With regard to production and exports, all bee products registered modest increases in production when comparing the FY 2014/15 and FY 2015/16 while honey exports registered stellar performances for both value and volume at USD 13.2Mn USD and 9.6Mn; and 4,100MT against 3,000MT for the same years.

4. Silk

The current cocoon production level is about 13T per year with most of it processed and sold as silk yarn to Ethiopia, Egypt and Hong Kong through Bushenyi Silk Farmers Association. There was a slight increase of 2.0% in cocoon production and 23% in silk yarn production due to improved technology in value addition, however there were no exports during FY 2015/16.

5. *Hides, Skins and Leather*

In the FY under review, 1,600MT of wet blue hides and skins and 1,200MT of leather were exported.

6. Pest, Vectors and Diseases

The country was challenged by high infestation of tick borne diseases as a result of increased resistance of ticks to acaricides. In addition, there was increased prevalence of Trypanosomiasis especially in *Kabong, Kotido and Buvuma* districts. The high prevalence of animal diseases and vectors greatly impacted on the contribution of the livestock subsector to sector growth and also jeopardized exports of livestock and livestock products. FMD outbreaks were reported in 12 districts in FY 2015/16 down from 71 districts in FY 2014/2015. Following interventions implemented during the FY, there was a reduction in the prevalence of FMD outbreaks from 40% in FY 2014/2015 to 5% in FY 2015/16 and a 15% reduction in the number of disease outbreaks generally in FY 2015/16. Following increasing reports of resistance to ticks, acaricide use was monitored in the districts of*: Masaka, Mukono, Kayunga, Buikwe, Nakasongola, and Busia.* The results indicated that 55% monitored observed proper acaricide mixing and 16% acquired bucket pumps for spraying. Generally, there was a reduction in the prevalence of reported outbreaks of priority diseases in the country.

Agricultural Extension Services

Following operationalisation of the Directorate of Agricultural Extension Services (DAES), the institutional processes to mainstream the Directorate into MAAIF's administrative, planning and budgeting frameworks were undertaken. 16 Technical officers out of the required 34 in the approved structure were posted to the Directorate for duties. Orientation was organized for all staff of the Directorate with support from the Policy Action for Sustainable Intensification of Ugandan Cropping Systems (PASIC) project with facilitators from Uganda Management Institute (UMI). Furthermore, MAAIF worked with the Ministry of Finance Planning and Economic Development (MoFPED) to expedite acquisition of a Vote Function and Program Codes for the DAES and its departments with the result that with effect from FY 2016/2017 the DAES started receiving a budget allocation. The major activities undertaken by the Directorate during the FY 2015/16 were largely funded from internal reallocations and off budget support from development partners. In terms of what has been addressed, the National Agricultural Extension Policy (NAEP) formulation process was concluded and submission made to cabinet pending approval and putting in place legislation for its implementation. The National Agricultural Extension strategy (NAES) was also completed and approved by MAAIF Top Management and is awaiting printing, dissemination and implementation.

Agricultural Infrastructure and Water for Agricultural Production

During the FY under review, consultations for review of the draft National Irrigation Policy were conducted pending resubmission to the cabinet secretariat. ToRs for development of National Agriculture Mechanization Policy were developed and reviewed by the technical committee while final draft guidelines to mainstream climate change in the agricultural sector were developed.

Under the WfAP interventions; 163 valley tanks were constructed with 159 in partnership with private farmers in 16 cattle corridor districts and 4 in partnership with FAO; feasibility studies completed for Sironko-Acomai and Atari River (*Bukedea, Bulambuli and Kween* districts) and the report submitted and approved by JTC. 3 Water Users Association (WUA) and 360 farmers trained in the operation maintenance and management as well as in water and value chain management of the rehabilitated 3 large irrigation schemes of Agoro, Doho and Mubuku. Preparatory activities for the establishment of new irrigation schemes in *Bugiri and Iganga* Districts under a Public Private Partnership (PPP) by Islamic Development Bank (IDB) and GoU included; training of farmers, awareness creation on the different roles and responsibilities, establishment of a database for rice farmers, signing an MoU with the Private Sector, recruitment of PMU staff as well as constituting district Implementation Committees. 3 small scale irrigation systems of 4 acres each were installed and operationalised.

Under mechanisation 1 bulldozer and Excavator were procured and delivered, 120KM of farm road opened in 12 districts and 4,528 acres of farmland opened in 13 districts. In addition, 4 new tractor makes and other agricultural machinery were tested at regional centres of Namalere and in the districts of *Mukono, Lira, Soroti and Gulu* while recruitment and training of 7 tractor operators was undertaken and the units deployed for testing

Human Resource Management

MAAIF also registered a number of achievements under institutional strengthening including but not limited to; initiation of the MAAIF HQ construction project; operationalisation of the MAAIF HQ and LG Production department approved structures; improved linkage and collaboration with Agencies and LGs, mainstreaming ATIs in MAAIF through restructuring and support provision; conducted limited capacity building due to inadequate resources; harmonised the MAAIF, NAADS and LG budgets; recruited staff resulting in a 63.9% establishment in MAAIF HQ and operationalized the LG PDM structures.

National Agriculture Research Organization (NARO)

Agricultural Research through the National Agricultural Research System (NARS) spearheaded by NARO generated a number of improved varieties of crops such as bananas and cassava that are rich in vitamin A and tolerant to diseases like BBW and CBSD in addition to availability of information on managing and accessing the varieties. NARO also developed techniques such as aquaponics for fish farming and vegetable farming on small land; superior and more nutritious animal forage, feed production systems and information on sexed semen for improving livestock breed quality and productivity. NARO also conducted a number of capacity building interventions.

National Agriculture Advisory Services (NAADS) Secretariat

NAADS Secretariat procured and distributed seed in collaboration with OWC for various commodities across the country covering approximately an acreage of **403,796 acres** with an expected income of UGX **1.3Tn** after harvest. In addition, vegetative materials and seedlings for various commodities were distributed across the country covering approximately an acreage of **192,698 acres** with an expected income of **UGX 1.5Tn** annually.

CHAPTER ONE: BACKGROUND

1.1 Introduction

Uganda is signatory to the Comprehensive Africa Agriculture Development Programme (CAADP) and the New Partnership for African Development (NEPAD) programme all formulated under the aegis of the African Union (AU). Implementation of these continental programmes require utilization of a mutual accountability tool in the form of national Joint Sector Reviews (JSRs). The reviews provide a forum for collective multistakeholders' assessments of sector performance and mutual agreement on priority interventions for subsequent improvement. It is in this context that Uganda' second National Development Plan (NDP) II for the Financial Years (FY) 2015/16-2019/20 implementation modalities, oblige sectors to conduct comprehensive reviews based on ***their annual performance reports***. Accordingly and in line with this requirement, the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) has in collaboration with agriculture sector stakeholders been organizing Joint Agricultural Sector Annual Reviews (JASARs) since 2011 with 6 reviews conducted to date with the latest held on the 29th and 30th September 2016.

This document is fulfillment of the NDP II implementation requirements and in that regard, captures and presents an overview of the performance of the Ministry, Departments and its Agencies for the FY 2015/16. The document is composed of four sections that include; an introduction; overall sector performance presented at macro level; detailed sub sector performance at outputs level and an overall conclusion.

1.2 MAAIF Structure and Mandate

1.2.1 MAAIF Mandate

The mandate of MAAIF is to *support, promote and guide production of crops, livestock and fisheries so as to improve quality and increased quantity of agricultural produce and products for domestic consumption, food security and export.*

1.2.2 MAAIF Structure

The structure for the Ministry of Agriculture, Animal Industry and Fisheries in the Financial Year (FY) 2015/16 constituted; 4 directorates with 13 departments; 4 stand alone departments and 3 specialized units as the main organizational entities of the Ministry described hereafter as follows.

i. **Directorate of Animal Resources,** with 3 departments namely:-
   a) Animal Health;
   b) Animal Production;
   c) Entomology.

ii. **Directorate of Crop Resources,** with 3 departments namely:-
   a) Crop Inspection and Certification;
   b) Crop Production;
   c) Crop Protection.

iii. **Directorate of Fisheries Resources,** with 3 departments namely:-
   a) Aquaculture Management and Development;
   b) Fisheries Control, Regulation and Quality Assurance;
   c) Fisheries Resource Management and Development (Natural Stocks).

iv. **Directorate of Agricultural Extension Services** with 2 departments namely:-
   a) Agricultural Extension and Skills Management;
   b) Agricultural Investment and Enterprise Development.

v. **4 Stand Alone Departments namely**:-
   a) Finance and Administration;
   b) Agricultural Policy and Planning;
   c) Agricultural Infrastructure and Water for Agricultural Production;
   d) Human Resource Management.

vi. 3 Specialized Units namely:-
   a) Procurement and Disposal of Public Assets Unit;
   b) Internal Audit Unit;
   c) ICT Unit.

There are **2 Agricultural Training Institutions (ATIs**) namely:-
   a) Bukalasa Agriculture College (BAC);
   b) Fisheries Training Institute (FTI).

There are also 7 **Semi Autonomous Agencies** namely:-
   a) Coordinating Office for the Control of Trypanosomiasis in Uganda (COCTU);
   b) Cotton Development Organization (CDO);
   c) Dairy Development Authority (DDA);
   d) National Agricultural Advisory Services (NAADS);
   e) National Agricultural Genetic Resource Centre and Data Bank (NAGRC&DB);
   f) National Agricultural Research Organization (NARO);
   g) Uganda Coffee Development Authority (UCDA).

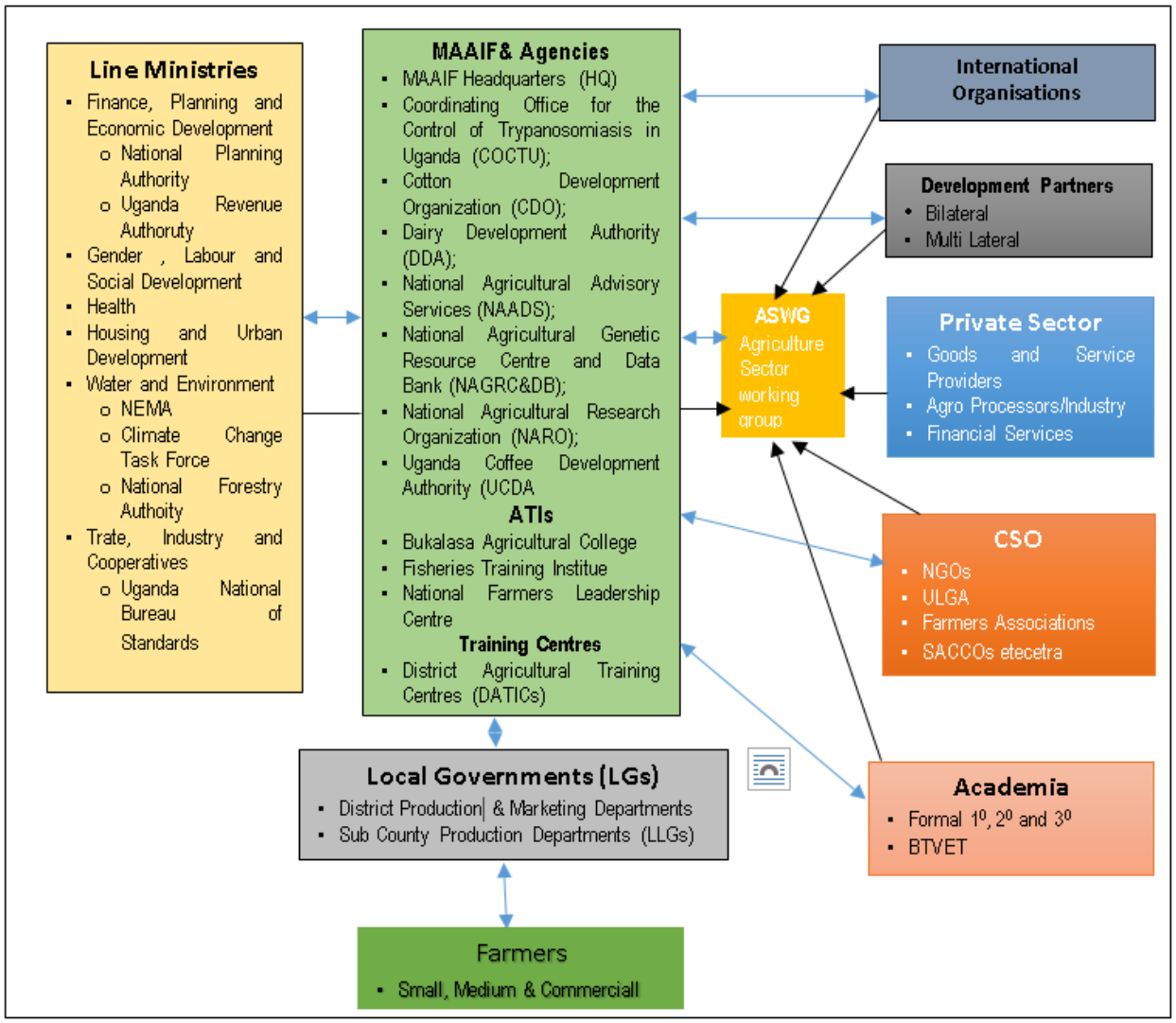
1.3 Institutional Composition of the Agriculture Sector

The agriculture sector is composed of the following institutions.

i. MAAIF its Agencies, Departments, Agriculture Training Institutes and District Agricultural Technology and Information Centres (DATICs) located in District Local Governments;
ii. Other line ministries including; Finance, Planning and Economic Development, Gender, Labor and Social Development, Health, Trade, Industry and Cooperatives, Public Service, Local Government, Water and Environment, Works and Transport, Lands, Housing and Urban Development among others;
iii. Local Government (LG) Production Departments;
iv. The Private Sector;
v. Development Partners;
vi. Civil Society Organisations (CSO);
vii. International and Regional Organizations;
viii. Academia;
ix. Farmers (Small, Medium and Commercial)

The institutions and relationships with MAAIF and public agriculture institutions are depicted in the figure presented hereafter.

Figure 1: Agriculture Sector Institutions



Source: MAAIF 2016

1.4 Document Structure

The report is presented in 4 chapters as follows; Chapter 1 presents the background including an introduction of the context, an overview of the MAAIF mandate and structures. Chapter 2 presents overall agriculture sector performance that covers trends and progress of achievements measured against the NDP II indicators as well as those in the Agriculture Sector Strategic Plan (ASSP) 2015/16-2019/20. The narrative focuses on outcome and where available impact or intermediate result level achievements. Chapter 3 covers 3 categories of agriculture sector performance as follows; the first covers crop, livestock, fisheries and agricultural extension services. The second category includes performance of departments of Human Resource Management (HRM) as well as of Agricultural Infrastructure and Water for Agricultural Production (AIWfAP). The third category covers performance under the MAAIF Agencies of National Agriculture Research Organization (NARO) and National Agriculture Advisory Services (NAADS). In assessing performance, the presentation reviews, mandates, functions, achievements against targets, challenges and actions taken to mitigate them, collaborative partnerships, response to JASAR 2015 issues and recommendations as well as plans for the FY 2016/17 and Chapter 4 presents the overall conclusions arising from the performance review of the sector.

CHAPTER TWO: OVERALL SECTOR PERFORMANCE

2.1 Budget Performance

Overall, the sector had an approved budget in FY 2015/16 of UGX 476.168Bn (Excluding taxes, arrears and Non Tax Revenue). By the end of June 2016, UGX 425.811Bn had been released, of which UGX 416.195Bn was spent on the various activities of the different institutions in the sector. Most of the funds under the Government of Uganda (GoU) budget component were released by the Ministry of Finance, Planning and Economic Development (MFPED) to the various departments and agencies within the sector to the tune of 98.7%. The Ministry and its agencies managed to absorb 98.4% of the GoU funds to the various planned activities and outstanding commitments.

Table 1: Overview of Sector Budget Performance 2014/15

Budget Classification		Annual App Budget 2015/16 in UGX Bn.	Releases by June 2015 in UGX Bn	Expenditure by June 2015 in UGX Bn	Outturn (Releases against App Budget) %	Absorption (Expenditure against Releases) %
Recurrent	*Wage*	46.522	45.887	45.221	80.3	98.6
	N-Wage	103.570	101.158	98.237	89.4	96.8
Development	*GoU*	234.330	231.758	229.215	98.9	98.9
	Donor	91.716	47.008	43.522	**51.3**	92.6
Total GoU		**384.452**	**378.793**	**372.673**	**98.7**	**98.4**
Total GoU+ Donor (MTEF)		**476.168**	**416.915**	**416.195**	**89.4**	**97.7**
Arrears and Taxes	**Arrears**	*0.743*	*0.743*	*0.743*	*100.0*	*100.0*
	Taxes	*3.903*	*3.770*	*2.352*	*96.6*	*62.4*
NTR	NTR	*29.676*	*21.296*	*20.966*	*71.8*	*98.4*
Grand Total Including arrears, NTR and taxes		**510.491**	**451.620**	**440.256**	**88.5**	**97.5**

Source: MAAIF 2016

There was low budget outturn under the Donor Development budget component of the sector budget (only **51.3%**). This was mainly attributed to the following:-

a) The delay in commencement of project 1316 namely ***Enhancing National Food Security through increased Rice Production in Eastern Uganda*** to be supported by an anticipated loan from the Islamic Development Bank (IDB). The project had an approved budget of UGX 3.106Bn in FY 2015/16; and an approved budget of UGX 20.47Bn in the FY 2016/17. This has affected implementation of irrigation development infrastructure and irrigation activities to promote rice production in Eastern Uganda. GoU fulfilled all the conditions for declaring the project effective however the reasons for the delay on the side of IDB are not clear but the Ministry of Finance Planning and Economic Development (MFPED) is handling the issue;

b) The delayed formal approval of **project 1263 namely *the Agriculture Cluster Development Project (ACDP)* by** Parliament. The project which is supported by the World Bank had an approved donor budget of UGX 6.2Bn in FY 2015/16 and UGX 30.2Bn in the FY 2016/17 to undertake activities of promoting production, productivity and value addition of strategic commodities in various production clusters in the country. Formal approval of the project by Parliament is currently in the final stages;

c) The late approval and commencement of **Project 1363 namely the Regional Pastoral Livelihood Improvement Project (RPLIP).** The project which supports animal production and disease control activities in mainly Karamoja sub region had an approved donor budget of UGX 7.45Bn in FY 2015/16 and became effective in the second half of the FY resulting into many of the planned

activities being rolled over to FY 2016/17. The project has since become fully operational with an approved donor supported budget of UGX 32.05BN in the FY 2016/17.

All vote functions except Diary Development Authority (DDA) received over 80% of their approved budgets from the MFPED. Furthermore, the vote function of Cotton Development Organization (CDO) had a budget outturn of 157.8% because they received a supplementary release to address cotton buffer stock financing.

Table 2: Agriculture Sector GOU Budget Performance by Vote Function FY 2015/16 in UGX Bn (Excluding Taxes, Non Tax Revenue and Arrears).

Vote Function	Approved Budget UGX Bn	Released UGX Bn	Expenditure UGX Bn	% Budget Released	% of Releases Spent
VF: 0101 Crops	22.60	20.58	19.82	*91.1%*	*96.3%*
VF: 0102 Animals	25.18	23.00	20.90	*91.3%*	*90.9%*
VF: 0149 Policy, Planning & Support Services	41.13	36.59	33.35	*89.0%*	*91.1%*
VF: 0155 Dairy Development	5.04	3.92	3.91	*77.7%*	*99.7%*
VF 0105 Urban Commercial & Production Services	6.36	5.68	5.76	*89.4%*	*101.3%*
VF 0156 Breeding and Genetic Development	4.15	3.893	3.893	*93.8%*	*100.0%*
VF: 0151 Agricultural Research	36.87	35.66	35.66	*96.7%*	*100.0%*
VF: 0152 Cotton Development	5.30	8.37	8.36	*157.8%*	*99.9%*
VF: 0153 Coffee Development	27.91	27.21	27.21	*97.5%*	*100.0%*
VF: 0154 Agriculture Advisory Services	178.68	183.36	183.28	*102.6%*	*100.0%*
VF: 0182 District Production Services	30.53	30.53	30.53	*100.0%*	*100.0%*
Grand Total	**384.452**	**378.793**	**372.673**	**98.7%**	**98.4%**

Source: MAAIF 2016

2.2 Trends and Progress Measured Against ASSP Outcome Indicators 2015/16

2.2.1 Agriculture Sector Strategic Outcomes

2.2.1.1 Economic Overview

Many factors influence or are influenced by the performance of the agriculture sector. This section reviews the country's economic performance in terms of *growth, inflation and exchange rate* and their relationship to sector performance in FY 2014/15.

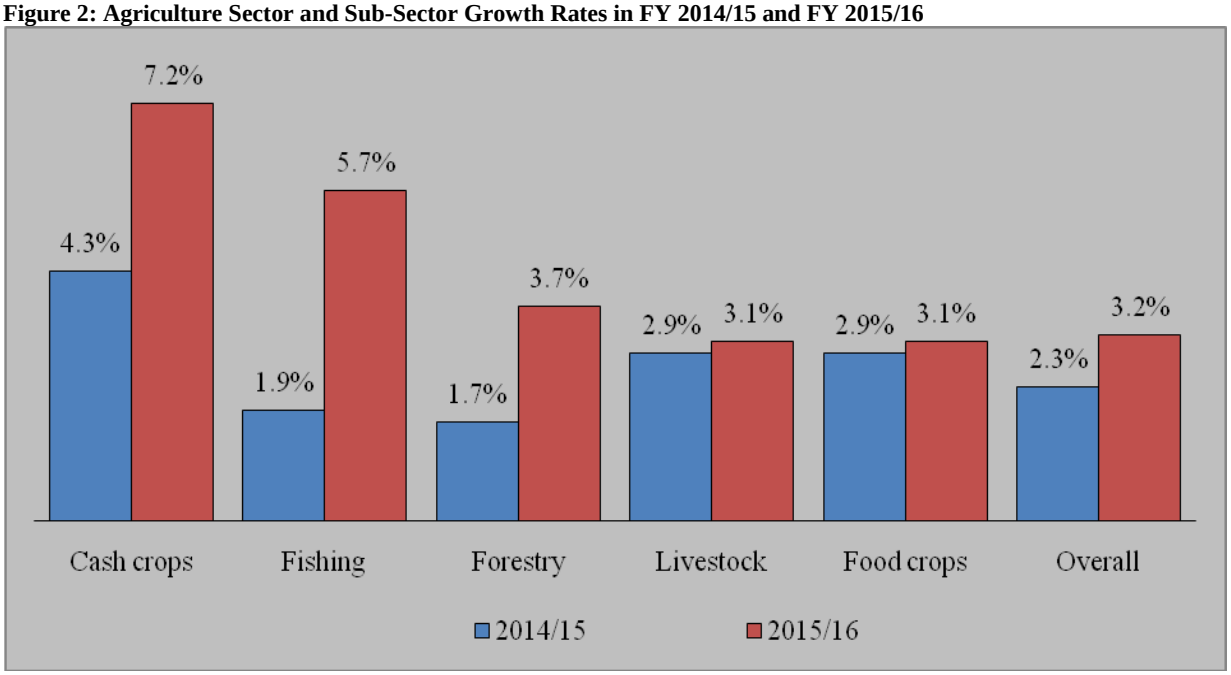
a) Economic Growth

Uganda's economy in real terms expanded to UGX 55.7Tn in FY 2015/16 up from UGX 53.2Tn registered in the previous FY 2014/15 representing a 4.6% GDP growth rate which was lower than 5.0% registered in FY 2014/15. In his budget speech on 8th June 2016, the Honorable Minister of Finance Planning and Economic Development attributed this to the following factors:-

i. The *sharp fall in international commodity prices* such as *coffee, tea and minerals* which form the bulk of the country's exports;
ii. The decline in private sector credit growth as a result of high interest rates which constrained domestic economic activity; and
iii. The depreciation of the Uganda shilling which increased the cost of imports, thereby constraining business cash flows and fueled domestic inflation.

The agriculture sector contributed to the expansion of the size of the economy. It grew by 3.2% up from 2.3% in 2014/15 driven by positive growth in all the 3 sub-sectors. Figure 1 shows the growth of the contributors to agricultural sector growth.

Figure 2: Agriculture Sector and Sub-Sector Growth Rates in FY 2014/15 and FY 2015/16

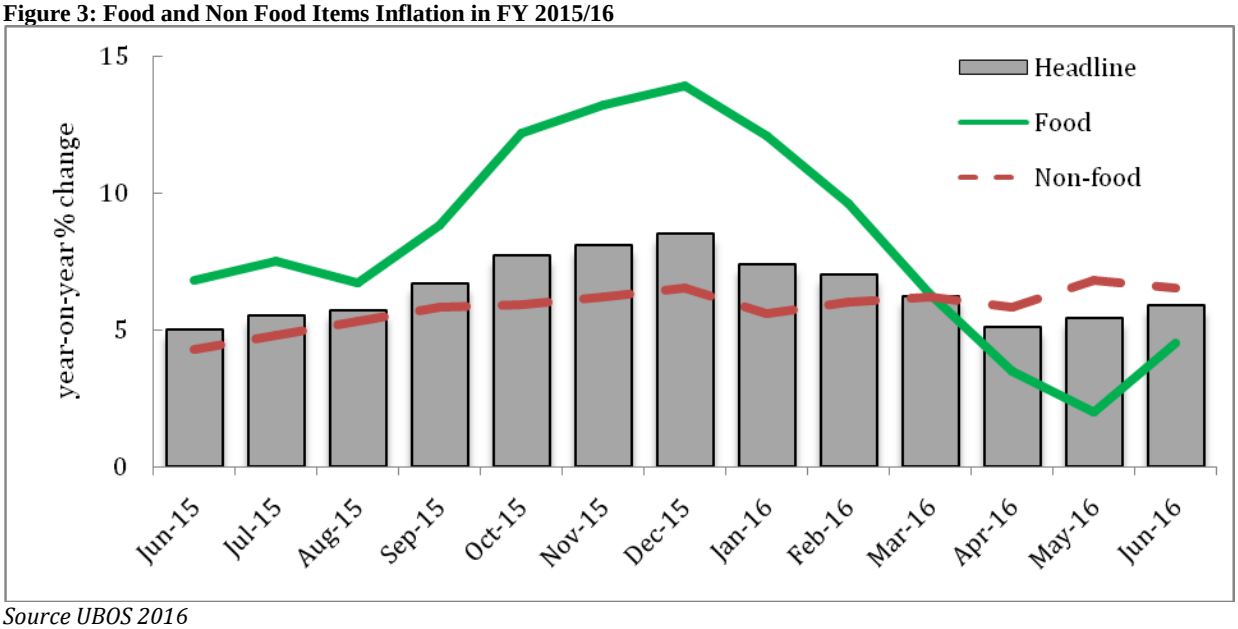


Source: Background to the Budget 2016/17

b) Inflation

In FY 2015/16, average headline inflation was 6.6% as compared to 3.0% in FY 2014/15. The trend in annual inflation progressively increased in the first half of the year to a high of 8.5% in December 2015. The falling international commodity prices, *local food prices* and energy prices helped to hold back inflation in the rest of the FY, despite the impact of exchange rate depreciation. The annual average food and non-food inflation rates were 8.4% and 5.7% respectively. Figure 2 depicts the month on month changes in in the FY in inflation for food items and non-food items. Food items includes food crops such as maize, beans, cassava, *matooke* and non food crop items such as meat, dairy products, and processed foods). Non-food items include such items as utilities, fuel, clothing, footwear, beverages and transport.

Figure 3: Food and Non Food Items Inflation in FY 2015/16



Source UBOS 2016

c) Exchange Rate

The shilling opened the FY 2015/16 trading at an average official exchange rate of Uganda Shillings (UGX) 3,360 against the United States Dollar (USD) in July 2015 and closed at an average of UGX 3,368 in June 2016. The depreciation of the exchange rate during the year was largely attributed to the US Dollar which gained strength against other major international currencies with which Uganda conducts trade. In addition, the stagnation in export receipts led to rapid weakening of the Uganda Shilling. It is important to note that a weaker shilling would normally stimulate economic activity because farmers would enjoy higher commodity and export prices. However, Uganda's agricultural exports are mainly in raw form and primary goods do not command a high price in the international market. Furthermore, as already noted above, international commodity prices for agricultural exports also fell due to oversupply and weak global demand.

d) Private Sector Credit to Agriculture

High interest rates and a depreciated Uganda Shilling in FY 2015/16 was mainly due to the effects of the tighter monetary policy, featuring a pronounced decline in credit growth for the agriculture sector in FY 2015/16 relative to FY 2014/15. The average annual private sector credit growth in FY 2014/15 was 35.8% which decreased to 17.9% by March 2016 (Background to the Budget FY 2016/17).

2.3 Overall Sector Performance and Progress in FY 2015/16

This section provides an overview of the sector performance against the ASSP performance indicators. Over the ASSP period, the agriculture sector aims at achieving three outcomes:-

1. Outcome 1: Increase productivity by farmers to at least 50% of the yields at research stations for the 12 priority commodities;
2. Outcome 2: Transform subsistence farmers into enterprise farmers and transform smallholders farmers into commercial farmers;
3. Outcome 3: Increase agriculture exports to at least USD 4Bn per year.

The ASSP lists 8 indicators for all these outcomes, however data was available for only 4 of them mostly because the recommended sources did not have updated data or there were simply no alternative sources. The recommended sources include the Uganda National Household Survey (UNHS) for which available data was for 2012/13 and the Statistical Abstract which had not been published by the time of the review. In cases where data could not be accessed to assess the current status of the indicator, it is indicated as "***not assessed***", while for some of the indicators whose status was assessed, alternative sources that included the Background to the Budget report for FY 2016/17 and Bank of Uganda (BoU) statistical data were used.

Outcome 1: *Increase productivity by farmers to at least 50% of the yields at research stations for the 12 priority commodities*

Table 3: Progress on the Indicators

Indicator	Progress
Level of household agricultural income	Not assessed
Percentage of labour force in agriculture	Not assessed
Percentage change in agricultural contribution to total GDP	The share was 23% in FY 2014/15 and 22.4% in FY 2015/16 (Background to the Budget) representing a decline of 0.6 percentage points

Source: MAAIF 2016

Outcome 2: *Transform subsistence farmers into enterprise farmers and transform smallholder farmers into commercial farmers*

Table 4: Progress on the Indicators

Indicator	Progress
Percentage change in the labour force in subsistence production	Not assessed
Percentage annual growth in agricultural value added	Agricultural sector grew from 2.3% in FY 2014/15 to 3.2% in FY 2015/16 (Background to the Budget 2016/17) representing an increase of 0.9 percentage points

Source: MAAIF 2016

Outcome 3: *Increase agriculture exports to at least US$4 billion per year*

Table 5: Progress on the Indicators

Indicator	Progress
Value of agricultural exports	Value in 2014 was USD 1.29Bn (MAAIF 2016, ASSP). Value in 2015 was about USD 1.31Bn (Bank of Uganda statistics)
Percentage change in ratio of agricultural exports to total exports	The ratio was 57% in 2014 (ASSP document) while the preliminary estimate in 2015 is 58% using Bank of Uganda statistics, representing a 1 percentage point increase.
Percentage change in ratio of agricultural exports to agriculture GDP	Not assessed

Source: MAAIF 2016

2.3.1 Sector Outputs and Indicators

The ASSP sector outputs and targets are:-

a) Increasing agriculture production and productivity;
b) Increasing access to critical farm inputs;
c) Improving agricultural markets and value addition for the 12 prioritised commodities, and
d) Strengthening institutional capacity of MAAIF and public agricultural institutions.

The ASSP outlines indicators under each of these outputs but for the majority of them data was not available. This report used proxy indicators in some cases to indicate changes in outputs in FY 2015/16 as compared to FY 2014/15 with the main data source in Chapter 3 of this report.

a) ***Increasing Agricultural Production and Productivity***

The table presented hereafter shows the quantity and change in the production of priority and other commodities. The general observation is that all commodities registered positive change in quantity produced. The underlying factors for this change are provided in Chapter 3 of this report.

Table 6: Production of Selected Commodities in FY 2014/15 and FY 2015/16

Commodity	Production			
	Unit	FY 2014/15	FY 2015/16	% Change
Coffee				
Cotton	MT	17,275	20,339	17.7
Tea				
Cocoa	MT	24,008	24,800	3.3

Commodity	Production			
	Unit	FY 2014/15	FY 2015/16	% Change
Oil Palm*	MT	75,861	92,215	21.6
Rice	MT		237,000	7.0
Maize	MT			4.4
Beans	MT			7.4
Cassava	MT			
Bananas	MT			4.7
Citrus	MT			
Mangoes	MT			
Apples	MT			
Fish*	MT	572,759	511,224	-11.0
Cattle*	No.	13,623,000	14,031,311	3.0
Sheep*	No.	3,842,000	4,197,978	9.3
Pigs*	No.	3,584,000	3,916,287	9.3
Goats*	No.	14,011,000	15,311,507	9.3
Chicken*	No.	44,498,010	45,144,990	1.5
Milk*	Million Litres	1,960	2,080	6.1
Beef	MT			
Goat/mutton	MT			
Pork	MT			
Honey	MT	12,000	12,220	1.8

Source: MAAIF Sub Sector Performance Reports (Chapter 3 of this report)

b) Increasing Access to Critical Farm Inputs

The ASSP prioritized the following farm inputs:-

a) Agricultural machinery;
b) Quality seeds and planting materials;
c) Water for agricultural production;
d) Fertilizers.

Table 7: Summarizes Performance on Procurement and Provision of Key Farm Inputs

Input	Access
Agricultural machinery	• 40 tractors procured but not distributed • 12 solar water pump systems installed in 8 districts
Quality seeds and planting materials	• Over 9,800MT of crop seed (*maize, beans, rice, soybean, groundnuts*) distributed to 571,608 households in 89 districts expected to cover at least 700,000 acres • Vegetative materials for various commodities were distributed across the country covering over 192,698 acres
Water for agricultural production	• 163 valley tanks were constructed through partnerships • 3 small scale irrigation systems of 4 acres each were installed and operationalized
Fertilizers	• Under CDO 30MT provided to farmers at subsidized prices or on credit • Under VoDP, 1,764.1T (NPK super and blue, MOP, Dolomax, Kisenite and Rock Phosphates

Source: MAAIF 2016

c) **Output 3: Improving Agricultural Markets and Value Addition for the 12 Prioritised Commodities**

The following table depicts the exports of commodities in the 2 FYs of 2014/15 and 2015/16.

Table 8: Volumes and Values for the Strategic Commodities Exports

Commodity	Exports			
	Unit	FY 2014/15	FY 2015/16	% Change
Coffee	Volume (60 Kg Million Bags)	3.563	3.236	+ 10
	Value (USD)	402 million	352 million	- 13
Cotton lint	Volume (MT)	15,450	19,905	+ 28.8
	Value (USD)	22.04 million	25.81 million	+ 17.1
Tea	Volume (MT)			
	Value (USD)			
Cocoa	Volume (MT)	24,008	24,800	+3.3
	Value (USD)	67.2 m	69.4 m	+3.3
Crude palm oil*, **	Volume (MT	)18,652	22,662	+21.5
	Value (UGX)	129.04Bn	129.53Bn	+0.4
Rice	Volume (MT)			
	Value (USD)			
Maize	Volume (MT)			
	Value (USD)			
Beans	Volume (MT)			
	Value (USD)			
Cassava	Volume (MT)			
	Value (USD)			
Bananas	Volume (MT)			
	Value (USD)			
Citrus	Volume (MT)			
	Value (USD)			
Mangoes	Volume (MT)			
	Value (USD)			
Apples	Volume (MT)			
	Value (USD)			
Fish**	Volume (MT)	17,597	18,555	+ 5.4
	Value (USD)	134.79 m	124.31m	-7.8
Milk exports	Volume	1.56Mn liters of UHT and 4,292MT of other dairy products	1.96Mn liters of UHT and 4,759MT of other dairy products	+74.8
	Value (USD)	28.6 million	50.0 million	-70.1
Beef exports**	Volume (Kg)	183,812	54,906	
	Value (USD)			

^= *crude palm oil produced and value of revenue generated.*

***The years are 2014/15 and 2015/16 respectively and Source: Chapter 3 of this report*

d) **Output 4: Strengthening Institutional Capacity of MAAIF and Public Agricultural Institutions.**

i. At MAAIF Headquarters, out of 886 of the approved establishment, 559 positions have been filled

representing 63.9%;

ii. Out of 995 approved establishment for NARO, 859 positions are filled representing 86.3%;
iii. In NARO 4 scientists were sponsored for PhD and MSc Degrees and 5 staff PhD students were supported to undertake research to complete their degrees;
iv. There are 1,443 approved agricultural technical positions on the structure for production and marketing at district headquarters and 3,236 positions at the sub county; The process of recruitment for these positions is planned for in the FY 2016/17

CHAPTER THREE: SUB SECTOR PERFORMANCE

This chapter presents an overview of sub sector performance for the 3 Directorates of Crops, Livestock, Fisheries and the Directorate for Agricultural Extension Services. In addition, it presents performance reviews from NARO and NAADS Agencies as well as from the departments of Agriculture Infrastructure and Water for Agricultural Production (AIWfAP) and Human Resource Management (HRM).

3.1 Crop Sub Sector Performance

3.1.1 Introduction

The Directorate of Crop Resources constitutes three (3) departments namely; *Crop Production*, *Crop Protection as well as Crop Regulation and Certification* each headed by a Commissioner. Two of MAAIF's agencies namely *Coffee Development Authority (CDA)* and *Cotton Development Organization (CDO)* are directly linked to the Directorate.

Table 9: Development Projects under the Directorate in FY 2015/16

S/N	Project	Department	Funding
1	Support for Tea & Cocoa seedlings	Crop Production	GoU
2	Vegetable Oil Development Project Phase 2		GoU & IFAD
3	Rice Development Project (PRiDe)	Crop Production	GoU & JICA
4	Agriculture Cluster Development Project (ACDP)	Directorate of Crop Resources	GoU & WB
5	Commercialization of Agriculture in Northern Uganda	Crop Production	GoU & FAO
6	Uganda Multi-sectoral Food Security and Nutrition Project	Crop Production	GoU & GAFSP
7	Banana Livelihoods Diversification Project	Crop Production	GEF
8	Uganda-China South to South Cooperation Phase II	Crop Production	GoU, Republic of China and FAO
9	Northern Uganda Farmers' Livelihoods Improvement Project	Crop Production	GoU & JICA
10	Agriculture Technology Transfer (AgriTT): Cassava Value Chain Development Project	Crop Production	GoU & DFID
11	Enhancing National Food Security through increased Rice Production in Eastern Uganda		IDB
12	Potato Commercialization Project	Crop Production	GoU
13	Crop Pests and Diseases Control Phase 2	Crop Protection	GoU

Source MAAIF 2016

This report focuses on the performance of the Directorate of Crop Resources based on the recurrent and development activities implemented through its departments, agencies and projects during the FY 2015/16. The report outlines the mandate and functions of the Directorate, issues that were targeted for addressing during the FY under review, subsector performance, challenges and mitigation strategies, collaborative partnerships including stakeholder involvement as well as responses to issues and recommendations from the last JASAR 2015.

3.1.2 Mandate of the Directorate

The mandate of the Directorate is the promotion of crop production, value addition and marketing, crop pests and disease control; enforcement of regulations and standards on agricultural chemicals, plant health and seed quality.

3.1.3 Functions of the Directorate

The functions are to:-

a) Provide technical guidance for formulation and implementation of policies, plans and strategies in crop production, marketing, protection, inspection and certification;
b) Support, supervise and monitor:-
   i. Sustainable market oriented production;
   ii. Crop pests and diseases control;
   iii. Plants and plant products quality and safety;
   iv. Primary processing and value addition of crop products;
   v. Improved food and nutrition security;
   vi. Irrigation and agricultural mechanization.

3.1.4 Performance of Priority and Strategic Commodity Development

The performance of the directorate is presented in respect of specific priority and strategic crop commodities, crop protection, crop Inspection and certification, policy formulation and review as well as food and nutrition security activities. The commodities include: *coffee, cotton, oil palm, tea, cocoa, rice, maize, beans, cassava, bananas, citrus and mangoes.*

The crop protection activities under review include pest and disease control whereas the crop inspection and certification activities include quality assurance on agricultural inputs, agricultural imports and exports.

3.1.4.1 Coffee

Performance for FY 2015/16

In the FY 2015/16, 158 million seedlings were generated distributed in 89 districts to 571,608 households while coffee quality improved reflected in the specialty and screen volumes. The volume of coffee exported was 3,563 million 60 Kilogram bags valued at USD 352Mn and new markets that were penetrated included Korea, Australia and Ecuador. Meanwhile,

a) Planned and Actual Outputs

The planned outputs for FY 2015/16 and the actual outputs and outcomes are in the table presented hereafter.

Table 10: Planned Actions and Performance Outputs for the Coffee Crop Sub-Sector

Interventions	Planned Actions/ Targets	Performance Outputs and Intermediate Outcomes	Remarks
Production, Research & Coordination	Raise 96 million seedlings; 76 million Robusta and 20 million Arabica	Raised 116.6 million Seedlings comprising 68.2m Robusta and 43.4m Arabica Distributed 128.1 million seedlings by 571,608 households	Above target seedlings raised to meet the new target to raise 300 million coffee seedlings.
	Distribute 100,000 CWD-R plantlets to at least 285 CWD-R Nursery operators	Distributed 37,400 Coffee Wilt Disease Resistant (CWDR) seedlings to 34 mother gardens.	The CWD-R target was not achieved because of the slow biological process of the Tissue Culture Propagation (TCP) method
	Procure 1 million tissue culture seedlings	0.475 Million seedlings are at various stages of development of tissue culture process.	

Interventions	Planned Actions/ Targets	Performance Outputs and Intermediate Outcomes	Remarks
	Wean and harden 1 million tissue culture seedlings	1.28 million Tissue culture seedlings under weaning and hardening.	
	Support 40 CWD-R mother gardens with capacity to produce 10,000 cuttings in the 2nd year of production	Supported 27 mother gardens with nursery equipment for infrastructure development. The supported nurseries produced 93,947 cuttings.	The underperformance was due to lack of adequate CWD-R seedlings generated through tissue culture
	Facilitate 30 District Coffee Platforms to hold coffee shows	Facilitated 30 District Coffee Platforms to undertake district based coffee production and promotional activities	Intervention achieved as planned
Coffee Development in Northern Uganda	Raise 4 million coffee seedlings	Raised a total of 4,977,774 seedlings with 2.463 million seedlings available for planting in the second season	
	Establish 20 Technology Development Sites in 20 sub counties.	Established 19 Technology Development Sites (TDS)	Farmers preferred to support the TDS
	250MT of Kiboko sold by farmers	Marketed 188.92MT of Kiboko by farmers.	Low production was due to change of crop cycle and adverse flower and fruit abortion
	64 Farmer Field Schools sessions (FFS) conducted	Conducted 63 FFS sessions	
Quality Assurance	3.8 million bags inspected and loaded for exports	Certified 3.56 million bags of coffee (Robusta, 2.69 million bags and Arabica 0.86 million 60kg bags)	The number of bags of coffee certified declined due to a decrease in the volume of coffee exports mainly occasioned by the new Sudanese inspection procedures and adverse weather
Value Addition and Generic Promotion	Showcase Uganda coffee in 6 local trade fairs	Showcased Ugandan coffee in 10 local trade fairs	The number of shows increased due to local demand
	Penetration of new markets	Exported 156,178 60Kg bags or 9,370.68MT of coffee to the Asia pacific region.	This is due to the promotional efforts in the region
	Promote Uganda Coffee in 5 International coffee events	Promoted Uganda Coffee in 6 International coffee events a. African Fine Coffees Conference and Exhibition (AFCA), Dar es Salam, Tanzania: b. UNAA, New Orleans USA; c. Milano Expo 2015, Italy; d. Specialty Coffee Association of America (SCAA), Atlanta Georgia, USA, e. Specialty Coffee Association of Japan (SCAJ), Tokyo, Japan and f. Specialty Coffee Association of Europe (SCAE), Dublin, Ireland)	
	Support 1 promotional centre to promote Ugandan Coffee in Asia-Pacific regions	Supported promotional center in China and promoted Ugandan coffee at the	

Interventions	Planned Actions/ Targets	Performance Outputs and Intermediate Outcomes	Remarks
		a. Food and Hospitality World China 2015, b. Zhongshan Trade & Investment Fair, c. 23rd Uganda Consulates Trade Exhibition 2015, Guangzhou d. Launch of Wuhan Coffee Museum Expo and e. Fushan Barista Championship	
	Train 40 Youth to participate in the Inter-university Barista Championships	Trained 40 Youth who participated in the Inter-university Barista Championships	Trained 40 youth on Barista Skills

Source MAAIF 2016

b) Coffee Seedlings Distribution and Planted Acreage

UCDA supported 99 CWDR Nursery operators with equipment, established 193 mother gardens and 176,900 mother bushes and generated a total of 158 million seedlings.

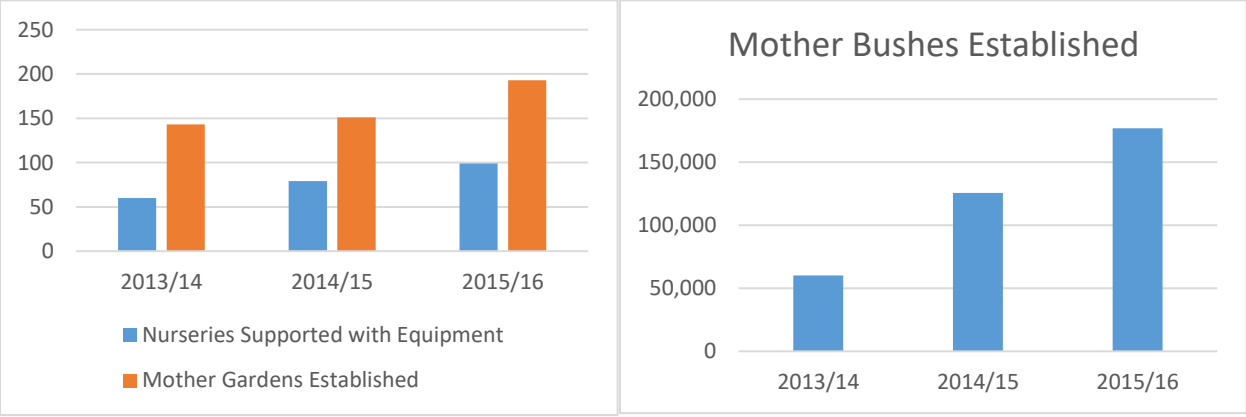
Table 11: Trends in Nurseries Equipment Support and Mother Gardens and Bushes Established

FY	Nurseries Supported with Equipment	Mother Gardens Established	Mother Bushes Established
2013/14	60	143	60,100
2014/15	79	151	125,700
2015/16	99	193	176,900

Source MAAIF 2016

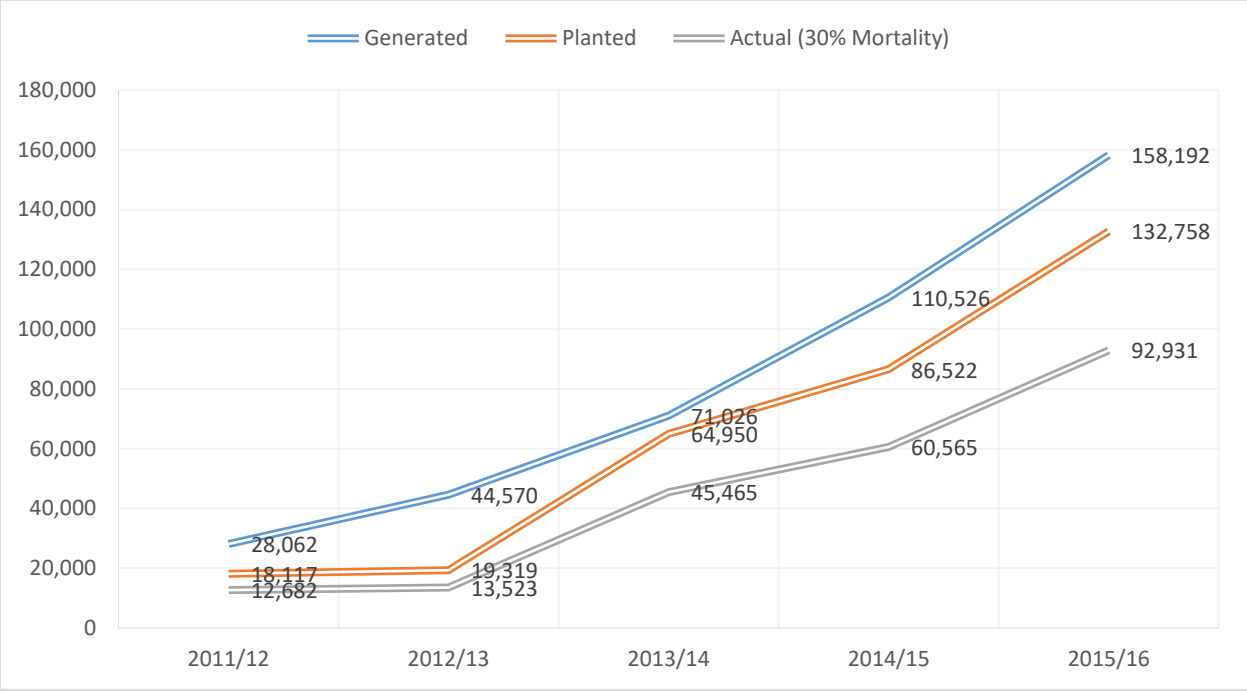
There was a steady increment for support and establishment as depicted in the figure below.

Figure 4: Nurseries Supported, Mother Gardens Established and Mother Bushes Established



Source MAAIF 2016

Figure 5: Trends in Coffee Seedlings Generation



Source MAAIF 2016

Table 12: Coffee Seedlings Distributed and Planted Among Farmer Households per Region

Region	Planted		Total Planted	Households		Total HHs
	Sep-Nov 2015	Mar-May 2016		Sep-Nov 2015	Mar-May 2016	
Central	18,228,979	22,994,490	41,223,469	101,272	75,518	176,790
Western	23,141,649	17,705,692	40,847,341	115,708	48,535	164,243
South western	13,113,856	12,824,743	25,938,599	77,140	65,024	142,164
Eastern	8,099,091	9,230,000	17,329,091	46,876	27,503	74,379
Northern	1,551,526	1,230,218	2,781,744	9,265	4,766	14,031
TOTAL	**64,135,101**	**63,985,143**	**128,120,244**	**350,262**	**221,346**	**571,608**

Source MAAIF 2016

c) Export Performance

Volume of Exports

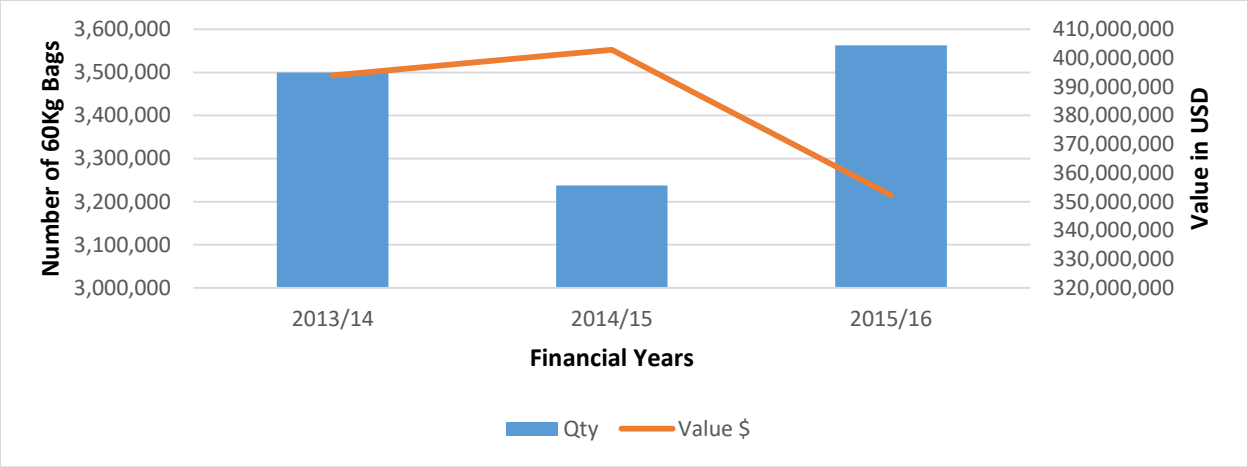
The annual targeted volume of coffee for exports for the FY 2015/16 was 3.795 million 60 kilogram bags of coffee while the cumulative volume of coffee exported was 3.563 million 60 kilogram bags of coffee representing a 94% performance achievement of the target. Compared to the previous FY, the volume of coffee exported increased by 10% to 3.563 million bags in FY 2015/16 from 3.236 million bags in 2014/15. The targeted volume of coffee exports were not met due to the effects of drought and off season effects that affected the production output.

Value of Exports

The projected value of coffee exports targeted for the FY was USD 448Mn while the realized value of exports for the period was USD 352Mn representing a 73% performance of target and a decline of 13%

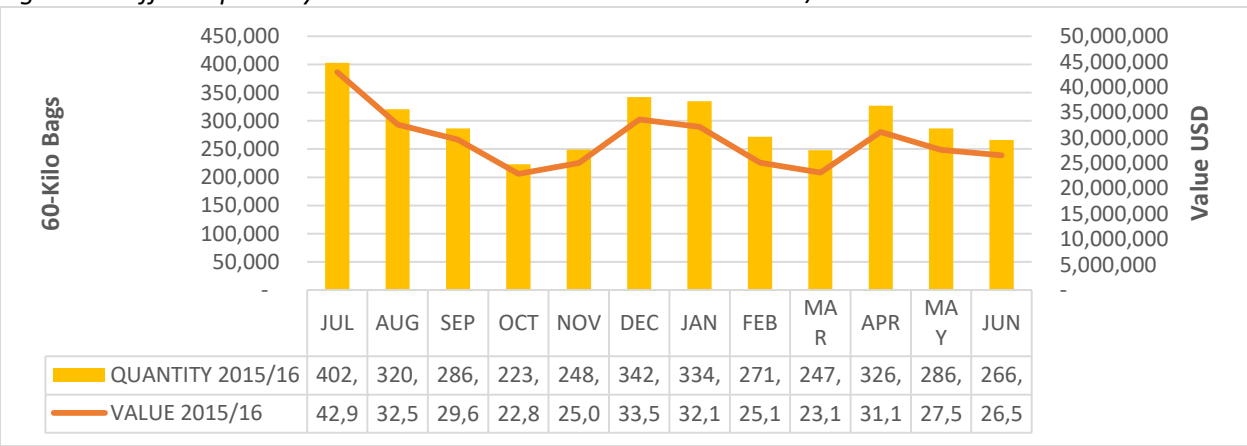
from USD 402 million in FY 2014/15 to USD 352 million in FY 2015/16. This was on account of lower global prices which resulted in lower export prices with the average unit value in FY 2015/16 dropping by 20% to 1.65 USD/kg from to 2.07 USD/kg in FY 2014/15. This is presented in the figure below.

Figure 6: Trends in Coffee Volume and Export Values



Source MAAIF 2016

Figure 7: Coffee Exports by Volume and Value in Financial Year 2015/16



	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
QUANTITY 2015/16	402,	320,	286,	223,	248,	342,	334,	271,	247,	326,	286,	266,
VALUE 2015/16	42,9	32,5	29,6	22,8	25,0	33,5	32,1	25,1	23,1	31,1	27,5	26,5

Source MAAIF 2016

d) Challenges In Program Implementation

The challenges included limited adaptation to weather changes, resulting in low yields, poor quality, and prevalence of diseases, pests and low survival rates of planted seedlings.

e) Key Stakeholders in Coffee

Uganda Coffee Development Authority (UCDA) is the Ministry's agency with the mandate to promote, regulate and oversee the entire coffee industry through supporting research, propagation of clean planting materials, quality assurance, value addition and improved marketing of coffee in order to optimize foreign exchange earnings for the country and payments to the producers.

3.1.4.2 Cotton

Performance for FY 2015/16

a) Key issues that the Sub-Sector Interventions addressed

i. Provision of planting seed;
ii. Seed multiplication;
iii. Farmer mobilization for cotton production;
iv. Provision of cotton targeted extension services;
v. Provision of production inputs;
vi. Mechanization of land opening.

The interventions were aimed at:-

i. Improving access to high quality production inputs for cotton production. Key inputs (seed, fertilizers, pesticides and spray pumps) were availed to farmers at subsidized prices and in some cases on credit;
ii. Improving access to extension services for farmers on good agriculture practices using demonstration gardens established at village and or parish levels;
iii. Promoting mechanized land opening by offering tractor hire services and distributing free ox ploughs to farmer groups and medium scale individual farmers.

b) Production

Cotton production in FY 2015/16 was 20,339MT as compared to 17,275MT that was produced in FY 2014/15. The quantity of Lint exported was 19,905MT as compared to 15,450MT exported in FY 2014/15.

Table 13: Cotton Production and Export for FY 2015/16

Description	FY 2014/15	FY 2015/16
Quantity of cotton produced (MT)	17,275	20,339
Quantity of lint exported (MT)	15,450	19,905
Value of lint (Million USD)	22.04	25.81
Quantity of lint consumed locally (MT)	1,825	434

Source MAAIF 2016

The planned outputs for FY 2015/16 and the actual outputs/outcomes are presented in the table hereafter.

Table 14: Planned Actions and Performance Outputs

Interventions	Planned Actions/Targets	Performance Outputs/ Intermediate Outcomes	Remarks
Provision of cotton planting seed to farmers	Organize and coordinate distribution of high quality cotton planting seeds to farmers in 59 districts in Eastern, Northern, West Nile, Mid-West & Central and Western Regions.	• 1,256MT of delinted and graded cotton planting seed were distributed to farmers in 59 cotton growing districts. • 170,000 acres were planted to cotton by 120,000 Households.	
Multiplication of planting seed	Organize and mobilize seed growers to establish about 8,000 acres under seed multiplication which are expected to produce 3,000MT of certified seed.	• Approximately 9,050 acres were established under seed multiplication in selected areas in *Apac, Amuru, Pader, Kitgum, Alebtong, Dokolo, Rubirizi, Amolatar,* Buliisa, Hoima, Masindi and Serere districts • 2,500MT of certified seed were produced.	Drought conditions experienced during June, July, August, October 2015 and intermittent rains received in September 2015 affected crop performance.

Interventions	Planned Actions/Targets	Performance Outputs/ Intermediate Outcomes	Remarks
Farmer mobilization and sensitization to increase cotton production and productivity	Organize establishment of 3,600 demonstration plots for training farmers on the recommended agronomic practices for increasing production and quality.	• A total of 3,714 demonstration plots were established in Eastern, Northern, West Nile, Western and Mid-West regions. • Over 11,630 training sessions were conducted at the demonstration plots for about 103,600 farmers.	The increased interest in cotton growing in all the 59 districts necessitated establishment of more demonstration plots for intensive training and a larger number of cotton farmers.
Cotton targeted extension services for farmers	Organize and coordinate the training and deployment of 350 Field Extension Workers (FEWs).	• 338 Field Extension Workers were trained and deployed in cotton growing areas in Eastern, Northern, West Nile, Mid-West and Western Regions. • Improved extension services and coverage in the 59 cotton growing districts for mobilizing and training cotton farmers on good agriculture practices.	The number of extension workers deployed was less than targeted due to merging of some areas of operation resulting from less acreage being planted in these areas.
Provision of production inputs	Organize and coordinate procurement and distribution of production inputs to farmers in cotton growing districts	• 30MT of fertilizers, 689,147 units of pesticides and 1,438 motorized and knapsack spray pumps and 1,344 litres of herbicides were supplied to farmers in Eastern, Northern, West Nile, Mid-West & Central and Western Regions • Improved access to high quality and affordable production inputs for cotton farmers. • 250 women groups and 50 youth groups in Lango, Acholi, West Nile, Karamoja, Busoga, Bugisu, Teso, Pallisa, Mid-West and Western Regions were among the cotton farmers who accessed production inputs.	Inputs were availed at reduced prices and in some cases on credit.
Mechanization of land opening	• Procure and distribute 1,000 ox-ploughs to cotton farmers. • Organize tractor hire services for cotton farmers.	• Procured and distributed 1,000 Ox-ploughs including 28 youth groups and 29 women groups in Lango, Acholi, Mid-West, Tororo, Pallisa and Teso Regions. • 1,000 farmer groups and individual medium scale farmers were facilitated in Eastern, Northern, West Nile and Mid-West Regions received free ox ploughs • Organized tractor hire services for cotton farmers • Over 4,240 acres were ploughed by the 24 tractors owned by Ginners & CDO in Eastern, Northern, West Nile, and Mid-West & Central Regions & Western Regions during 2015 while 1,380 acres were ploughed by tractors during the first rains of 2016. Additionally, over 34,680 acres were ploughed by the ox ploughs during 2015 while 17,575 acres during the first rain season of 2016.	Beneficiary farmers provide their own oxen.

Source MAAIF 2016

c) Key actors for Cotton sub-sector

Cotton Development organization (CDO) is MAAIF's agency mandated to promote production, monitor marketing and processing of cotton with the aim of increasing cotton production and contributing to enhanced household incomes while other stakeholders include Uganda Ginners and Cotton Exporters Association (UGCEA) which is also a key actor in the sub-sector.

d) Plans for Improving Production and Productivity

i. Promote medium and large scale cotton production by providing technical support to Uganda;
ii. Identify farmers with large acreages (10-100 acres) and recommend them to potential indigenous or foreign private investors for support to undertake commercial cotton production;
iii. Collaborate with the NARO cotton research program in the development of new cotton varieties that have resistance or tolerance to major cotton pests and diseases as well as sourcing and testing new pesticides and seed dressing chemicals for use on cotton.

3.1.4.3 Tea

Performance Overview for FY 2015/16

The tea commodity in the sub-sector is promoted through the *Support to Tea and Cocoa Seedlings project* funded by the GoU. The main objective is to increase household incomes of tea farmers through increased tea production and export earnings. Tea production is being expanded in both traditional areas and new tea districts of *Zombo, Nebbi, Isingiro, Shema and Ntungamo* and meanwhile, just like coffee, only 6% of tea produced in Uganda is consumed locally.

Tea is a commodity with value addition as part of the post production activities and in that regard, there are 28 active tea processing factories in Uganda. Other new tea production areas particularly Kisoro and Kabale districts have already achieved the minimum hectarage of planted tea, in order to qualify for allocation of Tea processing factories and UDC has advertised for bidders to supply the equipment for constructing the 2 Tea processing factories.

3.1.4.4 Cocoa

Performance for FY 2015/16

In the year under review, there was an increase in cocoa production from 24,008MT in 2014/15 to 24,800MT in 2015/16.

a) Issues Addressed in FY 2015/16

The cocoa commodity is promoted under the *Support to Tea/ Cocoa Seedlings project* with the similar aim of increasing cocoa production and increasing export earnings.

b) Planned versus Achieved Outputs

All the cocoa produced was exported earning the country USD 69.4Mn in FY 2015/16 compared to USD 67.2Mn in FY 2014/15. It is important to note that there is no domestic processing of cocoa into final products takes place in the country.

The table presented hereafter shows the interventions, outputs and outcomes under the cocoa commodity for the FY under review.

Table 15: Cocoa Commodity Performance

Planned activities and targets		Performance against planned	Explanation of Performance/Remarks
1.	Procure and distribute 2,000,000 cocoa seedlings to farmers in all cocoa growing districts	300,000 Cocoa seedlings were distributed to farmers in 15 districts	
2.	Inspect 24,000MT of cocoa beans in 4 warehouses for export	24,800MT of cocoa beans for export inspected in 4 warehouses in *Kampala* and 3 warehouses in *Bundibugyo*	Returns from Cocoa planted in the last 4 years contributed to increased production.

Source MAAIF 2016

3.1.4.5 Vegetable Oil Crops

Performance for FY 2015/16

The Vegetable Oil Development Project (VODP II) responsible for the vegetable oil sub-sector is supported by the International Fund for Agriculture Development (IFAD) and its development objective is *to increase domestic production and supply of affordable vegetable oil and its by-products in Uganda and neighboring countries*. The project is implemented through three components: the oil palm development component with activities in *Kalangala and Buvuma*; the oil seeds development component (*sunflower, soybean, sesame and ground nuts*) in 43 districts; and project management.

a) Planned versus Achieved Outputs

In *Kalangala*, 10,800 hectares have been planted by both BIDCO Uganda Limited and smallholder farmers. Government of Uganda leased 6,500 hectares of land to BIDCO Uganda Limited (BUL) which planted an oil palm nucleus estate, and has supported 1,800 smallholder farmers (666 female) to plant 4,300 hectares of oil palm on Bugala Island (3,900 hectares) and Bunyama Island (400 hectares).

The table hereafter shows the outcomes of the oil palm development activities between the period 2011to 2015.

Table 16: Outcome of the Oil Palm Development Activities

Year	Crop Production (MT)		Crude Palm Oil tonnage (MT)	Revenue Generated (UGX Bn)	
	OPUL	Smallholder		OPUL	BUL
2011	47,817	3,555	10,475	5.2	65
2012	56,655	7,776	13,552	6.2	79
2013	71,529	11,410	19,209	9.4	100
2014	65,101	10,760	18,652	9.04	120
2015	75,883	16,332	22,662	10.5	119.03
Total	**316,985**	**49,833**	**84,550**	**40**	**483**

Source MAAIF 2016

Between January 2010 and June 2016, the project disbursed a total of UGX 41.01Bn to the smallholder oil palm farmers of which UGX 7.5Bn has been repaid. Between January 2010 and December 2015, BUL and Oil Palm Uganda Limited (OPUL) have paid UGX 565Bn in Value Added Tax and Income Tax to GoU. As at the end of June 2016, 710 smallholder farmers had mature oil palm gardens from which they had harvested 62,535MT of oil palm Fresh Fruit Bunches (FFB) valued at UGX 25.4Bn. Uganda is now producing 21,000MT of crude palm oil per year valued at UGX 40Bn.

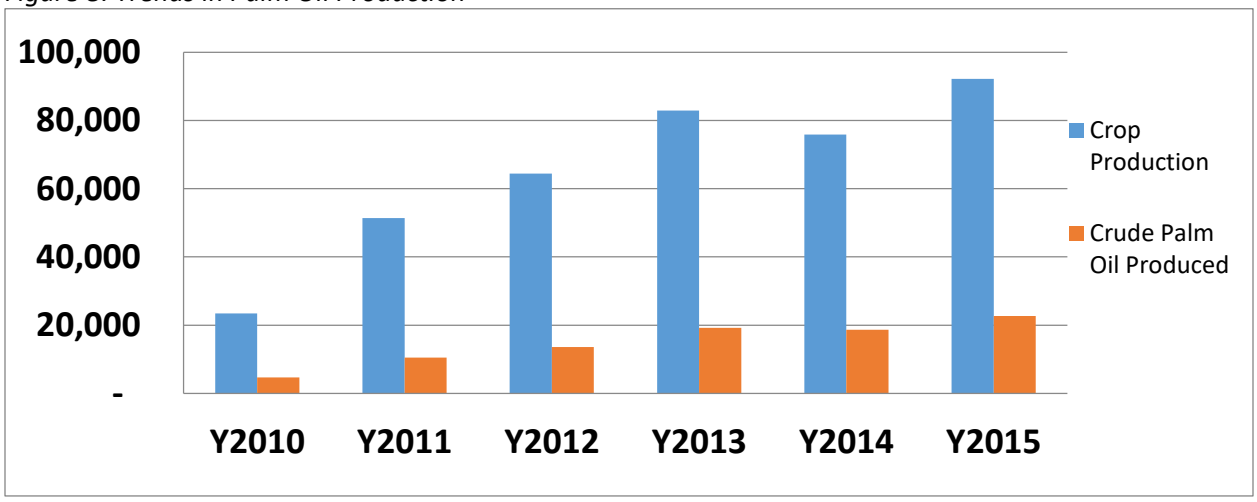
Table 17: Planned Actions and Performance Outputs for Vegetable Oil Crops for FY 2015/16

Interventions	Planned Actions/targets	Performance Outputs/ Intermediate Outcomes	Remarks
Increased Production and Productivity	*Kalangala* Oil Palm Growers Trust supported to provide extension services to 1,800 smallholder farmers in *Kalangala* to produce 15,000MT of FFB.	• 19,465 tons of oil palm Fresh Fruit Bunches (FFB) valued at UGX 9Bn were harvested by smallholder farmers in *Kalangala.*	The smallholders' gardens got yields over the projected in the second half of the financial year. Peak harvests and the best recorded prices were recorded in the first half of 2016.
Increased Production and Productivity	UGX 2Bn offered in land clearing loans to 1,800 smallholder oil palm farmers on 4,300 hectares on *Bugala, Bunyama and Bubembe in Kalangala.* Raise 100,000 quality oil palm seeds for 1,290 smallholder farmers on 400 hectares in Bubembe in *Kalangala*	• UGX 1.5Bn disbursed to smallholder farmers on *Bugala, Bunyama* and *Bubembe* islands. Total smallholder loan disbursed is now UGX 41Bn while UGX 2.7Bn recovered from small holder farmers. Total loan recovered is now UGX 8Bn.	More focus on productivity to ensure farmers achieve their yield targets for targeted income and loan repayment.
	Fertilizer store for KOPGT at Bugala island	• Fertilizer store completed on Bugala Island. 1,764.1MT of fertilizer comprising of NPK Super (467.7MT), NPK blue (450.5MT), MOP (434.95MT, Dolomax (281.95 tons), Kieserite (104MT) and Rock Phosphates (25MT) stocked and being distributed to smallholder farmers	700m^2 fertilizer store completed and is being fully utilized for storage of fertilizers and other farm inputs
Increased production and productivity	Start the oil palm smallholder estate in Buvuma with support to 500 hectares of land	• OPUL to raise 200,000 seedlings for the first 2,000 hectares to be planted in Buvuma initiated.	Planting of smallholder estate expected to start in October 2017
	Provide extension services on sunflower, soybean, sesame and ground nuts to 2,850 farmer groups (57,000 smallholder farmers on 57,000 hectares) through 6 Pay for Service Providers.	• The project provided extension services to 3,017 farmer groups, benefiting 75,408 individual farmers through 6 recruited pay for service provider companies and District Local Governments. • Approximately 40,000 hectares planted with oil seeds in 2015 2nd season producing an estimated 69Mn MT of crushing material. This produced an estimated 15 million liters of vegetable oil estimated at USD 22Mn.	Recruitment of 5 private service providers expected to be completed by end of September 2016 to increase the project outreach and impact.

Interventions	Planned Actions/targets	Performance Outputs/ Intermediate Outcomes	Remarks
	Support NaCRRI produce 12MT of 4 varieties of soybean breeder & foundation seed.	64MT of soybeans produced by NaCRRI for multiplication by oil palm farmers across the hubs.	More quality controlled oil seed is now available across Northern and Eastern Uganda.
	Acquire, open boundaries and survey 1,006.75 hectares of land in *Buvuma* for the oil palm nucleolus estate	2,000 hectares of land were procured in Buvuma for the nucleus estate increasing land purchased and available for the nucleus estate in *Buvuma* to 5,000 hectares.	GoU engaging the private sector partner to start the nucleus estate.
	Carry out a design and demarcation of 80km of roads on *Bugala Island and Bubembe Islands*	81Kms of roads maintained on Bugala island.	Farm road construction & maintenance prioritized to ensure timely evacuation of produce
Construction of Roads	Open 40km of farm and Community Access roads on Bubembe Island	40Kms of community access roads demarcated on Bubembe and Bunyama islands	Delay in procurement of transportation facility for the road construction machinery to Bunyama and Bubembe islands.
Development of Training Materials	Develop appropriate materials and tools with information and knowledge about oil palm and oil seeds development of all stakeholders.	Produced harmonized value chain development manuals for *sunflower, soybean, ground nuts and sesame* Produced oil palm documentaries showing the history & present performance of the oil palm investment	Project has increased engagement of stakeholders in different fora.

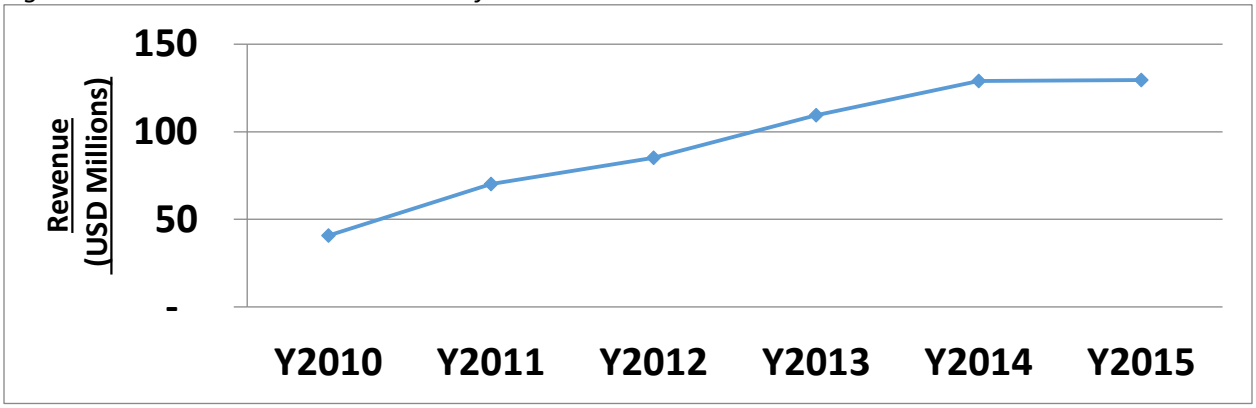
Source MAAIF 2016

Figure 8: Trends in Palm Oil Production



Source MAAIF 2016

Figure 9: Trends in Revenue Generation from Palm Oil



Source MAAIF 2016

b) Challenges

The key challenges included the following:-

i. Access to improved seeds for planting;
ii. Unpredictable weather conditions;
iii. Low productivity due to soil infertility;
iv. Price fluctuations; and
v. Lack of access to production credit.

c) Key Stakeholders in the Vegetable Oil Industry

These included the following:-

i. Millers, farmer organizations, consumers;
ii. BIDCO Uganda Limited;
iii. Mukwano industries;
iv. MAAIF;
v. Mount Meru;
vi. Nile Agro;
vii. Ngetta Holdings.

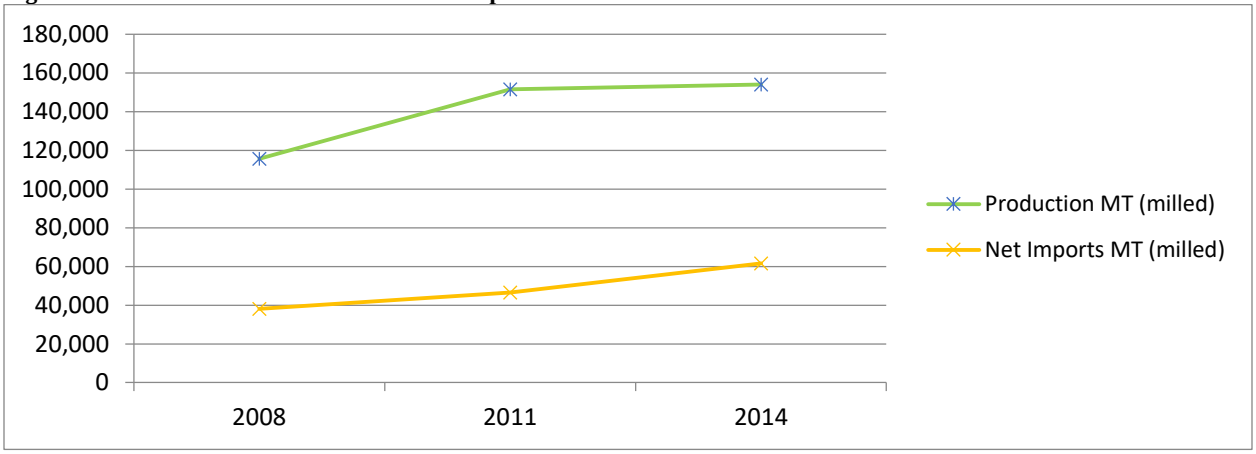
3.1.4.6 Rice

Performance Overview

The rice Industry in Uganda is growing at a rate of about 5% to 7% per annum with local production estimated at 237,000MT of un-milled rice equivalent to about 154MT of milled rice. saving Uganda about USD 74Mn. The local demand or consumption of rice in Uganda is estimated at 331,857MT of un-milled rice including net imports of 94,800MT of mainly highly quality tasty rice.

Uganda generally imports more rice than it exports hence it is a net importer. This suggests that with increased support to the rice industry, Uganda could become a net exporter. On the other hand it also indicates that Ugandans need more rice hence the need to produce more. The figure below shows the growth of rice and net imports.

Figure 10: Rice Production Growth and Net Imports



Source: *MAAIF Rice Industry Secretariat 2016*

a) Issues to be Addressed in FY 2015/16

In FY 2015/16, MAAIF planned to (i) improve rice policies through production and dissemination of guidelines on rice standards, (ii) increase rice production and productivity through trainings, provision of foundation seed generated by research and certified seed from the private sector and (iii) improve rice quality through improved post-harvest and milling practices and (iv) to conduct pre-feasibility studies on rice irrigation.

b) Planned versus Achieved Outputs

Table 18: Planned Actions and Performance Outputs for FY 2015/16

Interventions	Planned Actions/targets	Performance outputs/ Intermediate outcomes	Remarks
Policy and Quality assurance	01 standard on rice grain disseminated to 500 Rice millers and 50 Local Governments (LGs)	• 1,000 copies of the Guidelines for Post-harvest handling and rice milling in Uganda. • These guidelines will enable the value chain actors meet the East African Rice Standards.	PRiDe and IFDC Catalyst projects.
	Institutional framework for development of the rice industry in Uganda supported	• The Rice Steering Committee revived the Rice Industry Secretariat/Rice Desk	MAAIF, NARO, NAADS and DLGs in collaboration with CARD Secretariat in Nairobi, JICA, all rice stakeholders.
		• Rice promotion was promoted among the youth through the visit of Miss Uganda and the foundation members to the Regional Rice Research and training Centre at NaCRRI, Namulonge.	MAAIF, NARO, NAADS and DLGs in collaboration with Miss Uganda Foundation, JICA
		• Evidence based policy actions/ interventions were generated through studies and integrated in District Development Plans (DDP) for *Bugiri, Butaleja and Tororo*.	MAAIF, NARO, NAADS and DLGs in collaboration with PASIC
		• Concepts for integrating the rice seed road map into the UCDP were developed.	MAAIF, NARO, NAADS and DLGs in collaboration with CARD Secretariat PASIC, ISSD,JICA

Interventions	Planned Actions/targets	Performance outputs/ Intermediate outcomes	Remarks
		• The Rice Steering Committee through its secretariat, the Rice Industry Secretariat at MAAIF established the Rice Database/ web-page.	MAAIF, NARO, NAADS and DLGs in collaboration with PRiDe Project.
Production and Productivity	Varieties and other technologies on rice were generated at NARO-NaCCRI	• NARO continued to develop rice varieties and produce foundation seed; NERICA 1, NERICA 4 and NERICA 10 were cleaned and multiplied. WITA 9 was released and the NamCHE varieties were disseminated. • NARO also conducted nutrient omission trials to identify the best nutrient package for rice. • Over 4 types of technology packages (hand books) developed and disseminated to agricultural officers in at least 65 districts. The hand books include information on rice cultivation, production, water management and pest and disease management.	MAAIF, NARO, NAADS and DLGs in collaboration with PRiDe Project/ JICA, Africa Rice, EAAP/ World Bank and CIDA support, IFDC Catalyst, PASIC Project
	Conduct feasibility studies for irrigation scheme development under the supervisor of	• Pre-feasibility studies for establishment of rice irrigation schemes were conducted in *Bukedea and Bulambuli* under the PISD project. • Pre-feasibility studies for potential PPP irrigation schemes were conducted in *Pallisa and Kibuku* under collaboration between MAAIF and KRC. • Kick-started procurement for pre-feasibility studies for irrigation scheme development under the ACDP project.	MAAIF, NARO, NAADS and DLGs in collaboration with KOICA, JICA, USAID, WFP
Food and Nutrition Security	At least 10MT of seed produced from the farmer /community seed multiplication sites using foundation seed availed by MAAIF and NARO	• About 10.5MT of foundation rice seed disseminated for own seed multiplication to about 10,500 farmers and over 10MT of certified seed disseminated to boost food security. • Refugees were supported with rice seed for food production through collaborations between JICA and UNCHR.	MAAIF, NARO, NAADS and DLGs in collaboration with JICA and UNCHR
		• Capacity building on the rice value chain was conducted in over 60 districts in Uganda. • Rice marketing was promoted among rice farmers in over 60 districts of Uganda.	
Increased Value Addition Of Priority Commodities	Rice millers and traders to be trained and should be able to attain an equivalent to grade 3 of UNBS.	• Rice millers were trained on improved milling practices however there is still a challenge of affordability of the required machinery to improve the milling practices.	Through administrative surveys by MAAIF and AETREC-Namalere, it can be observed that the quality has improved however, a survey may be required to confirm the quality.

Source MAAIF 2016

c) Challenges

The challenges included but were not limited to the following:-

i. **Limited data:** There is limited information to enhance proper evaluation and targeting in the industry. In addition many of the projects which collaborate with Government may not adequately articulate the contributions of the various parties hence under reporting performances.

ii. **Limited adoption of expensive high productivity enhancing technologies:** Investments in irrigation and quality improvement equipment are costly and hence neither the private sector and farmers nor the public sector has been able to extend them to the farmers hence farmers have not adopted them.

d) Key Stakeholders in the Industry

These include the following:-

MAAIF, NARO, NAADS, UNFFE, SG2000, MTIC, NEMA, MoLG, JICA, World Bank, UNFAO, Vice Presidents Office, IITA, PELUM, EPRC, IFDC, EAGC, UGC, VECO-East Africa, CIDA-Canada, Africa Rice, Rice Millers Council, MFPED and other players.

3.1.4.7 Maize, Beans, Cassava and Bananas

a. Maize and Beans

Performance Overview

i. Planned versus Achieved Outputs

Maize commodity production in the year under review increased by 4.4% while beans production increased by 7.4%. On the other hand, Maize Leaf Necrosis Disease (MLND) incidences were brought down to less than 3.4% from 11.3% in the maize growing districts.

ii. Challenges

MLND incidences was a major challenge in maize growing districts as well as post harvest losses due to inadequate storage facilities.

iii. Key Stakeholders in the Industry

These included the Uganda Grain Council and USAID Feed the Future Programme.

b. Cassava

i. Planned versus Achieved Outputs

Cassava production increased due to increased distribution of clean cassava cuttings, and trainings conducted. In addition, 200 hectares of clean planting materials in 10 mother gardens in 4 districts were established to ensure production of planting materials.

c. Banana

i. Planned versus Achieved Outputs

Bananas production in the year under review increased by 4.7% due to efforts to curb Banana Bacterial Wilt (BBW) that was reduced to less than 7.8% prevalence levels which had reached over 40% in FY

2013/14 financial year. In addition, 20,000 clean disease free tissue culture banana plantlets were procured, and distributed to 8 districts to establish 50 banana mother gardens of 1 acre each.

Under the *Banana Livelihoods Diversification Project* (BLDP), MAAIF in collaboration with UNIDO with support from the *Global Environment Facility* (GEF) and in conjunction with Ministry of Trade Industry and Cooperatives (MTIC) and the Climate Change Unit of MWE is implementing a three year banana livelihoods diversification project entitled; ***Reducing Vulnerability of Banana Producing Communities to Climate Change through Banana Value Added Activities*** aimed at enhancing food security and employment generation in 8 districts of *Isingiro, Mbarara, Ntungamo, Bushenyi, Sheema, Rubirizi, Mitooma and Buhweju.*

Table 19: Summary of Project Activities from 1st January to 30th June 2016

ACTIVITY	PURPOSE	OUTPUT/DELIVERABLES
11 officials from MAAIF, MTIC, UNIDO, LGs, banana processors and farmers participated in a study tour termed "Train the Trainer Group *Training on Banana Enterprises*" in Thailand Bangkok in March 2016	To gain a complete overview of the banana value chain as well as the entrepreneurial opportunities within the chain that will strengthen the sustainability and climate resiliency of the local industry and livelihoods of vulnerable communities.	Project Technical team and processors /farmers participate in banana value chain training
Inception workshop and project launch conducted	A project inception workshop was organized by the MAAIF to raise awareness and build partnerships for project implementation among national, local government and private sector stakeholders. This inception workshop also marked the launch of the project.	Inception workshop report
Project Steering Committee (PSC) set up and first meeting held in May 2016	The PSC overall role is to provide policy guidance on project implementation.	Institution of the PSC and other Project Implementation structures such as the Project Technical Committee
Selection and confirmation of Project Sites and Beneficiaries conducted	To assess and select processing facilities for upgrading or establishment to support processing of banana wine, juice, chips or slices and freshly packed matooke	Processing facilities for upgrading/ establishment selected and confirmed

Source MAAIF 2016

a) Challenges

The main challenges included but were not limited to:-

i. Climate change leading to erratic weather changes and prolonged droughts;
ii. Diseases and pests more especially Fusarium wilt, BBW and nematodes.

3.1.4.8 Fruits

Citrus, Mangoes and Apples

a) Planned versus Achieved Outputs

The following tables shows the volumes of fruit inputs delivered in the year under review.

Table 20: Fruits Inputs Delivered in 3 FY Years

Fruit/Crop	Quantities Delivered in FY 2013/14	Quantities Delivered in FY 2014/15	Quantities Delivered in FY 2015/16	Cumulative for 3 FYs
Citrus seedlings	507,000	2,062,286	12,696,460	15,265,746
Mango seedlings	534,878	653,875	5,673,089	6,861,842
Apple seedlings	-	-	103,217	103,217

Source MAAIF 2016

Value addition on fruits

A fruit processing factory for citrus and mangoes is being established in *Soroti* District and construction expected to be completed by 2017.

3.1.5 Pest and Disease control

Performance Overview

a) Planned versus Achieved Outputs

There were new pest invasions in the country like the Tomato Leaf Miner (*Tuta absoluta)* and the Bronze bug also known as the "*Eucalyptus Lice*" with the potential to cause substantial yield loses in tomatoes and Eucalyptus trees; with the former capable of up to 100% yield loss.

Three main diseases of economic importance i.e. BBW, MLND and Coffee Leaf Rust (CLR) have been put under control with the prevalence rates at 7.8%, 3.4% and 9.6% respectively.

Table 21: Planned Actions and Performance Outputs for Pest and Disease Control

Interventions	Planned Actions/targets	Performance outputs/ Intermediate outcomes	Remarks
Crop Pests and disease control measures	Technical backup to 20 districts to control 10 crop epidemic pests and diseases namely: BBW, CBSD, Armyworm, Quelea birds, Fruit flies, Coffee Twig Borer, Desert Locusts, Coffee Leaf Rust, Maize Lethal Necrosis.	Technical backup to 20 districts conducted (*Bushenyi, Rubirizi, Sheema, Mitooma, Mbarara, Isingiro, Arua, Nebbi, Koboko, Adjumani, Isingiro, Rakai, Sembabule, Bugiri, Iganga, Butaleja, Budaka & Pallisa, Bulambuli and Mbale*) on control of epidemic pests/diseases like *Tuta absoluta,* BBW, Quelea birds & Grass hopers. **Intermediate outcome** • 750 acres of Epuripur Sorghum for Breweries was saved from destruction.	

Interventions	Planned Actions/targets	Performance outputs/ Intermediate outcomes	Remarks
		• Pest incidence levels reduced from over 40% to less than 2%. • Tomato leaf miner prevalence reduced by15% from 70% to 55%.	
	Surveillance, monitoring and control of MLND in the districts of *Sironko, Kween, Bukwo, Manafwa, Kapchorwa, Iganga, Bugiri, Tororo, Busia, Budaka, Jinja, Luwero, Masindi, Kiryandongo, Kasese, Amuru, Nwoya and Gulu* to establish extent of spread.	Conducted surveillance, monitoring and control of MLND in the districts of *Sironko, Kween, Bukwo, Manafwa, Kapchorwa, Iganga, Bugiri, Tororo, Busia, Budaka, Jinja, Masindi, and Kiryandongo*. MLND prevalence was at 3.4%. Guidance was provided on its management and the disease has been contained in most districts with the exception of *Kween and Bukwo* districts which border Kenya	
	Conduct training of 50 Staff in the control of epidemic pests and diseases such as BBW, CBSD, Armyworm, Quelea Birds, Fruit flies, Coffee Twig Borer, Desert Locusts and Coffee Leaf Rust	155 MAAIF staff and Agricultural Extension workers (Mubende, Luwero and Kibaale) trained in the diagnostic procedures and control of crop pests and diseases (BBW, CBSD, Fruit flies, Coffee Twig Borer, Desert Locusts, Coffee Leaf Rust).	Collaboration with Plant-Wise enabled training of an extra 105 staff.
	Procure and distribute 10,000 litres/kgs of assorted Pesticides and 100 spray pumps to the districts affected by crop pests for emergency control.	1,650 Litres of Cypermethrin 5% EC, 1700 litres of Dimethoate 40% EC and 100 motorized pumps procured and distributed to the affected districts.	Emergency of epidemic pests including *Tuta absoluta*, Bronze bug, CBSV required that districts/farmers be urgently supported with strong spray pumps to urgently control pests.
Control of Pests and Diseases in priority Commodities	Sensitize 60 LGs leaders on formulation and benefits of Ordinances/ Bye Laws in control of BBW	• 49 District and Extension staff (*Nakasongola, Kiryandongo, Masindi, Bulisa, Kibale, Masaka, Rakai, Kiruhura, Ssembabule, Kiboga, Mubende, Masindi*	

Interventions	Planned Actions/targets	Performance outputs/ Intermediate outcomes	Remarks
		Kiryandongo and Hoima, Mbale, Bugiri, Bulambuli, Namutumba, Kabalore, Ntoroko, Kibale, Mityana and Kiboga) backed up with updated information on the control of BBW. • BBW prevalence reduced from 40% reported in 2014 to ≤7.8%.	
	Control of Cassava pests and diseases. Conduct 20 Field Inspection trips to each of the mother gardens for NARO selected clones resistant to CMVD and CBSD.	Inspections of cassava mother gardens conducted in Districts of *Kasese, Kabalore, Mubende, Mityana, Iganga, Mayuge, Luuka, Tororo, Gulu, Lira, Oyam, Apach, Amuru, Kibale, Hoima and Kiboga.*	
	Train 150 District Staff from 20 affected districts in cassava diseases identification, spread and control.	130 District Staff from 21 affected districts trained in cassava diseases identification, spread and control	
	20 Field Inspection visits conducted to the Cassava Mother Gardens participating in the production of cassava planting materials	23 field inspections of cassava mother gardens for pests and diseases; mainly CBSV and CMV was conducted in the districts of *Nakasongola, Luwero, Apac, Soroti, Masindi, Oyam, Kole, Dokoro, Kaberamaido, Alebtong, Otuke, Mukono, Mpigi*, Wakiso, Kyenjojo, *Kamwenge, Arua, Lira, and Nwoya*. This was in an effort to ensure that the planting materials sourced under OWC are free from these diseases.	Reported resurgence cases of CBSV in Northern and Eastern Uganda (from <4.5% prevalence to 27.8%). **Actions:** 1. MAAIF has increased on the number of cassava mother gardens inspections to contain the disease. 2. Ensure that cassava cuttings supplied under OWC are from certified sources and there is confirmation of this by DAO's before supply. 3. Promote tolerant varieties NASE 14, 19 & NAROCAS 1.
	Control of Maize Lethal Necrosis Disease (MLND):	Surveillance and control of MLND conducted in *Bulambuli, Mbale, Tororo Busia, Iganga, Sironko,*	

Interventions	Planned Actions/targets	Performance outputs/ Intermediate outcomes	Remarks
	Field surveillance conducted in 50 districts to establish status and spread of MLND	*Manafwa, Kasese, Kabalore, Kibale, Kiryandongo, Masindi; Kween, Kapchorwa, Budaka, Pallisa, Kiboga and Mityana*. Disease brought under control in maize growing regions with prevalence at less than 3.4%.	
	Conduct 4 stakeholder platforms of 30 participants to review actions on MLND Control.	A Training Manual on Management and Control of MLND was completed, printed and disseminated.	All these efforts, have enabled the containment of the disease to only *Bukwo and Kween*; the districts which border Kenya.
	50 LGs extension staff trained as TOTs on management of MLND	Activity not conducted	There were funds advanced for this activity.
Enhance Soil Fertility Knowledge Management	Procure 100 Soil Testing kits	714 soil testing kits procured.	The increasing reports of pests & disease damage correlates well with decline in soil fertility; There was urgent need for soil testing to identify nutrient deficiencies by LGs to advise farmers to replenish soils on informed basis.
	3000 Starter Kits (Pack =1.25 kgs of DAP + UREA+ Seed) procured for demonstrations	Procurement terminated due to lack of funds.	
Quality Assurance along the value Chain	Issue 10,000 Phytosanitary Certificates after Inspection for consignments of exports of Flowers, Fresh Fruits and Vegetables, Coffee, Tea, Tobacco, Cocoa, Simsim, Pulses, Spices	10,437 Phytosanitary Certificates issued after inspection. 452 Form X (for Plant /Research materials of unknown health status)	Slight increase in trade of agricultural products resulted into issuance of more permits than planned.
	Issue 800 Import Permits after Pest Risk Analysis (PRA)	1,006 import permits were issued after PRA	A slight increase in importation of agricultural related products resulted into issuance of import permits.

Interventions	Planned Actions/targets	Performance outputs/ Intermediate outcomes	Remarks
	Inspect 4 GMO (Cotton, WEMA Maize, Banana, Cassava) confined field trials for pests and diseases	3 GMO (and new sites were inspected for pests and diseases in *Arua, Hoima, Kawanda, Namulonge, Mbarara, and Kabale.*	The Interested party-MOSANTO pulled out of GMO cotton. There were no serious threats detected.

Source MAAIF 2016

3.1.6 Crop Inspection and Certification Services

Performance Overview

The following table presents performance under the Crop Inspection and Certification Services Department for the FY 2015/16.

Table 22: Planned Actions and Performance Outputs for Pest and Disease Control

Interventions	Planned Actions/targets	Performance outputs/ Intermediate outcomes	Remarks
Quality Assurance systems along the value chain	Draft Comprehensive supporting regulatory guidelines for enforcement and implementation of the Regulatory Services	Guidelines on requirement for registration of agricultural chemicals, dealers, premises registration, inspection guideline and National Pesticide Residue Control and Monitoring Plan	Guidelines developed and await approval by TPM
	Comprehensive supporting regulatory guidelines for enforcement and implementation of the Seed and Plant Act 2006 and regulations there under drafted.	Inspection and Certification manual reviewed at Departmental level and ready for use.	Inspection and Certification Manual ready for TPM approval
	Draft Comprehensive supporting guidelines for enforcement and implementation of the Plant Heath Act 2010 and regulations.	Development of Standard Operation Procedure for Phytosanitary inspection, control and certification completed	SOP ready for TPM approval

Crop pest and disease control measures	Delivery of inspection compliance and enforcement service to all agricultural chemical products dealers Countrywide improved and maintained. Usage of agricultural chemicals on farms monitored and inspected for compliance with label direction. Agricultural chemicals with proven safety, economic value, quality and efficacy availed for registration.	Inspection programme covered all the premises within Kampala Central Business District and Districts with high agricultural potential were given preference as these are areas with frequent malpractices relating to pesticides. Repacked products constituted 4.8% of the total quantity impounded. The biggest quantity of the impounded products was unregistered, comprising 44.6% of the total products impounded. There were very significant amounts of Counterfeit/fake products in the market constituted 24.3% of the total quantity impounded. There were very small amounts of expired products in the market. Inspected 22 farms involved in flower growing and export activities within the districts of Wakiso, Mukono, Mpigi and Ntungamo as regards handling and disposing of agricultural chemicals and wastes, and the potential threats the industry may be causing to the environment and to people's livelihoods. Provision of appropriate personal protective equipment done to worker's ignorance and negligence of workers towards using PPE noted. Most have appropriate chemical waste management	The counterfeit products are emerging in the market and are very difficult to detect. This is because the approved labels are scanned and reproduced making them very similar to the approved labels. Inspection report was made and issuance of a license recommended to 80 premises that qualified for licensing while 40 premises not recommended failed to meet minimum requirements for issuance of a license. The acreage under crops increased by 20.6%

	registration of retail premises and dealers	procedures followed while handling chemicals for spraying.	This increase was largely due to new companies registered and more land allocated to seed crop production. Seed farmers improved their management which led to a decrease in rejection. Rejection was due to off types, drought, harvesting seed crops before final approval, inadequate isolation distances, and lack of trueness to type.
	Foundation and certified seed crop fields inspected and certified	Assessed suitability of premises against the legal requirements with a view to licensing them for specific functions applied for. A total of 120 premises were visited outside in 58 districts Kampala and environs.	
	Routine/seasonal inspection of seed processing factories to verify maintenance of strict integrity of certified seed lots is not jeopardized during processing undertaken.	Total hectares of seed crops applied for field inspection was 25,256 ha with 25,167 hectares being approved, 89 ha rejected.	Increased availability of quality seed enhanced crop production in the country.
		Seed inspected during processing and sampled for laboratory quality analysis. Maize accounted for 77.2% of the processed weight.	
	Delivery of inspection compliance and enforcement service to all Seed stockists and retailers countrywide improved and maintained	235 seed stockists were inspected for compliance.	Crop was affected by prolonged drought that has greatly affected the yields.
		In addition 3 new seed companies were registered having met the registration requirements. This brought the number of registered seed companies to 28.	
	Variety testing through Distinctness, Uniformity, and Stability (DUS) for candidate varieties from NARO and National Performance Trials (NPT) jointly with plant breeders in 7 different agro- ecological zones	Verification was carried out for seed of Maize (60,000 MTS.), Beans (45,000MTS), Soybean (65 MTS) and assorted fruit trees(200 million seedlings) to	Weather vagaries affected 27 varieties which are still under evaluation for another crop season this include 4 maize, 5 pigeon pea, 5 cowpeas and 8 sunflower.

	conducted. Inspection and issuance of Phytosanitary certificate for consignment of to facilitate export.	different suppliers for supply through NAADS program to Operation Wealth Creation (OWC) DUS testing sites were distributed in the 6 relevant agro-ecological zones. 44 candidate crop varieties were evaluated. 15 varieties submitted and recommended for release by Variety Release Committee. 55,368 phytosanitary certificates were issued compared to 12,408 issued in 2014/15 FY to authorized	Some exported plant products occasionally failed to meet the requirements of importing countries, resulting in interception at market destination. Total notifications due to non-compliance were 174 and the major causes of interceptions were due to presence of harmful organisms (False codling moth, thrips. *Liriomyza, Tephritidae*, etc).
	Review applications for permits for field testing of genetically engineered crops and provide regulatory oversight. Strengthen the laboratory infrastructure for the enforcement of legislation Ensure seed being offered for sale meets quality standards and truth-in-labeling requirements	exports consignments including fresh produce (flowers, fruits, vegetables), coffee, tea, tobacco, cotton, cocoa, maize, bean etc. The major exported plants and plant products were coffee, flowers, fresh fruits and vegetables, tobacco, tea maize, bean, simsim, in order of decreasing volume. 1,210 plant import permits were issued compared to 902 permits issued in FY 2014/15 after undertaking pest risk analysis to facilitation introduction of plant materials. Surveillance and inspection of GMOs confined field trials for cassava, maize, sweet potato, Irish potato, rice and banana was undertaken	These accounted for 83% of the interception followed by documentation errors and omissions and prohibited plant materials. Target achieved 1 screen house was not renovated due to limited availability of funds. Needed adequate funding to collect samples countrywide of all major seeds before planting season

	Enhance compliance to the provision of the agricultural chemicals, seeds and phytosanitary Act and the Regulations made thereunder.	Renovation of 1 post entry quarantine screen house at Namalere completed. Assorted laboratory equipment were received under the East Africa Agricultural Productivity Project (EAAPP) for seed and diagnostic laboratory at Kawanda and Namalere 245 samples were collected from different marketplace locations and tested for germination and purity. Out of this 78.2% passed while the rest failed. In addition all	Enforcement needs more funding and transport to increase coverage in terms of districts
		imported seeds lots were inspected at port of entry and sampled for quality analysis.	
	Logistical support to the department to facilitate and strengthen compliance enforcement program.	Investigated and prosecuted persons contravening the Agricultural Chemicals (Control) Act as regards illegal imports, counterfeiting (product/labels), and sales of unregistered pest control products. In total eleven (11) cases were investigated out of	There is need to increase logistical support to enable inspectors traverse all the districts.
	Private sector investment in agro-inputs promoted by enhancing compliance to the provisions of the Acts and the Regulations made there under.	which only one went through the court process and the accused person was convicted and fined Ush. 960,000. 1 case investigated and court convicted person to community service involved counterfeiting seed. This is where unscrupulous manufacturers pack and label seed products purporting them to have been	There is overwhelming demand for the service by private sector to regulate the industry. More inspectors should be recruited to beef up the team.
	To develop and retain	made by the registered	The budgetary constraints have hindered the

	human resource capacity to meet the challenges of the Department Farmers educated about the benefit of high quality agro-inputs and trained in their proper use and good agricultural practices. Strengthen district extension staff capacity to inspect and	company. The Department provided support to the technical staff in their various activities for efficient service delivery to the regulated industry and the public in general and ensures that finance, transport, human and other resources are utilized efficiently. A multi-stakeholder Agro-input platform is being established involving public and private sector actors.	Department from sponsoring staff for further training. Collaboration with NAADS enabled this to be achieved.
	enforce regulatory framework at district level Improve regulatory information flow and dissemination to stakeholders. Work with agro-inputs suppliers, agro-dealers and farmers based organization to increase the availability of quality agro-inputs and to demonstrate their proper use at the farm level by setting	A number of in-service trainings were conducted. Some members of staff underwent training on self sponsorship at post graduate level. 65 farmers from western Uganda, prison staff, UPDF officers and other stakeholder were trained on pasture seed growing at Mbarara University of Science and Technology 33 district production staff were trained on inspection and enforcement of regulatory functions. Electronic Certification System is being piloted. Not undertaken to facilitate disseminating information on regulatory framework to all users and other	Collaborated with development partners, key among them being USAID Feed the Future – EEA and Agriculture Input Activity, ISSD, FAO Collaborated with development partners, key

		27 trainers of trainers were trained on promoting effective Responsible Use of Pesticide to maximize the benefits, and minimize any risk, from using pesticide products which are essential elements of sustainable agriculture, food security and food safety. Established spray service provider teams in the districts of Masaka, Kasese, Mubende, Kamuli, Mbale, Kapchorwa, Masindi, Kiryandongo, Luwero, and Lira.	
Work with agro-inputs suppliers, agro-dealers and farmers based organization to increase the availability of quality agro-inputs and to demonstrate their proper use at the farm level by setting up at least 10 Demo sites, per Zone, per year Public awareness campaign for		65 farmers from western Uganda, prison staff, UPDF officers and other stakeholder were trained on pasture seed growing at Mbarara University of Science and Technology 33 district production staff were trained on inspection and enforcement of regulatory functions. Electronic Certification System is being piloted. Not undertaken to facilitate disseminating information on regulatory framework to all users and other interested parties. Application forms for registration of products and premises as well as forms for processing imports and exports can be downloaded for use from the website	among them being USAID Feed the Future – EEA and Agriculture Input Activity, ISSD, FAO Collaborated with development partners, key among them being USAID Feed the Future – EEA In Collaboration with development partner, USAID Feed the Future – Agriculture

	effective use of pesticides through increased public Awareness.	importance of using certified quality agro-inputs-seed, fertilizers and pesticide. 52 commercial applicators and fumigators trained on plant protection practices for enhanced competitiveness and maintaining market access of Uganda's agricultural products in regional and international markets. 27 trainers of trainers were trained on promoting effective Responsible Use of Pesticide to maximize the benefits, and minimize any risk, from using pesticide products which are essential elements of sustainable agriculture, food security and food safety.	

Source: MAAIF 2016

3.1.7 Food and Nutrition Security

Performance Overview FY 2015/16

Uganda still grapples with unsustainably high levels of under nutrition as presented in the Uganda Demographic Health Survey (UDHS) 2011 statistics that indicate the following:-

i. 33% of children under 5 years are stunted;
ii. 36% stunting is in rural & 19% in urban areas;
iii. Karamoja (44%) and Western Uganda (42%) have the highest stunting levels and Kampala (13%) has lowest levels.

MAAIF lead a multi sector Food and Nutrition Project (MNFP) initiative supported by the Global Agriculture and Food Security Programme (GAFSP) with the main objective of increasing production and consumption of micronutrient-rich foods in farmer households.

The other key sectors involved in project implementation are MOH and MOES. The Project is being implemented in 15 districts including; *Bushenyi, Isingiro, Kabale, Ntungamo, Namutumba, Bugiri, Iganga, Nebbi, Maracha, Yumbe, Arua, Kabarole, Kiryandongo, Kyenjojo and Kasese*. In response to this, the Partnership for Aflatoxin Control in Africa (PACA) has facilitated the Ministry to establish a Mycotoxin Steering Committee (MSC) and develop an Aflatoxin National Action Plan (ANAP) with the main objective of integrating necessary actions in the ASSP.

a) Issues to be Addressed in FY 2015/16

The issues that were addressed during the FY 20FY under review included the following:-

i. Establishing the food and nutrition situation in the country to guide follow up action;
ii. Production of Information Education and Communication (I.E.C) materials on food and nutrition for extension workers;
iii. There is evidence that aflatoxin causes liver cancer among the population, possible stunting in children, negative impacts on health and productivity of animals especially fish and poultry through ingestion of contaminated feeds by animals. In cattle, aflatoxin (M1) are excreted in milk with negative consequences for children who feed on it.
iv. Contaminated grains by aflatoxin have impacts on the marketability of grains because of increased rejects.

b) Planned versus Achieved Outputs

Table 23: Planned Actions and Performance Outputs for Food and Nutrition Security

Interventions	Planned Actions/targets	Performance outputs/ Intermediate outcomes	Remarks
Food and Nutrition Security assessment carried out	Carry out Food and Nutrition Security Surveillance in all the four regions of Uganda (East, West, Central and Northern Regions)	Food and Nutrition Security Vulnerability Assessment Mapping conducted in forty-seven (47) Districts in the 4 regions of Uganda.	
Food and Nutrition Reference materials Developed	Finalize Food and Nutrition Handbook for extension workers	Food and Nutrition Handbook completed, 1000 copies printed and disseminated	
	Develop Guidelines for Integrating Nutrition in Agriculture Enterprise Mixes	Guidelines completed, awaiting Minister's signature.	
Build capacity of LGs on Food and Nutrition	Conduct Training of Trainers (ToTs) on Food and Nutrition	Trained 50 District staff from Departments of Health, Education, Community and Planning for the districts of *Arua and Hoima* (25 staff from each district) on Household Food and Nutrition Security and HIV/AIDS mainstreaming in their development plans.	

Source MAAIF 2016

3.1.8 Policies, Strategies, Standards, Laws and Regulations

1. Planned Outputs versus Achieved Outputs

A number of policies, strategies laws, regulations and standards were either under ongoing review, finalization or being prepared for review.

The following represents the achievements within the FY under review.

a) Finalized, Approved, Disseminated and Gazetted

i. National Fertilizer Policy (NFP) and strategy (NFS) *finalized and approved* by Cabinet.

ii. Seed Regulations *realigned* to the Harmonized COMESA Seed Trade Regulations
iii. Regulations under seeds and Plant Act, 2006 *gazetted*
iv. Regulations for agricultural chemicals control Act, *2006 gazetted,*
v. Draft Seed policy *finalized.*
vi. Maize and bean standards *disseminated*

b) Reviewed

vii. Cassava draft Policy *reviewed*
viii. Cocoa draft Policy *reviewed*
ix. Tea Strategy *reviewed*
x. Cassava Standards *reviewed*

c) Initiated and Drafted

xi. Regulations on plant health *drafted*
xii. Phyto-sanitary policy *drafted.*
xiii. Banana strategy *initiated*

3.1.9 Responses to Issues and Recommendations from JASAR 2015

During the JASAR 2015, the following issues were raised that required responses from the Directorate. The table presented hereafter shows the issues and actions taken to address them.

Table 24: JASAR 2015 Issues and Actions

	Issue	Actions Taken
1.	Low domestic consumption of coffee affecting price stability and household incomes	Sub-sector developing a strategy for promoting local coffee processing and consumption
2.	Low domestic value addition affected level of local consumption of cotton lint hence household incomes	Recommendations of the National Textile Policy 2009 are being fast-tracked.
3.	Low domestic consumption and dependence on the Mombasa exchange affects prices and incomes from Tea commodity	Domestic consumption and branding Ugandan tea to be promoted
4	Lack of domestic value addition on cocoa beans affects price and incomes	Avenues for local cocoa processing to be explored.

Source MAAIF 2016

3.1.10 Conclusion

a) Drought is still a major factor affecting production performance of the various strategic and priority crops;
b) Regulation and enforcement systems have gradually improved;
c) Pest, vector and disease control systems have gradually improved;
d) Collaboration and more effective coordination of efforts among GoU, Development Partners, NGOs/CSOs, Private Sector and Farmers in implementation of sub-sector development strategies have been critical to performance during the FY under review.

3.2 Fisheries Sub Sector Performance

3.2.1 Introduction

About 20% of the surface area in Uganda is covered with water including five major fresh water lakes (Victoria, Kyoga, Albert, George and Edward) and about 160 minor lakes and rivers including the Nile. Such

an expanse of water coupled with a conducive climate and over 250 fish species have provided substantial potential for practicing aquaculture and capture fisheries activities. Indeed, in this regard fisheries activities contribute 3% to national GDP and 12% to agricultural GDP of Uganda. The subsector employs up to 1.2 million people and accounts for over 50% of animal protein food with a *per capita* consumption of 10 kg.

Fisheries management and development in Uganda is guided by the National Fisheries Policy (NFP) 2004, whose sub sector Vision is "***an ensured sustainable exploitation of the fishery resources at the highest possible levels"***, thereby maintaining fish availability for both present and future generations without degrading the environment. The NFP which is aligned to the NAP and the ASSP is implemented by the Directorate for Fisheries Resources (DFR) as well as DLGs.

3.2.2 Mandate and Functions

The DFR mandate is to ensure the sustainability of the fisheries resources at optimal levels and maintain availability for present and future generations. The functions include:-

a) Drafting and reviewing policies and standards governing the fisheries sub-sector;
b) Preparing fisheries regulations and guidelines and reviewing fisheries legislation;
c) Drafting and reviewing national and zonal plans and strategies for the fisheries sub-sector;
d) Advising on improved techniques of fish handling, processing, preservation, storage, transportation and marketing as well as fisheries development;
e) Advising on the application of new skills and more efficient as well as effective production techniques for fish farming e.g. site selection, pond design, pond construction, stocking, cropping and management;
f) Encouraging use of improved fishing gear and methods with particular emphasis on mechanization of fishing canoes and methods;
g) Providing advice on the processing and handling of fish for export;
h) Collecting, processing and maintaining national data and information on the fisheries sub-sector;
i) Coordination with neighboring countries with regard to fishing activities on shared waters.
j) Monitoring and protecting the health of fish in the national water bodies, controlling aquatic activities and conserving fish species;
k) Controlling and managing fisheries epidemics and disasters;
l) Management and enforcement of fisheries regulations in order to ensure orderly exploitation of fisheries resources;
m) Inspecting the activities of fish processing and marketing firms for compliance with national standards;
n) Halting, reducing and controlling the geographical spread and levels of infestation by principal weeds within all waters inhabited by fish, using environmentally safe techniques;
o) Monitoring, inspecting, evaluating and coordinating fisheries extension activities in the districts.

3.2.3 Key Issues that the Interventions addressed in FY 2015/16

To sustain the benefits from fisheries, the DFR has to update strategies and plans to address key issues that were affecting fisheries and which included:-

a) Declining fish stocks of major commercial fish species;
b) Post-harvest losses resulting from inadequate fish handling facilities and poor hygiene;
c) Increased use of illegal fishing gears and methods;
d) Increased capture and trade in immature fish;
e) Over capacity leading to increased fishing pressure;
f) Inadequate funding and understaffing;

g) Co-management institutions and the recently approved Fisheries Police tasked with enforcement lack capacity building;
h) Inadequate equipment for on-lake and on-land enforcement;
i) Obsolete fisheries policies, laws and regulations.

In the FY 2015/16, government planned to undertake strategic interventions to address the above issues with the aim of increasing and sustaining fisheries production. The interventions were targeted at:
a) Creating an enabling environment for increasing fish production;
b) Promoting recovery of depleted stocks of commercial fish species;
c) Promoting aquaculture to a commercial level;
d) Developing the fishery of small pelagic fishes.

3.2.4 Performance of Implementation

Consequently, a number of targets were set, activities conducted and outputs registered for the FY 2015/16 and summarized in the table below.

Table 25: Planned Targets versus Achievements in FY 2015/16

Key Intervention Areas	Planned Actions	Performance (Outputs)	Remarks
Enabling Environment (Policies, guidelines, laws and strategies)	Reviewing one National Fisheries Policy (NFP) 2004;	• Consultant for drafting the NFP procured. • Revised draft NFP submitted to DFR. • National Technical Committee constituted to expedite review and development of a new fisheries bill.	Technical committee to finalize policy review after wider stakeholder consultation on the kind of regulatory body required for effective fisheries management
	Fisheries subsector strategic plan (FSSP) developed	• A draft FSSP 2015-2018 developed and one stakeholder consultative meeting conducted for its consideration	A team constituted to align the FSSP with the revised NFP, NAP, ASSP and aquaculture policies
	Develop one species and one lake management plan	• 1 Lake and 1 species specific plans developed	Licensing to become species specific so that overfishing a particular species is reduced.
	Review and update existing fisheries regulations, and prepare new ones for capture fisheries	• 2 guidelines (licensing and enforcement) developed. • Fish (Beach Management Unit) Rules, 2016 developed. • 1 Standard Operating Procedure (SOP) for enforcement developed. • 1 licensing strategy developed. • The Fish (Fishing) Rules, 2010 revised to streamline the production of FVIPs	The guideline and rules will streamline fisheries regulation and management
Promoting recovery of depleted stocks of the large commercial fishes (Promote sustainable fisheries production)	-License the seven fishing activities annually including • *Fishing,* • *Artisanal processors,* • *Fish processing,* • *Gear manufacture,* • *Recreational fishing,* • *Boat building and* • *Fish transportation*	• 6 fishing activities were licensed.	Compliance of boat builders towards licensing is still lacking.

Key Intervention Areas	Planned Actions	Performance (Outputs)	Remarks
	Establish one database on all licensed fishing activities	• A database consisting of a total of 5,120 licensees was established compared to 2,508 in last FY. • Non Tax Revenue generated was UGX 579Mn compared to UGX 434Mn in FY 2014/2015	Increased compliance due to issuance of guidelines and change of licensing strategy.
	Procure 10,000 Fishing Vessel Identification Plates (FVIPs) as part of the vessel monitoring plan	• A total of 5,263 FVIPs were procured for fishing vessels on lake Victoria	Inadequate funds limited the targeted procurement\
	Distribution of procured FVIPs to licensed fishing vessels	• Re-allocation and distribution of 1,404 FVIPs from the first batch was done. The 5,263 FVIPs procured in Q4 FY 2015/16 have not been distributed	Distribution of new FVIPs awaits register based licensing of vessels starting January 2017
	Carry out MCS activities on water and land through 24 operations, 36 compliance checks and 24 inspection visits to gear traders.	• 2 enforcement operations on water and one on land conducted. • 3 compliance checks conducted; *Kasese*, Uganda fishnet and fish maws facilities. • 3 inspections for imported fishing appliances undertaken.	Under performance resulted from suspension of enforcement activities by MAAIF pending finalization of enforcement and regulation reforms.
	Strategic support to other law enforcement agencies	• 2 trainings to URA staff conducted at border posts of *Elegu, Mutukula and Malaba*	
	Operationalize the National Fisheries Enforcement Task Force (FETF) and support local governments for MCS activities	• A MoU was signed with UFPEA under a PPP arrangement • Agricultural police established as part of the task force. • 6 field meetings held to operationalize the FETF. • A MoU developed for the FETF	The FETF to harmonize and streamline enforcement operations at technical and policy levels
	Provide facilities for law enforcement to 200 BMUs at local levels	• 400 life jackets provided	Safety on the lake is a requirement as per the Fish (Fishing) Rules, 2010
	Develop 1 code of conduct for law enforcers and a system to report, verify, apprehend and prosecute corrupt officials	• 1 SOP was developed.	The procedure will harmonize enforcement activities across the country
	Support formation of national fisheries associations	• Technical support was provided to mainstream UFPEA, AFALU, UFROT, UFFCA and other lake based CSOs into the FETF	Increased stakeholders' involvement in fisheries management.
	Develop and disseminate 10,000 information Communication and outreach materials	• 15,000 stickers on stopping illegal fishing and 5 banners developed.	-Support from smart fish. -Change in attitude towards good fishing practices.
	Monitor, regulate and enforce fish quality standards in 9 plants	• 36 inspections carried out in 9 fish processing plants	

Key Intervention Areas	Planned Actions	Performance (Outputs)	Remarks
	Carry out safety and quality compliance to market standards and checks along the fish production chain.	• 60 inspections carried out.	Post-harvest losses are on the decline
	Daily Inspection and certification of fish exports leading to issuance of 3,500 certificates for fish exports to international markets and regional markets.	• Inspections conducted and 3,405 certificates issued.	
	Training of local fish inspectors and stakeholders on fish quality and safety	• 2 trainings were conducted	
	Establish and support 8 operations of the agriculture Enforcement Police for regulatory purposes	• 5 operations of Agricultural police supported.	Sizes of fish marketed had improved until enforcement was suspended by MAAIF pending finalization of enforcement and regulation reforms.
	Support operations of 10 border posts inspectors for fisheries regulation	• 10 border post inspectors deployed and supported to man fish exit points of *Entebbe International Airport, Mutukula, Busia, Malaba, Mpondwe, Vura, Elegu, and Katuna.*	Increased regulation of entry and exit of illegal fishing inputs and products.
	Strategic support to formation of fisheries cooperatives and SACCOs to boost fish production and marketing in 9 districts of *Buyende, Soroti, Amolatar, Buliisa, Hoima, Kasese, Rubirizi, Buvuma and Kalangala*	• Sensitisation on formation of cooperatives and SACCOs was carried out in 7 districts	More support required
	Provide facilities to BMUs for fisheries management in 11 districts	• 554 assorted water weed equipment distributed in the 13 districts.	Increased harvesting and removal of aquatic weeds.
	Quarterly monitor the impact of oil activities in the Albertine graben	• 2 field monitoring visits conducted and potential negative impacts documented for mitigation planning.	
	Establish a database on all fishing activities Frame Survey (FS), Catch Assessment Survey (CAS) and stock assessment on the 5 major water bodies	• A database was established for 2 lakes; Victoria and Albert. FS data on Victoria was analyzed and a report produced. • Hydro acoustic Survey (HS) conducted to establish the fish biomass in Lake Victoria supported by the World Bank through the Lake Victoria Environmental Management Project (LVEMP) II	FS data entry for L. Albert on-going. Limited funding constrained FS on other water bodies.
	Support to 2 lake wide management organisations on Kyoga, Victoria, George and Edward.	• 1 combined meeting with LAGBIMO and LAKIMO held and strategies to support their operations developed.	• Operations of Lake management organisations on Kyoga and George lack need financial support from MAAIF

Key Intervention Areas	Planned Actions	Performance (Outputs)	Remarks
		• 1 visit to LAGBIMO for technical support was undertaken.	because local governments dont support them • A framework required for Lake Albert to control conflicts on the lake
	Identification, gazzettement and protection of 15 critical sensitive areas on lakes Victoria and Albert	• 8 bays in *Namayingo, Mayuge and Jinja* mapped for on Lake Victoria. • Guidelines for the Management of FBAs updated	• Gazzetting awaits a statutory Instrument which will help improve recruitment for stock enhancement.
	Aquatic weed control on three most affected water bodies controlled through manual removal of 25,000 tonnes of weeds.	• 10,000 IEC and outreach materials produced and disseminated. • 554 assorted equipment for manual removal of aquatic weeds distributed. • 20,000MT of aquatic weeds removed.	Landing sites cleared of aquatic weeds and navigation eased while the Kariba weed on Lake Albert and Kyoga remains a problem
	Provide support supervision visits to ten local governments quarterly	• 32 technical supervisory visits to LGs and fishing communities conducted	
	Develop and disseminate 4 IEC and outreach materials for Lakes; Kyoga, Victoria, Albert, George and Edward	• 4 materials (banners, licensing guidelines, leaflets and a client charter) were developed and disseminated at national agriculture show in *Jinja.*	Need to disseminate materials at lower level
	Promote 5 alternative livelihoods in fishing communities	• 5 alternatives (piggery, tree planting, fish farming, poultry and vegetable growing) promoted benefiting 10 communities with activities underataken with LVEMP II support.	Low adoption rates because most of the proposed alternatives have no short term economic returns as compared to capture fisheries.
	Enhance capacity of BMUs and extension staff in co-management in 11 districts.	• Fish landing site committees established in all lake riparian districts and technical supervision and guidance provided	Regulary follow-up visits required
	Develop electronic market information system	• Not done	Funds not released
	Media campaign on fisheries co-management policies	• Information on fisheries management reforms and sector performance disseminated through Radio/TV talk shows, print media, stakeholders workshop and technical support supervision field visits conducted	
	Develope landing site infructure for fish production and improving quality assurance	• 2 landing sites completed at *Kiyindi and Butiaba* • 2 landing sites (Lugonyola) and *Kayago developed in Kaliro and Amolatar* districts • 1 market constructed at *Masese in Jinja*. • 3 aquaculture research and development centres improved	Kiyindi operational but Butiaba not becasue of electricity while The ongoing Enteebbe express roads works interfered with the works at Kajjansi

Key Intervention Areas	Planned Actions	Performance (Outputs)	Remarks
		with *Gulu and Bushenyi* at 90% completion	
Promoting Aquaculture to a Commercial level.	Develop comprehensive National Aquaculture Policy (NAP)	• Developed 1st Draft of a NAP	Process on going to engage wider aspects of the stakeholder's concerns into the aquaculture development process.
	Developing guidelines for addressing other policies and regulations that impact aquaculture	• Developed *National Guidelines for Aquaculture Service Providers and National Guidelines for Certification of Fish Seed Producers.*	Sensitisation of the stakeholders on need for certification is to be undertaken before actual certification begins
		• Stakeholder engagement held and final draft fish cage guidelines developed	
	Review and update existing aquaculture regulations and prepare new ones;	• *Aquaculture Establishment Certificates, Fish Seed Production Certificate and Fish Transfer Permit* printed and all regulatory materials available for issuing to the aquaculture investors.	
	Reviewing and rationalizing aquaculture rules 2003;	• Updated rules currently awaiting clearance from Solicitor General's office.	
	Undertake certification and compliance monitoring of aquaculture enterprises	• Compliance monitoring undertaken in 25 districts of Central, western and eastern region. • 1,444 aquaculture establishments inspected for compliance to aquaculture standards.	
	Provide a start-up fish seed and feed for small scale farmers covering a total of 10 farmers in central and eastern Uganda	• GoU provided critical inputs to fish farmers amounting to 1,271,513 fish seed (tilapia) and 87,390kgs of fish feeds to 48 districts with 114 farmers benefitting	Farmers aquaculutre prodcution expected to increase.
	Develop a code of conduct for aquaculture service providers and farmers	• Developed and printed National Guidelines for Aquaculture Service Providers	Guidelines await adoption by TPM
	Provide technical backstopping to local governments	• Technical support provided to OWC in 54 districts in areas of Uganda and 540 farmers were selected as beneficiaries and supported with fish seed and feed under the project.	Increased aquaculture production expected
	Procure equipment and chemicals for on-farm monitoring of water quality in aquaculture establishments	• Procured on farm equipment and testing kits for technical staff (9 pairs of Gumboots, 2 Chest waders 2GPS, 1 Oxygen Meter, 6 life jackets).	Staff utilising the procured equipment but more are required
	Preparing training manuals and train extension service providers and farmers	• Conducted training of 150 farmers and service providers conducted in Western, Eastern and Northern regions	

Key Intervention Areas	Planned Actions	Performance (Outputs)	Remarks
		• Finalized training manual for aquaculture extension service providers	
	Provision of market information	• Continuous market data collection and assessment of aquaculture investments being conducted.	

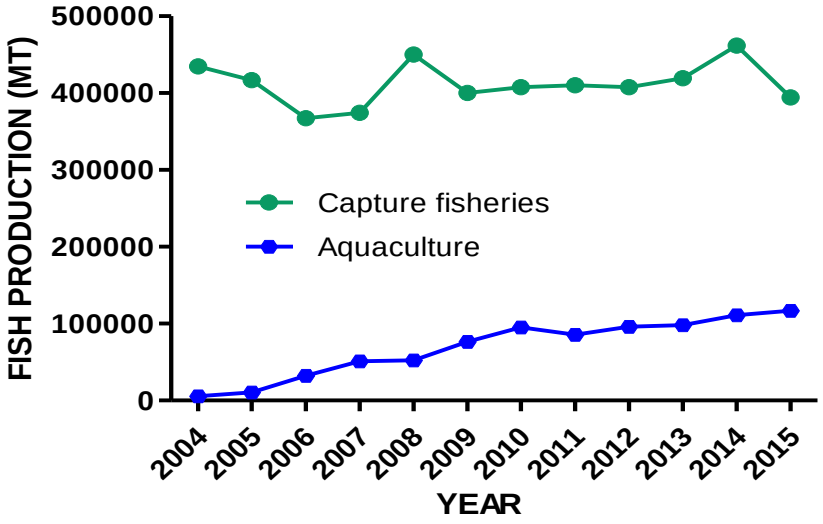
Source MAAIF 2016

3.2.5 Production in FY 2015/16 as compared to FY 2014/15

Total fish production from capture and aquaculture declined by 10.7% from 572,759MT in 2014 to 511,224MT in 2015. Decline in total fish production was caused by significant reduction of capture fisheries output of mainly nile perch attributed mainly to rampant use of illegal and indiscriminate fishing gears and methods. As a result the value of fish caught fell by 49% from UGX 2,908Bn in 2014 to UGX 1,490Bn in 2015.

The next figure presented hereafter shows that capture fisheries production fell by 14.6% from 461,730MT in 2014 to 394,224MT in 2015. The decrease was mainly due to reduced catch of nile perch. However, catches of tilapia and small pelagics increased. Overall, capture fisheries remained the major contributor to total fish production with 77% of the total fish production. The main commercial species caught included nile perch, tilapia and mukene. On the other hand, aquaculture production is steadily rising as indicated in the figure presented hereafter. In FY 2015/16, aquaculture production increased by 5.4% from 111,033 in 2014 to 117,000 MT in 2015 with tilapia the predominantly farmed species although catfish and mirror carp were also farmed.

Figure 11: Fish Production Trends from Capture Fisheries and Aquaculture 2002-2015

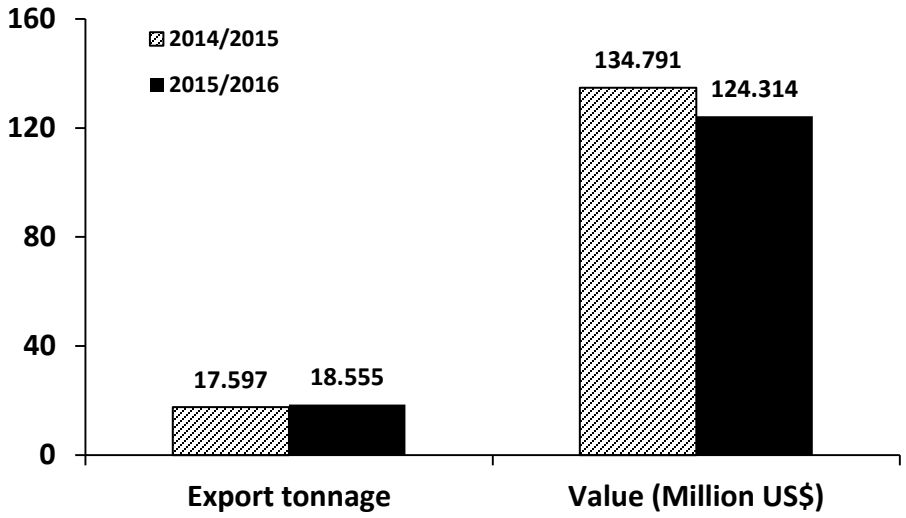


Source MAAIF 2016

3.2.5.1 Comparison of Fish Exports and Value

In the FY 2015/16 exports of various fish products to international markets increased by 5.4% from 17.597MT in FY 2014/15 to 18.555MT in FY 2015/16, however, there was a decline in export value by 7.8% from USD 134.791Mn to USD 124.314Mn as seen in the figure below.

Figure 12: Comparison of Fish Export Tonnage and Value for FY 2014/15 and FY 2015/16



Source MAAIF 2016

3.2.6 Responses to JASAR 2015 Recommendations and Agreed Actions

The issues and the agreed actions raised in the JASAR 2015 were addressed as shown in the following table.

Table 26: Responses to JASAR 2015 Recommendations and Agreed Actions

• Issue	Recommendation	Action taken
Quality Assurance/ Regulatory services	Strengthen regulatory services	• SOP for enforcement developed. • MoU developed for operationalisation of Fisheries Enforcement Task Force. • Legal action taken against errant firms and persons involved in illegal activities.
Standards	Enforce standards for quality assurance	• Compliance checks on quality standards stepped up.
Post-harvest losses	Develop and implement strategies to reduce post-harvest losses	• Encouraged construction of fish handling structures to enable hygienic processing especially for small pelagics. These have been constructed by various LGs.
Aquaculture development	Promote PPPs for increased aquaculture development	• Suitability survey of 24 minor lakes for stocking by Ferdsult Engineering Ltd in *Kabarole District* • 3 minor Lakes of *Kifuluka, Mwamba and Saka* stocked with about 3m Tilapia fingerlings by Ferdsult Engineering Ltd in *Kabarole District* • Promotion of cage and pond culture by provision of 1,180,375 fish fingerlings in 21 LGs and 47,338kgs of fish feeds in 13 LGs. • Supported construction of 12 ponds of 50mx30m, 4 each in 3 districts of *Wakiso, Gulu and Sironko* LGs using MAAIFs construction equipment.

Source MAAIF 2016

3.2.7 Challenges

The challenges that the sub sector experienced during he FY under review included the following as presented in the table hereafter.

Table 27: Challenges

Challenge	Mitigation Strategies/Observations
Continued decline in the stocks of large commercial fish species especially Nile perch.	• Fisheries enforcement task force constituted. • Promotion of aquaculture as an alternative to relieve pressure on capture fisheries through aquaculture parks and public private partnerships.
Limited funding to the subsector	• Funding be increased especially for enforcement. • The operationalization of the Fisheries Fund as provided for under the Fish (Amendment) Act 2011 needs to be fast-tracked. • The contribution of fisheries to GDP needs to be considered along the entire value chain
Invasion by the new breed of weed (Kariba Weed).	• National Task Force established and mechanical control measures undertaken on Lake Kyoga. • Manual removal equipment distributed to affected landing sites on Lake Kyoga • Community awareness materials in form of brochures distributed to guide Kariba weed control and management • Proposal developed for the Weed Control Project and the Egyptian government has agreed to fund the development and implementation of

Source MAAIF 2016

3.2.8 Stakeholder Participation in thee Fisheries Sub Sector Activities

Participation from various stakeholders has contributed to the smooth running of its activities. The Egyptian government working with government of Uganda have funded efforts to for mechanical removal of aquatic weeds from River Kagera mouth; Port Bell Buvumbo landing site (*Mpigi* district) and Mawoto landing site (*Mukono* district) on Lake Victoria; Moone and Kikooge landing sites (*Nakasongola* district) on Lake Kyoga, and Wanseko landing site (*Buliisa* district) on Lake Albert (See photos below)

Figure 13: Pre and Post Weed Control Situations

Aquatic Weed Control at Kikooge Landing Site on Lake Kyoga

Kikooge Landing Site after aquatic Weed Control

	
Aquatic Weed at Moone Landing Site on Lake Kyoga	Kikooge Landing Site after aquatic weed control
	
Aquatic Weed Control at Port Bell – Lake Victoria	Port Bell – Lake Victoria after aquatic weed control

Source MAAIF 2016

Under the enforcement unit, the European Union in conjunction with the Indian Ocean Commission supported Monitoring, Control and Surveillance (MCS) operations under the Smart Fish programme. Support was also provided from the World Bank through the Lake Victoria Environmental Management Project (LVEMP) II under the Ministry of Water and Environment (MWE) and this was key in supporting compliance reforms, water hyacinth control, stock monitoring and protection of fish breeding. Besides, the DFR in collaboration with URA had reduced the importation of illegal fishing gears into the country by 90% which was largely due to training of URA staff at entry points that raised awareness of which fishing gears are legal for importation. Additionally, URA allowed Fisheries Inspectors at border posts to access the ASCYUDA WORLD software that enables monitoring of consignments being imported or exported. However, the suspension of enforcement activities by MAAIF pending finalization of reforms reversed this trend. With the constitution of the FTEF this FY 2016/2017 the DFR will focus on arresting this situation with further collaboration with other relevant agencies.

3.2.9 Conclusions

Projected Performance in Relation to Enhancing Production for Job and Wealth Creation

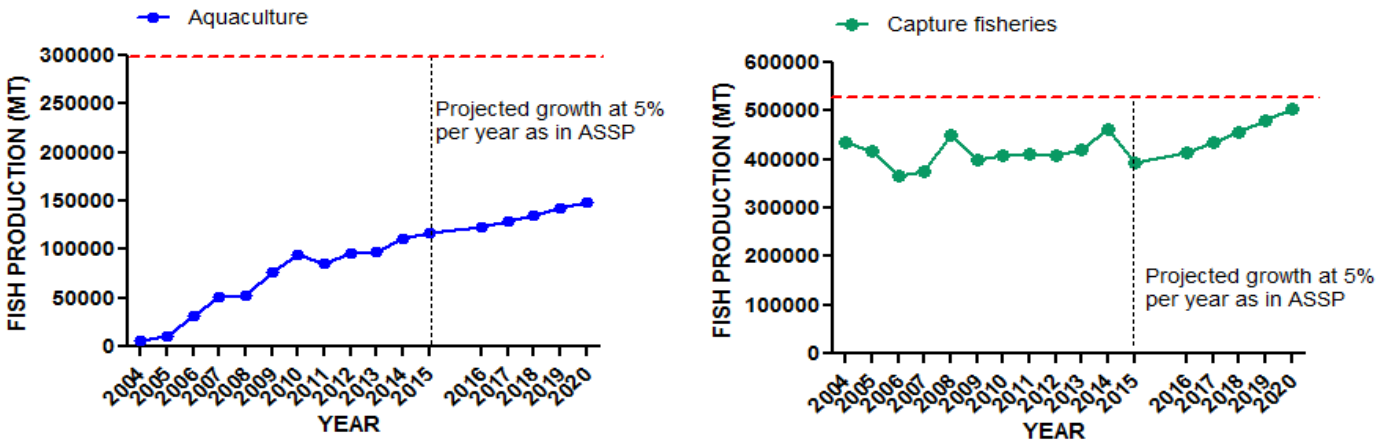
Under the ASSP, promoting agricultural growth by 5% every year for the 5 years is a key target. By the year 2020, fish production of up to 300,000MT is targeted from aquaculture and 530,000MT from capture fisheries. A comparison of production figures for 2015 and 2014 show that aquaculture production grew by 5.4% while capture fisheries production fell by -14.6% due to suspension by MAAIF of enforcement activities pending finalization of reforms that unfortunately but predictably led to rampant use of indiscriminate fishing gears.

Comparing the ASSP target growth rate of 5% per year with DFR projections on the basis of current production trajectories, the conclusion is that the fish production targets of 300,000MT for aquaculture and 530,000MT for capture fisheries by 2020 ***will not be met*** and instead it is projected that a deficit of approximately -150,625MT and -26,859MT would be registered for aquaculture and capture fisheries respectively.

Projections and analysis suggest that meeting the fish production targets of 5% annually in the ASSP by 2020 will require ***boosting annual growth rate***s from the current -***15% capture and 5.4% for aquaculture*** to 20% for aquaculture and 6% for capture fisheries with the ***important provision*** that interventions will also ***require significant and consistent financial injections***.

However, the good news is that aquaculture in general has registered promising growth and has already manifested a transition from small earthen walled ponds to low volume high density cages. In FY 2015/16, it is estimated that 15,000 farmers were involved in aquaculture and between them owned 27,000 ponds and 3,000 fish cages which produced about 117,000MT valued at USD 113,005Mn. These have been supplemented by establishment of various infrastructure which will enable increased production of fish seed and feed to support the needs of fish farmers. From all the fingerlings and fish feed given out in 2015/16, DFR expects production from aquaculture to rise to an estimated 122,850MT valued at USD 118,655Mn in 2016. Moreover, an extra 32,400m^3 from 12 fish ponds constructed in *Wakiso, Gulu and Sironko* under the Uganda-Egypt Aquatic Weed Control Project (AWCP) is expected to raise earnings by 24.8% from UGX 43.6Bn in 2015 to UGX 54.4Bn in 2016. Ultimately, this contributes to job and wealth creation through employment on fish farms and sale of fish. Moreover increased fish production will improve nutrition, food security and household incomes thus contributing to the SDGs.

Figure 14: Production Trends with Projections for 2020



Source: MAAIF 2016

To fulfill the objective of enhancing fish production and productivity, sustainable financing is required for management of capture fisheries, in addition there is need for ***increased funding of quality assurance activities to reduce post-harvest losses, licensing to reduce over-capacity, enforcement to ensure compliance to fisheries laws and regulations and fish stocks management***. As a first step, MoFPED should expedite the establishment of a Fisheries Fund as provided for under the Fish (Amendment) Act 2011, to allow for plough-back of an estimated UGX 3Bn generated from fisheries activities into management.

In conclusion, the undertaking of the various strategic interventions mentioned earlier has led to overall increase in aquaculture production while in the case of capture fisheries, increases in production were

noted in the small pelagic fish species and tilapia. However, increases in stocks of nile perch are yet to be realized and this continues to hamper the fish processing industry. It is thus necessary to maintain and direct effort towards interventions to increase stocks of nile perch and tilapia.

3.2.10 Recommendations

In a bid to improve fish production levels, promotion of investment in stock recovery programs for nile perch and tilapia under capture fisheries is strongly recommended and will require mitigating various challenges to fish production. Priority areas point at the urgent need to support strategic interventions to boost enforcement and eradicate invasive aquatic plant species like the Kariba weed and water hyacinth on water bodies which currently is a very serious barrier on Lake Kyoga.

Additionally, there is need to; support investment in aquaculture production and productivity to ease pressure on capture fisheries; promote interventions for fish value addition and also increased market access necessary to increase profitability. In implementing the above recommendations, institutional and policy frameworks should be strengthened to create an enabling environment. GoU, donor agencies and all stakeholders are therefore called upon to provide the necessary budgetary and other necessary support to meet the above recommendations for better livelihoods, job creation and enhanced household incomes.

3.3 Livestock Sub Sector Performance

3.3.1 Introduction

Livestock production constitutes an important subsector of Uganda's agriculture, contributing about 4.4% of national GDP and 18% of agricultural GDP. The contribution of the livestock sub-sector to GDP increased from 4.5% in 2012 to 4.6% in 2013 but declined to 4.4% in FY 2014/15. However, challenges notwithstanding, the annual growth of the livestock sector has been maintained at 2.5% to 3% for close to a decade.

Data on livestock populations and their distribution in Uganda was last collected way back in 2008 therefore the current data is based on projections that take into consideration, migrations, disease outbreaks and droughts as they have occurred over the years. Data from the UBOS Statistical Abstract 2015 shows that livestock population increased by about 2.5% to 3% per annum since 2008 with current numbers estimated at 14.031 million cattle, 15.311 million goats, 4.198 million sheep, 3.916 million pi*gs* and 45.144 million poultry. Livestock population over the last five years is shown in the following table.

Table 28: Livestock Numbers by Type from 2011-2015

Year	Cattle	Sheep	Goats	Pigs	Chickens
2011	12,466,638	3,729,849	13,604,075	3,479,571	47,502,011
2012	12,840,637	3,841,744	14,012,198	3,583,958	51,468,000
2013	13,020,000	3,937,000	14,614,000	3,673,000	43,396,127
2014	13,623,000	3,842,000	14,011,000	3,584,000	44,498,010
2015	14,031,311	4,197,978	15,311,507	3,916,287	45,144,990

Source: MAAIF 2016

The livestock sector is governed by several subsector laws and policies with the *National Meat Policy 2003* as the overall policy framework for the meat industry. However, despite its having been formulated and approved 12 years ago, its operationalization has been delayed by the failure of enacting the matching

legislation, the *Meat Industry Development Bill 2004* that would operationalize procedures including defining a body responsible for implementation. The *Dairy Industry Act* and a *Dairy Strategic Plan* are in place but a Dairy Policy is not yet developed. The *National Animal Feeds Policy* was approved in 2005, but there has been a delay in enactment of the animal feeds bill, which has left the compounded animal feeds field open with no regulatory mechanism. The lack of an animal feeds law has hampered the involvement of the private sector in investing in the animal feed industry and steering the intensive production of meat and eggs because of the numerous unscrupulous and fraudulent suppliers who deal in poor quality feeds. Other legislations related to the industry include the *National Policy for the Delivery of Veterinary Services 2001, the National Veterinary Drug Policy 2002 and the Animal Breeding Policy 2001* as well as several legal instruments. However, the lack of a policy to guide extensive foraging systems like grazing and browsing which prevail in cattle and goat rearing systems, ***is limiting*** enhancement of production and productivity as well as increased investment into the sector. In this regard, development of the *Pastoralism and Rangeland Management Policy* requiring fast tracking to facilitate increased investment, enhanced production and productivity as well as marketing and trade.

The greatest concentration of livestock in the country is found in the "cattle corridor", a semi-arid stretch of savannah extending from the south western region of the country through the central region, to the north eastern regions of Uganda. Despite the large livestock numbers, the output per animal in terms of meat production is very low, however a number of investment programmes aimed at developing a sustainable livestock industry targeting provision of sufficient quantities of meat for national, regional and international markets have been implemented in recent years. To date the progress made is far below the countries potential for example only about 2% of cattle slaughtered originate from specialized beef ranches. The annual cost of maintaining a farm enterprise for meat production, based on local livestock production systems is low for most of the beef suppliers based on the fact that small holders represent 94% of the national herd. The fact that the animals, which are mostly female, produce both beef and milk and whose costs of maintenance is shared between the 2 products, implies that they can be offered in the beef market at a lower cost. These animals are usually old animals having gone through their productive cycles and therefore yield low quality beef and cuts.

The current per capita consumption of meat in Uganda is low estimated at 11.3kg, of which beef constitutes 5.2kg compared to 50kg of meat recommended by FAO and WHO. There has been increased informal and formal exports of meat products and live animals from Uganda to regional markets but Uganda's performance of exports of livestock and livestock products is still limited. Per capita consumption of livestock products is still low at 60 litres of milk and 11.3kg of meat in 2003 as compared to 200 litres and 50kg of meat recommended by FAO and WHO. The annual milk and meat consumption deficit is estimated to range from 99 to 200 million litres and 80,000MT respectively. The demand for livestock products has steadily been rising due to changes in social and economic structure of the population, urbanization and population growth.

The extraction or ***off take*** rate for cattle in Uganda is estimated at 12% (MPMPS, 1998) and an additional 3% consumed at farm or household level. The extraction rate at the height of production in the ranching schemes was 20%, a level that can still be achieved through out Uganda with careful planning. On the other hand, the extraction rate for pigs is estimated at 30% for both the scavenger and intensive production systems while for small ruminants the rate is estimated at 35%, a value believed to be underestimated because of the noted preference for small stock suggesting a higher off take rate than other species.

3.3.2 Mandate and Structure of the Directorate of Animal Resources (DAR)

The mandate of the Directorate of Animal resources (DAR) is to support sustainable animal diseases and vector control, market oriented animal production, food quality and safety, for improved food security and household incomes.

The Directorate is organised into three departments for Animal Health, Animal Production and Entomology each headed by a commissioner. The Department of Animal Health is mandated to prevent, control and eradicate animal diseases, pests and vectors, promote animal health and welfare, and protect humans from disease transmissible from animals to humans. The Department of Animal Production support sustainable market oriented animal production and value addition for improved food security and household income. The Department of Entomology is mandated to support national vector control and productive entomology for improved food security and household incomes.

The directorate is supported by semi-autonomous agencies which include; the Coordinating Office for Control of Trypanosomiasis (COCTU) mandated to coordinate the control of tsetse and trypanosomiasis activities, the Dairy Development Authority (DDA) mandated to support dairy development and regulation and the National Animal Genetic Resources Centre and Data Bank (NAGRC&DB) mandated to support genetic improvement, multiplication and conservation.

3.3.3 The Functions of the Directorate

The functions include:-

a) Providing technical guidance for formulation, review and implementation of policies, legislation, standards, plans and strategies in animal production, animal health, veterinary regulation, inspection and enforcement;
b) Coordinating the monitoring, inspection, evaluation and harmonization of national programs and projects in the sub sector;
c) Advocating and mobilizing resources and assistance for the sub sector;
d) Providing technical guidance for human and institutional capacity enhancement for delivery of services in the sub sector;
e) Establishing and promoting collaborative mechanisms nationally, regionally and internationally on issues pertaining to the sub sector;
f) Providing guidance on the generation, dissemination and application of appropriate technologies and providing advisory services for the development of value chains in the sub sector;
g) Improving livestock breeds and the national genetic pool.

3.3.4 Subsector Performance by Commodity

3.3.4.1 Dairy

a) Overview

The Dairy Industry in Uganda is dominated by the traditional system of milk production. However, milk is also produced from commercial farms keeping exotic, mainly Friesian and crosses of these with the indigenous breeds. The distribution of milk production in Uganda is from five main milk sheds: *Kabale, Mbarara, Kabarole, Kampala-Jinja and Mbale*. The liberalization and privatization of the dairy industry paved way for the participation of the private sector in the processing and marketing of milk and milk products.

The dairy industry is mainly controlled by the DDA which is mandated to provide development and regulatory services to ensure increased production and consumption of milk, sustainable and profitable dairy industry sector that will contribute to economic development and improved nutritional standards in Uganda.

The Department of Animal Production within the DAR is responsible for providing high level technical support and advice on policy issues to co-ordinate dairy production and marketing activities.

b) ***Key issues that the Dairy Commodity Interventions addressed in FY 2015/16***

There were 3 key issues that were targeted for addressing during the year under review, elaborated hereafter as follows:-

i. **Low production and productivity** addressed through:-
   1. Enhancing access to improved dairy cattle breeds;
   2. Training and skilling of dairy stakeholders in dry season feeding and dairy feed formulation as means of increasing access to animal feeds and feed technologies;
   3. Promoting consumption of milk and dairy products ;
   4. Advising farmers in upgrading stock for increased milk production;
   5. Mobilization and identification of lead dairy farmers.

ii. **Low Value Addition and Market Access** addressed through:-
   1. Skilling dairy stakeholders in value addition and quality assurance
   2. Promoting the use of food grade materials and
   3. Rehabilitation of milk collection centers.

iii. **Low Conformity and Compliance** addressed through:-
   1. Inspection of dairy premises/equipment and consignments;
   2. Enforcement of dairy standards and regulations;
   3. Market surveillance.

c) ***Performance versus Targets***

i. Under the first key issue ***low production and productivity*** the following performance against targets was achieved.

Table 29: Enhancing Access to Improved Cattle Breeds

Key Interventions Areas	Planned Actions/ Targets	Performance Outputs and Intermediate Outcomes	Remarks
Improving production and productivity (NAGRC & DB)	**Dairy and Beef Cattle Breeds** It was planned to increase the foundation herd by 30%	By end of June 2016, the national foundation stock was about 9,500 head of cattle. A total of 2,592 Dairy and beef crossbred calves were produced.	• A household keeping 6 dairy cattle crosses will be in position to earn over UGX 20Mn from liquid milk alone in a year. • There is need to increase the support of the multiplication efforts at NAGRC&DB enhanced production • The current herd has the potential to produce 3,200 crossbred calves in the next year.

Key Interventions Areas	Planned Actions/ Targets	Performance Outputs and Intermediate Outcomes	Remarks
	Conserve, develop and multiply indigenous animal genetic resources of Ankole, Zebu and Nganda Cattle	• The organization continued to maintain pure herds and flocks of indigenous cattle and goats • Under this African Union program, NAGRC&DB skilled 54 participants from 22 African countries in gene banking technologies	• It was awarded the role to host the African Union Regional Animal Gene Bank for over 13 Eastern Africa countries. (In form of mainly semen, eggs and embryos) • Support is needed to operationalize the conservation by *ex situ* at the Regional Gene Bank at Entebbe • Support for *in situ* conservation infrastructure is also required
	Promote uptake and use of Artificial Insemination and embryo transfer technologies	• 31 were equipped with AI equipment • Total number trained 1,500 AI technicians if facilitated can double the crossbred herd countrywide • 32,700 doses of semen were produced or purchased and distributed • NAGRC&DB continued to promote sexed semen, with a success rate of 90% heifers • 71 technicians of which 5 were female got trained • Developed a National Artificial Insemination Technology Strategy (NAITS) • Planned to skill 1,600 farmers, achieved 4,464 students and farmers hosted at the different NAGRC&DB centres and exhibitions across the country • 29 District Veterinary Officers were skilled in AI and animal nutrition to enhance breeding extension in their respective districts • Over 64 schools were hosted in youth farm camps	

Source MAAIF 2015

As a result of these efforts, milk production increased from 1.96 billion litres in 2014 to 2.08 billion litres in 2015 as shown in the table presented hereafter.

Table 30: Annual Milk Production 2010-2015

Estimates	2010	2011	2012	2013	2014	2015
Milk production in billion litres	1.50	1.83	1.86	1.93	1.96	**2.08**

Source DDA, 2015

Table 31: Milk Production per Sub-Region in 2015

Sub Region	Milk Production in Litres 2015
Ankole	713,379,386
Buganda	637,110,541
Toro/Ruwenzori	131,989,366
Karamoja	122,159,550
Busoga	103,755,645
Bunyoro	94,860,234
Teso	78,814,363
Bugisu	42,467,838
Kigezi	42,236,079
Lango	33,686,822
Westnile	28,517,361
Bukedi	26,749,622
Sebei	14,012,241
Acholi	10,580,178
Madi	8,924,135
Totals	**2,089,243,362**

Source DDA, 2015

According to MAAIF data, there are currently 355 Milk Collection Centers (MCCs) with a total capacity of 1.5 million litres.

ii. Under the key issue to address ***low value addition and market access***

Registers indicate that the number of dairy processing plants has continued to grow with approximately 33% of the marketed milk processed in 2015 compared to 20% processed in 2014. Currently, the number of milk processing companies including cottages industries and small, medium as well as large scale entities stands at 79 with an installed capacity of 1.9 million litres.

Table 32: Milk Processing Capacity

Year	No. of Dairy Processing Plants/Companies	Installed Capacity (litres)
2011	22	732,780
2012	42	923,000
2013	53	1,304,330
2014	53	1,304,330
2015	79	1,900,000

Source: MAAIF 2016

Marketed milk increased from 70% of total milk production in 2014 to 80% of total production in 2015 while the value also increased from USD 521Mn in 2014 to USD 716Mn in 2015.

Table 33: Milk Marketing Performance in 2015/16

Indicators FY 2015/16	Annual Target	Total	Annual Performance
No. of stake holders trained along the dairy value chain	2,730	3,360	123%
No. of milk collection centres rehabilitated.	2	1	50%
No. of dairy premises/ equipment inspected	1,362	1,569	115%
No. of dairy premises/ equipment registered	1,003	966	96%
No. of milk and milk product samples analyzed	2,000	2,655	133%

Source: MAAIF 2016

As a results of these efforts, dairy exports in FY 2015/16 compared to FY 2014/15 and their value were as follows:-

1. Milk and milk products export value increased from USD 28.6Mn in 2014 to USD 50Mn in 2015 and were mainly UHT milk, milk powder, casein protein, ghee and butter oil reflecting good performance against dairy imports that stood at USD 5.4Mn;
2. The major dairy exports markets were USA for Casein, India for Ghee and others were COMESA, UAE, Rwanda, Congo, South Sudan, Kenya, Omen, Bangladesh and Nepal.

Table 34: Dairy Exports Performance 2015/16 versus 2014/15

Product	Quantity	
	2014/15	2015/16
UHT (lts)	1,565,360	1,963,252
Milk Powder (kg)	1,721,160	1,932,810
Ghee (kg)	1,063483	1,826,269
Butter Oil (kg)	596,720	166,550
Casein (kg)	911,000	833,675

Source: MAAIF 2016

Still under the 2nd key issue of ***low value addition and market access*** DDA promoted the use of good grade materials and trained stakeholders and the details are presented hereafter.

1. A total of 3,360 stakeholders were trained in good dairy farming practices, hygienic milk production handling and testing, silage and hay making, group dynamics and breeding technologies, dairy regulation and standards, cooperative strengthening and formation, milk quality assurance and control, control and management of diseases in *Jinja, Luuka, Kamuli, Iganga, Amolatar, Kampala, Kitgum, Gulu, Apac, Amuria, Kumi, Soroti, Ngora, Nwoya, Kiruhura, Mbarara, Rakai, Ibanda,Isingiro, Bududa, Mbale, Ntungamo, Bushenyi, Lyantonde, Bugiri, Mubende, Masindi, Bududa and Manafwa* districts and Entebbe Dairy Training School.

2. DDA convened a collaborative meeting with East Africa Dairy Development Project (EADD II) team to assess common activities at 10 Cooperatives in *Kiruhura, Isingiro, Kamwenge and Ibanda* that will be jointly operated as centres of excellence;
3. DDA rehabilitated one milk collection in Bbale *Kayunga District (see photo)*;
4. A total of 2,180 seedlings of calliandra, 225kgs (25kg of Brachiara, 100kgs of Chloris gayana, 100kgs of Lablab) of pasture seeds and 25 bags of Napier cuttings were procured and distributed in *Rukungiri, Ntungamo, Kiruhura, Mbarara and Kamwenge*; *Wakiso, Gomba, Mukono, Amuria, Bududa, Mbale, Soroti, Ngora, Serere, Mbale amd Manafwa with* a total of 118 dairy farmers benefitting from this initiative;

5. DDA facilitated learning visits for 61 dairy farmers in southwestern Uganda;
6. In the bid to promote milk consumption, DDA celebrated "June dairy month" in Bushenyi District and distributed milk and milk products to 3,000 people including pupils of Rwakashoma primary school and patients of Ishaka Adventist hospital;
7. DDA also participated in the dairy stakeholder meeting at Rwakitura convened by H.E the President of Uganda to discuss dairy production & productivity, milk marketing & dairy income tax education;
8. 1 factory was opened in Rushere-Kiruhura and another one commissioned in Mbarara.

iii. Under the 3rd key issue on addressing ***low conformity and compliance,*** the following interventions were undertaken.

1. A total of 1,569 dairy premises, equipment, consignments were inspected in *Lwengo, Sembabule, Gomba, Kampala, Mukono, Wakiso, Mityana,Tororo, Malaba, Busia, Iganga, Jinja,Bugiri, Kyankwanzi Kiboga Kibale Mubende, Mbarara, Isingiro, Rakai, Lyantonde, Kiruhura, Bushenyi, Kyegegwa, Kabarole, Ntungamo, Kabale, Mbale, Ngora, Serere, Kabera, Bukwo, Bududa, Bulambuli, Kapchorwa, Kween, Soroti, Serere, Kaberamaido, Ntungamo, Rukungiri, Kanungu Manafwa, Kitgum, Gulu, Lira, Apac* and Entebbe Airport;
2. A total of 966 dairy premises/equipment/consignments were registered; they included premises, small scale processors, importers, milk transporters, factories, cooler and freezer operators;
3. A total of 2,655 milk and milk product samples were analyzed;
4. 37 enforcement operations were conducted in *Lukaya, Sembabule, Gomba, Kampala, Mbarara, Isingiro, Rakai, Kiryadongo, Lyantonde, Kiruhura, Soroti, Ntungamo, Rukungiri, and Kanungu*;
5. A total of 117 market surveillance visits were conducted in *Kampala, Entebbe, Mukono, Masaka, Sembabule, Kyankwanzi, Kiboga, Kibale, Tororo, Busia, Iganga, Jinja, Bugiri, Mbale, Soroti, Wakiso, Mbarara and Kiruhura District*s;
6. Laboratory equipment, reagents and consumables were procured;
7. DDA participated in an EAC stakeholders consultative meeting on priority areas for harmonization of the East African Standards for 2016-2018 in Arusha-Tanzania;
8. DDA also participated in a conference harmonizing regulations for the most traded goods/commodities within the region; organized by COMESA in Nairobi, Kenya.

d) Contribution of Dairy Stakeholders and Development Partners to the Performance

i. SNV through the TIDE project in south western Uganda financially contributed towards organizing the National "June Dairy Month "celebrations of 2016;

ii. SNV through TIDE project also facilitated the training of 683 farmers and sensitization of the 34 AI technicians in animal breeding in south western Uganda;
iii. DDA partnered with NAADS, Uganda National Farmers Federation (UNFFE) in assessing the beneficiaries of the 35 coolers procured by NAADS and supported Riverside farm in Luwero District.

e) ***Challenges***

i. ***Encountered by DDA***

1. The partial release of funds throughout the financial year affected the execution of some key planned activities and procurements for the FY 2015/16;
2. Vacant senior positions were not filled because the Board of Directors (BoD) that is key to the recruitment process was absent resulting into gaps in policy guidance and hence constraining operations;
3. MoFPED still categorizes the DDA's core activities of regulation and quality assurance as consumptive in nature;
4. DDA lacked mini laboratories at regional level and mobile van laboratories;
5. DDA required more resources to continue the rehabilitation of the inherited dilapidated milk collection centers;
6. DDA considers the suspension of *cess or levy* as selective application of the law and continue to seek an explanation as to the failure to expedite the directive for it's compensation by H.E the President;
7. Most of DDA's inherited properties lack titles and yet the process requires funds to address encroachment.

ii. Encountered by NAGRC&DB

The access to and multiplication of improved genetics was affected by the following:-

1. Low farmer awareness and low uptake of artificial insemination and other breeding technologies;
2. High costs of production and delivery of AI inputs country wide, the breakdown of the liquid nitrogen plant and manual semen packing method;
3. Inadequate funding for the embryo transfer program;
4. Inadequate breeding stock that affected the multiplication program;
5. Disease and vectors incidences as well as increasing tick resistance to acaricide;
6. Inadequate water for production and poor quality pastures in most ranches;
7. Minimum infrastructure for livestock handling and farm housing, due to unfunded capital requirements;
8. Government land challenges including encroachment and the lack of land titles.

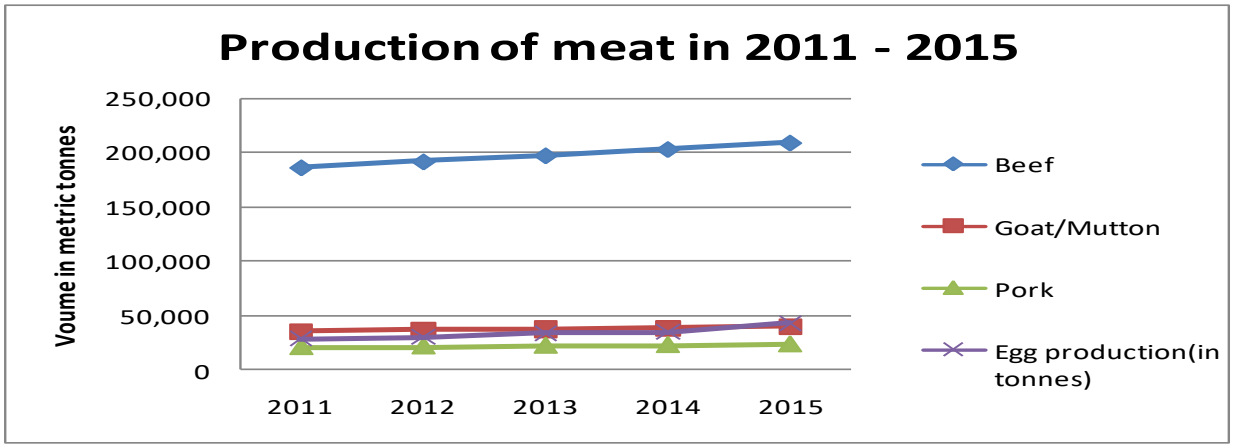
3.3.4.2 Meat and Other Products

a) Background

In Uganda, meat is mainly obtained from cattle, goats, pigs and chicken of which beef constitutes 64% of meat production in Uganda and is produced from indigenous, high grade beef and dairy breeds each constituting proportions in the nation cattle herds of 93.6%, 0.8% and 5.6% respectively while about 2% of cattle slaughtered originate from specialized beef ranches.

The estimated annual off take rates for cattle, goats and pigs is 12%, 35% and 30% respectively and the production of meat and eggs in Uganda has steadily been increasing since 2011.

Figure 15: Meat Production 2011 to 2015



Source: MAAIF 2016

Potential export markets exist for beef, goat meat and mutton but are hampered by sanitary issues including the quality and quantity of animal and animal products that do not meet or satisfy export market requirements. To address these challenges the private sector has been supported or facilitated to establish infrastructure for production, slaughter of animals and processing animal products. During the FY under review, MAAIF made efforts to improve meat hygiene services in order to meet sanitary requirements for domestic and export markets and also planned to establish a livestock identification and traceability system. Uganda Meat Processors Cooperatives Union (UMPCU) was facilitated to organise beef farmers into primary cooperatives societies now numbering 33 that mobilized to produce and avail animals to be supplied to the export abattoirs. In addition, GoU identified sites for constructing veterinary quarantine centre where animals will be pooled and fattened before being supplied to the export abattoirs. NAGRC&DB and the private sector facilitated by MAAIF continued to undertake breeding of fast growing exotic and local goats and distributed them to beneficiary farmers for multiplication while, hybrid breeds of chickens that can perform very well under free range were also made available. Pig production was constrained by lack of good breeding stock, which has resulted into widespread inbreeding leading to poor performance, a situation that is still pertaining.

b) Key issues that Meat commodity interventions addressed

i. Inadequate improved genetic material for meat production

The intervention was to increase production of meat through provision of improved genetic material

ii. Poor nutrition, scarcity of water and pastures

The intervention was to increase productivity through improved nutrition and availability of water for livestock

iii. **Low value addition and market access:**

The intervention areas are;

1. Enhancement of value addition through supporting of processing infrastructure
2. Improvement of quality of meat, meat products and co-products quality improved along value chain
3. Formation of livestock farmer cooperatives and value chain platforms

c) Performance versus Targets

i. The following tabulates performance registered to address the first key issue of *inadequate improved*

genetic material for meat production.

Table 35: Performance against Targets (Provision of Improved Genetic Material to Farmers)

Key Interventions Areas	Planned Actions/ Targets	Performance Outputs and Intermediate Outcomes	Remarks
Improving Production and Productivity (NAGRC&DB)	**Cattle Genetic improvement** • Increase the foundation stock by 30% • Import beef cattle semen for high yielding breeds like Brahman and Romagnola	• 48,000 doses of Romagnola and Brahman cattle semen were imported and distributed Outcome • Contributed to the pool of improved livestock genetics of the national herd	The breeds are capable of a daily weight gain of 1,000 grams as compared to the daily weight gain of the local breeds (Ankole and Zebu), which stands at about 150 grams
	• 1,000 pure and crossbred goats by NAGRC&DB	• Procured and distributed 4,226 from the Sembeguya Goat Project	
	Pig Genetic Improvement Program It was planned to expand the multiplication flock and produce 450 piglets of high genetic quality.	• NAGRC&DB promoted the high yielding South Africa Comborough Pig. • 244 piglets were produced and distributed to farmers in districts of: *Mukono, Mbarara, Buyende, Iganga, Wakiso, Buikwe, Masaka and Jinja.* Outcome • This breed has enhanced farmer incomes through its large litter size, farrowing ease, high growth rates and lean pork.	• Need for additional funding to enable importation of adequate numbers of male and female Comborough pigs • Import pure lines of the constituent breeds (Large White, Duroc and Land race) for the National Pig Multiplication program
	Poultry Kuroiler Program It was planned to produce eight hundred (800,000) commercial Kuroiler Day Old Chicks for the rural development program.	• 1,020,000 Kuroiler chicks were distributed (50% from the public hatchery and 50% from the private sector hatchery working under the PPP) • About 10,727 chicks were exported to; Rwanda, Kenya, Southern Sudan and DRC. Outcome • There is increased involvement of women and youth in this program, of which 37.2% were women. • The Kuroiler has resulted in enhanced rural household food security, nutrition and incomes through increased meat and egg production.	• A family keeping 30 Kuroiler birds can fetch UGX 3Mn annually. • Need for additional funding to enable importation of new parent stock for use in production of Kuroiler commercial chicks • Support is needed to develop, multiply and conserve Uganda Indigenous chickens
	Promote and backstop breeder associations (piggery, poultry, cattle, goat)	• Trained 20 poultry breeders • Breeders, backstopped activities of one cattle group, 11 poultry mother units and 1,850 farmers • The cattle breeders have initiated an annual breeders show in western Uganda Outcome	• The poultry support was provided in collaboration with Arizona State University

Key Interventions Areas	Planned Actions/ Targets	Performance Outputs and Intermediate Outcomes	Remarks
		• Increased availability of Kuroiler chickens and reduction of mortality during brooding	
Increase productivity through improved nutrition and availability of water for livestock	Identification of sites for establishment of feedlots	• Procurement of consultant to design and supervise construction of the bulking centers done	
	Establish Demonstration sites for feed conservation	Production of • 300MT of quality animal feeds and • 28,279 bales of hay. • 510MT of maize silage • 28,279 bales of hay were produced • Silage and hay technologies were extended to 176 farmers and 82 secondary school and tertiary institutions across the country	
	Enforcement of animal feed standards	• UNBS facilitated enforcement of animal feed standards under their law	
	Completion of the Animal Feeds Bill	• Stakeholder consultation conducted	
Improvement of quality of meat, meat products and co-products quality improved along value chain	Design Identification and traceability system	• Framework for the development of the LITS system has been produced • Draft LITS guidelines have been developed	• Identification and traceability equipment not procured because of limited budgetary allocation
	Development of Meat export inspection guidelines and quality/safety assurance manuals	• Draft SOP for meat inspection and quality assurance have been developed • Identification of sites favorable for the establishment of meat quality and safety assurance infrastructure in *Nakasongola, Mpigi, Kyankwanzi, Kiruhura, Kibuku and Kayunga* • Provided support supervision and technical backup to Bombo export abattoir • Supervision and monitoring of slaughter and meat processing facilities done	
Improving market access	Formation of livestock farmer cooperatives and value chain platforms	outcome • Livestock farmers have become more organized and are producing quality animals	
	Issuance of cattle traders' licenses	outcome • Increased compliance to standards	
	Inspection of slaughter facilities	outcome • improved meat hygiene	

Source: MAAIF 2016

Challenges faced under breeding and genetic improvement included:-

i. Delayed purchase of breeding bulls for multiplication;
ii. Inadequate breeding males and females that affected the piggery program;
iii. Breakdown of the liquid nitrogen plant which affected breeding by AI;
iv. Goat breeding was affected by inadequate Boer breed males for the crossbreeding program;
v. Disease and vectors incidence especially increasing tick resistance to acaricides;
vi. Inadequate water for production as well as old and poor quality pastures in some ranches;
vii. Minimum infrastructure for livestock handling due to unfunded capital development requirements;
viii. Failure to restock the pure lines of the parent stock due to lack of capital development budget.

Furthermore, NAGRC&DB procured the following imports of high quality stocking materials during the FY 2015/16.

Table 36: Imports of High Quality Stocking Materials FY 2015/16

Item	Quantity	Unit	Source
Day old Chicks	3,854,700	Numbers	Kenya, Mauritius, Switzerland, Netherland, India, Belgium
Cattle	298	Numbers	Kenya, South Africa
Dogs	41	Numbers	South Africa
Cats	7	Numbers	South Africa, USA
Horses	40	Numbers	Kenya
Semen	11,420	Straws	Spain, Netherlands, Switzerland
Eggs/hatching eggs	15,850	Numbers	S. Africa, India, Netherlands

Source: MAAIF 2016

d) Trends of Exports and Imports of Animal Products

i. Exports of animal products

Table 37: Trends of Exports of Animal Products since 2011

Animal Product	Total Annual Exports (Kgs/Litres)					Destination Country	Major Exporters
	2011	2012	2013	2014	2015		
Wet blue hides	3,358,688	3,394,712	11,959,180	12,216,100		Switzerland, Sri Lanka, Kenya, India, Hong Kong, Italy, Turkey, China, Pakistan, Indonesia	Hoopoe Trading Company Ltd, Skyfat Tannery, Tannery Waste Management, Novelty, S.W.T. Leather Industries, Leather Industries of Uganda, Jambo Tannery
Wet blue skins	552,869	1,475,545	3,248,400	2,989,012	1,527,181	Switzerland, China, Ethiopia, Italy, Turkey, Pakistan, Kenya and India	SWT Leather Industries Ltd, Skyfat Tannery Co., Novelty Tannery Investments and Novelty Tannery
Leather	0	0	421,743	1,020,918	1,169,833	Kenya, Italy, China, Canada	Leather Industries of Uganda, MSA Investors, Elgon Leather Company

Animal Product	Total Annual Exports (Kgs/Litres)					Destination Country	Major Exporters
	2011	2012	2013	2014	2015		
UHT milk	3,067,052	1,671,208	8,102,984	2,771,361	1,963,252	D. R. Congo (UN Mission), Tanzania, S. Sudan, DRC, Somalia and Kenya	Sameer Agriculture and Livestock
Milk powder	156,456	179,300	1,885,641	2,868,767	1,932,810	Kenya, Tanzania, Sudan, S. Sudan, Yemen, Oman, Qatar, Nepal Saudi Arabia, Turkey and Japan	Sameer Agriculture and Livestock ltd, and Pearl Dairy Farms
Milk casein	0	0	0	544,000	883,675	USA	Amos Dairies
Ghee	175,889	112,540	173,331	1,133,936	1,826,269	India, Egypt, S. Sudan, Syria, Eritrea, Saudi Arabia, and Turkey	Amos Dairies, Pearl Dairy Farms
Butter and butter oil	49,443	4,950	321,893	71,135	166,550	India, S. Sudan, Syria, Eritrea, Saudi Arabia, Turkey, Egypt, Oman, Japan	Pearl Diary Farms
Cheese	481	1,235	26	2,811	-	DRC	Sameer Agriculture and Livestock
Beef	203,491	84,616	79,348	183,812	54,906	DRC, S. Sudan, Rwanda and Somalia	Fresh Cuts ltd., Nyoma Trading Co., Uganda Meat Industries, Fanuel General Trading, Katebe Farm, YH Barka Gen. Trading
Pork	4,363	6,124	10,991	K31,577	7,086	DRC and Southern Sudan	Fresh Cuts Ltd
Dressed chicken	18559	4,992	2,988	71,409	21,765	DRC, Rwanda and S. Sudan	Fresh Cuts
Eggs	1,186,500	339,900	737,945	2,037250	833,907	DRC and S. Sudan, Burundi	Yash Investments, LM Engineering, Mr. Bangawihi
Horn products	79,232	7,681	-	79,232	167,726		

Source: MAAIF 2016

ii. Imports of Animal Products FY 2015/16

Imports of animal products into the country during the FY under review are presented in the following table.

Table 38: Imports of Animal Products FY 2015/16

Item	Quantity	Unit	Source
Assorted milk/milk products	518,150	Kg	Kenya, S. Africa
Cheese	12,100	Kg	Kenya, S. Africa, Canada, Denmark, France, Australia
Bacon	30,000	Kg	S. Africa, Kenya
Assorted sausages	50,120	Kg	Kenya
Skins/hides	25,709	Kg	Malawi, Burundi, Kenya, Rwanda

Source: MAAIF 2016

iii. Imports of Feeds, Equipment and Agrochemicals

The table hereafter presents feeds, equipment and agrochemicals imported during the FY 2015/16.

Table 39: Imports of Feeds, Equipment and Agrochemicals

Item	Quantity	Unit	Source
Feed ingredients/premixes	100,544	Kg	Kenya, Netherlands, China, S. Africa, Belgium
Poultry feeds	1,962,772	Kg	Kenya, Netherlands, Spain, India
Egg trays	11,560	Numbers	Kenya
Chicken drinkers	481	Numbers	Kenya
Acaricides, disinfectants	98,258	Litres	Kenya

Source: MAAIF 2016

e) How different Stakeholders have contributed to the Reported Performance

i. UMPCU operates from the community and farm level to create a system where livestock farmers are organized into primary cooperatives in order to optimise their social and economic potential. Farmer cooperatives have been formed, trained and organized as primary cooperative societies that are legal entities that operate businesses on behalf of their members. UMPCU currently has about 33 primary cooperatives under its umbrella, each with no less than 30 farmers and an average of 350 cattle per farmer. Membership comprises of communal and or nomadic grazers, pastoralists, smallholder farmers and ranchers. There are about 119 ranches that are members UMPCU and these are important suppliers in its quest to consistently produce quality beef and beef products;

ii. Other stakeholders are; RELINE, Food and Agriculture Organisation (FAO) and the Directorate of Water Development (DWD).

3.3.4.3 Apiary

a) Background

Ugandans, like their counterparts in the rest of Africa, face a problem of income insecurity due to failure to exploit alternative sources of income. Management of honeybees is one such opportunity which offers both income and food security through production of valuable products such as, honey, beeswax, propolis, and bee venom. Honeybees as pollinators are responsible for at least one-third of the USD 1Tn in annual sales of agricultural products worldwide (Gallai, et al 2014). In 2012, the annual pollination services to crops in Uganda were estimated at about USD 547Mn, compared to a total economic crop value of USD 1,285Mn.

In Uganda, out of the 57 crops grown (including: *coffee, citrus, passion fruits, mangoes, beans, etc*.,), approximately 47 (over 80%) require pollinators to trigger fruiting and honeybees are the dominant taxa

providing these important crop pollination services.

b) Key Issues that Apiculture Interventions addressed

i. **Reduced bee populations and pollination services** and was addressed by conservation of honeybee stocks and native bee fodder with a resultant effect of increased agricultural production and productivity;

ii. **Low value addition and poor marketing** and was addressed by promotion of value addition and marketing of honey and other beehive products.

c) Performance versus Targets

The performance registered planned targets during the FY under review is presented hereafter in a table.

Table 40: Performance against Targets

Key Interventions Areas	Planned Actions/ Targets	Performance Outputs and Intermediate Outcomes	Remarks
Establish and support 96 bee-reserves in 24 districts	Procure and distribute: 1, 920 KTB hives; 96 sets of management tools (overall and veil, smokers, bee brush, hive tool, airtight bucket)	Outputs: • 18 bee reserves established and supported in 4 districts Outcomes: • indiscriminate chemical usage reduced to 10% in proposed bee reserve sites • number of improved beehives increased by 3% (farmers procured hives to support coffee pollination)	Funds allocated per quarter have been too small for meaningful procurements and implementation of other project activities
Identify and support 96 mother colonies in 24 districts	Procure and distribute 192 KTB catcher boxes	Outputs: • 96 mother colonies identified and supported Outcomes: • 75% of project districts conserved quality mother bee stocks for multiplication	
Supervise honey collection, value addition and marketing centres		Outputs: • 25 honey collection, value addition and marketing centres supervised for quality compliance Outcomes: • Tradable honey increased from 12,000MT to 12,220MT generating USD 39.04Mn	

Source: MAAIF 2016

d) Seed/Planting/Stocking Materials Distributed To Farmers

The following were materials of various categories that were distributed to farmers during the FY under review.

i. Materials for establishment of bee reserves procured and distributed to 18 centres in *Luweero, Nakaseke, Nakasongola and Mpigi districts*

ii. 96 mother colonies for quality bee stock identified and preserved in Masaka, Kalungu, *Bukomansimbi, Lyantonde, Sembabule, Mpigi, Gomba, Mubende, Mityana, Luweero, Nakasongola, Nakaseke, Mukono, Buikwe, Wakiso, and Kayunga* districts

e) Production of the Commodities in FY 2015/16 Compared to FY 2014/2015

The following represents production of commodities in the 2 FYs

Table 41: Production Trends

Product	Quantity Produced (MT)	Quantity Produced (MT)
	FY 2014/2015	FY 2015/16
Honey	12,000	12,220
Beeswax	720	735
Processed propolis	5,000 Liters	6,500 Litres
Bee venom	1.3 kg	2.8kg

Source: MAAIF 2016

f) Exports in Volumes and Value for FY 2015/16 and FY 2014/15

The performance of exports of bee products in both value and volumes is presented in the table hereafter.

Table 42: Exports and Values Comparison

Product	FY 2014/2015		FY 2015/16	
	Quantity exported	Value (USD Mn)	Quantity Exported	Value (USD Mn)
Honey	3,000 MT	9.6	4,100MT	13.12

Source: MAAIF 2016

g) How Different Stakeholders Contributed to the Reported Performance

The stakeholders that contributed to this performance during the year included the following.

Table 43: Stakeholder Participation

Stakeholder	Contribution
AU-IBAR	• Training of Trainers and strengthening of the National Apiculture Platform
TUNADO	• Organized the honey week • Organized regional and national Multi Stakeholders' Platforms • Strengthened trade and marketing of beeswax, honey and other products and apiculture equipment • Trained 35,841 persons in equipment and protective clothes making areas of Bunyoro & West Nile

Source: MAAIF 2016

h) The Extent to which Key Issues were addressed and what Remains to be done.

Out of planned procurement of 920 beehives, only 184 were procured (20%) creating urgent need to expedite completion of the remaining beekeeping equipment including catcher boxes, bee brushes, hive tools, overalls, veils, smokers and gumboots).

i) Challenges

The challenges that affected performance and achievement of better outcomes included the following.

i. ***Production challenges***

1. Weak coordination between beekeeping and other sectors and programmes like the OWC, the National Forestry Authority (NFA);
2. Destruction of forests and other vegetation required for bee foraging;

3. Lack of funds to enable beekeepers access affordable and appropriate beekeeping equipment.

ii. *Export challenges*

1. Exporters lack of access to products of sufficient quantity, more especially beeswax, propolis and bee venom;
2. A few collecting centers with appropriate processing and packaging equipment to maintain the quality of products required in the international markets;
3. Inadequate market information on different hive products

3.3.4.4 Silk

a) Background

Sericulture is an emerging agro enterprise promoted by MAAIF that has the potential to generate house hold incomes, create employment and contribute to the country's foreign exchange earnings. MAAIF established the National Sericulture Centre (NSC) at Kawanda in *Wakiso* District. The NSC provides an institutional framework and central services required for the development of sericulture sector.

There are about 2,300 farmers with mulberry gardens of which 350 possess rearing houses and with about 210 farmers of them actively rearing silkworms and producing cocoons in 10 districts in western, central and eastern Uganda namely *Bushenyi, Kiruhura, Sheema, Mitooma, Kanungu, Kabarole, Mubende, Mpigi, Wakiso, Luwero and Kamuli*. Farmers in these districts have formed associations and belong to one national umbrella organization the Uganda Silk Producers Association (USPA). The current cocoon production level is about 13MT per year most of it processed and sold as silk yarn to Ethiopia, Egypt and Hong Kong through Bushenyi Silk Farmers Association (BSFA).

b) Key issues that Silk Commodity Interventions Addressed

i. Low silk production and productivity

The interventions were;

1. Increase mulberry acreage;
2. Provision of quality silkworm eggs;
3. Training and capacity building of extension agents and farmers.

ii. Low value addition and market access

The interventions were;

1. Enhance cocoon processing and value addition;
2. Improving the quality of silk yarn and silk products.

c) Performance Measured Against Targets

Table 44: Performance of Silk Production Interventions for FY 2015/16

Key Intervention Areas	Planned Actions/ Targets	Performance Outputs and Intermediate Outcomes	Remarks
Increase mulberry acreage	Multiplication and distribution of mulberry cuttings to farmers' groups to plant 50 acres	3.6 tons of mulberry planting materials were produced at the National Sericulture Centre and distributed to 6 farmer groups in Luwero and Mubende districts. On average 18 acres of mulberry were planted in the 2 districts. Outcome:	Prolonged droughts in some areas contributed to the poor establishment of planted mulberry.

Key Intervention Areas	Planned Actions/ Targets	Performance Outputs and Intermediate Outcomes	Remarks
		Increased mulberry acreage	
Provision of quality silkworm eggs	Breeding and maintenance of silkworm races. Multiplication and supply 800 boxes of silkworm eggs to farmers.	Silkworm breeds maintained at the National Sericulture Centre in Kawanda. JICA supported infrastructure development, provision of equipment and elite parent lines. 150 boxes of silkworm eggs (each box contains 20,000 eggs) were distributed to farmers in *Kamuli, Luwero, Mpigi and Wakiso* districts.	ICIPE in Kenya has been supporting Bushenyi Silk Farmers with silkworm eggs.
Support farmers to produce silk cocoon	25MT of cocoons targeted	15.1MT of cocoons were produced by farmers in western central and eastern Uganda	More farmers should engage in silkworm rearing; however, lack of rearing houses is one of the constraints.
Training of farmers in silkworm farming technologies	Train 100 farmers	55 farmers were trained in Silkworm farming technologies at the National Sericulture Centre in Kawanda. Outcome Improved knowledge, skills and quality of cocoons produced	More farmers should be trained.
Promotion of post-harvest cocoon processing and value addition of silk yarn to finished silk products.	Produce quality silk yarn and finished products (silk cloth, silk scarves and accessories)	2,600kg of yarn produced to be exported to Ethiopia and Egypt 40kg Degummed silk for carpet making exported to Kenya 317 silk scarves sold on the local market. Outcome Increased income from sale silk yarn and other products.	JICA supported provision of appropriate reeling equipment to silk farmers' groups and now BSFA & Kawanda Silk Craft Association (KASICA) buy cocoons and reel them into silk yarn.
Dissemination of sericulture information	Distribute sericulture manuals, leaflets, talk shows and exhibitions.	230 sericulture manuals disseminated to farmers and other stakeholders. Outcome Awareness created about the silk industry.	Plan to produce a harmonized sericulture training manual and translated in different languages.

Source: MAAIF 2016

d) Seed/Planting/Stocking Materials Distributed To Farmers

During the FY under review, MAAIF distributed quality silkworm eggs and mulberry planting materials to farmers.

e) Production of the Commodities in FY 2015/16 compared to FY 2014/2015

Table 45: Production of Silk Products

Product	Quantity produced (MT)	Quantity produced (MT)
	FY 2014/2015	FY 2015/16
Cocoons	14.8 tons	15.1
Silk yarn and degummed silk	2.1	2.6

Source: MAAIF 2016

There was slight increase of 2.0% in cocoon production and 23% in silk yarn production due to improved technology in value addition.

f) Exports Volumes and Values in FY 2015/16 versus FY 2014/15

There were no exports registered during 2015/16.

g) How Different Stakeholders have Contributed to the Reported Performance

The following stakeholders contributed to the achieved performance during the FY under review.

Table 46: Stakeholder Participation

Stakeholder	Contribution
Japan International Cooperation Agency (JICA).	Supported infrastructure development, provision of laboratory and elite parent lines to the breeding unit. Provided appropriate cocoon post - harvest processing equipment to silk farmers' groups for value addition.
International Centre for Insect Physiology and Ecology (ICIPE)	Provided silk processing machines, technical guidance and training.
Bushenyi Silk Farmers' Association (BSFA) and Kawanda Silk Craft Association (KASICA)	The associations buy cocoons and reel them into silk yarn for export and produce finished silk products.

Source: MAAIF 2016

h) The Extent to which Key Issues have been addressed and what remains to be done

Mulberry expansion is being undertaken, quality silkworm eggs are available for silk worm rearing and cocoon production. Post harvest cocoon processing and value addition is being done by 2 silk farmers association in western and central region. However, the policy on sericulture is yet to be finalized and regulations and SOP are also yet to be developed.

i) Challenges

The challenges that MAAIF faced during the FY under review included the following.

i. Most farmers lack silkworm rearing houses and rearing equipment such as spinning frames, spray pumps etc.;
ii. Incidences of silkworm and mulberry pests and diseases;
iii. Inadequate knowledge and skills about silkworm farming.

j) Recommendations

i. Strengthen the silk industry by mobilizing more farmers to plant mulberry, rear silkworms and produce cocoons;
ii. Farmers should be encouraged to construct low cost rearing houses using locally available materials;
iii. Support local government and private sector to build capacity for efficient extension service delivery and supervision;
iv. Train farmers and other stakeholders in sericulture technologies;
v. Promote small and medium scale silk processing enterprises;
vi. Establish both local and international market linkages for silk products.

3.3.4.5 Hides and Skins

a) Background

In Uganda all tanneries process hides and skins only up to wet blue apart from the leather industries of Uganda that is responsible for 10% of their total production. All the wet blue is exported to Kenya, India,

Italy and other counties while an unknown number of hides and skins are exported to other countries tax free. It is unfortunate but the majority of traders take interest only in the meat and regard hides and skins as a waste not appreciating the value of hides and skins as an income generating product.

b) Performance against Targets

The table presented hereafter presents the details for the 2 FYs.

Table 47: Amount and Value of Hides and Skins Exported during FY 2015/16

Product	FY 2014/2015		FY 2015/16	
	Consignments	Total quantity	Consignments	Total quantity
Wet blue hides (kg)	206	7,518,899		8,532,086
Wet blue skins (kgs)	68	1,490,017		1,527,181
Wet blue chrome tanned leather (kg)	91	1,579,079		1,169,833

Source: MAAIF 2016

3.3.4.6 Pest, Vectors and Disease Control

a) Background

The country has a high potential for significant livestock exports but this has not been exploited largely due to rampant animal diseases notably FMD, CBPP and PPR among others. The country was challenged by high infestation of tick borne diseases as a result of increased resistance of ticks to acaricides. In addition, there was increased prevalence of Trypanosomiasis especially in *Kabong, Kotido and Buvuma* districts. The high prevalence of animal diseases and vectors greatly impacted on the contribution of the livestock subsector to and also jeopardizing export of livestock and livestock products.

b) Key Issues that the Interventions addressed in FY 2015/16

i. High prevalence of endemic, epidemic and zoonotic animal disease Interventions

1. Animal disease surveillance to determine the prevalence of the diseases;
2. Investigation of animal disease outbreaks in the field and confirmation at the National Animal Disease Diagnostics and Epidemiology Laboratory;
3. Strategic/tactical vaccination and treatment conducted in districts experiencing outbreaks.

ii. Increased infestation of ticks and high incidence of tick borne diseases Interventions

1. Undertook surveys and sensitization;
2. Monitored resistance of ticks to acaricides.

iii. Increased infestation of tsetse and high incidence of Trypanosomiasis Interventions

1. Increased sensitization and community awareness;
2. Improved diagnosis and early disease detection;
3. Reduction of tsetse vector and man-tsetse-animal contact.

c) Targets versus Achieved

A table showing the performance registered against targets in the area of control interventions is presented hereafter.

Table 48: Performance Registered against Targets

Key Interventions Areas	Planned Actions/ Targets	Performance Outputs and Intermediate Outcomes	Remarks
Improve passive and active surveillance undertaken	Monthly animal disease reports submitted from 112 districts	• 40% of the districts submitting monthly reports • Improved monthly animal disease reporting from the District Veterinary officers to MAAIF	
Investigation of animal diseases and confirmation at the National Animal Disease Diagnostic Laboratory	To investigate and confirm 50 disease outbreaks	• 41 disease outbreaks were investigated, confirmed in the laboratory and contained. outcome • Immediate response to disease outbreaks	
Strategic vaccination against priority diseases	Procure 500,000 doses of FMD, 100,000 of CBPP and 120,000 of Rabies vaccine	• Procured 550,000 doses of FMD, 300,000 doses of Rabies intermediate outcome • Reduction in the prevalence of FMD outbreaks from 40% in FY 2014/2015 to 5% in FY 2015/16 • There has been a 15% reduction in the number of disease outbreaks in FY 2015/16	FAO provided additional doses of FMD vaccine. Funds were re-located to procurement of rabies vaccines due to increased incidences of dog bites Country wide.
Controlling tick infestation and tick borne diseases	Conduct field surveys Sensitization on proper use of acaricides	• Acaricide use monitored in the districts of: Masaka, *Mukono, Kayunga, Buikwe, Nakasongola, and Busia* outcome 55% observed proper acaricide mixing 16 % acquired bucket pumps for spraying	Not following label instructions while mixing acaricides • Irregular spraying regimes in open grazing systems • Smuggled acaricides from Kenya, especially in Busia district • lack of proper tick control structures and equipment
Monitor tick resistance to acaricides	Collaborate with MUK and NALiRI to carryout studies on tick acaricide resistance in 4 districts	• Studies on acaricide resistance carried out on ticks from Sembabule, Gomba, Kiruhura, Kyankwanzi and Kiboga observed: • 74 % of cattle keepers (in the 6 districts) rotate from one class of acaricide to another after consultation	• pyrethroids are no longer effective in Kiruhura, Gomba and Sembabule • dip analysis revealed inconsistencies in strength
Tsetse eradication and Trypanosomiasis elimination	Plans for the phased implementation of the tsetse eradication campaign in Uganda formulated.	Comprehensive entomological and parasitological baseline surveys were undertaken in *Kaboong and Kotido* that are most affected by tsetse infestations in the Karamoja region Outcome: The information collected is being used, to guide planning and implementation of emergence operations in Karamoja region and in the development of a comprehensive Regional Tsetse and trypanosomiasis eradication project (EURTTEP) covering 33,000km^2 along the Kenya Uganda border	Tsetse eradication and Trypanosomiasis elimination
	A National GIS Tsetse and Trypanosomiasis Data Base established	• The National GIS Tsetse and Trypanosomiasis data base has been established and is being regularly updated by the departmental geo-information unit.	All information from the surveys has been integrated into the National database, mapped, and is

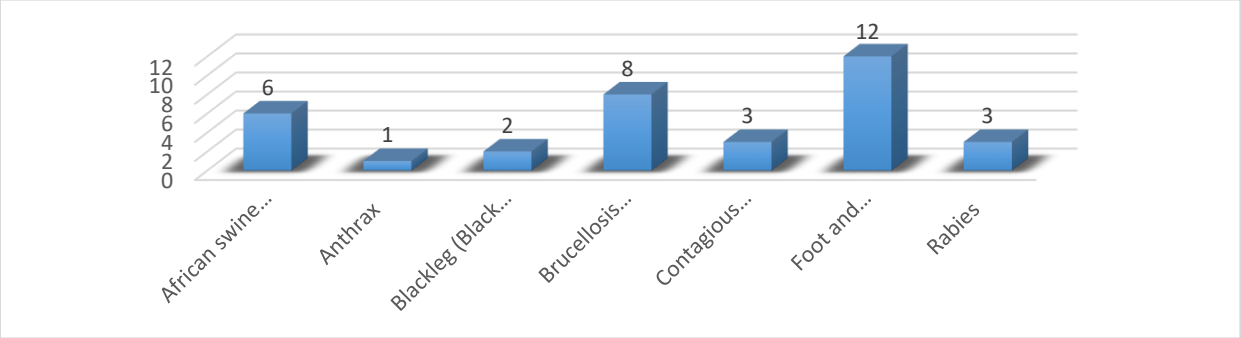
Key Interventions Areas	Planned Actions/ Targets	Performance Outputs and Intermediate Outcomes	Remarks
	and maintained for decision support	• Tsetse monitoring data was collected from the districts of *Iganga, Busia Iganga, Gomba, Sembabule Moyo, Yumbe, Maracha, Koboko and Arua* • Baseline entomological data was collected from 27 sub-counties in over 300 geo-referenced sites from the districts of *Kaabong, Kotido and Moroto*. Tsetse densities as high as 952 and 841 flies in 3 days recorded in Karenga SC, Opot pot parish Nawayoro village and Kalokudo villages respectively • Entomological data validation was undertaken in the Islands of Lulamba, Serinya, Buwuvu.and Kibibi in *Kalangala*	being used to support decision making for control operations
	Departmental Geo information unit strengthened	• Hardcopy topographic maps for 7 districts of Karamoja region were procured in preparation for planned surveys. • 30 LG technical staff were trained in GIS skills & data collection. Outcome Skills in GIS imparted in technical staff	
	Tsetse suppression undertaken in 20 high tsetse and trypanosomiasis districts using community based control technologies	• 10,000 deltamethin treated targets were maintained in 5 districts of; *Moyo, Arua, Koboko, Maracha and Yumb*e • 180 litres of Deltamethrin for tsetse trap impregnation were provided to districts; *Mukono, Iganga, Buyende, Maracha, Oyam, Amolator, Nakasongola* to support tsetse suppression Outcome: Tsetse apparent density reduction rates of 75% to 90% were recorded in intervention areas	
	Feasibility of SIT as part of Area Wide Pest Management against Glossina fuscipes (*G.f.f)* demonstrated in Kalangala Islands by GOU in collaboration with IAEA	• A tsetse mass rearing unit was established in *Kalangala* • A tsetse colony of *G.f.f* is being established in Tororo. • In vitro feeding experiment for Tsetse colony for *G.f.f* established in Tororo • A community awareness created in Kalangala Islands • 1,000 pyramidal tsetse traps and 300 targets were provided to support Pre-SIT tsetse suppression • 4 hot fogging machines and insecticides for suppression were received from the IAEA to support tsetse suppression	The activities under this component are being done in support of the planned tsetse eradication campaign

Source: MAAIF 2016

d) Major Pests and Disease Outbreaks Reported and Where

There was a general reduction in the prevalence of reported outbreaks of priority diseases in the country. FMD outbreaks were reported in 12 districts in FY 2015/16 down from 71 districts in 2014/2015. The districts affected by FMD during 2015/16 were; *Nebbi, Arua, Apac, Kyankwanzi, Kibale, Kiruhura, Mbarara, Rakai, Isingiro, Kween, Manafwa and Busia*.

Figure 16: Number of Districts Reporting Outbreaks of a Specific Disease during FY 2015/16



Source: MAAIF 2016

African Swine Fever (ASF) was reported in 6 districts of *Kabale, Mbarara, Hoima, Rakai, Kamwenge and Nebbi*. Anthrax was reported in *Sembabule* district while black quarter was reported in *Masaka* district. CBPP was reported in the districts of *Mpigi, Kyenjojo and Kotido* while rabies was reported in *Arua, Ntungamo and Mubende*.

e) Isolated Cases Reported and Where

i. Tick resistance to acaricides in western and south western Uganda;
ii. Increased prevalence of tick born disease in western, south western and Karamoja regions;
iii. Increased tsetse fly infestation and Trypanosomiasis in *Kabong and Kotido* in Karamoja region.

Figure 17: Tsetse Fly Surveys and a Cage Showing Trapped Tsetse Flies from 1 Site in Kaabong District

Source: MAAIF 2016

f) Control measures applied

The DAR, procured 6,000 litres of pour-on insecticide for emergency tsetse suppression in *Kaabong* which however is a very small intervention compared to the magnitude of the problem in the Karamoja region. A comprehensive proposal for an integrated area wide pest management intervention involving aerial spraying for the entire Karamoja region is being finalized by the department.

g) **How different stakeholder's public/private contributed to the reported performance**

i. The African Union Inter-African Bureau of Animal Resources (AU-IBAR) under the Veterinary Governance project assisted the Ministry to review the following laws and policies.
   1. The Veterinary Surgeons' Act;
   2. The Policy for delivery of veterinary services;
   3. Baseline survey of stakeholders' awareness of the veterinary domain laws, regulations/rules, standards and guidelines;
   4. Codification of the Uganda veterinary laws in accordance with OIE guidelines and sequence;
   5. Quarantine inspection and certification guidelines.

ii. The AU-IBAR is supporting disease control activities through the Surveillance in Trade Sensitive Disease Project and Standard Methods And Procedures project;

iii. The Standard Methods and Procedures project and Surveillance in Trade Sensitive Disease Project, supported the DAR laboratory with diagnostic kits for 4 priority diseases, cross sectional survey of 4 TADs and capacity building of staff;

iv. The Intergovernmental Authority for Development (IGAD) and ICPALP with support from the World Bank is supporting the Ministry through the Pastoral Livelihood Resilience Project in building resilience in the pastoral communities of Teso and Karamoja;

v. FAO through various programmes has supported i) establishment of mobile phone reporting in Karamoja region for timely animal disease reporting, ii) disease control through provision of vaccines for FMD, CBPP and PPR iii) supported improved animal disease surveillance and iv) supported activities related to tsetse and Trypanosomiasis control in Karamoja.

h) Key challenges in the Livestock Subsector during FY 2015/16

The key challenges that impeded implementation of interventions and achievement included the following.

i. Increasing tick resistance to acaricides due to counterfeit products and improper use of acaricides (low concentration and or irregular use);
ii. Tsetse resurgence and infestation in Karamoja and Buvuma Islands;
iii. Inadequate breeding stock (cattle, dairy, pigs, bees and silkworms) due to lack of adequate gene pool for traits required to hasten increase in quantity and quality meat;
iv. Partial and untimely release of funds making it difficult to implement activities;
v. Lack of land titles for government land (DDA and NAGRC&DB (expansion of the airport and encroachment of land));
vi. Inadequate infrastructure to support effective enforcement of laws, regulations and standards (DAR and DDA);
vii. Poor collaboration between actors in the livestock subsector like the National Drug Authority (NDA), drug dealers and LGs etc.;
viii. Scarcity of quality feed ingredients like maize and maize bran, soybean due to lack of grain reserves, export of whole maize grain, export of maize bran and molasses and poor quality feed and feed ingredients.

i) Key Issues raised in the last JASAR 2015 and Interventions that addressed them

Table 49: Limited Quarantine and Laboratory Infrastructure

Issue	Recommendation	Action taken
Quarantine and laboratory infrastructure at ports of entry/exit	Increase facilities at point of entry and exit.	4 border post quarantine office space were established in Elegu (*Amuru* district), Entebbe Airport (*Wakiso* district), Oraba (*Koboko* district), Pakwach (*Nebbi* district) This has led to increased Sanitary compliance levels.

Source: MAAIF 2016

Table 50: Marketing and Agro Processing

Issue	Recommendation	Action taken
Quality assurance/ Regulatory services/	Strengthen regulatory services -	• Sanitary and Phytosanitary (SPS) measures have been established at 13 border posts and 10 Senior Zonal Inspectors are operating them • 13 regional laboratories for animal disease diagnosis are operational • National Animal Disease Diagnostic and Epidemiology Centre (NADDEC) ensures identification and diagnosis to reduce the burden of disease • This has led to prompt diagnosis and detection of animal diseases hence prevention of spread of animal diseases and diseases of public health importance therefore, reducing cost on vaccination and treatment.
1. Standards	Enforce standards for quality assurance.	• Inspection of animal product production and processing facilities (hatcheries, milk and milk product processing plants and butcheries). • Inspection of animal transportation vehicles, • Inspection of livestock transportation routes. • Institution of quarantines measures. • Institution of other Sanitary and Phytosanitary (SPS) measures. • Proficiency tests in laboratories.

Issue	Recommendation	Action taken
		• Use of internationally accepted SOPs, test protocols and procedures

Source: MAAIF 2016

Table 51: AI Interventions

Issue	Action	Lead Agency/Institution
Liquid Nitrogen availability	The new liquid nitrogen plant is now operational and it has been planned to purchase 3 liquid nitrogen trucks for field delivery covering the entire country.	NAGRIC&DB
Breed Improvement	To improve breed for export promotion strategy, over 24,000 dozes of semen were imported by NAGRC&DB from South Africa for massive selective cross breeding.	

Source: MAAIF 2016

3.4 Agricultural Extension Services

3.4.1 Introduction

Agricultural extension is essential for communicating useful information, imparting skills and promoting technologies to the rural population and ensuring their appropriate application for increased productivity and enhanced quality of rural life. The primary problem faced by the provision of these services in Uganda is fragmentation and lack of coordination of service actors. This fragmentation was legitimated during the adoption of the market-oriented neoliberal reforms in the late 1990s which significantly reduced the capacity of MAAIF and LGs to effectively coordinate service delivery. The diverse players involved in agricultural extension delivered largely independently services of each other and in most cases their operations were unknown and unrecognized. Some of the extension service providers operated without harmonized standards, ethics and their messages were not frequently updated or sufficiently regulated and as a result, research, extension, educational and farmer institutions that constitute an effective extension system were isolated from each other and did not coordinate their actions in problem identification and solving which is necessary for transformation of smallholder subsistence farmers into the desired commercial farmers.

Table 52: Extension Services Provided by MAAIF Agencies/Projects

AGENCY	No. of HH	Types of extension services received	% of HH Total Number of HH
DDA	800,000	Dairy related activities including inspection, training & processing	Countrywide
UCDA	570,000	Coffee extension activities along the value chain	93 districts countrywide
CDO	140,000	Cotton extension activities along the value chain	Northern, Eastern & Kasese Districts
VODP	63,000 1800	Oil Seed Oil palm in Kalangala	43 districts(West Nile, Northern & Eastern
COCOA	380,000	Cocoa extension activities along the value chain	18 districts (Bundibugyo Central & Eastern)

Source: MAAIF 2016

Furthermore, the reforms undertaken downsized MAAIF's technical manpower and increased the ratio of extension staff to farmers to 1:5,000 as of 2014 compared to the recommended ratio of 1:500. This undermined capacity to create and disseminate relevant knowledge and information to farmers and other value chain actors including the youth. Consequently, the extension system is characterized by weak regulatory system, poor linkages of farmers and other actors to markets, processors and financial services, high cost of service delivery, institutionally weak farmer organizations, uncoordinated delivery approaches and low technological uptake.

GoU therefore, in June 2014 made a decision to reform the National Agricultural Advisory Services (NAADS) and MAAIF was mandated by Cabinet to reorganize the agricultural extension service into a harmonized, well coordinated and integrated delivery system in what was termed as "Single Spine" agricultural extension system and subsequently the Directorate of Agricultural Extension Services (DAES) was established to spearhead reform and was launched in August 2015.

3.4.2 Mandate and Functions

The mandate of the DAES is to: ***"promote adoption of appropriate information, knowledge, and technological innovations for commercialization of agriculture."***

The functions of the DAES include;

i. Formulating and reviewing policy on matters related to agricultural extension;
ii. Strengthening coordination of LGs production departments, NGOs and private sector in provision of agricultural extension services;
iii. Providing technical advice on agricultural extension and advisory services;
iv. Setting standards for service delivery in local governments and private sector;
v. Assuring quality of agricultural extension services;
vi. Supporting agricultural enterprise development nationally;
vii. Providing information and communication services to MAAIF and LGs;
viii. Strengthening inter institutional linkages between research, educational and farmer institutions;
ix. Promoting agribusiness services and agricultural value chain development in close collaboration with the private sector;
x. Supporting farmer institutional development through capacity building programs;
xi. Supporting skilling and manpower development in the agricultural sector;
xii. Identifying investment opportunities in the agricultural sector.

3.4.3 DAES Performance for FY 2015/16

Following the launch of the DAES, the institutional processes to mainstream the directorate into MAAIF's administrative, planning and budgeting frameworks were undertaken. 16 Technical officers were posted to the Directorate on assignment out of the required 34 approved in the structure. Orientation training was organized for all staff of the Directorate with support from PASIC project with facilitators from Uganda Management Institute. MAAIF worked with the MoFPED to undertake due processes to obtain a Vote Function and Program Codes for the DAES and its departments and with effect from the FY 2016/2017 the DAES started receiving budget allocation.

The major activities undertaken by the Directorate during the FY 2015/16 were funded from internal reallocations and off budget support from development partners. The key interventions undertaken are outlined in the Table below.

Table 53: Performance versus Targets

Key Interventions Areas	Planned Actions/ Targets	Performance Outputs and Intermediate Outcomes	Remarks
Policies, strategies, plans and guidelines	Develop a Policy Guide for the National Agricultural Extension Service in line with Cabinet Decisions	A Policy Guide for the National Agricultural Extension Services was developed, published in December 2015 and disseminated to all relevant stakeholders	The policy guide interpreted the Cabinet decisions and provided direction of the extension reform
	Formulate the National Agricultural Extension Policy (NAEP)	Formulation process of the NAEP was undertaken and the final policy draft submitted to Cabinet for approval	The policy process was highly consultative and inclusive involving more than 3000 participants
	Design the National Agricultural Extension Strategy (NAES)	The design of the NAES was undertaken and the final draft was approved by MAAIF and is awaiting printing and dissemination	
	Develop the National Agricultural Knowledge Management and Communication Strategy	The processes of developing the National Agricultural Knowledge Management and Communication Strategy were undertaken and the final draft awaits presentation to MAAIF for approval.	
	Develop the Agro Processing and Marketing Strategy	The process of developing the Agro Processing and Marketing Strategy were undertaken and the final draft awaits presentation to MAAIF for approval	The strategy will help processors to reduce on the post harvest loses
Administration, Human Resource Development and Accounting	Develop guidelines for implementation of the National Agricultural Extension Service Delivery system in Uganda	Guidelines intended to support LGs in recruitment of extension staff were drafted, submitted and approved by MoPS. Subsequently disseminated to all the 116 LGs	
	Organize an Induction and orientation of all District Production and Marketing officers, Chief Administrative officers, Town Clerks and Human Resource officers.	3 day induction training to appraise the district leadership on the new policy direction of agricultural extension was organized in December 2015 for all the 112 District Production and Marketing officers (DPMO) while 2 day Regional Workshops for Chief Administrative officers, Town Clerks and Human Resource Officers were conducted between May and June 2016 for 116 districts and 41 Municipalities. The trainings discussed modalities for implementation	
	Supervise and Coordinate the recruitment of agricultural extension staff in all the 116 District Local Governments	Supervisory and coordination activities in all the 116 districts were conducted to guide recruitment of extension staff. The number of staff in production departments countrywide increased from 1,261 as of July 2014 to 2,503 as of June 2016 representing about 50% of approved numbers. The recruitment process is still ongoing.	
	Develop Job Descriptions for all technical positions in DAES.	In consultation with the Human Resource Management Department (HRMD), developed the job descriptions for all technical positions in	

Key Interventions Areas	Planned Actions/ Targets	Performance Outputs and Intermediate Outcomes	Remarks
		DAES. The draft was submitted to Ministry of Public Service for approval and is still ongoing	
	Train and upgrade technical staff	DAES collaborated with University of Hohenheim, German for a PhD training of one staff in Social and Institutional Change in Agriculture.	
		Collaborating with Indian Government and USAID to develop short term capacity building program for agricultural extension staff with the process in the initial stages	
		DAES in collaboration with CAFÉ Africa, NACORI, UCDA and Bukalasa agricultural College trained 180 coffee extension staff in 6 districts of *Mayuge, Kamuli, Luwero, Mityana, Ibanda and Isingiro* in coffee agronomic practices	
		Collaborated with Department of Crop Protection and Human Network International to develop mobile telephone extension messages.	
Coordination of Agricultural Extension Services	Undertake District Stakeholder engagement on agricultural policies, strategies, standards and export market procedures in 17 LGs.	Stakeholder engagement trainings in addition to policy focused on increasing the participants understanding of the EAC; bean and maize grain standards; export market procedures; farmer institutional development; financial management and effective action planning were undertaken in 17 major maize and beans grain growing districts of *Gulu, Kiboga, Agago, Dokolo, Ibanda, Tororo, Kamuli, Masaka, Lira, Kamwenge, Masindi, Kasese, Luwero, Mukono, Bushenyi, Sironko and Nebbi*. Districts were selected based on the volumes of the maize and bean grains produced in the district. More than 630 participants were drawn from extension staff, farmers and farmer leaders, input dealers, traders, processors and district leaders.	
	Develop a Human Resource Database for all agricultural extension staff in LGs	A database was created and data on all existing public agricultural extension staff in DLGs was captured and will be regularly updated.	
		Collaborated with the World Bank and developed a Solutions Finder Database that is used to share knowledge captured	Plans are underway to get the database online for staff to share knowledge in real time.
	Conduct advanced stakeholder engagement and communications trainings for all senior staff of MAAIF	Three three-day advanced stakeholder engagement and communications trainings involving more than 175 senior staff of MAAIF were conducted.	The trainings were meant to help the MAAIF staff to understand and improve communication with stakeholders.

Key Interventions Areas	Planned Actions/ Targets	Performance Outputs and Intermediate Outcomes	Remarks
	Establish collaboration and coordination mechanisms with key institutions relevant to the agricultural extension system	At least 9 MOUs have been drafted with different institutions including: Colleges of Agriculture and Environmental Sciences and that of Veterinary Medicine, Animal Resources and Biosecurity; Schools of Journalism and Mass Communication, Statistics and Planning, Biological Sciences of Makerere University; State of Nebraska, USA, Kilimo Trust, Café Africa, NARO and NAADS.	The MOUs are in the processes of approval at different stages.
		Supported planning and coordination of agricultural extension and research for technology up scaling in all the 116 districts through joint planning at the 9 Zonal Agricultural Research and Development Institutes (ZARDIs).	Joint planning by District Production Officers and Zonal Research officers has been institutionalized.
Experimentation and Evaluation of Agricultural Extension delivery models	Collaborate with Development Partners to evaluate extension models/approaches of increasing efficiency extension service delivery along the value chain	A field evaluation exercise to assess the village agent model as one of the approaches in promoting agricultural value chains was undertaken in *Mubende, Masindi and Iganga* districts. The objective was to assess the applicability of the model and how it can be institutionalized in the extension system. The good lessons from the evaluation of the model are currently under study.	The field evaluation was jointly undertaken with Feed the Future Commodity Production and Marketing program
		Experimenting knowledge sharing with selected model farmers in *Wakiso* District to understand the level and extent of technology diffusion to other farmers is being undertaken in collaboration with the World Bank Knowledge Sharing Program	
Support to Farmer Institutional Development	Undertake farmer needs assessment, develop an inventory of all farmer groups and training materials	The Terms of Reference (ToR) for the consultancy were developed and approved and the Consultant identified as Uganda Cooperative Alliance (UCA) however, the contractual process is ongoing.	
Policy, Advocacy and Publicity	Engage key stakeholders to advocate for policy and increased budget allocation to agricultural extension.	Engaged the World Bank and mainstreamed the ATAAS project activities to support the extension reform.	ATAAS extension related activities budgeted to the tune of USD 15 Million
		Negotiated with IFAD to restore funding for ATAAS that was withdrawn following the reform of agricultural extension	IFAD has agreed in principle to provide funding to the tune of USD 8.1Mn
		Engaged Non State Actors (NSA) and commissioned short term consultancy on agricultural extension budget performance. The findings were used to advocate for increased resource allocation to extension.	The advocacy partly led to increased wage budget allocation for agricultural extension from

Key Interventions Areas	Planned Actions/ Targets	Performance Outputs and Intermediate Outcomes	Remarks
			UGX 16.4Bn to UGX 39Bn
	Engage the print and electronic media to publicize MAAIF programs and activities	DAES worked with East African Business Magazine, published and disseminated more than 500 copies of the Agriculture Sector Handbook 2015 which is a detailed account of sector undertakings to relevant stakeholders.	
		Engaged more than 20 FM Radios and 5 Television Stations (UBC, STAR, WBS, NBS and DELTA) and publicized agricultural programs MAAIF is implementing.	MAAIF political and technical leadership participated in televised and broadcasted programs.
		Published a number of articles and supplements in the print media in collaboration with other MAAIF Departments and Agencies. Some of the publications include World Food Day celebrations held on 16th October 2015, National Agricultural Show held on July 2015, National Veterinary Day and World Rabies Day.	
Value Addition and Agro-Enterprise Development	Collaborate with stakeholders for agricultural markets and other infrastructure development	The Ministry constructed storage facilities for farmers groups as pilot demonstration centers in *Masindi and Jinja*	
	Reduce post harvest losses in Maize and Rice in *Masindi and Jinja* respectively	Value addition and processing pilot demonstration centers have been established in *Masindi and Jinja* for both maize and rice respectively, with capacity of processing 2MT of grains per hour.	
	Increase value addition along the all value chains	Promoted value addition on sunflower, Groundnuts and simsim in Eastern and Western Uganda districts together with palm oil in *Kalangala* and neighboring areas in collaboration with VODP Project.	
		Promoted value addition on rice through training processors of rice in different regions on color sorting, grading and destining in collaboration with JICA.	
		Promoted high quality cassava chips and cassava flour in Eastern region under ATAAS project	
Youth involvement in Agriculture	Develop a strategy for youth involvement in agricultural value chains	The process of developing the strategy was initiated in collaboration with FAO. 2 consultants have been contracted with clear ToR and a Technical Working Group (TWG) was appointed and started its work.	
	Collaborate with Ministry of Gender, Labor and Social Development to implement the Youth Livelihood Program	Provided technical support to Ministry of Gender, Labor and Social Development (MGLSD) on agricultural related activities under Youth Livelihood Programs (YLP)	

Source: MAAIF 2016

3.4.4 The Extent to which Key Issues have been addressed and what Remains to be done

The NAEP formulation processes were concluded and submission made to Cabinet for approval and to be followed by legislation for implementation. The NAES however, was approved by MAAIF Top Policy Management (TPM) and is due for printing, dissemination and implementation.

The main institutional gaps that require attention are getting the necessary manpower to implement the new extension policy both at national and LGs levels. As of June 2016, the recruitment was at about 50% in LGs and at national level it is less than 50%. Once the policy is approved, there will be need for slight modifications on the structures both at district and at national levels.

3.4.5 Stakeholders Participation

The Directorate performance as reflected above was achieved with contributions from different stakeholders in the form of financial, technical assistance and training. Development Partners that supported these efforts included: USAID Feed the Future program, the World Bank, and International Institute of Tropical Agriculture (IITA) through Policy Action for Sustainable Intensification of Cropping Systems (PASIC) project.

The NSA with coordination from Food Rights Alliance (FRA) supported the policy processes through stakeholder mobilization, advocacy and financing of stakeholder workshops and talk shows on radios and television. The Civil Society Budget Advocacy Group supported budget negotiations with parliamentary committees on agriculture and the national economy.

3.4.6 Key Issues that Agricultural Extension Services Interventions addressed

These included the following:-

a) The development of policies, strategies, plans and guidelines;
b) Coordination of agricultural extension services;
c) Experimentation and evaluation of agricultural extension delivery models;
d) Support to farmer institutional development;
e) Policy, advocacy and publicity;
f) Value addition and agro-enterprise development;
g) Youth involvement in agriculture;
h) Administration, human resource development and accounting.

3.4.7 Responses to JASAR 2015 Recommendations

The issues and undertaking as well as responses are in the table presented hereafter.

Table 54: JASAR 2016 Issues, Recommendations and Undertakings

Infrastructure/ storage	Strengthen collaboration for market infrastructure development	Collaboration initiatives on infrastructure and storage ongoing between MTIC, MoLG and the Private Sector including; • CAIIP under MoLG • WFP giving out subsidized silos to smallholder farmers in Eastern Uganda • NAADS/ OWC with EFP putting up community grain stores in Kiryandongo, Hoima, Kibaale, Nakaseke, Luweero, Napac, Mubende, Kiboga, Adjumani and other districts

Issue	Agreed Action	Response
Extension service provision	Expedite the implementation of the single spine extension system	District approved posts: 1,456; Filled posts: 387; Unfilled posts: 1,069
		Sub-county level posts: 4,092; Filled posts: 1,537; Unfilled posts: 2,555
		Total posts approved at both levels: 5,548; Filled posts: 1,924; Unfilled posts: 3,624

Issue	Agreed action	Response
Value addition	Promote increased value addition along value chains	Value addition and processing pilot demonstration centres established in Masindi and Jinja for maize and rice respectively, with capacity of processing at 2 MT of grains per hour
		VODP 2 promoting value addition to sunflower, soybeans, grounds nuts and sim sim in 43 districts in Eastern, Northern and West Nile regions of Uganda
		JICA project promoting value addition on rice through training processors of rice in different regions
		Agricultural Technology transfer project on Cassava promoting high quality cassava chips and flour in Eastern Region
		OWC/ NAADS has distributed milk coolers, bee hives and processing equipment and other value addition equipment
		Banana Livelihood project supporting value addition on bananas through banana wine producers and fresh banana packers in Western Uganda districts
		UCDA and NUCAFFE staging youth camps to promote coffee production and value addition

Issue	Agreed Action	Response
Post harvest handling losses	Develop and implement strategies to reduce PH losses	MAAIF and KOICA developing an Agro-processing and Marketing Strategy; draft in place
		Capacity building programmes through Agro-processing and Marketing Strategy Project designed and implemented through training and skilling of farmers and farmer organisations starting with Eastern and Western Uganda
		Namalere National Agriculture Research Laboratories has developed farm level post harvest handling technologies.
		Post harvest equipment including moisture meters, sieve cleaners, weighing scales, tarpaulins distributed to farmer groups in Eastern and Western Uganda under the Project

Source: MAAIF 2016

3.5 Other MAAIF Departments

3.5.1 Agricultural Infrastructure and Water for Agricultural Production

3.5.1.1 Introduction

The overall objective of the department is the development of agricultural infrastructure, water for agricultural production, mechanization and Sustainable Land Management (SLM) to enable achievement of agricultural sector objectives.

3.5.1.2 Mandate of the department

The mandate of the department is to support, promote and guide adoption of appropriate technologies in the development and utilization of water for agricultural production including irrigation, water for livestock and aquaculture, agricultural machinery, farmland planning, soils and Sustainable Land Management (SLM) for sustainable agricultural production.

3.5.1.3 Key Issues to be addressed during the FY 2015/16

a) Development of policies, guidelines, designs and standards for irrigation and mechanization.
b) Promotion of technologies for water for agricultural production, mechanization and sustainable land management;
c) Use of heavy equipment to support construction and development of infrastructure for water for agricultural production, land opening, bush clearing and opening of farm roads on a demand and cost sharing basis;
d) Undertake feasibility study for irrigation systems and facilitate operation and management of existing rehabilitated schemes; training farmers in water use and value chain management on irrigation schemes;
e) Capacity building for staff in MAAIF, DLGs and the private sector in designs and installation of irrigation systems, maintenance and Climate smart agriculture;
f) Test and certify agricultural machinery;
g) Participate in collaborative and partnership activities with MDAs and other projects.

3.5.1.4 Performance of Implementation

The department registered the following achievements against targets in the FY under review.

Table 55: Performance of Implementation Achieved

Planned Activities	Performance Achieved	Notes
National Irrigation Policy and implementation guidelines finalized and disseminated,	Consultations for review of the draft National Irrigation Policy for re submission to cabinet secretariat following recall by Ministry of Water and Environment (MWE)	
Mechanization Policy Developed,	ToRs for development of Mechanization Policy developed and reviewed by technical committee and a final draft shared	
Guidelines to mainstream climate change in the agricultural sector developed by Climate Change Task Force and disseminated in agro ecological zones	Final draft guidelines to mainstream climate change in the agricultural sector developed	Final draft due for sharing and submission to TPM for consideration
Construct 120 small to medium valley tanks using ministry heavy earth moving equipment in district on demand and cost sharing.	163 valley tanks constructed (159 in partnership with private farmers in 16 cattle corridor districts) and 4 in partnership with FAO.	Good weather Co funding by beneficiaries Operators gained experience and improved on performance Collaboration with FAO.
Undertake Feasibility Study for Irrigation Scheme Development Project (PISD) in Central and Eastern Uganda	Feasibility studies completed for Sironko-Acomai and Atari River (*Bukedea, Bulambuli and Kween* districts) and feasibility report submitted and approved by JTC	One scheme is to be selected to be funded under a grant from GoJ. MAAIF is required to do a RAP

Planned Activities	Performance Achieved	Notes
Operation, maintenance and management of rehabilitation of 3 large irrigation schemes of Agoro, Doho and Mubuku. Training farmers in water and value chain management	3 Water Users Association (WUA) and 360 farmers trained	Activity is continuous and dependent on renewal of contract staff and water guards
Preparatory activities for the establishment of New Irrigation Schemes in Bugiri and Iganga Districts under a PPP by Islamic Development Bank (IDB) and GoU	Awareness creation on roles and responsibilities; Database for rice farmers developed; MoU with Private Sector signed; Recruitment of PMU staff Constituting district Implementation Committees	Project yet to be declared effective by IDB,
Mpologoma River Basin, between government and Korea Rural Community Cooperation and Republic of Korea (14,000 ha) in districts *Pallisa, Kibuku, Namutumba and Bukedea*	Prefeasibility study under taken and reports submitted and discussed to MAAIF	To be developed in three phases
Install 6 small scale irrigation systems	3 small scale irrigation systems (4 acres each) installed and operationalised	*Kiboga, Luwero and Semabule* in partnership with FAO
Procurement of new heavy earth moving equipment; a bulldozer; excavator; low bed carrier and double cabin pick up	Procured, delivered ✓ 1 bulldozer ✓ 1 Excavator	However, procurement of low bed carrier and a double cabin pick up not yet concluded
130 KM of farm road opened 5,000 acres of farmland opened	120 KM of farm road opened in 12 districts 4,528 acres of farmland opened in 13 districts	
4 Tractor makes and other agricultural machinery tested at Namalere and the districts of Mukono, Lira, Soroti and Gulu	4 new Tractor makes and other agricultural machinery tested at regional centres in Namalere and the districts of *Mukono, Lira, Soroti and Gulu*	
Recruit 10 tractor operators, train them and deployed tractors alongside the heavy equipment to open land for agricultural production	Recruited and trained 7 tractors operators and deployed for testing	

Source: MAAIF 2016

3.5.1.5 Stakeholder and Partnership Involvement

There were a number of activities involving various stakeholders and partners during the FY under review. They included:-

a) Project development with UNDP and FAO SLM Climate Resilience project, Fostering Sustainability and Resilience for Food Security in Karamoja sub-region to cover districts of *Nakapiripirit, Moroto, Kotido and Kabong;*

b) Integrated landscape management for improved Livelihoods and ecosystem resilience in Mount Elgon to be implemented in *Manafwa, Bulambuli and Mbale* districts;

c) Rehabilitation and development of new irrigation schemes, under the Farm Income Enhancement and Forestry Project (FIEFOC) II project funded by GoU and ADB, in collaboration with MWE, expansion of Doho phase and Mubuku, development of Wadelai -*Nebbi* District, Torchi - *Oyam* District and Ngenge i- *Kween* District.

3.5.1.6 Key Challenges

a) Inadequate staffing levels due to some positions not filled in the department and most districts LGs have not recruited Engineers as provided for in their structures;
b) Inadequate transport with available few old vehicles expensive to run and maintain;
c) High demand of services for the heavy equipment by the farmers and other stakeholders.

3.5.1.7 Response to JASAR 2015 Issues and Recommendations

The following were the responses to issues and recommendations from the JASAR 2015 review.

Table 56: Response to JASAR 2015 Issues and Recommendations

Issue	Action Recommended	Action Taken
Mainstream Climate Change issues in the sector	Finalize MAAIF Climate Change Mitigation and National Adaptation Action (NAP) Plan	NAP finalized and ready for dissemination and implementation Implementation to benefit from the project "*Supporting Developing Countries to Integrate Agricultural Sectors into NAP-Ag supported by FAO and UNDP project* launched on 1st August 2016
	Finalize Guidelines for Mainstreaming Climate Change issues in MAAIF policies and plans	Guidelines finalized and awaiting launching and dissemination

Source: MAAIF 2016

3.5.2 Human Resource Management

3.5.2.1 Introduction

As part of the implementation of the ASSP, the Human Resource Management (HRM) department in in the FY 2015/16 identified and implemented a number of interventions, which focused on ensuring that sector institutional structures and systems were in place and optimally configured to achieve impact.

3.5.2.2 Key Institutional Issues

The key institutional issues that MAAIF sought to address included:-

a) Finalization of Review of the MAAIF Structure

In 2015, MAAIF planned to implement the following interventions:-

i. Follow up with the MoPS to conclude the submitted reorganized structure for effective coordination;
ii. Operationalization of the DAES;
iii. Recruit and fill all vacant positions under the approved establishment to strengthen capacity to provide quality services to its clients.

b) Linkages and Coordination Between MAAIF HQ and LGs

During the FY 2015/16, the Ministry planned to:-

i. Lobby for more resources and implement the DLG Production Department structures both at DLG headquarters and Sub counties including, which are critical to the new agricultural extension system;

c) Linkages and Coordination Between MAAIF HQ and Agencies

During FY 2015/16, the Ministry planned for the following interventions:-

i. To restructure the Agricultural Training Institutions, with among others, the objective of improving linkages with its agencies to enable MAAIF improve service delivery in the Sector;
ii. To mainstream the two agricultural training institutions, namely; Bukalasa Agricultural College (BAC) and the Fisheries Training Institute (FTI) into MAAIF Structure;
iii. To launch and operationalize the National Farmers Leadership Centre.

d) Relocation of MAAIF HQ and Agency Offices to Kampala

In FY 2015/16, MAAIF planned to complete securing of statutory approvals from KCCA, NEMA, Uganda Fire Brigade and MGLSD for its planned construction of new headquarter building on its plot located at Hamu road in Bugolobi opposite the American Embassy stores. It also planned to secure funding of USD 25Mn for the actual construction and to plan for kick starting the activity.

e) Capacity Gaps in the Agricultural Sector Staff

To address the issue of capacity building MAAIF identified and planned for 3 outputs namely:-

i. Enhancing capacity and competences of sector personnel;
ii. Retooling and equipping personnel of MAAIF and agencies; and
iii. Retooling and equipping district offices.

3.5.2.3 Progress Registered

a) Reconfiguring MAAIF and its Agencies

i. Restructuring MAAIF

MAAIF has achieved the following under the restructuring:-

1. MAAIF made a follow up (dialogue/consultations/discussions) with the MoPS and eventually cabinet and concluded the re-organization of the structure and functions;
2. MAAIF operationalized the DAES which has provided for more coordinated management of agricultural extension services in the country;
3. Temporary deployment of staff under DAES was done and currently 18 technical staff and 12 support staff are currently assigned to discharge the function of DAES;
4. Submission of the above temporary staff to the Public Service Commission (PSC) to assess their suitability for substantive appointment to the respective positions under the DAES;
5. MAAIF restructured NAADS to ensure that all the rural homesteads engage in commercial farming and food security. Consequently, the NAADS Secretariat has been retained in the form and function of a reduced and lean organisation, managed by experts in crop and animal husbandry, aquaculture development as well as value addition;
6. PMA Secretariat functions were mainstreamed into the Agriculture Investment and Enterprise Development department, through the Agricultural Investment Unit, which didn't take off due to lack of adequate funds. Recruitment of staff therein will be finalised during the 1st 2 quarters of FY 2016/17.

MAAIF's new structure now has 4 directorates with 15 departments, including 4 standalone departments and 4 specialized units as the main organizational units as follows:-

i. **Directorate of Animal Resources,** with 3 departments namely:-
1. Animal Production;
2. Animal Health;
3. Entomology.

ii. Directorate of Crop Resources, with 3 departments namely:-
1. Crop Production;
2. Crop Protection;
3. Crop Inspection and Certification.

iii. Directorate of Fisheries Resources, with 3 departments namely:-
1. Aquaculture Management and Development;
2. Fisheries Resource Management and Development (Natural Stocks);
3. Fisheries Control, Regulation and Quality Assurance.

iv. **Directorate of Agricultural Extension Services** with 2 departments namely:-
1. Agricultural Extension and Skills Management;
2. Agricultural Investment and Enterprise Development.

v. **4 Standalone Department namely**:-
1. Finance and Administration;
2. Agricultural Policy and Planning;
3. Agricultural Infrastructure and Water for Agricultural Production;
4. Human Resource Management.

vi. The 4 specialized units are:-
1. Procurement and Disposal of Public Assets Unit;
2. Internal Audit Unit;
3. ICT Unit;
4. Communication unit.

vii. 2 Agriculture Training Institutions are:-
1. Bukalasa Agricultural College (BAC);
2. Fisheries Training Institute.

b) Improved linkages and Collaboration with Local Governments

With regard to improving linkages and collaboration with LGs, the following have been achieved:-

i. The structure for DLG production and marketing departments and sub counties was approved and communicated to all DLGs;
ii. MAAIF disseminated and enlightened through consultation and discussions the various stakeholders on the guidelines for implementation of the reviewed agricultural extension system to assist them to effectively and efficiently implement it;
iii. MAAIF also disseminated and enlightened the various stakeholders on the SOP to ensure institutional compliance regarding feedback and feed forward mechanisms;
iv. The awareness raising and sensitization of the revamped extension system is on-going.

c) Improved Linkages and Collaboration with Stakeholders

To improve linkages and collaboration with stakeholders, the following interventions were undertaken:-

i. Strengthening the Top Policy Management (TPM) and the Agricultural Sector Working Group (ASWG) organs was done through holding more regular meetings and sharing of information. ASWG is a consultative mechanism for formulation and monitoring of public expenditure, policy formulation and setting of priorities in the agriculture sector. It is composed of MAAIF senior staff, representatives of other MDAs, development partners, the private sector and civil society.

d) Mainstreaming Agricultural Training Institutions (ATI) into MAAIF

MAAIF undertook the following interventions in order to improve the ATIs performance:-

i. MAAIF is implementing a development project identified and approved in FY/2014/15 to enable the comprehensive revamping of the training institutions in a phased manner;
ii. MAAIF has supported ATIs among others, to review their mandate, assess the current status of the institutions in terms of financing and infrastructure, capacity and student intake, review and update the curriculum with the view to re-orienting and aligning them to the ASSP objectives,
iii. The World Bank and GoU through the Ministry of Education and Sports (MoES) are implementing a project code named Skills Development Project (SDP) under which Bukalasa Agricultural College (BAC) is being supported to become a centre of excellence (CoE).

e) Relocation of MAAIF to Kampala

i. MAAIF signed a contract with Messrs.' Arch Consult Uganda Limited for the provision of consultancy services for MAAIF House at Plot 2-10 Spring Road, Bugolobi;
ii. The developed architectural and detailed engineering designs were approved by National Environment Management Authority (NEMA) and Kampala Capital City Authority (KCCA);
iii. MAAIF TPM has approved the final design;
iv. MAAIF is still sourcing for funds to start construction.

f) Harmonization of NAADS, MAAIF and LGs Budgets

The following has been achieved:-

i. MAAIF harmonized the budget of the agricultural sector to support the implementation of revamped extension system;
ii. MAAIF, National Planning Authority (NPA) and Ministry of MFPED harmonized resources under the NAADS program to support both the procurement of inputs and implementation of the revamped extension system;
iii. The ATAAS component which was transferred from NAADS is being implemented;
iv. Vehicles and office equipment previously attached to NAADS were handed over to MAAIF to support the operations of the new DAES.

g) Capacity Building of MAAIF Personnel and Organisation

The implementation of the planned outputs under capacity building is largely dependent on the implementation of the new structure of MAAIF. However, the Ministry has made some modest progress as follows:

i. A 3 year Capacity Building Plan (CBP) for the agricultural sector, well aligned with the ASSP objectives was developed. The CBP highlighted the financing modalities for integration and development of agricultural sector personnel and a proposal was approved by the World Bank. However, MAAIF is looking for funds to support some of the priority areas identified by the CBP;
ii. Professional training opportunities have been extended to MAAIF staff through bilateral arrangements.

h) Filling Vacant Posts in the Approved MAAIF Structure

The following interventions were undertaken to address the vacant positions in the current structure so as to strengthen capacity as follows:-

i. Out of **886** of the approved establishment, **559** positions have been filled representing **63.9%;**
ii. Out of the **340** vacant positions **68** positions are already with PSC for filing;
iii. The remaining 270 positions have 0 funds for recruitment during FY 2016/17;
iv. MAAIF wrote to the MoPS and the MoFPED requesting for an additional **UGX 2,172,404,556** to enable filling critical positions under different Directorates. However the request was not positively responded to. However, MAAIF is now planning to engage with the above Ministries to source for supplementary wages.

i) Operationalisation of Approved Production and Marketing Structures in District Local Governments

Following the approval of the LG DPM structure, MAAIF has undertaken the following activities:-

1. Implemented the termination of contracts of NAADS staff in DLGs;
2. Identified all vacant posts at DLGs and Sub county levels that require filling i.e. at district level, there are **1,443** approved agricultural technical positions on the structure for production and marketing at district headquarters and **3,236** positions at the sub county;
3. Analysed and costed all vacant posts at DLGs and Sub county levels to guide recruitment;
4. MAAIF provided technical guidance and overall monitoring of the recruitment of DLG staff;
5. MoPS in collaboration with MAAIF has provided guidance on the recruitment process, including guidance on the management of former production staff previously under mainstream public service and who had joined NAADS;
6. **UGX 10Bn** was provided in the last FY for recruitment of extension staff in DLGs;
7. In the FY 2016/17 **UGX 39Bn** has been provided for recruitment;
8. Recruitment of extension workers in the DLGs is on-going;
9. The distribution of existing NAADS assets including vehicles, motorcycles, office equipment was rationalised to support the effective implementation of agricultural extension services.

3.6 MAAIF Agencies

3.6.1 National Agriculture Research Organisation (NARO)

3.6.1.1 Introduction

The National Agricultural Research Organization (NARO) is mandated to provide oversight, coordinate and implement research for development in all aspects of crops, livestock, fisheries, forestry and natural resources. The research agenda is demand-driven, client-oriented and market-based. The goal of the Organization is to enhance the contribution of agricultural research to sustainable agricultural productivity, sustained competitiveness, economic growth, food security and sustainable natural resource utilization.

In pursuance of its mission and vision, NARO is guided by its core values viz. inclusivity, subsidiarity, transparency, accountability and excellence that are espoused by all constituent Public Agricultural Research Institutes (PARIs). The outputs are delivered through core funding to PARIs and competitive grants to other research providers.

3.6.1.2 Key Issues to be addressed through Interventions of NARO

Impact-oriented research for development was underpinned in the FY under review by:-

a) Technology generation;

b) Research extension farmer interface;
c) Institutional capacity strengthening.

3.6.1.3 Stakeholder Participation

NARO receives support mainly from the GoU, NTR generated from operations. While support is received from development partners which include: International Development Association (IDA) through the Agricultural Technology and Agribusiness Advisory Services (ATAAS), Global Environmental Facility (GEF), JICA, KAFACI, USAID, AGRA and the Bill and Melinda Gates Foundation.

3.6.1.4 Budget Performance for FY2015/16

Table 57: Agriculture Research Financing for FY 2015/16

	Recurrent UGX '000	Development UGX '000	ATAAS/SLM UGX '000	NTR UGX '000	TOTAL UGX '000
Annual Budget	27,737,245	9,130,494	54,363,750	7,008,882	98,240,371
Releases/Collected	26,513,414	9,130,494	41,573,812	2,375,061	79,592,781
% Budget Released	96	100	76	34	81

Source MAAIF 2016

The outputs are delivered through core funding to PARIs and competitive grants and also to other research providers.

3.6.1.5 Summary of Achievements for FY 2015/16

The performance of NARO is summarized under the vote function output areas as follows:-

a) Generation of technologies;
b) Research-extension interface promoted; and
c) Research capacity strengthened.

The planned targets and achievements for FY 2015/16 are presented in the table below.

Table 58: Performance by Vote Function Output Area

	Description	Annual Target FY 2015/16	Actual End FY 2015/16	Explanation for Status
Vote: 142 National Agricultural Research Organisation Vote Function 0151: Agricultural Research				
Vote Function Output 1: Generation of Agricultural Technologies				
Indicators	No. of research studies under the competitive grants scheme	25	25	
	No. of new varieties submitted to the Variety Release Committee for release	20	49	1. Core agricultural research in NARO before this current financial Year 2014-2015 was funded by four sources of funds, which were (i) GoU Recurrent expenditure (GoU recurrent), (ii) GoU development expenditure (iii) IDA (World Bank funds)- under the ATAAS Project and (iv) EAAPP. 2. During the FY 2015/16 ATAAS was restructured and EAAPP ended. The

	Description	Annual Target FY 2015/16	Actual End FY 2015/16	Explanation for Status
				planned targets were lowered due funding uncertainties. 3. Under ATAAS long term training (MSc. and PhDs). ATAAS has supported 34 NARO staff to undertake PhD and MSc. degrees. Every student undertakes research component of the study in Uganda at one's respective institute. The research outputs of these students' outputs, have been captured towards the end of the FY 2015/16 which subsequently resulted into more achieved outputs than planned.
	No. of improved productivity technologies generated	60	97	
OUTPUT	**Research Extension Interface Promoted and Strengthened**			
Indicators	No. of technological innovations delivered to uptake pathways	5	89	This is an indication that more research results were accessed and subsequently taken-up by stakeholders in the farming community. The low target planned could be explained by the prevailing circumstances during the planning period. At that time NAADS that dominated the dissemination of technologies was undergoing reforms. However, during the fiscal year, Operation Wealth Creation (OWC) charged with distribution of inputs was formed. The high demands for inputs including; seed, planting and stocking materials by OWC for distribution to farmers, triggered a derived demand for NARO technologies that complement use of those technologies such as crop management technologies, disease diagnosis techniques, land and soil management practices, etc.
	No. of technological innovation platforms established/supported	5	37	

Source: MAAIF 2016

a) Key Achievements under Technology Generation for Specific Commodities

The ASSP has prioritized 12 commodities and 4 strategic commodities based on their contribution to household income and food security among others.

The priority commodities are: *bananas, beans, maize, rice, cassava, Irish potatoes, tea, coffee, fruits and vegetables, dairy, fish, livestock (meat*), and 4 strategic commodities, namely, *cocoa, cotton, oil seeds and oil palm*.

Table 59: Key Achievements under Technology Generation for Specific Commodities

Commodity	Performance
Banana	• 3 matooke hybrids already on farmers' fields; the NABIO101, NABIO30 and NABIO808 show high resistance to Black Sigatoka disease. They yield 1.8 times higher than landraces with just as good a taste. Selection from the 8 on farm are due for release in 2017 • GM banana products at product development stage. 40 lines of M09 hybrid with banana bacterial wilt transgenic resistance under screen-house conditions.
Maize	• 3 stress tolerant maize varieties released • NARO Maize03 (UH5503); yield potential of 6-7MT/ha, resistant to common foliar diseases and matures in 120-126 days • NARO Maize56 (UH5556); tolerant to MLND; yield potential of 8-9MT/ha; stay green characteristics; matures in 135-140 days • NARO Maize57 (UH5557); Very stable in drought and low soil fertility; Yield potential of 6-7MT/ha; Flowers in 125-130 days
Cassava	• Two cassava varieties (NAROCASS 1 AND NAROCASS 2) which are CBSD tolerant and CDM CMD resistant. High yielding 30 – 35MT/ha.
Irish potato	• 3 varieties NASPOT 1, with a 28MT/ha yield and tolerant to late blight; NASPOT 2 resistant to late blight with 24MT/ha maturing in 100 days; and NASPOT 3 resistant to late blight with 21MT/ha maturing in 90 days. • 7 screen houses have been established at farm level for farmers generate clean seed potato
Tea	• 67,000 tea clones raised as foundation seed
Fruits and Vegetables	• Citrus canker controlled using back horning technology; technique disseminated to 30 farmers in the districts of *Amolatar, Gulu, Oyam, Lira, Dokolo, Kitgum*;
Dairy	• 3 technologies: pelleting machine prototype; labour saving motorized forage chopper prototype and Labour saving motorized feed mixer prototype. 5 entomo-pathogenic fungal isolates with acaricidal properties against ticks;
Fish	• Control of endo-parasites and bacterial infections in fish; 3 plant-based extracts from mujjaja, black jack and banana leaves have been developed to control bacteria Aeromonas hydrophilla which is the common disease causing agent in most cage disease outbreaks • Rapid growth of victoria strain of the nile tilapia has been achieved • Developed second felia generation of victoria strain of nile tilapia with growth performance of 6.5% -from 2.03 g to 2.45g per day • Developed appropriate packaging for fish fry • Mapping for cage culture and water based aquaculture parks; a comprehensive map for cage culture and aquaculture parks in seven districts (*Busia, Mayuge, Jinja, Buikwe, Kalungu, Masaka and Kalangala*) developed. • Information on dietary requirements of Angara (Alestes baremoze) fish a native to fresh water systems generated. This dietary information will guide the feeding strategies of the fish at different stages of growth once domesticated • Larval weaning diet developed Catfish which comprises about 70% of farmed fish harvest (clarias gariepinus). Development of this fishery is hampered by high costs of imported larval diets which limit fry production therefore this feed will provide a cheaper alternative • A fish feed aflatoxin binder developed to address aflatoxin poisoning due to consumption of moldy grains and cereals and continues to be a public health threat. At only 5ppm in fish feeds, they reduce metabolism, growth and can cause death. MBAZARDI toxin binder sequesters about 60% of aflatoxins in moldy fish diets reducing their absorption into blood
Cocoa	Current cocoa production information availed: a) Mean land allocation to cocoa stands at 2.30 acres, with mean land for expansion at 1.14 acres.

Commodity	Performance
	b) Cocoa is a male dominated enterprise (males 82.24%, female 17.76%) and dominated by those aged above 50 years (92.7%). • Verticillium wilt, black pod rot, witches broom, armillaria root/collar crack and swollen shoot virus at 83.2%, 69%, 25.2%, 7.6% and 6.5% incidence respectively are key diseases; • 3 cocoa lines yielding above 1.5MT/ha have been identified for further development. • Yield potential is 5531.5Kgs/ha for 245/21/5, 6874.2Kgs/ha for 3/15/1, 3960.6 Kgs/ha for 286/1, and 3930 Kgs/ha for 286/2 Kgs/ha. BCTB infestation on 245/21/5 was at 33.3 % at Kamuli while 7.2% on 3/15/1 at Nakanyonyi. Lines selected for submission are 245/21/5 and 3/15/1. • Current cocoa varieties; Trinitarios, Upper amazone and Amelanados as most cultivated as composite. Psyllids, Capsids, Pod borers, Scales 20.1%, and twig borer (46.55%, 34.9%, 28.7% and 5.25% incidence respectively). • Only 9.75% farmers use fermenting boxes. Inventory of potential pathogens generated; Indicative pathogenicity levels of potential pathogens were determined. Leaf spot is a key pathogen in CWD-r Robusta cuttings at hardening stage under nursery: Incidence KR5 85%; KR7 80% at KR1 at 75%; KR4 at 70%, KR2 at 50%; KR6 at 30%, KR3 at 05%; lower pair of leaves most affected; 85% survival of CWD-r cutting recorded with Sandy-loam rooting media (PH 6.0, Organic matter 7.1, N 0.34, P 76.6, Ca.1106.4, Mg 698.2 and K 306.8). Formerly, saw dust rooting media yielded 40% survival of the cuttings.
Cotton	• 2 cotton lines identified for DUS testing;
Coffee	• Factors affecting nurseries in Robusta growing districts of south western were determined. Also an inventory of factor affecting multiplication across the entire spectrum was generated and the major factors affecting nurseries identified as:- - as limited knowledge on best rooting medium with known soil texture and right shade net for propagation process; - low success rates for KR1 and KR4 and lacking these materials for further multiplication, and low rooting in KR2; - Limited Knowledge on harvesting suckers from mother bushes and making cuttings and nursery management; - Counterfeit nursery inputs such as pesticides are the key factors affecting multiplication across the entire spectrum generated in central and mid-western Uganda. • Laboratory diagnosis kit for Coffee Wilt Disease (CWD) pathogen developed, it detects the pathogen even in latent stage in both planting material and soil; application: certification of planting materials, and selection of CWD free planting material and disease-free fields prior to planting • 36 Arabica genotypes variously useful traits such as higher yields, shorter height, and resistance to CLR and tolerance to BCTB identified. • 12 CLR resistant farm Robusta accessions with 1st year growth estimate yield range of 2,777 to 6,258kgcc/ha as compared to average clonal yields of 2,500kgcc/ha may constitute test lines for further evaluation of CWD and BCTB. • Cirad lines, 1393/3-42, 1380/3-43, 1386/1-55, 1792-42, 1805-43, 1806-44, 1786-45 are best parents in terms of berries; • 10,000 Robusta cuttings and 5,000 TC plants under nursery; 40,388 cloned cuttings between Jan – April 2016 maintained in tunnels; • 395 CWD resistant robusta coffee clones at on farm were evaluated for resistance against diseases and pests, yield, vegetative growth and quality. For yield, the lines J124.9/1/4, KAMULI/1, 2/22/18 and KAMENGO 2/1 had the highest yields of 2,857, 2,422, 2,266 and

Commodity	Performance
	2,075kg cc/ha respectively. An increase in BP with a rate between 8-20BP/yr in the order J72.01/10/1, J24/13/20/1, 3/71/1, 227/54/2 at Bukomansimbi. • 70 of leaf rust and CBD and vegetative growth, at pinhead stage of 17 Elgon A and 2 Colombian lines in multi-location on-farm and on-station trials was determined. Line D/12/6, D/11/7, E/13/9 at Kituza were tolerant to CLR, had large cherry size and higher estimated yields (kg cc/ha) of 1,261, 1,084, 1,056 respectively compared to SL14 (45) and KP423 (117). Significantly higher estimated yield ranges of 1,044 to 3,112kgcc/ha for 13 of 50 Elgon CB lines compared to SL14 (223kgcc/ha) and KP423 (207kgcc/ha) at Kituza. • Morphological characteristics, yield indicators and quality of coffee under different shade tree management treatments for western zone were described. Ficus ovata, Cordia Africana and Albizia coriaria shade-trees in Elgon Arabica zone increased outturn (3.2%, 6.0% and 6.5% respectively), and resulted in bigger bean size (3.1%, 15.8% and 11.4% respectively); • A survey was conducted on level of fertilizer usage in central Uganda and the preliminary results show that 41.8% of the respondents have adopted fertilizer usage in coffee in central Uganda. Types of fertilizers include cow dung, pig manure, poultry manure, compost manure, NPK (17:17:17), NPK (25:5:5), Urea and Supergrow (foliar fertilizer).Farmers adopting fertilizer usage in coffee reported increment in vegetative growth, longer bearing primaries with many clusters and bigger sized cherries, dark green leaves and 2 to 3 times increased flowering intensity. They also reported desirable "khaki" colour for hulled kiboko. Use of fertilizers was determined by costs, labour requirement and knowledge on fertilizers, accessibility, and long term effects on soil. • Fusarium sp. has been isolated from a beetle but yet to be identified to species level However, it has been able to sporulate on beetles exposed to it and killing the insects thus, it might be entomopathogenic • 28 CWD isolates; 21 from the Central region (*Nakaseke, Luwero and Nakasongola*), 7 from the Western region; *Luwero* district has the highest CWD incidence (14%). While *Nakasongola* has the highest CLR incidence (3%); 2 validated CWD specific primers and their codes are OFPF01 and OFPF12 with 2 isolates of Trichoderma • The nutrient composition of coffee pulp and husks has been determined (for possible development of human and livestock food), starch, reducing sugars, fibers, carbohydrates, and proteins are present in cocoa and coffee husks by-products.
Dairy	• Developed a low cost soybean based diet premised on protein substitution. Average cost UGX 913/kg compared to UGX 1,500/kg for the standard diet. The price reduction is due to reduced use of the fish meal (Mukene); feed and forage seed production; 10MT of Chloris gayana seed, 500MT of hay, 700 MT of silage and haylage, 10 MT of Lablab seed and 2,000,000 seedlings. • Alfalfa vaccine tests for tick control; 4 recombinant subolesin tick vaccines for control of the 3 most economically important ticks (brown ear tick, blue tick and the bont legged tick) in Uganda is under evaluation; NARO is also evaluating a recombinant Glutathione S Transferase (GST) tick antigen. Results show that the vaccine reduces tick burdens of brown ear and blue ticks by more than 80% among Zebu and Sahiwal cattle.
Chicken	• Productivity enhancing aflatoxin safe broiler feed ration comprising 1% NARO aflatoxin binder with productivity enhancing attributes in broiler birds. It reduces aflatoxin induced mortality by 445% from 6% to 1.1%; Improves mature weight of broiler birds by over 12% from 2,213 grams to 2,481grams in seven weeks and boosts birds' immunity through enhancement of Newcastle disease anti-body concentration in the blood from 4.75 to 7.91
Fruits	• Control of citrus canker using back-horning technology

Source: MAAIF 2016

b) Key Achievements under Technology Generation for Other Priority Areas

Other research

i. **Forestry; Shortened Fruiting Age of High Value Tree Species,**
   a) Shea nut tree maturity reduced from 15 to 2 Years and *Warburgia ugandensis,* reduced from 10 to 4 Years using a protocol for tissue culture regeneration;
   b) Arresting spread of eucalyptus lice bronze bug (Thaumastocoris *peregrinus) using* a biological control agent (*cleruchoides nockae) that devastates 100% of eucalyptus stands;*
   c) Establishment rate of trees in dry ecologies improved from 30 to 70% under hydrogel amendment.

ii. **Apples**
   a) 1.5 million apple root stocks seedlings established.

iii. **Piloting seed production**
   a) Responded to Presidential call for adequate seed availability. For Maize (40 acres), OPVs (parental) – ECAVIL 1, 17 & 18 with expected yield = 69 MT; Inbred lines = CML 202, 312, & 395 with expected yield = 3 MT.
   b) Parental lines for commercial hybrids (Longe 6H, 8H, 10H, 11H & WEMA series) with expected yield = 2 MT.
   c) Certified Longe 7H with expected yield = 17.5 MT

iv. **Mungbean**
   3 variety mungbean submitted for release with a yield of 1,200kg/ha; attaining maturity between 60 to 75 days. Qualities include large seeded, non-pod shattering, resistant to foliar Diseases, high protein >22%, and high dietary fibre of 15%.
   2 Early Maturing Groundnut Lines Identified

v. **Drought Tolerant and Early Maturing Bambaranut Accessions Evaluated**
   Bambara nuts was an important food security crop in West Nile but of late neglected and under-utilized due to lack of access to improved seed. The introduced germplasm will be exploited to revive and increase the production and utilization of the crop.

vi. **Agro-Machinery For Small Scale Production Systems**
   a) Engine lowered light weight rice thresher with a threshing output of 550 to 700Kg/litre of fuel (Petrol) and a threshing efficiency of 98% and mobility through hand pushing on 2 wheels;
   b) Hydraulic ram pump can raise water to a delivery head of 45 to 50 m at a fall of 5 to 7m, powered by water to pump water, runs continuously and with ability to irrigate 0.5 to 1 acre per day.

vii. **Developed Technologies for Urban and Peri-Urban Vegetable Growing**
   Developed food tower and promoted box and sack home gardens among others with over 250 (75% women) farmers trained in home gardening.

viii. **Soil erosion hazard cartographic maps generated for west Nile districts**
   The maps show the degree of erosion that has happened in the region to guide the districts in soil erosion control measures. A soil erosion model is being used to model likely soil loss in the next 20 years if mitigation measures are not taken.

c) Key Achievements under Promotion of the Research Extension Farmer Interface

i. Precooked bean innovation platform supported;
ii. 5 farmer platforms created and or supported including Indigenous goat breeding schemes in *Hoima and Nakapiripiti*);
iii. 6 platforms established for production of quality seed for African Indigenous Vegetables (AIVs), off-season mango production, control of post-harvest losses in mangoes, tomatoes and oranges,

characterization of AIVs, establishment of plant health clinics, collection and characterization of Bambara nuts;

iv. 5 farmer field schools in central cattle corridor and Karamoja supported;
v. 2 dairy farmers' associations in *Gulu and Lira* supported;
vi. 1 production and marketing platform for cowpea in *Katakw*i supported;
vii. 4 platforms for sorghum production and marketing established in Serere;
viii. 1 *Nakaseke* model village promoted;
ix. 1 banana bacterial wilt control platform western Uganda supported;
x. 1 agribusiness incubation platform supported;
xi. 1 bean Innovation platform supported in *Masaka*;
xii. 3 Innovation platforms on Agricultural Water Management and Climate Smart Agriculture formed in Kwapa, Ongino and Bungokho Sub county and the districts of *Tororo, Kumi and Mbale;*
xiii. 2 potato and 1 sorghum innovation platforms formed;
xiv. 6,000 catfish fry (produced) and 12,300 fast-growing disease-free and mixed-sex tilapia fingerlings produced and distributed to 7 farmer groups in the districts of *Mbarara, Ntungamo, Bushenyi and Rubirizi* to initiate community-based seed production. This represents only 2.5% (47/2,000) of the target beneficiary farmers;
xv. Community based feed distributors for MBAZARDI made fish feed identified in the districts of *Bushenyi and Ntungamo*;
xvi. 2 potato MSIP formed and supported;
xvii. 2 community goat breeding programs supported;
xviii. 1 coffee MSIP initiated in *Manafwa*.

d) Key Achievements under Institutional Capacity Strengthening

i. Human Resource

Table 60: Staffing Level of NARO as at June 2016

Number of Approved Posts	Number of Filled Posts	Number of Vacant Posts	% Filled Posts
995	859	136	86.3

Table 61: Staff Establishment Disaggregation

Approved Scientific Posts	Filled Scientific Posts	Approved Technicians Posts	Filled Technician Posts	Approved Support Staff Posts	Filled Support Staff Posts
282	248 (87.9%)	256	181 (70.7%)	457	430 (94.1%)

Source: MAAIF 2016

ii. Staff Training

a) 34 scientists sponsored for PhD and MSc Degrees;
b) 5 staff PhD students supported to undertake research to complete their degrees;
c) 42 new staff inducted;
d) 8 staff facilitated to undertake short courses in various Universities.

iii. Infrastructural Development

The following achievements were registered;

a) NACRRI: Cassava regional CoE office block, nutrition laboratory, and conservation laboratory completed and commissioned;
b) NALIRRI: Livestock nutrition laboratory, animal health laboratory and office block completed and commissioned at Nakyesasa and an assortment of dairy equipment procured and installed;
c) NARL: Food Bio-Sciences laboratory: phase 1 completed;
d) AbiZARDI: 2 screen houses completed and functional;
e) Kamenyamiggo MuZARDI: station operationalized construction of office and laboratory blocks underway;
f) Ngetta ZARDI: construction of office and laboratory blocks underway;
g) Bulindi ZARDI: construction of office and laboratory blocks underway;
h) NACORI: construction of tissue culture laboratory underway (80% construction completed and 10% equipped).

3.6.1.6. Challenges

The challenges encountered during the year included:-

a) Continued NARO land encroachment;
b) Weak dissemination of research findings;
c) Deteriorating infrastructure;
d) Delay in enactment of the Biochemical and Biosafety Bill;
e) Unpredictable and or limited funding of agricultural research for development;
f) Low staff salaries.

3.6.1.7 Responses to JASAR 2015 Issues and Recommendations for NARO

The following capture the issues and recommended actions from the JASAR 2015 workshop.

Table 62: JASAR 2015 Issues and Recommendations

Issue	Agreed Action	Response
Low Funding for Research	Advocate for increased funding for research in accordance with national research priorities	EAPP Phase II and ATAAS Phase II projects are to come on board to support research
NARO Land encroachment and related issues	Continue to take actions to protect land under research institutions	NARO has made provision in FY 2016/17 to open up boundaries and acquire titles for all NARO land

Source: MAAIF 2016

3.6.2 National Agricultural Advisory Services (NAADS)

3.6.2.1 Introduction

Government restructured NAADS and refocused its mandate to address critical demands for accelerating agriculture commercialization and enhancing food security and household incomes for farmers countrywide**.**

3.6.2.2 Major output areas for the NAADS Secretariat include:-

i. Management of agricultural input distribution chains;
ii. Strategic interventions for priority commodities under the commodity approach, including multiplication of planting and stocking materials
iii. Agribusiness development;
iv. Value chain development focusing on the upper end of the chain.

3.6.2.3 Key Issues to be addressed

About 68% of the homesteads in Uganda are still engaged in subsistence farming implying that these homesteads lack income generating enterprises that would earn them money. They maintain a traditional production pattern in the era of money (Uganda. Population Census, 2001 and 2014).

3.6.2.4 Performance Measured Against Targets

The following activities were planned and activities to implement them undertaken during the FY under review.

i. Seed for various commodities were distributed across the country covering approximately an acreage of 403,796 acres with an expected income of UGX 1.3Tn after harvest;
ii. Vegetative materials/seedlings for various commodities were distributed across the country covering approximately an acreage of 192,698 acres with an expected income from the distributed vegetative materials and seedlings of UGX 1.5Tn annually.

Table 63: Performance Achievement

Indicator	Annual Planned Target	Achievement	% Achieved	Remarks
Number of poultry units established	1,200	1,549	129%	Due to increased demand to support special interest groups such as Women and Youth more funds were allocated to the activity
Number of Dairy and Beef cattle distributed	8,000	4,544	56.8%	Shortage of suppliers with adequate capacity to meet existing demand. The challenge has now been addressed by increasing the number of suppliers for dairy and beef cattle. However, Funds were re-allocated to major crops notably Maize and beans for which there was a higher demand for planting materials
Acreage established under crop by enterprise	679,819	756,588	111%	Some funds originally budgeted for Dairy and Beef cattle were made available to support more farmers with seeds and seedlings due to high demand for bean and maize seed for food security
Number of farmers supported with inputs by crop enterprise	717,515	2,998,015	417.8%	Some funds originally budgeted for Dairy and Beef cattle were made available to support more farmers with seeds and seedlings due to high demand for bean and maize seed for food security
Number of farmers/farmer groups supported with Agro-machinery	470	420,205	894%	More funds were availed through supplementary funding to purchase more agro-machinery, specifically the case of hand hoes.
Number of farmers/farmer groups supported with strategic commodity	74,005	466,980	631%	More funds were made available to support more farmers with seedlings for strategic crops (Tea, Citrus and Mangoes); in an effort to boost production of key priority commodities for industry and export market.

Indicator	Annual planned Target	Achievement	% Achieved	Remarks
Acreage established under crop by strategic enterprise	78,368	220,398	281%	More funds were made available to support more farmers with seedlings of a strategic nature including Tea, citrus, Mangoes and Cocoa due to high demand; this is in an effort to re-focusing production of key priority commodities to industry and export market.
Number of farmer groups supported with value addition equipment	2,360	56	2.4%	Delayed implementation due to constraints related to complex procurement involving importation of equipment and acquisition of the required /necessary assets such as land for establishing value addition facilities; funds were availed to procurement of planting materials to support more farmers with seedlings for strategic crops (Tea, Citrus, and Mangoes)
Maize seed	2,800	6,571.25	235%	Delivered maize seed to 111 District Local Governments (DLGs) under OWC and the Food Security Initiative for Constituencies. -Expected to cover 657,125 acres among 2,628,500 households. -Exceeded targeted due to increased demand for maize seed through special interventions (e.g. special support to Karamoja sub region, food security Campaign) and DLGs.)
Bean Seed	2,244.848	2,990.85	133%	Delivered bean seed to 111 DLGs -Expected to cover 74,771 acres among 299,085 households.
Rice Seed	250	12	5%	-Delivered rice seed to 4 districts -Expected to cover 480 acres among 960 households. - Shortage of quality seed on the market
Soya Bean	87.11	164.22	189%	-Delivered soya bean seed to 13 districts -Expected to cover 4,106 acres among 16,422 households.
Groundnuts	43.12	66.465	154%	-Delivered Groundnut seed to 22 districts -Expected to cover 2,216 acres among 8,862 households

Commodity	Annual Target (No.)	Achievement (Number)	% Achieved	Remarks
Cocoa Seedlings	3,550,003	5,891,288	166%	-Delivered cocoa seedlings to 15 districts. -Expected to cover 13,092 acres among 52,367 households
Mango Seedlings	1,625,300	5,673,089	349%	-Delivered Mango seedlings to 86 districts. -Expected to cover 81,044 acres among 162,088 households
Orange/citrus seedlings	3,393,188	12,696,460	374%	-Delivery made to 76 districts. -Expected to cover 104,069 acres among 208,139 households
Tea Seedlings	62,636,364	110,964,542	177%	-Delivered tea seedlings in 19 districts -Expected to cover 22,193 acres among 44,386 households.
Banana suckers (Tissue cultured)	800,000	543,683	68%	-Delivered suckers to 44 districts -Expected to cover 1,208 acres among 2,416 households
Pineapple Suckers	1,000,000	3,007,339	301%	-Delivered suckers to 30 districts -Expected to cover 301 acres among 1,203 households
Irish Potato seed (Bag)	4,734	12,526	265%	-Delivery made in 29 Districts. -Expected to cover 964 acres among 3,854 households -Exceeded target due to increased demand
Cassava Cuttings (Bag)	38,712	87,360	226%	-Deliveries made in 68 districts -Expected to cover 12,480 acres among 24,960 households -Exceeded target due to increased demand
Apple Seedlings	300,000	103,217	34%	-Deliveries made in 13 Districts -Expected to cover 258 acres among 1,032 households
Ginger	665	1,800	271%	-Deliveries made in 10 Districts -Expected to cover 180 acres among 720 households
Garlic (Packets of 220 cloves each)		11,143		Distributed to Kasese District Local Government

Commodity	Annual Target (No.)	Achievement (Number)	% Achieved	Remarks
Dairy cattle (Heifers)	10,000	4,168	41.6%	-Delivery completed in 53 Districts. -Limited suppliers at the beginning of the financial year who were also handling supplies of the previous FY
Beef Cattle	500	376	75.2%	Delivery completed in 51 Districts to support 376 community herds. -The first qualified suppliers failed to supply according to their bid prices and had to be replaced. There was increase in the bid price. -Experienced challenges related to sourcing and handling at destination points (e.g. requirement for holding grounds)

Commodity	Annual Target (No.)	Achievements (Number)	# of beneficiary districts	% achieved	Remarks
Pasture Seeds	63 Farmers 9 Districts 570 acres of established pasture 6 tonnes of pasture seeds harvested	64 farmers selected 10 districts 580 acres of targeted pasture sites 8 tones of pasture seeds (second phase)	10	100%	The first phase had 330 acres of established pasture. It targeted 42 beneficiaries in Eight (8) Districts of *Mbarara, Isingiro, Ntungamo, Kiruhura, Ibanda, Sheema, Lyantonde and Bushenyi*.

Chloris gayana (Rhodes Grass); NAADS Purchased 3,000kgs; Harvested 4,860kgs. A total of 2,244.5kgs of seed were recovered from farmers for further multiplication for free and 2,615 kgs remained with the farmers for onward multiplication.

Dolichos Lablab (Lablab); NAADS Purchased 1,100kgs; Harvested 2,156kgs. A total of 1,129 Kgs of seed were recovered from farmers for further multiplication for free and 1,027 Kgs remained with the farmers for onward multiplication.

Commodity	Annual Target (No.)	Achievement (Number)	% Achieved	Remarks
Artificial Insemination (AI) sets	62	44	70.9%	- Delivered to 44 Districts

AI Training				- 30 technicians trained from 28 DLGs due to the growing demand to maintain and upgrade the breed of Dairy cattle supplied to Districts. - Plans are underway to train technicians from the remaining DLGs
Goats	5,000	300	0.6%	- Delivery completed in 3 districts for the FY 2015/16. However 3,714 goats for FY 2014/15 were delivered to 25 DLGs. - Had one supplier on framework contract handling supplies until suppliers on framework were increased to 20.
Pigs (Gilts and Boars)	5,000	1,495	30%	- Delivery completed in 28 Districts
Poultry (Layers/ Broilers/Kuroilers)	323,000	309,996	95%	-Deliveries made in 56 Districts Initially, experienced low response by potential bidders leading to changes in procurement strategy hence delay. - There is one supplier for layer birds, one supplier for broilers and one supplier for kuroilers.
Poultry Feeds (Chick & duck mash) - Kgs		1,356,438		-Deliveries made in 56 Districts -Deliveries of 344,200 Kgs of growers mash to be made later - Limited suppliers - Increase in prices of raw materials for the feeds
Commodity	**Annual Target (No.)**	**Achievement (Number)**	**% Achieved**	**Remarks**
Fish Feeds (Kgs)		324,643		-Deliveries made in 56 District Local Governments. -Only one supplier is available to supply all the Districts.

				- Other suppliers are failing to meet the requirements. -Increase in prices of ingredients that made suppliers fail to deliver. - Hence late and partial deliveries of fish feeds.
Tilapia fingerlings	1,600,000	2,466,477	154%	-Deliveries made in 56 Districts. In addition to these, 880,828 fingerlings of FY 2014/15 were delivered to 32 DLGs. High demand for tilapia.
Catfish fingerlings	1,040,000	1,859,140	178%	-Deliveries made in 17 Districts. In addition to these, 853,892 fingerlings of FY 2014/15 were delivered to 32 DLGs. High demand for catfish.
Mirror carp fingerlings	1,040,000	120,810	11.6%	-Deliveries made in 4 Districts. In addition to these, 73,290 fingerlings of FY 2014/15 were delivered to 7 DLGs. Low demand for mirror cap.
Apiary Units	28	28	100%	Delivered to farmers in the 7 districts of *Zombo, Maracha, Yumbe, Moroto, Napak, Amudat and Kiruhura*

Production and Value addition equipment	Achievement	Remarks
Hoes	**420,000**	Distributed to farmers in the 8 districts of West Nile Region i.e., *Arua, Nebbi, Zombo, Adjumani, Moyo, Maracha, Yumbe and Koboko*
Motorised Knapsack sprayers	**154**	Distributed to farming communities from 18 District Local Governments in Busoga and Teso sub regions
Tractors	**40**	Procured and plans for delivery underway
Grain Stores	**10**	Construction of the 10 community grain stores in 10 beneficiary Districts on-going under NAADS-WFP Partnership
Maize Cribs	**37**	Constructed in *Mubende* District
Honey Processing Equipment (Set)	**1**	Delivered to beekeepers under Rural Advisory Agriculture and Marketing Services in Kiruhura district

Power line construction and extension for 5 maize mill sites	**5**	Power installation complete and operation at the mill sites in *Luwero, Nakaseke, Kiboga, Butambala and Kyankwanzi*
Installation of 12 solar water pumping systems on selected demo farms	**12**	Installation complete and operational in the districts of *Soroti, Kumi, Katakwi, Kaberamaido, Kabale, Mukono, Luuka, masindi and Kiryandongo*

3.5.2.5 Lessons Learnt

a) There is variance in performance of the technologies distributed across zones attributed to the different ecological conditions;
b) Survival rates for crop technologies were approximately between 50% to 80% due to the adverse weather conditions experienced;
c) Quality of pigs and dairy heifers has improved over time;
d) Deepening delivery of agricultural inputs to parish level could improve access by beneficiaries and reduce losses arising from stress and multiple reloading;
e) The dual (civil and military) administration of OWC provides a great opportunity for improving service delivery efficiencies in the agriculture sector;
f) Limited funding in relation to the high demand for seed, planting and stocking materials countrywide also reduces performance;
g) Insufficient budget for programme coordination and management of input distribution, including mobilization of communities at both district and sub county level;
h) Implementation constraints in promotion of private sector investment in value addition through Public Private Partnership (PPPs) such as land acquisition.

3.5.2.6 Policy and other issues impacting on performance

a) Changing weather patterns which affect timely decisions regarding distribution of planting materials;
b) Inadequate capacity among suppliers to provide quality planting and stocking materials;
c) Shortage of suppliers in the local market with capacity to supply value addition equipment and machinery;
d) Lack of proper coordination of all key stakeholders across the value chain.

3.5.2.7 Conclusions

a) To ensure sustainability of all these initiatives, there must be deliberate efforts towards strengthening of farmers' capacity and their organisation. This should be done through:-
    i. Training on farming as a business;
    ii. Training in standards;
    iii. Training in financial literacy, savings and credit;
    iv. Identify farmers and farmer needs;
    v. Stocking agro inputs;
    vi. Provide extension link farmers;
    vii. Establish linking with area cooperatives enterprises;
    viii. Establish linking with other service providers.
b) Concentrate on few enterprises, offer appropriate and complete packages for quicker impacts;
c) Initiate well controlled methods of farming (control of soil erosion, promote agro forestry and promote other climate change adaptation practices);
d) Aggressive pest and disease control should be considered;
e) Orient the new political leaders of which about 80% are new on their roles and responsibilities and obligations and on the OWC programme.

CHAPTER FOUR: OVERALL CONCLUSIONS

4.1 Overall Performance

In summary, the review indicates that:-

a) The agriculture sector contributed to the expansion of the size of the economy when it grew by 3.2% up from 2.3% in FY 2014/15 driven by positive growth in all sub-sectors;
b) With regard to budgetary performance, MAAIF and its Agencies have demonstrated increased capacity for resource absorption, however, performance on donor funding requires addressing especially in the areas of expediting obtaining faster approvals;
c) Volumes and values of crops, livestock and aquaculture portray manifest increases for almost all commodities, however, declines in values were registered for coffee and fish commodities;
d) The sector registered service delivery improvements including increments in the area of water for agricultural production, mechanization levels, crop inspection and certification as well as pest, vector and disease control although several challenges continue to impede efficiency and effectiveness of delivery with one of the major ones being increasing tick resistance to acaricides;
e) Several policies have been formulated, reviewed, approved and even launched while a number are at dissemination stage, however a number of policies are still at draft stage and still in the process of consultation;
f) The revamped agricultural extension system is finally off the ground with recruitment in the new approved LG structures. MAAIF, NAADS and MoFPED have harmonised budgets and the NAADS assets have been equitably distributed.
g) Under institutional strengthening, the project for the new MAAIF HQ has been launched and designs drawn and approved as per statutory requirement with financial resources now being the main challenge. Limited capacity building was conducted and linkages strengthened between MAAIF, Agencies as well as LGs. Following recruitment at the MAAIF HQ, establishment is now 69% and once approval has been received is likely to increase. As for mainstreaming ATIs into MAAIF, a development project identified and approved in FY 2014/15 to comprehensively revamp the training institutions in a phased manner is underway.

4.2 Sub Sector Performance

Crop Subsector (12 Commodities)

Coffee

In the FY 2015/16, 158 million seedlings were generated distributed to 571,608 households in 89 districts while the coffee quality improved reflected in the specialty and screen volumes. The volume of coffee exported was 3.563 million 60 Kilo bags valued at USD 352Mn while new markets that were penetrated included Korea, Australia and Ecuador.

Cotton

Production in FY 2015/16 was 20,339MT as compared to 17,275MT that was produced in FY 2014/15. The quantity of lint exported was 19,905MT as compared to 15,450MT in FY 2014/15.

Tea

Tea production is being expanded in both traditional and new tea areas like *Zombo, Nebbi, Isingiro, Shema and Ntungamo.* However, just like coffee, only 6% of tea produced in Uganda is consumed locally. In Uganda, there are currently 28 active tea processing factories and in this regard, other new tea production areas particularly *Kisoro and Kabale* Districts have already achieved the minimum hectarage of planted

tea, in order to qualify for allocation of Tea processing factories. UDC has advertised for bidders to supply the equipment for constructing the two Tea processing factories.

Cocoa

In the FY under review, there was an increase in cocoa production from 24,008MT in FY 2014/15 to 24,800MT in FY 2015/16 with all the cocoa produced exported and earning the country USD 69.4MN compared to USD 67.2Mn in FY 2014/15. As of now, no domestic processing of cocoa into final products takes place in the country.

Vegetables Oil Crops

Between January 2010 and June 2016, the project has disbursed a total of UGX 41.01Bn to the smallholder oil palm farmers of which UGX 7.5Bn has been repaid. Between January 2010 and December 2015, BUL and Oil Palm Uganda Limited (OPUL) have paid UGX 565 billion in Value Added Tax and Income Tax to GoU. As at the end of June 2016, 710 smallholder farmers had mature oil palm gardens from which they had harvested 62,535 tons of oil palm Fresh Fruit Bunches valued at UGX 25.4Bn between January 2010 and June 2016. Uganda is now producing 21,000 tons of crude palm oil per year valued at UGX 40Bn.

Rice

The rice Industry in Uganda is growing at a rate of about 5% to 7% per annum with local production estimated at 237,000MT of un-milled rice equivalent to about 154MT of milled rice and saving Uganda about USD 74Mn. The local demand or consumption of rice in Uganda is estimated at 331,857MT of un-milled rice including net imports of 94,800MT of mainly highly quality tasty rice. Uganda generally imports more rice than it exports hence it is a net importer, suggesting that with increased support, Uganda could become a net exporter. On the other hand it also indicates that Ugandans need more rice.

Maize, Beans and Cassava

Maize commodity production in the FY under review increased by 4.4% while beans production increased by 7.4%. On the other hand, Maize Lethal Necrosis Disease incidences were brought down to less than 3.4% from 11.3% in the maize growing districts.

Fruits

Activities mainly focused on provision of extension services but also included construction of a fruit processing factory for citrus and mangoes in *Soroti* District expected to be completed by 2017.

Pests and Diseases Control

New pest invasions in the country i.e. Tomato Leaf miner (*Tuta absoluta)* and Bronze bug ("Eucalyptus Lice") were reported. The pests can cause substantial yield loses in tomatoes and Eucalyptus trees; with the former causing up 100% yield loss. 3 main diseases of economic importance i.e. Banana Bacterial Wilt (BBW), Maize Lethal Necrosis (MLN) and Coffee Leaf Rust have been put under control with the prevalence rates now stand at 7.8%, 3.4% and 9.6% respectively.

Crop Inspection and Certification

Various old and new activities were implemented during the FY under review and included, investigated and prosecuted persons contravening the Agricultural Chemicals (Control) Act as regards illegal imports, counterfeiting (product and labels) and sales of unregistered pest control products. In total 11 cases were investigated out of which only one went through the court process and the accused person was convicted and fined UGX 960,000. A number of in service trainings were conducted while some members of staff underwent training on self sponsorship at post graduate level. 65 farmers from western Uganda, prison

staff, UPDF officers and other stakeholder were trained on pasture seed growing at Mbarara University of Science and Technology. 33 district production staff were trained on inspection and enforcement of regulatory functions.

Food and Nutrition Security
MAAIF is leading a Multi-Sector Food and Nutrition Project initiative supported by the Global Agriculture and Food Security Programme (GAFSP) with the main objective of increasing production and consumption of micronutrient-rich foods in farmer households. In collaboration with MAAIF, the Partnership for Aflatoxin Control in Africa (PACA) facilitated the establishment of a Mycotoxin Steering Committee and development of an Aflatoxin National Action Plan with the main objective of integrating necessary actions in the ASSP for implementation.

Fisheries Subsector
Total fish production from capture and aquaculture declined by 10.7% from 572,759MT in 2014 to 511,224MT in 2015. Decreases in total fish production was caused by significant reduction of capture fisheries output of mainly Nile perch predominantly attributed mainly to rampant use of illegal and indiscriminate fishing gears and methods. As a result the value of fish caught fell by 49% from UGX 2,908Bn in 2014 to UGX 1,490Bn in 2015. Capture fisheries production fell by 14.6% from 461,730MT in 2014 to 394,224MT in 2015. The decrease was mainly contributed by reduced catches of nile perch, however, catches of tilapia and small pelagics increased. Overall, capture fisheries remained the major contributor at 77% of the total fish production while the main commercial species caught included nile perch, tilapia and mukene.

On the other hand, aquaculture production is steadily rising. In 2015/16, aquaculture production increased by 5.4% from 111,033MT in 2014 to 117,000MT in 2015. Tilapia was the predominantly farmed species but catfish and Mirror carp were also farmed. As for exports, In the FY 2015/16 exports of various fish products to international markets increased by 5.4% from 17.597MT in FY 2014/15 to 18.555MT in FY 2015/16. However, there was a decline in export value by 7.8% from USD 134.791Mn to USD 124.314Mn.

Looking at the targeted growth rate of 5% per year stated in the ASSP, it is projected that the fish production targets of 300,000 MT for aquaculture and 530,000 MT for capture fisheries by 2020 ***will not be met.*** DFR data projections suggest a deficit of 150,625MT and 26,859MT that will be registered for aquaculture and capture fisheries respectively. Projections and analysis suggest that meeting the fish production targets in the ASSP by 2020 will require boosting annual growth rate to 20% for aquaculture and 6% for capture fisheries with the important provision that interventions will also require significant financial injections.

Livestock Subsector
Data from the 2015 Statistical Abstract shows that livestock population increased by about 2.5% to 3% per annum since 2008. The estimated current livestock population consists of 14.031 million cattle, 15.311 million goats, 4.198 million sheep, 3.916 million p*igs* and 45.144 million poultry.

a) Dairy Production

Milk production has grown from 1.96 billion litres in 2014 to 2.08 billion litres in 2015 while there are currently, 355 Milk Collection Centers (MCCs) with a total capacity of 1.5 million litres. The number of Dairy processing plants has continued to grow. Approximately 33% of the marketed milk was processed in 2015 compared to 20% processed in 2014. Currently, the number of milk processing companies which include 79 cottages, small, medium and large scale entities with an installed capacity of 1.9 million litres. Marketed milk increased from 70% of total milk production in 2014 to 80% of total production in 2015 and the value of marketed milk also increased from USD 521Mn in

2014 to USD 716Mn in 2015. Milk and milk products export value increased from USD 28.6Mn in 2014 to USD 50Mn in 2015 and the exports were mainly UHT milk, milk powder, casein protein, ghee and butter oil. This reflects good performance against dairy imports that stood at USD 5.4 million. The major dairy exports markets were USA for Casein, India for Ghee and others were COMESA, UAE, Rwanda, Congo, South Sudan, Kenya, Omen, Bangladesh and Nepal.

b) Meat and Meat Products

The beef, goat/mutton, pork and egg production in the FY under review was estimated at 210,000Mt, 49,000Mt, 25,000Mt and 49,000 respectively. Trends in exports of meat and meat products for 2015 show a decline in wet blue hides, beef, pork, Leather and dressed chicken compared to the 2014. NAGRC&DB and the private sector facilitated by MAAIF continued to undertake breeding of fast growing exotic and local goats and distributing them to beneficiary farmers for multiplication. Hybrid breeds of chickens that can perform very well under free range are now available while pig production is constrained by lack of good breeding stock, which has resulted into widespread inbreeding leading to poor performance

c) *Apiary*

All bee products registered modest increases in production when comparing FY 2014/15 and FY 2015/16. Honey exports registered stellar performance for both value and volume at USD 13.2Mn against USD 9.6Mn and 4,100MT against 3,000Mt.

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d) Silk

The current cocoon production level is about 13 tons per year with most processed and sold as silk yarn to Ethiopia, Egypt and Hong Kong through Bushenyi Silk Farmers Association. There was a slight increase of 2.0% in cocoon production and 23% in silk yarn production due to improved technology in value addition. However there were no exports during FY 2015/16.

e) *Hides and Skins*

While no wet blue hides were exported, 1.6Mn Kgs of wet blue skins and about 1.2Mn Kgs of leather were exported.

f) Pest, Vectors and Diseases

The high prevalence of animal diseases and vectors greatly impacted on the contribution of the livestock subsector and also jeopardized exports of livestock and livestock products. Following interventions implemented during the FY, there was a reduction in the prevalence of FMD outbreaks from 40% in FY 2014/2015 to 5% in FY 2015/16 and a 15% reduction in the number of disease outbreaks in FY 2015/16. Following increasing reports of ticks' resistance, acaricide use was monitored in the districts of *Masaka, Mukono, Kayunga, Buikwe, Nakasongola and Busia* where it was found that 55% observed proper acaricide mixing and 16 % acquired bucket pumps for spraying. Generally, there was a general reduction in the prevalence of reported outbreaks of priority diseases in the country. Foot and Mouth Disease (FMD) outbreaks were reported in 12 districts in FY 2015/16 down from 71 districts in FY 2014/2015.

Agricultural Extension

Following the launch of the DAES, the institutional processes to mainstream the directorate into MAAIF's administrative, planning and budgeting frameworks were undertaken. 16 Technical officers were posted to the Directorate on assignment of duties out of the required 34 approved in the structure. Orientation training was organized for all staff with support from the PASIC project and with facilitators from Uganda

Management Institute. MAAIF worked with the MoFPED to obtain a Vote Function and Program Codes for the DAES and its departments. And effective FY 2016/2017, the DAES started receiving budget allocation. The major activities undertaken by the Directorate during the FY 2015/16 were funded from internal reallocations and off budget support from development partners.

In terms of what has been addressed, the National Agricultural Extension Policy processes were concluded and submission made to Cabinet. What remains is cabinet approval and putting in place legislation for implementation. The National Agricultural Extension strategy however, was approved by MAAIF Top Management and is due for printing, dissemination and implementation.

Agricultural Infrastructure and Water for Agricultural Production

During the FY under review, consultations for review of the draft National Irrigation Policy were conducted pending resubmission to the cabinet secretariat. ToRs for development of National Agriculture Mechanization Policy were developed and reviewed by the technical committee while final draft guidelines to mainstream climate change in the agricultural sector were developed.

Under the WfAP interventions the following achievements were registered during the FY under review FY 2015/16.

a) 163 valley tanks were constructed, with 159 in partnership with private farmers in 16 cattle corridor districts and 4 in partnership with FAO;
b) Feasibility studies were completed for Sironko-Acomai and Atari River (*Bukedea, Bulambuli and Kween* districts) and the report submitted and approved by JTC.
c) 3 Water Users Association (WUA) and 360 farmers trained in the operation maintenance and management as well as in water and value chain management of the rehabilitated 3 large irrigation schemes of Agoro, Doho and Mubuku.
d) Preparatory activities for the establishment of new irrigation schemes in *Bugiri and Iganga* Districts under a Public Private Partnership (PPP) by Islamic Development Bank (IDB) and GoU included; training of farmers, awareness creation on the different roles and responsibilities, establishment of a database for rice farmers, signing an MoU with the Private Sector, recruitment of PMU staff as well as constituting district Implementation Committees.
e) 3 small scale irrigation systems (4 acres each) were installed and operationalised.

In conclusion, irrigation capacity and water for production is gradually increasing. Under mechanisation 1 bulldozer and Excavator were procured and delivered, 120KM of farm road opened in 12 districts and 4,528 acres of farmland opened in 13 districts. In addition, 4 new tractor makes and other agricultural machinery were tested at regional centres of Namalere and in the districts of *Mukono, Lira, Soroti and Gulu* while recruitment and training of 7 tractor operators was undertaken and the units deployed for testing.

Human Resource Management

MAAIF also registered a number of achievements under institutional strengthening including but limited to; initiating the MAAIF HQ construction project; operationalising the MAAIF HQ and LG Production department approved structures; improving linkage and collaboration with Agencies and LGs, mainstreaming ATIs in MAAIF through restructuring and support provision; conducting limited capacity building due to inadequate resources; harmonising the MAAIF, NAADS and LGs budgets; recruitment of staff resulting in a 63.9% in MAAIF HQ and operationalization of the LGs PMD structures.

National Agriculture Research Organization (NARO)

Agricultural Research through the National Agricultural Research System (NARS) spearheaded by NARO generated a number of high yielding, disease and or drought resistant seeds to improve productivity. Key achievements of research in the FY include release of new varieties under different commodities and conducting a number of capacity building programs including construction of office blocks, laboratories and equipping or reequipping them. In conclusion, NARO either met or exceeded its targets under the technology generation output area.

National Agriculture Advisory Services (NAADS)

NAADS through operation OWC distributed seed for various commodities across the country covering approximately an acreage of 403,796 acres with the expected income from the distributed seed estimated at UGX 1.3Tn after harvest. In addition, vegetative materials and seedlings for various commodities were distributed across the country covering approximately an acreage of 192,698 acres with an expected income from the distributed vegetative materials and seedlings of UGX 1.5Tn annually.