



# SECTOR'S CONTRIBUTION towards Government Policies on Development



# **MAAIF top leadership**



**Yoweri Kaguta Museveni Tibuhaburwa.** President of the Republic of Uganda



Hon. Frank K. Tumwebaze Minister of Agriculture, Animal Industry & Fisheries



**Hon. Maj. (Rtd) Kyakulaga Fred Bwino**. Minister of State for Agriculture



Hon. Lt. Col. (Rtd) Dr. Rwamirama Bright Kanyontore. Ph.D. Min. of State for Animal Husbandry.



**Hon. Hellen Adoa** Minister of State for Fisheries



Kyomukama Permanent Secretary

10 mente

Foreword 4
Message from the Permanent Secretary 5
MAAIF Contribution Towards Government Policies on Development 6
NAADS transforms livelihoods in over 6 million households through provision of critical agricultural inputs
Uganda Multi Sectoral Food Security and Nutrition Project Partners with the Private Sector to Produce Gluten Free Nutritious Products
MAAIF Through ACDP Rehabilitates Community Farm Access Roads to Improve Market Access
Good Practices for establishment of a Cashew-nut farm

Dodder weed control: How to get rid of the Plant? ...... 33

Good Practices in Fighting Aflatoxins ...... 39

# a word from the **EDITOR**

In this Second Issue of the Ministry of Agriculture Animal Industry and Fisheries (MAAIF) Newsletter of July 2022, we highlight the sector strategies, plans and interventions that would lead to the desired contribution to the NRM manifesto 2021-2026. This has been done through breaking down Ministry achievements, stories, innovations, and technologies that would support the farmer at all levels in the production value chain.

The agriculture sector generates about 24% of the gross Domestic product (GDP) and accounting for more than half of the country's export earnings. About 70% of the working population is engaged in agriculture which also provides the first job for three quarters of those aged between 15 and 24 years.

Ministry contribution to the so called "neglected unemployed youth" and overall socio-economic transformation of the population through Agroindustrialization promotion and support is highlighted in here.

One of the key stories include the best practices of establishment of a cashew nut farm, how to fight the Dodder weed and basic information postharvest handling to avoid aflatoxin of cereals, among others.

I would like to encourage stakeholders and partners, to take advantage of this fora that will regularly provide information on Agriculture- "farmer education" – a platform for farmer information for making money and make informed decisions about farming as a business.

ACAYO CONSOLATA Asst. Commissioner, Information and Communication

MAAIF will also regularly update the citizenry on its progress in realizing the aspirations of the Parish Development Model under Pillar 1.

### FOREWORD

The Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) has a mandate to promote and support sustainable and market oriented agricultural production, food security and household incomes.

The Country produces a wide range of agricultural products including: coffee, tea, sugar, livestock, fish, edible oils, cotton, tobacco, plantains, corn, beans, cassava, sweet potatoes, millet, sorghum, groundnuts and others.

We recognize the role of communication as essential in providing valuable information about the sector and the opportunities therein. The timely provision of information regarding the sector's activities through available channels like this Newsletter will contribute largely to the achievements of the Ministry's mission ("To transform subsistence farming into commercial agriculture").

Through this newsletter, we intend to regularly inform and share with our clients the latest information on key MAAIF focus areas especially disease control, production and productivity interventions, agricultural mechanization and irrigation, farmer education and mobilization as well as key policy interventions/ activities in the Fisheries, Animal and Crop subsectors.

MAAIF will also regularly update the citizenry on its progress in realizing the aspirations of the Parish Development Model under Pillar 1. I encourage our farmers and all other stakeholders who will have a chance to read this Newsletter to give us constructive feedback which will facilitate improvement and better performance of the sector.

I hope you will not only enjoy reading, but also adopt and implement some of the best practices that will be published in this Newsletter on a quarterly basis.

bare

Frank K. Tumwebaze (MP) MINISTER This newsletter is one of the avenues by which we can showcase the activities and achievements of the ministry in particular and the agricultural sector in general. This sharing with stakeholders will help strengthening and building knowledge in the sector.

### Message from The Permanent Secretary

am happy to welcome you to the second Issue of the MAAIF Newsletter of August 2022. One of the objectives of our communication in the sector is to collect, process, repackage and disseminate agricultural information to stake holders.

This newsletter is one of the avenues by which we can showcase the activities and achievements of the ministry in particular and the agricultural sector in general. This sharing with stakeholders will help strengthening and building knowledge in the sector.

I would like to encourage staff in the ministry as well as the other stakeholders to continue with this documentation. MAAIF's **Vision** is to have a Competitive, Profitable and Sustainable Agriculture, while the **Mission** is to transform subsistence farming to commercial agriculture. To realize all these, there is need for more experience sharing.

I wish you good reading

Maj. Gen. David Kasura-Kyomukama **Permanent Secretary** 

# MAAIF Contribution Towards Government Policies on Development

A griculture the key to agro-industrialisation remains one of the largest sectors of the economy employing more than 64% of the working population, contributes approximately 25% to Uganda's GDP (Uganda Bureau of Statistics, 2020), employs over 70% of the households and accounts for 31% of our country total exports (Bank of Uganda Statistics, 2020).

There has been steady progress in production of agricultural commodities over the past 36 years. Agriculture provides a significant proportion of the raw materials for the processing and manufacturing sectors. H.E the President identified 13 key challenges impeding

agriculture transformation in uganda. These include: Low commercial agricultural levels; Lack of linkage between research and farmers; Low use of fertilizers; Low coverage of irrigation; Land fragmentation; Low level of value addition; High cost of finance; Lack of agricultural machinery; Vector and diseases; Poor transport network; Lack of Farmers organization/co-operatives; Lack of storage facilities especially at homesteads/ community levels and Illegal Fisheries.

Accordingly, government through the Ministry of

The Minister of Agriculture, Animal Industry and Fisheries, Hon. Frank Tumwebaze handing over tractors to support agricultural production in Tooro Kingdom recently



Some of the heavy earth moving equipment procured by MAAIF to support Agro Industrialisation Agenda

Agriculture, animal Industry and fisheries embraced the Agro-Industrialisation programme which seeks to holistically address the above challenges.

Ministry interventions have focused on: enhancing agricultural production and productivity; establishing storage infrastructure and post-harvest handling facilities; value addition; improving market access and increasing competitiveness of agro-based products in domestic, regional and international markets; advocating and lobbying for increased access to agricultural financial services and critical inputs;



A 2000 litre milk cooler given to dairy farmers in Rwengaju sub county in Kabarole . NAADS has distribitued over 140 milk coolers to improve storage & quality of milk.



The Permanent Secretary, Maj. Gen. David Kasura-Kyomukama inspecting one of the water drilling machines procured recently

7

# Progress Over the years

# Coffee

Following the implementation strategy as highlighted above, the agricultural sector performance over the NRM period has been as follows: The total value of Ugandan agricultural exports amounted to US\$491.1 million in 1996.

# Crop production, export and revenue figures.

Coffee production increased from approximately 2.3m 60-kg bags in 1986 to 7.75m 60-kg bags in 2021. Export earnings increased from \$125.3m to \$718.57m in the same period.



Gerald Lugaju a resident of Kyanamukaka, Masaka started receiving coffee seedlings from NAADS in 2005. Today Lugaju is one of the millionaires with properties in Masaka city.



Tea



Since 2015, NAADS has distributed over 400 million tea seedlings to farmers contributing to the growth of the tea sector with over 20 tea factories established.

Government continues to implement its strategy of ensuring increased tea production in the traditional tea growing areas and in the new ones. The production of tea increased from 3,334 MT out of which 2,792 MT were exported fetching USD 3.4m in 1986, to 78,030 MT out of which 70,201 MT worth USD. 91.7Millions were exported.

The production has stimulated establishment of new tea factories which now stand at 33 factories creating employment and increase household income.

Production of leaf in some districts has overtaken the existing tea processing capacities, as is the case of Kyenjojo, Kabarole, Kanungu and Buhweju. In addition, 15 new tea factories are being established and are at different levels in several districts including; Kyenjojo (2), Buhweju (4), Kanungu (1), Bushenyi (1), Rukiga (1), Kisoro (1), Ntungamo (1), Kamwenge (1), Mbarara (1) and Luwero.

The production of tea increased from 3,334 MT out of which 2,792 MT were exported fetching USD 3.4m in 1986

### Cocoa



Lukungu John Bosco a cocoa farmer in Iganga district is minting.

overnment has invested in cocoa production which has led to its increased production from 1,000 MT in 1986 to 35,318MT in the FY 2019/20 valued at USD 89.9 million.

The increase in production volumes is attributed to Governments interventions in continuous supply of Cocoa seedlings to both small holder and commercial farmers in district local governments that prioritize cocoa production





Production from **1,000 MT** in 1986 to **35,318MT** in the FY 2019/20 valued at **USD 89.9** million.

### Cotton

he country has continued to promote cotton production in order to sustain the country's textile industries and for export of yarn. Cotton production increased from 20,267 bales worth USD 5.7M in the late 80s to 173,457 Bales in 2020 worth USDUGX 114 Bn.

Cotton production has contributed over Sh. 994 billion to household incomes and USD 654 million in lint exports over the last 20 years.

Currently the total installed ginning capacity stands at over 900,000 bales annually. Uganda currently has six cotton wool manufacturing firms produce absorbent surgical cotton wool and Mama Kits from locally grown cotton. These produce over 700 Mt of surgical cotton wool annually.

The factories produce a combined total of over 2,000 Mt of edible oil and approximately 12,000 Mt of cotton seed cake used in animal feeds annually.

Cotton production increased from **20,267** bales worth **USD 5.7M** in the late 80s to **173,457** Bales in 2020 worth **USD UGX 114 Bn.** 



9

### Oil Palm



One of the oil palm fields in Kalangala District supported by the Vegetable Oil Development Project of MAAIF

In 1986, there was no oil palm production in Uganda, the country was importing 100% of its vegetable oils. In order to reduce importation of crude palm oil, government started oil palm production in Kalangala district.

Currently, the country produces over 40,005 MT of crude palm oil which saves the country over USD 23 million and fetches smaller holder farmers' gross income of over UGX 28.2 billion.

Uganda is currently exporting commodities including Rice, Fruits, Fish and Flowers fetching over USD 168m. These were not among the exports before.

The country produces over 40,005 MT of crude palm oil which saves the country over USD 23 million and fetches smaller holder farmers' gross income of over UGX 28.2 billion.



# **Fruits** (Citrus, Mangoes, Pineapples, Apples)

Government interventions through distribution of citrus, mango, apple and pineapple seedlings and suckers has resulted into increase production and export volumes of fruits and vegetables.

In the year 2020, 83,554 MT of fruits were exported fetching Uganda USD 45.23 million.



James Kabiito is a prominent pineapple farmer in Kyesiiga sub county in Masaka district and a beneficiary of pineapple suckers from NAADS.



### **Livestock Subsector**



Hon. Rtd. Dr. Rwamirama Bright at Rubona Government stock farm in Bunyangabo District.

- Cattle population has increased from 4.8 million in 1986 to about 15 million in 2021
- Uganda is among the African countries with the highest milk production growth rate, with a fast annual growth rate of 5.7%.
- Milk production has increased from 410 million litres in 1986 to 2.7 billion litres in 2021 per year.
- Rural milk coolers have increased from 8 in 2001 to over 437 with a holding capacity of 1,497,900 litres.
- Processing companies have increased from one (1) in 1986 to 135 in 2021, with processing capacity of 30,000 litres and 2.8 million litres per day respectively.
- Dairy exports increased from USD 104.2 to USD 139.5 million in 2021.

The Ministry through NAGRC&DB is promoting crossing local animals, to F1-50% and F 2-75% which can produce 12 and 18 litres of milk per day respectively.

With F1 a farmer with good management gets 1.5 million Uganda shillings per animal per year. Six Cows of 75% dairy crosses earns more than 20 million a year from milk.

NAGRC & DB has improved the beef animal's average daily weight gain to 250 gms per day with F1- 50% and this has reduced the market age tremendously from 3-4 years to 1- 1.5 years.



Jane Nakayiza started with one in-calf heifer from NAADS in 2018 and today she has 4 cows from which she gets milk for home consumption and sale.

NAGRC&DB is promoting crossing local animals, to F1-50% & F2-75% which can produce 12 and 18 litres of milk per day respectively Kuroiler chicken which are disease resistant and faster growth were introduced in Uganda. The Kuroiler hens' lays between 150-200 eggs in a year compared to the 40 eggs produced by the indigenous birds.

Cocks weigh between 3-4 kg within four months. 2, 305,194 were distributed to 5,500 households and 40,000 birds have been exported to the regional markets. Early maturing pigs have been introduced where they can produce at 10 months at an estimated weigh of 80-90 kgs live weight compare to



The Kuroiler hens' lays between 150-200 eggs in a year compared to the 40 eggs produced by the indigenous birds



the locals one year and two months at an average weight of 40-60 Kgs. Breeds such as Comborough can produce over 14 piglets (28 piglets/animal/year) and at UGX 150,000 translates into 4,200,000/= per sow/year.



Hon. Dr. Rwamirama Bright addressing cattle farmers in Ntoroko District recently

### **Fisheries**



#### Fish stocks and fish catches increased from **307,149** MT in the FY 2018/19 to **603,220** MT in 2020

Fish stocks and fish catches increased from 307,149 MT in the FY 2018/19 to 603,220 MT in 2020.

In addition, aquaculture continued to grow with an estimated total production of 120,000MT from 5,000 cages and 25,000 fish ponds from an estimated 20,000 fish farmers.

The performance has been a result of government focus on gazetting of fish breeding grounds, enforcement of fisheries laws and regulations, provision of quality fingerlings and fish feed and providing an enabling environment for private sector to invest in aquaculture.

The availability of raw material (fish) sustained operations of the 12 fish processing factories which ultimately increased the volume and value of exported fish from 14,894 MT valued at\$37,048 to USD 227 million by 2020.

Hon. Hellen Adoa supervising the clearing of the floating Island in Jinja



Hon. Hellen Adoa defending the fisheries and aquaculture bill in Parliament recently.



Some of the fish farmers in Eastern Uganda supported by MAAIF harvesting fish from their fish ponds

# Progress under strategic interventions

# Research

In order to increase agricultural production and productivity, government through NARO intensified Agricultural research which led to introduction of new crop varieties with attributes of early maturity, drought tolerant and disease resilient especially beans, maize and rice. Considering the importance of research, government has invested in the construction, rehabilitating and equipping of research facilities at research centres including; Namulonge, Serere, Nabuin, Kamenyamigo, Rwebitaba, Kyembogo, Hoima ( Bulindi), Kachekano and Ngetta.

Under Animal genetics, the National Animal Genetics Resource Centre and Data Bank (NAGRC&DB) installed a new a nitrogen plant with capacity to produce 89 litres per hour and a hatchery with capacity of 13,000 chicks per week. More farmers started rearing the resilient Kuroiler birds. There is notable genetic improvement in the country and productivity is seen in milk and beef production.

A number of technologies released in the last two decades include: banana variety M2 which yields 86 MT per hectare per year, resistant to Black Sigatoka and tolerant to weevils and nematodes.



Miti Canan is a youth farmer in Kalungu district who currently boasts of 8 acres of passion fruits having received support from NAADS in form of passion fruit seedlings.

# Control of pests, vectors and Diseases



Samples of crops affected by Aflatoxins

- a) The country experienced many new diseases and pest problems in the last three decades; key among these include; Fall army worm, Desert Locusts, Maize lethal Necrosis, Banana wilt diseases. Government managed to contain all these pests' outbreaks through conducting control operations. For the recent Desert Locusts, our UPDF played a key role to contain the Desert locusts and their ability to destroy crops and vegetation/grasses for animals.
- b) Government reduced the damage of fall army worm from >70% at its peak in 2016 to <5% currently, black coffee twig borer from 32% to 17.8%, coffee berry disease from 19.6% to 12,4%, cassava brown streak from >24 to 17.5%. In addition, Banana Bacterial Wilt (BBW) disease has been maintained under control, with the current incidence at <3% in banana producing regions.</li>
- c) Government has started the process of manufacturing vaccines for diseases of economic importance, notably FMD and anti-tick. Government through NARO has established a National FMD vaccine evaluation platform to support the country in evaluation of imported FMD vaccines before they are used in the country to strengthen the effectiveness of control of FMD virus.

### Water for agriculture production



Hon. Frank Tumwebaze, Hon. Bright Rwamirama, Hon. Hellen Adoa together with MAAIF Technical Team during the launch of the construction of valley dams in Eastern Uganda early this year

- a) Government has continued its effort to invest and improve access to water for production. Currently, construction of six (6) irrigation schemes of Wadelai, Torchi, Mobuku ll, Doho ll, Ngenge and Rwengaaju are being finalised. In addition, construction of more irrigation schemes including Acomai in sironko and Atari in kween/bulambuli has started.
- b) In addition, government has supported farmers/farmer groups by installing solar powered irrigation systems in 35 sites including; Ntungamo, Hoima, Mubende, Kamuli, Koboko, Kumi, Kabale, Mukono, Kiboga, Buvuma, Sembabule, Kayunga, Yumbe Kaberamaido, Kaliro, Buikwe, Butebo, Masindi, Mubende, Butambala, Bukomansimbi, Kapchorwa, Iganda, kaabong,Rukungiri,Amolar, Adjumani, Mbale, Pader, Rukungiri, Rukiga, Nakaseke and Katakwi districts in order to promote adoption of improved

and efficient water for agricultural production technologies for both crops & livestock.

c) In order to address the challenge of water for animals especially in the cattle corridor and drought prone districts, government has constructed over 1555 valley tanks with a total holding capacity of 10,840,000 m3. This implies water for livestock storage capacity increased to 15.04 million m3.



Permanent Secretary, Maj. Gen. David Kasura-Kyomukama inspecting one of the mobile garages at Namarere in Wakiso Distrct

# **Promotion of Agricultural Mechanization**



One of the farmers in Eastern Uganda putting the tractor given to him by MAAIF to good use

- a) Government has procured and distributed 325 tractors and matching implements to 115 District Local Governments. The Ministry piloted provision of tractor hire services using 16 tractors and implements for hire at a subsidized rate. These tractors and implements are accessed at the subsidized hire rate of Ugx 40,000 per acre for ploughing, harrowing and spraying, as compared with Ugx 120,000 per Acre charged by the private equipment owners. Equally, access to heavy earth moving equipment is subsidized. The government rate is Ugx 480,000 per acre compared to Ugx 1,200,000 per Acre charged by the private sector
- b) This has greatly supported rice, coffee, maize, cotton, sunflower, pasture, beans and cassava growing households. The heavy equipment units have also been able to support the development and construction of the water storage facilities (valley tanks, dams, channels, fish ponds) and currently there are over 1555 facilities



H.E. Yoweri Kaguta Museveni launching tractors procured by MAAIF recently

constructed and desilted country wide as well as opening farm access roads.

c) Government has started the rehabilitation and equipping of the Namalere National Referral Agricultural Mechanization Center to serve as Center of Excellency for skilling, training, upgrading and accreditation of the equipment and machinery operators, mechanics and technicians. This is in addition to constructing five Zonal agricultural mechanization Centers of Mbale, Kiryadongo, Bushenyi, Agwata and Buwama out of the 18 planned Centres country wide.

### Post-harvest handling, value addition, Agro-processing and Marketing



Technical commissioning of a 2 metric tonne juice processing factory in Kapeeka, Nakaseke district



Government through NAADS has invested ugx3.4 billion to install processing equipment Kapeeka juice factory, an incubation hub for value addition in Greater Luwero region.

- a. Government has intensified Support to Agricultural Value Chains Development, where, Medium scale fruit processing equipment have been distributed and installed in Yumbe for Mango with processing capacity of 5 MT/hour; Kayunga for Pineapple with processing capacity of 600kgs/ hour; Nwoya Multi-Fruit factory with processing capacity of 12 MT/Hr and Kapeeka Multi Fruit processing plant with processing capacity of 5MT/hr.
- b. In the dairy sub-sector, increased milk production has seen emergence of new dairy factories and milk processing plants. The country has increased processing of dairy products including; milk powder; ghee, butter; UHT milk; casein; whey protein concentrate; pasteurized milk; yoghurt, cream, ice cream and cheese both for exports and local consumption. These were attained through the NRM strategic interventions of adopting improved dairy breeds, provision of improved pasture seeds, skilling dairy farmers in good dairy farming practices and deliberate efforts to attract dairy investors.
- c. In order to boost sugarcane production for both the domestic and

export markets the government has supported the Atiak Sugar production plant. This has demonstrated development of the sugar cane value chain through a direct link between production and processing of sugarcane.

- d. The storage facilities have an aggregated total storage capacity of 33,497 million. The conducive environment provided by Government to the Uganda Grain Council has resulted to an increase in the grain storage capacity from to 750,000MT in 2020.
- e. To further strengthen the regulation and certification function, government introduced the online e-certification services. This initiative has reduced the interception of agricultural products due to documentation by 80% in just one year 2020.
- f. The Ministry, strengthened enforcement of sustainable fisheries rules and regulations along the major water bodies through the Fisheries Protection Unit. Over the past 4 years, there has been a 43% increase in fish catch and in effect, resulted in the reopening of 4 fish factories,

# NAADS transforms livelihoods in over 6 million households through provision of critical agricultural inputs

Since refocusing of its mandate in 2014 to supporting farmers with the provision of critical agricultural inputs for wealth Creation, the National Agricultural Advisory Services (NAADS) has supported over 6 million farming households with critical farm inputs, creating a positive impact not only on Uganda's food security but also to the economy at large.

In the past decade, Uganda has been relatively food secure thanks to Government interventions through its Ministries, Departments and Agencies including NAADS. These interventions have also partly contributed to the transformation in proportion of households in the subsistence economy from 68% to 39% (Uganda National Household Survey 2019/2020, Uganda Bureau of Statistics).

As a result of the same interventions, the production level & volume exports for the prioritized enterprises have significantly increased contributing to an est. 4.4% agriculture sector growth in the FY 2019/20

The NAADS interventions have also contributed to increase in the production level as well as the volume exports for major enterprises notably maize, beans, cassava, Tea, Cocoa, fruits (Citrus, Mangoes, Pineapples, and Apples) and Dairy among others.

In addition, there is evidence of increased uptake of new agricultural technologies such improved varieties of seed and vegetative planting materials for example Cassava (Narocass 1); Maize seed (H614, UH5051, Longe 7H,9H,10H & 11H) Bean seed (NABE 15,16,17,19 & Naro Bean 1,2 &



Hon. Fred Bwino visiting some of the farmers who benefited from NAADS Program



3; K132); Seso 3; Cashewnut (AC4, AC43, AA7); Citrus (Washing ton navel, Valencia & Hamlin); Mangoes (Tommy Atkins, Zillate, Apple mango) among others.

#### **Ensuring Food Security**

NAADS food security interventions have been focused on the distribution of improved planting materials to farmers in the district local governments for the major food staple crops for the respective regions of the country, particularly those of quick maturing nature, notably maize and beans, as well as cassava, banana, and Irish potato.

The planting materials are distributed to all categories of farmers, including youths, women, PWDs and older persons. Since 2014 to date, NAADS procured and distributed the following

18 / Sector's contribution towards Government Policies on Development



# an estimated 3,284,260 HHs for food security including;

Maize seed (22,540,866 kgs)

**Bean seed** (8,961,714 kgs)

Bananas (656,371 suckers)

lrish potato seed (186,423 bags)

**Cassava cuttings** (955,723 bags)



Kayunga pineapple processing factory at 90% completion. The factory will add value to pineapples grown in the region.



Hon. Fred Bwino carrying out his supervisory role on seeds distributed by NAADS



Farmers in Nama sub county in Mukono district after receiving mango and citrus seedlings from NAADS at the start of season A 2022

#### Strategic Crop Commodities for Wealth Creation and Export Earnings

NAADS' support towards production of strategic crop commodities for wealth creation included distribution of improved varieties that are tolerant to pests and diseases and with desirable fresh and processing characteristics notably fruits such as citrus, mangoes, apples and pineapples, cocoa, and tea.

Since 2014 to date, NAADS procured and distributed the following strategic crop inputs targeting both small holders and commercial farmers in district local governments that prioritized their production for wealth creation;

- Tea (513,001,541 seedlings)
- Citrus (43,207,863 seedlings)
- Mangos (31,099,934 seedlings)
- Apples
   (2,541,278 seedlings)
- Pineapples
   (40,936,670 suckers)
- Cocoa

   (23,151,743 seedlings)





#### **Livestock Interventions**

The interventions in livestock are aimed at increasing production and productivity of priority livestock for improved household food, nutrition, and income security as well as export earnings. These interventions put special emphasis on special interest groups, especially youth and women and beneficiaries in urban and semi-urban areas, especially in the case of livestock materials for heifers, poultry, and pigs.

NAADS distributed livestock inputs to 27,667 HHs especially youth and women and beneficiaries in urban and semi-urban areas as follows;

- ✤ 23,379 Dairy Heifers to 126 DLGs
- ✤ 3,524 Beef cattle to 56 DLGs
- ✤ 34,800 Cattle Semen (doses) & 30,186 Liquid Nitrogen (Litres) to 116 DLGs
- 120 kits of Artificial insemination kits to 116 DLGs including KCCA and trained 125 AI technicians
- 31,167 pigs Pigs Gilts & Boars to 105 DLGs, 21 MCs and special interest groups such as youth and women
- 764,997 poultry birds to 2,530 households in 70DLGs and special interest groups such as youth and women; and 2,239,294 Kgs of poultry Feeds (Broiler starter pellets, Growers mash, Chick & duck mash etc).

#### Support to Fish Farming

NAADS has supported aquaculture through;

 Provision of 18,434,625 fingerlings for tilapia, catfish and mirror carp as well as 649,990 kgs of fish feed for income and nutritional

# Support for agro machinery & farm tools



This intervention is aimed at increasing farm production and productivity for increased household food security and incomes through adoption of improved and efficient production technologies, enhancement of timeliness and profitability of farm operations and intensified farm production systems; as well as provision water for production to address adverse effects of climate change. Below is the specific progress registered;

 133 Solar powered irrigation systems distributed to selected beneficiaries in 67 districts especially in water stressed areas of the country to promote adoption of improved and efficient water for agricultural production technologies for both security to households in 65 DLGs and 13 Municipal Councils.

 Established two fish hatcheries i.e Nalugugu Fish Hatchery & Anyara Fish Hatchery.

crops & livestock.

- 357 tractors and matching implements to farmer groups to scale up farm production for commercialisation of agriculture
- 3,720,000 hand hoes to 2,470, 000 rural farming households in district local governments & Municipalities within West Nile, Madi, Karamoja and Teso sub regions.
- Carried out development of Architectural and Engineering designs for Construction works for 3 irrigation schemes for Kasese and Kamwenge districts

#### Support for post-harvest handling, value addition & processing

- 12 Community Grain Stores established in partnership with World Food Programme (WFP) in 11 districts;
- 131 sets of milk coolers and matching generators distributed to dairy farmer organization across all the milk sheds;
- 4 Mini diary processing facilities (5000-1000 litres/hr) across the 3 regions of Uganda in Kabale, Kiboga, Kyankwanzi and Kamuli districts. Installation is ongoing.
- 149 sets of maize milling equipment, 13 units of feed milling equipment and 8 sets of rice milling equipment for farmer groups in over 100 District Local Governments and municipalities across the country.
- Supply and installation of additional 17 sets of maize milling equipment (500kgs per hr.) and 7 feed milling equipment (350Kgs/hr) ongoing.

#### **Fruit Processing Facilities**



Yumbe mango processing factory will add value to the mangoes produced in West Nile

This intervention aims to enhance production and productivity of the fruits value chain for increased profitability, household incomes, export earnings and job creation and/or employment through reduction of post-harvest losses, value addition and improved market linkages.

To date government through NAADS is supporting the establishment of the several fruit processing facilities, including, i.e.

- Yumbe Mango Processing Plant (over 80 MT per day)- 1<sup>st</sup> phase of main factory building and installation of complete 5MT/hr mango processing equipment completed. 2<sup>nd</sup> phase of external works on-going at 65% progress.
- Kayunga Pineapple processing plant (12 MT/day)- Installation of equipment completed pending testing and commissioning of the pineapple processing plant.
- Kapeeka Multi Fruit Processing Plant (3MT/hour)- equipment delivered and installed pending testing and commissioning of the processing plant
- Floky wineries in Bunyangabu for grapes (2000 litres per day)-equipment delivered and installed.
- Nwoya Multi-Fruit Processing Plant (12MT/hour) – Master Plan and detailed designs for multi fruit processing plant developed and approved by stakeholders.

#### **AgriLED Strategic interventions**

The Government of Uganda through NAADS in collaboration with Operation Wealth Creation, the Ministry of Local Government and other line MDAs are implementing the Presidential initiative on Agro-Industrialization for Local Economic Development (AGRILED). The AgriLED strategic interventions being piloted in Rwenzori sub region and some of the ongoing undertakings are indicated below.

#### α) Establishment of agro industrial & business parks

Establishment of Kasese Industrial Park:

- Construction and drainage work for opening and graveling of 11 Kms of Roads completed.
- u. Constructed water supply network across the entire park.
- 111. Constructed and extended High Voltage (4.08kms) and Low Voltage (2.2kms) Power Line networks along all streets for the Park

Kabarole Industrial Park:\_Developed the Master Plan for establishment of the Kabarole Industrial Park in partnership with UIA, UIRI and UDC.

#### β) Establishment of Regional Farm Service centre in Kapeeka.

Developed architectural and engineering designs and civil works procured for establishment of the Farm Service Centre (Civil works expected to commence by 30<sup>th</sup> July 2022).

The RFSC is a one-stop centre where farmers can get access services such as extension services, agricultural inputs including seed, livestock, planting materials, agrochemicals, hired farm equipment among others and also have access to value addition, agricultural finance and market linkages services.

 χ) Provision of agro-machinery, value addition, agro-processing equipment and establishment of related supportive infrastructural facilities.

#### (i) Tractors and matching implements:

 13 tractors and matching implements delivered and distributed to 13 farmer groups in Kamwenge (3), Bunyangabu (5) and Kitagwenda (5) districts

#### (ii) Grain Milling facilities:

 Carried out Civil works for construction of structures five (5) maize mills; two (2) feed mills (Kasese, Kyegegwa, kitagwenda & Kamwenge). Delivery and installation of seven (7) maize and two (2) feed processing equipment for Kasese, Bunyangabu, Kamwenge, Kitagwenda, and Kyegegwa districts as well as one set of rice processing equipment for Buyangabu is ongoing.

#### (iii) Establishment of Grain stores:

• 5 grain stores of 300MT capacity each established in Kasese (2), Kyegegwa (1), Kitagwenda (2).

#### (iv) Establishment of milk bulking centres:

• Delivery and installation of 12 units of containerised milk coolers and matching generators with total capacity of 38,000 ltrs for Kamwenge, Kitagwenda, Kyenjojo and Kyegegwa districts ongoing.

# (v) Establishment of mini diary processing facilities:

- Delivery and installation of one set of UHT milk processing equipment (1000ltrs/hr) for Tooro Dairy Cooperative in Fort Portal City is expected to be completed in Quarter one FY 2022/23.
- Delivered Milk processing and packaging Equipment (250ltrs /batch) for NEMA MIXED FARM in Kamwenge and installation is ongoing

#### (vi) Coffee processing facilities

 Civil works for Construction of 7 coffee processing/Hulling facilities in Bundibugyo, Kyenjojo and Kitagwenda districts completed.

- Delivery and installation of seven (7) Coffee hullers for farmer cooperatives in Bundibugyo, Kyenjojo and Kitagwenda districts is expected to be completed in Quarter one FY 2022/23.
- Delivered and installed 57 motorized coffee pulpers (800kg of Cherie per hour) for 57 coffee wet processing stations under Bukonzo Organics farmers' Cooperative Union & Mt Rwenzori farmers' Cooperative union in Kasese District.

#### (vii) Water for agricultural production

 Construction of Nyamishekye mini irrigation scheme (to cover at least 45 acres) for Kahunge & Nkoma SCs in Kamwenge and Construction of Nyakakindo mini irrigation scheme to serve Hima TC in Kasese (targeted to cover 163 hectares).

# (viii) Establishment of fish production & handling infrastructure

- Civil works for construction of fish handling shades at Hamukungu on Lake George and Katwe Kabatoro TC on Lake Edward ongoing (80% complete).
- Delivered and Installed 30 Fish Cages for 8 Crater lakes in Kichwamba, Busiro, Ruteete & Kasenda SCs in Kabarole and stocked them with fish fingerlings (90,000 tilapia & 20,000 Kgs of feed) in Kabarole district.



Eng. Michael Shuwu, the Value Chain Dev't officer at NAADS (left) during the pre-testing of Kayunga pineapple factory

#### (ix) **Provision of planting materials Planting materials distributed to DLGs under AGRILED**

Planting materials	District	Quantity
Cocoa Seedlings	Bundibugyo	1,625,000
Vanilla Vines to farmers	Bundibugyo	58,444
Mango Seedlings	Kitagwenda	18,519
Vanilla Vines to Karugutu Farmers Association	Ntoroko	111,111

#### (x) Establishment of Agricultural markets

Procured civil works for construction 10 agricultural markets as indicated below. The works expected to commence by 30<sup>th</sup> July 2022. Details are as indicated in table below

#### Agricultural markets for construction in Rwenzori sub region

1	Construction of Kamwenge Central Market Phase 1	Kamwenge
2	Construction of Kasangali - Kajolly agricultural market in Bwesumbu SC	Kasese
3	Construction of Ezron Mbethe - Kinyamaseke main Market in Kinyamaseke TC	Kasese
4	Construction of Rwaihamba market in Rwaihamba TC	Kabarole
5	Construction of Roadside market at Nyakigumba TC	Bunyangabu
6	Construction of Busunga Town council border market	Bundibugyo
7	Construction of Kyenjojo Market in Kyenjojo TC	Kyenjojo
8	Upgrade Rwensasi Cattle and General Merchandise Market at Ruyonza S/County	Kyegegwa
9	Kyegegwa Central and General Merchandise Market Kyegegwa TC	Kyegegwa
10	Civil works for upgrading of Kaculeeta farmers market	Fort Portal

# Support to Sugar cane production in Northern Uganda

Government of Uganda, through the NAADS is supporting the sugar cane out growers' scheme under the sugarcane production project in selected districts in Northern Uganda. This project is being supported and implemented under a Memorandum of Understanding (MOU) between NAADS, participating District Local Governments (Amuru, Lamwo, Gulu, Adjumani), Horyal Investment Holding Company and two farmer Cooperatives (Atiak Sugar out growers Cooperative Society Limited and Gem Pacilo farmers' Cooperative Society).

A total of 13,841 acres of sugarcane are being established in Attiak, Amuru district and additional 41,000 acres are being established in Lamwo district. The intervention, which started FY 2017-81, targets to establish 60,000 acres at the three earmarked sugar production sites, including Atiak, Amuru district; and Palabek Kal and Palabek Ogili in Lamwo district.

#### Conclusion

Despite some challenges experienced, there have been notable achievements during the implementation of the NAADS interventions for wealth creation in the past decade. These are a clear demonstration that access to affordable critical farm Inputs for sustained production and strengthening support for value addition, agro-processing and post-harvest handling is very important to spur agro industrialization for socialeconomic transformation and inclusive growth.

### UGANDA MULTISECTORAL FOOD SECURITY AND NUTRITION PROJECT PARTNERS WITH THE PRIVATE SECTOR TO PRODUCE GLUTEN FREE NUTRITIOUS PRODUCTS



Hon. Fred Bwino at Muhinga factory in Kabale District

Uganda Multisectoral Food Security and Nutrition Project has partnered with Muhingi Products Factory in Kabale District and the JB Management Foundation in Arua City to produce high quality, Gluten free and nutritious products using the locally produced crops. This is an import substitution strategy for wheat which has not only become expensive but also contains a protein called Gluten that has side effects on human health.

The ingredients of the products include Orange Fleshed Sweet Potatoes, iron rich beans, millet, sorghum, irish potatoes, banana and vegetables. Trials are underway to include fruits in the products.



Project Coordinator, Mr. Julius Twinamatsiko (centre) with the Project Coordination Team in Muhinga factory, Kabale District





The products produced include; bread, bans, cookies, biscuits, cakes, daddies, waffles, flour among others. These products are nutritious but also more affordable than similar products on the market.

Based on the success of this partnership, the Uganda Multisectoral Food Security and Nutrition Project continues to mobilize farmers to take advantage of this available market to increase production for income generation. The project is also in the process of setting up value addition facilities to scale up production of the products in the five regions of West Nile, Rwenzori, Busoga, Ankole and Kigezi. These facilities will provide market for the required crops thus boosting production and consequently improving the livelihoods of the communities. This is well aligned to the Agro-Industrialization agenda and the Parish Development Model that seeks to uplift Ugandans from poverty.

Furthermore, the facilities will offer post-harvest handling services including offering knowledge on proper drying, storage and food safety measures including aflatoxin management. The products will be sold in the local, regional and international markets.

The other ongoing activities include establishment of multiplication centres for quality declared seed and seed banks within the communities. This will improve the seed system by availing quality seed to the farmers. It directly links to the Parish Development Model where farmers will purchase quality seed from within their communities. These activities will also contribute to the MAAIF interventions to boost food and animal feed security.

#### Author: Julius Twinamasiko

Project Coordinator Uganda Multisectoral Food Security and Nutrition Project.



Some of the products made out of orange fleshed sweet potatoes



# MAAIF Through ACDP Rehabilitates Community Farm Access Roads and Choke Points to Improve Market Access



Hon. Frank Tumwebaze launching of Kyakaitaba-Mbarara Bigyere-Kizikibi-Kampala Road in Kamwenge District early this month

The Agriculture Cluster Development Project (ACDP) whose objective is "To raise on-farm productivity, production and marketable volumes of selected agricultural commodities (maize, beans, rice, cassava and coffee)" is supporting the rehabilitation of road chokes on farm access roads at the community level. The investments primarily target to remove bottlenecks (chokes) that impede transportation to and fro the areas of production. This is a key strategic output intended to improve the accessibility of production areas to post-harvesting handling centres and markets.

Before the ACDP interventions, farmers were experiencing challenges with the movement of produce from the community to markets. This was especially during the rainy season where bridges are washed away by floods and swampy sections of the road get blocked thus impeding the movement of trucks. As a result, the produce would get stuck in the villages and thus farmers would fail to access markets. Following the interventions by the project, the critical points were identified by the communities in the 57 project districts across the 12 clusters impeding their produce movement, and hence the designs for the improvements were developed.



In the seven pilot districts, works in Iganga, Bugweri, Kalungu, Nebbi, Pakwach & Amuru are complete while works in Ntungamo are rated at 93% physical progress. Out of the 21 districts within the pilot clusters, contracts were signed for 19 districts and works are ongoing at different stages. These are Kyotera, Masaka, Bugiri, Namutumba, Gulu, Nwoya, Omoro, Rukiga, Rubanda, Arua, Maracha, Yumbe, Kumi, Kibaale, Bushenyi, Isingiro, Kabale, Kakumiro & Rakai. For the 29 Non-Pilot Districts, contracts have been signed in 27 districts and are ready for work commencement.

The Minister of Agriculture, Animal Industry and Fisheries, Hon. Frank Kagyigyi Tumwebaze flagged off the rehabilitation of 37.6 kilometres located along four roads located in 5 sub-counties in Kamwenge District. The contract for the rehabilitation of these roads was awarded to Tamsak Development Link (U) Limited at a cost of UGX 2.3BN. The function was attended by district leaders, senior officials from MAAIF and the community. In partnership with the World Bank, the Government of Uganda has earmarked 29 road chokes for construction to ease access to markets from high production centres to boost commercial agriculture for the smallholder farmers. The roads are in Kamwenge (17.6km), Bwizi/Biguli (10km), Bwizi/Nkoma (5km) and Bihanga (5km) sub-counties

Speaking at the Ground-breaking ceremony, Hon. Tumwebaze said that



"These road chokes are government's intervention to ensure that our farmers are not farming for the stomach and can be able to engage in trade and boost their household incomes as we have been saying under the Parish Development Model recently rolled out by the Government,"

The 4 farm access roads are a part of the total of 29 farm access roads that will be constructed in 57 districts of Uganda where the Agriculture Cluster Development Project is currently hosted.

Eliminating these choke points is expected to improve inflow and outflow of agricultural inputs and technologies, access to extension services and reduce transport costs.



# Good Practices for establishment of a Cashewnut farm



One of the cashew nut farms established in Mityana District.

Cashewnut (Anacardium occidentale.L) is a tropical evergreen perennial and drought tolerant tree crop. It thrives well in deep friable sandy loam or loam soils with average PH levels of 6.5 and 7.5. The crop prefers a temperature range of 24 to 40 degrees Celsius and annual rainfall of 800-1,600mm. Cashew trees can resist drought conditions up to 7 months.

Cashew nut is a viable enterprise for household income generation and wealth creation. A farmer can earn a net profit of Ushs. 26Million from the 5<sup>th</sup> year from sales of Raw Nuts and Apples in one acre of Cashew investment.

#### Industrial/other economic benefits;

Cashew shells: For Shell oil used in many ways including lubricant in high heat producing engines, brake lining, as vanishes. Cosmetics and medicinal products due to its anti-fungal properties, water-proof papers, typewriter rolls, industrial flooring tiles, making paints, inks, polishers, production of plastics, anti-termite agent, when compacted is used for making ceiling boards, top boards, brake pads and briquettes.

Apples; used for making juice, dry chips, vinegar, wine, jams, sauce as appetizer and livestock feeds, residues provide a good source of organic fertilizer. Kernels: Used Cashew nut is a viable enterprise for household income generation and wealth creation. A farmer can earn a net profit of **Ushs. 26Million** from the 5th year...

for making cashew nut milk, Chocolate, Cashew nut butter, cakes, biscuits, Ice cream and Cheese. Cashew nut leaves are medicinal for treating stomach pain and cough and Cashew bark; gums and inks. **Environmentally;** Cashew trees are evergreen and helps to negate environmental hazards and carbon sequencing due to its perennial nature.

#### **Health Benefits**

Cashew nut offers a number of nutritional, Industrial, economic and environmental importance; **Nutritionally**, Raw nuts and apples provide a valuable source of proteins and cholesterol free carbohydrates, Micro nutrients and vitamins e.g Iron, Manganese, Copper, Zinc and Vitamin C content is superior than most of the fruits.

# Agronomic Practices required

- Planting materials
- Cashew is propagated from seeds or seedlings and clones or grafts.
- The seed should be obtained from improved varieties of selected elite types from a recognized research organization or a certified seed company.
- The seed should be raised into seedlings for better field survival.
- The varieties currently being promoted in Uganda include; AC10, AC28, AC4, AZA17 and AZA2.
- However, AC4, AZA17 and AZA2 offers the best yield performances.
- The yield performance of these varieties varies per variety; AC4 -67 kgs/ tree/year after 6 year, AZA 17-64kgs/tree/year, AZA2 -54kgs/tree/year, AC10 -52kgs/tree and AC42- 42kgs/tree/yr.

# Site selection and Land preparation

- When selecting the site, one must ensure that the area selected is characterized by; Sandy, loose loam and red soils.
- The area should be fairly flat but not very steep, or hilly areas.

- Avoid planting Cashew in areas with hard pan or rocky, water logged or swampy.
- Field layout (Spacing, Pegging and Pitting).
- Mark the field by pegging in lines and provide a space for wind breakers. Winders



breakers should be about 12 meters away from Cashew trees.

- Mark the planting holes as desired and dig the holes at a spacing of 8 meters by 8 meters, 10 meters by 10 meters and 12 meters by 12 meters
- The plant population vary at different spacing

i.e 63 trees/acre at 8mx8m, 40 trees/acre when spaced at 10m x10m, and 27 trees when spaced at 12mx12m.

- Dig the planting holes measuring 60cm by 60cm by 60cm (or 2ft by 2ft by 2ft).
- Planting
- Plant in line at the onset of rains when there is good saturation of soil moisture.
- Before planting, refill the planting hole with good manure and soil mix at a rate of 2 parts of soil and 1 part of manure or fertilizer mix at a rate of 15g per hole in case of need.
- Remove the polythene bags carefully without detaching the soil from seedling.
- Plant the seedling directly in the center of the hole where the peg was placed.
- This will allow faster development of roots and healthy growth.

#### Fertilizer application

- Fertilizer or Manure is required after establishment to boost the plant growth and yields.
- This can be foliar, granular or compost manure applied to plant or soils around the canopy.

- Animal manure and compost are the most desired for Cashew production.
- However, if manure is not available inorganic fertilizers can be applied such as DAP (Diammonium Phosphate, CAN (Calcium ammonium nitrate) and Potassium Sulphate.
- Always conduct soil testing before applying fertilizer.

#### Pruning

De-suckering should be done continuously in year one until the tree is 1 m high usually for grafted plants.

Pruning starts after the 1<sup>st</sup> year of establishment and its required to improve the crop hygiene, sanitation and productivity.

Remove all branches below 1 meter and train the horizontal/downward curving branches using pegs to enable upward growth.

Remove undesirable horizontal branches to avoid future damages to the crop due to wind.

Remove all dry/dead branches, interlocked branches to improve light penetration and attaining desired canopy shape.

#### Pest and disease control

- The most notable insect pests for Cashew are the Cashew bugs (Helopelitis anacardii) that suck sap from the leaves and from the young cashew fruits.
- Other insect pests include Stem borers, Thrips, Meally bugs, Weevils, Caterpillars and leaf miners.
- Diseases include Anthracnose, powdery mildew and dieback are the most dangerous in cashew fields.
- Always use recommended chemicals for pests and disease control such as use of use of Synthetic Pyrethoroid (Karate) and Profenofos (Selectron) for pest control; Copper based fungicides, Mancozeb for control of fungal infections in the orchard.

 Harvesting and Postharvest handling

- Cashews are usually ready for harvest at one half (1 ½) to two (2) years after transplanting of seedlings or six to nine months for grafted seedlings.
- Cashew nuts are harvested when they are mature and fall down.

- For good quality Nuts, clear the area beneath the tree, collect fallen fruits, detach the nut from the apple and dry the nuts under the shade. This improves the quality of the kernel.
- Do not leave the remains of the apple on the nuts when detaching the nuts from the apple.
- Avoid beating or stoning during harvest as this will destroy the nuts, apples, immature fruits and flowers.
- Avoid shaking the tree during harvest as this will damage the plant, fruits and flowers.
- Harvesting Nuts should be done daily if it is wet season and within three days during dry season. This prevent germination and deterioration due to fungal infection.

#### Drying

- Dry the nuts on Tauplins or Concrete platform after harvest to avoid contamination by fungal diseases such as Aflatoxins.
- Preferably the nuts should be dried under shade not under direct sunlight for about 7 days.
- During drying, clean the remains of apples

from the nuts and any residues that might attract low quality.

- Bag the nuts in Jute or Sisal bags only. This allows aeration and avoids scorching of nuts.
- No polythene should be used for bagging the nuts as they encourage scorching of nuts and kernels.

#### Storage at farmer level

- Package in 80kgs jute bags.
- Store in a cool well-ventilated place above the ground and a well -spaced from the wall.

#### Storage at Processing level

- Store the Nuts should be bagged in 80kgs jute bags.
- The bags should be stored in well ventilated storage facility.
- The bags should be placed on pallets above the ground but not on the floor and at least 1meters to 1.5 meters away from the wall.
- Do not stack more than 10 bags together during storage.

#### Sorting and Grading

- Remove premature, damage and wrinkled nuts.
- Remove foreign matter like stones from the nuts.
- Grade according to the size and Nut count in kilograms.
- Examples international markets prefer 170-180 raw nuts/kg is considered excellent, 181-190 raw nuts/kg as very good, 191-201 nuts/kg is good, 201-210 nuts/kgs medium/moderate, 211- 220nuts/ kgs low medium, 221- 230 nuts/kg as poor.

 Initial Uganda raw nuts had 200- 300 nuts/kgs.

#### Packaging of Kernels

- Packaging done using polythene or Cans/Tins.
- Use Vacuum sealer for packaging of kernels.
- Pack using recommended preservatives for long term storage.

#### Labelling

- Labelling will depend on the entrepreneur and the product.
- Must be certified product by UNBS.



# **Dodder Weed Control:** How to get rid of the Plant?



Some of the gardens covered by dodder weed in Eastern Uganda

The Golden Dodder (Cascuta campestris) weed is an invasive leafless parasitic plant in the morning glory family; native to the Americas and was first observed in Uganda in 1963. It is believed to have been introduced through international crop trade. It has been observed in cassava, mangoes, citrus, coffee, avocado and omamental trees in cities and towns among others. Golden dodder can cause a substantial reduction to crop yield by up to 100%. It is currently a major threat Biodiversity.

#### How does Golden Dodder Spread?

Long distance spread is primarily through contaminated crop seed. However, the weed is also spread by humans who use its attractive flowers in nurseries and home garden; farm tools and equipment are also important in moving dodder from infested fields to now infested fields. Grazing farm animals and running water move pieces and/or seed of the dodder from infested to now infested areas.

# Symptoms of Golden dodder infestations

Golden dodder damage is often seen from the twining yellowing stems and tendrils around the host plant. Symptoms of damage are reflected in a powerful sync created by haustoria which results into reduced host plant vigor, poor seed set and fruit development. The intensive twining and severe infestation suffocated the host plant and eventually killing it. The weed has distinct appearance consisting of mainly leafless yellow to

orange twining stems and tendrils.

# Prevention of dodder weeded infestation

Avoid instruction of golden dodder as flowers in nurseries and home gardens or any other use.

Avoid transport and movement of vegetative parts of golden dodder plants from one place to another.

Stop movement of golden dodder into new places by avoiding movement of the weed infested plants or plant parts.

Clean thoroughly all farm tools and equipment used in garden dodder infested fields before using them in new areas.

Use clean planting materials that are not contaminated with golden dodder plantlets, seeds or roots.

Golden dodder weed like any other invasive species requires community vigilance for timely reporting and action by manual removal or destruction.

#### Control measures for Dodder infested fields

Remove the dodder infestation and destroy it by burning or deep burying before onset of seed formation. Collect all dodder fragments thrown on other vegetation and destroy them by burning or burying (60cm deep).

Golden dodder plants usually regenerate from roots left inside portions or parts of the host plant below the point on attachment.

Regularly weed the infested areas to get rid of the golden dodder before it attaches to host plants. It also helps to get rid of weeds which are alternate host of golden dodder. Encourage community participation in manual removal and destruction of dodder plants by burning or burying 60 cm deep.

Spot application of 2-4 D or Glyphosate herbicides on young dodder seedlings or other vegetation infested with dodder weed. Apply only when you are to loose the host plant.

**NB:** When handling pesticides, always wear protective clothing and always follow instructions on the product label.



# Parish Development Model (PDM) will ride on Mechanisation of Agriculture Agenda to enhance Agricultural competitiveness and output

Steadily championing and investing in mechanisation of agriculture for enhanced competitiveness, production, and productivity in the quest for socio-economic transformation. Hon. Minister of state of Agriculture, Fred **Kyagula Bwino** 

Why are we seeing this policy shift towards mechanisation, recently a lot of emphasis on mechanisation and Agriindustrialisation.

Yes, you cannot talk of meaningful agriculture without mechanisation and Agri-industrialisation. This is the key component which drives agriculture anywhere in the world.

On the side of Government, Agriculture Industrialization requires a strategy and a multisectoral comprehensive policy recognizing the roles of each sector, Ministry, Department and Agency within the context of the Core Functions of Government (COFOG) and each one's contribution. The aim is to have adequate quantity and quality of commodities for processing and marketing domestically, regionally, and internationally. We are therefore refocusing on the entire agriculture value chain while putting emphasis on high value commodities. This will require well guided enterprise selection by farmers.

To promote adequate mechanisation and Agro industrialization, we need to find a policy mix. I am calling it a policy mix because I am aware that the Government under the NRM leadership has over the years come up with various policies and strategies to address most of the issues in Agriculture. What we are doing now is to refocus these to ensure that Uganda Agro-industrialization and agriculture sector in general is propelled to become the key engine leading us to the Middleincome status.

Government is rolling out the Parish Development Model, and MAAIF is a key implementer of the first pillar. How is Agro-Industrialisation linked to this model?

The first pillar of the Parish development Model hinges on production and productivity, post-harvest handling, processing, marketing, all in the value chain development.

The Parish Development Model supports the multi-sectoral framework in which agro-industrialization policy will clearly recognize the roles of the different agencies in as far as agricultural industrialization is concerned. The Ministry of Agriculture will continue its role in facilitating appropriate production and value addition technologies. The Ministry will also ensure that produce meant for industrialization is free from contamination and diseases. Most importantly, the Ministry will ensure that appropriate volumes

# required for agro processing are produced.

It is in here that farmer have been guided on enterprise selection. This is key in promoting high yields for crops and Animal that do well and have ready market. The PDM under the sector will focus on enabling farmer groups get involved in enterprises that will feed into the agro-industrialization agenda and commercial agriculture.

#### Most farmers are grappling with postharvest handling. Explain how agro industrialisation will mitigate this challenge.

Post-harvest handling is a major challenge affecting farmers and the general agricultural economy. It is estimated that farmers lose up to 60 per cent of their produce through post-handling challenges. As mentioned earlier, post-harvest handling is among the elements in the first pillar of the Parish Development Model. Under the framework of agriculture industrialisation, the farmer will be supported at each stage of the value chain with appropriate technology and equipment to manage their produce after harvest.

#### Could you elaborate more on the breakthrough in research and technology and how they link up with the PDM ?

Several interventions have been registered herein including new and old agricultural research and administrative facilities constructed or rehabilitated and equipped; and by 31st December 2021, research laboratories, demonstration facilities, mini-irrigation systems and offices were established and equipped at the NARO Institutes and ZARDIs.

More to that, four new rice varieties were released for farmer use; 18 new varieties were submitted to the NARO Variety Release Committee for release including eight rice lines and four maize lines.

A total of 85 technologies were generated and tested across the NARO Institutes and ZARDIS.

These new technologies have already influenced the eighteen (18) PDM enterprise selected to guide the farmer groups at parish level in their endeavour to take on commercial agriculture. Enterprise selection have been well researched and recommended to do well and their market availability. A lot of work has been done here. For instance at the National Livestock **Resources Research** Institute (NaLIRRI), three animal vaccination products were produced for Anti-Tick, Foot and Mouth Disease (FMD) and African swine fever; Research on the Foot and Mouth Disease (FMD) Vaccine underwent protocols to ensure safety of the product; Research was also ongoing on the treatment of African swine fever; Forage improvement experimental plots were established at NALIRRI to generate high yielding, drought resistant and highly nutritional fodder species for cattle.

We can't forget to mention that the National Crop Resources Institute (NaCRRI) in Namulonge undertook research to generate high yielding climate and disease tolerant varieties for rice, maize, beans cassava, yams, sweet potatoes, horticulture, and oil palm, among other commodities

NARL and the Agricultural Engineering and Appropriate Technology Research Centre popularized the use of Fish Smoking Kilns that reduce exposure to cancer causing agents; the kilns reduced working hours of smoking fish from 4 days to 12 hours.

# Contribution of Vegetable Oils towards Sustainable Development Goals

By Anthony William Wanyoto Communications & Knowledge Management, National Oil Palm Project

Agriculture by its nature links directly to food security and nutrition; health and education; rural development and the environment. It relates to many Sustainable Development Goals (SDGs) of the United Nations (UN). In this article, we intend to illustrate how/whether different types of vegetable oils—products of agriculture—can contribute to achievement of different SDGs.

Vegetable oils are a major element in the global food systems; an important economic commodity internationally, and at various national levels. Since 1980, the global use of vegetable oils has increased across a diversity of industries and consumer segments, leading to increased economic activity. The industry provides jobs and livelihoods to hundreds of millions of people across the globe, thereby making a significant contribution to the economic welfare of many countries.

Growth in vegetable oils' production as a consequence of rising demand, has attracted a lot of attention and action. On the positive side, it has led to higher incomes, generated employment, and reduced poverty among farm as well as non-farm households.

The UN has been playing a pivotal role in the growth of humankind, by ensuring a basic level of food, health, and security to everyone, while working for environmental conservation and sustainable development. The SDGs were adopted by the UN in Paris in 2015, to produce a set of universal goals that could meet the urgent environmental, political, and economic challenges facing the world, "Leaving no one behind". Examples and experiences of different countries show that while it is possible to make significant progress towards leaving no one behind in short periods, to achieve it in a true sense requires a complete transformation of strongly established deep-rooted economic and political systems and business models. Much of these are often based on unequal wealth distribution. To leave no country behind, there lies an inherent need to have transformative social policies that integrate universal and targeted actions.

To achieve the real objective of leaving no one behind, the international action must be supportive, financing development strategies of countries that lag, and ensuring that effective channels are in place working on global wealth distribution. The goal should be to have a system where equal distribution of income and development opportunities are provided at the international level.

The main intent of this article is to explore the: "The socio-economic aspects related to palm oil production and the achievement of sustainable development goals" to contribute to a more informed debate and outline the possible contribution of palm oil production to achieving the UN-SDGs. Key SDGs that I have used to measure the impact of palm oil include:

- SDG 1: No Poverty SDG 2: Zero Hunger
- SDG 3: Good Health & Well-being
- SDG 6: Clean Water and Sanitation
- SDG 7: Affordable and Clean Energy
- SDG 8: Decent work and Economic Growth
- SDG 12: Responsible Consumption and Production
- SDG 13: Climate Action
- SDG 15: Life on Land

SDGs were designed to think, assess, and act on creating a more inclusive, equitable, prosperous, and sustainable future. They primarily focus on the 5 Ps: People, Planet, Partnerships, Prosperity, and Peace. The objective is to eradicate extreme poverty, ensure sustainability, and make the earth a healthy better place for everyone, irrespective of financial status.

The Kalangala Local Economy-Wide Impact Evaluation (LEWIE) was designed to evaluate the impact of oil palm production on incomes, welfare, production activities of project beneficiaries (oil palm farmer households) as well as non-beneficiaries in Kalangala district. The LEWIE was led by Prof. Edward Taylor of University of California, Davis, who worked with a team from the Ministry of Agriculture, Animal Industry and Fisheries and completed in October 2017. Below is a summary of the findings:

1. Per capita income: The per-capita expenditures of both permanent residents (both oil palm farmers and non-oil palm farmers) and workers in the estates (both nucleus and smallholder) exceed the average per capita income of Uganda. Kalangala residents were found to earn approximately UGX 3.3 million (USD 908), the worker households' expenditure was UGX 2.8 million (USD 778) while the average per capita GDP for Uganda was USD 615.3 in 2016.

2. Business formation: There has been an evident increase in the establishment of businesses in Kalangala. The study found that 20% of all oil palm households operate at least one small business in Kalangala while 50% of non-oil palm farmers operate at least one business in Kalangala. The average age of the businesses was 5.2 years and business formation increased after 2007 and especially after 2010, when oil palm harvesting started in Kalangala.

3. Impact of additional acreage of oil palm: A 1 acre expansion of oil palm increases the total real income earned in Kalangala to UGX 1.93 million annually. The additional acre also increases employment in oil palm by approximately 31 additional worker days. The largest income gain is to the oil palm producing households whose real income raises by UGX 1.02 million per additional acre of oil palm. The findings showed that the real income in households that do not cultivate oil palm increases by UGX 800,000 and oil palm worker households by UGX 110,000. The additional acre also increases retail sales in Kalangala by UGX 660,000 and expands non-agricultural production by UGX 490,000.

The study also showed that a 1% increase in mature oil palm acreage (equivalent to 108.7 additional acres of mature oil palm) increased the real income in Kalangala by UGX 210 million.

4. Impact of the change in price for oil palm fresh fruit bunches: The findings showed that a 1% price increase raises the value of oil palm fruit production by UGX 187.5 million. This results in a UGX 410 million real income increase in Kalangala. The study showed that the price increase stimulates production in all sectors except fish. The retail sales rise by UGX 141 million while crop and livestock production increase by UGX 15 million and 14 million respectively, and other production in Kalangala increases by UGX 105 million.

5. Impact of increased productivity on oil palm plantations: The study found that a 10% increase in oil palm productivity for smallholder farmers raises real income in Kalangala by UGX 4.3 billion shillings with UGX 1.8 billion being gained by non-oil palm producing households and UGX 2.2 billion shillings being gained by oil palm farming households. Households of the oil palm laborers also benefit from higher productivity on the oil palm plantations with a real income of UGX 225 million.

The LEWIE findings revealed the importance of oil palm cultivation not only for oil palm farmers but also for the Kalangala economy as a whole. First of all, as oil palm acreage expands, the farmers' demand for labor and other inputs also increases, and payments to the oil palm laborers spreads benefits to their households.

As profits increase in oil palm farmer households and wages rise in laborers' households, these households' expenditures on goods and services supplied by other households and businesses in Kalangala increase.

Market linkages spread the benefits of oil palm production through the entire

Kalangala economy. The study reveals how the Kalangala economy has grown in tandem with oil palm expansion, and why there is a high correlation between acreage in oil palm and new business formation.

Government of Uganda is expanding Oil Palm growing to Buvuma, Mayuge, Bugiri, Namayingo, Mukono, Buikwe, Masaka, Kalungu, Rakai and Kyotera Districts inclusively and sustainably. "If there is no oil palm, then there will be no SDGs"

#### **GOOD PRACTICES IN FIGHTING AFLATOXINS**

Aflatoxins are a family of toxins produced by certain fungi that are found on agricultural crops such as maize (corn), peanuts, cotton seed, and tree nuts. The main fungi that produce aflatoxins are Aspergillus flavus and Aspergillus parasitic, which are abundant in warm and humid regions of the world. Aflatoxin-producing fungi can contaminate crops in the field, at harvest, and during storage.

Aflatoxins have been reported to affect the various body organs like the liver, kidneys, lungs, brain, testes and many endocrine and exocrine organs, the heart, skeletal muscles and the different body systems.

#### What should farmers do to avoid aflatoxins?

#### **Good Practices**

- If shelling has been done in the field, further dry the grains.
- Use appropriate shelling methods such as motorized shellers to avoid breakage
- Dry produce off bare ground using clean materials such black drying sheet materials or cemented floors.
- Winnow and sort all the damaged, shriveled, diseased grains and foreign material.
- Dry crops using faster drying technologies.
- Check crop dryness using the salt method or moisture meter.

#### Bad practices to avoid

- Do not store produce before further drying.
- Do not shell produce by beating or trampling.
- Do not dry produce on bare ground.
- Do not dry produce on the road or tarmac to avoid contamination with dust and vehicle fumes and oils.
- Do not dry good grain with bad grain.
- Do not allow produce to be wetted and soaked by rain.



P.O Box 102 Entebbe - Plot 16-18, Lugard Avenue - Entebbe, Uganda.

Email: info@agriculture.go.ug Tel: 041 4320004

Designed, Printed and Published by; -



