

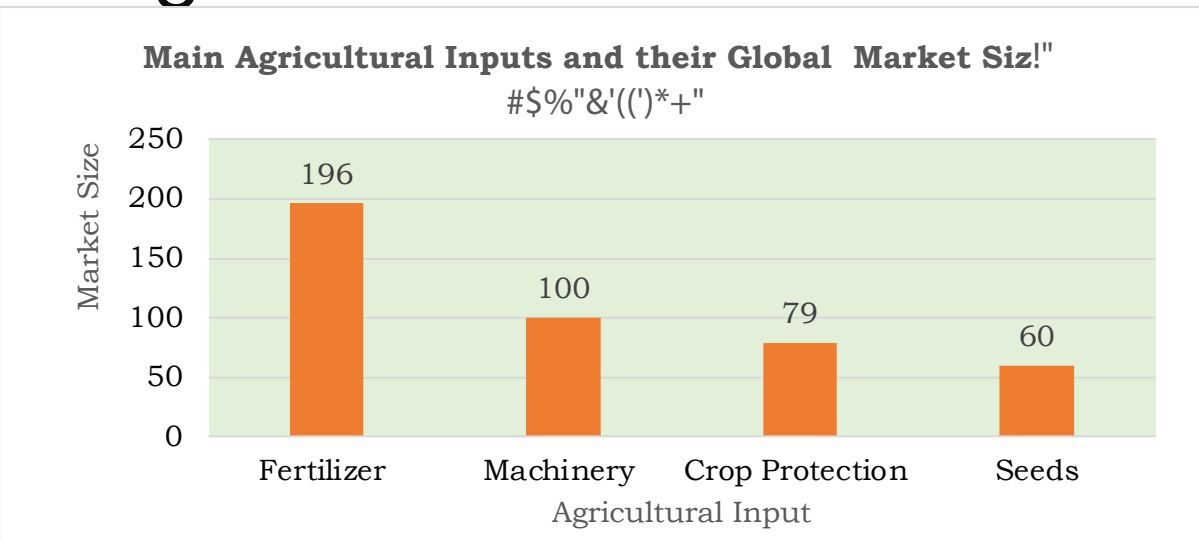
Seed and Agro-Input Industry Profile

1.0 Introduction

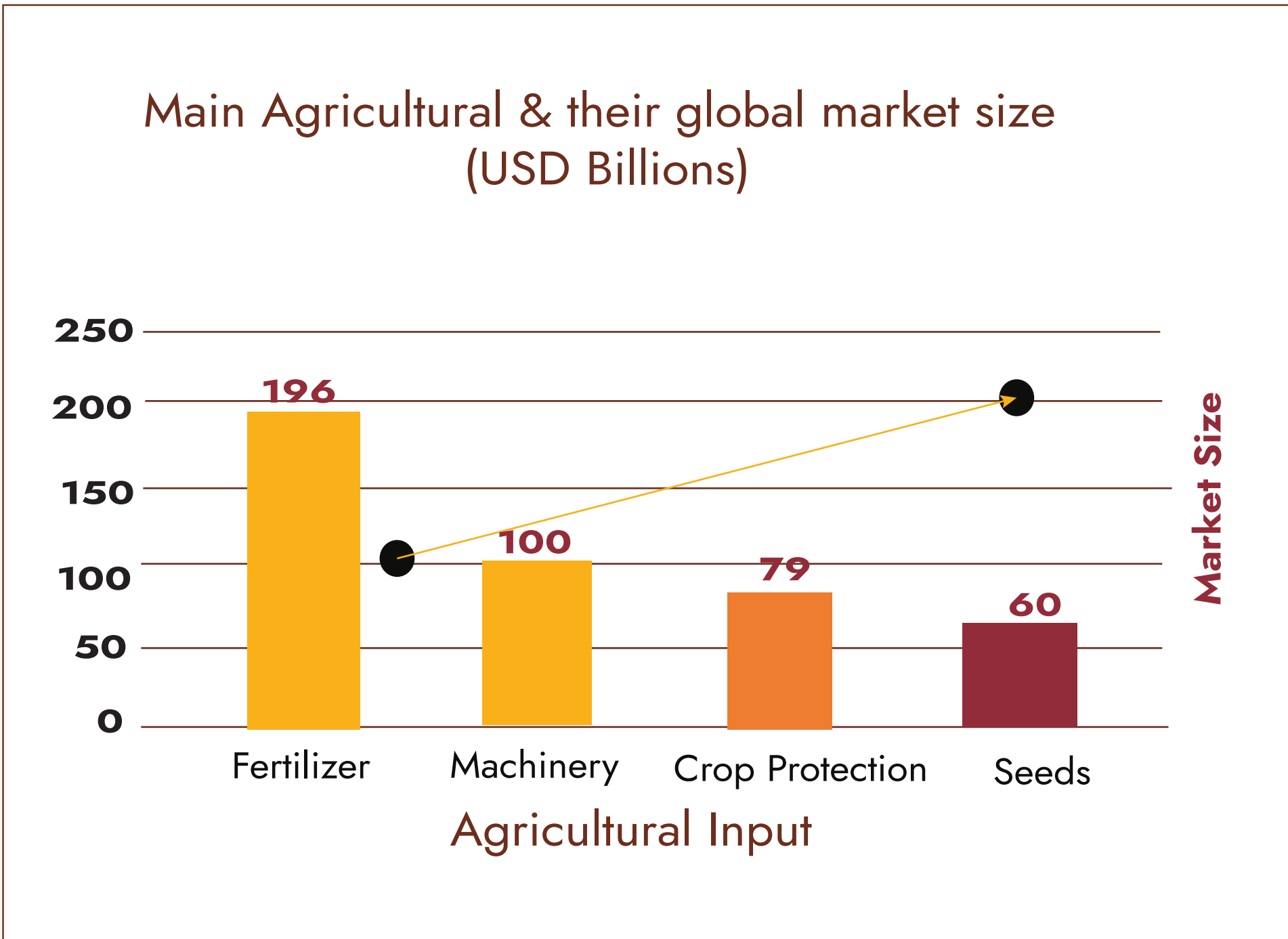
The fourth National Development Plan started implementation of the export oriented Ten-fold Growth Strategy of Government to transform Uganda into a **US\$ 50 billion** middle-income economy.

Agricultural production acreage expansion but declining largely due to lack of inputs. Therefore, a competitive seed and agro-inputs industry is expected to enhance the use of quality agricultural inputs to increase productivity, production and by extension the export competitiveness for Uganda.

This profile summarizes statistical insights on the status of seed and agro-input distribution system in Uganda and the issues pertaining to competitiveness.



c) The global pesticide industry market was valued at **USD 79 billion** in 2023 and will grow to **USD 97 billion** by 2032.



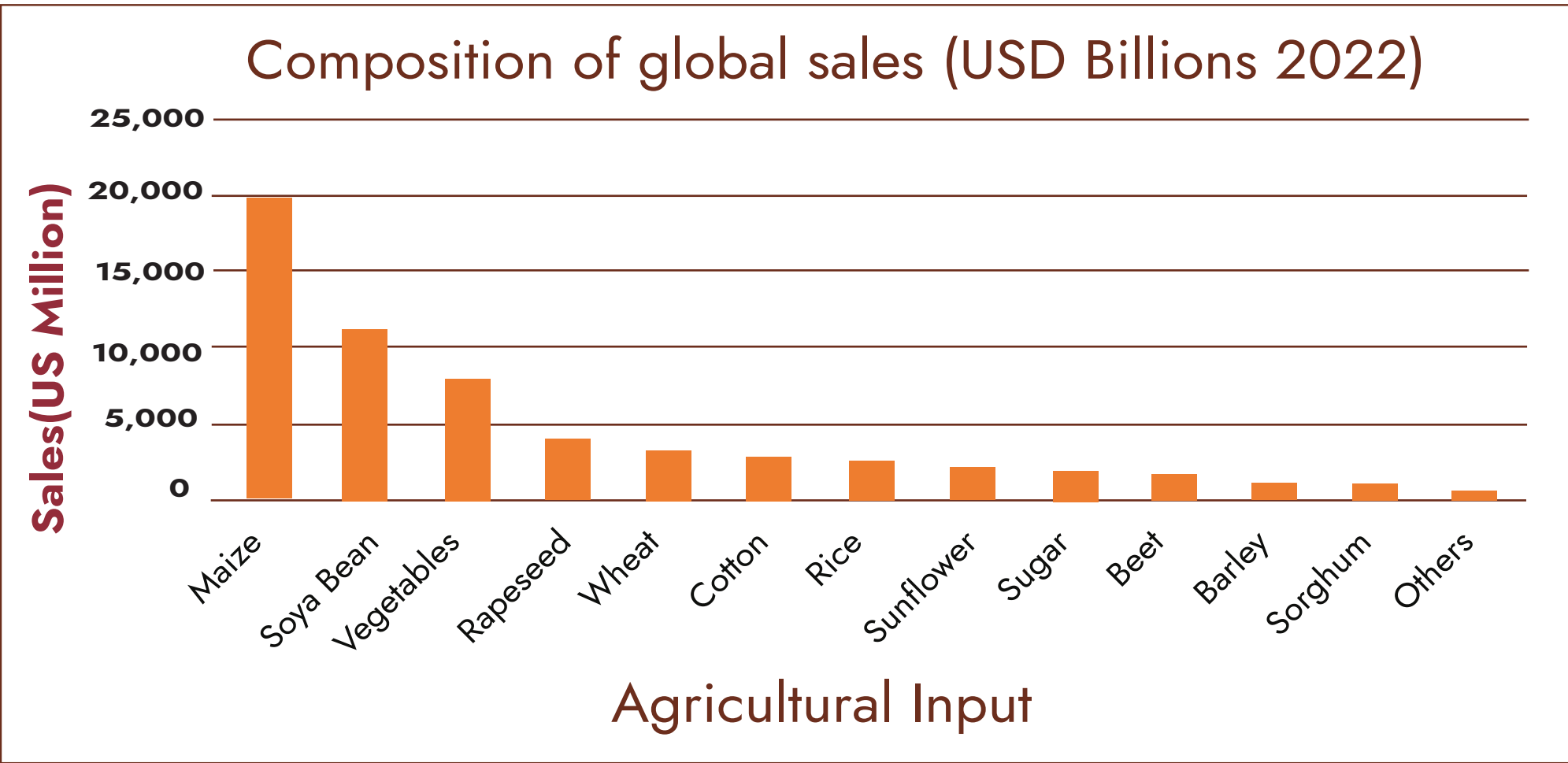
Seed is considered the single most important and foundational agricultural input because it carries the genetic potential of the crop, determining the upper limit of productivity for all other inputs, such as fertilizer, pesticide and machinery including irrigation. The Global seed market segmentation is by:

2.0 Global Seed and Agrochemical Industry.

The Industry is generally divided into main agricultural inputs including seed, pesticides, fertilizers and machinery including irrigation;

- a) The global seed market is valued **USD 60.65 billion** in 2024 and expected to grow **USD 91.68 billion** by 2032.
- b) The global fertilizer industry market was valued at **USD 196 billion** in 2023 and is projected to grow to **USD 250 billion** by 2032.

- a) Breeding technology which primarily divides seed markets into conventional seeds (Hybrids, Open-Pollinated Varieties and Hybrid) and Genetically Modified seed that account for over **50%** of the global seed trade and the rest is conventional seed trade.
- b) By type of crop which divides seed market into maize, soy bean, vegetables, rape seed wheat, cotton, rice as shown in table below;



3.0 Comparison of Fertilizer and Pesticide Use in Agricultural Production.

Global consumption of fertilizer is estimated at **187 million metric tons** while Africa fertilizer consumption is at **4 million tons** representing **2%** of global fertilizer consumption.

Global agricultural use of pesticides is estimated at **3.7 million tons** (use per area is **2.26 kg** per hectare of cropland) while Africa agricultural use of pesticides is estimated at **100,000 tones** which is **3%** of global consumption and lowest in the world.

Country	Fertilizer Usage (Kg/Ha)	Pesticide Usage (KG/Ha)
Global	119	2.3
Africa	26	0.7
Egypt	414	2.3
Kenya	55	0.7
Rwanda	20	1.3
Tanzania	8	
Uganda	2	0.7

4.0 Policy, Legal, Regulatory and the Institutional Framework for Agricultural inputs in Uganda.

Uganda made considerable progress in developing institutional and policy framework for regulation of seed and agricultural inputs. These include;

- a) National Seed Policy 2014 and the National Seed Strategy 2018 developed to guide implementation of the policy.
- b) The Seeds and Plant Act, 2006.
- c) The Seed and Plant Regulations, 2017.
- d) The Seed and Plant Regulations (Quality Declared Seed), 2020.
- e) The Plant Variety Protection Act, 2014.
- f) Fertilizer Policy
- g) The Plant Variety Protection Regulations (in its final stages)
- h) The Agricultural Chemicals Control Act (Amendment) 2024
- i) The Agricultural Chemicals (Registration and Control) Regulations
- j) The Plant Protection and Health Act, 2015

5.0 The Seed and Agricultural in-put Industry in Uganda

The industry is divided into main agricultural inputs including seed, pesticides, fertilizers and machinery including irrigation equipment. The Uganda Seed Market is estimated at **USD8.5 million** in 2025 and projected to grow **USD10.59 million** by 2030.

5.1. Seed Systems in Uganda.

There are two systems through which seed is produced and distributed to farmers in Uganda. These include the;

- a) Formal
- b) Informal system.

Informal System.	Formal System.
Makes up 85% of seed planted by farmers in Uganda.	Makes up 15% of seed planted by farmers in Uganda.
Consists of farm-saved seed from previous farming seasons.	Consists of seed varieties researched and produced by NARO. Consists of imported seed regulated by MAAIF.
Leverages community-based seed multiplication and dissemination.	Leverages structured system of variety development, release, multiplication, quality control, distribution, and marketing.
Consists of mostly self-pollinated crops such as rice, millet, cowpeas, groundnuts and green grams and vegetative propagated crops such as Irish potato, sweet potatoes, cassava, bananas and various tropical fruit trees	Consists of mainly hybrids and open pollinated crops like maize, sunflower and sorghum. self-pollinated crops like rice, beans and soybean.
Access to seeds is through unregulated community seed exchange system. Not certified seed.	Access to seeds is through regulated system put in place by MAAIF and other agencies. Certified seed.
The major players are the local farmers themselves, local business groups who are not regulated or licensed	The major players are Government, (international and national researchers). Private sector (seed companies, member associations, development agencies, community-based organizations and farmer cooperatives).

5.2 Seed Flow in the Formal Systems

The national agro input delivery system in Uganda is private sector-led and structured in a way that links national and multinational seed companies to small-holder farmers through a network of local agro-input dealers. The national input dealers are primarily seed companies who supply local agro-input dealers supplying small vendors, farmers and farmer groups.

Seed players in the formal system.

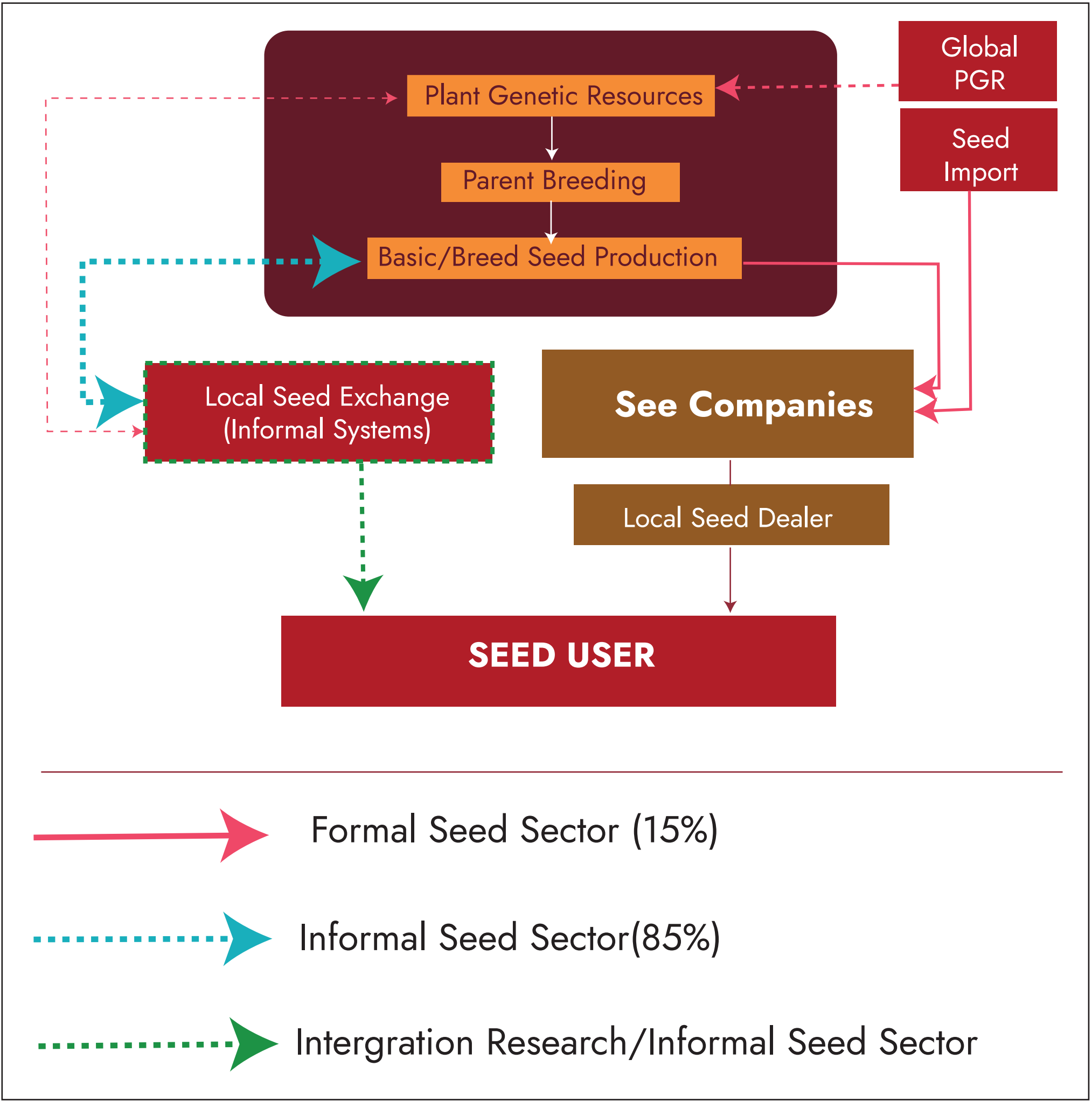
This makes up the formal seed system whose supply chain involves a range of value chain players including seed breeders, multiplication companies/seed companies, international traders/importers, distributors and finally the farmer;

Informal System.	Formal System.
Seed Breeders	They include NARO and Makerere University that conduct research to produce foundation seed for multiplication. Quantities of foundation seed produced are informed by the demand registered with seed multipliers who are seed companies. NARO is therefore the source of foundation (basic) seed of new varieties in the country although with limited capacity to produce adequate quantities of Basic seed for multiplication. This is done through the 7 National Agricultural Research Institutes and 9 Zonal Agricultural Research and Development Institutes that include: Makerere University contributes to soybean and cowpeas crop breeding and for some key cash and export crops produced on large-scale such as; -Oil palm, sugarcane, and tobacco, companies in the sector manage seed propagation. -Tea sub-sector has both smallholders with which Government to manages seed supply and large producers and estates who manage their own seed supply.
Seed Multiplication Firms.	They perform seed multiplication, conditioning and marketing. They acquire foundation seed from breeder's/research centres to plant on fields inspected by the NSCS to produce certified basic seed sold to farmers and other seed companies. Seed multipliers face limited access to basic seed due to Limited availability and inadequate breeder seed volumes hampering efficient functioning of the seed system largely due to funding challenges that breeding institutions face. The NSS proposes devolution of basic seed production to seed companies.
Seed Distributers/Wholesalers.	These buy certified and conditioned seed from the seed companies to distribute to all parts of farming communities. Seed distribution in Uganda is through the agro-input dealers regulated by MAAIF.

Seed user including farmers.

Farmers buy seed from retailers and distributors for planting. Farmer demand for seed is difficult to quantify in this system and seed supply is difficult to plan and not delivered in time.

5.3. The linkages between the two seed systems are shown in figure below



5.4. Seed System Constraints and Opportunities.

System	Constraints	Opportunities
Formal Systems	Official Seed, SQCC not fully functional	Seeds and Plant Act provides for Public-Private partnership (PPP) in SQCC
	Seed companies have limited skills in SQCC	PPP in SQCC provides for training of Seed Companies staff in quality control
Informal Systems.	No official seed and No SQCC.	New QDS seed class to formalize current informal seed production.
	NARO seed distribution to the informal system not optimally used.	Farmers motivated in learning and in establishing seed business within proximity of seed buyers.

5.5 Legal Seed Classes in Uganda.

The National Seed Policy (NSP) 2014 recognizes both the formal, informal and semi-formal seed systems which emphasizes production Quality Declared Seed (QDS) class to bridge the gap between formal and informal system for least 2/3 of farming households’ access either Certified Seed or Quality Declared Seed.

There are two legal seed classes recognized under the National Seed Policy 2014:

- a) Certified Seed
- b) Quality Declared Seed.

Class	Certified Seed	Quality Declared Seed
Definition	Seed which has been officially inspected, sampled and tested by NSCS, and approved as meeting the required standards.	Seed produced by registered producers (individual or farmer groups) from basic seed and meets the required standards.
Crops Covered.	Covers all crops under compulsory certification. Seed companies/merchants produce certified seed.	Crops for which certified seed is not available to farmers. LSBs produce QDS
Seed System	Formal	Semi-Formal
Status of Production (1,000mt)	20,000	
Annual Seed Use (1,000mt)	2,705,487	

5.6. Opportunities for New Seed Classes for Development of Integrated Seed Systems.

The high capacity of informal seed systems can be leveraged to lead to increasing use of certified seed, provided that informal systems are strengthened and linked with centralized seed certification. The development of such integrated seed systems requires technology adaptation, regulation, wise enforcement, and high institutional capacity.

In the current formal seed production system, basic seed is multiplied into C1 class which is certified seed first-generation (basic seed) sold to seed companies for multiplication. Currently between Basic seed and the seed used by farmers there is only one multiplication yet the current draft regulations allow for another multiplication to produce CII class of seed which is certified seed second generation to also be used to multiply seed to farmers.

The proposition under the NSS for devolution of basic seed production to seed companies is to produce the CII class of seed for Local Seed Business groups (LSBs) and enterprising farmers to produce seed.

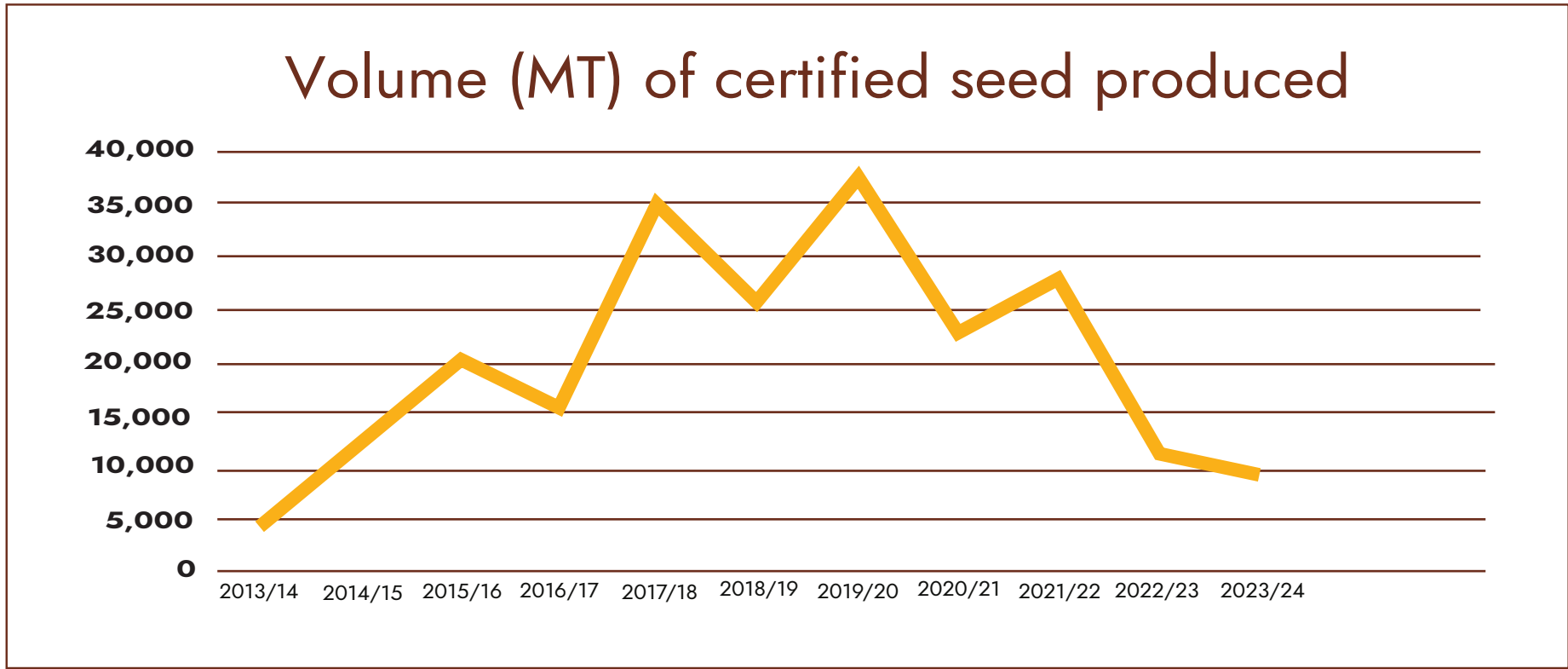
The strategy would reduce dependence on NARO for Basic seed needs by **95%** for a multiplication rate of **40kg** of basic need with the help of seed companies to produce basic seed to LSBs and would also enable leveraging the informal sector for supply of QDS seed.

Player	Basic-C	Basic-CI,CII & QDS	PRE-BASIC-CI CII AND QDS
NARO	1 kg basic seed	1 kg basic seed	1 kg basic seed
Seed Company	40 kg certified seed	1,600 kg CII	64,000kg CII
LSB	0	64,000 kg QDS	2,560,000 kg QDS
Seed User	40 kg quality controlled	64 mt Quality controlled	2,560 mt Quality controlled

5.7. Certified Seed Production .

The seed companies in the formal system produce approximately **25,859tons** using foundation seed provided by NARO. This is against an estimated annual seed use of **2,705,487tons**. The production accounts for only **15%** of the total seed needs in the country. On the other hand, the informal seed supply of home saved seed caters for **2,683,332tons**.





Source:MAAIF

7.0 Counterfeits and Fake Seed in the Formal System

Fake seed is defined to be a combination of expired certified seed, QDS that has been illegally purchased and re-packaged and grain that is cleaned, packed as seed. Fake, counterfeit, expired and poor-quality formal seed reduces overall yields and the potential for the uptake of improved varieties act as a disincentive to farmers purchasing certified seed from seed companies and agro dealers. The problem of fake seed is driven by several factors:

- a) Little quality assurance at the EGS level and questionable purity of EGS.
- b) Lack and inconsistent supply of adequate EGS volumes to commercial seed companies.
- c) Lack of standardized and well-implemented quality assurance processes.
- d) Sales of grain packaged as certified seed by unscrupulous dealers.

There have been attempts to reduce the levels of fake and counterfeit seed through labelling seed packs and training of additional private sector inspectors and digital labelling is being introduced in Uganda to enable seed quality verification system.

8.0 Situation Analysis of Seed Production in the Country

Estimated Annual Seed Needs in the country.	Seed produced by the Formal Seed System (NARO and Seed companies)		Seed produced by informal Seed System (home saved and recycled seed)	
	MT	%age	MT(1000)	%age
2,705,487	21,905	11.4	2,683,332	82.7

9.0 Marketing of Seed in Uganda

The Seed market is highly segmented by crop type, seed type, and distribution channel i.e., grains, cereals, pulses, oilseeds, vegetables, cotton, and other crops.

Uganda Formal Seed Exports

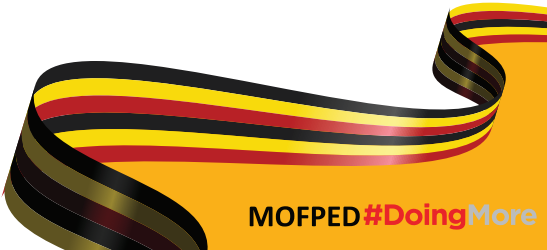
Crop	Total Amount Produced(MT)	Amount Exported(MT)	% of total Produced	Amount Imported(mt)
Maize	21,957	1,305	6	967
Beans	3,794	56	1.5	n/a
Sorghum	2,302	842	37	200
Finger Millet	29	4	13.8	n/a
Total	28,074	2,207	7.8	1,167

10.0 Uganda Formal Seed Imports

Crop	Volume (MT)			Origin
	2018	2019	2020	
Maize	515	1,497	1,060	RSA, Zimbabwe, Kenya, Tanzania. Zambia, Ghana.
Sorghum			13	Isreal and Kenya
Finger Millet				Isreal
Assorted vegetables		195	44	Netherlands, Denmark, south korea, mexico, USA, Chile, Italy, Dubai, South Africa and china

11.0 Conclusion

The current status of the seed and agro input sector is characterized by limited access to good quality seed and inputs and is a major constraint to adoption of improved varieties and use of yield-enhancing technologies for enhanced productivity. The system is further characterized by counterfeits which are a result of inadequate enforcement, inadequate legal framework and inadequate capacity of seed users to identify sub-standards products.



The current formal seed system is ineffective to ensure flow of quality seed to farmers.

There is need to

- a) *Strengthen the seed system to reach parish level with component to quantify demand for seed and agro-inputs at farmer level.*
- b) *Build capacity of breeders and multipliers to respond to spikes in demand for seed and inputs.*
- d) *Reducing the prevalence of fake seed requires reducing the demand for seed that is used for emergency direct seed distribution and replacing this with effective market-based emergency seed provisioning modalities based on actual demand rather than assumed needs of farmers.*

10.0 Uganda Formal Seed Imports

i The system has an incomplete distribution network which does not reach parish level, does not provide for estimation of demand for inputs at farmer level and further more facilitates some players and crops but does not function for crops such as coffee, sugarcane, and tobacco and tea whose seed distribution UCDA, CDO and private companies their own internal seed quality controls independent of NSCS.

Recommendation; MAAIF should leverage the existing system to build one that functions for all crops, players and further capture a component that will register demand for inputs at farmer level.

ii Inadequate enforcement of regulations due to limited number of inspectors.

Recommendation; MAAIF should explore leveraging UNBS and URA human resource capacity to regulate inflow of agro-inputs.

Recommendation; MAAIF should establish regional and zonal analytical labs to support tests at zonal level. This can be done by equipping the existing Zonal Agricultural Research and Development Institute labs.

iii Inadequate capacity of seed multipliers to respond proportionately to upsurge in demand for seed leaving a supply gap.

Recommendation; MAAIF should invest in enhancing the capacity of seed multipliers to respond proportionately to upsurge in demand for seed.

iv It is estimated, and broadly accepted, that counterfeit seed accounts for 30-40% of seed and agro-inputs sold in the formal system in Uganda.

Recommendation; Designate two border points to handle to handle import for agro-inputs.

v There are institution challenges for example; NARO is currently the sole source of foundation (Basic) seed of new varieties with support of Makerere University. However, lacks sufficient capacity to produce and supply adequate quantities of Basic seed due to; inadequate funding, limited seed breeding infrastructure, Recommendation; There is a need for a strategy on devolution of basic seed production to seed companies to increase production of foundation seed.



Seed Exports



Quality Seeds Farming

For inquiries, Contact;
Private Sector Development Unit (PSDU)
Email: psdu@finance.go.ug



MOFPED **#DoingMore**