

ASSESSMENT OF THE ABILITY OF FORMAL SEED COMPANIES TO PRODUCE AND DISTRIBUTE FORAGE SEEDS IN UGANDA

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The information below was obtained through a survey carried out by a face to face interview using a questionnaire that was prepared to analyze the forage seed production and supply system in Uganda. Out of the 9 formal seed companies that sell forage seeds, only 6 like Robran Holdings Ltd, NARO Holdings Ltd, National Tree seed Centre, Rhino seeds, Sim law seeds and East Africa Seeds participated in the survey. The other 3 like Victoria seeds, FORESCO Uganda and grow more seeds and Chemicals had technical and administrative constraints that hindered their participation.

Robran holdings ltd

Robran Holdings was established in 2015 with the support of funds from the World bank through the Competitive Grant Scheme (CGS) program of National Agricultural Research Organisation (NARO). It has 6 permanent and 10 temporary employees with over 12 acres of land at kabanyoro used to grow forage seeds and splits. The enterprise obtains its basic seed for multiplication from National Livestock Resource Research Institute (NALIRRI) but is constrained by the high prices of some of the seeds and limited quantities available. The enterprise produces and distributes various species of forage like *Bracharia (brizantha, ruziziensis, mulato)*, *Panicum maximum*, *Chloris gayana*, *Cenchrus ciliaris*, kikuyu grass, napier grass, lablab, gliricidiar, , leucaena, Sesbania, mucuna, and imported some like desmodium, alfalfa and calliandra from Kenya. Robran produces on average about 21 tonnes of seed per year which is purchased by mainly individual farmers together with cooperatives, government institutions like; Operation Wealth Creation (OWC) and NGOs like FAO and WHO. The company distributes seeds and splits in all the regions of Uganda and in neighboring countries like Ghana and Tanzania. However due to the limited stock and yet available market, the enterprise contracts about 10 farmers to grow seed which it later processes and sells to customers. These farmers are offered trainings in agronomic practices, quality assurance, seed and field management so as to ensure quality seeds.

During processing, the enterprise faces challenges like limited land, seasonal changes and lack of proper machinery for example for seed cleaning which is done using a sieve that is inefficient and drying which is done by sun drying. Marketing and advertising is done through exhibitions, media like televisions, interviews and web platforms. The seeds and splits are however not packaged because in case of an order, the seeds are usually delivered to the farmers who are helped to establish the pastures in their fields. This is because most farmers have limited knowledge on pasture growing and management. This however enables the company to keep good relations with the customers and meet their needs.

The demand for *Branchiaria mulato*, *Brachiaria. ruzizensis*, Desmodium, lablab, centrocema and mucuna has been increasing for the last three years because of increased demand, improved marketing, improved quality and increased awareness by the farmers. The static demand for, kikuyu grass and alfalfa is due to the low supply of the as a result of limited production. The fluctuating demand for *Branchiaria brizantha* is due to low demand and this is as a result of limited awareness about the variety. During seed marketing, the enterprise faces a challenge of poor infrastructure especially poor roads which make it difficult to access some areas where most of the farmers are found. *Table 3* under Annex indicates the types and amount of forages the company has distributes in the last three years while *table 4* indicates the selling prices.

This private company also ventures activities like farm planning, pasture management, pasture value addition and is yet to start processing animal feed like fattening meal and pellets, mineral blocks, dairy meal and calf pellets.

East Africa seeds

This is a private Kenyan based company has been dealing in forage seed for the last 5 years and has over 65 employees. It mainly deals in cereal and vegetable seeds and a few forage seeds like Lucerne (Alfalfa). The well packaged alfalfa seeds are imported from Kenya, and sold around Kampala in 250g, 500 g and 1kg quantities with 1kg being sold at a price of Ug shs 57,000 on retail. The enterprise has however put little effort in promoting forage seeds because of the low demand and production of improved forage by farmers in Uganda. The demand for alfalfa has been increasing at a slow rate, from 125kg sold in 2018 to 250kg sold so far in 2019. This can further be explained by the fact that most of the farmers practice on free grazing of cattle on natural pastures and a few practices stall feeding which would encourage them to grow improved forage.

The enterprise is willing to take on more pasture seed varieties incase of any suppliers who would want to use them in marketing the seed because they do not produce the forage seeds. Since the company only imports seeds, it faces no constraints in processing, seed production and government policies. The seeds are certified in Kenya by the Kenya plant Health Inspectorate Service before importation.

Simlaw seeds company

The company was established in 2002 and its head offices are in Kenya where all their forage seeds are imported and certified. The enterprise currently sells 3 types of grasses (Boma Rhodes sold at 45,000 per kg, sugar graze sold at 30,000 per kg, and Nutrifeed sold at 30,000) and 2 types of legumes (green and silver leaf desmodium sold at 160,000 per kg, and Lucerne) well packaged in polythene bags. Individual farmers make up 80% of the customers and the compaany distributes the seeds itself through outlets in different regions like; Nakivubo branch in kampala, Mbale branch, Kapchorwa and Masindi branch to ensure easy accessibility by the farmers. The company is challenged by competition from informal seed producers and low and unreliable demand.

Rhino seeds company

This company has been dealing in forage seed for the last 2 years and has over 13 permanent employees. It contracts over 200 farmers to grow seed, which it processes, packages and distributes. These farmers are given seed obtained from NARO, namulonge and they are trained in agronomy practices, seed selection, postharvest management and marketing. The company also produces some few seed varieties like desmodium on land provided by NARO. The forage seeds are produced in different areas like; Napier grass produced in Hoima, *Panicum maximum* and *Rhodes grass* from NARO, maize, sorghum, cowpeas from soroti and kumi, Green and silver leaf desmodium from Buzade, Lablab from Kibale, pigeon peas from soroti, hoima. Currently in 2019, the majority of the forage is still being grown and only 100mt of maize and 50mt of sorghum has been produced. The maize and sorghum are sold at Ug shs, 2300 per kg, cowpeas at Ug shs 4000 and pigeon peas at Ug shs 5800.

The company faces some challenges in obtaining the basic seed like high prices, limited quality available, lengthy period to obtain seed. During production it is constrained by lack of skilled farmers who produce the seeds, low and unreliable demand, pest and diseases and the changing weather conditions. The maize and sorghum seeds are packaged in polythene bags of 1 to 500 kg according to demand while cowpeas is in packaged in 2, 3, 5 and 10 kg. However the company is challenged by the expensive packaging material and lack of appropriate machines like sealers. The company distributes its own seed in the eastern, western, Northern and central regions and in south Sudan. 78% of the seed customers are individual farmers, 20% agro vet stockists and 2% are NGOs like FAO in south Sudan. During marketing, the company is constrained by low and unreliable demand, poor infrastructures like roads, long distances, and duplication of the company name and packaging seed by people who want to sell their own seeds. In order to avoid this, the company changes the seed package every one year.

Uganda tree seed centre

Uganda tree seed centre is a government organization under National Forestry Authority (NFA) and has been operating since 1992 to promoting growing of trees in Uganda. It employs about 17 permanent employees and over 75 temporary workers. The tree seed centre has well built standard infrastructures to collect, test, process, and store and distribute tree seeds and seedlings of many indigenous and exotic species. It have an equipped laboratory to test seed for quality assurance using International seed Testing Association (ISTA) guidelines and utilizes information from National Forestry Resource Research Institute (NAFORI) to supplement the organization's own research. The fodder seeds are purchased from farmers and seed collection areas like in Masaka and the processed seeds are sold to farmers, government institutes and NGOs. The contracted farmers are given training in nursery management and tree management practices. The seeds and seedlings are packaged in polythene bags of 100g up to 1kg. calliandra is sold at Ug shs 90,000 per kg, sesbania at Ug shs 50,000 per kg, and leuceana at Ug shs 50,000. In 2018, the company stocked over 300kg of sesbania and 500kg of calliandra.

The seeds are however not certified but the organization through the utilization of its lab facilities, it ensures that the farmers are given good quality seeds with at least 70% germination rate. The seeds are marketed all over Uganda by setting up seed beds in different areas accessible to the farmers. The only challenges faced in fodder seed and seedling marketing is competition from the informal seed producers.

NARO holdings ltd

This is a private company that has been operating since July 2016 as an independent sector in NARO, with about 5 permanent employees. It contracts over 10 farmers and 3 farmer groups to grow seed and offers them training in seed agronomy and quality management. The foundation seed is obtained from NARO but the company is constrained by the limited quantities available and this is due to the low breeding program in the country. During production the company is constrained by high labour demand, high cost of production, low yields that result in high selling costs, lack of appropriate machines like for cleaning and extraction which results in dirty seeds and low yields respectively.

The forage seed customers are mainly individual farmers, farmer groups, and government institutions like OWC and dairy cooperatives. During marketing the company encounters problems like; low and erratic demand due to lack of awareness of improved forages and poor market development. The seeds are sold at the station packaged in polythene bags where *chloris gayana* is sold at Ug shs 30,000 per kg, *cenchrus* at Ug shs 50,000, napier grass at Ug shs 25,000 per bag, *branchiaria spp*(*mulato*, *brizantha* and *ruziziensis*) at Ug shs 30,000, *centrocema* at 30,000, *siratro* at 30,000, *desmodium* at 40,000 and *lablab* at 25,000. The company supplements its own research with information from NARO manuals and it is tax exempted. The company is affected by the free seed distribution by government institutions like OWC that result in high dependence of the farmers which lowers their demand of the seeds. Apart from seed production, the organization also produces animal feed, and liquid nitrogen, imports and sells sexed semen, offers consultancy and extension services and is soon starting biogas production.

VARIETY RELEASE AND SEED CERTIFICATION IN UGANDA.

1. Variety release

Any new seed variety intended for importation or release in the country should be tested by the breeders for a minimum of three successive generations after applying to the National seed certification service. The National Variety release committee which meets at least twice a year reviews and maintains the national variety list and approves or rejects new variety release and entry of seeds into the seed multiplication programme. The committee consists of representatives from National Agricultural Research Organization, Ministry of trade and industry, National seed certification service, research stations and private seed dealers.

The released varieties are registered without pay and entered into the national variety list which is published annually specifying the variety name, year of release, owners, maintainer and seed source, optimal production altitude range, duration of maturity, grain yield and special attributes. For imported varieties, data from advanced yield trials are used as supportive evidence regarding the performance of a variety.

The National Seed and plant act of 2006 and the Seed and plant regulation (2010) were created to provide for the promotion, regulation and control of plant breeding and variety release, multiplication, conditioning, marketing, importing, exporting and quality assurance and certification of seed and other planting material.

2. Forage seed standards and certification

According to the Uganda National Seed policy (2018), the National Seed Certification Service (NSCS) under the department of crop inspection and certification through the Ministry of Agriculture Animal Industry and Fisheries (MAAIF) is mandated to regulate the formal seed system. The NSCS is responsible for the design, establishment and enforcement of certification standards, methods and procedures. The Agricultural Seeds and plant act 2006, defines certified seed as seed produced under a certified programme that is usually produced from registered seed. The quality assurance of the seed for certification focuses mainly on the purity, germination and moisture content of the seed which are analyzed in the national laboratories while the production of seeds includes assessment of the crop fields before harvest.

Subsection (10) of the Seed and plant act indicates that - only seed of approved varieties that meet standards established for domestic seed trade, comply with the importing country's requirements and are accompanied by a declaration of minimum certification standards on ISTA or domestic certifications and phytosanitary certificate, as provided in the plant protection Act is to be imported in Uganda.

Conclusion and Recommendation

Conclusion

With the poor nutrition of animals especially during the dry season, there is need to improve the quality and quantity of forage seeds in Uganda to boost the development of the dairy sector. The forage seed business is still growing in Uganda and has a lot of opportunities to be ventured. However this needs to be supported by the private and public sector to ensure that the business will not only be profitable to the seed dealers but also the seed users who are the farmers.

Recommendation

1. The government has to promote awareness of the different forage seeds varieties and inform farmers about the importance of using improved forage. This will increase market of the forage seeds and boosts dairy production in Uganda through improving animal nutrition.
2. There is need to create a platform that will bring together different private and public stakeholders to address the challenges and utilize opportunities in the forage seed sector to further promote its development. An association of formal and informal seed sellers can be created to effectively meet the needs in the sector.
3. There is need to improve the quality and quantity of the forage seeds in Uganda through implementation of the standards and the breeding program respectively.

ANNEXES

Table 1: Study contacts

Name	Position	Company	Tel.Number	Email
Brian Natwijuka	Executive director	Robran Holdings	+256789491350	briannatwi@gmail.com
H.C.V. Reddy	Managing Director	East Africa seeds	+256 772583783	redy@easeed.com
Kugonza Godfrey	Seed production manager	Rhino seeds	+256 702363165 +256702363163	info@rhinoseeds.net
Olivia Nansubuga	Sales Manager	Simlaw seeds	+256782323334	snkyeyune@gmail.com
Kakeeto Patrick	Seed management officer	Tree seed centre	+25678159433	mwodim@gmail.com
Muwanika Chris	Seed Manager	NARO holdings	+256 778737611	muwanika.chris@gmail.com

Table 2: Location of the companies that participated in the survey

Company Name	Location	Coordinates (Latitude,Longitude)
Simlaw Seeds	Industrial area, sixth street ,Kampala	0°19'01"N, 32°36'16"E
East African Seed (U) Ltd	Kampala district, Kawempe sub county	0°21'32"N, 32°33'43"E
Rhino Seeds Africa Ltd	Kampala district, Kawempe county, Kiyindi village	0°21'30"N, 32°33'44"E
Uganda National Tree Centre (NFA)	Wakiso district, Kiira county, Kazinga village	0°21'27"N, 32°40'53"E
NARO Holding Ltd	Wakiso district, Kyadondo North county, Nakyesasa village	0°30'59"N, 32°38'16"E
ROBRAN Holding Ltd	Wakiso district, Kyadondo North county, Kabanyoro village	0°27'54"N, 32°36'43"E

Table 3: Type and amount of forage sold by Robran Holdings ltd in the last three years

Forage types/variety	If producing, what amount of seed (kg) do you produce per year			If importing what amount of seed do you import per year (kg)		
	2017	2018	2019	2017	2018	2019
forage grasses						
1.Branchiaria brizantha	1.4 tn	2.6 tn	4.1 tn			
2. Branchiaria ruziziensis	0.8 tn	1.5 tn	2.3 tn			
3. Branchiaria Mulato	1.6 tn	3.4 tn	4.6 tn			
4. Chloris gayana	2 tn	3 tn	4.8 tn			
5. Cenchrus ciliaris	0.7 tn	1.3 tn	1.8 tn			
6. Kikuyu grass	0.7 tn	0.9 tn	1.1 tn			
7. Panicum maximum	1.9 tn	2.5 tn	3.0 tn			
8. Napier grass	3 tn	4.4 tn	5.3 tn			
Name of herbaceous legumes						
1.Silver leaf Desmodium	0	0	0	30	110	150
2. Green leaf Desmodium	0	0	0	50	150	190
3.Lablab	210	300	500			
4.alfalfa	90	187	240	90	187	240
5. Centrocema	290	430	600			
6. Mucuna	180	260	500			
Name of fodder trees and shrubs						
1.Calliandra	40	70	87	40	70	87
2. Gliricidia	0.8 tn	1.1 tn	1.2 tn			
3.Leucaena	0	50	120			
4.Sesbania	15	70	210			

Table 4: Robran Holdings current selling prices for forage seeds.

Forage type	Unit	Retail price	Wholesale price	Total seed sold (kg)
Name of forage grasses				
1.Branchiaria brizantha	A sac	35,000	35,000	2.8 tn
2. Branchiaria ruziziensis	A sac	35,000	35,000	1.8 tn
3. Branchiaria Mulato	A sac	35,000	35,000	3.2 tn
4. Chloris gayana	A kg	35,000	35,000	3.4 tn
5. Cenchrus ciliaris	A sac	45,000	45,000	0.83tn
6. Kikuyu grass	A sac	40,000	40,000	1.5 tn
7. Panicum maximum	A kg	30,000	30,000	0.6 tn
8. Napier grass	A sac	50,000	50,000	3.4 tn
Name of Herbaceous legumes				
1.Silver leaf Desmodium	A kg	180,000	150,000	40
2. Green leaf Desmodium	A kg	180,000	150,000	34
3.Lablab	A kg	40,000	40,000	120
4.alfalfa	A kg	120,000	120,000	80
5. Centrocema	A kg	40,000	40,000	0.4 tn
6. Mucuna	A kg	40,000	40,000	0.6 tn
Name of fodder trees				
1.Calliandra	A kg	140,000	130,000	60
2. Gliricidia	A sac	50,000	40,000	0.3 tn
3.Leucaena	A kg	80000		
4.Sesbania	A kg	60000		