

# Dutch Research Council (NWO) Feed and Forage Seed Business Model Project

## An evaluation of business models and pathways for commercial production and marketing of forage seeds in Uganda

Ronnie Ahumuza<sup>1</sup>, Tom van Mourik<sup>2</sup> and Ben Lukuyu<sup>1</sup>

<sup>1</sup> International Livestock Research Institute (ILRI), Uganda

<sup>2</sup> Royal Tropical Institute (KIT), Netherlands



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**KIT** Royal Tropical Institute


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Patron: Professor Peter C Doherty AC, FAA, FRS

Animal scientist, Nobel Prize Laureate for Physiology or Medicine—1996

Box 30709, Nairobi 00100 Kenya

Phone +254 20 422 3000

Fax +254 20 422 3001

Email [ilri-kenya@cgiar.org](mailto:ilri-kenya@cgiar.org)

[ilri.org](http://ilri.org)

better lives through livestock

ILRI is a CGIAR research centre

Box 5689, Addis Ababa, Ethiopia

Phone +251 11 617 2000

Fax +251 11 667 6923

Email [ilri-ethiopia@cgiar.org](mailto:ilri-ethiopia@cgiar.org)

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# Introduction

The Feed and Forage Seed Business Models Research Project is a Dutch Research Council (NWO)-funded applied research project being implemented in Kenya and Uganda. The project is led by the Royal Tropical Institute Netherlands (KIT) and a consortium of partners including the International Livestock Research Institute (ILRI) and the Alliance of Bioversity and the International Centre for Tropical Agriculture (CIAT) (ABC); the National Livestock Research and Resources Institute -Uganda (NaLIRRI), Advantage Crops Limited (ACL) and Barenbrug Africa.

The project aims to develop and promote viable business models for forage seed production and marketing to address the limitations faced by dairy farmers in the two countries, while increasing productivity and improving the quality of milk. This requires improved access and utilization of high-quality feed and forage seed through economically viable production, distribution, marketing and sales of planting material, and attention to quality assurance mechanisms used by different seed businesses.

Specific objectives of the project include:

1. analyzing the functioning and challenges in the forage seed sector and identifying opportunities for change,
2. identifying, assessing and implementing business models for commercially viable forage seed production of promising and highly demanded species, and
3. testing different forage seed promotion strategies.

## The forage seed business and sector workshops

As part of the efforts towards fulfilling the second objective, the project held national stakeholder workshops in Uganda and Kenya in November 2021. The workshops sought to draw contributions and experiences from both the farmers and their cooperatives; seed traders/companies; forage breeders; relevant government agencies involved in seed certification; respective ministries of agriculture and policymakers. The workshops also sought to explore and identify the opportunities and constraints in the forage and forage seed value chain through a diagnosis and validation exercise with key stakeholders in the dairy sectors in the two countries (see the workshop agenda in Annex 1).

In particular, the workshops updated stakeholders on the progress of project activities in both countries and addressed the following areas through presentations, guided group sessions and panel discussions:

1. The status of production, marketing and use of quality seeds and planting material of improved forage species and varieties.
2. Stakeholders and their activities related to access to quality seed for forage crops within the forage seed sector.
3. The different channels for promoting quality seed of improved forage crops/varieties and what are the experiences of users.



4. The different business models for importing, producing, distributing, and marketing of quality forage seed and their strengths, weaknesses, opportunities, threats and how these business models can be improved.
5. The current state of the policy regulatory framework for forage seed production and marketing. Can a harmonized variety registration under East African Community (EAC)/Common Market for Eastern and Southern Africa (COMESA) improve and facilitate registration by private seed companies and with that, increase varietal choice and uptake of forage crops?
6. The policy challenges and opportunities for import, production, distribution, and marketing of forage seeds and what changes are needed.
7. The priority improvements needed to address bottlenecks in the forage seed regulation framework to enhance forage seed production and marketing.

The Uganda workshop was held between 17–19 November 2021 in Masaka, with a field visit on the 18th of November. Participants included (participants' list Annex 2)

# Synthesis of the workshop in Masaka and field visit in Mbarara districts, Uganda, 17–19 November 2021

## Results and validation of forage seed sector assessments, mapping the value chains and assessing the business models

The meeting started with a welcome from the country representative of ILRI in Uganda, Ben Lukuyu, followed by introductory remarks from the NaLIRRI representative William Ntege. The meeting was officially opened by the representative of the Ministry of Agriculture Animal Industry and Fisheries (MAAIF), Deogratius Wonekha, who passed on regards from the Ministry of Agriculture and gave assurance of the ministry's support for the project.

Mona Dhamankar from KIT facilitated a short exercise for participants to interact in pairs to get to know a new colleague and introduce their counterpart to the group in plenary. Following the opening, KIT representative Tom van Mourik, coordinator of the NWO Forage Seed Business Model Project, gave a short introduction to the project, the meeting objectives, and tentative agenda, which was commented on and validated.



Participants at the workshop in Masaka (photo credit: Pamela Wairagala/ILRI).

## Findings from the Gendered Feed Assessment Tool (G-FEAST) assessments—Ben Lukuyu (ILRI)

The findings were based on focus group discussions (FGDs) in villages where different production systems i.e. improved intensive dairy production in the Central region (Wakiso and Mukono districts); improved extensive dairy production in Western Uganda (Mbarara and Kiruhura districts) and extensive cattle/dairy production in the cattle

corridor in the central region in Uganda are practiced. Key lessons from the findings were that (1) knowledge gaps limit adoption of forages within the different production systems and (2) there is an opportunity for scaling adoption by increasing awareness about production and use of forages and improving farmers' access to forage seeds and planting materials.

## Community forage seed use assessment—Kevin Maina (ILRI)

The assessment was based on findings from 50 villages within the three production systems (1) improved-intensive dairy systems in the Central region, (2) improved-extensive systems in Western Uganda, and (3) traditional extensive systems in Northwestern Uganda, which were also compared to the same assessment in two improved-intensive systems in Kenya (Meru and Kisii). Key messages from the community forage seed use assessment were that (1) adoption of improved forages is still low in Uganda, (2) compared to Kenya, Uganda has higher diversity of forage species and (3) most Ugandan farmers access seed as vegetative materials/splits.

### Group discussions

Three groups were then formed to discuss and provide feedback on the presentations, using the following guiding questions:

1. What important conclusions do you draw from the assessments?
2. What aspects are missing? What is your addition to what has been discussed?
3. Recommendations to take up the results and put them into practice.

The following were the key points from the discussion groups (see detailed feedback in Annex 3).

- The assessments presented focus on supply side – there is need for more detailed understanding of farmer's pasture and grazing management practices across regions and seasons and the demand for improved seed.
- There are indications of need for capacity building for forage extension and this should be supported with extension materials in local languages.
- The supply side needs to demonstrate value for money to different types of farmers—there might be need for more action research/farmer research.
- Improved forage seed is expensive; farmers need to be aware of how to recognize authentic seed/planting material.
- There is need to regulate the supply side.
- Explore locally available (low cost) varieties of grasses and legumes that can address seasonal deficit (quantity) and nutrition gaps across seasons – these should be mapped across regions.
- Explore how fodder conservation technologies can offset the gaps above.
- Forage extension falls between livestock/animal health and crop extension – there is need for structural changes.
- Overstocking of cattle is a challenge – how many cattle heads can the existing pastures support? How can the pastures be managed in a way that makes 'regeneration' possible?
- Conversion varies per production system and type of animal (genetic potential).
- What quality control measures can be put in place if/when farmers start multiplying seed/splits?
- Farmers' investment in forages depends on the returns – this is closely linked to milk markets.

## Business model canvas approach—Four business model cases for Uganda—Ronnie Ahumuza (ILRI)

The following four models and their promoters were presented;

1. Itungo pastures (farmers/farmer groups multiplying non-certified seed (vegetatively).
2. Kazo drylands (farmer group multiplying certified and/or quality declared seed (true seed).
3. NARO Holdings (local company/organization producing certified seed).
4. Tropical Seed – U-Farm (international company/local distributor).

The study and the format of the business model canvas has nine components, namely (1) value proposition, (2) customer segments, (3) key partners, (4) customer relationships, (5) key activities, (6) resources, (7) channels, (8) cost structure, (9) revenue streams.

Discussions were held using the following guiding questions on the business model cases and results are described in Annex 4.

1. What do you think is working well?
2. What do you think is not working well?
3. Suggest ways to improve the business model.
4. What are the strengths, weaknesses, opportunities and threats to each model?

A major conclusion was that improvement were needed focusing on the following areas; the overall business plan, increasing seed production, increasing/improving outreach, construction of infrastructure and access to finance.

## Field visit in Mbarara District



On 18 November 2021, the team that attended the workshop in Masaka travelled to Mbarara District for a farm visit to MMK Dairy Farm owned by Israel Rwambira. The farm produces dairy, feed and forage, pasture and is home to a feed and forage farmer field school.



1) A facilitator at the farmer field school briefing participants at the start of the field visit. 2) Field with improved forage variety of Kikuyu grass for grazing purposes. 3) Molly Allen and host, Israel Rwambira lead participants on a tour of the demonstration plots (photo credits: Ronnie Ahumuza/ILRI).

The participants toured the field demonstration and forage production plots. The guided tour was led by a farmer who is part of the farm school and Molly Allen from NaLIRRI. The demonstration plots have improved forage crops/ varieties of Panicum, Brachiaria hybrids, Chloris gayana, cowpea, turnip etc.) while the forage production plots have with sugar Napier, Pakchong Napier, Desmodium etc.) and a pasture plot with Kikuyu grass.

Demonstrations of using improved forage mixed with concentrate feed for dairy cows and production of silage (chopping of forage, mixing, fermenting in silage heaps) as well as making of bales for dry storage of forage were conducted. Participants commended the farmer for the work done on the farm and the lessons shared.



Top left; shredding pasture into forages; Top right; the host showcases some of the forages grown at the farm; bottom; demonstration of hay making (photo credits: Pamela Wairagala/ILRI and Sumaya Sadurni).

## KAP study findings, policies and regulations for the forage seed sector and promotion activities by the project and stakeholders in Uganda



4. Brachiaria hybrid “Sabia”. 5. Brachiaria hybrid ‘Cayman’. 6. Mona Dhamankar (KIT) showing improved Napier variety ‘Pakchong’ 7. Dairy cattle feeding on a mix of improved forage and concentrate 8. Silage production with improved forage (photo credits: Ronnie Ahumuza/ILRI).

## Promotion efforts for forage seed and early findings from KAP study–Molly Allen (NaLIRRI) and Mona Dhamankar (KIT)

Preliminary findings from a knowledge, attitudes and practices (KAP) study conducted among farmers that were reached via different promotion/dissemination channels were presented. Various promotion channels were used in this project and based on these, a KAP was conducted as follows; (1) farmer field schools (intensive, seven FGDs, field days (semi-intensive, two FGDs) and radio (extensive and control group, 10 FGDs).

Some key findings were that:

- Napier grass, sugar Napier, Caliandra, maize forage, Brachiaria and Rhodes grass were the most grown forages.
- The maximum number of forage species/varieties mentioned by any one group was nine.
- The main reasons for cultivating forages were: (1) fast growth and resistance to droughts and pests, (2) very palatable, high nutritious value and increased milk production and (3) access to information and planting materials via other farmers, non-governmental organizations, and extension services.
- The main reasons for not cultivating forages were: (1) no access to planting material, (2) lack of capital, (3) lack of knowledge, (4) others such as lack of storage facilities, land, poor seed quality, climate change/drought or the fact that there is enough pasture for grazing available.

More preliminary data on perceptions related to the value of quality forage, forage production, access to planting materials and the value of training, timely advice and information were presented and discussed. The data collection is not yet complete and to analyze the effect of promotion channels on KAPs of farmers exposed to these channels (after the interventions), further data collection and analyses will be necessary.

## Establishment of improved forages; CIAT/The Inclusive Dairy Enterprise (TIDE 2) collaboration—Paul Kimbuwe, SNV

The TIDE I and TIDE II projects focus on four intervention areas; (1) dairy farm productivity, (2) milk quality, (3) the dairy value chain and (4) nutrition. The projects work closely with CIAT and are promoting similar forage varieties such as *Brachiaria* hybrids and open pollinated varieties (OPVs), Panicum and sun hemp. The project supports uptake and scaling of improved forages using splits. Participants shared their efforts in promotion of quality forage and improved forage seed. Itungo pastures shared their efforts on conservation strategies for improved forage varieties.

## Seed policies and regulations, and their relevance for forage seed production, import and marketing—panel discussion

Tom van Mourik of KIT facilitated a panel discussion with private sector experts from seed companies: Charles Wasonga from Advantage Crops Limited and Isaac Owino from Simlaw Seeds, Nelson Masereka (Uganda Seed Traders Association), Wonekha Deogratus (the Ministry of Agriculture, MAAIF, and Nanyenya William Ntege (NaLIRRI). The discussion focus on the following key questions:

What are the constraints you encounter (as seed companies) related to policy and regulation for forage seed import, production and marketing?

- What would you like to see included in a (forage) seed policy?
- What can be done to improve the regulatory framework to have a more dynamic forage seed sector?
- What concrete steps (with whom and by whom) need to be made towards more appropriate policies and regulations and/or more effective implementation of these?

Key issues that emerged were:

1. Not all stakeholders are aware of national and regional seed policies and regulations and need to be informed on these.
2. There is need for regional harmonization and application of regional policies and regulations related to registration, release, quality control and marketing of forage seeds.
3. Quality declared seed (QDS) has contributed to making quality and affordable forage seed available to farmers.

Full notes and details from the session can be found in Annex 6.

The workshop ended with a general discussion and closing remarks from the ILRI country representative (Ben Lukuyu) who thanked the stakeholders for their engagement and promised to put into consideration the outcomes of the deliberations. The representative from the MAAIF (Wonekha Deogratus) pledged support from the ministry to all stakeholders for the development of the forage seed sector in Uganda.



## Annex I. Agenda of the workshop

Day 1. 17 Nov. Results and validation of forage seed sector assessments and assessing the business models		
Time	Activity	Facilitator
8:30h–9:00h	Arrival of participants	
9:00h–9:45h	Welcome and opening of the workshop Welcome from the country representative of ILRI (Ben Lukuyu) Words from the representative of NaLIRRI (William Ntege) Words from the representative of the embassy of the Netherlands Opening of the meeting Ministry of Agriculture Animal Industry and Fisheries (MAAIF)	Ronnie Ahumuza
9:45–10:30h	Introduction to the workshop Introduction of the participants (Mona Dhamankar) Introduction to the workshop and tentative agenda (Tom van Mourik)	Solomon Mwendia
10:30h–10:45h	Coffee/health break	
10:45h–11:00h	Findings from the G-FEAST assessments in Uganda (Ben Lukuyu)	Tom van Mourik
11:00h–11:15h	Findings from the community forage seed use assessment in Uganda (Kevin Maina)	
11:15h–11:45	Findings from the forage seed sector assessment in Uganda (Ronnie Ahumuza)	
11:45h–12:15h	Discussions of findings	
12:15h–13:00h	Group sessions (4): Validating and complementing the finding of the forage seed sector assessments in Uganda (National, local levels, formal and informal systems) (Group facilitators: Molly Allen, Mona Dhamankar, Ronnie Ahumuza, Kevin Maina)	Tom van Mourik
13:00h–14:00h	Lunch break	
14:00h–14:30h	Continue group sessions and finalize the work	As above
14:30h–15:15h	Brief presentations of the results from the group sessions (10 minutes each)	Tom van Mourik
15:15h–15:30h	Coffee/health break	
15:30h–16:00h	Presentation of early results from business model assessments (Ronnie Ahumuza)	Ben Lukuyu
16:00h–17:00h	Group sessions (4): Assessing the business models, suggesting improvement and identifying need for support for the businesses (4 groups, 1 group for each business model) Tom van Mourik, Mona Dhamankar, Ronnie Ahumuza,	
17:00h	End of the day	Ben Lukuyu

Day 2. 18 Nov. Field Day at Bwizibwera, Mbarara District		
Time	Activity	Facilitator
8:00h–10:30h	Travel to Mbarara	Ronnie Ahumuza
10:30h–11:30h	Visiting demonstration plots for the different forage species	Ronnie Ahumuza
11:30h–13:30h	Debrief at the site of the visit	Mona Dhamankar
14:00h–15:00h	Lunch break	
15:00h–17:00h	Travel to Masaka	Ronnie Ahumuza
17:00h	End of the day	Ben Lukuyu

Day 3. 19 Nov. Improving forage seed promotion and quality of forage seed & policy issues		
Time	Activity	Facilitator
9:00h–9:30h	Recap of day 2	Mona Dhamankar
9:30h–10:15h	Presentation of promotion efforts for forage seed in Uganda and early findings from the KAP study (Molly Allen, Mona Dhamankar)	
10:15h–10:30h	Coffee/health break	
10:30h–11:00h	Interventions from other stakeholders to highlight their work to promote forage seed and businesses (TIDE, other stakeholders)	Tom van Mourik
11:00–12:00h	Panel discussion on the seed policy and regulation. Charles Wasonga (ACL Seeds), Isaac (Simlaw Seeds), Nelson Masareca (Seed Trade Association), (Wonekha (MAAIF), William Ntege (NaLIRRI)	
12:00h–12:45h	Discussion Identify opportunities and constraints related to policy and regulations for creating an enabling environment for forage seed business development	
12:45h–13:00h	General discussion and closure of the workshop by representative from MAAIF	Ben Lukuyu
13:00h–14:00h	Lunch break	
14:00h–Onwards	Personal Interactions and departure at leisure	Sheila Ayoo

## Annex 2. List of participants

No	Name	Organization
1	Jackson Kanunu	Dream farm Kyakabunga
2	Bayiize Alidekki Maurice	St Jude farm projects
3	Tayebwa Emmanuel	Mutanoga Dairy Farm
4	Wafula Egesa	Dairy Development Authority
5	Nambiro Martha	DAFAN/MADCO
6	Nyamwiza Rhoda	Rushere FFS
7	Mugume Kezekia	Rushere FFS
8	Kharm Kamuntu	UCCCU
9	Katende Tebuseke Erison	Kiboga DLG
10	Lubega Steven	Masaka city
11	Mulyowa JohnBosco	Bukeede
12	Masereka Nelson	USTA
13	Rwambira Israel	MMK dairy farm
14	Chris Muwanika	NARO
15	Richard Wanyama	Heifer International
16	Erison Tumusiime	KDPHA
17	Ritah Kahunde	MAAIF
18	Mayega Lawrence	DPO Masaka
19	Paul Kimbuwe	SNV TIDE
20	Charles Wasonga	ACL
21	Tumwesigye Robert	DPO Mbarara
22	Natwijuka Brian	Robran holdings
23	Natukunda Ronah	Mbarara FFS
24	Tom van Mourik	KIT
25	Solomon Mwendia	ABC/CIAT
26	Wonekha N Deogratius	MAAIF
27	Jolly Kabirizi	TGE
28	Kurambi Wilson	Daily Monitor
29	Charles Mwiine	Kiboga FFS
30	Isaac Owino	Simlaw seeds
31	Asiimwe John Baptist	DPO Kazo
32	Nanyenya William Ntege	NALIRRI
33	Ben Lukuyu	ILRI
34	Nsubuga Robert	BBS
35	Asaron Aryamutuhereza	Dwaniro Dairy cooperative
36	Molly Allen	NARO
37	Walibi Ibrahim	Nampate FFS
38	Sheila Ayoo	ILRI
39	Okiring Tom	NaLIRRI
40	Ssempala Henry	NARO
41	Sserubiri Arnold	Masaka district vet
42	Davis Buyondo	New vision
43	Ssebwufu Matia	Radio Buddu
44	Ronnie Ahumuza	ILRI
45	Pamela Wairagala	ILRI

No	Name	Organization
46	Ainemukama Silver	Kiruhura DLG
47	Taika Abdul	MAAIF
48	Ndanga George	Wakiso District
49	Pison Beinomugisha	Itungo pastures
50	Rwakashaija Andrew	Rushere FFS
51	Ntegyereize Silaj	Kazo drylands
52	Dick Bugingo	Dairy farmer
53	Summie Marcel	ILRI
54	Noheri Emmanuel	Kiboga Dwaniro

## Annex 3. Feedback from group sessions after presentations of G-FEAST, community forage seed use assessments and forage seed sector assessments

### Key feedback:

- Studies were diverse; only the main issues in the forage seed value chain were captured.
- Low adoption of improved forage seed and improved feed and forage practices in Uganda. Some reasons for low adoption are that farmers are not aware of the advantages of improved forages and lack the resources to transform knowledge into practice.
- Knowledge about the objectives of forage/pasture production and about which forage species/variety has the most potential is still missing (a map for seed producers and seed companies is not available).
- Methods for promotion of improved forage seed and improved feed and forage practices are not target (dairy farmer) friendly. There is need to have more on-farm activities in local languages that are easily understood by the farmers.
- There is limited role of private sector in the forage seed value chain; there's need to know why this is the case. Why are they not participating? What can be done to stimulate the market?
- It appears that the forage seed sector is being driven by NGOs who buy and distribute seed.

### What is missing/can be complemented:

- Inquiries were made on whether agro-ecological clustering was done. There's need for more information on agro-ecological adaption of improved forage varieties and improved feed and forage practices.
- Mechanization of forage production is missing – this is key in scaling up forage production and use (silage making). Small scale mechanization, simple seed planters, harvesters etc. using a business approach need to be promoted– Involvement of youth entrepreneurs should be considered.
- Issues with pesticide residues in milk when pesticides are used on forage crops or on adjacent crop fields.
- Extension
  - Some extension workers lack knowledge in forage production. There's need for refresher training.
  - Low farmer: extension worker ratio.
  - Need for improving the extension methods.
- Lack of technical know-how on production of forage seed and high-quality hay.
- Demand creation, prevalence of begging culture among farmers.
- Inquiries were made on whether the crop farming systems and the use of crop residues had been considered.

### Recommendations to put results from assessments into practice:

- Marketing the value add i.e., service of production and delivery of forage seeds. Not focusing on profits that will accrue from the business.
- Providing advisory information when farmers buy forage seeds.
- Change the packaging of promotional/marketing messages about improved forages. Show the value proposition of improved forages. (Impact of forages e.g. more milk, cash income etc.)

- Opportunity to increase the role of women and youth in forage seed production and marketing (agribusiness aspect).
- Promote model for private sector engagement in forage production linked to beef fattening.
- Leasing land for forage production, use model farmer approach and establishment of demonstration plots.
- Empower farmers to multiply own seed in communities
- Produce recommendation domains for forages to guide farmers in fodder production
- Use of digital platforms and tools to promote forages
- Enacting a forage seed production and marketing policy in Uganda, including schedules for forage seed certification, standards
- Recognize quality declared seed
- Encourage more on-farm forage demonstrations
- Need to develop cost- benefits analyses for forage production and use
- There's need for more robust promotion strategies by seed producers in Uganda

# Annex 4. Results from groups sessions ‘Business model canvas assessments’

Figure 1. Results from the group session on the business model canvas for Kazo Drylands (Farmer group multiplying certified and/or quality declared seed (true seed).

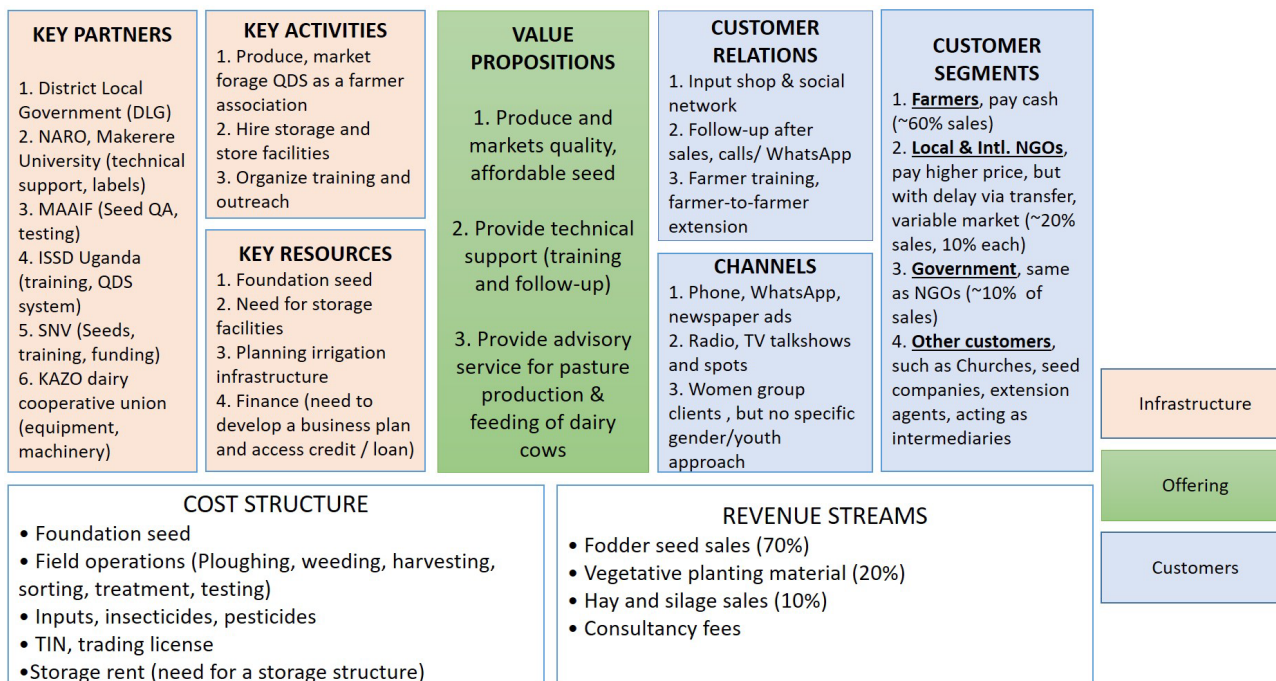


Figure 2. Results from the group session on the business model canvas for Tropical Seed – U-Farm (International company/local distributor).

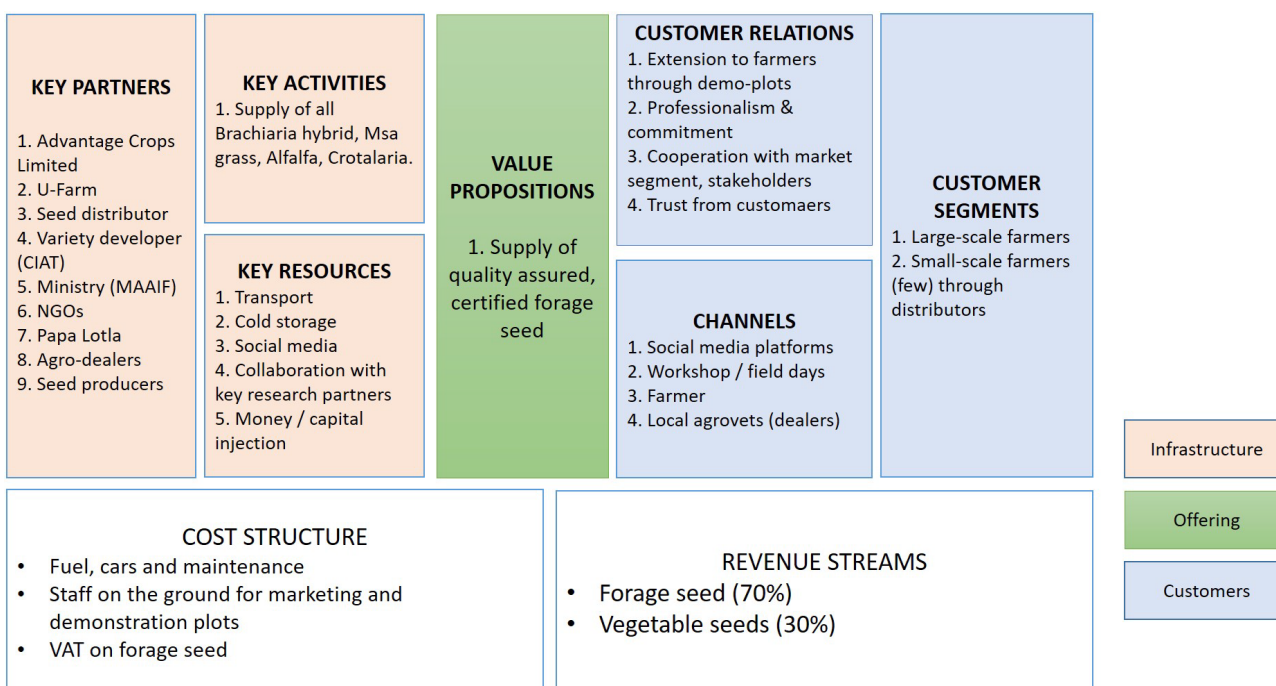
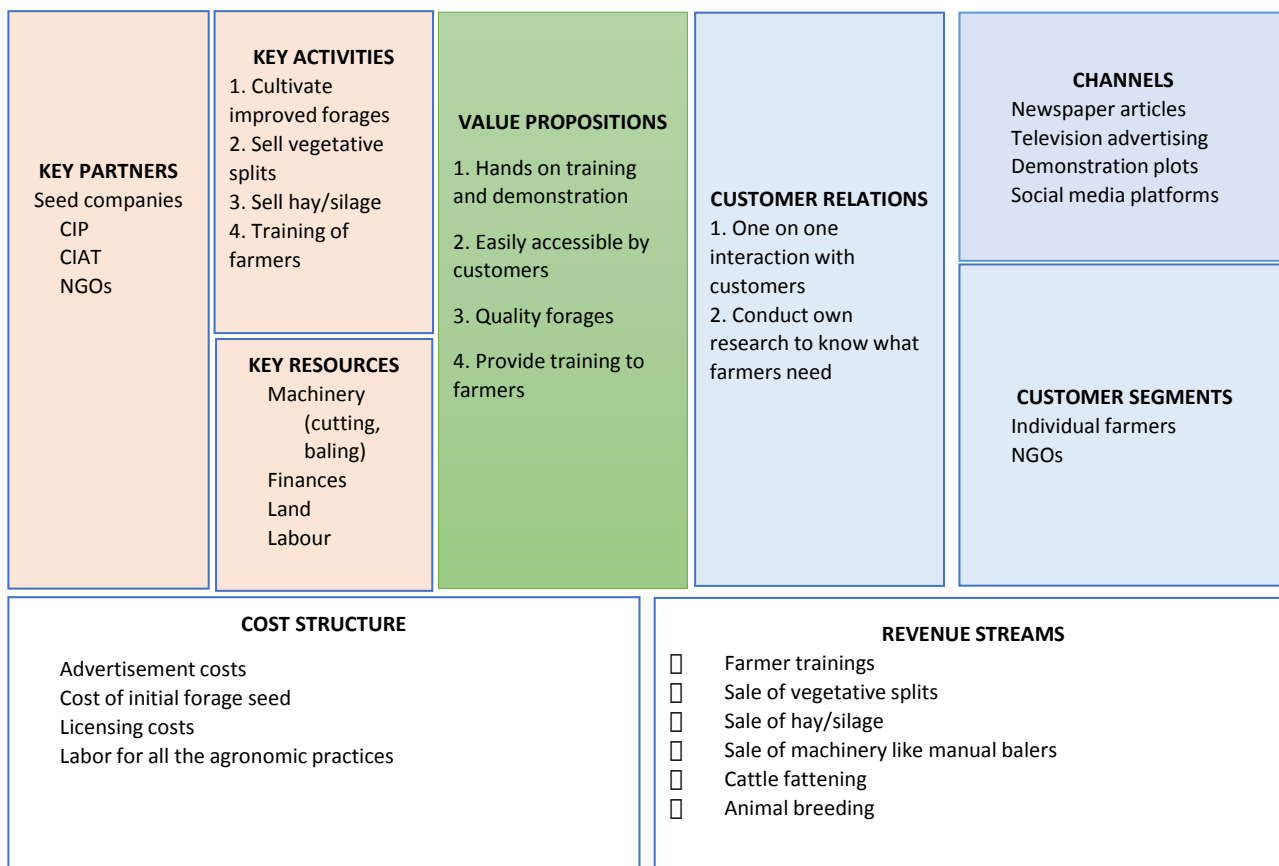




Figure 3. Results from the group session on the business model canvas for NARO Holdings (Local company/ organization producing certified seed).



## Annex 5. Notes from the panel discussion on ‘Policies and Regulations for quality forage seed import, production, distribution and marketing’

Seed policy in Uganda- what are the constraints you encounter (as seed companies), what would you like to see included in a forage seed policy?

*Charles Wasonga, Private sector seed distribution company (exporter to Uganda)*

- Need to understand more about what forage policy for example procedures for registering different varieties; to what extent the varieties will be protected from an intellectual property point of view to prevent black market from taking advantage.
- How is regulatory environment structured? E.g., trading Panicum Mombasa – how can farmers be assured of the integrity of the product they are receiving?
- What quality assurance measures are in place to ensure sustained quality and value for money to the farmers?
- Current arrangement – importing seed – variation in agro-ecological conditions to grow different varieties of forages; – how can the policy support development of local seed certification systems? This will help local seed businesses and reduce costs for farmers.

*Isaac Owino, Simlaw Seeds*

- If a seed company wants to commercialize a variety for food crops like maize, they have to submit material for performance trials and it is evaluated by comparison with local varieties; if the local variety performs better the company is not allowed to import – this does not apply to forage seeds.
- Sometimes it is difficult to source seeds locally, who is going to certify/facilitate local trade – what are the parameters/local criteria to satisfy?
- What are the minimum quality standards for forage seed production? Kenya Plant Health Inspectorate Service (KEPHIS) has a well-developed quality assurance system; in absence of a system in Uganda, low quality seed finds its way to farmers who then experience poor performance/results.
- Seed inspectors at the borders and for field inspection, and extension workers do not have enough knowledge/information about descriptors to assess the varieties entering the market.
- Variety list of seed available in the market (like food crops) not available to enable farmers to make a better decision based on which options perform well in the different agro-ecological zones.

Reflect on issues that the private sector encounter, and what can be done to improve the regulatory framework to have a more dynamic forage seed sector?

*Nelson Masereka, Uganda Seed Traders Association (USTA)*

- The Seed Policy (National Seed Policy 2018) needs to be reviewed; regulatory framework needs to harmonize policy-Act-Regulations and align with The Common Market for Eastern and Southern Africa (COMESA). Target was to meet 1000 seed producers in the country and obtain feedback on the policy. This was however not possible owing to the outbreak on COVID 19 and the ensuing travel restrictions.,
- All planting material is referred to as seed–need to find out what forage seeds specifically need.

- Import-export procedures are the same as for food crops—does not specify who is concerned with descriptors. Mandate was given to the seed traders association. Seed is a living organism, imported seed needs to be sanitized, reported and ensured that the seed is standard (all parameters tested); In Kenya it is harmonized (KEPHIS and Ministry of Agriculture). However, in Uganda it is difficult to get a certificate, traders must wait indefinitely; traders were exempt for one season until the procedures were streamlined.
- Registration of varieties—what is the procedure needed? COMESA, local national catalogue, seed companies—particularly for forage seed?
- Public varieties—insufficient money is invested in research to get new improved varieties; NARO is responsible for registration/licensing of varieties developed by non-government actors.
- Black market—For example, farmers lost 2 billion in sunflower—smuggled seed. An entire consignment was infected and MAAIF refused to support/compensate the farmers. Should USTA have certified the product?

*William Ntege, NaLIRRI*

- Seed import-export: seed is subjected to all regulations applicable to all traded commodities (tax regimes, custom regulations etc.); however, as seed is a live product (biological) it needs to be screened for blacklisted pests, diseases etc. and requires sanitary checks on receipt of material. MAAIF has plant inspectors at the border points to enable clearance.
- For registration the seed must be evaluated, by NARO scientists – productivity, quality, claimed attributes are verified; there could be additional pests and diseases manifested (those not covered by earlier sanitary checks); If all is when, then the seeds are cleared for use. Some importers push material into the field without these mandatory checks. These weaknesses in the system need to be corrected. For example, Chicory is in farmers' fields but has never been evaluated by NARO or checked for potential risks to the local production system.
- What happens when the seed is already in the market?—there's need for policy to ensure adherence to standards; policy needs an Act to regulate and enforce adherence; policy describes what needs to be done by whom and why, Act is also passed by government to specify what needs to be done to comply and penalties for not adhering.
- Steps to ensure quality/true-to-type and proper management of the process

Steps (with whom and by whom) to work towards a more appropriate policy and/or more effective implementation of the policy

*Wonekha Deogratus, MAAIF*

- MAAIF is a coordinating body that works through different agencies
- There is a general seed policy in place—but there are some gaps
- What influences policy formulation? a) the business pressure—does it generate business to locals or investors? Based on discussion with different stakeholders—seed traders, researchers etc. MAAIF confirms the concerns raised and formulates a policy; Acts give power to policy enforcement.
- Data is available but not shared by the Ministry (it is with the Uganda Bureau of Standards); There's need to harmonize different ministries, departments and committees dealing with the data.
- The concerns raised by the traders are appreciated; until 2018, forages were not a big component in the sector policy—therefore it is a young policy; created/passed in 6 months. (might have been prepared only for one seed and generalized). Now might be the right time for business communities to exert more pressure to identify different forages/varieties and formulate evaluation parameters for each.
- Animal Resource Directorate in partnership with the local government instituted the rangeland seed regulation to have their teams assess and certify the seed in the market—hence local seed can now be accessed by farmers.

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- There is a general phobia towards certification among farmers; local seed inspectors can refer farmers to where certified seed is available. Therefore, it is in interest of the traders to have their QDS certified.
  - Seed inspectors are positioned at different checkpoints; checking is not expensive. Compliance will help protect the traders (not penalize them)
  - It is important to raise concerns with the Commissioner–Crop Protection; use the USTA registration to create access to the authorities (use the power of business); the business community ought to know that when they are importing material–the Ministry can exempt them from paying tax if it is imported to establish gardens for multiplication (not as a trader); verification of purpose can create problems for other traders.
  - There is already a regulation in place since 2020 for QDS under the National Seed policy.

## Remarks from participants

Extension frontline workers need clarification in seed policy. Seed inspectors are largely trained on crop seed parameters, but not on forage seed (not covered in colleges); who is responsible for checking? What are the criteria/checklist to enforce regulation? Like maize exports banned due to aflatoxin contamination. (e.g., importing bees because local bees are not so productive, are hostile – is not allowed by MAAIF because each country has specific diseases that can wipe out existing colonies of bees).

## Concluding remarks

Charles: while reviewing the policy to harmonize and include forages—tap into the synergies and experiences of neighboring countries (e.g., Kenya for Mombasa)—no need to go back to basics and repeat trials from the start.

Isaac: the demand for forage seed is still low; while pushing them with other food crops it might help to work with different partners (SNV, Heifer International etc.) to organize demonstrations of other varieties; farmers who are willing to provide seed and inputs or host farmers can provide land and share costs; Farmers would like to benefit from information materials in the local languages.

Nelson: if there is a variety released in a COMESA country it can be released and gazetted in another country provided there is data to back it up. For pasture seed, there's need to demarcate who is authorized—para-vets or agro-chemical dealer—something for the Ministry to sort out. Interested to see how the research results of the project can be utilized and put into practice.