Characterisation of the livestock production system and potential for enhancing productivity through improved feeding in Kasawo Dairy Farmers Association in Mukono district of Uganda.

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The Feed Assessment Tool (FEAST) is a systematic method to assess local feed resource availability and use. It helps in the design of intervention strategies aiming to optimize feed utilization and animal production. More information and the manual can be obtained at www.ilri.org/feast

FEAST is a tool in constant development and improvement. Feedback is welcome and should be directed feast@cgiar.org. The International Livestock Research Institute (ILRI) is not responsible for the quality and validity of results obtained using the FEAST methodology.

The Feed Assessment Tool (FEAST) was used to characterize the feed-related aspects of the livestock production system in Mukono district of Uganda. The assessment was carried out through focused group discussions and completion of short questionnaires by three key farmer representatives owning small, medium and large scale farms. The following are the findings of the assessment and conclusions for further action.

Farming system

The farming system is primarily a subsistence based, mixed crop/livestock system. Farm sizes in the area are around 3 acres (1.2 ha) on average with most of the land being used for cropping. A typical household size is 8 people who live permanently on farm on average per year. Households in the area commonly grow a variety of food crops including; Common beans (*Phaseolus vulgaris*), maize (*Zea mays*), cassava (*Manihot esculenta),* coffee (*Coffea Arabica), bananas* and sweet potatoes (*Ipomoea batatus)*. Most farmers grow Napier grass (*Pennisetum purpureum*), as the major forage crops. A few farmers grow fodder legumes such as Mucuna *pruriens and lablab* as well as fodder trees and shrubs mainly *Calliandra calothyrsus.*

Each household also raises a variety of livestock species including cattle, goats, sheep and chicken for various purposes. On average most households have two or three milking cows. In addition, many households have 3-4 sheep and/or goats. Indigenous chickens are kept by households to meet household meat, egg and cash needs. Nganda type cattle are kept by more than 50% of households. Improved cross bred cattle are kept by about 60%% of the households. Cross breeds comprise mainly of Friesian, breeds and the local Nganda cattle. Goats are also raised by 20-50% of the

households for quick sale when funds are required. Labour is an Acre of land. Rainfall levels are generally adequate to support cropping activities; however, rainfall unreliability is increasingly becoming common (Table 1).

Table 1: Cropping seasons that occur in the area

Name of season	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Long wet season (Mwaka)												
Short wet season (Nkira)												
Dry season months												

Major income sources

Crop sales are the primary contributor to household income. An average of 67% of all household income comes from the sale of crops. Livestock sales make an important contribution of approximately 12% to household income. The contribution from off farm activities is considered relatively minor at 10% collectively for some households (Figure 3). The contribution of these income sources varies substantially throughout the year based on climatic conditions.

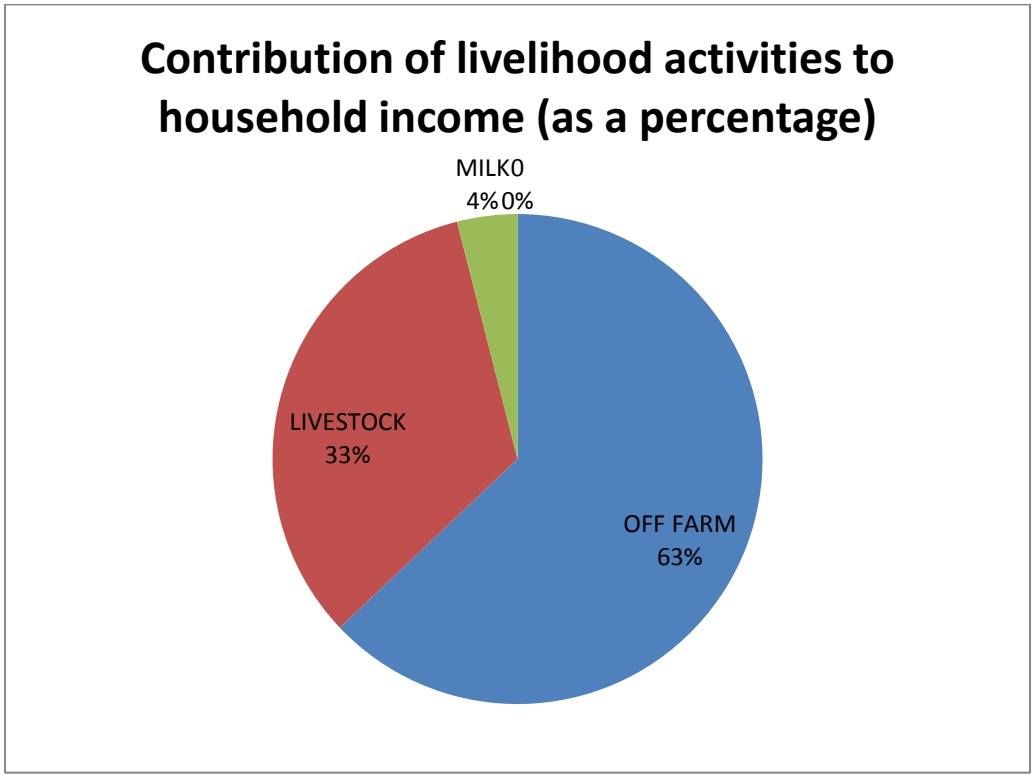

Figure 2: The primary contributors to household income in the area

Livestock production system

The livestock production system is focused on milk production. Improved dairy breeds, namely Friesian crosses dominate livestock holdings as shown in Figure 3. Milk produced on the farm is sold to Kasawo Dindo Creameries and to neighbouring restaurants and some is retailed in shops at an average price of 700 Ugandan shilling (UGX), (0.29 USD; ranging from 600-800; 0.25-0.33 USD) per litre. At Kasawo, part of the excess milk is processed into yoghurt. The average milk production per cow per day in the area is 9 litres. The common feeding strate and ground stover, bean haulms and potato vines. Conserved feeds are fed by a few farmers.

Veterinary services are not easily accessed because the providers are few. The price of veterinary treatments is relative unaffordable to farmers. For example East Coast Fever (ECF) vaccination costs UGS 90,000 (38 USD) Vaccination of animals against trypanosomosis, Foot and mouth Disease and lumpy skin disease (LSD) is by private and public animal health providers on most farms. Tick control is mainly done by farmers themselves.

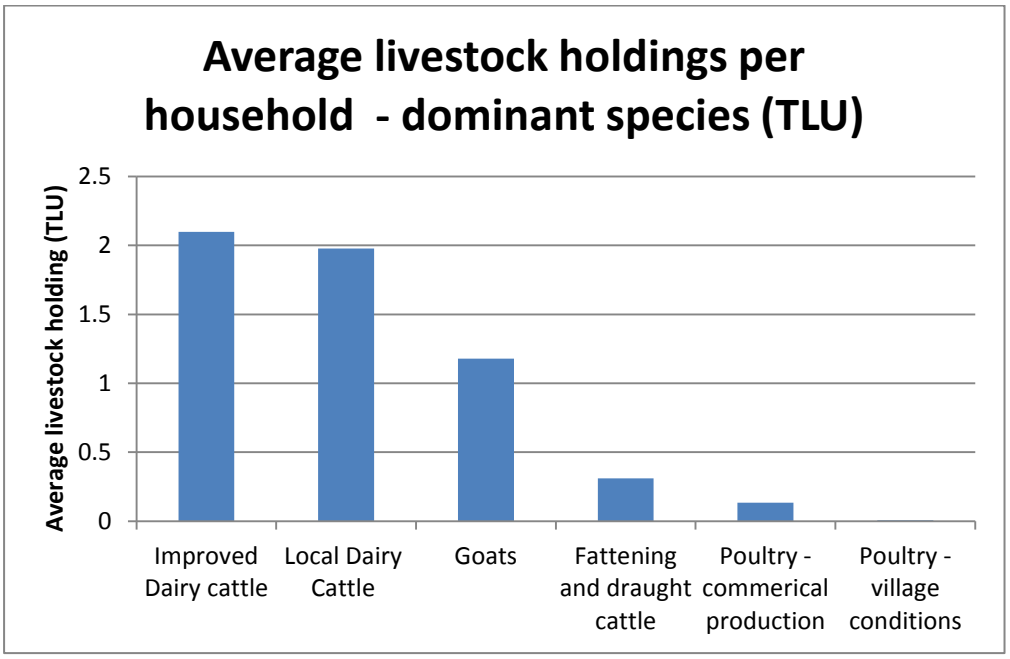

Figure 4: Average livestock holdings per household in Kasawo in Tropical Livestock Units (TLUs)

Major feed sources through the year

The most common fodder/feeds include green forages, crop residues, legumes, concentrates and grazing /tethering as shown in Figure 5. The contribution made by these feed sources to the diet varies throughout the year. Grazing, purchased feeds, naturally occurring and collected feeds, cultivated fodder and crop residues contribute 48, 32, 8, 6, and 6% of the total diet on farms.

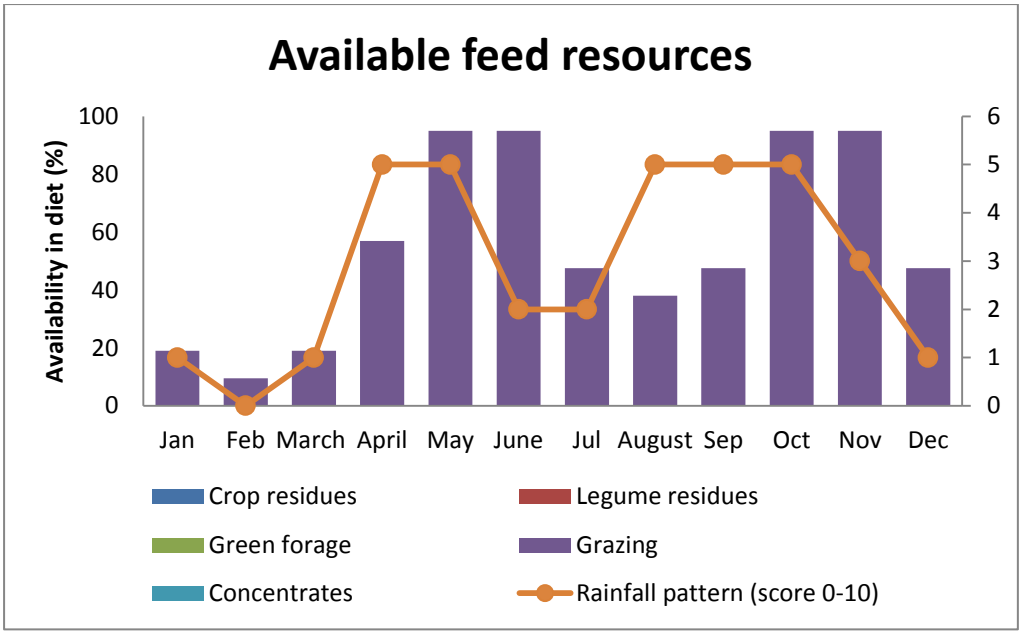

Figure 5: The dietary composition of cattle in Kasawo, Uganda throughout the year in relation to rainfall pattern.

Problems, issues and opportunities

According to farmers, the main constraint to production in this area is poor feeding. Thee limited use of concenterates and conserved feeds. A.I is expensive and water is scarce during the dry season. Other problems include fluctuation of milk prices in the dry and wet season another problem to sustainable incomes. Although not listed as a major problem pasture diseases and lack of pasture seed is considered to be limiting milk production. A summary of problems and farmer proposed solutions are shown the (Table 2).

Table 2: Problems, issues and proposed farmer solutions within the production systems

Problem (in order of importance)	Main problem	Proposed farmer solutions
1	Feeding	- Control Napier Stunt Disease using clean materials - Communal feed conservation to cut on input and labour costs - Promote labour saving equipment to process crop residues and forage
2	Drought leading to scarcity of pastures and water especially in the dry season	- Education on water harvesting technologies such as valley dams, underground water tanks etc. - Pasture conservation
3	Low milk price	- Value addition on the milk.
4	AI services are expensive and technicians are not available.	- More Service providers should be trained to specialise in technical roles such as A.I., clinical and animal husbandry services rather than mixing them.

Potential interventions

For sustainable production of adequate biomass for feeding, there's need to control Napier Stunt Disease using clean materials. Communal feed conservation for silage and hay will reduce on input and labour costs. The use of polythene bags or small scale silage pits may be viable options. Promote labour saving equipment like pulveriser and feed choppers to process crop residues and forage. This will help alleviate dry season feed shortages and enable farmers produce more milk during the dry season. Simple methods of water harvesting will have to be considered in improving water availability especially during the dry season

In addition to yoghurt making, there is potential to add value to the raw milk through interventions like ice cream and ghee making. Additionally, to stabilize prices farmers have to be trained on dry season feeding to help alleviate dry season feed shortages and enable farmers produce more milk during the dry season when milk prices are high hence to earn more money.

A more vibrant and cost effective strategy to promote A.I will be needed to improve the cattle breeds.

Key issues

- Poor feeding
- Inadequate forage biomass/feed for the animals.
- Limited BDS linkages agro-inputs suppliers for molasses, feed processing machines, pasture seed, concentrates.
- Drought leading to scarcity of pasture and water
- Pasture diseases especially Napier Stunt Disease and lack of pasture seeds

Ways forward

1. Conduct a feedback workshop with DFBA
2. Support DFBAs to develop implementation strategies for the recommended intervention such as:

- More training is needed in dry season feeding.
- Initiate community seed production either through groups or interested people as a business.
- Enhance training on simple silage making techniques on farms.
- Improve animal health service delivery amongst farmers.
- Improve farmer training in disease control measures.

Conclusion

Milk is not the main contributor to household income in this subsistence based mixed/crop livestock system. Farm sizes in the area are an average size of 3 acres (1.2 ha) most of which is used for cropping. Every household has at least 2-3 milking cows and 3-4 goats. The primary crops of importance are coffee, bananas, maize and beans. The main constraint to the further intensification and development of dairying in the area is poor feeding as a result of inadequate DM intake leading to productivity of the dairy animals. Napier grass is the main type of fodder. Most farmers keep both improved cattle and indigenous cattle.