

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

By: Jane Kugonza, Ronald Wabwire, Pius Lutakome, Ben Lukuyu and Josephine Kirui

East African Dairy Development Project (EADD)

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 Luweero 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 on the April 2011¹. 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 6 acres (2.4 ha) on average with most of the land being used for cropping. A typical household size is 7 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*) and sweet potatoes (*Ipomoea batatas*). Most farmers grow Napier grass (*Pennisetum purpureum*) as the major forage crops. A few farmers grow fodder legumes such as *Mucuna pruriens* as well as fodder trees and shrubs mainly *Calliandra calothyrsus*.

¹ The very small number of respondents for questionnaires means that the figures in this report are only indicative and should not be considered an accurate reflection of quantitative aspects of the farming system. However, they are adequate to give a crude overall impression for the purposes of guiding thinking about constraints and interventions.

Each household also raises a variety of livestock species including cattle, goats and pigs for various purposes. Cattle are kept mainly for milk, cash income from animal sales and manure. 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 90% of households but they are the most popular with farmers although with low milk production capabilities. Improved cross bred cattle are kept by about 40% 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 generally available all the time at approximately 160,000 Uganda shillings per month for tilling land. This price package is considered very expensive. Livestock oriented labour is mainly needed during the dry season while the crop oriented labour is required mainly required in the wet season. Herding labour is more costly in the dry season because herds are moved over longer distances in search of pastures and water. This high cost of labour is considered to be due to many rural people migrating to Kampala to look for better paying jobs. Rainfall levels are generally adequate to support cropping activities; however, rainfall unreliability is increasingly becoming common (Table 1). Water is not a major constraint in the area and no large scale irrigation is carried out.

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 27% to household income. The contribution from off farm activities is considered relatively minor at 10% collectively for some households. The contribution of these income sources varies substantially throughout the year based on climatic conditions.

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 Luweero dairy development co-operative society (LUDDECO) at an average price of 500 Ugandan shilling (UGX), (0.21 USD; ranging from 500-800; 0.21-0.33 USD) per litre. The average milk production per cow per day in the area is 8 litres. Management of the cows varies with type of cattle. Indigenous local breeds are normally grazed while improved cows are confined and fed in cattle sheds throughout day and night. Goats are normally tethered in homesteads and along the road side for grazing. The common feeding strategies in the area include grazing, feeding chopped

green fodder and or crop residues especially maize stover and potato vines. Conserved feeds are fed by a few farmers.

Veterinary services are not easily accessed. 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.

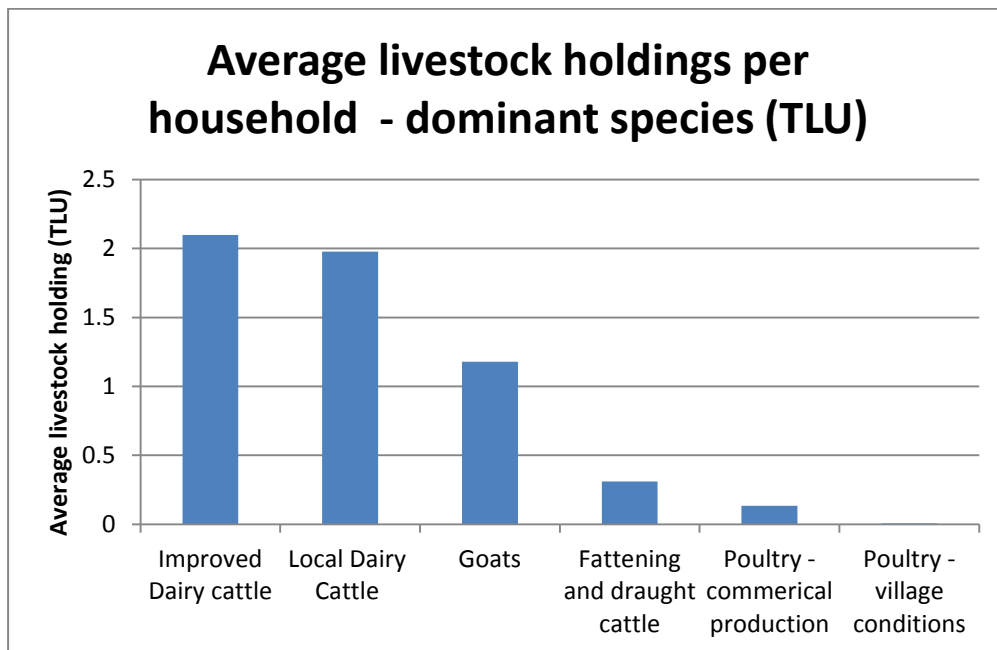


Figure 4: Average livestock holdings per household in Luweero in Tropical Livestock Units (TLUs)

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. Surprisingly, larger quantities of concentrate feeds are fed during periods when there is plenty of forage. 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.

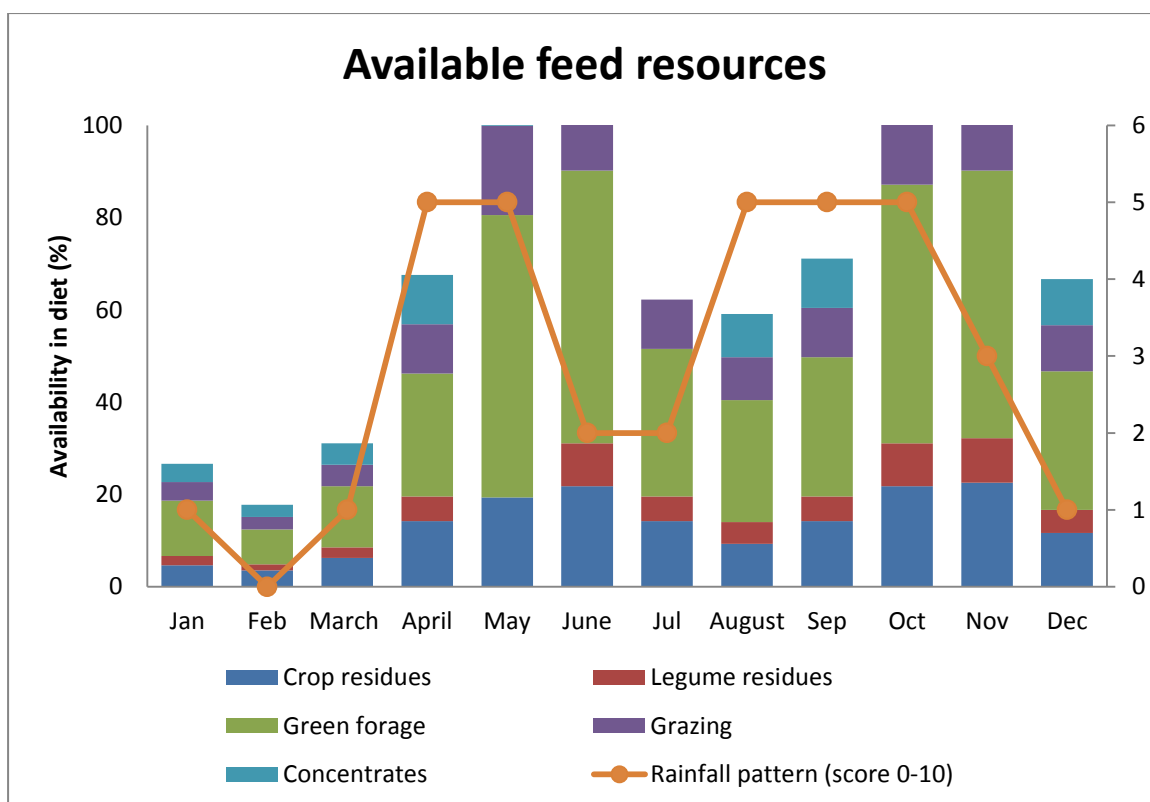


Figure 5: The dietary composition of cattle in Luweero, Uganda throughout the year in relation to rainfall pattern.

Problems, issues and opportunities

According to farmers, the main constraint to production in this area is insufficient extension services followed by drought leading to scarcity of pastures and water especially in the dry season. Other problems include fluctuation of milk prices in the dry and wet season a 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	Insufficient extension services	<ul style="list-style-type: none"> - Identification of more extension workers for training. - Collaboration with community government extension workers.
2	Drought leading to scarcity of pastures and water especially in the dry season	<ul style="list-style-type: none"> - Education on water harvesting technologies such as valley dams, underground water tanks etc. - Pasture conservation
3	Low milk price	<ul style="list-style-type: none"> - Value addition on the milk.
4	AI services are expensive and technicians are not available.	<ul style="list-style-type: none"> - 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

Insufficient extension staff as a constraint is worsened by absence of incentives to motivate the extension providers in a sustainable manner. Farmers also reported that some service providers lack adequate capacity to disseminate better production information to them. To mitigate the effects of ineffective extension service delivery, the DFBA needs to appreciate a demand driven, business oriented and sustainable approach to extension.

The variation in climatic conditions that has resulted in prolonged droughts means variation in milk production. Therefore, efforts will have to be made towards conserving the excess forage that occurs during the wet season through silage and hay making. This will 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. Simple on-farm methods of silage production should be considered. The use of polythene bags or small scale silage pits may be viable options. Simple methods of water harvesting will have to be considered in improving water availability especially during the dry season.

The low prices received for milk indicates a variation in the supply of fresh milk in the area. During the wet season, there is an oversupply of fresh milk leading to low prices. There is potential to add value to the raw milk through interventions like yoghurt 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.

Currently most of the farmers are embracing AI, but, the cost involved requires immediate intervention. There is need to increase the number of service providers and enhance education on detection of heat signs, proper feeding strategies and control of diseases and vaccination.

Key issues

- Ineffective extension Service delivery
- 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

- **Identification** of suitable persons to trained as extension staff.
- **More** trainings are 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 6 acres (2.4 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, maize and beans. The main constraint to the further intensification and development of dairying in the area is an insufficient extension staff leading to productivity of the dairy animals. Napier grass is the main type of fodder. Most farmers keep both improved cattle and indigenous cattle. Milk prices are generally unstable and vary throughout the year due to poor feeding and an oversupply of milk in the wet season. The major constraints are lack of forage seeds for establishing high yielding forages and expensive AI services and limited animal health service providers.