

Characterisation of the livestock production system and potential for enhancing productivity through improved feeding in Maddu, Mpigi district, 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 livestock production system and in particular feed-related aspects in Maddu dairy farmers association (DFBA), in Mpigi district, Uganda. The assessment was carried out through structured group discussions and completion of short questionnaires by key farmers' representatives. The following are the findings of the assessment and conclusions for further action.

Farming system

Maddu is located in Mpigi district in the western part of Uganda. Households in this area are composed of approximately 8 (range 6-11) members and utilise on average 40 acres of pastoral land. Table 1 shows farmers perceptions about average land sizes for different categories of farmers.

Category of farmer	Range of land size	% of households that fall into the category
landless	0	0
Small farmer	1 to 20	12
Medium farmer	21 to 50	48
Large farmer	51 to 200	40

Figure 1: Average land sizes owned by different categories of farmers in Maddu, Mpigi, Uganda.

The production system is primarily pastoralist focused on livestock keeping with very few farmers growing food, mainly common beans (*Phaseolus vulgaris*), bananas, maize (*Zea mays*), and cassava (*Manihot esculenta*) as seen in Figure 2. All crops are grown during the wet season; however, rainfall patterns are becoming unpredictable and unreliable (Table 2). Crops are grown mainly for household food production and few are sold.

Table 2: Cropping season that occur in the area

Name of season	Jan	Feb	Mar	April	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Long wet (Efumbi)												
Short wet (Ekyanda)												
Dry (Akanda)												

Milk production is an important means of regular income generation with most farmers possessing the Ankole type of indigenous cattle. These are also sold for meat to provide substantial income when the need arises and to pay dowries. A few farmers keep improved cross bred animals for increased milk production. Goats are also kept by some farmers for sale when funds are needed quickly.

Due to the large size of land holdings and herds, labour is generally required to herd cattle especially in the dry season when herds migrate to look for pasture. However management during migration has become easier since most herdsmen have mobile phones. Herding labour costs between 150,000 – 200,000 UGS (64-85 US\$) per month in addition to provision of food and 4-6 litres of milk daily. Manual labour to open an acre of land is at 70,000-90,000 UGS (29-38 US\$). Factoring in daily provisions overall labour costs become very costly.

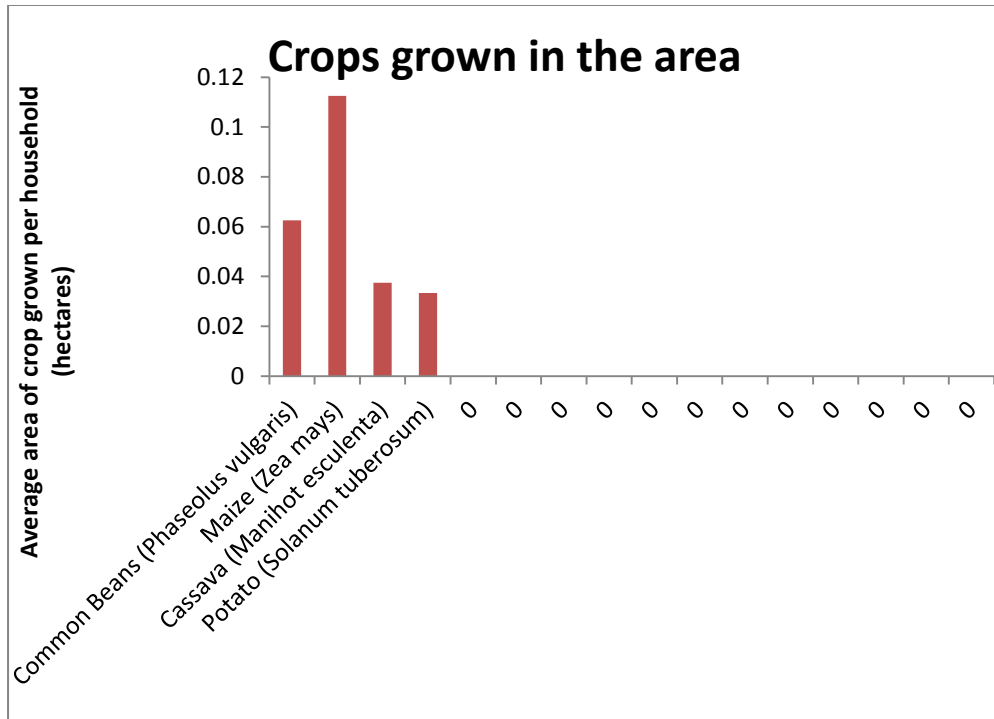


Figure 2: Crop varieties grown in Maddu, Mpigi, Uganda.

Major income sources

The main contributor to income is milk sales (62%) (Figure 3). Milk is important because most households in this area own cattle. Livestock sales contribute approximately 20% to household income.

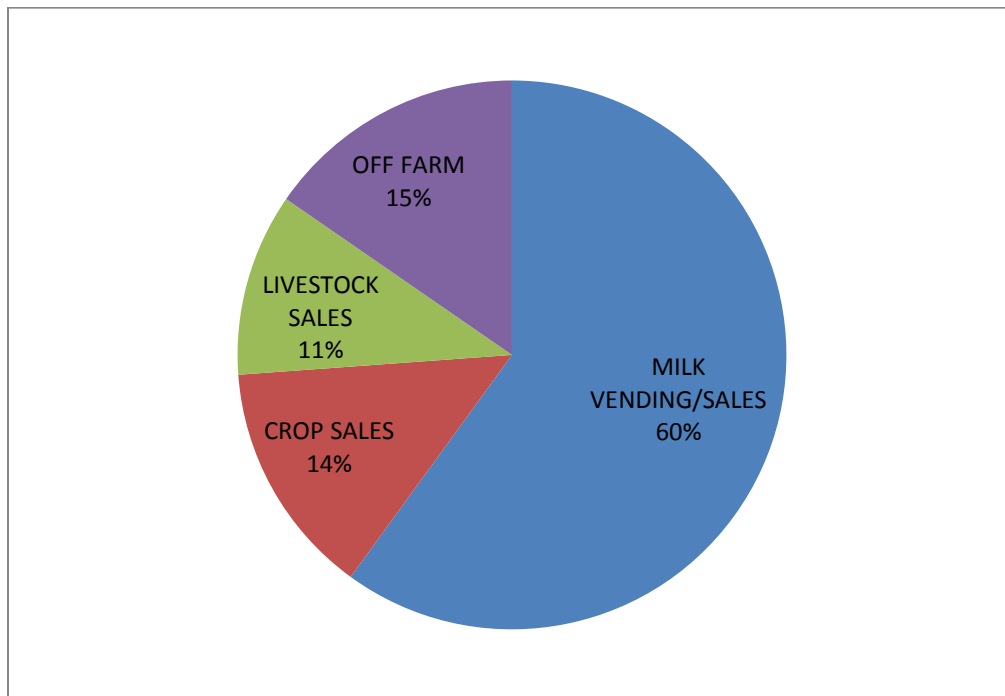


Figure 3: Contribution (%) of livelihood activities to household income

Livestock production system

Cattle are the most important livestock species in this system as they provide milk, meat and cash income to the households (Figure 4).

At present, approximately 35% of the farmers keep improved cattle. The average milk production per cow per day is 2.5 litres. The resultant milk is then sold to a number of traders and processors including Sameer Agriculture Limited and sometimes sold in the local market for an average of 400 UGS (0.17 US\$) per litre throughout the year (range 300-500 UGS/litre (0.13-0.21 US\$)).

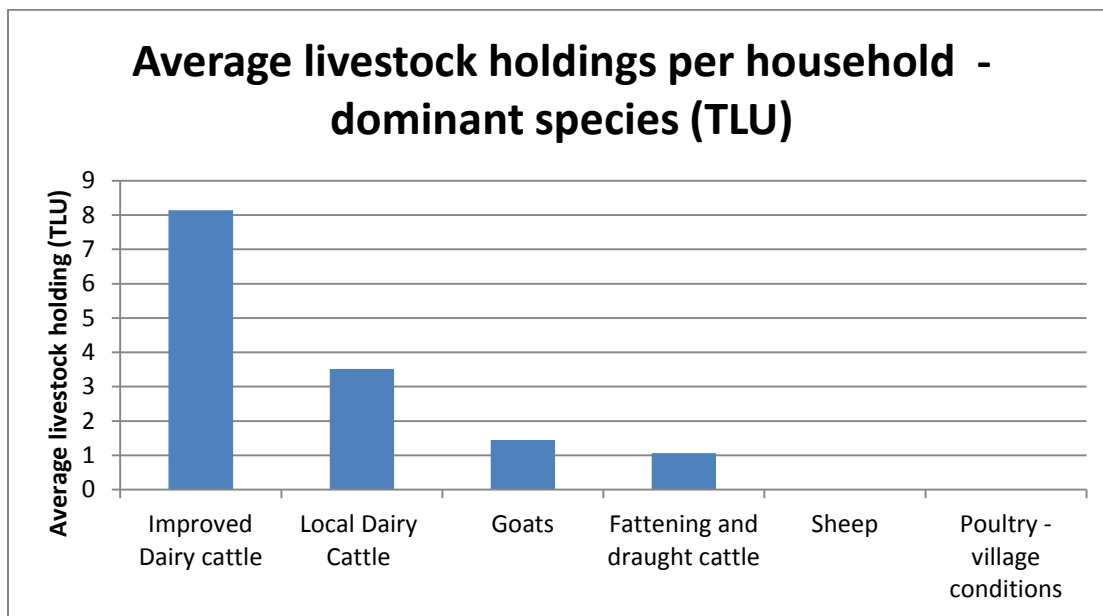


Figure 4: Average livestock holdings per household in Tropical Livestock Units (TLU)

Management of livestock species

Cattle are mainly managed under open grazing systems demarcated by perimeter fences of live plants or three strands barbed wire paddocks. Artificial Insemination (A.I.) is scanty in Maddu just like other pastoral areas. A.I. charges are variable depending on distance and type of practitioner.

AI charges UGS 40,000 (17 US\$) per service per cow and the same again for repeat services. This includes UGX 10,000, 5,000, and 5,000 for straw, liquid nitrogen and disposable items cost respectively plus UGS 10,000 and 10,000 for labour and transport charges respectively. Most farmers use their own local bull service. However, those who do not have bulls pay US\$15,000 (6 US\$) per service. AI adoption is still a challenge in this area.

At present cattle prices vary with season increasing during the wet season (700,000 – 800,000 UGS (292-333 US\$) per head) and dropping drastically in the dry season (250,000 – 300,000 UGS (104-125 US\$) per head) during the dry season. Sheep and goat prices tend to remain the same throughout the year ranging 50,000 – 60,000 UGS (21-25 US\$) per head.

Major feed sources through the year

Grazing contributes the largest proportion of the feed base on a dry matter (DM) basis in the area and consequently metabolisable energy (ME) and crude protein (CP). Naturally occurring feeds are also important.

Grazing is the primary component of the feed base within this area throughout most of the year. However, grazing drastically reduces during the dry season in January – February.

Concentrate feeding tends to be targeted toward improved breeds with higher amounts available during the wet than dry season.

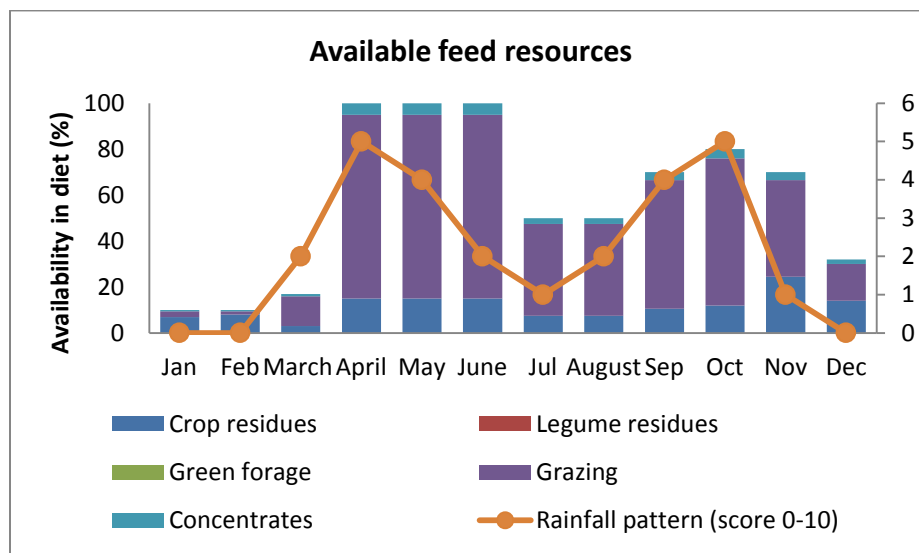


Figure 1: Available feed sources utilised by farmers throughout the year.

Problems, issues and opportunities

The main issues faced by farmers are lack of water especially during the dry season and the bush encroachment problem on grazing pastures. The expansive pastoral system does not have adequate water dams and these are located long distances from most households. Poor use and drainage has compromised water quality (Photo 1). Migration has decreased due to changing tenure system and population pressure and farmers are remaining an option of settling in the available land leading to overgrazing. Termites and invasive weeds have drastically reduced the grazable area.

A lack of improved dairy breeds is also a clear constraint to the further development of milk production within the area. Artificial Insemination (AI) services will help disseminate improved genetics; however, the service is not reliable within the area and is costly to farmers. Tick born diseases are also another serious problem.

Potential interventions

It is highly recommended that technologies geared towards improving natural pastures be scaled up to increase biomass quality and quantity. This can be supported by initiating communal interventions of forage seed multiplication. In addition to this, an Integrated Termite control should be introduced. Challenges of water can be addressed through simple water harvesting technologies and where affordable, excavation of community valley dams may be a workable solution.

Farmers also have the option to purchase larger quantities of concentrate but this will significantly increase the cost of production. However, increased milk production will also be required to offset the increased cost of production.

Key issues

- Lack of water especially during the dry season
- Termite infestation
- Bush problem leading to decreased grazing pastures
- Lack of feed sources, both in terms of quantity and quality
- Limited use of non convention feed resources
- Poor milk yields
- Lack of access to AI services and improved dairy cattle breeds

Ways forward

1. Conduct a feedback workshop with DFBA's
2. Support DFBA's to develop implementation strategies for the recommended interventions such as:
 - Introduce strategies to improve pasture through collective action
 - Enhance arrangements for purchase of fodder from urban fodder producers
 - Commercial hay production
 - Improve AI services
3. Build the DFBA's capacity to conduct feed assessments.
4. Monitor and document best practices

Conclusion

This area is predominately extensive characterised by pastoralism with mainly the indigenous type of livestock. The area is currently experiencing feed shortages and farmers are looking into other options such as using crop residues and agro-industrial bi-products. To mitigate these constraints farmers (and other stakeholders) will be required to take an integrated approach to improve feed production through pasture improvement strategies, importing feed and improving access to AI facilities to ensure farmers can rapidly upgrade the genetic merit of their cattle holdings.