

# Characterisation of the livestock production system and potential for enhancing productivity through improved feeding in Kiboga West DFBA, Kyankwanzi 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](http://www.ilri.org/feast)

FEAST is a tool in constant development and improvement. Feedback is welcome and should be directed [feast@cgiar.org](mailto: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 Kiboga West dairy farmers association (DFBA) of Kyankwanzi, Kyankwanzi district, Uganda. The assessment was carried out through structured group discussions and completion of short questionnaires by key farmers' representatives<sup>1</sup>. The following are the findings of the assessment and conclusions for further action.

## Farming system

Kyankwanzi was formerly in Kiboga district but obtained district status in 2004 and is located in the extreme part of Buganda region. The travel distance by road is approximately 220 kilometres from the capital city of Uganda, Kampala. Households in this area are composed of approximately 14 (range 6-20) members and utilise on average 15 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 (acres)	% of households that fall into the category
Landless	0	0
Small farmer	50	35
Medium farmer	75	45
Large farmer	200	20

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

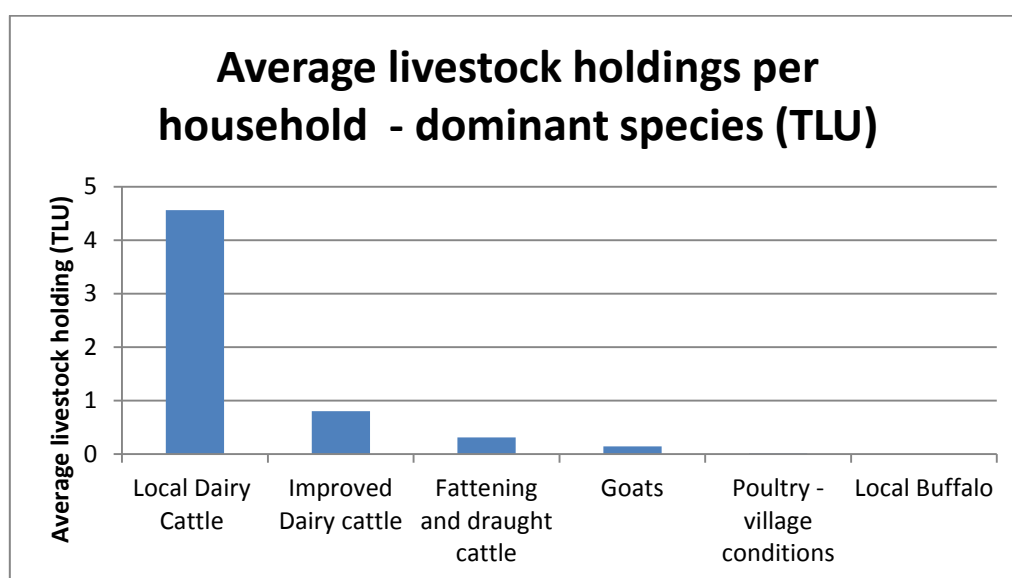
<sup>1</sup> The very small number of respondents for questionnaires means that the figures in this report are only indicative and should not be considered an accurate reflection of quantitative aspects of the farming system. However, they are adequate to give a crude overall impression for the purposes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

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

**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 (Togo)												
Short wet (Dumbi)												
Dry (Musambja)												

Milk production is an important means of regular income generation with many farmers possessing Ankole, Nganda and other types of indigenous cattle. These are also sold for meat to provide substantial income when the need arises and to pay dowries. Very 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. Goats are also kept for meat and cultural uses. Indigenous chickens are also kept by some farmers. 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 are provided with mobile phones. Herding labour costs between 35,000 – 50,000 UGS (17.5-21 US\$) per month in addition to provision of food and 3-5 litres of milk daily. Manual labour to open an acre of land is more costly at 80,000-90,000 UGS (33-38 US\$). Factoring in daily provisions overall labour costs become very costly.

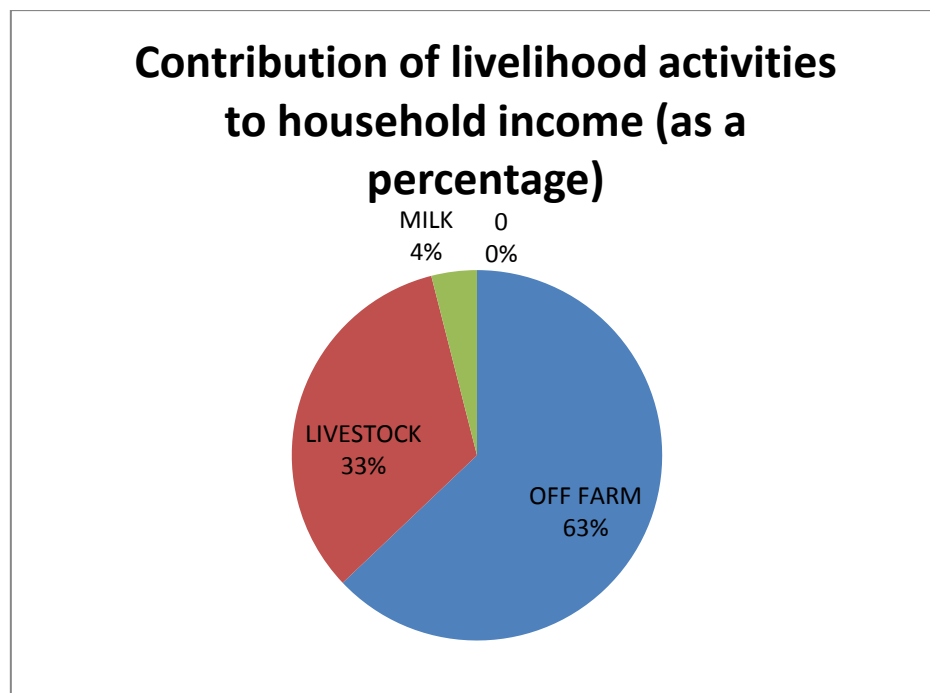


**Figure 2: Crop varieties grown in Kyankwanzi, Uganda.**

### Major income sources

The main contributors to income are off-farm activities such as personal business (63%) and livestock sales (30%) (Figure 3). Milk contribute approximately 4% to household income. Other products such as eggs contribute negligible amounts to income. However, this may change in the

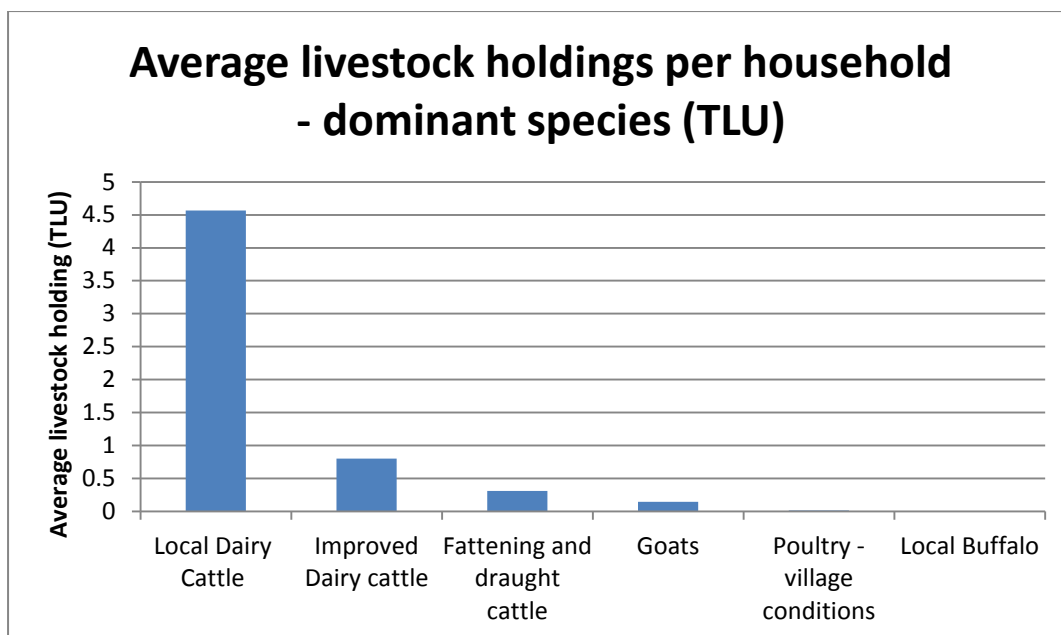
future as dairying becomes more lucrative due to the increased milk yields that can be achieved with the further introduction of improved breeds.



**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). Local indigenous breed are overwhelmingly the most important in this area kept by approximately 90% of all households. However, the area appears to be experiencing a transitional period with many farmers attempting to improve milk production per cow as their lands continue to be encroached upon by bush making grazing difficult. At present, approximately 16% of the farmers keep improved cattle. All cows (predominately indigenous breeds) are milked regularly during lactation. The average milk production per cow per day is 3 litres. The resultant milk is then sold to Kiboga West Dairy Farmer Association (DFBA) for an average of 300 UGS (0.13 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

Management practices of the cattle are broadly similar between households in the area. However they differ based on the season and quality of the animal. Crossbred and improved cows are kept and managed separately. Both classes of cattle are grazed throughout the day and confined in cattle sheds overnight. However improved cattle are often grazed on improved pastures while local cattle are allowed to search for pasture in the thickets of trees and shrubs. Improved cattle may be supplemented with additional forage or supplements overnight. Cattle tend to move longer distances during the dry season than the wet season. Pigs are tethered within the close proximity of the homestead.

Private and government veterinarians are the most important animal health providers available to farmers in the area. Most farmers tend to prefer government veterinarians because the technical capabilities of private veterinarians are uncertain. However services of both types of health providers are costly to most farmers. For example treating East Coast Fever (ECF) costs farmers 20,000-50,000 per dose while they pay 9,000-15,000 per dose for lumpy skin disease. Vaccines for Contagious Bovine Pleural Pneumonia (CBPP) and Foot and Mouth Diseases cost UGS 6000 and 5000 (2-3 US\$) respectively.

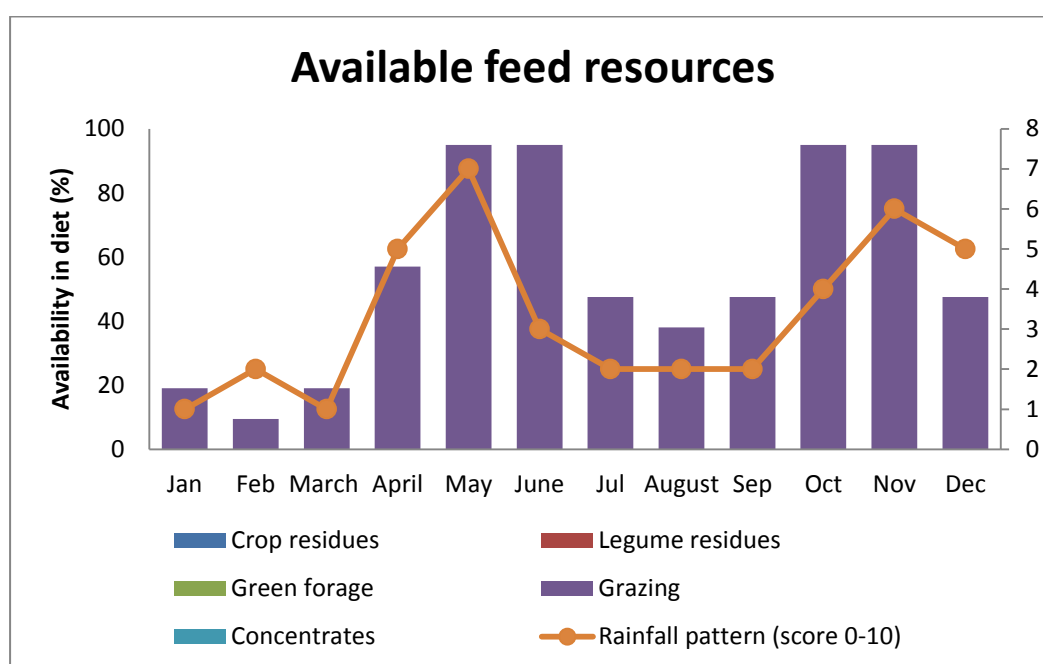
Artificial Insemination (A.I.) is available at the Kiboga West DFBA and also through government and private practitioners. However, farmers have to request and pay for services including transport charges. A.I. charges are variable depending on distance and type of practitioner. Kiboga West DFBA charges UGS 30,000 (11 US\$) per service per cow and the same again for repeat services. This includes UGS 7,500, 2,500, and 5,000 for straw, liquid nitrogen and disposable items cost respectively plus UGS 10,000 and 5,000 for labour and transport charges respectively. Most farmers use their own local bull service. However, those who do not have bulls pay USH 10,000 (2 US\$) per service.

At present cattle prices vary with season increasing during the wet season (500,000 – 1,000,000 UGS (212-426 US\$) per head) and dropping drastically in the dry season (250,000 – 500,000 UGS (104-212 US\$) per head) during the dry season. Sheep and goat prices tend to remain the same throughout the year ranging 50,000 – 90,000 UGS (21-3 8US\$) 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 the most important. Maize stover is overwhelmingly available but unfortunately not utilized by farmers as an important feed resource in the area.

Grazing is the primary component of the feed base within this area throughout the year. However, grazing drastically reduces during the dry season in January – February and July-August as shown in Figure 5. About the availability of crop residues, little effort have been taken to use them for feeding. Farmers also purchase very small amounts of concentrate feeds throughout the year. Concentrate contains predominately maize bran. 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. This system relies heavily on grazing and collected feedstuffs such as agro by products as a source of feed. With migration as a result of severe drought within the area, the quantity of collected feeds available each year is decreasing as cropping decreases. The

encroachment of bush on grazing pasture has drastically reduced biomass production from grazing lands and this has led to overgrazing. This is aggravated by presence of termites on grazing lands reducing grazing areas even further. Some farmers have already commenced purchasing concentrate feed to help alleviate this constraint. There is an emerging trend in purchasing forage especially crop residues. However, there is no attempt by some farmers to improve the quality of the crop residues. 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. Other animal health related issues include the prevalence of tsetse fly and tick borne disease.

### Potential interventions

The combination of shrinking grazing lands and reduced availability of collected feeds as well as lack of cereal crop residues put the farmers in this area in a difficult position in terms of increasing their productive output as there are very few on-farm options available to them. To alleviate feed constraints it will be necessary for farmers to produce more feed biomass per hectare from grazing. Improved biomass production from grazing can be facilitated through the use of simple pasture improvement technologies such as bush clearing and using over sowing strategies e.g. strip and band sowing. Farmers also have the option to purchase larger quantities of concentrate. This will significantly increase the cost of production. Enhancing pasture quality through collective action is a promising option. However, increased milk production will also be required to offset the increased cost of production. Therefore, it will be imperative that an integrated approach is taken and efforts are also made to upgrade existing cattle breeds through improved access to AI services.

### Key issues

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

### Ways forward

- Introduce strategies to improve pasture through collective action
- Enhance arrangements for purchase of fodder from urban fodder producers
- Improve AI services

## Conclusion

This area is predominately a pastoral livestock production system. At present, off-farm activities are the primary agricultural contributors to household income. Cattle are the most important livestock species. The area is currently experiencing feed shortages and farmers are looking into other options such as utilization of crop residues. Improved milk production is constrained by a lack of feed sources (both in terms of quality and quantity) and access to improved dairy breeds. 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.