

FODDER BANKS AND OTHER FEED SOURCES FOR LIVESTOCK

Introduction on Fodder Banks and their use/purpose

Poor nutrition is one of the most limiting factors affecting livestock productivity in Malawi. Even when the quantity of vegetation appears to be adequate, its value may be deficient in digestible protein, energy, or essential minerals. Nutritional constraints occur most often during the long dry season. In areas where cultivation pressures are high, nutritional constraints may occur in the wet season since livestock are tethered or stall fed to keep animals away from cropland. This may limit the quantity of food consumed, although its quality may be satisfactory.

Because fodder banks compete with other farming activities for land, labor and capital, they are best suited to farmers who generate substantial income from the sale of animals or their products, milk for example. Otherwise, it is more practical to make better use of existing forage resources. Possibilities for supplementing the forage supply of livestock include:

- **Intercrop or Undersow Legumes.** These crops retain their nutritive value into the dry season. Examples of herbaceous legume that are valuable fodder include *Lablab*, *Stylosanthes*, *Desmodium*, *Mucuna*, and *Centrosema*.
- **Intercrop shrubs and trees.** Many palatable trees (such as *Acacia* and *Bauhinia* spp.) retain their leaves for some or all of the dry season and so can be lopped for fodder. Naturally growing trees can be managed for the same purpose. The pods of many trees also provide abundant, high quality fodder during the dry season (e.g., *Acacia tortilis*, *Dichrostachys cinerea*, *Faidherbia albida*, *Piliostigma thonningii*.) A mature *F. albida* (msangu) tree may produce 100 kg or more of nutritious pods. (see Fig 1. results of feeding trial with sheep and nutritional analysis of pods).
- **Conserve fodder as hay or silage.** These are not widespread practices, and are generally not recommended for smallholders. To make good silage, a watertight and airtight silo is required. Hay making relies on sub-drying, and if hay is made towards the end of the wet season, its quality can be reduced by leaching of nutrients. Both practices demand labour when it is also needed for harvesting crops. In reality, most grass is best left as "standing hay".
- **Use crop and industrial by-products.** Considerable quantities of cereal straw, husk, oil-seed residues, vegetable waste, and other crop residues from groundnuts, cowpeas, pigeon peas, soyabeans, maize, rice, cotton, and sugarcane are available in many areas. Some residues are well-utilized, but a lot are wasted. Their feeding value needs to be appreciated with the development of practical methods of transport and feeding.
- **Use of supplements.** Where one specific nutrient is lacking, a supplement can have a dramatic effect on productivity. For instance urea, minerals and molasses give non-protein nitrogen, specific minerals and energy, respectively. Sesame and cotton seed cake are other sources of high quality protein and energy feed for livestock, particularly for pregnant and lactating animals.
- **Bring in fodder from other areas.** This is likely to be impracticable for most of Malawi but may be practiced when droughts occur.
- **Limit the numbers of animals.** For communal grazing areas, this depends on a good social structure in the community. Restrictions imposed by governments are rarely successful. Widespread veterinary treatment can aggravate the problem, but improved marketing offer opportunities to increase offtake and should be encouraged.

Weight gain of sheep fed FA pods for 8 weeks as a dry season supplement to wetland grazing (from HSK Phombeya, MS Thesis, Washington State University)

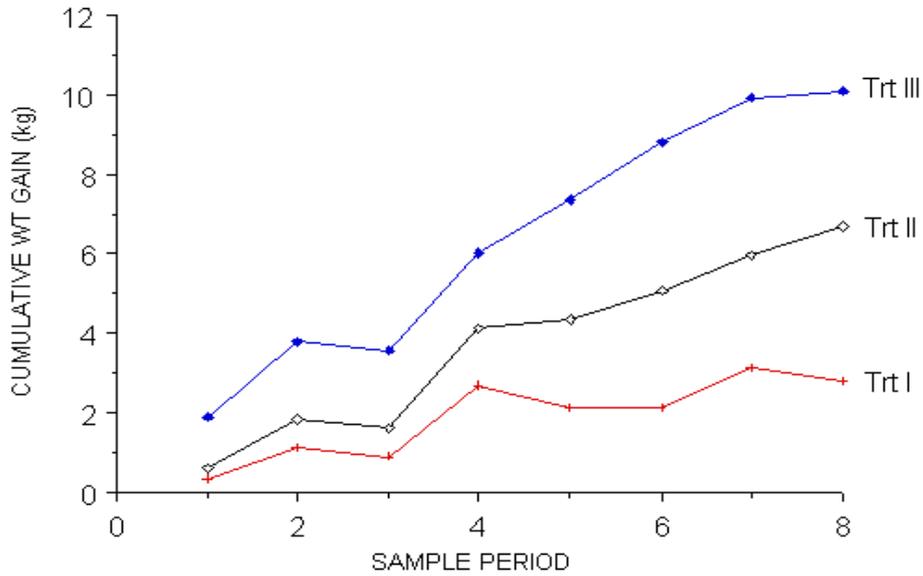


Fig. 1. Cumulative weight gains of lambs offered no supplement (Trt I), 290g /day/lamb (Trt II) and 600g/day/lamb (Trt III) of pods to supplement dambo grazing.

Proximate analysis composition and dry matter digestibility of FA pods

Component	%
Dry matter digestibility	46.6
Crude protein	10.1
Crude fiber	25.4
Ether extract	1.1
Ash	5.1
Nitrogen free extract	58.9
Calcium	0.6
Phosphorus	0.1
Sodium	0.1
Potassium	1.6
Ca/P ratio	6

How much land and forage do you need?

The answer to this question depends on many factors, among which include:

- the type and numbers of animals targeted (species, age, sex, female vs male, young vs old, lactating vs dry etc.),
- the objective of production (dairy vs meat, weight gain vs maintenance, etc.),
- climatic and environmental conditions,
- farm type and size,
- availability of existing forage resources in terms of quantity and quality at different seasons,
- the type of feed supplement proposed, with estimates of its yield and quality.

These details need to be known in fair detail before undertaking efforts to establish fodder banks. Professional advice should therefore be sought from veterinary or livestock specialists in the government or private sector.