

## Fodder Shrubs, Enrich Feeds & Improve Livelihoods

### Use of homemade rations to improve the productivity of dairy animals

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Dairy cattle and goats need sufficient feed with adequate levels of nutrients in order to support animal body maintenance, growth, milk production and pregnancy. It is essential that the feed offered to animals should supply sufficient energy, digestible crude protein, vitamins, and minerals.

In central region, farmers usually use Napier grass (*Pennisetum purpureum*), maize stovers and other types of grass for the basal diet. To improve the productivity of Napier grass, the farmer should apply manure and fertilizers and ensure timely weeding. It should be cut when re-growth is 1 to 1.5 metres to optimize its supply of energy and protein for the animals. Fodder shrubs such as calliandra, trichandra, diversifolia, tree lucerne, sesbania are widely grown by smallholder dairy farmers. During the rain season excess forage from fodder shrubs are available and can be used in processing the leaf meal that is a main ingredient for formulating the homemade rations.

To boost milk production, other supplemental feeds are required for the animal. Usually, farmers purchase commercial feed such as dairy meal and bran but for smallholder farmers, these feeds are expensive and the quality is often poor. Therefore it is necessary

for these farmers to use alternative sources of high quality supplements. One option is the use of homemade rations containing leaf meal from fodder shrubs.

Homemade rations are simple mixtures of several ingredients such as Most of the ingredients should be within the reach of smallholder farmers. Leaf meal, processed from the fodder shrubs can provide the protein needed in the ration. Formulation of homemade concentrates involves mixing the leaf meal with energy-rich materials such as bran from maize, wheat, or rice.

The table below provides information on how to formulate a homemade ration using various ingredients to make 100 kg concentrates.

#### Why homemade rations?

- Reduce the cost of milk production
- Assure feed quality and availability
- Affordable
- Save time & effort needed to purchase
- Ensure sufficient supply of required nutrients by the animals because it is cheap

Encourage planting fodder shrubs for environmental conservation & other benefits.

#### Formulation of 100 kg home-made concentrate

Ingredients	Home-made Concentrate A (kg)	Home-made Concentrate B (kg)	Home-made Concentrate C (kg)
Wheat bran	61	85	78
<i>Calliandra calothyrsus</i> leaf meal	39	0	0
<i>Leucaena diversifolia</i> leaf meal	0	15	0
<i>Leucaena trichandra</i> leaf meal	0	0	22
<b>Total (kg)</b>	100 kg (Wheat bran & <i>Calliandra</i> leaf meal concentrate)	100 kg (Wheat bran & <i>Leucaena diversifolia</i> leaf meal concentrate)	100 kg (Wheat bran & <i>Leucaena trichandra</i> leaf meal concentrate)
<b>Cost (Ksh/kg)</b>	5.45	7.19	6.68

Note: Costs used for the ingredients were: Wheat bran - Ksh 8.25/kg and Leaf meal – Ksh 1.00/kg