Theme 2: Forage conservation

ESTIMATING FODDER SUPPLIES FOR DRY SEASON FEEDING & PLANNING OF FEEDING MANAGEMENT - Level 1

Topic	Training & information Content
2.1	Fodder conservation and storage
2.2	Estimating ideal time of harvesting
2.3	Guideline for silage making
2.4	Fermentation process in silage
2.5	Treatment of straw with Urea
2.6	Making of urea/molasses/mineral lick
2.7	Management of silage pit (feed out)
2.8	Estimating fodder supplies for dry season feeding & planning of feeding management

1. You will learn about (learning objectives):

- ❑ Understand the difference between dry season and drought period.
- ❑ Challenges during the dry season.
- ❑ Estimating fodder supplies of fodder in a farm for the dry season.
- ❑ Strategies on dry season feeding.

2. Introduction

- Dry season refers to a period within a year when rainfall is low. The dry season is a natural reoccurring annual event.

- Drought is a prolonged dry period in the natural climatic cycle, it can result in extreme water shortage for forage crops, pastures and cattle.

- Dry field conditions limits forage production.

- Limited water intake, limited feed intake and low quality of forages (pasture grasses, hay, silage) leads to underfeeding.

3. Challenges during dry season feeding

- Underfeeding of cows, feeding below individual cow requirements.
- Reduced milk production and the risk of weight loss.
- Dairy management challenges within the farm for example: maintain forage production, (e.g. cut and carry or pasture based systems, continuation of feeding management).
- Characterized by high demand, low supply , high prices especially of feed and milk.

4. Tips on improving dry season feeding

- Design feeding program using locally available and on farm produced feeds, this saves feeding costs and optimizing available resources within the farm.

- Make use of excessive growth of forage crops and pasture grasses during the wet season, harvest at the right (nutritious) stage, preserve and store on the farm.

- Make use of low quality feeds such as straws and stover, improve nutritional value of the feeds through urea treatment.

Silage making for future use

5. Tips on improving dry season feeding cont'd…

- Supplement the ration of dairy cows with on farm preserved and stored forages.

- Balance the ration to meet the animals requirements.

- Do not change ingredients in a rations too rapidly. This can cause metabolic problems to the animals.

6. Tips on improving dry season feeding cont'd...

- Where necessary chop/process straw, stover, hay rich rations for better feed intake.

- Reduce feed losses e.g. bunk feeding compared to feeding on the ground. Ground feeding results in excessive waste and feed losses.

- Differentiate feeds on quality-basis and offer the highest quality feeds to animals with higher feed requirement e.g. period shortly before and after calving.


Ground feeding


Trough feeding

7. Questions to answer when planning for dry season feeding management

1. How long does the dry period last?
2. What are the feeds that need to be available in the farm during this period?
3. Which feeds are more or less interchangeable (can replace each other during dry period)?
4. What is the expected milk production in the dry period?
5. How much, of each feed is needed per day and for the whole period to produce the expected milk production?

8. Example of feeding a cow in the dry season: animal information

- In our example the dry season lasts 3 month (90 days).
- The dairy cow, at the start of the dry period has the following characteristics lets look at how to feed her during the dry season.
- The aim is the cow not to lose weight and maintain her body condition.

  - Body weight: 500 kgs
  - Stage of lactation: Mid lactation
  - Days in milk: 150 days
  - Days pregnant: 70 days
  - Average milk yield per day: 12 liters
  - Walking distance 2.5 km per day.
  - Farm terrain is a little sloppy (undulating)

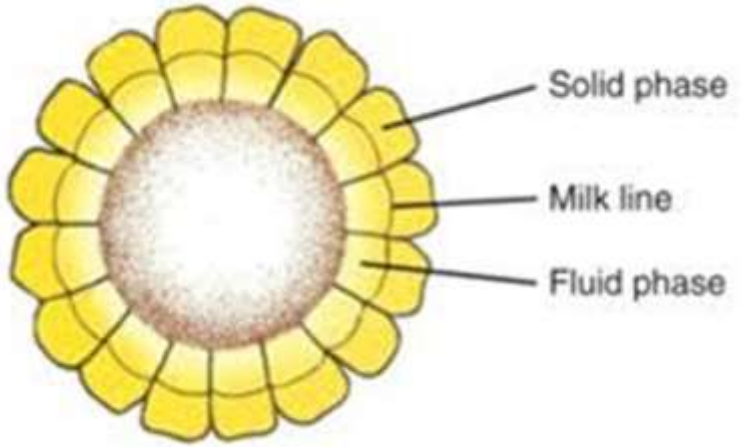
9. Example of cow feeding: feed details

- The farmer wants to plant forage maize and harvest the maize to make maize silage for supplementary feeding during the dry season.

- The farmers planted improved Brachiaria for cut and carry and want to make hay of some it for feeding during the dry season.

- The feeding estimation are her feed requirements for the whole day.

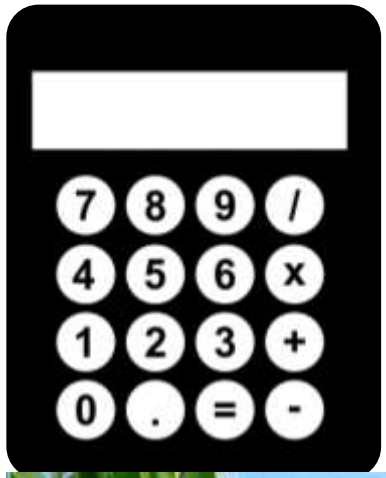
- **(See module on: Estimating ideal time of harvesting)**



10. Example of cow feeding:
feed details cont'd…

- Brachiaria hay (harvested at a leafy stage of good quality with high protein content).
- Maize silage (harvested at dough ripe stage and well fermented).
- Minerals (as required to balance the ration).
- Limestone (as required to balance the ration).

- **See module on: Estimating dry matter for various breeds/age categories.**

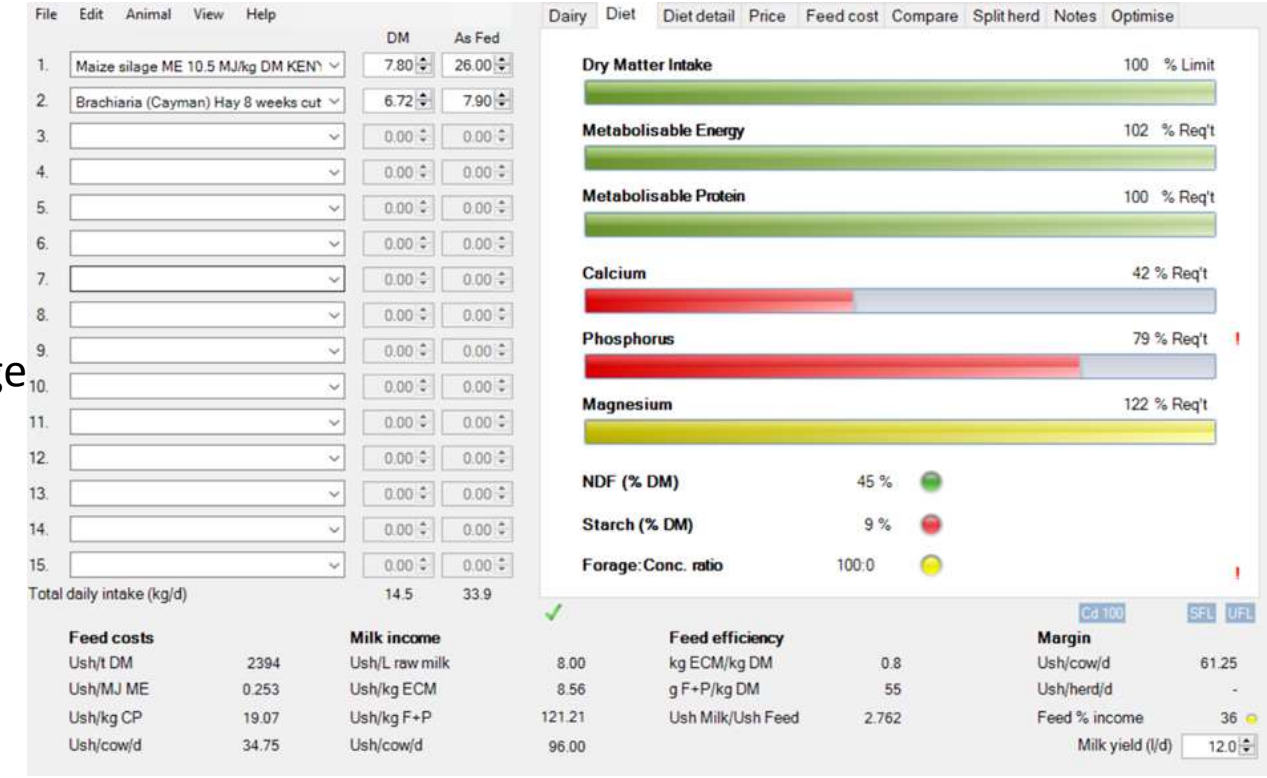


11. Estimating acreage of forage maize to grow for silage making for 90 days

- Daily usage is: 26.0 kg per day as fed.

- To sustainably feed the cross-breed cow in our example the farmer need to have 26.0 kg maize silage for 90 days = 2,340 kg of maize silage.

- Feeding the cow in our example with silage (26 kgs) and brachiaria hay (7.9 kgs) everyday during the dry season can sustain the cow.



12. Estimating maize silage supply for a cow

Working with the following assumptions

- Yield per acre – 12,000 fresh maize silage
- Dry matter (DM) of maize silage – 30%

Animal feed intake estimates at:

ESTIMATING MAIZE SILAGE SUPPLY FOR A COW		
Number of cows	**Total Silage (as fed)**	**Total period of 3 months (90 days)**
1	26 kg	2,340 kg
2	52 kg	4,680 kg
10	260 kg	23,400 kg

13. Estimating fodder supplies for dry season feeding

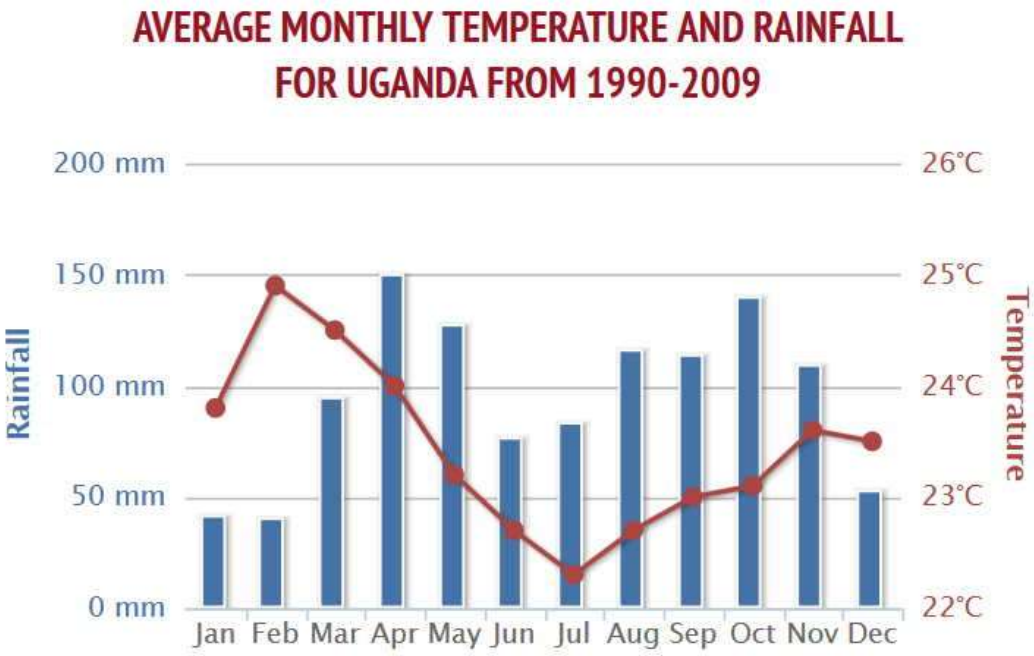
- Decision on estimating fodder supplies are for example:
  - Length of dry season.
  - Water availability and management.
  - Identifying forage crops that can be grown
  - Forages that can be purchased from neighbors or traders
  - Feeding strategies

14. Length of dry season

- Planning should be informed on valuable (historic) data (information) and farmer experience/knowledge.

- Historic information on the regions rainfall distribution patterns help farmers to prioritize and plan in relation to future changing climatic conditions.

- Conserve and store on farm produced feeds to protect feeds from harsh side-effects of dry season.



15. Water availability and management

- Water is an important basic component of animal nutrition and should be made available to cows all day.

- The distance to watering points for the cows need to be kept at a minimum.

- Water demand in cows increases with temperature and temperature higher than normal causes heat stress.

- Extra available water can necessitate its use for irrigation on forage crops and pastures.

16. Identifying feeds to be grown on farm

- Farmers should efficiently utilize pastures. (see module on: tropical pasture management

- Farmers using pasture-based systems need to consider growing grass species/varieties and forage crops suited for the local climatic conditions with more, persistent, yield and high nutritive content.

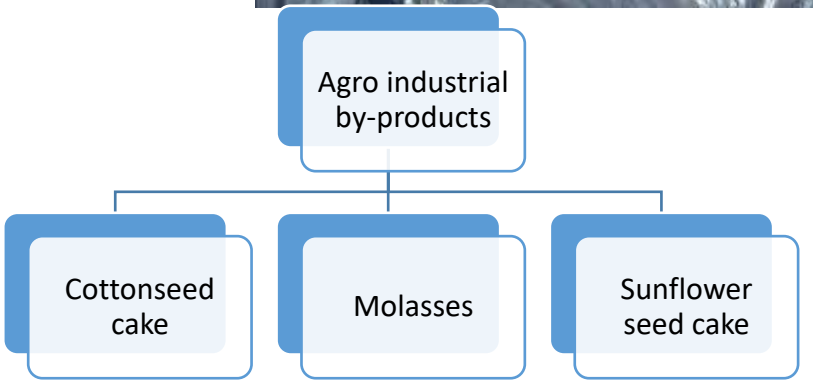
- In pastures-based systems stocking rate should be carefully considered and culling unproductive animals may be considered to maximize output.

Bought feeds

Grown feeds

17. Feeding strategies

1. Harvest excess green forages during the rainy season, dry and store.
2. Making silage from fodder production for example: maize silage.
3. Store , treated, crop residues after harvesting the main food crops.
4. Purchase and store agro-industrial by products like brewers waste.
5. Make or buy concentrates and store, they can also be used to make molasses, urea mineral block.
6. Purchase minerals and vitamins since stover and straw will have low mineral content.



18. Encouraging feed intake during dry season feeding

Chopping forages

- Increases feed intake

Wetting dry forages

- Sprinkle water, a bit of salt to dry grass/straw encourages feed intake.

Soaking forages in molasses water mixture

- Soaking overnight and add molasses to increases palatability of feed.

Treating straws with urea

- Treating straw with urea increases the nutritional quality of straw.

- **(See module on: treatment of straw with Urea)**

19. Summary

- ✓ Cows like consistent feed rations, this is achieved through prior planning and budgeting (1 year plus).
- ✓ Consider strategies using locally available fodder first before buying for example: conservation (baling & silage making).
- ✓ Well fed cows are happy cows !!!!!!!