

# GUIDELINES FOR TROPICAL PASTURE AND GRAZING MANAGEMENT

## (Level 3 – Part I)

Topic	Training & information Content
1.1	Planning of fodder/feed requirements for the dry season
1.2.1	Integrated soil fertility management I
1.2.2	Integrated soil fertility management II
1.3	Use of natural resources, compost making, farmyard manure, manure storage and use
1.4	Growing maize and sorghum for fodder and estimating time of harvest and yield
1.5	Brachiaria, Panicum, & Napier (cut and carry) grass management
1.6	Growing fodder trees and use of feed
1.7	Estimating of dry matter content, feeding value and yield of various fodder crops
1.8	Guidelines for Tropical pasture management and grazing management
1.9	Scaled mechanization of forage production and pasture management (harvesting practices)
1.10	Operating farm equipment and self-propelled tractors
1.11	Mechanization of feeding management
1.12	Economics of forage and pasture production



## 1. You will learn about (learning objectives):

- ❑ How to manipulate grazing to achieve increase milk production with healthy cows.
- ❑ How to control grazing behaviour of cows in tropical perennial pastures.



**IMPORTANT**

*This module has two parts; this is part I – download Part II to continue to END.*



Close up of native brachiaria / centrosema

## 2. Introduction

- Pasture management is the practice of growing healthy grass and legumes to profitably sustain forage availability and livestock production while ensuring ecological health.



Close up of native Kikuyu grass

### 3. The value of pasture

- The real value of the pasture lies in the growing plants and the harvested (hay) crop, but this value is never realized until the grass/hay is converted into milk (or meat). This is where the payoff is.
- The payoff depends on the yield per acre and the quality of the pasture.



## 4. Pasture quality

- Pasture quality is a broader term which includes:
  - Palatability of the forage
  - Daily intake of the forage (referred to as dry matter intake (DMI))
  - Chemical composition of the forage (nutritive value)

Cows grazing  
on hybrid  
Brachiaria  
grass



## 5. Factors influencing pasture quality

- Pasture quality will depend on many factors including:
  - i. Location
  - ii. Climate zone (temperature, humidity, precipitation)
  - iii. Type of grass and/or legume
  - iv. Grazing management



**Note:** Fertilised perennial tropical grasses have higher quality forage than native pastures.



## 6. Daily feed intake

- Feed intake is the driver for animal production; this means with pasture management, the focus needs to be on optimising both the quantity and quality of forage material available.
- The forage material that can be harvested (also referred to as bio- or herbage mass) for cattle should be 1600–2500 kg DM/ha (when digestibility is 65%).



## 7. Siting/locating pastures

- Pasture management in water logged places or on steep slopes has many challenges. For example establishment of improved pastures as well as mechanization of pasture maintenance.





## 8. Establishing pastures: Seedbed preparation

- Tropical perennial grasses require a well-prepared fine seed bed.
- Mechanical seedbed preparation should be done well before the rains. The dry conditions makes it easier to prepare the land and kill weeds.



- If the piece of land is prone to obnoxious weeds or grasses e.g. couch grass, star grass, herbicide spraying is advisable to systematically control these weeds.

## 8.1 Establishing pastures: Seedbed preparation Cont'd...

- Preferably use a chisel plough to about 25-30 cm depth and harrow the land to obtain a fine soil tilth necessary for seeds that are small.
- To minimize variations in performance and to make mechanized operation easier, avoid slopping and uneven land.



Avoid slopping or uneven land



## 8.2 Establishing pastures: Seedbed preparation to fine tilth

- Cultivate to a fine tilth and level field with a spring tine cultivator. Cross cultivating helps to level the field.
- The fine tilth will increase germination rates.
- A levelled field is much better if the grass will be mowed frequently. This will spare your machinery (prevent the mower blades or hay rake from hitting lumps of soil) and results in quality forage material after cutting (mixing your grass for hay or silage with soil).



## 9. Broadcasting grass seeds

- Seeding can start after at least 30 mm of rainfall.
- The soil needs to be moist. It is important that the grass seeds are in contact with the moisture in the soil.
- Broadcast the seed at the recommended rate in kg/ha. Grass seeds are generally very light.
- For broadcast sowings, seed can be spread mechanically for example using a fertilizer spreader or sown by hand.



## 10. Seeding perennial grass seeds

- For drilling using seed drills, be very careful not to bury the seed to deep > 1 cm.
- Roller drills are preferred because they do not bury the seed too deeply, but instead press the seed just below the soil surface.



Roller drills



Seed drills

## 11. Bring the seeds in contact with soil moisture

- The seed, especially seeds that are very light must be pressed into the soil or lightly covered by dragging.
- The seeds can also be pressed into the soil using a tractor and drive over the field “tyre to tyre.”
- On small areas, tree branches or large brooms can be used to lightly cover the seeds with soil.
- Be careful not to bury the seed no to cover the seeds with to much soil (>1 cm).



## 12. First year after sowing

- In the establishment year, it is best to avoid grazing until plants have flowered and set seed before commencing grazing.
- Young tropical perennial grass plants have a poorly developed primary root system, so, depending on seasonal conditions, they may be susceptible to damage by grazing the first season.
- Test how well plants are anchored by pulling the plant by hand.



## 13. Weed control

- Weeding can be done manually by pulling out the weeds that are germinating.
- Broadleaf weeds can be sprayed with a herbicide after they have germinated.
- Use an appropriate herbicide as per the recommended concentration, apply correctly , safely and under the right conditions. Seek expert advise if in doubt.





## 13.1 Weed control Cont'd...

- Once the grass has established a firm system it can be cut mechanically together with the weeds.
- Broadleaved weeds will perish after their growing point, in the top of the plant, has been cut once.
- Alternating regularly between grazing and mowing will keep the pasture vigorous and free of weeds.



A Brachiaria hybrid grass with weeds

## 14. Grazing management

- Under good grazing management, grasses harvested by cows will be in a vegetative state and approximately 15 to 20 cm tall, depending on the type of grass.
- Grasses harvested as hay or silage are typically more mature than when harvested as pasture.
- Grazed pasture should be of higher quality than stored forages.



## 14.1 Grazing management Cont'd...

- Legumes such as centrosema, stylosanthes, desmodium, sunn hemp or alfalfa are usually grazed at an earlier stage of growth than when harvested as hay.
- With excellent grazing management we should expect to have higher quality forage when harvested as pasture than when harvested as stored forage.



Native Brachiaria/Centrosema mixture  
at young leafy stage



Field of Desmodium



Stylosanthes

## 15. Fertilization

- For initial fertilization during planting, use a phosphorus dominated fertilizer such as DAP at rate of 50 kg/acre to support root development.
- Subsequent applications can be done annually with nitrogenous fertilizer at a rate of 50-100 kg/acre of calcium ammonium nitrate (CAN).
- Application should be done after rains when the soil is wet enough to dissolve the fertilizer.
- Preferably, application should be after harvesting when the soil is wet to enhance regrowth.



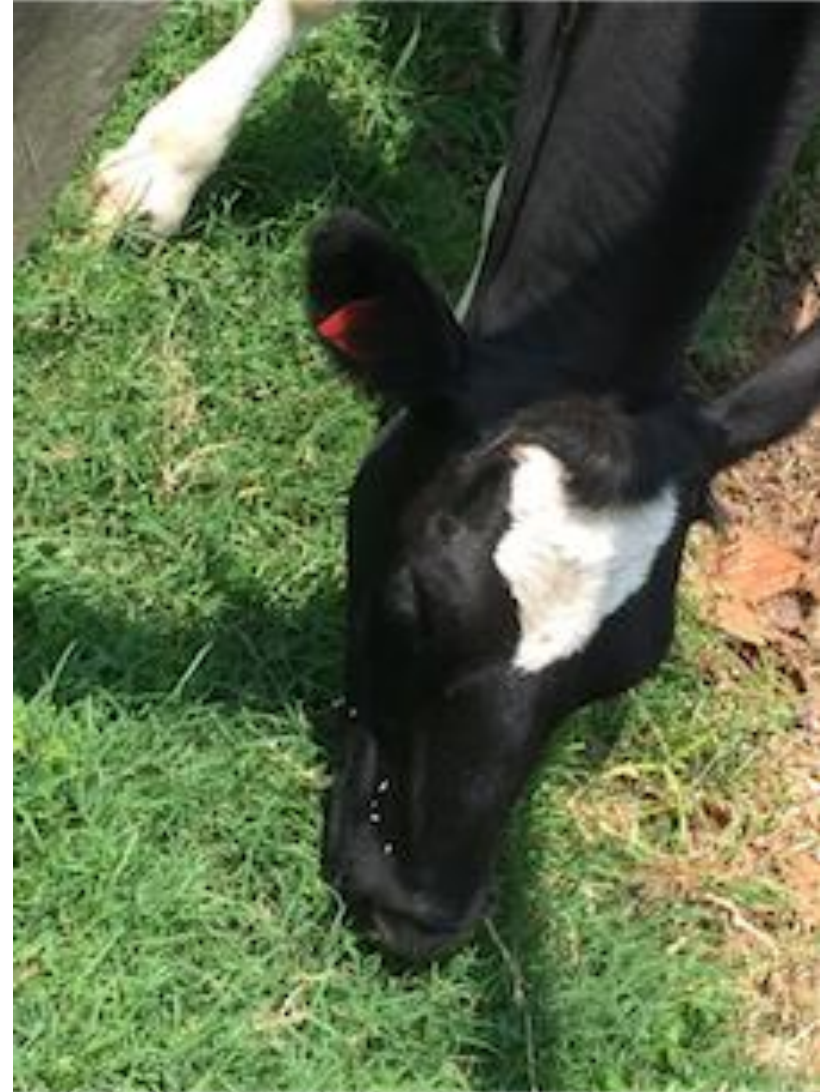
## 16. Selective grazing

- The potential for selection is great in tropical pastures because of the large variation in nutritive value (nitrogen, digestibility, fibre and chemical composition), both within and between the leaf and stem components of tropical pasture swards.



## 16.1 Selective grazing Cont'd...

- Given the opportunity, grazing animals are highly selective in what they eat.
- In situations where animals remain on a large area of land for an extended period of time, this behaviour can have severe detrimental consequences to the area.
- In extensively grazed fields, animals spend more time walking around picking and choosing the plants they like the best, and then grazing them the most.



## 16.2 Selective grazing Cont'd...

- Those plants can be so heavily grazed that they eventually weaken to the extent that other less desirable plants encroach and push them out.
- This results in 'weedy' fields, which further emphasises the importance of rest periods.



## 17. Avoid over-grazing

- Divide your land into (fenced) paddocks and rotate your cows between the paddocks every 4-6 days.
- Continuously graze the paddocks with a fixed number of animals (set stock).
- Use grass species or pasture mixes that are known to tolerate intensive rotational grazing.
- During the wet season, 4-6 weeks rest periods between grazings are recommended depending on soils and fertilization.





## 17.1 Avoid over-grazing

- During dry season without irrigation, longer rest periods of 8-10 weeks are recommended.
- On good soils with fertilizer applied, quicker recovery periods between grazing's (4 weeks in the wet season) and more frequent cutting can be practiced.
- Rhodes grass is particularly susceptible to overgrazing in dry conditions or when soil nitrogen levels are low.
- Once plants are well rooted during the season then light grazing may increase tillering.



Leafy kikuyu at the 4.5 leaf stage – ready to graze



A stolon of kikuyu grass with three lateral tillers and one apical tiller.

## 18. Important note



*This module continues in  
Part II...*

**- PROCEED TO PART II -**