Theme 2: Forage production and pasture management

GUIDELINES FOR TROPICAL PASTURE AND GRAZING MANAGEMENT

(Level 2 – 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).

- 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.

7. 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.

7.1 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 and results in quality forage material after cutting.

8. Broadcasting grass seeds

- Seeding can start after at least 30 mm of rainfall.
- The soil needs to be moist.
- Broadcast the seed at the recommended rate in kg/ha. Grass seeds are generally very light.

9. 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.

Roller drills

Seed drills

10. Bring the seeds in contact with soil moisture

- The seed, especially seeds that are very light must 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).

11. 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.
- Test how well plants are anchored by pulling the plant by hand.

12. 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.

13. 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.



13.1 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.

Native Brachiaria/Centrosema mixture at young leafy stage

Field of Desmodium

Stylosanthes

14. Fertilization

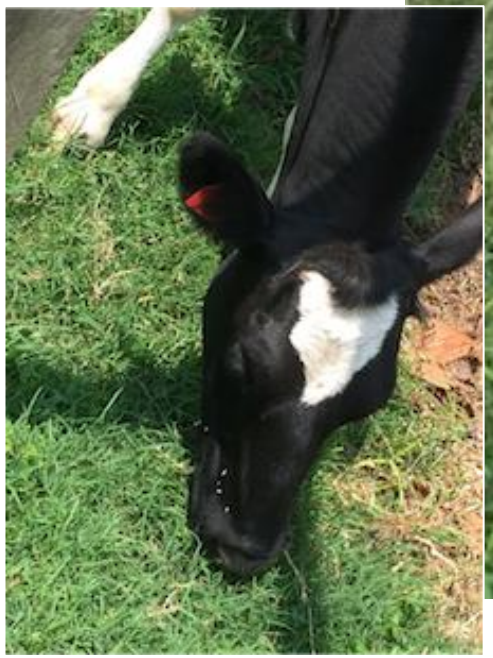
- For initial fertilization during planting, use a phosphorus dominated fertilizer such as DAP at rate of 50 kg/acre to support root development.

- 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 and to enhance regrowth.

15. 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.



15.1 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.

16. Avoid over-grazing

- Divide your land into (fenced) paddocks and rotate your cows between the paddocks every 4-6 days.
- 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.

16.1 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.
- 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.

17. Important note

This module continues in Part II…

- PROCEED TO PART II -