Theme 1: Forage production and pasture management

OPERATING FARM EQUIPMENT AND SELF-PROPELLED TRACTORS - Level 1

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 operate various farm equipment & tractors.
- ❑ Standard operating procedures for operating various farm equipment and tractors.

2. Background

- Farmers should select the right machinery and equipment for the dairy farm.
- Tractors and farm equipment’s make work done easily and within the shortest time.
- Maintenance reduces damage of machinery.

3. Benefits of using mechanized equipment in a farm

- Operations are conducted timely.
- Encourages precision operations i.e. precision planting by tractors.
- Increases productivity in activities.
- Increases output increases profits for farmers.
- Minimizes losses during operations.

4. Types of tools and equipment in a dairy farm

i. Handheld tools
ii. Tractor and its implements
iii. Harvesting equipment & machinery
    - Chopper
    - Harvester
iv. Milking machine

Tractor

5. Tractor and its implements

Parts of a tractor

Roll-over protective structure (ROPs)

Tail lights

Three-point hitch

Hydraulic connections to implements

Rear wheels

Draw bar

Power take off (PTO)

6. Benefits of using a tractor

- Has wide range of functions for farm work i.e. ploughing, harrowing and form of transport during harvesting.
- Power of tractors assists in doing work faster.
- Tractors are durable and can last longer if well maintained.
- Easy to operate tractors.
- Reduces production cost of farm operations i.e. planting.

7. Implements to attach to a tractor

- Some of these farm implements include;
  - Ploughs (disc plough, mouldboard plough, chisel plough)
  - Disc harrow
  - Planter/seed drill
  - Manure spreader
  - Trailer
  - Pallet fork
  - Tractor driven harvester/chopper

7.1 Implements to attach to a tractor Cont'd…

- Implements are either connected to:
  i. Drawbar.
  ii. Three – point hitch.

Drawbar

3-point hitch

8. Common tractor implements: Ploughs

Disc plough

Mouldboard plough

Chisel plough

9. Harrows and Planter

i. Disc harrow

ii. Spring tooth harrow

Planter

10. Harvesting equipment

- Common harvesting equipment's are:
  - Manual choppers
  - Self-propelled harvester

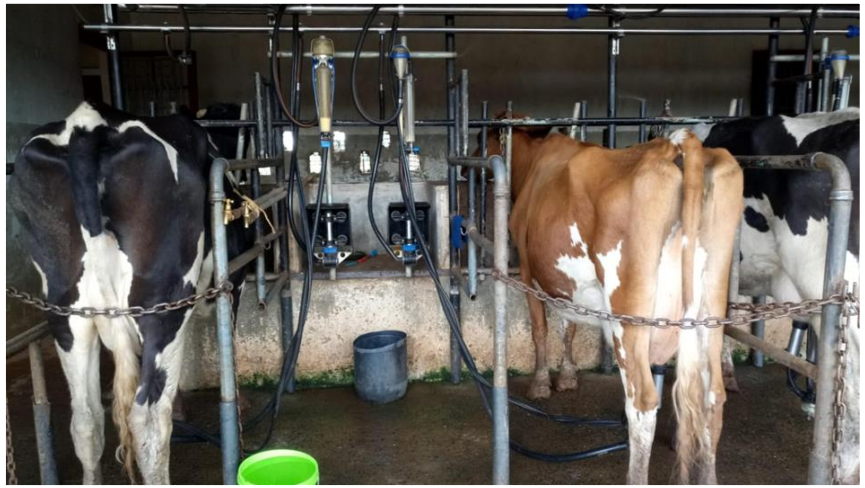
11. Manual chopper/chaff cutter

- Manual choppers are quite handy and assist in chopping variety of forages.
- Care should be taken when handling this equipment to avoid injuries e.g., hands are not allowed into the feeding port.

Photo: Felix Opinya

12. Milk handling equipment: Milking machines

i. Portable milk bucket machine



iii. Milk pipeline milking machine

ii. Fixed milk bucket machine

13. Parts of a bucket milking machine

Motor

Vacuum hose/pipe

Milk hose/pipe

Shut off

Claw

Bucket

Shell

Milking cluster

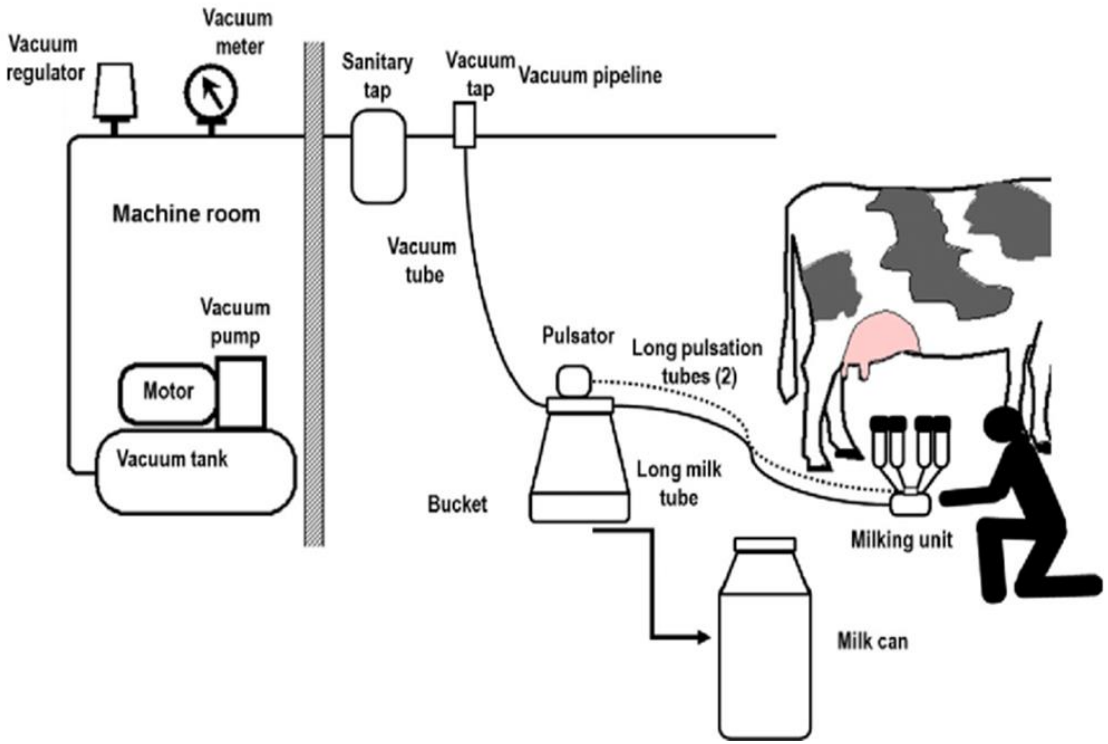
Air tubes

14. Benefits of using a milking machine

- Maximum milking can be achieved from each cow.
- Easy to operate and saves time, by enabling timely milking.
- Minimum irritation to the teats and udder.
- Machine milking avoids milk contamination by foreign materials within production site.
- Machine milking can be used on large herds and can be easily expanded when needed.
- Reduces dependence on many workers.

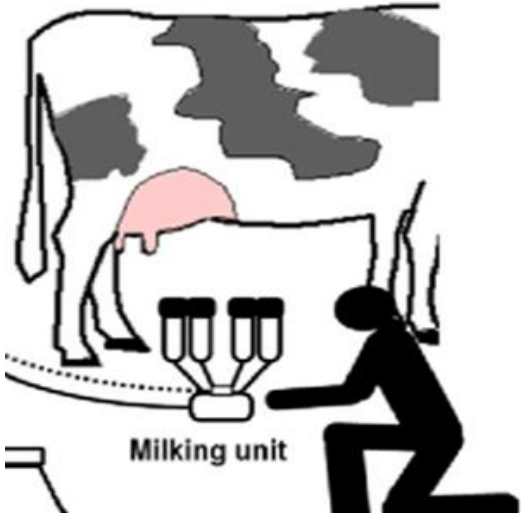
15. Checks before using a milking machine

- Milk gets first contaminated at production site
- Milking area should be clean.
- Make sure all equipment's are present and in good condition.
- Bring cows to milking parlour and handle them in a calm manner.
- Separate milk herd, milking cows under treatmen should be last to be milked.



16. Operating a milking machine

1. Clean hands with soap and water.
2. Clean udder of the cow and dry it with clean cloth.
3. Fore-strip the teats for milk using your hands, this is to check for presence of mastitis.
4. Turn on machine and attach milking unit to the cow's teats.



17. Cleaning a milking machine

1. Use hot water and detergent to clean washing machine as instructed by equipment supplier.

2. Procedure for hand washing or automatic cleaning (pipeline milking machine) should follow equipment supplier guidelines.

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