



LIVESTOCK FARM MANAGER SKILLS DEVELOPMENT PROJECT



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- Systems of Dairy Farming (Extensive, Semi-intensive, Intensive)
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- Milk Composition Analysis
 - Protein, Lactose, Ash, Vitamins
- Learning Units (LUs)
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- Equipment List
- Suggested Reading / References
- Practical Checklists
-  **Module0.1: Health & Safety in Livestock Farm Management**





HOW TO GIVE FIRST AID TO INJURED LIVESTOCK



- 4
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-  **Introduction**
- Health and safety are essential in livestock farming to protect farmers, animals, visitors, and farm workers. Safe practices reduce accidents, disease outbreaks, and environmental risks. This module introduces workplace hazards, biosecurity, personal protective equipment (PPE), emergency procedures, and the occupational role of livestock workers.
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-  **Module Objectives**

- Understand farm safety and sanitation standards.
- Identify and manage workplace hazards in livestock farming.
- Learn basic first aid and fire safety procedures on the farm.
- Apply hygiene and biosecurity principles in daily farm activities.
- Recognize the duties and responsibilities of livestock farm workers.
- Develop emergency response plans for fire, disease, and accidents.

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- **1. Safety & Sanitary Standards in Livestock Farm Operations**

-  **Hazards in the Workplace**

- **Animal-related hazards:** kicks, bites, trampling
- **Chemical hazards:** disinfectants, veterinary medicines, pesticides
- **Physical hazards:** sharp tools, slippery floors, heavy machinery
- **Biological hazards:** zoonotic diseases, manure gases, contaminated equipment

-  **General Safety Practices & Precautions**

- Safe handling of animals (restraint methods, calm approach)
- Regular equipment inspection
- Proper signage and warning systems
- Biosecurity protocols at farm entry and exit points

-  **Accidents on the Farm**

- Common accidents: slips, animal injuries, vehicle mishaps, machinery entanglement
- Accident prevention: training, safe enclosures, correct footwear

-  **First Aid and Fire Safety**

- Basic wound care
- Snake bite and fracture management

- Handling burns from machinery or hot water
- Fire extinguishers near hay storage, sheds, and chemical rooms

-  **Farm Sanitation & Personal Hygiene**

- Clean farm environment to prevent disease
- Hand washing after handling animals
- Safe disposal of manure and waste
- Control of pests and rodents
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- **2. Personal Protective Equipment (PPE) in Livestock Operations**

-  **Introduction**

- PPE protects workers from injuries, infections, and harmful substances during farm work.

-  **Clothing**

- Overalls or coveralls to protect against dirt, chemicals, and bites
-  **Eye Protection**
- Goggles when handling chemicals, semen extenders, or splashing materials

-  **Hand Protection**

- Gloves for animal handling, disinfection, insemination, and waste disposal

-  **Footwear**

- Gumboots or steel-toe boots for safety and hygiene

-  **Hearing Protection**

- Ear plugs when working near loud equipment (e.g., feed mixers, tractors)

-  **Respirators**

- Masks when dealing with dust, manure gases, or disinfectants

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- **3. Occupational Health & Safety (OH&S) in Livestock Farm Operations**

-  **Introduction**
- OH&S ensures the health, safety, and welfare of all personnel in farm activities.
- **OH&S in Specific Farm Areas**
- **Cattle & Buffalo Sheds:** animal handling, hygiene, waste disposal
- **Milking Parlors:** clean equipment, prevent mastitis transmission
- **Feed Storage Areas:** rodent control, safe chemical handling
- **Animal Treatment Areas:** disease control, restraint equipment
- **Pastures & Grazing:** fencing safety, snake awareness
-  **General Safety Requirements**
 - Proper lighting and ventilation in sheds
 - Clear pathways and escape routes
 - Record-keeping of accidents and safety training
-  **Accident Reports**
 - Reporting all injuries and incidents
 - Maintaining a safety logbook
 - Investigating causes to prevent future accidents
- ---
- **4. Fire and Emergency Procedures on Livestock Farms**
-  **Workplace Emergency Procedures**
 - Alarm systems, emergency exits, and assembly points
-  **Actions in Case of an Emergency**
 - Evacuation of animals and workers
 - Use of fire extinguishers or sand buckets
-  **Fire Safety**
 - Keep hay and chemicals stored separately

- Maintain electrical wiring and grounding
-  **Bomb Threat / Security Threat Procedures**
- Inform authorities
- Evacuate farm personnel and secure animals
-  **Evacuation Procedures**
- Designated routes and emergency gathering area
- Record of animals and workers
-  **Workplace Security Procedures**
- Controlled farm access
- Visitor logbook
- Farm perimeter fencing

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- **5. Scope of Livestock Farm Operations and Occupation of Farm Workers**

- Livestock farming involves animal care, feeding, breeding, milking, cleaning, record keeping, and maintenance of biosecurity.
- Skilled and trained workers are essential for safe and efficient farm operations.

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- **6. Definition of Occupation: Livestock Farm Worker / Attendant**

- A **livestock farm worker** is responsible for the daily care and management of farm animals, ensuring animal welfare, maintaining farm safety, and supporting farm production goals.

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- **7. Duties & Responsibilities of Livestock Farm Workers**

- Feeding and watering animals
- Cleaning pens, sheds, and equipment
- Assisting in breeding and milking operations
- Monitoring animal health and reporting illness

- Following hygiene and safety protocols
- Emergency response during disease outbreaks or accidents

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- **8. Top Qualities of a Good Livestock Worker**

- Responsibility and punctuality
- Good observation skills
- Calm and patient with animals
- Knowledge of basic first aid
- Hygiene awareness
- Ability to work in a team

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- **9. Learning Units (LUs)**

- **LU0.1.1:** Introduction to Safety in Livestock Farms
- **LU0.1.2:** Personal Safety Practices on Farms
- **LU0.1.3:** Hazard Awareness in Livestock Operations
- **LU0.1.4:** Emergency Preparedness
- **LU0.1.5:** Basic First Aid Awareness

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- **10. Practical Units (PUs)**

- **PU1.1:** Identification of farm hazards and PPE demonstration
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- **PU1.3:** First aid simulation and sanitation procedures

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- **11. Trainer's Role**

- Demonstrate correct safety procedures
- Guide trainees in using PPE properly

- Conduct mock drills and practical safety exercises
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- **12. Assessment Criteria**

- Written and oral tests on safety and sanitation
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-  **Module 1: Introduction to Livestock Farm Management**

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-  **Introduction**





- 5
- Livestock farming plays a crucial role in supporting food security, generating employment, and contributing to the national economy. Proper farm management ensures efficient production of milk, meat, and other animal by-products while maintaining animal health and welfare.
- This module introduces learners to the **basics of livestock farm management**, focusing on farm structure, production scope, functions of livestock, and the **role of a farm manager**.
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Module Objectives

- After completing this module, the learner will be able to:
- Understand the **nature and scope** of livestock production.
- Describe the **importance and functions** of livestock in society and the economy.
- Explain the **role and responsibilities** of livestock farm managers.
- Recognize the **potential of animal by-products** such as manure and biogas.
- Observe and document **real-world farm operations** through farm visits.

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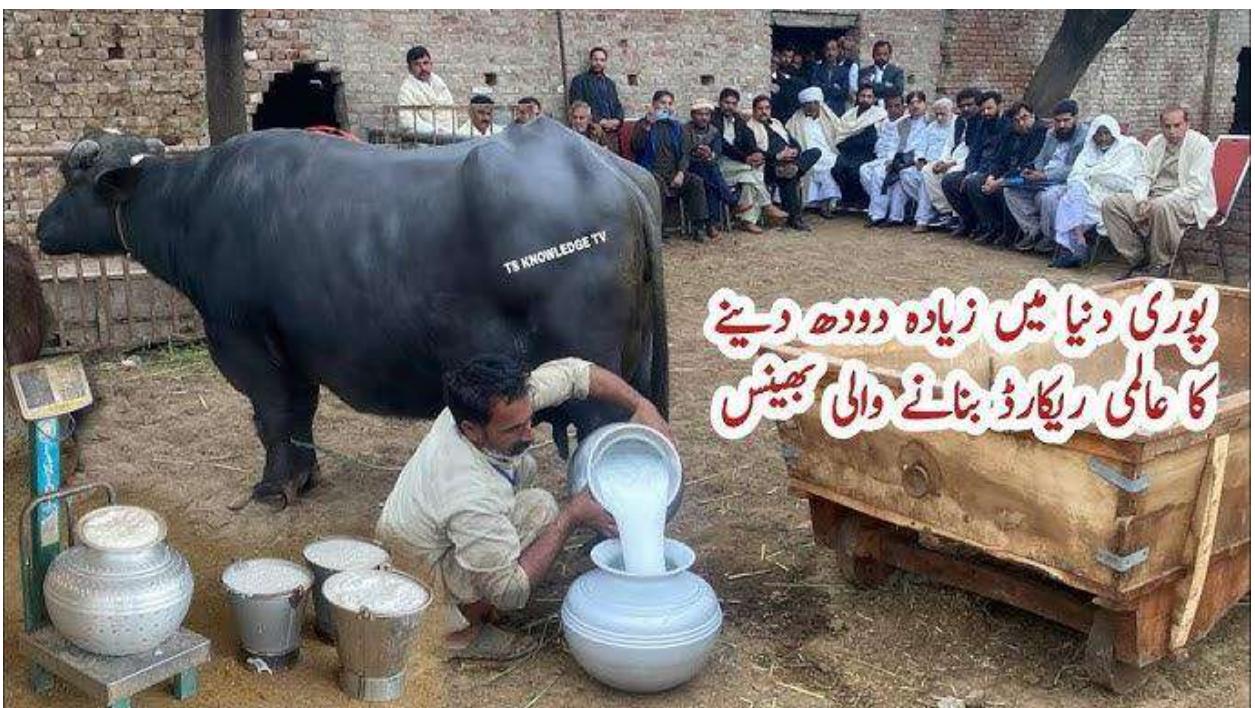
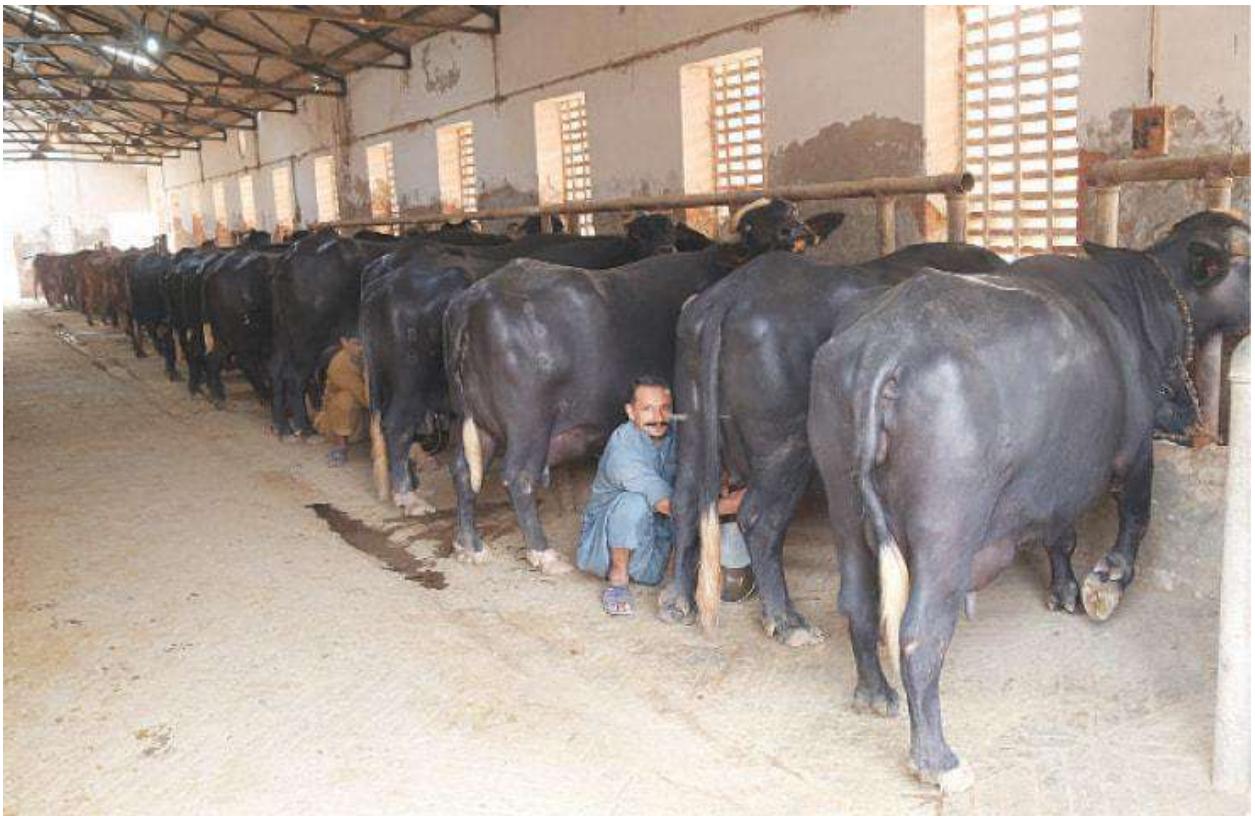
-  **Overview of Livestock Farming**
- **1. Nature and Scope of Livestock Production**







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- **Definition:** Livestock production involves the breeding, rearing, and management of animals for milk, meat, fiber, leather, and labor.
- **Major species:** cattle, buffalo, sheep, goats, poultry, camels, and others.
- **Scope includes:**
 - Dairy farming
 - Meat production
 - Draught animal farming
 - Poultry farming
 - Integrated crop-livestock systems
- **Benefits:**
 - Provides food, employment, raw materials, and manure for agriculture.
 - Strengthens rural livelihoods and supports agro-industries.
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- **2. Importance of Livestock in National Economy**





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- Livestock contributes a **significant percentage to agricultural GDP**.
- Pakistan is one of the top producers of milk globally.
- Livestock farming provides **income to millions of rural families**.
- It **reduces poverty** by providing daily cash income through milk and meat sales.
- Livestock also supports industries such as leather, wool, meat processing, and dairy products.
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- **3. Functions of Livestock**



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- **Milk Production:** Primary source of dairy products (milk, yogurt, butter, cheese).
- **Meat Production:** Beef, mutton, poultry meat, and other animal protein sources.
- **Draught Power:** Bullocks and camels used for ploughing and transport in rural areas.
- **By-Products:** Leather, wool, bones, hides, horns.
- **Manure:** Used as **organic fertilizer** for crops, improving soil fertility.
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- 4. Bio-Gas Production and Animal By-Products

30 Cubic Meter

50 Cubic Meter

75 Cubic Meter

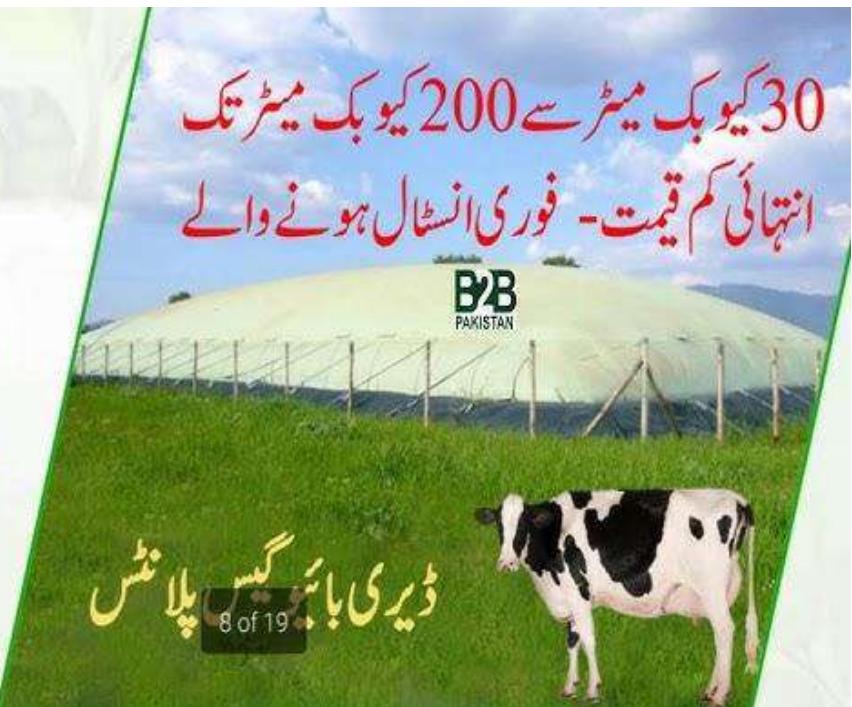
100 Cubic Meter

150 Cubic Meter

200 Cubic Meter



ShedsMaker.com
AFFORDABLE AND SPEEDY

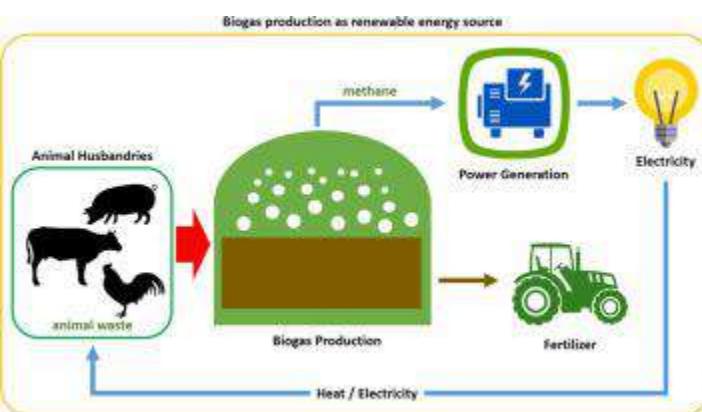
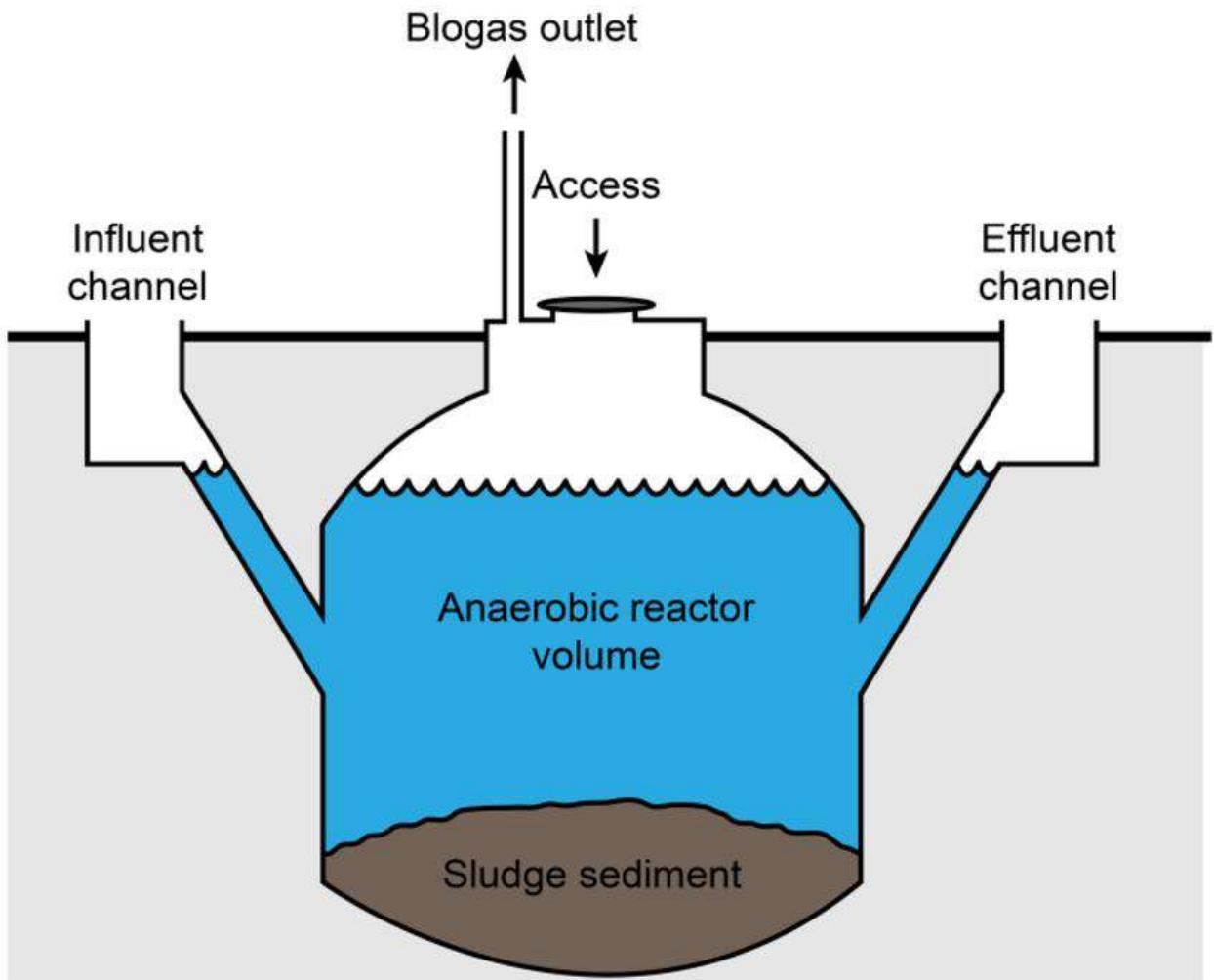


30 کیوبک میٹر سے 200 کیوبک میٹر تک
انہائی کم قیمت - فوری انشال ہونے والے

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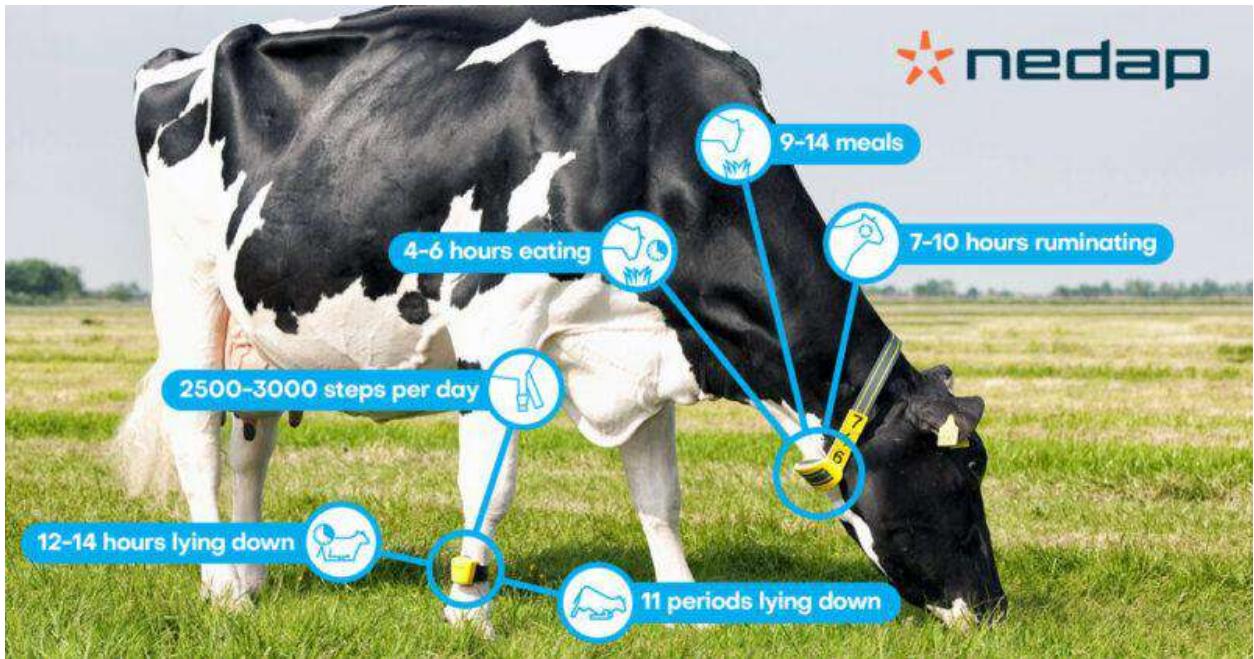
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- Animal waste is collected and processed in **biogas plants** to produce methane gas.
- **Biogas** is used for:
- Cooking and heating

- Electricity generation in some farms
- **Bio-slurry** (residue) from biogas plants is a **rich organic fertilizer**.
- By-products also include:
- Bone meal (for feed and fertilizer)
- Leather from hides
- Horns and hooves for crafts
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-  **Role and Responsibilities of Livestock Farm Managers**

 <p>Pennsylvania Food & Ag Careers</p> <hr/>	<p>RESPONSIBILITIES</p> <ul style="list-style-type: none"> • Daily care to livestock • Monitor beef herd health • Manage expenses and sales • Monitor pasture quality and grazing schedule • Maintain repairs around the farm • Record keeping
<p>BEEF FARM MANAGER</p> <hr/> <p>Beef Farm Managers are almost always the owner of a beef cattle farm or ranch. They take care of all aspects of the farm, from working directly with cattle to bookkeeping. Their workday is never the same, since they must work around weather, seasonal changes, and sudden changes in plans if a crucial piece of machinery broke down unexpectedly.</p>	



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- A livestock farm manager plays a **key leadership and operational role**.
- **Main responsibilities include:**
- Planning and supervising farm operations
- Managing breeding programs and animal health
- Ensuring proper feeding and housing
- Recording and analyzing production data
- Managing labor and ensuring farm safety
- Marketing farm products (milk, meat, manure, etc.)
- Coordinating veterinary care and vaccination schedules

- **Skills required:**
 - Technical knowledge of animal husbandry
 - Management and leadership skills
 - Financial record keeping
 - Communication and problem-solving abilities
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-  **Learning Units (LUs)**
- **LU No.** • **Title** • **Description**
- **LU1.1** • Overview of Livestock Farm Managers • Role, skills, and responsibilities of a manager
- **LU1.2** • Nature and Scope of Livestock Production • Types, scope, and systems of production
- **LU1.3** • Importance of Livestock • Contribution to the economy, livelihoods, and industries
- **LU1.4** • Functions of Livestock • Milk, meat, draught power, by-products
- **LU1.5** • Bio-Gas Production and By-products • Use of waste for energy and organic fertilizer
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-  **Practical Units (PUs)**
- **PU No.** • **Activity** • **Description** • **Location**
- **PU1.1** • Visit to Livestock Breeding Farm • Observe farm layout, breeds, housing, and production systems • Local Breeding Farm
- **PU1.2** • Observation and Documentation • Note daily operations, record management, feeding, cleaning • Farm site

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-  **Trainer Notes**

- Arrange farm visits to give students **practical exposure**.
- Show students **different livestock species and farm systems**.
- Demonstrate how biogas is produced using manure.
- Engage learners in group discussions on the economic role of livestock.
- Use charts, pictures, and models to explain **livestock functions**.

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-  **Assessment Criteria**

- **Knowledge Test:** Written or oral questions on module concepts.
- **Practical Skills:** Observation of farm activities, documentation accuracy.
- **Participation:** Engagement in farm visit and class discussion.
- **Assignments:** Report on importance and functions of livestock.

• Criteria	• Excellent	• Good	• Satisfactory	• Needs Improvement
• Understanding of Concepts	• 	•	•	•
• Practical Observation	• 	•	•	•
• Participation	• 	•	•	•
• Reporting Skills	• 	•	•	•
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Module 2: Breeds and Types of Livestock

Module Objectives

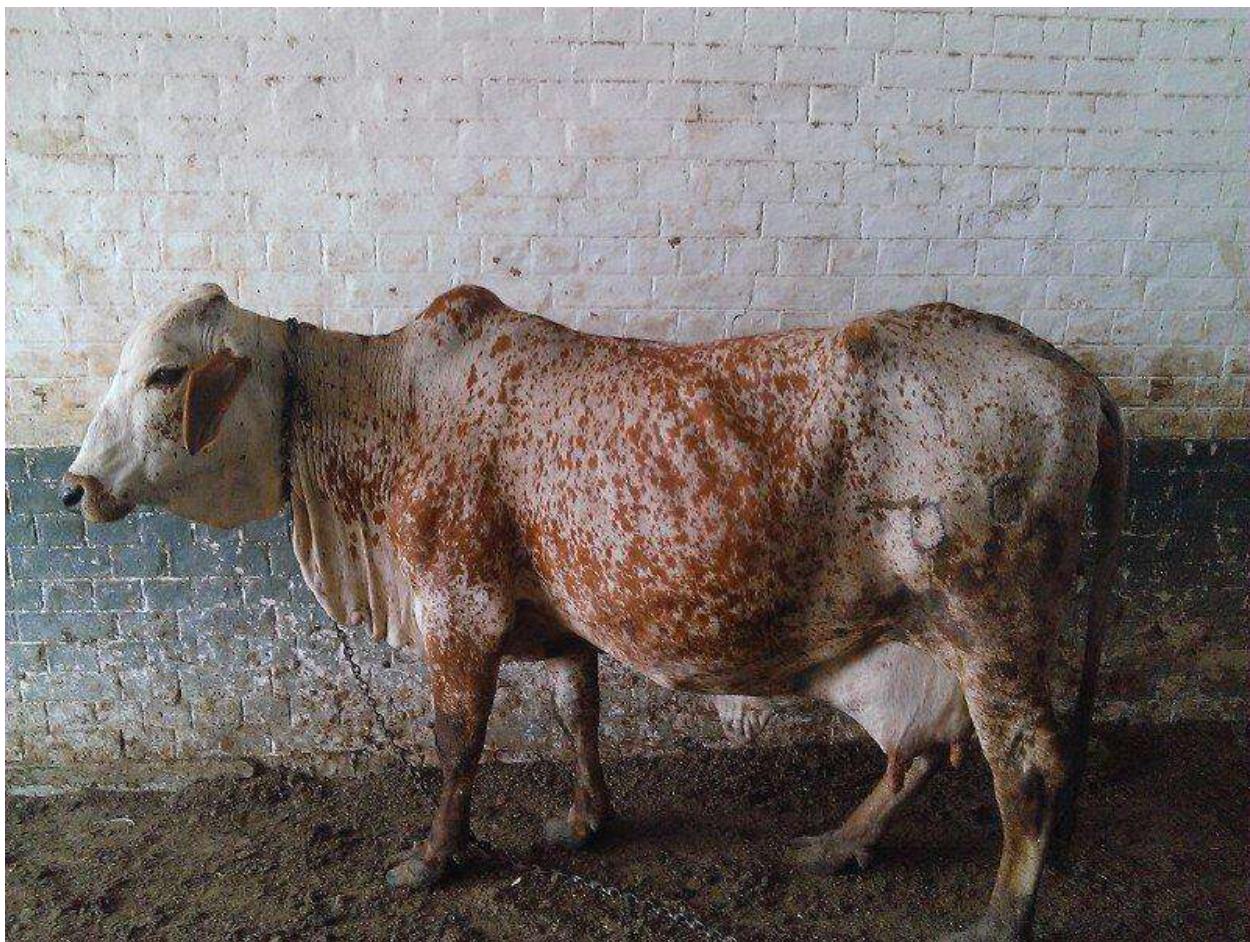
After completing this module, learners will be able to:

- Understand the classification of livestock breeds.
- Identify major **cattle, buffalo, sheep, and goat** breeds in Pakistan.
- Describe the **female reproductive system** and its functions.
- Explain **puberty, breeding seasons, and mating methods** in farm animals.
- Practically identify breeds and anatomical structures of reproductive organs.

Breed Classification and Selection

1. Milch and Drought Breeds of Cattle





Definition:

A **breed** is a group of animals with similar appearance, characteristics, and genetic makeup, passed on from one generation to the next.

Classification of Cattle Breeds:

- **Milch Breeds (for milk production)**

-  **Sahiwal cattle:**

- Origin: Punjab (Pakistan)
 - Color: Reddish brown
 - High milk yield (2,200–2,800 liters per lactation)
 - Heat tolerant and disease resistant.

-  **Red Sindhi cattle:**

- Origin: Sindh Province
 - Color: Red
 - Milk yield: 1,500–2,000 liters.

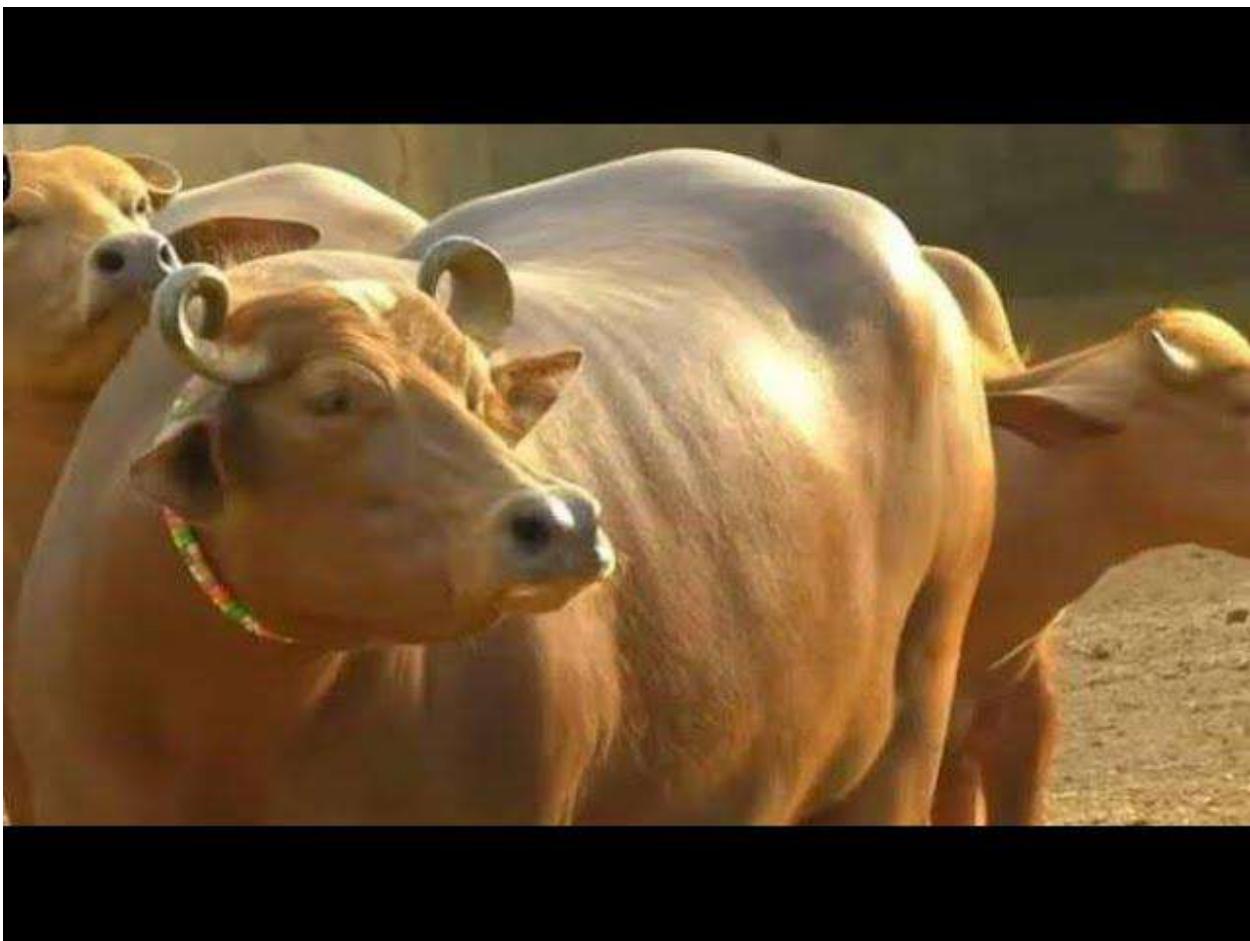
- **Draught Breeds (for work)**

-  **Dhanni cattle:** Known for pulling carts and ploughing.

-  **Cholistani cattle:** Dual-purpose breed used for both milk and work.

 **Selection criteria:** High productivity, adaptability, disease resistance, and good temperament.

2. Buffalo Breeds in Pakistan





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Buffalo is the **backbone of Pakistan's dairy industry**.

-  **Nili Ravi buffalo**
 - Origin: Punjab
 - Color: Black with white markings
 - High milk yield: 2,000–3,000 liters per lactation
 - Calm temperament and large udder.
-  **Kundi buffalo**
 - Origin: Sindh
 - Jet black color, short horns
 - Average milk yield: 1,500–2,000 liters
 - Heat tolerant.

 **Importance:** High-fat milk, draught power, hides, and manure.

3. Sheep and Goat Breeds







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- **Sheep Breeds (Wool & Meat)**

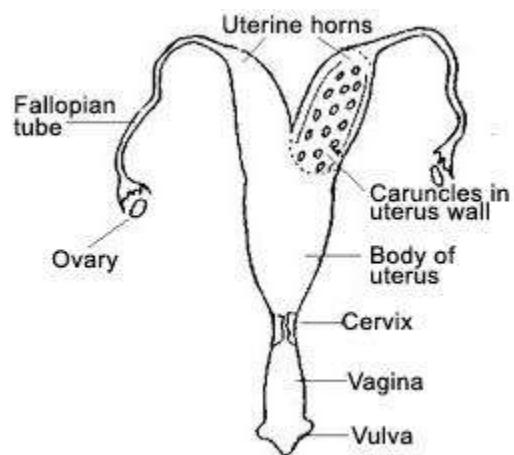
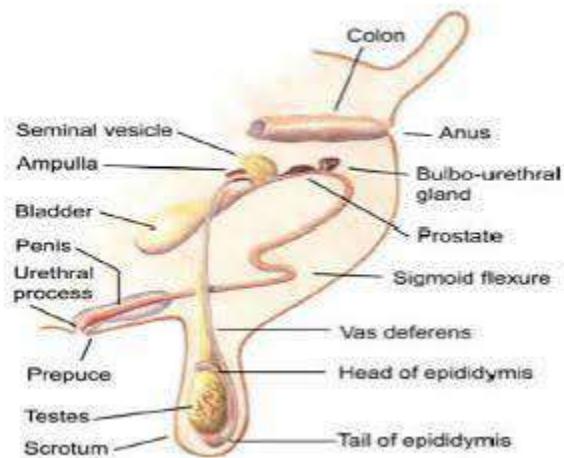
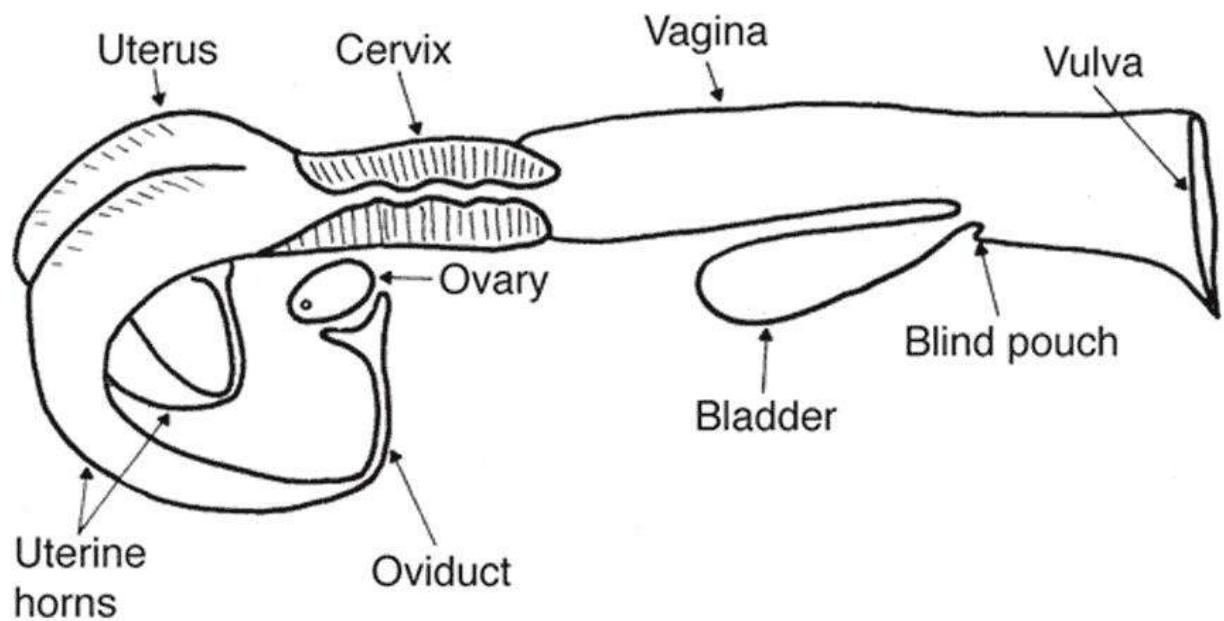
-  **Kajli sheep** – large size, known for quality meat and wool.
-  **Lohi sheep** – high fertility, white fleece.

- **Goat Breeds (Milk & Meat)**

-  **Beetal goat** – high milk yield, dual-purpose.
-  **Kamori goat** – long ears, good milk production.
-  **Teddy goat** – small size, prolific breeder.

Selection criteria: Adaptation to local environment, production potential, and disease resistance.

 **Reproductive Anatomy of Female Livestock**



The **female reproductive system** ensures conception, gestation, and calving/kidding/lambing.

Main parts:

1. **Vulva** – External part, visible from outside.
2. **Vagina** – Receives semen during natural mating or AI.
3. **Cervix** – Thick muscular structure; barrier between vagina and uterus.
4. **Uterus** – Site where the fetus develops.
5. **Oviducts (Fallopian Tubes)** – Fertilization occurs here.
6. **Ovaries** – Produce eggs (ova) and hormones like estrogen and progesterone.

Practical Skill: Students should identify these parts during farm demonstrations or lab sessions.

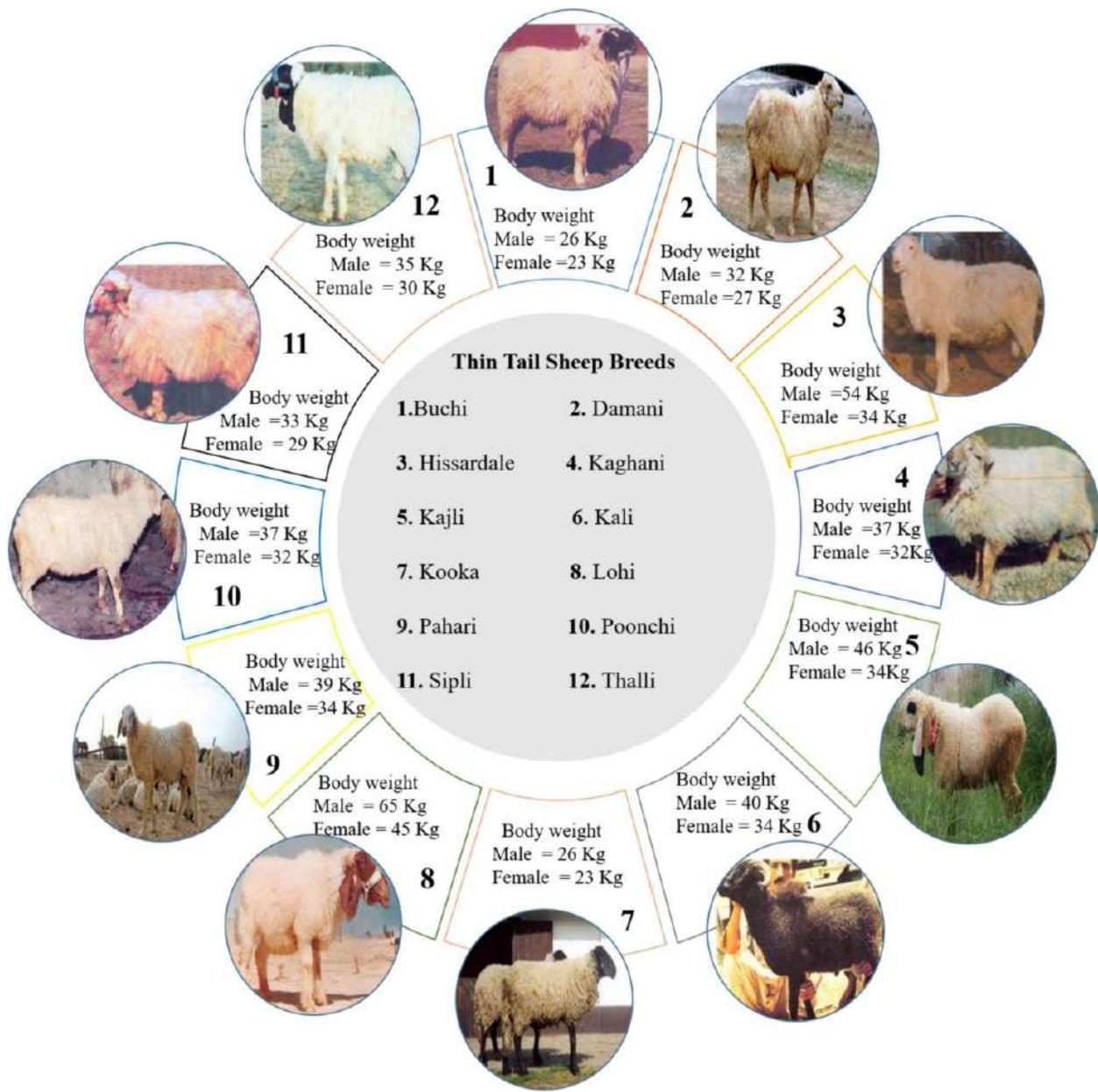
 **Puberty, Breeding Season, and Mating Methods**

Figure 3: Tail Chalk Application and Rubbing Off



Photos: Katie Pfeiffer





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Puberty:

- Age at which animals reach sexual maturity.
 - Cattle: 12–18 months
 - Buffalo: 15–24 months
 - Sheep/Goats: 6–12 months

Breeding Season:

- Some animals are **seasonal breeders** (sheep, goats), while others like cattle and buffalo breed year-round.
- Influenced by:
 - Day length
 - Temperature
 - Nutrition
 - Management

Mating Methods:

1. **Natural Service:** Bull/male mates directly with female.
2. **Controlled Natural Mating:** Animals are grouped and mating is supervised.
3. **Artificial Insemination (AI):** Semen is collected from superior males and deposited into the female reproductive tract artificially — improves genetics and disease control.

Farm Manager's Role: Monitor heat signs, maintain breeding records, and plan breeding schedules.

Learning Units (LUs)

LU No.	Title	Description
LU2.1	Milch and Drought Breeds of Cattle	Identification and characteristics of cattle breeds
LU2.2	Buffalo Breeds	Key features and productivity of buffalo breeds
LU2.3	Sheep and Goat Breeds	Identification of common small ruminant breeds
LU2.4	Female Reproductive System	Structure and function of reproductive organs
LU2.5	Puberty, Breeding Season and Mating Methods	Reproductive management practices

Practical Units (PUs)

PU No.	Activity	Description	Location

PU No.	Activity	Description	Location
PU2.1	Reproductive Organ Demonstration	Dissection/model demonstration of reproductive tract	Livestock Breeding Farm / Lab
PU2.2	Breed Identification	Hands-on identification of cattle, buffalo, sheep, and goat breeds	Breeding Farm

Students should sketch reproductive parts and record breed characteristics during farm visits.

Trainer Notes

- Use **live animals or anatomical models** to demonstrate breed characteristics and reproductive organs.
- Arrange **field visits** to farms with multiple species to show variation.
- Emphasize **breed selection criteria** (production, adaptability, resistance).
- Encourage learners to **take notes, photos, and make sketches** during practicals.
- Use charts, posters, and multimedia for clear understanding.

Assessment Criteria

Criteria	Excellent	Good	Satisfactory	Needs Improvement
Breed Identification	✓			
Understanding of Reproductive Anatomy	✓			
Participation in Practical Work	✓			
Report Writing	✓			

Module 3: Feeds and Nutrition

Module Objectives

By the end of this module, trainees will be able to:

- Understand the **basic principles of animal feeding and nutrition**.
- Identify the **major nutrients** required for livestock.
- Plan appropriate feeding programs for **milk** and **meat production**.
- Gain practical experience in **feed formulation, nutrient identification, and feed storage**.
- Evaluate the quality of feeds through **visual and lab analysis**.

Principles of Feeding and Nutrition





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Feeding and nutrition are crucial for:

- Animal **growth, health, and productivity**.
- Efficient **reproduction and milk production**.
- Preventing **nutritional disorders and diseases**.

Basic Principles of Feeding:

1. Provide a **balanced ration** with all essential nutrients.
2. Feed **according to body weight**, physiological status, and production level.
3. Supply **clean and fresh water** at all times.
4. Ensure **good quality feed** and avoid contamination.
5. Adjust feeding according to **season, breed, and age**.

Note: A “balanced ration” means the feed provides all required nutrients in the right proportion for maintenance, production, and reproduction.

 **Major Nutrients and Their Importance**

Ingredients	Ratio (%)
Sunflower cake	10-13
Cotton seed Cake	20-25
Rape seed cake	10-13
Peanut cake	20-25
Cotton seed meal	15-20
Soybean meal	10-15
Rapeseed meal	15-20
Rice polishing	18-20
Wheat bran	23-25
Wheat grains	15-20
Maize grains	40-50
Maize gluten 20%	20-30
Maize gluten 30%	20-25
Maize gluten 60%	5-10
Molasses	10-15
Urea	1-2
Oil	2-3
Common salt	1-2
Mineral mixture	2

Existing Scenario:





5

Animals require **six essential nutrients** for proper functioning:

Nutrient	Function	Sources
1. Carbohydrates	Energy for daily activity, milk production	Green fodder, grains (maize, wheat), sugar beet
2. Proteins	Growth, muscle development, reproduction	Oil cakes, pulses, legumes, cottonseed cake
3. Fats	Concentrated energy source, improves coat	Oil seeds, fish oil

Nutrient	Function	Sources
4. Vitamins	Support metabolism, immunity	Green fodder, sunlight (Vit. D), supplements
5. Minerals	Bone formation, enzyme function	Salt licks, mineral blocks
6. Water	Vital for life, temperature control	Clean drinking water

Roughages vs Concentrates:

- *Roughages* = bulky feeds (green fodder, hay, silage).
- *Concentrates* = nutrient-dense feeds (grains, oil cakes, minerals).

Tip for farmers: Green fodder is economical and provides fiber; concentrates boost production.

⌚ Feeding for Milk and Meat Production







5

1. Feeding Dairy Animals (Milk Production)

- **High energy and protein feeds** are required to maintain milk yield.
- Provide green fodder + concentrates + mineral mixture.
- Offer feed **after milking** to stimulate appetite.
- Clean drinking water is essential — lactating animals need **3–5 liters of water** per liter of milk produced.

Sample Ration (per day for dairy cow):

- 30–40 kg green fodder
- 4–6 kg concentrate
- 1 kg wheat bran
- 100 g mineral mixture + salt lick

2. Feeding for Meat Animals

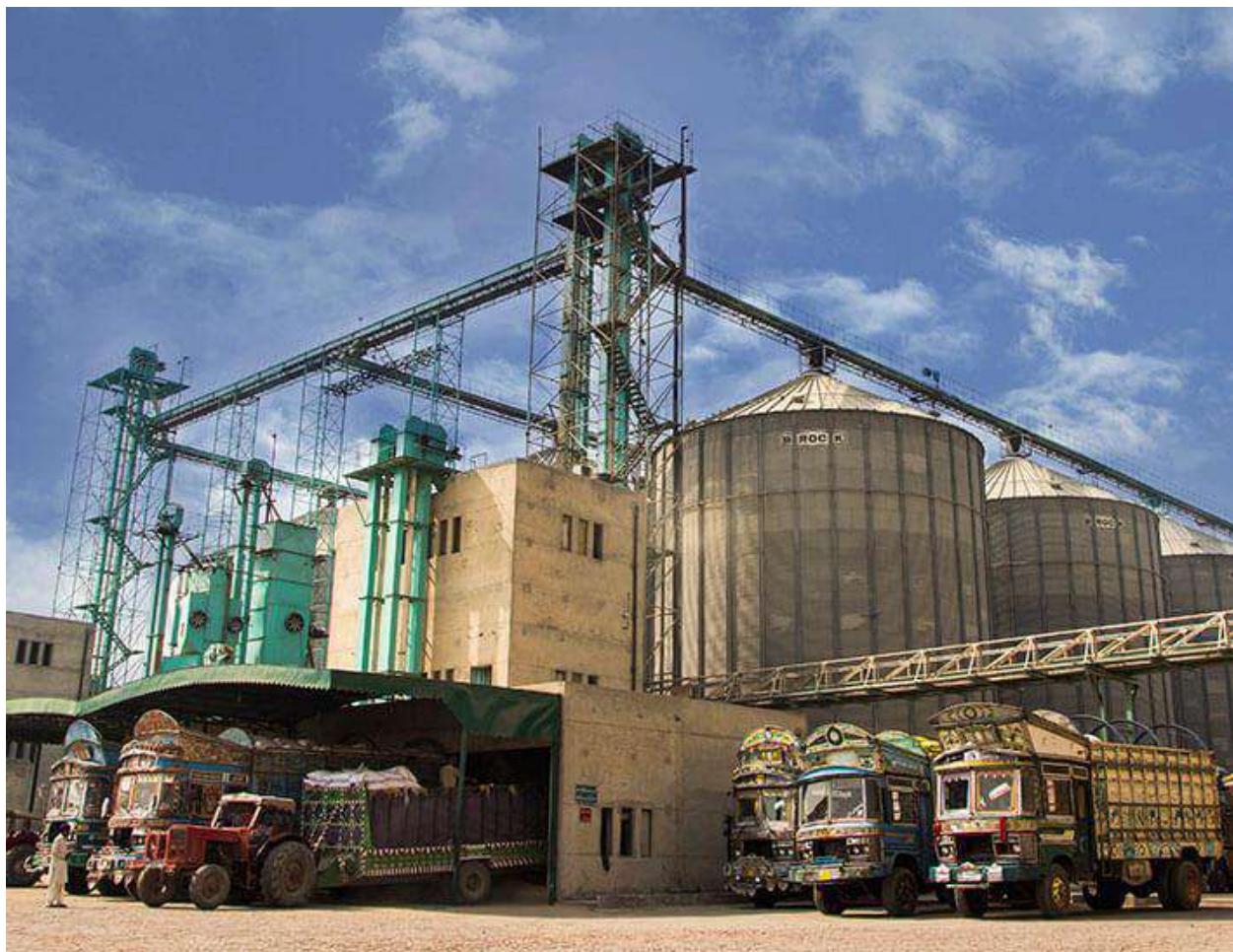
- Objective: Fast weight gain and muscle development.
- Provide **high-energy feed** with adequate protein.
- Fattening rations may include molasses, oil cakes, and grains.
- Regular deworming is essential to ensure efficient feed conversion.

Sample Fattening Ration (per day for beef animal):

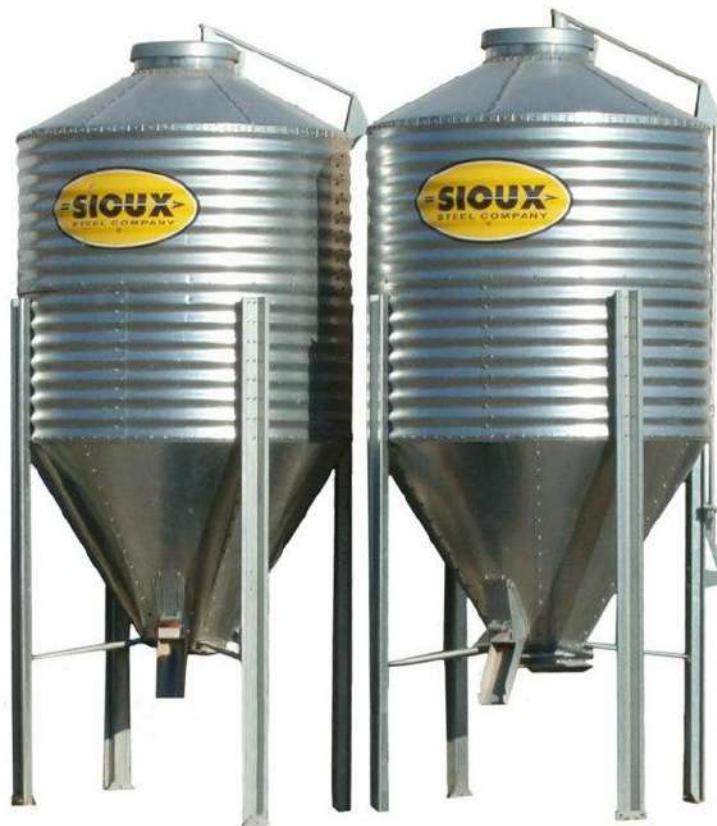
- 25 kg green fodder
- 4–5 kg concentrates
- Salt and mineral blocks ad libitum

 *Important:* Overfeeding should be avoided to prevent digestive disorders like bloat or acidosis.

Feed Formulation and Storage







5

Feed Formulation:

- Process of combining different ingredients to prepare a balanced ration.
- Factors to consider:
 - Nutritional requirements of animals
 - Availability and cost of ingredients
 - Palatability and digestibility

Steps in Feed Formulation:

1. Determine nutrient requirements.
2. Select suitable ingredients.
3. Calculate proportions.

4. Mix ingredients thoroughly.
5. Test quality periodically.

Feed Storage:

- Store in **dry, well-ventilated** areas.
- Protect from pests, moisture, and sunlight.
- Use **FIFO** (First In, First Out) method.
- Keep mineral blocks in clean and dry places.

Good storage prevents fungal contamination and loss of nutrients.

Learning Units (LUs)

LU No.	Title	Description
LU3.1	Rationale of Feeding and Nutrition	Principles of balanced feeding, importance of nutrition
LU3.2	Major Nutrients and Their Importance	Understanding the six essential nutrients and their roles
LU3.3	Feeding for Milk and Meat Production	Planning and providing rations for production

Practical Units (PUs)

PU No.	Activity	Description	Location
PU3.1	Visit to Feed Mill	Observation of feed ingredients, formulation process	Feed Mill
PU3.2	Feed Sample Analysis	Nutrient identification in lab (moisture, protein, ash)	Nutrition Lab

Practical Skills:

- Identifying feed ingredients by sight and smell.
- Weighing and mixing feed accurately.
- Recording feed intake and body weight gain.

Trainer Notes

- Use **real feed samples** to engage students.
- Explain **feed cost and return analysis**.
- Conduct **hands-on mixing** of a balanced ration.
- Demonstrate **signs of nutrient deficiency** in animals.
- Encourage students to develop feeding charts.

 *Tip:* Showing real examples of **good vs bad storage practices** helps students understand feed safety.

Assessment Criteria

Criteria	Excellent	Good	Satisfactory	Needs Improvement
Identification of Feed Ingredients	✓			
Knowledge of Nutrients		✓		
Practical Feed Mixing		✓		
Record Keeping		✓		

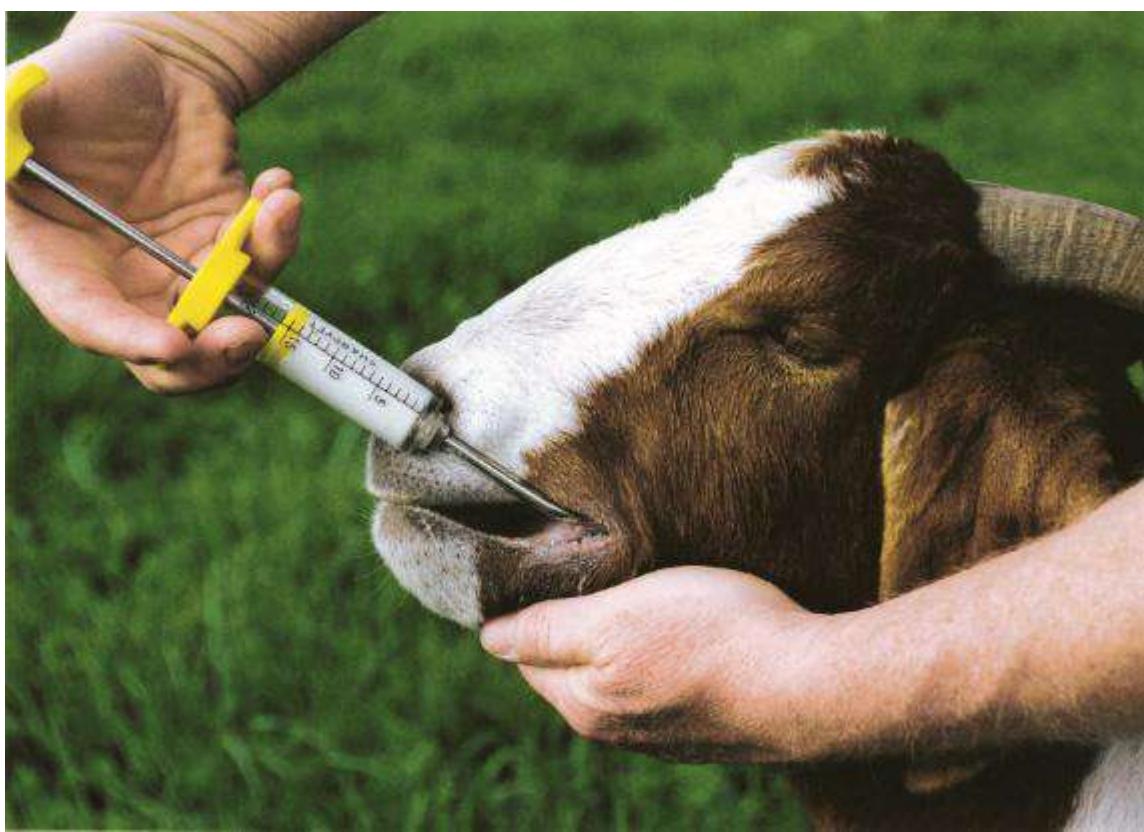
Exam & Assignments

- **Quiz:** Short MCQs and short questions about nutrients, feed types, and feeding systems.
- **Discussion:** Visit the feed mill, identify ingredients, discuss costs and quality.
- **Assignment:** Prepare a **feeding plan for a dairy cow and a beef animal**.

 **Module 4: Livestock Health and Hygiene** — structured in the same pattern as your previous modules, with clear **learning objectives**, **learning units**, **practicals**, and **illustrative pictures** to make it easy to teach or learn.

Module 4: Livestock Health and Hygiene





Module Objectives

By the end of this module, learners will be able to:

- Identify signs of good health and common diseases in livestock.
- Understand the structure and functions of the digestive system in farm animals.
- Recognize common digestive disorders and their symptoms.
- Identify causes of abortion and genital diseases.
- Recognize common parasitic diseases and their control methods.
- Apply preventive veterinary measures to ensure herd health and hygiene.

1. Signs of Good Health and Diseases in Livestock

Signs of Good Health

Healthy animals show the following:

- Bright and alert eyes.
- Smooth, shiny hair coat or skin.
- Normal appetite and rumination.
- Normal body temperature, pulse, and respiration.
- Clean nostrils and absence of coughing.
- Normal urination and defecation.
- Active movement and social behavior.



CAUTION



LIVESTOCK



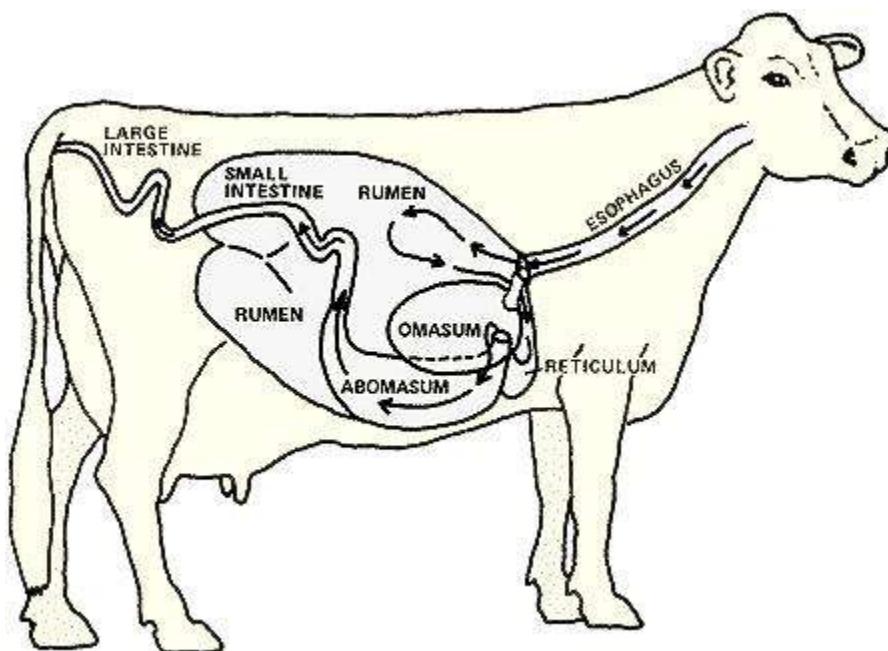
Signs of Disease

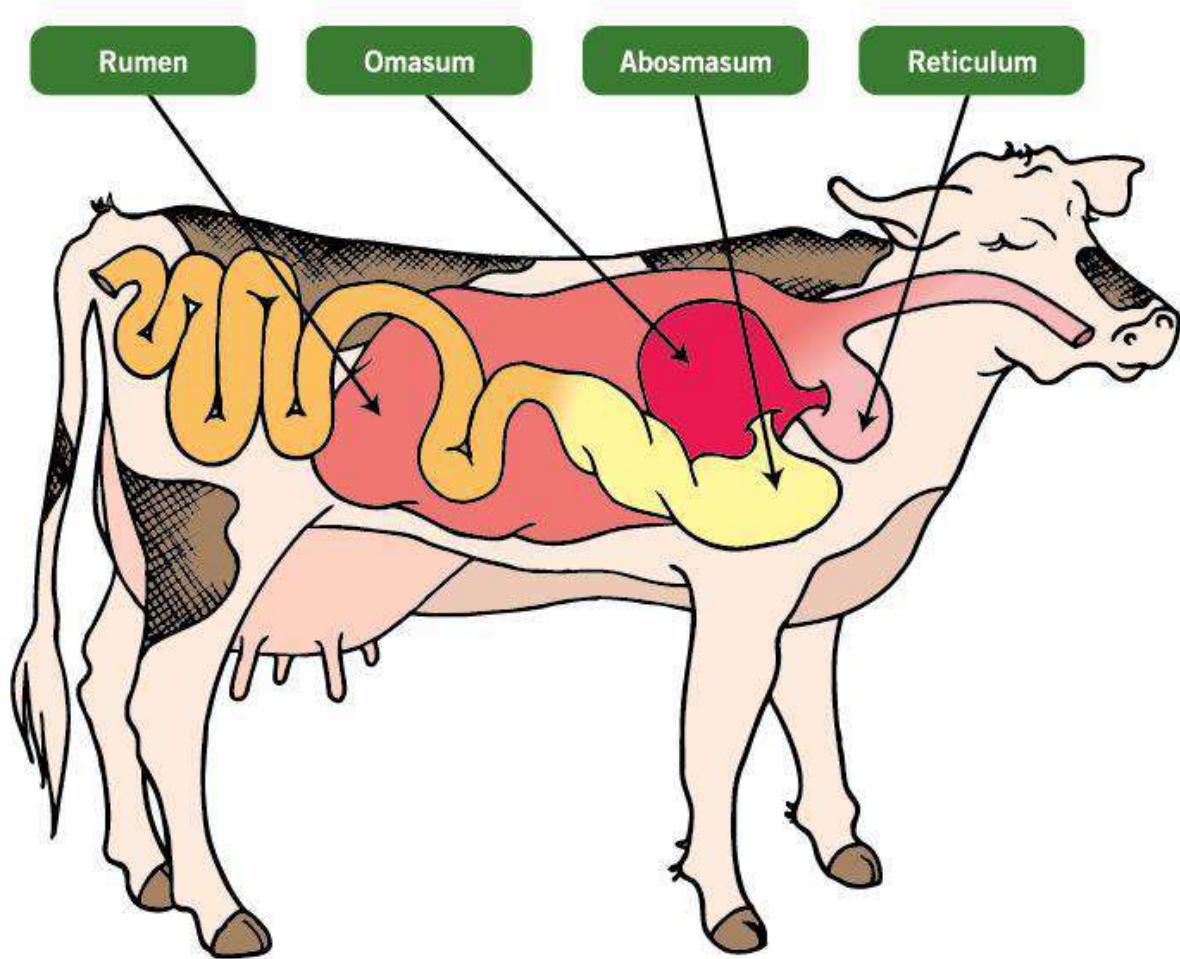
- Dullness, depression, or isolation from the herd.
- Rough hair coat.
- Loss of appetite or abnormal chewing.
- Nasal discharge, coughing, or labored breathing.
- Diarrhea or constipation.
- Abnormal temperature (fever or subnormal).
- Swellings, lameness, or abnormal posture.

2. Comparative Digestive System of Farm Animals

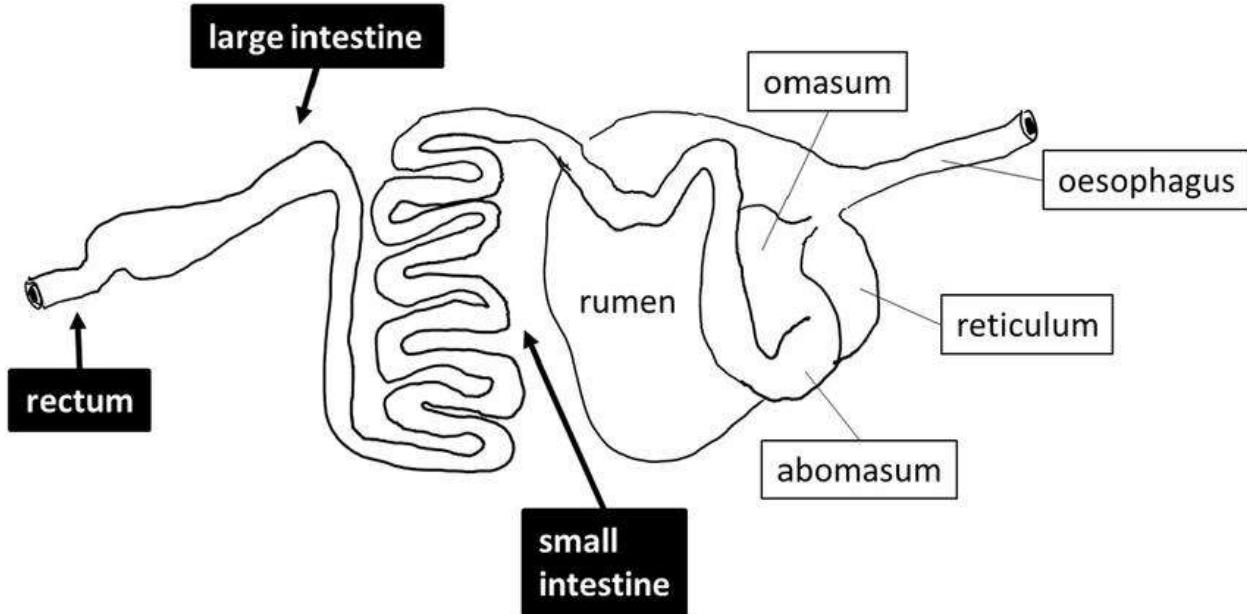
The **digestive system** varies among species depending on feeding habits.

Animal	Digestive Type	Stomach Compartments	Key Features
Cattle / Buffalo	Ruminant	4 (Rumen, Reticulum, Omasum, Abomasum)	Fermentation of roughages
Sheep / Goat	Ruminant	4	Similar to cattle
Horse	Non-ruminant (Hindgut fermenter)	Simple stomach	Large cecum
Pig	Monogastric	1	Omnivorous
Poultry	Avian	Crop, Proventriculus, Gizzard	No teeth





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5

3. Digestive Disorders

a. Indigestion

- **Cause:** Sudden change in feed, moldy feed, overeating.
- **Signs:** Loss of appetite, no rumination, bloated abdomen.
- **Control:** Proper feeding schedule, avoid spoiled feed, use digestive stimulants.

b. Timpani / Bloat

- **Cause:** Gas accumulation in the rumen.
- **Signs:** Swollen left flank, discomfort, rapid breathing.
- **Control:** Trocar or stomach tube may be used; avoid wet leguminous feeds.

c. Milk Fever (Hypocalcemia)

- **Cause:** Calcium deficiency around calving.
- **Signs:** Weakness, inability to stand, cold ears.
- **Control:** Calcium therapy (under veterinary supervision), mineral supplementation.

Signs of Bloat

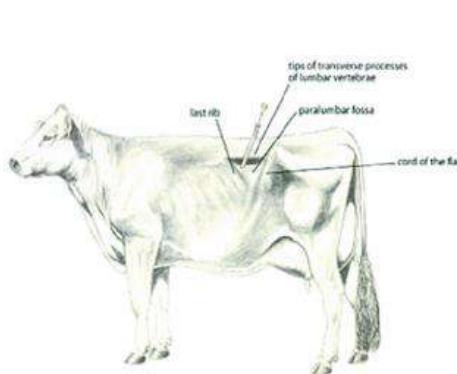
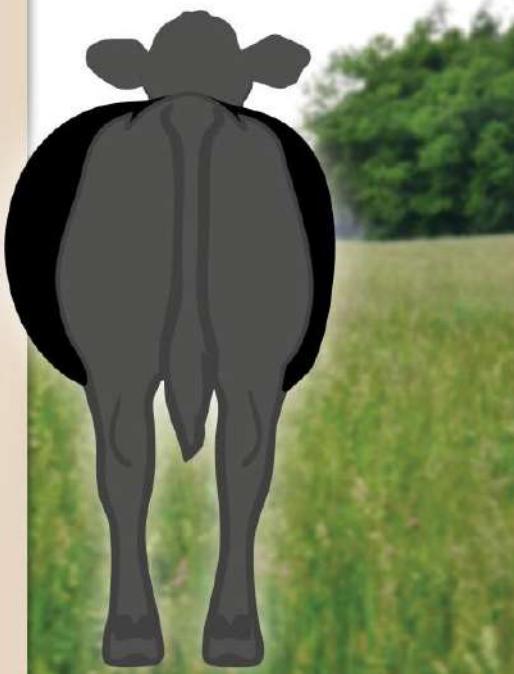
- Distended left flank
- Stops grazing
- May kick at their belly
- Reluctant to move

As Bloat Advances:

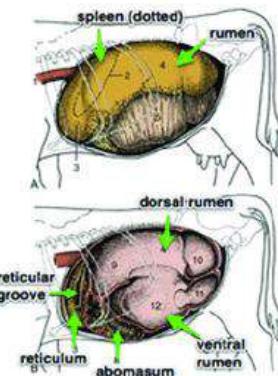
- Animal may appear distressed (may vocalize, eyes may bulge),
- Stand up and lie down repeatedly
- Strain to urinate and defecate
- Exhibit rapid and open mouth breathing, grunting
- staggering

Advanced Cases:

- The animal will go down



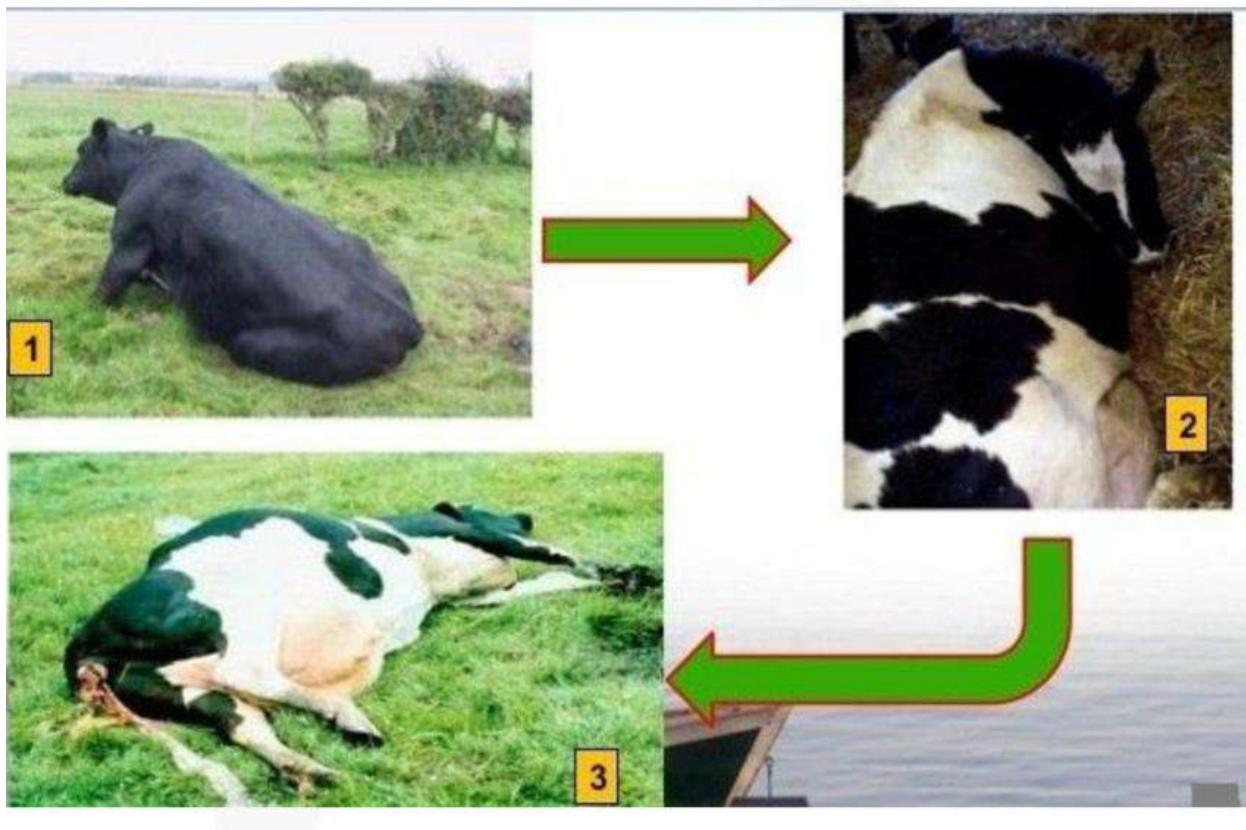
A. The site for cannulation of rumen



B. Anatomical location of rumen

rumen motility, bloating, low body temperature, slow respiration, impalpable pulse, heart beats (80-100 per minutes) with very hard to hear due to reduced ability of muscles to contract and dry muzzle are a common signs (Goff, 2008). Other symptoms include turned head to the left, splayed out hind legs, paresis (difficulty to rise from lying down). Finally, coma and death occur (Oetzel, 2011).

Based on the degree of hypocalcaemia and time of occurrence, the clinical signs of milk fever can be divided into three stages. Stage I milk fever is early signs without recumbency. It may go unnoticed as its signs are subtle and transient. Affected cattle may appear excitable, nervous, or weak. Stage II cattle with milk fever are in sternal recumbency (Fig. 2). They exhibit moderate to severe depression and typically lie with their head turned into their flank (Oetzel, 2011). Body temperature is low, muzzle dry and the heart rate will be rapid (Tadesse and Belete, 2015). Stage III hypocalcaemia is completely paralyzed, typically bloated, in lateral recumbency (Fig. 2) and progressive depression that leading to coma. There is a marked fall in temperature and increased heart rate. Cattle do not survive more if not treated (Radostits *et al.*, 2007).



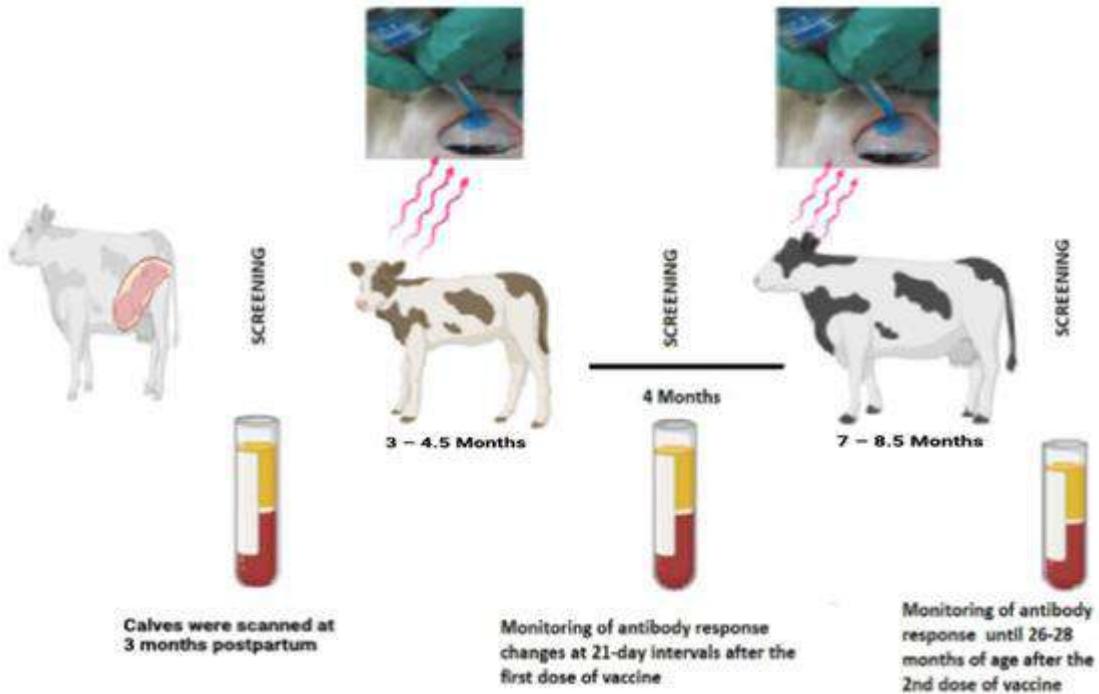
4. Abortion and Genital Diseases

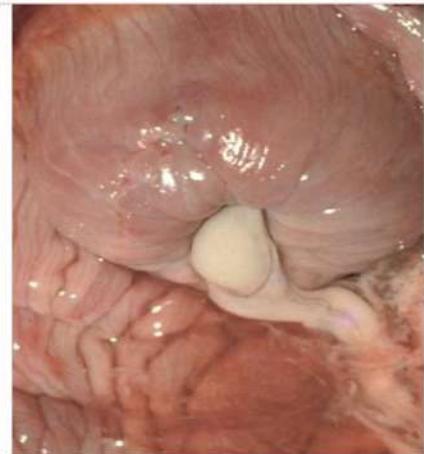
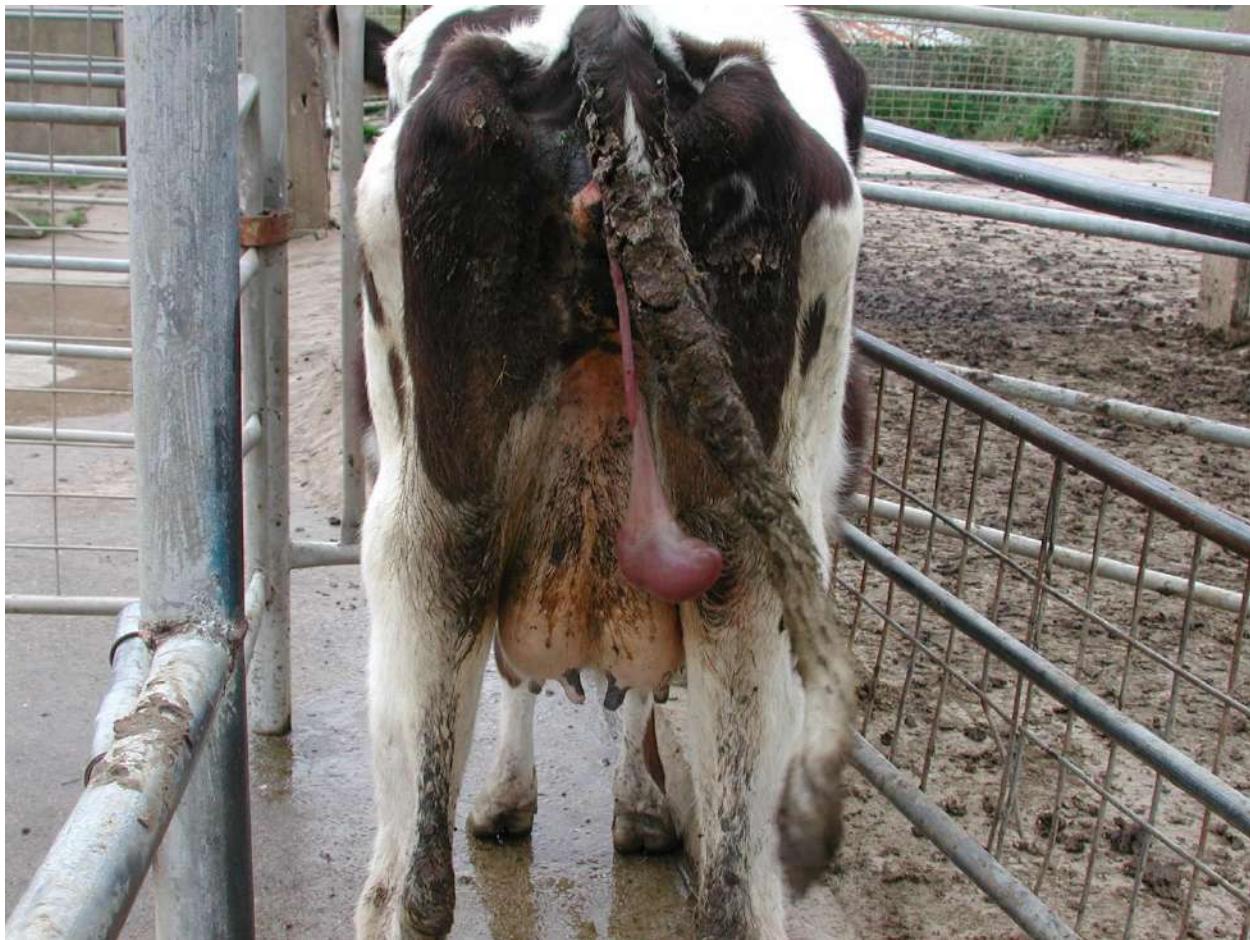
- Causes:

- Infections (e.g., Brucellosis)
- Nutritional deficiencies
- Trauma or stress
- Toxins or diseases

- **Common Genital Diseases:**
 - Metritis (uterine infection)
 - Retained placenta
 - Endometritis
 - Vaginitis

- **Control Measures:**
 - Vaccination against infectious diseases
 - Proper hygiene during breeding and calving
 - Immediate veterinary care for reproductive disorders





CERVICITIS AND VAGINITIS

Cervicitis or inflammation of the cervix of the cow is a condition that is commonly associated with metritis and follows abnormal parturitions such as abortions, premature births, dystocia resulting in lacerations or trauma to the cervix during forced extractions and retained placenta.

Vaginitis or inflammation of the vagina is observed as a primary condition or secondary to metritis or cervicitis and may follow trauma, lacerations, bacterial, viral or protozoal infections, abortions, dystocia, fetotomy, retained placenta, prolapsed of the vagina and postpartum metritis.

5. Common Parasitic Diseases and Control

- **External Parasites:** Ticks, lice, mites, flies.

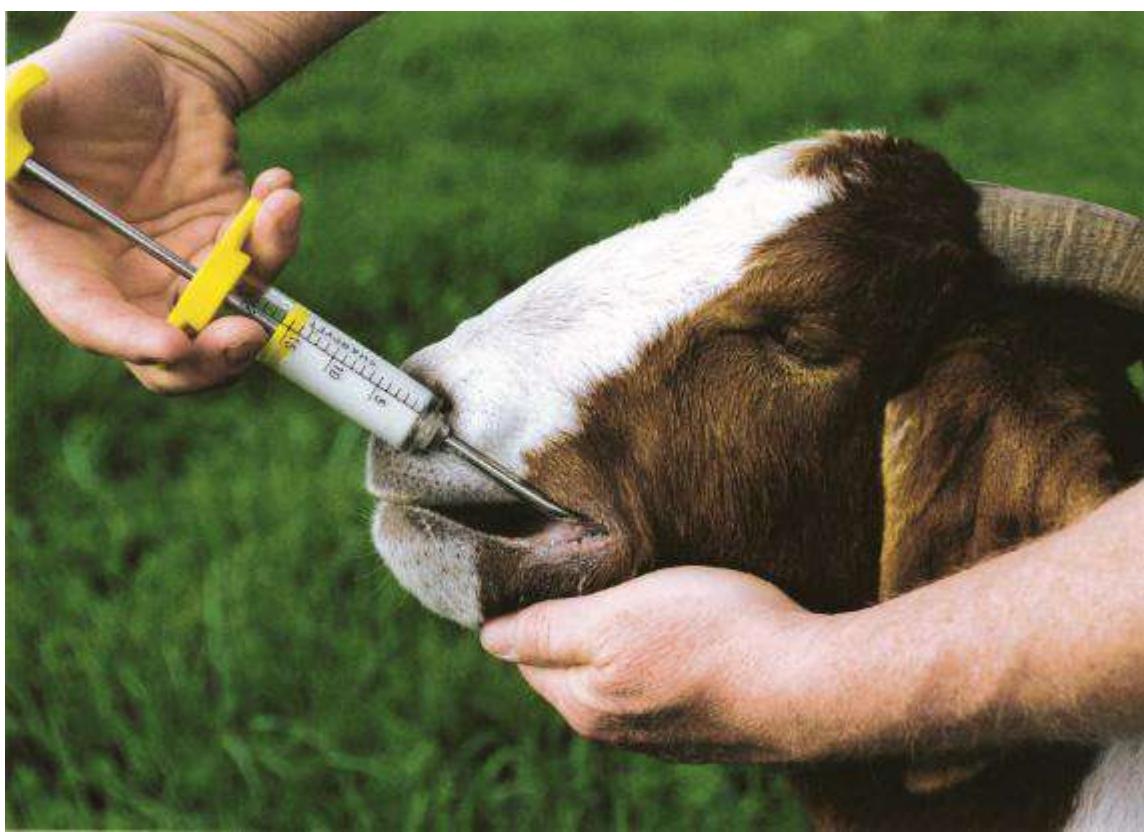
- **Effects:** Irritation, blood loss, reduced production, disease transmission.
- **Control:** Regular dipping, spraying, use of acaricides.
- **Internal Parasites:** Roundworms, tapeworms, liver flukes.
 - **Effects:** Poor growth, weight loss, diarrhea, anemia.
 - **Control:** Deworming, pasture rotation, clean water.





6. Preventive Veterinary Measures

- **Vaccination Programs:** Regular vaccination against diseases like Foot-and-mouth disease, Haemorrhagic septicaemia, and Brucellosis.
- **Deworming Schedule:** At least twice a year or as recommended.
- **Quarantine of New Animals:** Isolate new animals for 2–3 weeks.
- **Sanitation and Hygiene:** Regular cleaning, proper disposal of manure and carcasses.
- **Record Keeping:** Health and vaccination records help in disease control.



Best Practices for Beef Cattle Quarantine

Segregate



- Separate from all other animals
- Separate water sources
- Move equipment from clean animals first to quarantined animals last

Time



- Consult your veterinarian for recommended quarantine times

Monitor



- Watch for any signs of illness in the herd

Vaccinate



- Get new animals on the same vaccine schedule as the main herd
- Allow enough time for the vaccines to become protective before turning out with other animals

Test for Disease



- Test for any diseases that may not present with clinical signs

Treat



- Treat any illness in the herd as it occurs

Record



- Share records with previous owners of incoming animals
- Share records with new owners of sold animals
- Keep records of vaccination, health status, and treatment plans for quarantined animals



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Learning Units (LUs)

- **LU4.1:** Signs of Good Health and Disease
- **LU4.2:** Comparative Digestive System
- **LU4.3:** Digestive Disorders
- **LU4.4:** Abortion and Genital Diseases
- **LU4.5:** Common Parasitic Diseases

Practical Units (PUs)

- **PU4.1:** Examination of Healthy and Sick Animals at Breeding Farm
 - Check temperature, pulse, respiration, rumination.
 - Observe signs of health/disease.
- **PU4.2:** Observation of Clinical Signs
 - Identify visible symptoms in sick animals.
 - Record findings in farm health register.







(a)



(b)

(c)

Trainer Notes

- Emphasize **early disease detection** and **preventive health care**.

- Use **live demonstrations** at farms whenever possible.
- Encourage learners to maintain **personal hygiene** and **biosecurity** during practicals.
- Reinforce vaccination and deworming importance.

Assessment Criteria

Competency	Performance Standard	Method of Assessment
Identifying signs of good health	Accurately identifies clinical signs	Oral questioning, observation
Understanding digestive system	Correctly explains structure and functions	Quiz, group discussion
Identifying disorders	Correctly recognizes disease symptoms	Practical exercise
Preventive measures	Demonstrates vaccination/deworming steps	Practical
Record keeping	Accurately records farm health data	Checklist evaluation

Summary:

Maintaining good **livestock health and hygiene** ensures better productivity, reduces disease spread, and improves farm profitability. Preventive health care (vaccination, deworming, hygiene) is more cost-effective than treatment.

Module 5: General Husbandry Management

This module focuses on **daily livestock care, calf management, pasture and housing systems, and routine farm operations** essential for maintaining healthy, productive herds.

Module 5: General Husbandry Management





4

Module Objectives

By the end of this module, learners will be able to:

- Understand the principles of proper housing and calf management.

- Manage grazing and pasture effectively to support livestock nutrition.
- Identify suitable housing and fencing systems for different species.
- Carry out routine farm operations (calf care, identification, dehorning, etc.).
- Maintain high standards of animal welfare and farm hygiene.

1. Calf Housing and Management

Proper calf housing is essential to reduce disease risk, improve growth, and provide comfort.

Requirements of Calf Housing

- **Clean and Dry:** Protects calves from diseases like Pneumonia and diarrhea.
- **Ventilation:** Fresh air circulation without drafts.
- **Space:** Minimum 1.5–2.0 m² per calf.
- **Sunlight:** Natural light helps keep housing dry and clean.
- **Drainage:** Slight floor slope to drain urine and wash water.
- **Disinfection:** Regular cleaning and disinfection schedule.

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Calf housing system with perspective

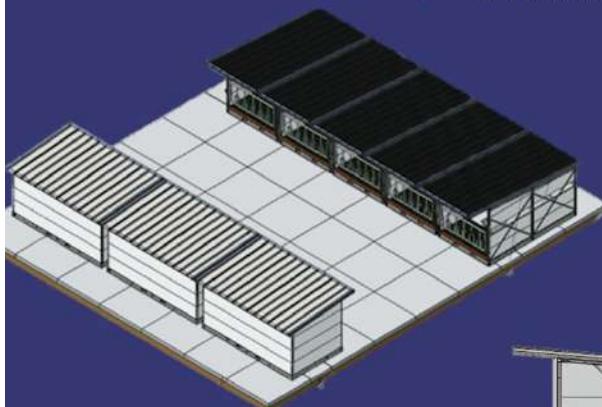
The Design



- Hutches and group housing in central place
- Less burden from ammonia emission
- Calves stimulate each other to eat and drink
- Less stressmoments
- Thanks to outdoor housing, constant fresh air

Calf hutches

During the first week your calves are confined in a Trio, Quattro or Quinto calf hutch.



Group Housing

After the first 8 days your calves can be moved to a larger group housing system. This way they stimulate each other to drink and eat more.



Advantages



All calves in one central place.



Higher food intake

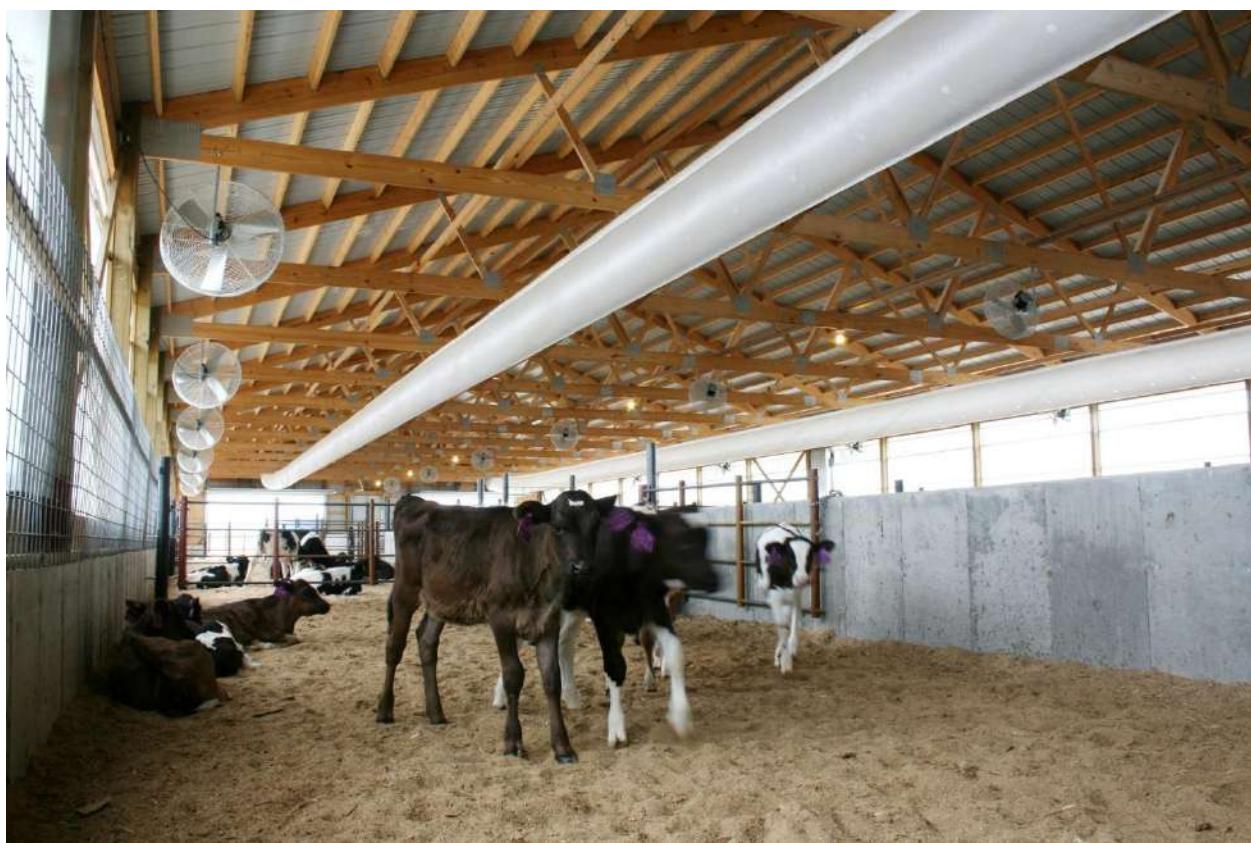


Less stress moments since your calves require less transportation



In the open air with excessive access to fresh air

Thanks to the plastic grid and the drainage channel underneath the hutch your calves lie dry, and results in less ammonia under the hutch.



Management Practices

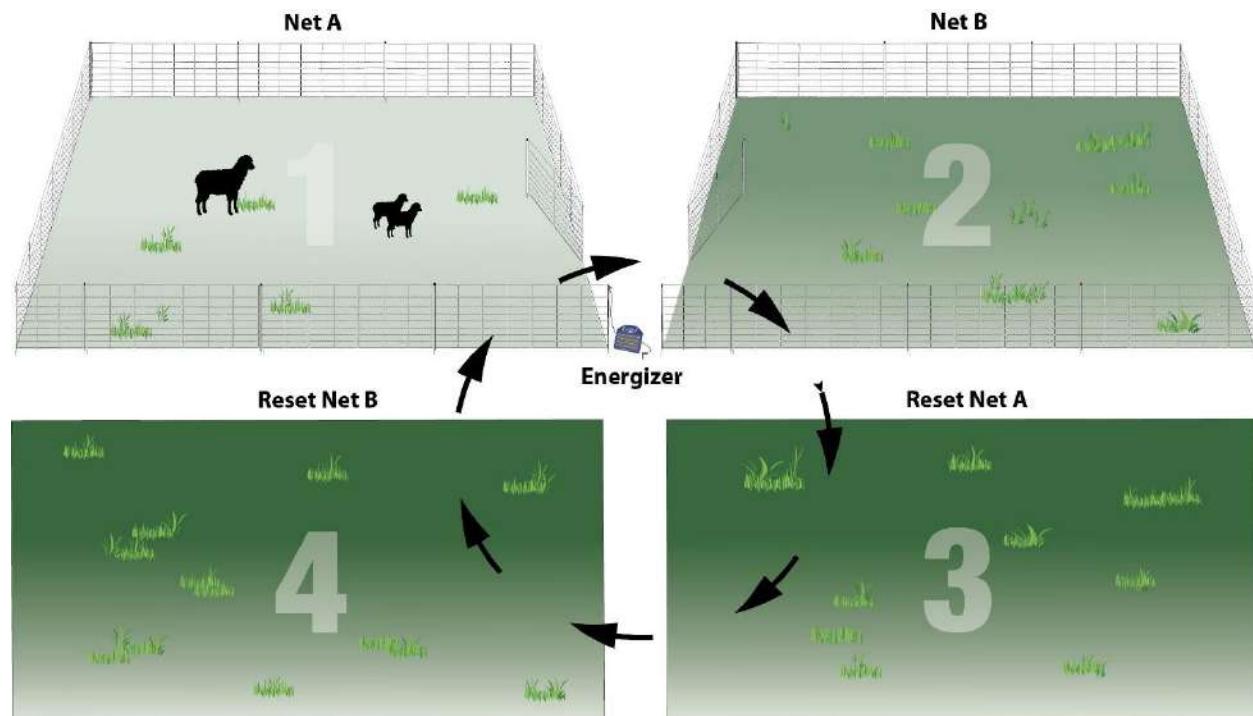
- Provide **clean water** and **balanced feed** daily.
- Allow calves to rest on **dry bedding**.
- Maintain a separate area for **sick calves**.
- Monitor for signs of illness (coughing, scours, inappetence).

2. Grazing and Pasture Management

Grazing is the **cheapest source of feed**. Proper management increases pasture productivity and maintains soil fertility.

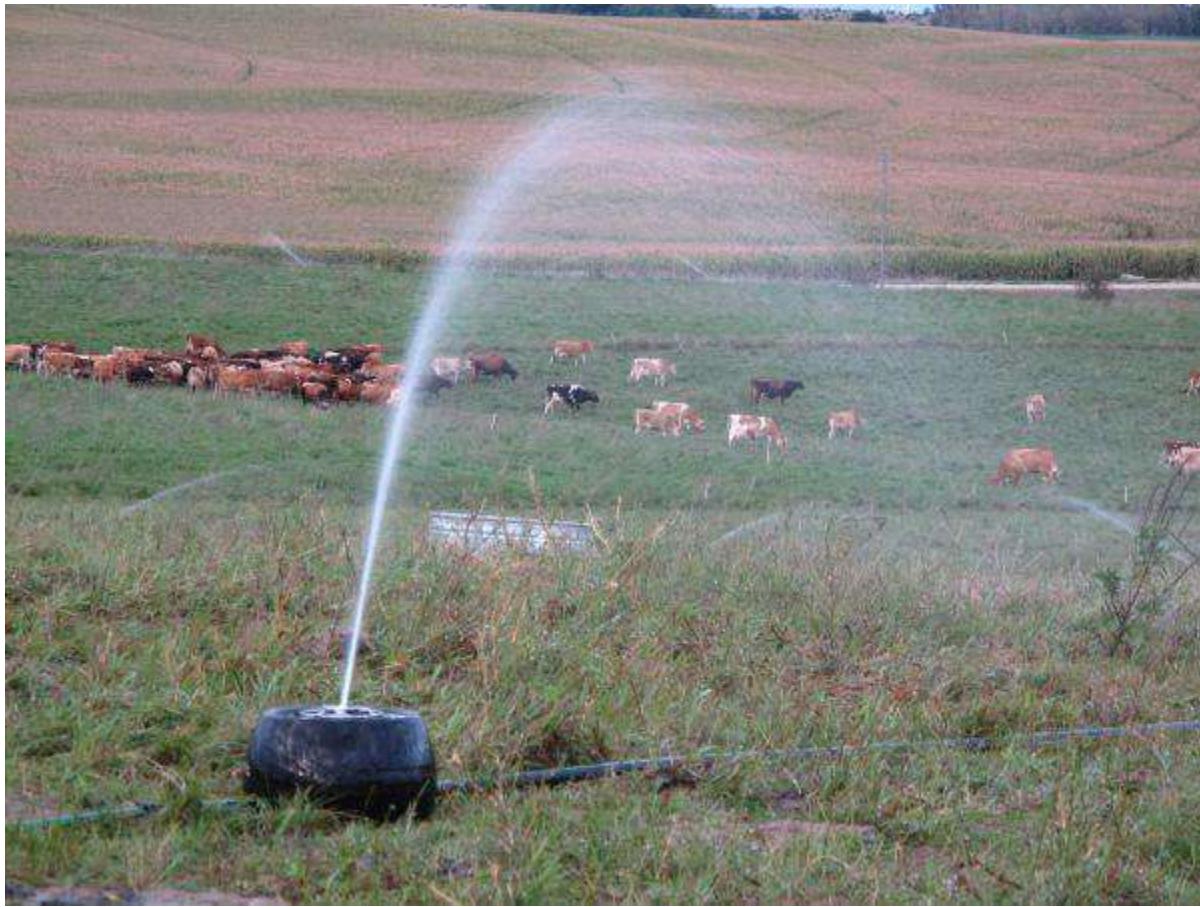
Key Points of Pasture Management

- **Rotational Grazing:** Divide land into paddocks; allow resting of grazed sections.
- **Avoid Overgrazing:** It weakens plants and reduces productivity.
- **Irrigation and Fertilization:** Support continuous growth.
- **Weed Control:** Prevent competition for nutrients.
- **Reseeding:** Maintain pasture quality.





Hay & Forage
A Division of



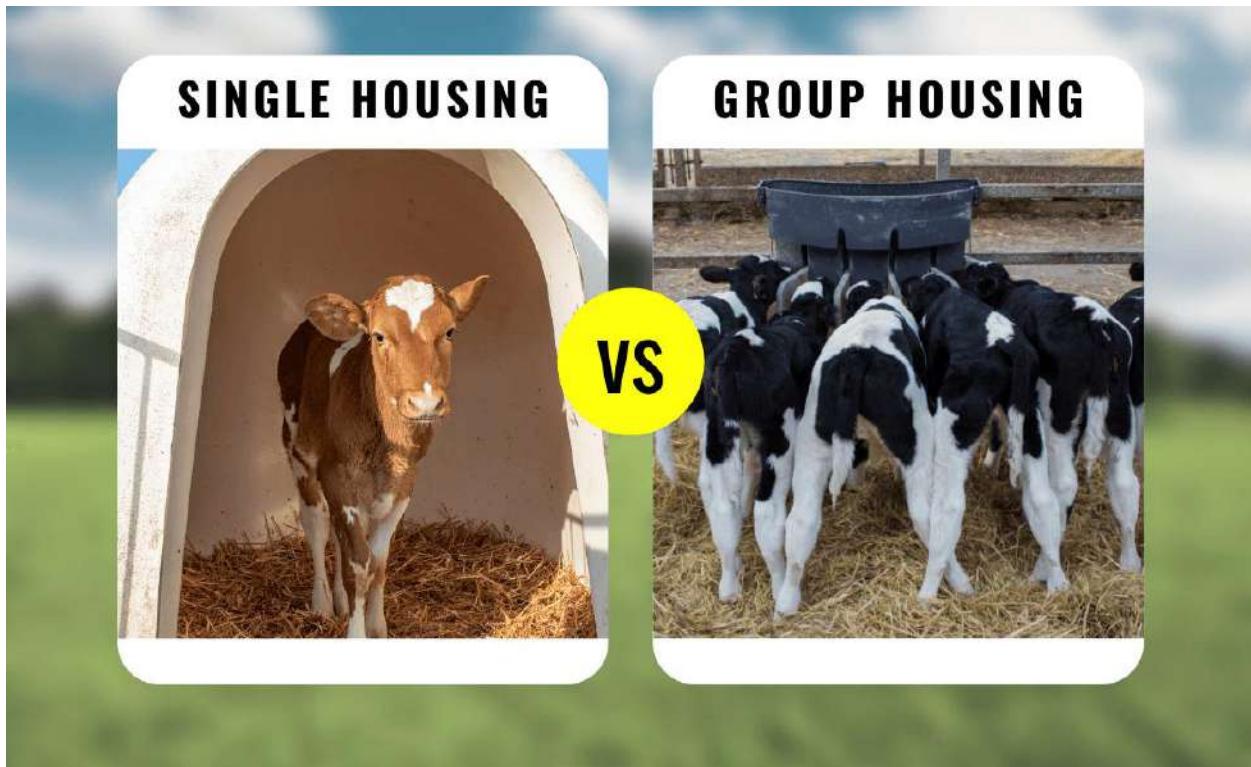
3. Housing and Fencing Systems

Housing

Proper housing protects animals from heat, cold, rain, and predators.

- **Loose Housing:** Open paddock with shelter—low cost, good for tropical areas.
- **Closed Housing:** Barn with walls—better control in colder regions.
- **Group Housing:** For animals of similar age or production stage.
- **Flooring:** Non-slippery concrete with good drainage.





5

Fencing Systems

- **Barbed Wire Fence:** Economical but requires maintenance.
- **Electric Fence:** Effective in controlling grazing.
- **Wooden or Iron Posts:** Provide strength to fences.
- **Live Fencing:** Using plants like trees/shrubs—eco-friendly.







4. Routine Farm Operations

These operations ensure proper growth, welfare, and identification of animals from birth.

a. Care of Calves at Birth

- **Clear airways** immediately after birth.
- Wipe the body with a **clean dry cloth**.
- **Dip navel cord** in iodine solution to prevent infection.
- Allow calf to suckle **colostrum within 30 minutes** of birth.







4

b. Colostrum Feeding

- **Colostrum** is the first milk rich in antibodies.
- Feed within the **first 4 hours** of birth for immunity.
- Amount: **10% of body weight** within 24 hours.
- Warm the colostrum before feeding (do not boil).



HARVESTING & STORING COLOSTRUM

1. COLLECT IT EARLY – WITHIN 6 HOURS

- Cows should be milked within 6 hours after calving.
- The concentration of immunoglobulins is highest immediately after calving and decreases over time because of the dilution by the milk produced after calving.



CLEANLINESS IS KEY!

2.

- Make sure that cows' teats are clean by pre-dipping and drying before starting milking.
- Ensure milking equipment is clean before collection. If possible, designate buckets for colostrum harvesting only. Always keep the buckets covered tightly, both before and after collecting colostrum.

3. CHECK QUALITY IMMEDIATELY – GOAL BRIX \geq 21!

- Colostrum should be tested for quality with a refractometer before further processing or storage.
- The refractometer indirectly measures immunoglobulins. Aim for colostrum with Brix values of equal or higher than 21.
- Use colostrum with lower Brix values for second colostrum feeding.



FREEZE IT IN SINGLE SERVINGS

4.



COLOSTRUM MAY BE FROZEN FOR UP TO A YEAR

- Freeze colostrum as soon as possible to avoid bacterial growth.
- Use single-serving containers/bags to store colostrum. It will reduce the time for colostrum to freeze, and when frozen lying flat, gallon bags with a quart of colostrum will be thin and thaw quickly.
- Freezer temperature should be -5°F . Frost-free freezers are not optimal; the freeze-thaw cycles reduce the colostrum storage life.



4

c. Disbudding and Dehorning

- **Disbudding:** Removal of horn buds in calves less than 2 months old using hot iron or caustic sticks.
- **Dehorning:** Removing grown horns in older animals using dehorning instruments.
- Done to **prevent injuries**, reduce space, and improve safety.





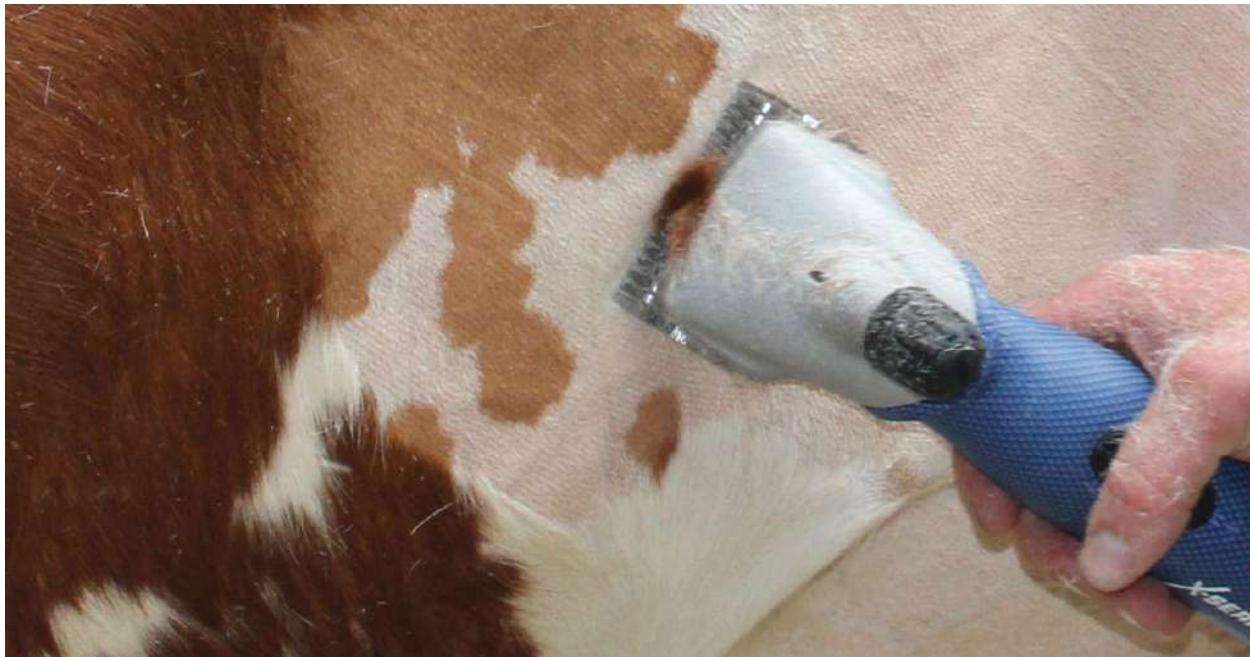
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d. Removal of Extra Teats

- Performed in heifer calves to **prevent mastitis** and **ease milking**.
- Done with sterile scissors or blade.
- Wound treated with antiseptic to avoid infection.



supernumerary teat removal in calves



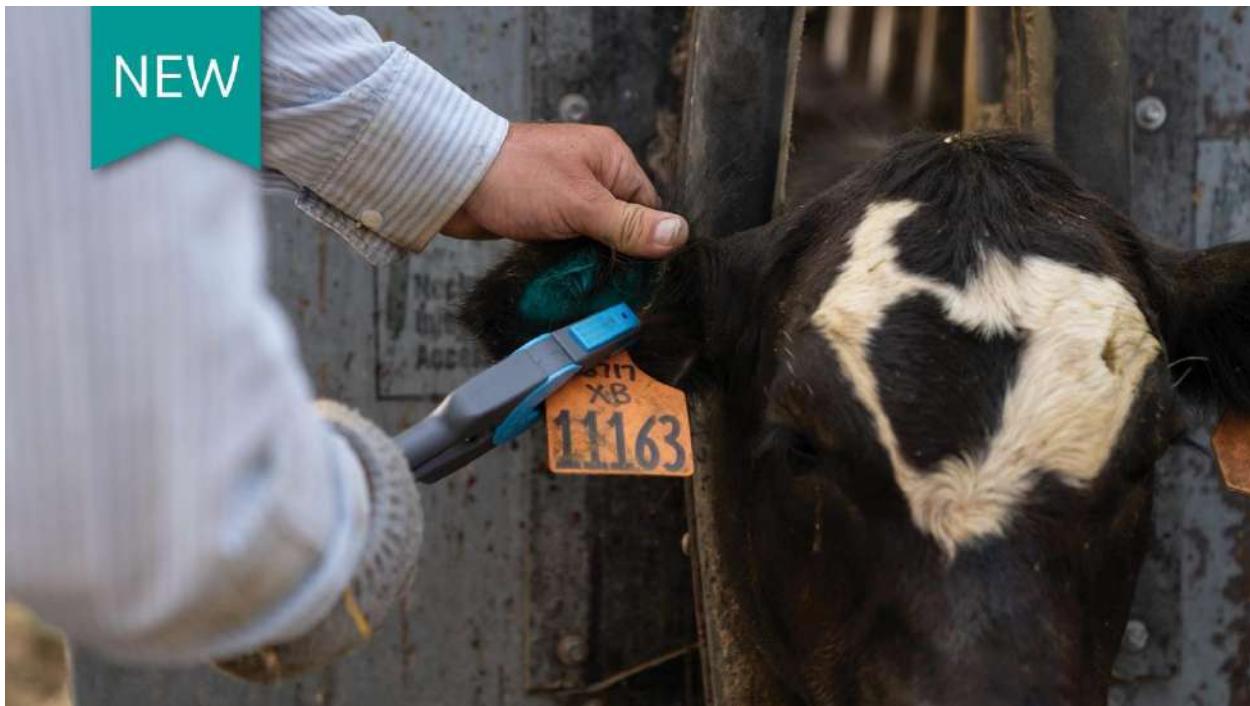


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e. Identification Methods

- **Ear Tagging:** Most common method—plastic tags with unique numbers.
- **Tattooing:** Permanent marking on inner ear.
- **Branding:** Hot or cold branding on the skin (less preferred due to pain).
- Identification helps in record-keeping, breeding, and disease control.

NEW





4

Learning Units (LUs)

- **LU5.1:** Calf Housing Requirements
- **LU5.2:** Grazing and Pasture Management
- **LU5.3:** Housing and Fencing
- **LU5.4:** Routine Farm Operations and Calf Care

Practical Units (PUs)

- **PU5.1:** Hoof Care, Vaccination, Deworming
 - Learn hoof trimming techniques.
 - Observe vaccination and deworming protocols.
- **PU5.2:** Tattooing, Disbudding, Ear Tagging

- Practice on dummy or real calves under supervision.
- Record identification numbers properly.



Trainer Notes

- Demonstrate procedures using healthy animals or models.
- Emphasize **animal welfare** and **hygiene** during all operations.
- Encourage students to keep **farm operation records**.
- Always use **sterile equipment** during tagging, disbudding, or teat removal.
- Observe **biosecurity protocols** to avoid disease transmission.

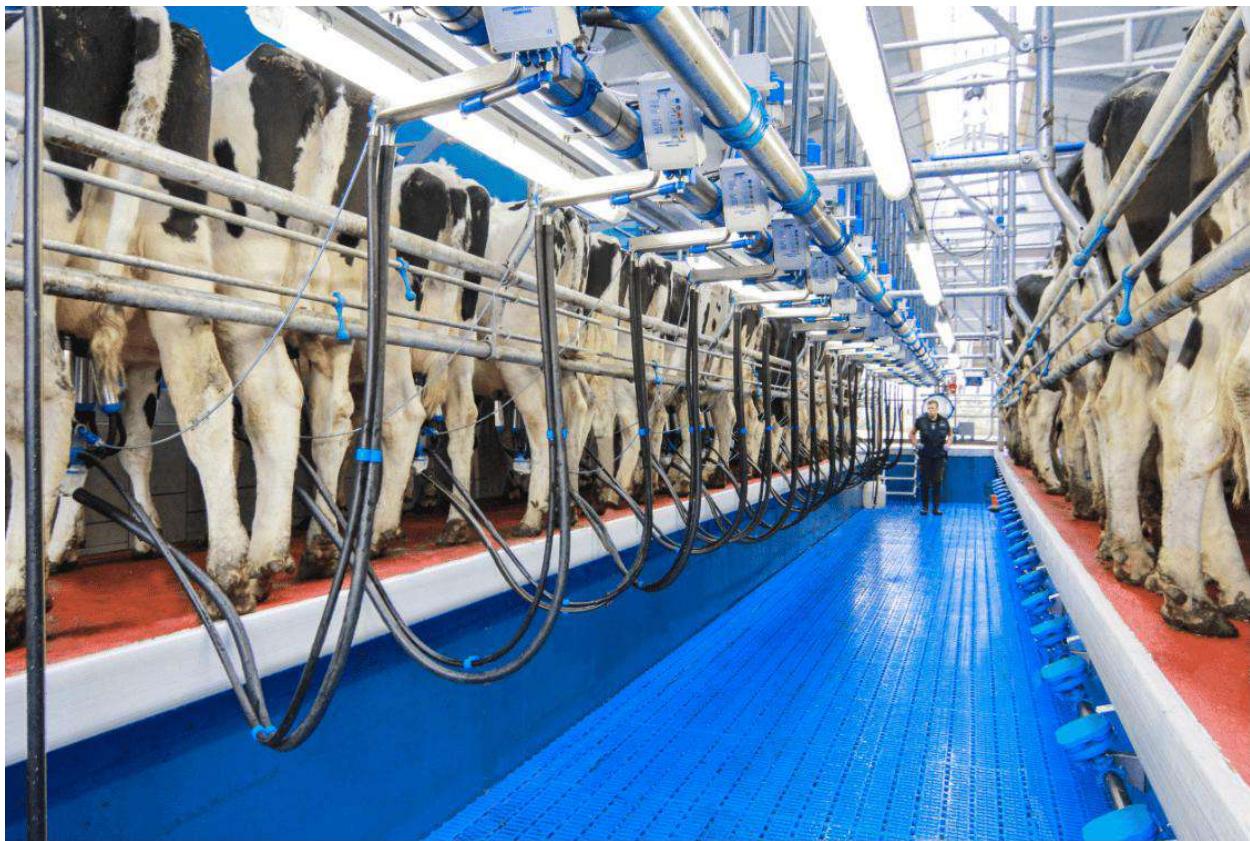
Assessment Criteria

Competency	Performance Standard	Method of Assessment
Calf Housing	Explains and demonstrates housing standards	Observation, oral quiz
Grazing Management	Identifies and explains pasture systems	Group discussion
Routine Operations	Performs disbudding, tagging correctly	Practical
Animal Welfare	Follows hygiene and welfare standards	Checklist
Record Keeping	Accurately documents farm operations	Evaluation sheet

Summary:

General husbandry management forms the **foundation of livestock farming**. Proper housing, calf care, pasture management, and routine operations increase animal productivity, prevent diseases, and ensure welfare. **Good husbandry = healthy animals + profitable farm** .

 **Module 6: Dairy Production**





Module Objectives

By the end of this module, learners will be able to:

- Understand the **basic concepts and terminology** used in dairy production.
- Identify and differentiate between **systems of dairy farming**.
- Apply **principles of hygienic milk production**.

- Perform **milk composition analysis** (protein, lactose, ash, vitamins).
- Implement proper **milking room hygiene practices** to ensure high-quality milk.

1. Basic Concepts in Dairy Production

Dairy Production

Dairy production involves the **management of dairy animals**, **milking**, and **processing of milk** for human consumption. It is a key part of **livestock farming** that provides milk and dairy products like butter, cheese, yogurt, and ghee.

Key Terms in Dairy Terminology

Term	Meaning
Lactation	Period during which the animal produces milk
Milking	Process of extracting milk from udder
Dry period	Non-lactating phase between two lactations
Colostrum	First milk after calving, rich in antibodies
Mastitis	Inflammation of the udder
Bulk Tank	Container used to store and cool milk
Teat Dipping	Hygiene step after milking to prevent infection



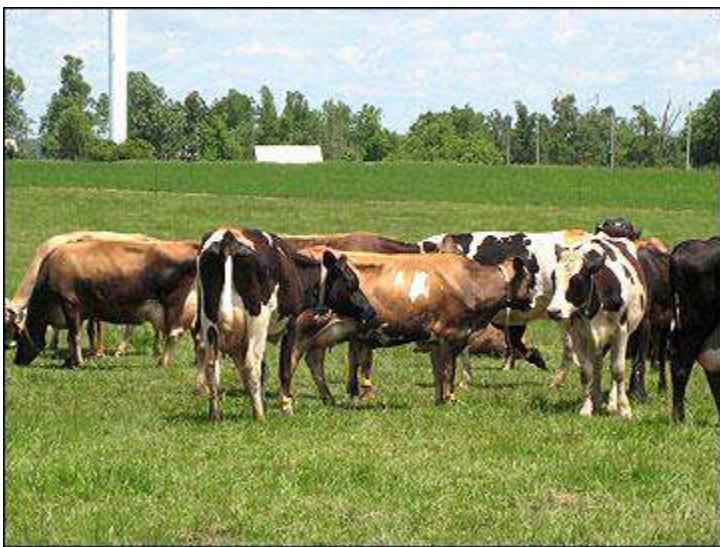


2. Systems of Dairy Farming

There are three common systems of dairy farming depending on resource availability, climate, and herd size:

a. Extensive System

- Animals graze freely in open pastures.
- Minimal housing and feeding inputs.
- Low cost but low milk production.
- Suitable for rural or nomadic areas.

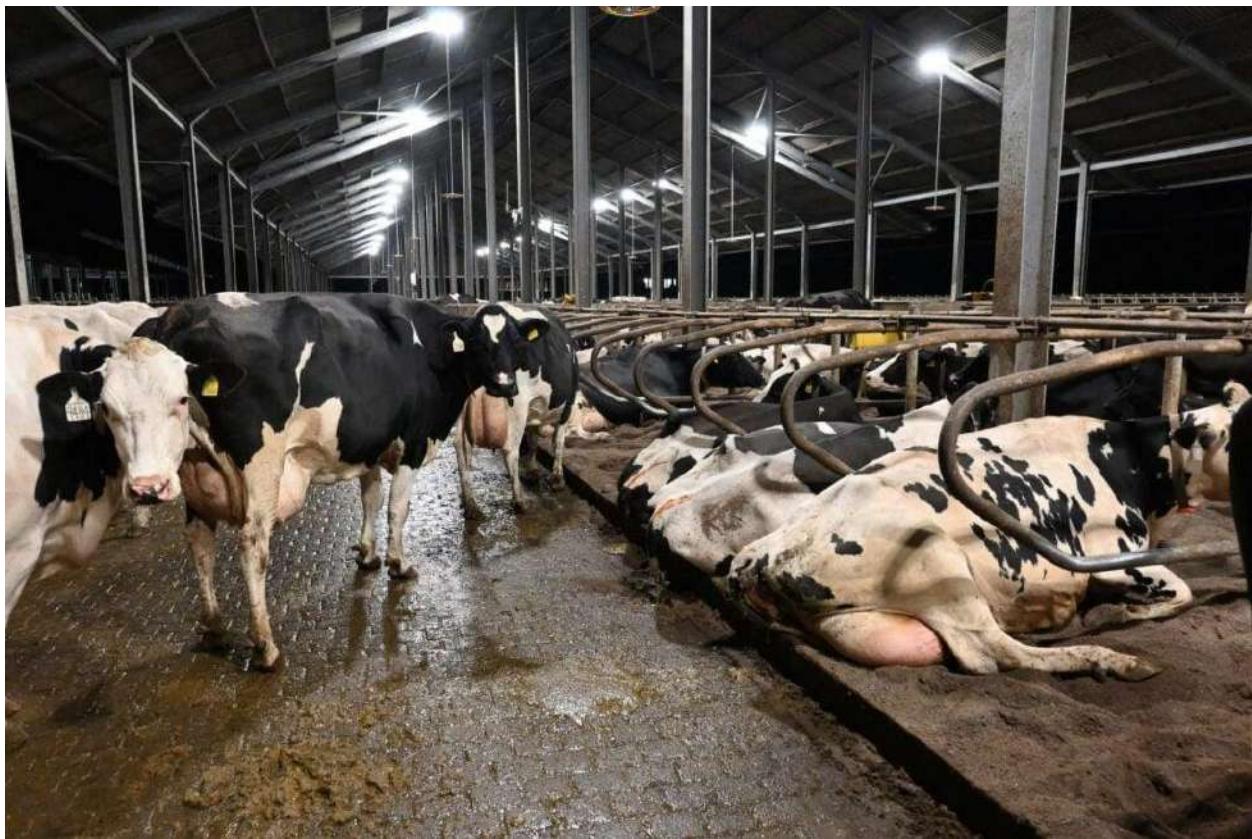




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b. Semi-Intensive System

- Combination of grazing and stall feeding.
- Animals graze during the day and are housed at night.
- Moderate milk yield and manageable costs.
- Common in developing dairy regions.





4

c. Intensive System

- Zero grazing — animals kept in stalls all the time.
- Total mixed ration (TMR) feeding system.
- High investment but **maximum milk production**.
- Suitable for commercial dairy farms.







4

3. Principles of Hygienic Milk Production

Hygienic milk production ensures milk is **clean, safe, and high-quality**.

Steps to Ensure Hygiene

1. Animal Hygiene

- Healthy udders and teats.
- Regular veterinary check-ups.
- Clean housing to prevent contamination.

2. Milker Hygiene

- Wash hands thoroughly before milking.

- Wear clean clothes and gloves.

3. Udder Preparation

- Wash teats with clean lukewarm water.
- Dry with disposable towels.
- Forestrip (remove first few streams) to detect mastitis.

4. Milking Technique

- Use full-hand milking or machine.
- Avoid injury or stress to the cow.

5. Post-milking Hygiene

- Teat dipping with disinfectant.
- Immediate filtration and chilling of milk.

6. Clean Equipment

- Use stainless steel or food-grade plastic.
- Wash and disinfect after every use.







Mosby Dairy Supply

4. Milk Composition Analysis

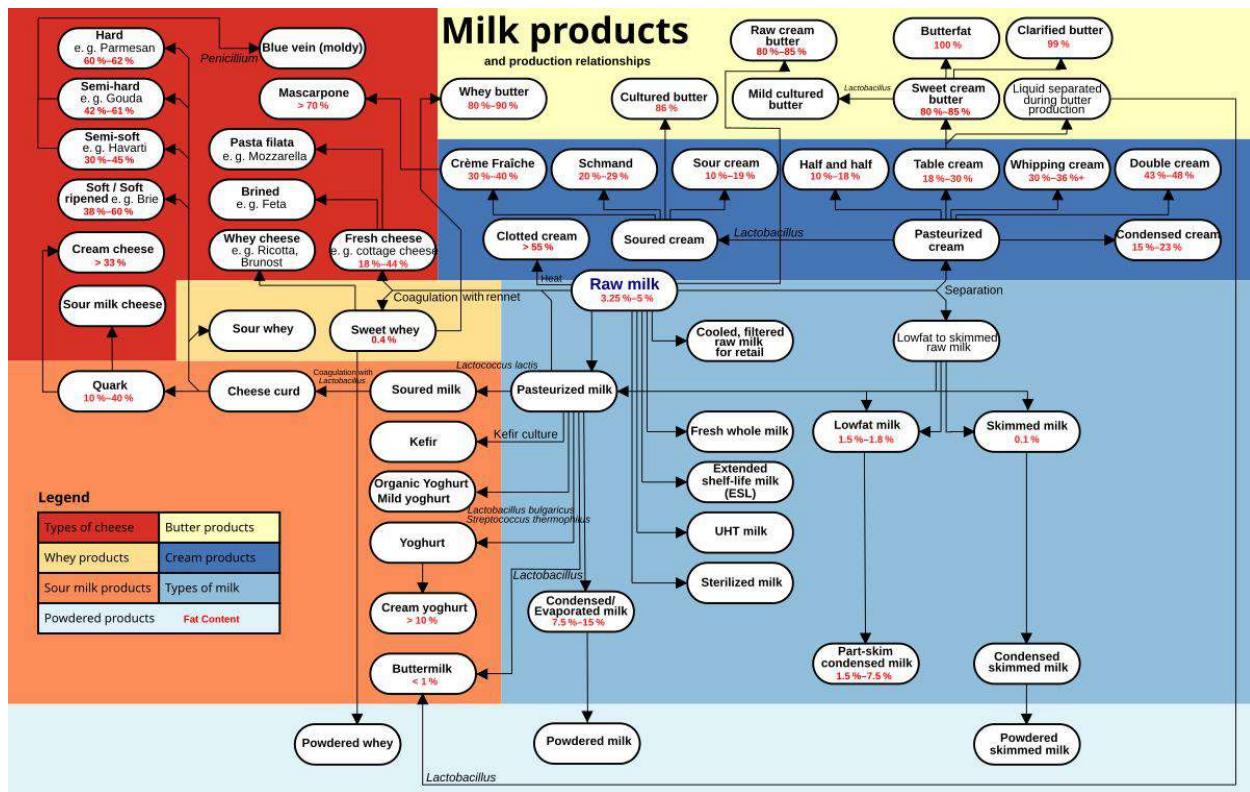
Milk is a **complete food**, and analyzing its composition ensures quality and nutrition.

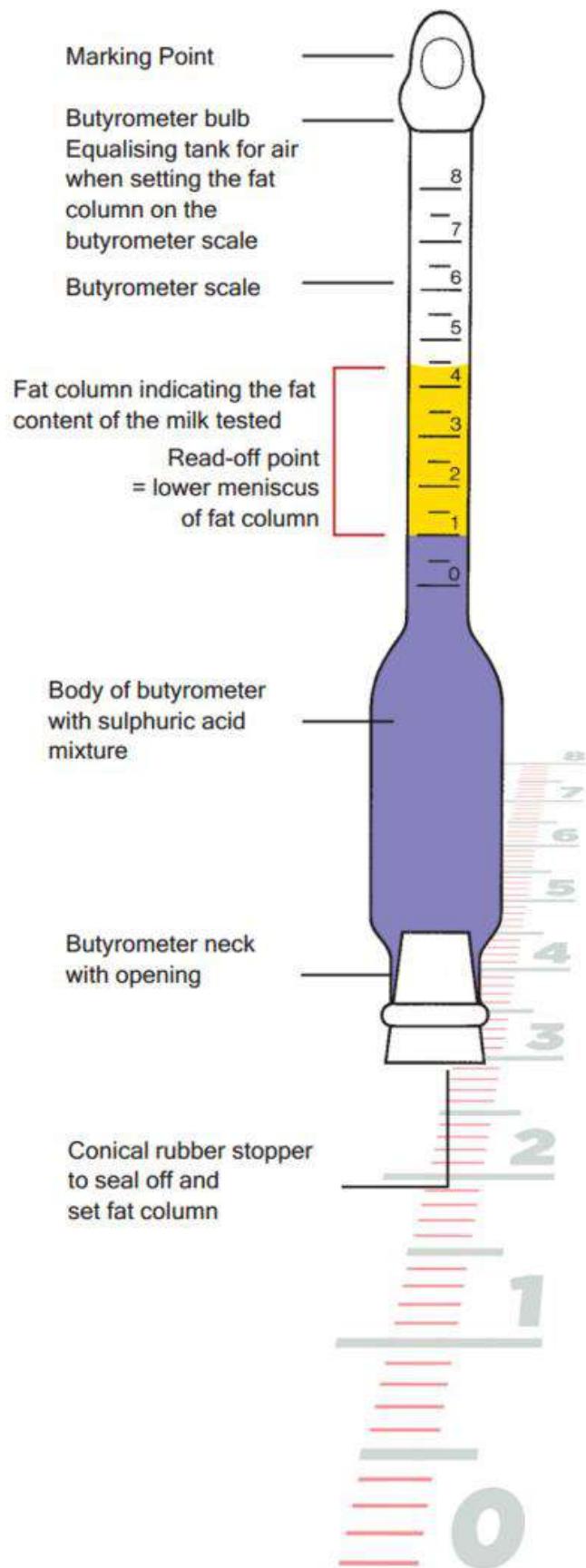
Component Approx. % in Cow Milk Function

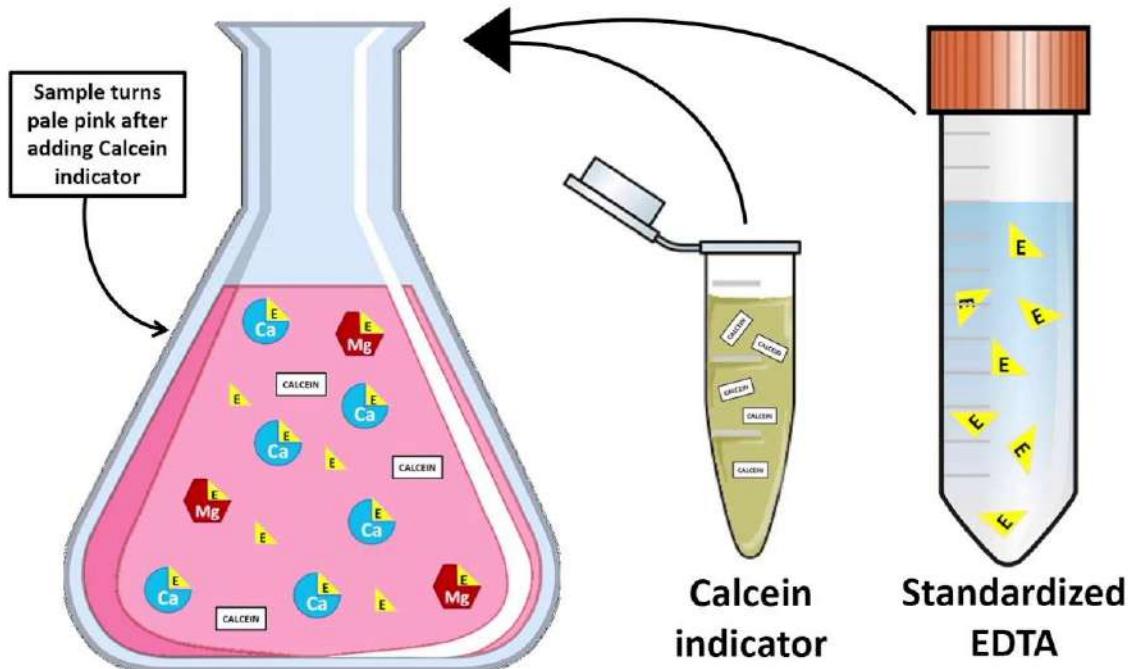
Water	86–88%	Medium for nutrients
Fat	3.5–4.5%	Energy source
Protein	3.2–3.4%	Growth and repair
Lactose	4.5–5.0%	Carbohydrate
Ash	0.7%	Minerals (Ca, P, Mg)
Vitamins	Trace amounts	Metabolic functions

Laboratory Tests Include:

- **Protein content:** by Kjeldahl method.
- **Lactose estimation:** by titration or refractometer.
- **Ash determination:** by burning sample at 550°C.
- **Fat determination:** by Gerber method.
- **Vitamins:** through biochemical analysis.







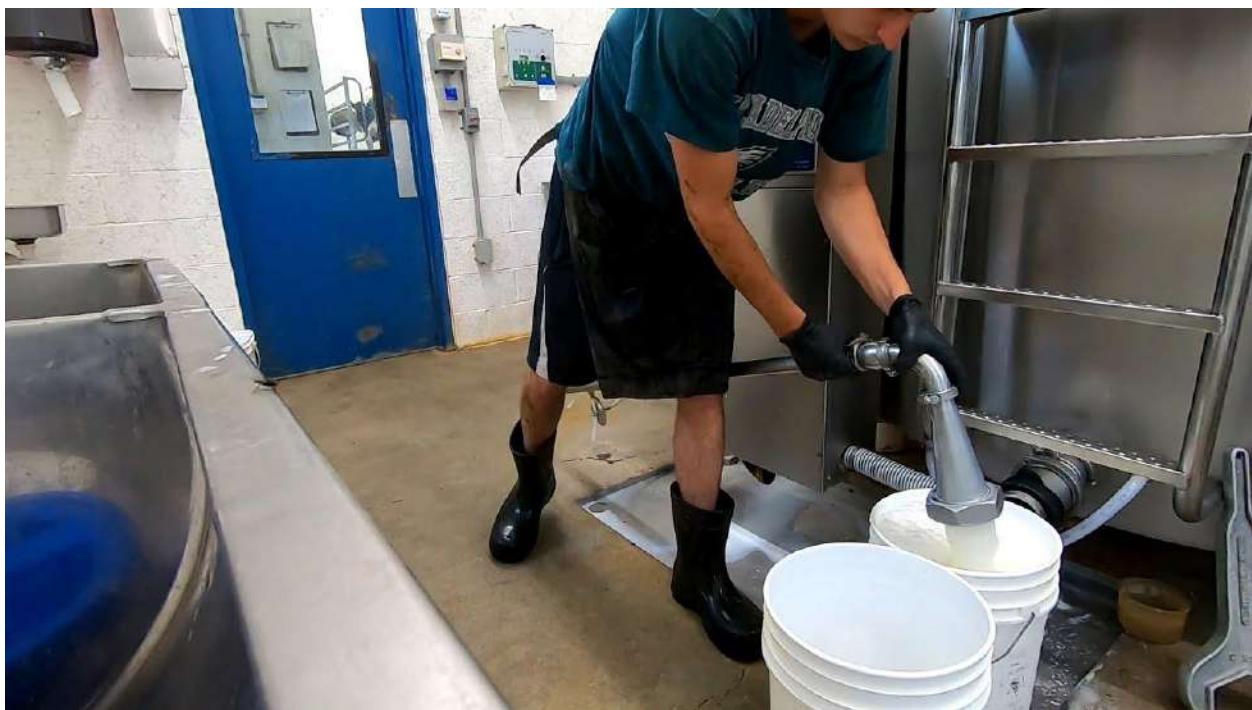
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Learning Units (LUs)

- **LU6.1:** Basic Concepts in Dairy Production
- **LU6.2:** Systems of Dairy Farming
- **LU6.3:** Principles of Hygienic Milk Production

Practical Units (PUs)

- **PU6.1:** Milk Composition Determination
 - Students analyze milk samples for fat, protein, lactose, and ash.
 - Learn how to record results accurately.
- **PU6.2:** Milking Room Hygiene Demonstration
 - Proper udder washing and teat dipping.
 - Demonstration of clean milking procedures.
 - Chilling and storing milk to preserve quality.





Trainer Notes

- Emphasize **animal welfare** and cleanliness at all stages.
- Demonstrate both **manual and machine milking**.
- Involve students in real **milk testing and hygiene audits**.
- Use visual aids (charts, videos) to explain milk components.
- Highlight the **economic importance** of producing clean milk.

Assessment Criteria

Competency	Performance Standard	Method of Assessment
Dairy Terminology	Explains key concepts accurately	Oral quiz / written
Farming Systems	Identifies and compares systems	Group discussion
Hygienic Milking	Demonstrates hygiene procedures correctly	Practical
Milk Testing	Accurately performs composition tests	Lab work
Record Keeping	Maintains test reports properly	Evaluation sheet

Appendices

-  **Glossary of Livestock Terms** (Lactation, Mastitis, TMR, etc.)
-  **Farm Record Templates** (milk yield, hygiene checklist, animal health)
-  **Equipment List**
 - Stainless steel buckets
 - Milking machines
 - Refractometer / lactometer
 - Cleaning brushes and disinfectants

- Milk filters and coolers
-  **Suggested Reading / References**
 - Dairy Production Handbooks
 - National Dairy Development Guidelines
 - FAO Training Manuals

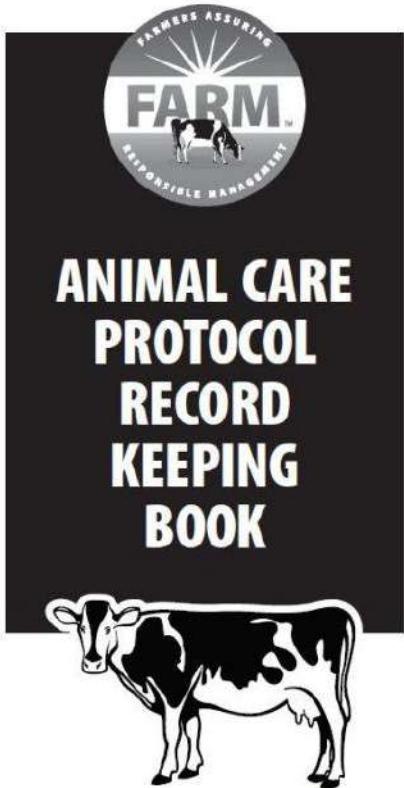
-  **Practical Checklists**

- Milking hygiene checklist
- Milk testing steps
- Cleaning schedule

Set Includes 2 Buckets







Compiled for Pennsylvania dairy farm families by:

 **CENTER FOR DAIRY EXCELLENCE**

Veterinarian Review Sign-Off		YEAR
FACILITY INFORMATION		
Facility Contact		
Name	Phone	
Facility Location		
Facility Name		
Address		
City	State	Zip
VETERINARIAN INFORMATION		
Veterinarian		
Name	Phone	
Clinic		
Name		
Address		
City	State	Zip
HERD HEALTH PLAN		
Signature _____ Date _____		
DRUG TREATMENT RECORDS		
Signature _____ Date _____		
VETERINARIAN-CLIENT-PATIENT RELATIONSHIP		
<p>I hereby certify that a valid Veterinarian-Client-Patient Relationship (VCP) is established for the above listed owner and will remain in force until canceled by either party.</p> <p>"Upon execution of this Agreement and the establishment of the VCP, Producer, on behalf of himself and his present or past legal representatives, predecessors, successors, assigns, agents and heirs, hereby releases and forever discharges Veterinarian from any and all claims, actions, disputes, damages or demands, at law or in equity, that Producer could or may bring in regard to Producer's participation in, or disqualification from the FARM program. Producer expressly waives any right or claim of right to assert hereafter that any claim in such regard has through ignorance, oversight or error, been omitted from the terms of this Agreement."</p> <p>"In addition, upon execution of this Agreement and the establishment of the VCP, FARM, on behalf of itself and its present or past legal representatives, predecessors, successors, assigns, agents and affiliates, hereby releases and forever discharges Veterinarian from any and all claims, actions, disputes, damages or demands, at law or in equity, that FARM could or may bring in regard to Veterinarian's participation in the VCP; or Producer's participation in, or disqualification from the FARM program.</p> <p>FARM expressly waives any right or claim of right to assert hereafter that any claim in such regard has through ignorance, oversight or error, been omitted from the terms of this Agreement."</p>		
Veterinarian		
Signature _____ Date _____		
Facility Representative		
Signature _____ Date _____		

Summary:

Dairy production is a **scientific and systematic process** involving animal management, hygienic milking, and milk quality control. Clean milk ensures **better product shelf life, higher market value, and consumer safety**. A well-managed dairy unit contributes significantly to **farm profitability and food security**.

Entrepreneurship in Livestock Farm Management

This document provides an overview of **entrepreneurship within the livestock sector**, covering various aspects such as **types of livestock enterprises, business idea generation, farm business planning, financing options, challenges, and sustainable practices** including **waste management, resource efficiency, and green supply chain strategies**.

It also includes **practical units and assignments** to help learners develop real-world livestock business plans and solutions.

Introduction to Entrepreneurship in Livestock

Entrepreneurship in livestock farm management refers to the process of **designing, launching, and running** a profitable and sustainable livestock farming business. This may include **cattle farming, dairy production, goat and sheep farming, poultry production, or value-added livestock products** such as meat, milk, cheese, or leather.

Entrepreneurs in the livestock sector play a crucial role in:

- **Food security**
- **Job creation**
- **Rural development**
- **Sustainable agricultural growth**

Types of Livestock Entrepreneurships

1. Small Farm Entrepreneurship

Starting and managing a **small-scale livestock farm**, such as dairy goat farming, backyard poultry, or small beef cattle operations.

☞ Focus: Livelihood and local market supply.

2. Scalable Livestock Startup Entrepreneurship

Developing **commercial livestock farms** with potential for growth, such as automated dairy farms, broiler units, or meat processing ventures.

☞ Focus: Expansion, automation, and branding.

3. Large-Scale Corporate Entrepreneurship

Operating **large integrated livestock businesses** (e.g., large dairy plants, meat processing units).

☞ Focus: Large investments, vertical integration, national or export markets.

4. Social Livestock Entrepreneurship

Ventures focused on solving **social or environmental challenges**, e.g.:

- Organic livestock farming

- Climate-smart cattle farming
- Community dairy cooperatives





💡 Business Idea Generation in Livestock Farming

1. Identify Market Gaps

- Demand for fresh milk or organic meat in local markets
- Lack of high-quality breeding stock
- Value-added dairy products (e.g., yogurt, cheese, ghee)

2. Leverage Trends

- Organic livestock products
- Free-range and grass-fed meat
- Technology integration (IoT, automated feeding, AI in herd health)

3. Brainstorming and Innovation

- New farm management methods
- New product lines like camel milk, sheep cheese, etc.

4. Competitor Analysis

- Study nearby farms
- Analyze pricing, quality, and services

5. Personal Skills & Passion

- Example: A person skilled in animal breeding may start a **breeding center**.

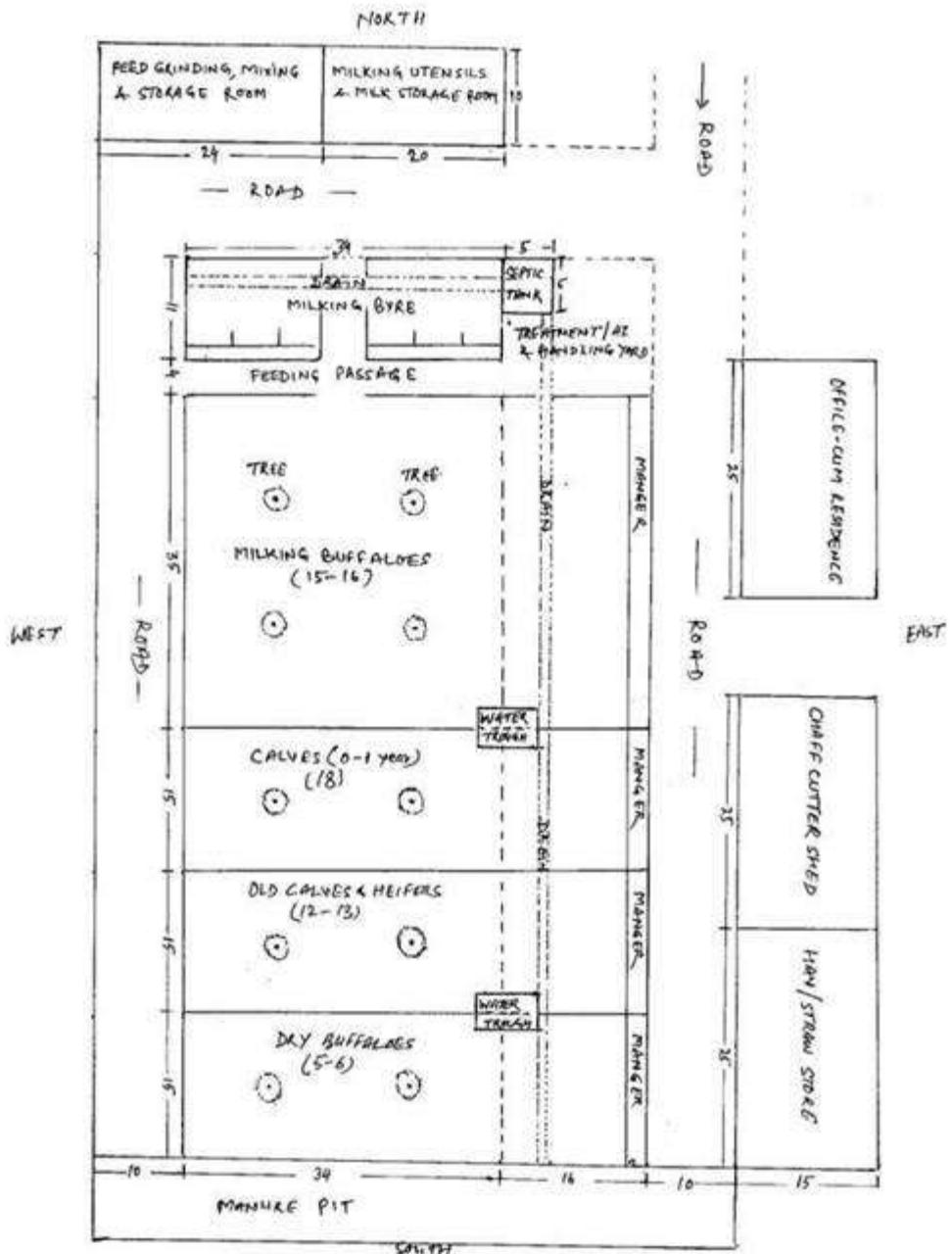
Business Planning and Strategy for Livestock Farms

A strong business plan ensures sustainability and profitability.

Components:

- **Executive Summary** – Farm concept and objectives.
- **Company Description** – Type of livestock, farm location, mission, vision.
- **Market Analysis** – Local demand, pricing trends, competition.
- **Products & Services** – Milk, meat, eggs, breeding stock, manure.
- **Marketing Strategy** – Branding, direct selling, cooperatives, online promotion.
- **Management Team** – Owners, veterinarians, farm workers.
- **Financial Projections** – Capital costs, operational costs, profit estimates.
- **Operational Plan** – Housing systems, feeding, milking schedules, waste management.

1. LAYOUT OF BUILDINGS FOR A 20 BUFFLOES BASED DAIRY UNIT







5

⌚ Financing Options for Livestock Business

- **Personal Savings** – Initial setup.
- **Bank Loans / Microfinance** – For land, livestock, or infrastructure.
- **Government Schemes / Subsidies** – Veterinary services, loans.
- **Investors & Partnerships** – Joint ventures.
- **Grants and NGOs** – Especially for women or youth-led livestock businesses.
- **Crowdfunding** – For innovative or sustainable projects.

⚠ Challenges in Livestock Entrepreneurship & Solutions

Challenge	Description	Possible Solutions
Disease outbreaks	Infectious diseases like Foot-and-mouth disease	Biosecurity, vaccination
Feed cost fluctuation	High prices for concentrates	Use of local fodder, silage
Market competition	Many small farmers	Branding, niche marketing
Poor infrastructure	Roads, cold chain	Cooperatives, shared transport
Climate stress	Drought, heat stress	Climate-smart farming, shade, water management

PU 6.3: Waste Management and Resource Efficiency in Livestock Farms

Key Strategies:

- **Manure Composting** – Use livestock manure as fertilizer or biogas feedstock.
- **Feed Efficiency** – Reduce feed waste through precision feeding.
- **Recycling Water** – Use recycled water for cleaning.
- **Energy Efficiency** – Solar-powered pumps, lights.
- **Pasture Management** – Prevent overgrazing.





PU 6.4: Green Supply Chain & Sustainable Procurement

- **Local Sourcing** – Buy feed and inputs locally.
- **Sustainable Feed Production** – Promote organic fodder cultivation.
- **Eco-friendly Packaging** – Reusable containers for milk and meat.

- **Collaborate with Green Suppliers** – To reduce farm carbon footprint.

PU 6.5: Group Task & Assignment

Task:

Develop a **sustainable livestock business plan**.

Assignment Steps:

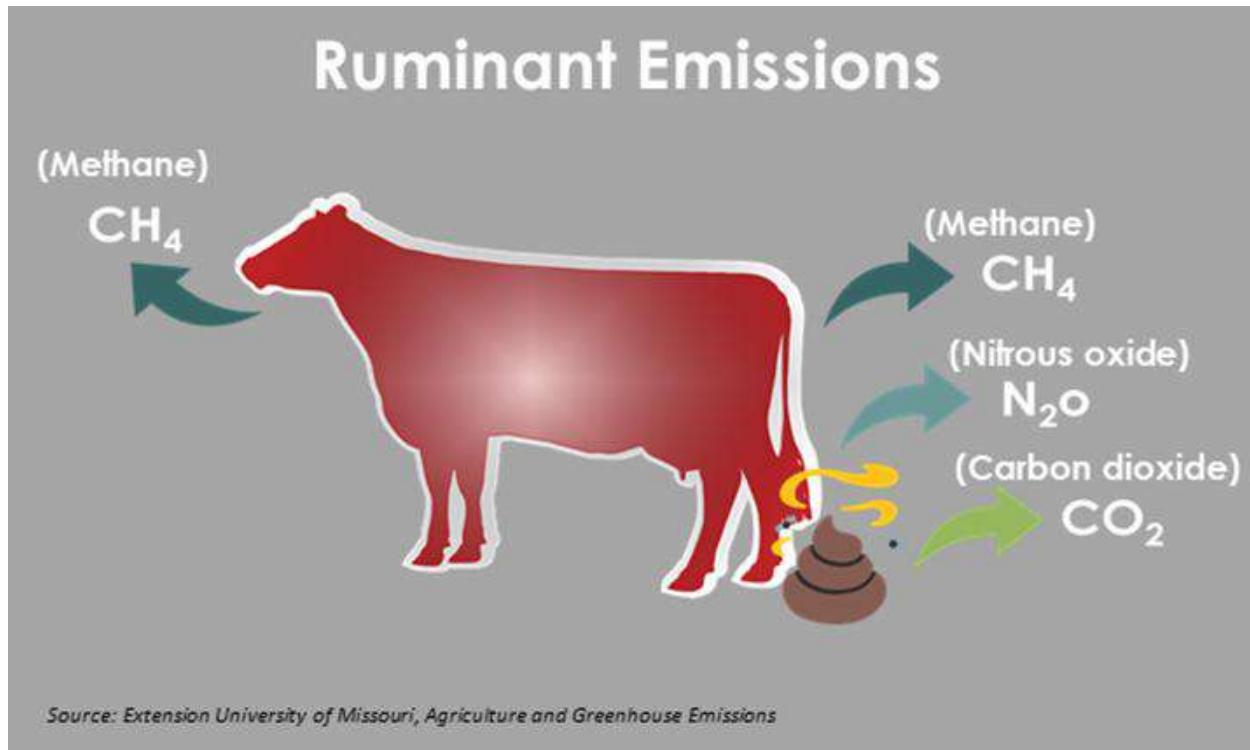
1. **Concept Development:** Choose livestock type (e.g., dairy, poultry, goat).
2. **Market Research:** Demand analysis, competition mapping.
3. **Business Plan Creation:**
 - Executive Summary
 - Farm Description
 - Market Analysis
 - Products & Services (sustainable practices)
 - Marketing & Sales Strategy
 - Management Team
 - Financial Projections
 - Operational Plan
4. **Presentation:** Pitch the plan to a panel or class.

Environmental Issues in Livestock Farm Management

Key Environmental Hazards:

- **Air Pollution:** Methane emissions from livestock.
- **Water Pollution:** Runoff from farms.
- **Soil Degradation:** Overgrazing, nutrient imbalance.

- **Deforestation:** For pasture or feed crop production.
- **Biodiversity Loss:** Habitat destruction.





Conservation & Sustainability in Livestock

- **Reduce Waste:** Efficient feeding, manure recycling.
- **Sustainable Grazing:** Rotational grazing systems.
- **Water & Energy Conservation:** Drip irrigation for fodder, solar energy.
- **Sustainable Sourcing:** Local and organic feed.
- **Animal Welfare:** Ethical treatment and good living conditions.

Climate Change & Its Effects on Livestock

- Heat stress affects milk yield and fertility.
- Drought impacts fodder production.
- Disease patterns shift with changing climate.
- Flooding affects pasture lands.

 **Adaptive Measures:** Shade, water harvesting, climate-resilient breeds, improved housing.

How Farmers Can Contribute to Environmental Protection

- Compost and reuse manure instead of open dumping.
- Reduce water use with efficient cleaning systems.
- Switch to solar energy and biogas.
- Source local, eco-friendly inputs.
- Train workers in environmental practices.
- Participate in carbon credit programs and sustainability certifications.

Appendices

- **Glossary of Livestock Terms**
- **Farm Record Templates** (Feeding, Milking, Breeding)
- **List of Farm Equipment**
- **Suggested Reading / References**
- **Sustainability Checklists**

Conclusion:

Entrepreneurship in livestock farming is **not just about profit**, but about **building sustainable, efficient, and environmentally friendly farming systems**. With proper business planning, innovation, and green practices, livestock farms can contribute significantly to rural development and food security.

7.Trainer Qualification Level

Qualification Level of trainer	Qualification / Certification	Purpose / Importance
Minimum Mandatory	<ul style="list-style-type: none"> • Diploma in Veterinary Sciences (DVS) three year and or Diploma in Livestock Science (DLS) Three Year after Matric .Additionally, candidates are expected to gain practical experience through internships or hands-on training in clinics, farms, or research facilities, ensuring exposure to a diverse range of animal species and medical cases. 	Provides basics of Livestock Management skills, and theoretical understanding necessary for training engagement.
Preferred	<ul style="list-style-type: none"> • A comprehensive education spanning 16 years in the pertinent field is required. Candidates must possess either a Doctor of Veterinary Medicine 	<ul style="list-style-type: none"> • Routine farm Operation in addition to the provision of basics of Livestock Management Skill .They should also demonstrate strong

	<p>(DVM) or a Bachelor of Science (Honors) in Animal Husbandry from a university or institute recognized by the Pakistan Veterinary Medical Council (PVMC).</p> <ul style="list-style-type: none"> • 	<p>communication skills, as effective interaction with pet owners, colleagues, and other professionals is vital in delivering quality veterinary care. Lastly, candidates must exhibit a commitment to ethical practices in their approach to veterinary medicine, addressing both the health of animals and the importance of public health.</p>
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8. Consumable

Category	Items
Consumables	<ul style="list-style-type: none"> - Acid/H₂SO₄ Lit (Sample only) Quantity 500 ML. - Amyl Alcohol Lit (Sample only) 500 ML. - White wash CaCO₃ Kg 1000Kg. - HCL one Liter - Distal Water 10 liter - Butyrometer 10 in quantity for Fat determination in milk - Pipette 5 ml, 10 ml - Burrett for pH - Beaker 10 ml, 50 ml and 100 ml two two each - Conical flask 50ml one and conical flask 100ml one

	<ul style="list-style-type: none"> - Burrett stands for Ph - Brush 4. - vaccines and medicine all types; disinfectants; detergents; - gloves; plastic gloves for pregnancy diagnosis; surgical gloves;
Non-Consumables	<ul style="list-style-type: none"> - Multimedia, - Screen, - whiteboard, - markers, - Notebook/pen, - Power sockets - Wi-Fi connectivity, - eraser, - white board markers, - pencils, - stationary, - 80 g A4 one ram, 80g legal one ram paper - white board - thermometer

9. Job Opportunities

After completion of this course trainee can work as:

- Self-employment (establishing livestock Farm)
 - Private Livestock Farm
 - Livestock Entrepreneur

- Livestock Assistant
- Livestock Supervisor
- Livestock Manager (in future)

Recommended Books and other related resources

- Animal husbandry by S. Iqbal shah, Elena Bashir Robyn Bantel , National Book Foundation
- Text book of Livestock Management (Urdu) Prof. Dr. M. Abdullah (Published by University of Veterinary and Animal Sciences, Lahore)
- Artificial Inseminations Methods in Urdu by Dr. Hamayun Khan
- Dairy Farm by Dr. Muhammad Aftab Khan
- Text book of Livestock Management by Prof. Dr. M. Abdullah Clinical medicine by prof. Dr. M. Sarwar khan Animal breeding and genetics by prof. Dr. Khalid javed
- Reproductive system of Farm animals and Artificial insemination in Urdu by Dr. Muhammads Aftab
- What is freelancing and how you can make money online - BBCURDU
<https://www.youtube.com/watch?v=9jCJN3Ff0kA>
- What Is the Role of Good Manners in the Workplace? By Qasim Ali Shah | In Urdu
<https://www.youtube.com/watch?v=Qi6Xn7yKIIQ>
- Modern farming technology. https://www.youtube.com/watch?v=hF-hYw_2AzE
Advanced feed <https://www.youtube.com/watch?v=9Ed5ETPjto>
- success story of chilli farming | Livestock Manager
<https://www.youtube.com/watch?v=iETI9FY17AA>
- Syngenta Pakistan whitefly | Livestock Manager
<https://www.youtube.com/watch?v=RfnclfR5-ull>
- Failure to Millionaire - How to Make Money Online | Fiverr Superhero Aaliyaan Success Story <https://www.youtube.com/watch?v=d1hocXWSpus>

KP-RETP – Component 2: Classroom SECAP Evaluation Checklist

Purpose:

To ensure that classroom-based skills and entrepreneurship trainings under KP-RETP are conducted in an environmentally safe, socially inclusive, and climate-resilient manner, in line with the Social, Environmental, and Climate Assessment Procedures (SECAP).

Category	Evaluation Points	Status		Remarks /Recommendation
		Yes	No	
Social Safeguards	Is the training inclusive (equal access for women, youth, and vulnerable groups)?			
	Does the classroom environment ensure safety and dignity for all participants (no harassment, discrimination, or child labor)?			
	Are gender considerations integrated into examples, discussions, and			

Evaluator: _____

Training Centre / Location: _____

Trainer: _____

Date: _____

	materials?			
	Is the Grievance Redress Mechanism (GRM) process, along with the relevant contact number, clearly displayed in the classroom			
	Are the Facilities and activities being accessible and inclusive for specially-abled (persons with disabilities)			
Environmental Safeguards	Is the classroom clean, ventilated, and free from pollution or hazardous materials?			
	Is there proper waste management (bins, no littering)			
	Are materials used in practical sessions environmentally safe (non-toxic paints, safe disposal of wastes)?			
	Are lights, fans, and equipment turned off when not in use (energy conservation)?			
Climate Resilience	Are trainees oriented on how their skills link with climate-friendly practices (e.g., renewable energy, efficient production, recycling)?			
	Are trainers integrating climate-smart examples in teaching content?			
	Are basic health and safety measures available (first aid kit, safe exits, fire safety)?			
	Is the trainer using protective gear or demonstrating safe tool use (where relevant)?			
Institutional	Is SECAP awareness shared with trainees (via short briefing, posters, or			

Aspects	examples)?			
	Are trainees encouraged to report unsafe, unfair, or environmentally harmful practices?			
Overall Compliance	Overall SECAP compliance observed		<input type="checkbox"/> High <input type="checkbox"/> Medium <input type="checkbox"/> Low	

Overall remarks/ recommendations

Name	Designation	Signature	Date