Unit 4: Introduction to Farm Animals

Farm Animal Species Overview: Farm animals are species raised primarily for human use, such as for food or work functions. The process of **domestication** refers to converting wild animals for domestic use. **Domesticated animals** have been selectively bred to live alongside humans. Most familiar domesticated animals were first domesticated between 8000 and 2500 BC, coinciding with the advent of farming and permanent settlements.

Difference between Species and Breed:

- **Species**: A large group of animals capable of interbreeding and producing fertile offspring.
- **Breed**: A specific group within a species, visibly similar in most characteristics, distinguishing it from other breeds of the same species.

4.1.1 Farm Animals in Ethiopia and Their Description

Ethiopia is rich in farm animal resources, consisting of mammalian, avian, and honeybee species. The major farm animals include:

- **Mammals**: Cattle, sheep, goats, camels, donkeys, horses, mules.
- **Avian**: Chickens, ostriches, turkeys.
- **Honeybees**: Stinging honeybees are the most significant in Ethiopia.

Most livestock in Ethiopia are of local breeds, with some hybrids and exotic breeds.

Key Farm Animals in Ethiopia

1. Cattle (Bos indicus/Bos taurus):

- **Bos indicus**: Humped cattle, found in tropical regions.
- **Bos taurus**: Non-humped cattle, found in temperate zones.
- **Use**: Meat, milk, draft work, hides for leather, manure for fertilizer.
- **Diet**: Herbivores, primarily feeding on pasture.

2. Sheep (Ovis aries):

- **Use**: Meat, wool, skin, and sometimes milk.
- **Diet**: Ruminant herbivores, feeding on fine grasses and coarse weeds.

3. Goats (Capra hircus):

- **Use**: Milk, meat, skins, and hair (e.g., Angora goat for mohair).
- **Diet**: Herbivores, feeding on shoots, twigs, and leaves.

4. Camels (Camelus dromedary/Camelus bactrianus):

- **Types**: Dromedary (one hump) and Bactrian (two humps).
- **Use**: Milk, meat, wool, hides; known as the "ships of the desert."
- **Diet**: Herbivores, feeding on tree leaves, branches, and thorny bushes.

5. Poultry (Gallus gallus domesticus):

- **Types**: Layers (egg production) and broilers (meat production).
- **Diet**: Omnivorous, feeding on a variety of plant and animal-based foods.

6. Honey Bees (Apis):

- **Use**: Pollination, honey production.
- **Colony Structure**: Composed of workers, queen, and drones, each with specific duties.

7. Fish:

- **Use**: Food; fish farming is a rapidly growing industry in animal food production.

4.1.2. Ruminant and Monogastric Animals

Ruminant Animals:

- Have a four-chambered stomach: **Rumen, Reticulum, Omasum, Abomasum**.
- **Diet**: Herbivores, primarily eating large amounts of roughage.
- **Digestive Process**: Efficient in breaking down food and absorbing nutrients, with the rumen acting as a fermentation vat for digesting cellulose.

Monogastric Animals:

- Have a single-chambered stomach.
- **Diet**: Easier-to-digest feedstuffs, including a variety of food habits.
- **Examples**: Horses and poultry, with a digestive system designed for efficient nutrient absorption from non-fibrous foods.

Animal Production Systems

Types of Animal Production Systems: Animal production systems are methods used to raise and manage livestock. These systems can be classified into three main types: extensive, semi-intensive, and intensive. Each system differs in terms of labor, land use, animal density, and production goals.

1. **Extensive Production System:**
    - **Definition:** This system uses minimal labor, fertilizers, and capital relative to the land area. It is common in areas with low agricultural productivity.
    - **Characteristics:**
        - Typically involves local breeds.
        - Animals graze on natural pastures.
        - Productivity is lower, and animals take longer to mature.
        - Less labor is required per unit of land.
    - **Examples:**
        - **Pastoralism:** Herders move animals to find pastures. There are two types:
            - **Nomads:** Constantly move with no permanent home.
            - **Transhumance:** Move seasonally but return to a permanent home.
        - **Agro-pastoral System:** Combines crop farming with livestock raising.
        - **Ranching:** Raising animals on fenced land, often for commercial purposes.
        - **Mixed Farming:** Growing crops and raising livestock on the same land, mainly for family use.
2. **Semi-intensive System:**
    - **Definition:** This system falls between extensive and intensive, using more inputs and yielding higher outputs than the extensive system.
    - **Characteristics:**
        - Practiced by small-scale farmers, often near towns.
        - Livestock is reared both for family consumption and for sale.
        - The system can be easily intensified with more inputs.

3. **Intensive Production System:**
    - **Definition:** A modern farming system with high inputs and high outputs, focused on market-oriented production.
    - **Characteristics:**
        - Animals are kept in high density and often fed with specially grown or purchased feeds.
        - Involves exotic or crossbred animals.
        - The system requires more labor, capital, and technical knowledge.
    - **Examples:**
        - Pig production, broiler production, feedlot operations, and commercial dairy production.

Comparison of Intensive and Extensive Systems:

- **Intensive Farming:**
    - High labor and capital use.
    - High animal density.
    - Focus on exotic or crossbred animals.
    - Located closer to markets.
- **Extensive Farming:**
    - Low labor and capital input.
    - Low animal density.
    - Focus on indigenous animals.
    - Often located far from markets.

Key Terms:

- **Cut and Carry System:** Feeding animals by cutting fresh grass and bringing it to them, often used in intensive systems.
- **Balanced Ration:** A diet that provides all the necessary nutrients for an animal to thrive.
- **Feedlot:** A confined area where animals are fattened for market, typically for a few months.

In summary, the choice of animal production system depends on factors like available land, labor, and the farmer's goals, whether for subsistence or commercial purposes. Understanding these systems helps in making informed decisions about livestock management.