

**AGA 4511**

**Beef and Small Ruminant  
Production**

# Components of this course

1. Beef Production
2. Small ruminants (Sheep and Goat) Production
3. Animal Draft Power

# About the course!

**Duration:** 15 weeks

- 3 Lecture hours per week
- 3 Laboratory hours per week

## **Assessment**

- Continuous assessment (Tests, Assignments, Quizzes, Reports)  
**40%**
- Final Examination **60%**
- **Test on 11<sup>th</sup> April, 2024**

# **BEEF PRODUCTION**

*Francisco Kanyinji, Ph.D*  
*Animal Sciences Department*  
*School of Agricultural Sciences*  
*UNIVERSITY OF ZAMBIA*

# **Beef Production: An Overview**

**"Understanding the Journey from  
Farm to the Dining Table"**



# Terminologies

- **Cow:** a mature female bovine that has given birth to at least one or two calves
- **Bull:** a mature, intact (testicles present and not removed) male bovine used for breeding purposes
- **Heifer:** a female bovine (often immature, but beyond the "calf" stage) less than 1 to 2 years of age that has never calved.

- **Calf:**(plural: *Calves*): an immature bovine (male and female) that is reliant on milk from its dam or from a bottle in order to survive and grow
- **Weaner:** an immature bovine after it stops suckling.
- **Yearling:**a cattle of either sex that is 1 to 2 years of age
- **Sire:** the male parent.

- **In-calf:** pregnant
- **Gestation period:** pregnancy period
- **Calving:** giving birth in cattle
- **Ox** (plural: *Oxen*): a bovine that is trained for draft work (pulling carts, wagons, plows, etc.) This is a term that primarily refers to a male bovine that has been castrated after maturity

- Free-Marten - a female born with a male twin, usually infertile
- **Dam:** the female parent
- **Steer:** a male bovine (or bull) that has been castrated before reaching sexual maturity and is primarily used for beef.
- **Open or Empty-**A term commonly used to indicate a non-pregnant female

# What is beef production?

- Refers to the process of raising cattle for the primary purpose of obtaining meat for human consumption.
- It involves various stages, from breeding and raising cattle to the processing and distribution of beef products.

# Benefits of cattle rearing

- Provide Food, fertilizer, and fuel.
- Provide an income through the sale of animals and their products.
- Draught power for smallholder operations and transportation
- Serve as savings account and a symbol of family wealth.

- Can be a good source of high quality protein especially for vulnerable groups (children, the aged, HIV/AIDS patients).
- May serve as a buffer against crop failure and other risks.
- Provide environmental services – as a renewable source of fuel, reduces pressure on fossil fuels and forests.

- Creates jobs by providing raw material for the agro-based industries.
- As medium to settle disputes between aggrieved parties.

# What are the key components?

## 1. **Breeding and Genetics:**

- Selection of breeding stock based on desired traits such as **growth rate**, **carcass quality**, and **disease resistance**.
- Implementation of breeding programs, which may include **artificial insemination** or **natural mating**



## 2. Calf Rearing:

- Care and management of calves from birth until weaning.
- Nutrition, health monitoring, and vaccination programs to ensure healthy and robust calves.

### 3. Grazing and Feeding:

- Cattle are typically raised on pasture, where they graze on natural forage.
- In some systems, cattle may be fed supplemental feed, which can include grains, forages, and other nutritional supplements, to promote growth and meet market specifications.

## 4. Growth and Development:

- Monitoring and managing the growth of cattle to achieve desired weights and muscle development.
- Ensuring proper nutrition and healthcare to optimize growth rates.

## 5. Health and Disease Management:

- Implementing **vaccination programs** and **preventive measures** to maintain the health of the herd.
- Treating and managing **diseases** and **parasites** to prevent negative impacts on growth and overall well-being.

## 6. Finishing:

- In some beef production systems, cattle may go through a finishing phase where they are fed a higher-energy diet to enhance marbling and improve meat quality.
- The finishing phase prepares cattle for market and ensures they meet market specifications.

## 7. Harvesting and Processing:

- Slaughtering and processing of cattle to obtain beef products.
- Processing includes various stages such as carcass dressing, meat cutting, and packaging.

## 8. Distribution and Marketing:

- Distribution of beef products to retailers, wholesalers, and consumers.
- Marketing strategies to promote beef products and meet consumer demands.

## 9. Quality Control and Assurance:

- Implementation of quality control measures to ensure the **safety, quality, and traceability** of beef products.
- Adherence to **industry standards and regulations**.

In summary;

- Beef production systems can vary globally, ranging from extensive grazing systems to more intensive feedlot operations.
- Sustainable and ethical practices are increasingly emphasized in modern beef production to address environmental and animal welfare concerns.