

# **Sustainable Resources 11**

## **Animal Husbandry Unit**

### **Cow Anatomy**

# Cows

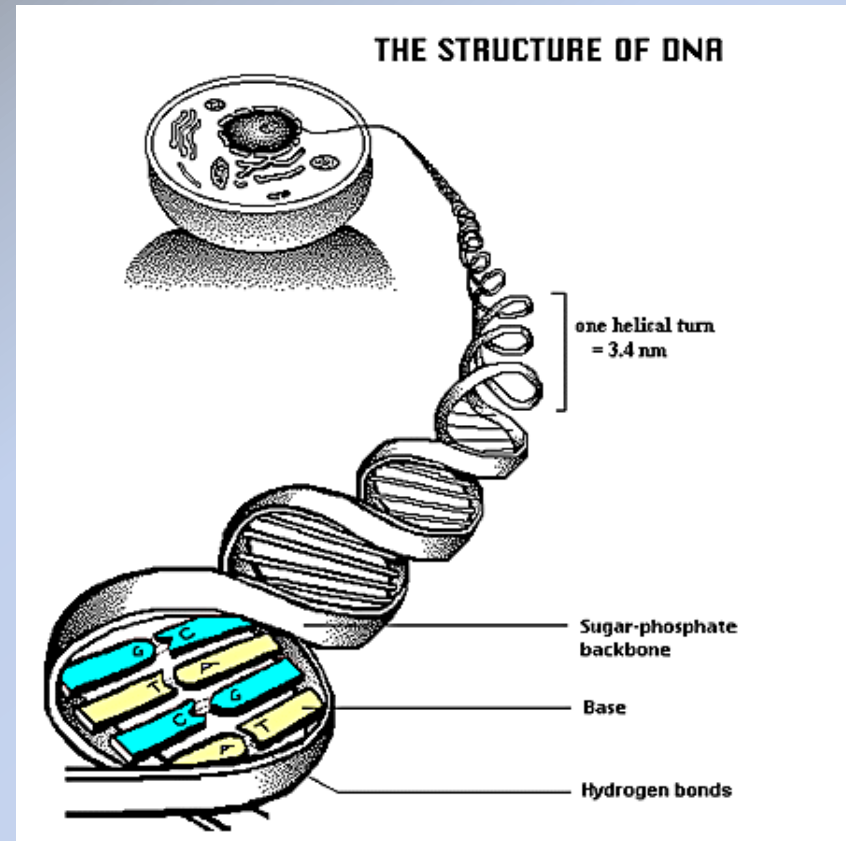
**Cattle (cows)** are the most common type of large domesticated ungulates (hooved animal).



# Cow Facts

In 2009, cattle became the first livestock animal to have its genome mapped.

Cattle in India, are sacred.





# Cows/Bovine

Cattle are raised as livestock for meat (beef and veal), as dairy animals for milk and other dairy products, and as draft animals (oxen / bullocks) (pulling carts, plows and the like).



- ***Bos indicus* (or *Bos taurus indicus*)** cattle, also called zebu, are adapted to hot climates of South Asia.





- ***Bos taurus* (or *Bos taurus taurus*)** are the typical cattle of Europe, north-eastern Asia, and parts of Africa. Many are adapted to cooler climates



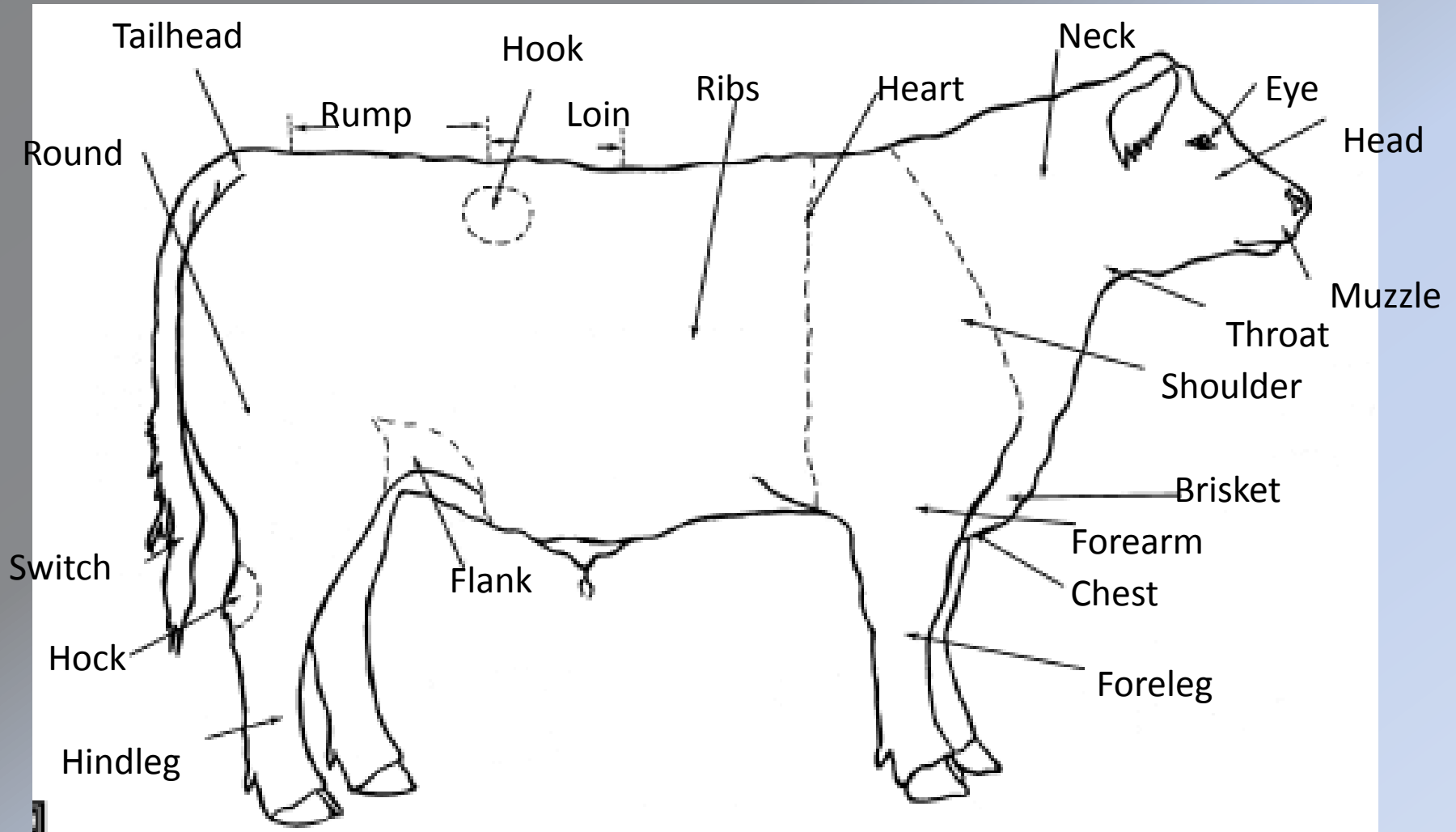
# The Male Bovine

**Bull:** male with testicles

**Steer:** is a neutered male



# Parts of a Steer





# Read “Learning to Judge Dairy Cattle”

- Watch “The SEMEX Cow” video.

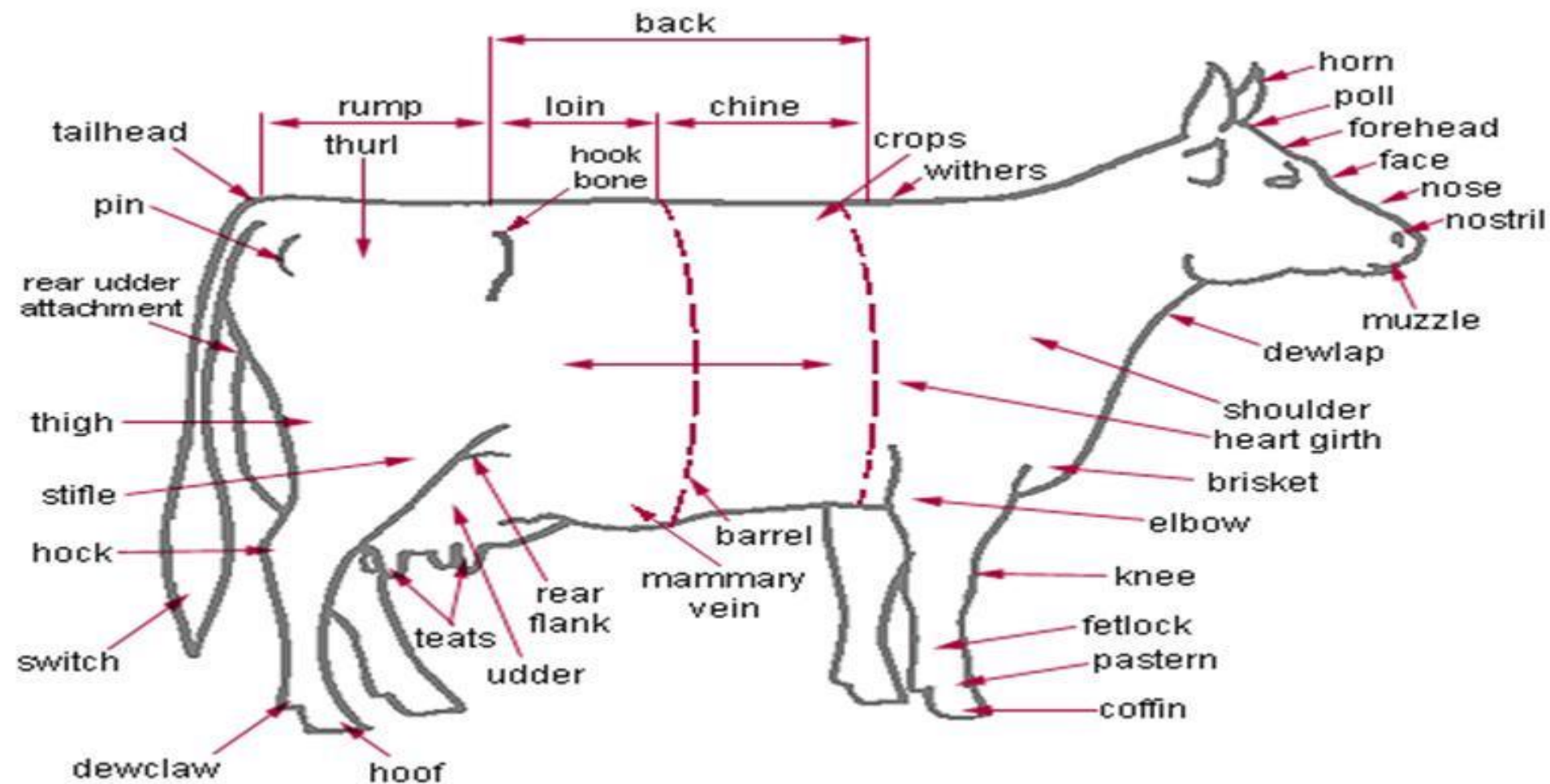
# The Female Bovine

- A young female before she has had a calf of her own and is under three years of age is called a *heifer*.
- A young female that has had only one calf is occasionally called a *first-calf heifer*.
- An adult female that has had a calf (or two, depending on regional usage) is a **cow**.
- A *springer* is a cow or heifer close to calving





# Parts of a Cow



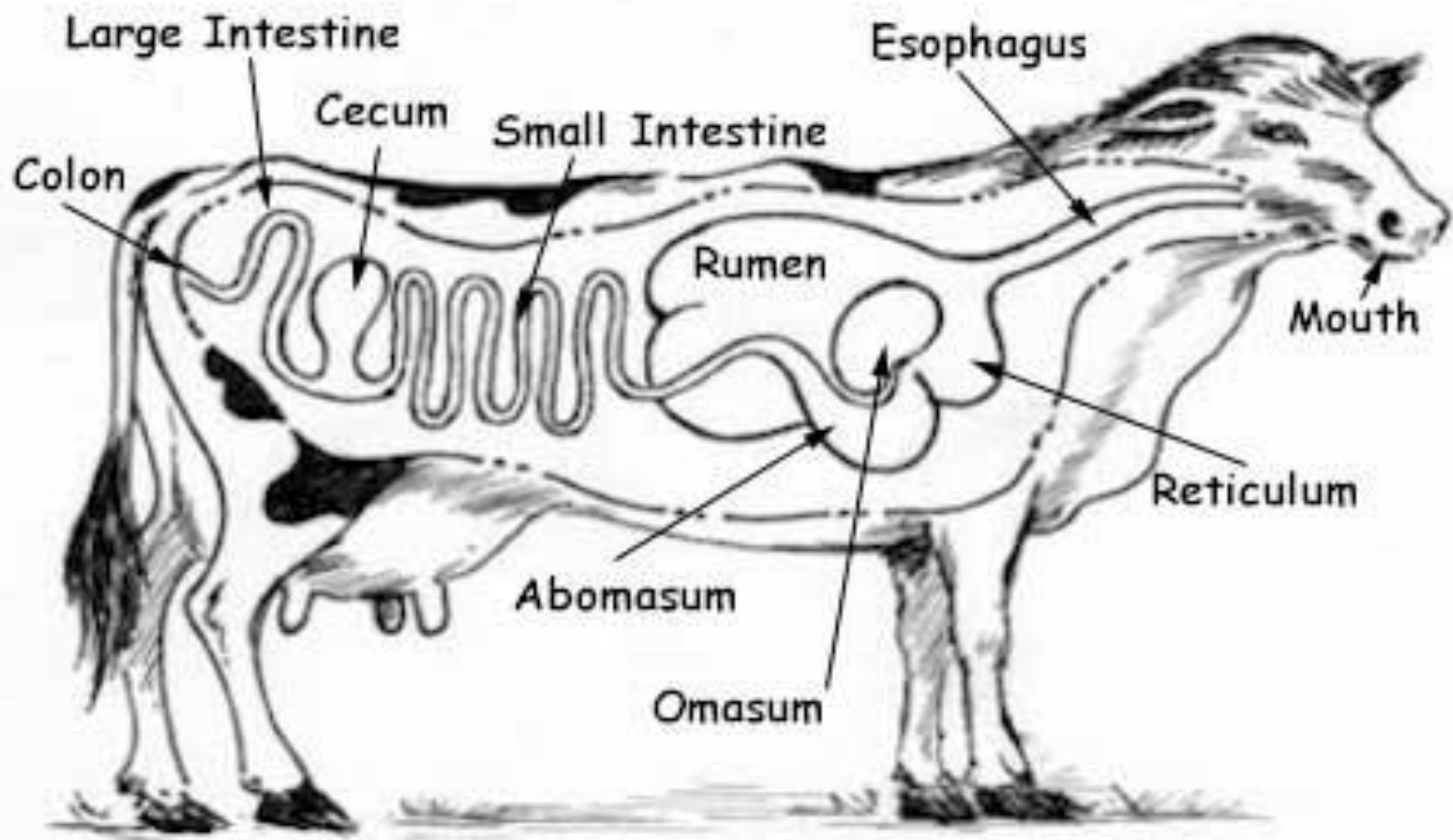
# The Young Bovine

- Young cattle of both sexes are called ***calves*** until they are weaned.
- At one to two years they are referred to as ***yearlings***.





# Digestion



# Parts of Digestion

- **Rumen:** It serves as the primary site for microbial fermentation (breakdown of carbohydrates into Volatile Fatty Acids) of ingested feed.
- **Reticulum:** Contracts and sends solids to the mouth for further chewing and liquids to the Omasum.

- **Omasum:** It appears to primarily aid in the absorption of water, magnesium, and the volatile fatty acids produced by rumen fermentation, that have not been absorbed into the bloodstream.
- **Abomasum:** It secretes rennin (rennet); it acts as a your stomach, preparing food for digestion.



## **Small Intestine:**

1. The small intestine is the main site of absorption for amino acids, fatty acids and glycerol, and glucose.
2. In addition to continued digestion in the small intestine, absorption of some minerals occurs there as well.

## **Cecum:**

It serves fermentation purposes in herbivores, allowing them to further digest fibers normally unavailable to them

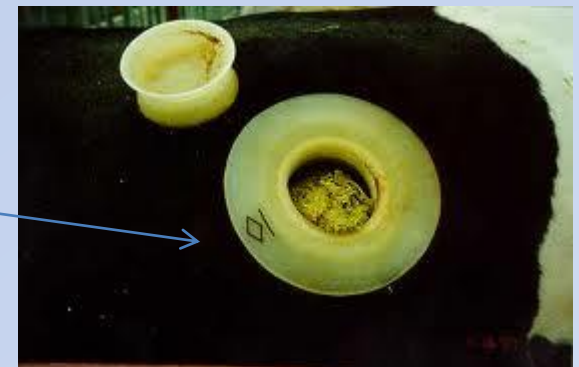
## **Large Intestine:**

It absorbs excess water from the fecal matter before being expelled through the anus.

# Fertis the Fistulation Steer

- In medicine, a **fistula** is an abnormal connection or passageway between two epithelium-lined organs or vessels that normally do not connect.
- A **fistulated cow** is a cow with an intentional hole in it for scientific research.

Cannula



# Assignment

**Read the Article: Rumen fistula surgery for the private practitioner**

**Complete the worksheet on Fistulation**



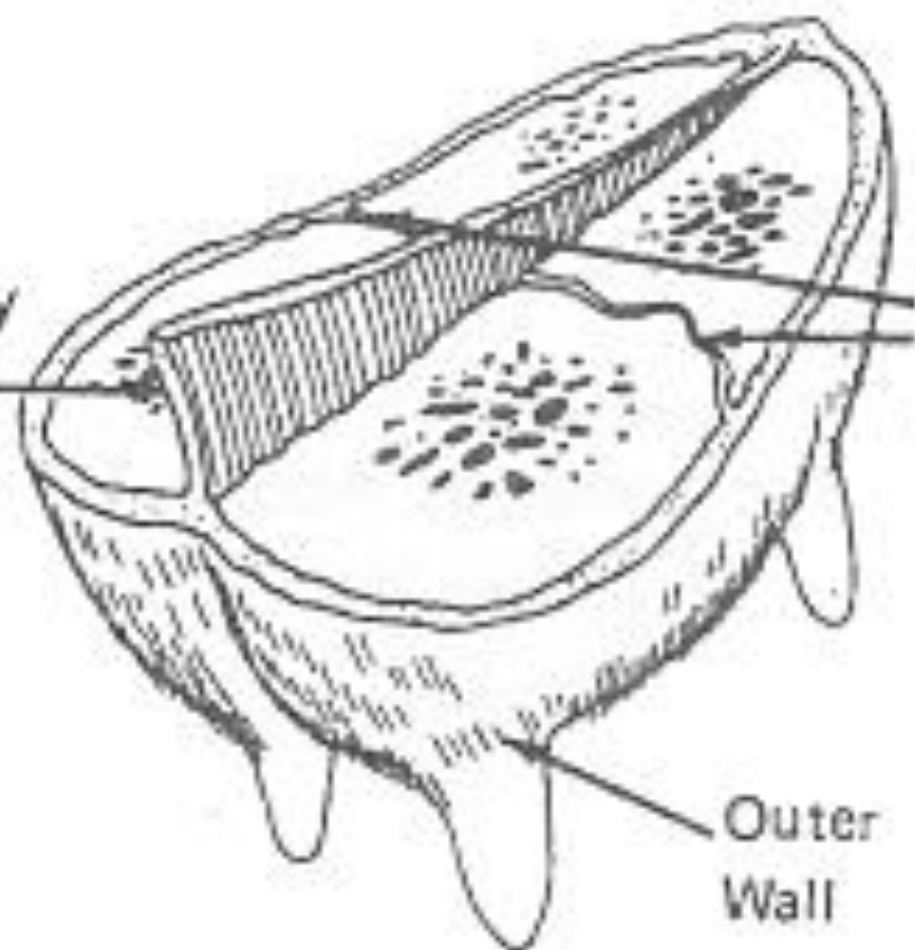
# The Udder

- An **udder** is an organ formed of mammary glands in female cows.



- Udder care and hygiene in cows is important in milking, aiding in uninterrupted and untainted milk production, and preventing **mastitis** (inflammation of breast tissue).

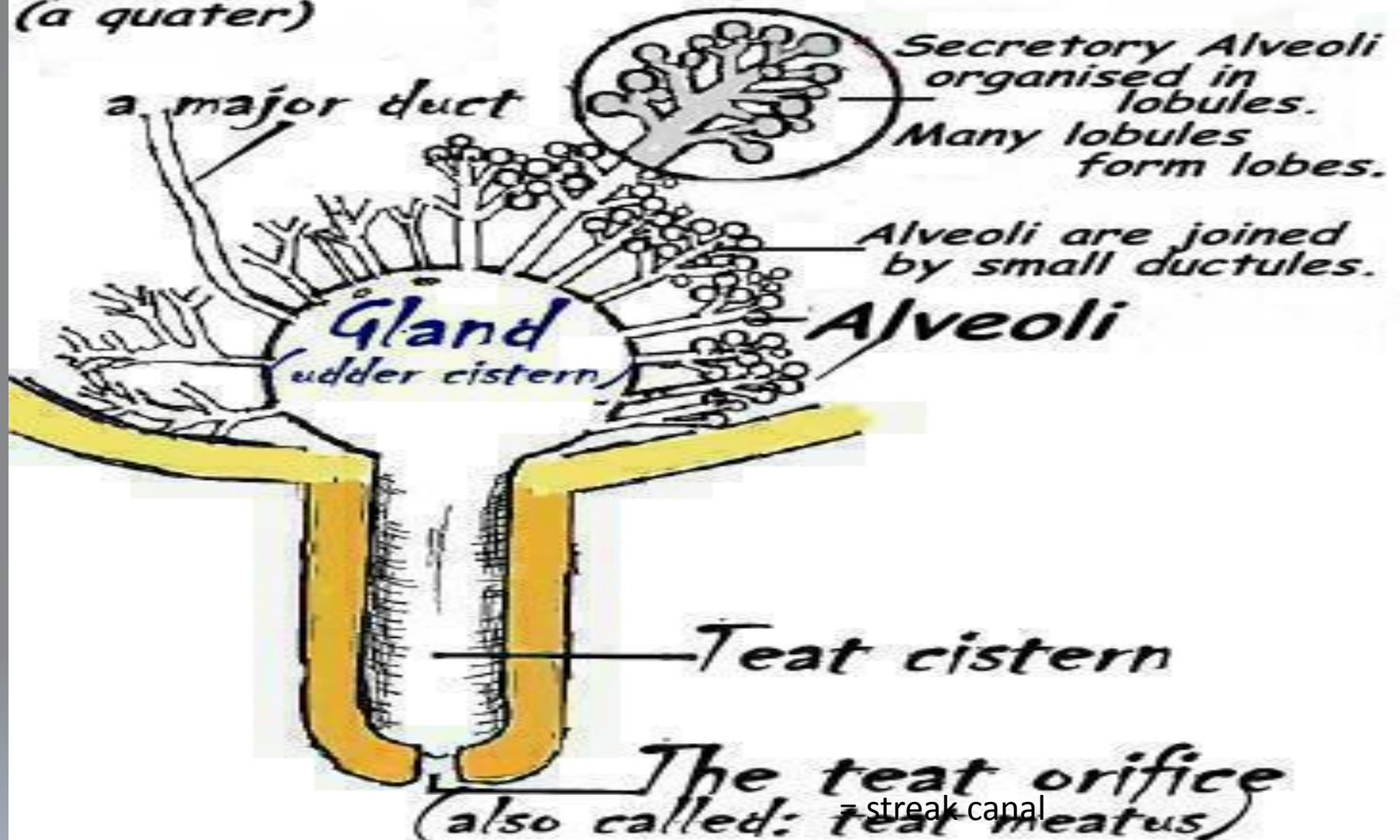
Central  
Suspensory  
Ligament



Fine Membrane  
Between  
Quarters

Outer  
Wall

# Sketch: Structure of a Cows Udder (a quarter)



# Milk Production in Cows

- **Bovine somatotropin** (BGH) produced in the pituitary gland in the brain enhances milk production.
- **Prolactin** stimulates the breast tissue to produce milk in preparation for the next feeding.
- **Oxytocin** is another hormone that also stimulates milk production and excretion.
- Early-lactation milk contains **colostrum**, which carries the mother's **antibodies** to the baby and can reduce the risk of many diseases in the baby.



# Terms for: The Cows Udder and Milk Secretion Article

- **Epithelial cells:** line the cavities and surfaces of structures throughout the body, and also form many glands.
- **Myoepithelial cells:** can contract and expel the secretions, found underneath the epithelial.
- **Lumen:** is the inside space of a tubular structure, such as an artery or intestine or gland. [f](#)

# Assignment

- **Read:** The Cow's Udder and Milk Secretion
- Use the article to **fill in the blanks** on the worksheet: The Cow's Udder and Milk Secretion.