



Digestion in Grass-Eating Animals (Ruminants)

Introduction

Ruminants are plant-eating animals (herbivores) with a specialized digestive system.

They cannot directly digest cellulose present in plants.

Their stomach is divided into four chambers:

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|-------------|---------------|
| i. Rumen | ii. Reticulum |
| iii. Omasum | iv. Abomasum |

Process of Digestion in Ruminants

Step 1: Initial Swallowing & Rumen Activity

- Animals first chew grass slightly and swallow it.
- The food moves into the rumen (first chamber).
- Bacteria in the rumen break down cellulose, partially digesting the food.

Step 2: Regurgitation & Chewing the Cud (Rumination)

- The half-digested food (called cud) moves to the reticulum (second chamber).
- From the reticulum, the cud is sent back to the mouth for rechewing.
- This process is called rumination, and such animals are called ruminants.

Examples: Cows, goats, buffaloes, sheep, bison, etc.

Step 3: Further Breakdown in Omasum

- The rechewed food is swallowed again and enters the omasum (third chamber).
- Here, food is broken down into even smaller particles.

Step 4: Final Digestion in Abomasum

- Food enters the abomasum (fourth chamber), where enzymes act on it.
- Digestion is completed in this chamber.



Absorption & Waste Removal

1. Small Intestine:

- The digested nutrients are absorbed into the bloodstream and transported to body cells.
- Cells use the nutrients for energy by oxidizing food.

2. Large Intestine:

- The undigested food moves to the large intestine.
- The waste is removed through the rectum and anus (egestion).

Key Terms

Cellulose: A plant fiber that ruminants cannot digest without bacterial help.

Cud: Half-digested food regurgitated for rechewing.

Rumination: The process of rechewing the cud to aid digestion.

Ruminants: Animals that undergo rumination (e.g., cows, goats, buffaloes).

Diagram of the Digestive System in Ruminants

Mouth → Oesophagus → Rumen → Reticulum → Omasum → Abomasum → Small Intestine → Large Intestine → Rectum → Anus