



Ingestion (Taking in Food)

Ruminants:

- Use their tongue and lips to gather grass and other plant material.
- They have no upper front teeth, but a dental pad that helps grip food.
- Food is swallowed quickly and goes into the rumen (first stomach chamber)

Monogastrics:

- Take food into the mouth using lips and teeth.
- Incisors cut food and molars grind it before swallowing.
- Food travels down the oesophagus into the stomach.

Mastication (Chewing)

Ruminants:

- After first swallowing, they bring food back up from the rumen (called cud).
- They chew the cud again to break it down more finely – this is called rumination.
- More saliva is added to help with fermentation.

Monogastrics:

- Chew food only once before swallowing.
- Saliva mixes with food to make it easier to swallow and starts breaking down starch (contains the enzyme amylase).

Absorption (Taking in Nutrients)

Ruminants:

- Most nutrients (VFAs) are absorbed through the walls of the rumen.
- Further absorption happens in the small intestine, where amino acids, sugars, and fatty acids enter the bloodstream.

Monogastrics:

- Most nutrient absorption happens in the small intestine, which has lots of tiny finger-like projections called villi to increase surface area.
- Water and some minerals are absorbed in the large intestine.

Growing Mediums:

Plants can grow in different growing mediums, each with its own characteristics.

- Soil is the most common medium and is naturally rich in nutrients, but it can contain pests or become compacted.
- Compost, made from decayed organic material, improves soil structure and adds nutrients, but its quality can vary.
- Coco coir, made from coconut husks, is a sustainable option with good water retention but lacks nutrients, so it needs fertilisers.
- Rockwool, a manufactured material, provides a clean and sterile medium ideal for hydroponic systems, though it is not biodegradable.
- Hydroponic systems do not use traditional soil at all; instead, plants grow in nutrient-rich water, leading to faster growth and space efficiency, though these systems are expensive and require careful monitoring.

Impact of Poor Growing Conditions on Crop Yield

Various environmental conditions can impact crop yield. Insufficient water can cause wilting and reduce growth, while poor drainage can lead to root rot and oxygen deprivation. Without adequate light, photosynthesis is limited, leading to spindly growth and weak plants. A lack of nutrients results in poor development, with symptoms like yellowing leaves and low fruit production. Additionally, pests and diseases can damage crops significantly, reducing the overall harvest and sometimes killing the plants altogether.

Improving Yields with Fertilisers

To maintain high crop yields, farmers use both natural and artificial fertilisers. Natural options include manure, compost, and green manure (such as cover crops), all of which improve soil health and structure over time. These are environmentally friendly but release nutrients more slowly. In contrast, artificial fertilisers like NPK blends (containing nitrogen, phosphorus, and potassium) are fast-acting and can be tailored to specific crop needs.