



Year of the Ox

# OX - SUPER POWERED DIGESTION



An Ox is a cow that has been trained to work, usually pulling heavy loads. Oxen are most often male and over 4 years old.

Like all cattle, Oxen have four separate compartments in their stomach that allow them to break down tough, fibrous grass for energy.

**Rumen** - like a huge storage tank where bacteria start to break down tough fibres.

**Reticulum** - filters out anything the animal shouldn't have eaten.

**Omasum** - a series of folds that squeezes water out of the food.

**Abomasum** - acids and enzymes continue to break down the food, ready for the intestines.

Ruminant animals also regurgitate food. After its first trip into the rumen and reticulum, it's regurgitated back up to the mouth to be chewed and swallowed again and again until it's small enough to digest!

## Model the Rumen

The rumen is like a huge tank where microbes break down tough plant fibres by a process called fermentation. Methane and carbon dioxide are produced as part of this process. We've used yeast to represent the microbes in the Ox's stomach.

### You'll need

A 500ml water bottle - empty - represents the Ox's rumen

5g Yeast - represents the microbes in the rumen

A balloon

2 tablespoons of sugar - represents plants

Warm water



### Instructions

Pour the yeast and sugar into the empty plastic bottle.

Fill the bottle about half full with warm water and quickly place the balloon on top.

You should see the balloon start to blow up.

**The yeast in the bottle breaks down the sugar, releasing carbon dioxide, in the same way microbes in the rumen break down plant fibres.**