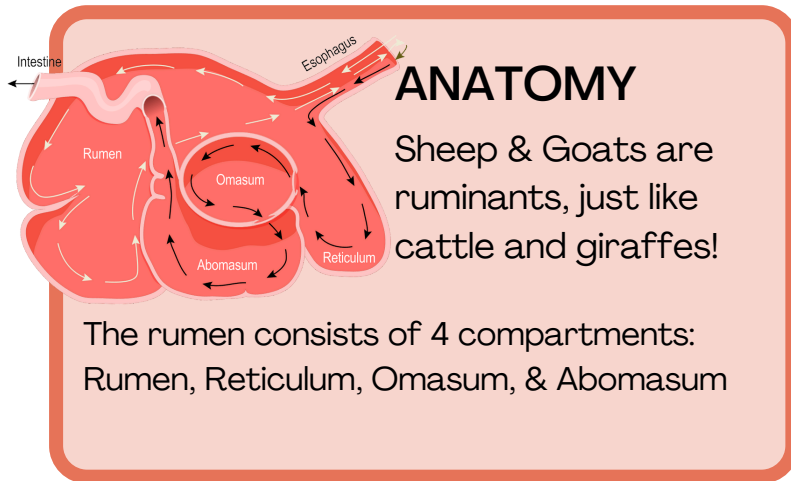


Small Ruminant DIGESTION



1 RUMEN

The rumen is a big fermentation vat, breaking down food in the absence of oxygen. Here, bacteria and protozoa use enzymes to break down fiber. From these nutrients, proteins are built, energy is supplied, and B-vitamins are manufactured! The rumen also produces heat to keep sheep & goats warm.



2 RETICULUM

This section acts like a pump and squeezes food particles into the “cud”. The walls have a honeycomb pattern.



3 OMASUM

Heavy food particles that settle to the bottom of the reticulum are pumped into the omasum. The omasum removes water & volatile fatty acids from the food.



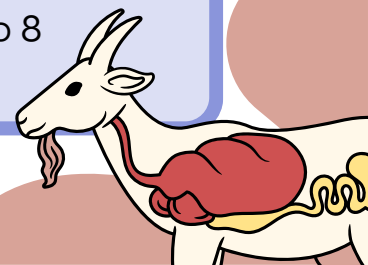
4 ABOMASUM

The ‘true stomach’, or abomasum, breaks down the food further with stomach acid, just like yours!

RUMINATE ON IT..

Sheep & goats take many bites and swallow quickly, sending large amounts of food into the rumen. The rumen and reticulum are one conjoining vat, sharing food particles between them.

When the reticulum squeezes, it sends larger food particles back up to the mouth for the animal to rechew. This is often referred to as “ruminating” or “chewing the cud”. Sheep and goats ruminate for up to 8 hours a day!



1 SALIVA

Saliva is the first chemical component of the ruminant digestive system. Saliva contains enzymes that start breaking down fat & starch. Saliva also helps lubricate the mouth and buffer the rumen pH. Sheep and goats can produce anywhere from 1 to 4 gallons of saliva every day!

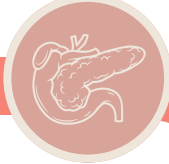


2 STOMACH

The 'stomach' is separated in 4 parts and makes up 75% of the abdominal cavity. All combined, the stomach has a roughly 15 gallon capacity!

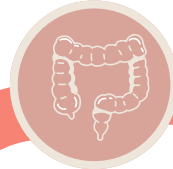
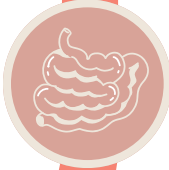
3 PANCREAS & GALL BLADDER

These organs work to aid digestion in the small intestine. The pancreas secretes digestive enzymes & some hormones whereas the gall bladder concentrates bile.



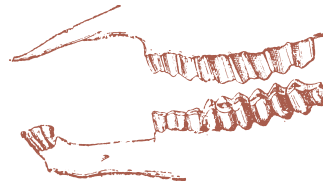
4 SMALL INTESTINE

The small intestine is approximately 80 feet long and holds 2 to 2.5 gallons! The pH here rapidly increases to a more neutral level, which is critical for the enzymes to work. The wall of this organ is covered in finger-like projections which increase surface area and therefore nutrient absorption.



5 LARGE INTESTINE

The large intestine holds much less, only 1.5 to 2 quarts and primarily is used to absorb water. The cecum, connected to the start of the large intestine, is virtually useless in ruminants.



Dentition

Did you know the mouth & tongue are the first part of the digestive system? True ruminants have no top front teeth, instead they have a 'dental pad'. This hard surface allows them to take quick bites and gather larger quantities of forage. Ruminants spend about 1/3 of the day grazing!

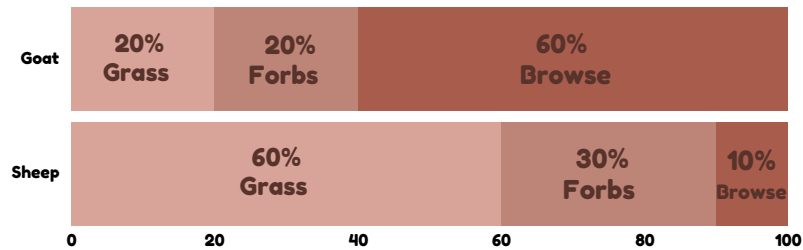
The back molars are utilized to chew the cud and mechanically break down food further. Ruminants spend about 1/3 of their day re-chewing their food.

The bottom incisors can be used to age your sheep or goat.

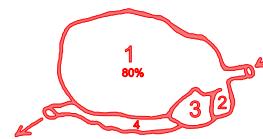


Diet

Sheep & Goats eat 3-4% of body weight daily!



Young Rumen



Adult Rumen

Young Animals

The stomach compartments of a ruminant vary in size & use depending on age. A nursing kid/lamb primarily uses the abomasum (4) as the microbial rumen is meant to digest forage, not milk. Milk bypasses the first three compartments entirely, being sent directly to the abomasum by the esophageal groove. As the animal begins to graze the rumen (1) becomes active and grows larger.

Digestive Upset

Bloat

Bloat occurs when gas accumulates in the rumen. Typically ruminants will burp rumen gas to expel it, but if lush forages, especially legumes, are consumed gas can accumulate too quickly. This problem can be deadly in 20% of cases.

Acidosis

Acidosis can also be known as "grain poisoning" as it is caused by the rapid fermentation of carbohydrates. The fermentation of carbs from grains produces lactic acid which lowers the pH level in the rumen causing many digestive issues. Approximately 20% of acidosis cases turn deadly.

Hardware Disease

The reticulum portion of the stomach is meant to catch & contain foreign objects the animal may consume, such as wire, nails, staples, or other metal. Because these items remain there virtually forever because of their weight. Hardware disease occurs when a sharp object perforates the reticulum, this is generally treatable with a magnet and antimicrobial medications, however infections close to the heart can be fatal.

