

ASSESSING COW MUCK

What goes in must come out! Dung consistency is a very good indicator of what is happening in the digestive system and shows how efficiently the ration is being used. Regular monitoring of dung, alongside general animal health and production, is a useful way of identifying problems with the diet on a herd scale.

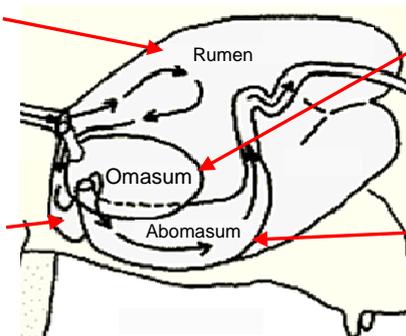
KEY POINTS

- Monitor dung on a regular basis
- Look for evenness between cows
- The average cow pat should be 25mm high in the centre
- Listen to cows. A good consistency should drop sounding like a slow hand clap
- Cows ideally ruminate for 6-8 hours a day

WHAT'S HAPPENING TO THE FEED YOU PUT OUT!

The **RUMEN** is a large fermentation chamber found on the left side of the animal. Depending on the size of the cow, it can hold up to 100-120kg of fermenting plant matter.

The **RETICULUM** is a sac-like structure attached to the front of the rumen. The honeycomb configuration enables it to "decide" whether particles are small enough to pass to the **omasum** or be re-chewed.



The **OMASUM** (10 litres in capacity) is a transition chamber between the rumen and the highly acidic **abomasum** (or true stomach).

The **ABOMASUM** uses strong acids and enzymes to break down proteins and amino acids passed from the omasum. It has flaps of tissue creating an absorption surface area of 4-5 m². Water and minerals are recycled and returned to the rumen as saliva.

Every 30-60 seconds strong contractions mix the rumen and reticulum contents together. Particles can remain in the rumen for 20-48 hours and during this time bacteria, protozoa and fungi digest the plant tissues into glucose, then ferment the glucose to produce volatile fatty acids (VFA's). These are absorbed to produce 50-70% of the cow's energy source and are essential for milk fat and sugar production.

RUMEN FERMENTATION

Cattle rely on the rumen fermentation to digest plant carbohydrates which make up a large proportion of their diet. The following factors ensure the rumen conditions are optimised and maintained:

FIBRE IS REQUIRED:

- To slow transit through the rumen – The diet should contain 5-10% long fibre (2" to 4" in length) to slow the speed of transit through the rumen allowing fermentation and nutrient extraction to occur.
- To form a rumen mat and stimulate cudging – Cudging is essential to physically digest larger food particles and stimulate saliva production.



Sieves can be used to assess the breakdown of the diet. Aim for < 10% in the top and bottom sieves with the rest split between the middle two.

CONSTANT FEED AVAILABILITY

Adult cows will eat as many as 12 meals per day, lasting about 45 minutes each. Making sure food is always available keeps the rumen working at optimal speed. Restricting intakes will reduce rumen throughput - if cows run out of food rumen bugs will suffer.

DUNG CONSISTENCY BETWEEN COWS

Dung should be similar within cows at a similar lactation stage. If a cow has acidosis, she will scour and go off her food. This slows rumen transit, making the dung stiffer; she then

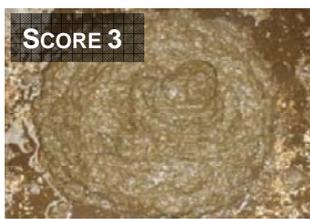
consumes large quantities of food again, upsetting the rumen causing scouring. This rollercoaster affects cows at different speeds causing the variation in dung consistency.

A cow with adequate fibre can produce 2 -2.5 kg of rumen buffer. Aim to balance the ration fibre first, before using a rumen buffer such as bi-carb.

DUNG SCORING

Dung illustrates how well the ration is being used. Consider shape, texture and odour. To assess how healthy a cow or herd is and how well they are utilising the food you provide, look at individual samples.

A scoring system from 1 to 5 is used:



SCORE 1) Loose and watery - indicates sickness! Cows scour for several reasons, the most common of which are discussed below.

SCORE 2) Custard type consistency - splatters far when drops to the ground. Cows usually dung like this when they're on lush, young grass or when there is a ration imbalance.

SCORE 3) Ideal thickness - forms a pat 2-3cm thick, with a dimple in the top. The dung drops making a slow hand clap sound and the dung neither sucks or sticks to your boot.

SCORE 4) Thick, heavy consistency - creates a stack when it falls and the dung sticks to your boot and a footprint is left. This is acceptable for dry cows. In the milking herd it usually indicates a ration imbalance.

SCORE 5) Stiff dung - almost forming balls. Boot leaves an impression. Undesirable in the milking herd and indicates performance is being impaired.



WHAT CAN THE DUNG TELL YOU ABOUT THE RATION

Fresh dung can be assessed in several ways:

- **Sieving** - Rinsing dung through a sieve
- **Squeezing** - With a gloved hand, take a handful and squeeze it
- **Treading** - Tread on a dung pat and lift off

Always do this on several pats to get an average. The residue indicates how well food is being digested. Ideally food particles should be completely digested resulting in a homogenous creamy consistency with no undigested particles.

ASSESS THE RESIDUE FOR THE FOLLOWING:

Fibre length - Residue should be a uniform mat of 'hair like' strands of fibre, indicating cows are cudging well and rumen fermentation is breaking down plant carbohydrates effectively.

Undigested grains - Whole grains indicate the grain is not properly processed, insufficient cudging, inadequate rumen bugs or food is passing through the rumen too quickly.

DISCUSS ANY ISSUES FOUND WITH YOUR NUTRITIONIST Either may be due to rumen acidosis, low degradable protein or low fermentable energy, especially sugars. These reduce rumen bacterial activity, DM intakes and cause incomplete diet digestion, which affects the cow's overall energy balance. If you see problems check your ration for energy and protein and consider adding live yeast, rumen buffer and additional fibre (2" - 4" long).

DUNG FOR DIAGNOSIS - REFER TO THE SUGGESTED FARMING NOTES FOR MORE DETAILS

SIGNS	POSSIBLE CAUSE	GUIDELINE SOLUTIONS	FARMING NOTES
Uniformly loose	Excess protein or inadequate energy	Balance the energy and protein in the ration to meet the requirements of the cow (ensure the correct proteins are being used)	Protein feeds and Energy feeds
Uniformly stiff	Excess fibre or energy Lack of protein or sugars	Increase the nutrient density of the diet to gain more production	
Bubbly dung and Uneven dunging between cows	Acidosis	Feed more effective fibre in the diet, a rumen buffer or live yeast. Look at diet imbalances, ration DM & sorting. Avoid large amounts of concentrates in one hit	Acidosis
Scouring, bubbly dung (individual dirty cows)	Johnes disease, excess concentrates, poor transition management	Speak to your vet about control measures	Johnes Disease
Dung containing mucus tags (when fresh)	Mycotoxins	Improve silage clamp management. Look for other signs and consider using a binder	Mycotoxins
Scouring	Infectious diseases Poisoning	Speak to your Vet regarding testing and vaccination for Salmonella, IBR, BVD, Rotavirus, E-coli	Various

Feeding the cows for rumen health will help to ensure healthy more profitable cows

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