

Dairy Club Technical Notes

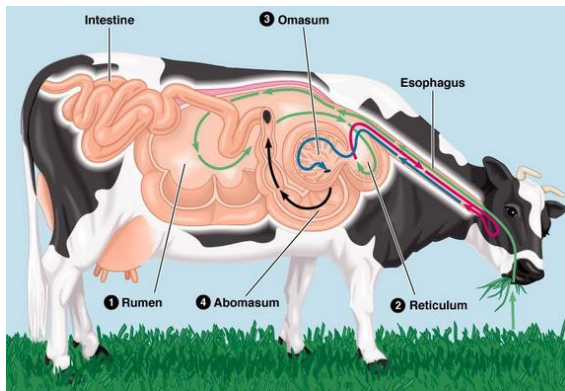
Dung Consistency

Dung can tell us a huge amount about how balanced our diets are and whether our cows are utilising their feed profitably.

Most of the cows' digestion should take place in the rumen, but if the rumen is not working efficiently then feed will go

Digestion

The amount of a feed that is digested by the cow depends greatly on the type of feed and the efficiency of digestion.



A proportion of the organic matter in feed is truly indigestible, but typically 60-85% in a feed will be digested within the animal, the rest ends up as dung.

The greater the digestion, the greater the release of energy. For example; if a silage has a Digestibility value (D-value) of 70%, multiplying by a conversion factor of 0.16 would result in the feed having an ME of 11.2MJ ($70 \times 0.16 = 11.2$). Therefore, the greater the amount of the feed that is digested (the D-value) the greater its ME is.

An analysis from the labs might come back at 12.8MJ ME on paper, showing that 80% of the feed is digestible, this is not guaranteed. If the animal's digestion is not as efficient as

undigested and attempt to ferment in the hind gut. This is shown in the dung as loose bubbly scours, which is very common in spring with cows on a mainly grass based diet. Feed which still remains undigested will pass out and be wasted entirely.

expected, only 70% may be digested, so the feed is only 11.2MJME in reality. The undigested portion ends up in the dung.

Rumen digestion

Of the digestible portion of the feed, most (70-80% of the D-value) should be digested in the rumen through the process of fermentation by the rumen microbes.

more microbes = more digestion

The microbes need time to digest the feed and therefore the rate at which feed passes through the rumen is critical. If feed passes through the rumen too quickly the microbes don't have time to fully digest it and feed passes to the rest of the digestive system which is less efficient than the rumen.

The rate at which feed flows out of the rumen is affected by the size and shape of the feed particles, as the hole that the feed needs to pass through is very small. Very digestible feeds like spring grass can pass through quickly without fully digesting in the rumen and unless they are digested in the rest of the digestive system will end up in the dung.

Slowing down the passage rate allows the microbes more time to breakdown and digest the feed. This improves digestibility.

Whilst high dry matter intakes are good, dry matter costs money!






There is a balance to be found between feeding more and digesting more. Increasing the D-value by just 5% could gain you 2-3 litres of milk worth over \$1 for no cost.

Monitor

Looking at dung pats is a good way of monitoring the success or failure of balancing the diet with effective fibre, protein and energy.

Use an old kitchen sieve to wash through dung to take a closer look and see how much undigested fibre there is in there.

The table shows how to score the dung.

Score	1	2	3	4	5
	Very loose	Loose	Perfect	Firm	Solid
Picture					
Description	Watery scours	Runny with bubbles. Some undigested feed. Feel for sliminess	A well formed pat about 25mm high. Fully digested. Dimple in middle.	As in 3 but not as digested creating a matt of fibre and no dimple.	Very firm
Cause	Indicates infectious disease (such as Johnes etc) or nitrate excess with inadequate fermentable energy and fibre in diet.	Likely poor rumen function, resulting in acidosis and undegraded feed from the rumen being fermented in the hind gut.	Balanced diet	Poor rumen function If light coloured indicates lack of protein in diet. If dark coloured - indicates lack of rumen FME.	Far too much undigested fibre. Rumen fermentation function is poor and digestion is far too slow.
Action	Consult a vet to investigate diseases. Add more effective fibre to diet and ensure lots of water available.	Ensure good supply of 'long' fibre to slow passage of feed through rumen to allow complete digestion. If dung dark add more fermentable energy also.	Keep up the good work.	Balance the diet better to correct deficiency in either protein or fermentable energy.	Diet needs more fermentable energy and protein and possibly yeast to 'kick start' the rumen.

Be aware that you will find variation across the herd. Some cows will selectively graze and sort feed which will cause individual nutritional upsets. This will cause scours for a while followed by a return to normal later. You may therefore find waves of loose and perfect dungs, in which case you should

consider reducing choice through tighter grazing or better mixing of feed.

For those feeding starchy feeds, you may also find 'nuggets' of starch passing through. This is wasted money and clearly shows that passage rates are too fast and the digestive system is not working efficiently.

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