Dairy Australia

Observing and quantifying cow signs

You can't see what's going on inside your cows' rumens, but you can use visual signs to assess how well they are coping with the diet.

It is important to identify feeding problems early and take action before they escalate. Quantifying your observations using scoring systems helps you be objective and track changes over time. Having already body condition scored the herd, here are nine more steps to assess a herd.

1	**Check**	Are most cows chewing their cud or grazing?
	Goal	80 per cent of cows in the herd are grazing or chewing their cud.
2	**Check**	How full are the cows' rumens?
	Goal	All milking cows are Score 3 (late lactation and dry cows are Score 4).
3	**Check**	How are the cows' behaving?
	Goal	All cows look alert, calm and comfortable.
4	**Check**	What is the consistency of the manure?
	Goal	All cows are Score 3.
5	**Check**	How are the cows' walking?
	Goal	90 per cent of cows are Score 0.
6	**Check**	How do the cows' coat's look?
	Goal	All cows' coats look shiny with no hair standing up.
7	**Check**	What is the cows' breathing rate?
	Goal	Cows' breathing rate is less then 60 per minute.
8	**Check**	Is there enough pasture on offer?
	Goal	4–6cm pasture residuals post grazing with no pasture scalding.
9	**Check**	How stable is milk yield and concentration from day-to-day?
	Goal	Per cow milk yield varies by less than 1.5 litres from day-to-day. Fat test and protein test vary by less than 0.2 per cent from day-to-day.

1		
	Check	Are most cows chewing their cud or grazing?
	Goal	80 per cent of cows in the herd are grazing or chewing their cud.

Rumination scoring is simply assessing what percentage of cows in the herd are ruminating/chewing cud. (2 hours after arriving in paddock is a good time). Fibre is regurgitated and broken down until it is small enough to make its way through the digestive tract for further digestion. Bicarb is made in the process which helps to keep the rumen pH up, up to 2kg a day produced. Most cows should be chewing or grazing. If not, try and understand why and what percentage of cows aren't chewing. Is it the whole herd, or only fresh cows, fresh heifers or cows on heat?

2		
	Check	How full are the cows' rumens?
	Goal	All milking cows are Score 3 (late lactation and dry cows are Score 4).

Rumen fill is an indicator of diet balance, health status and is a vital indication of herd health status.

Use rumen score to quantify how full cows are. Look on the left flank of the cow where the rumen is located.

Possible causes of a reduced percentage of cows in a herd ruminating/cud chewing and with full rumens:

- Not enough feed is being offered.
- Not enough effective fibre in diet to help form the rumen mat.
- Excessive competition for feed in the dairy/at the hay ring/on the feed pad.
- Excessive wastage of hay/silage when fed out.
- Problem with water access and/or quality is suppressing feed intake.
- Heat stress is suppressing feed intake.
- Mycotoxins/endophytes are causing a rumen upset.
- Calcium/magnesium deficiency is resulting in reduced strength and frequency of rumen contractions.
- Decreased cow appetite due to metabolic or infectious disease such as:
  - ketosis/fatty liver
  - sub clinical milk fever
  - SARA (sub acute ruminal acidosis)
  - metritis
  - mastitis.
- Lameness. Cow doesn't want to walk.

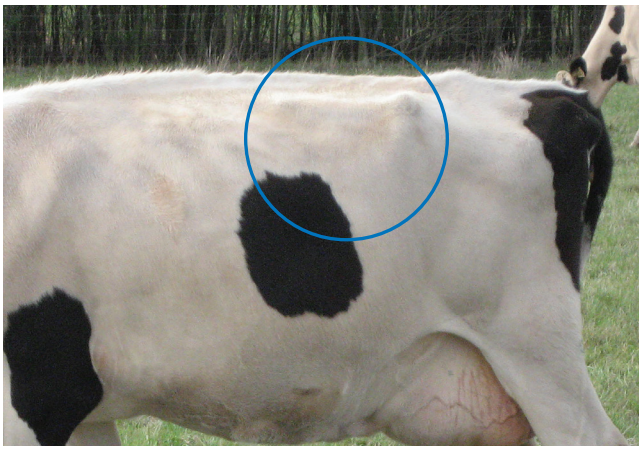

Figure 1 Cow with rumen fill score 3, as desired for milking cows

In figure 1, note:

- Skin under the lumbar vertebrae runs vertically down for one hand-width and then bulges out slightly.
- Skin fold from hook bone is hardly visible.
- Slight dip visible in left flank behind last rib.

3		
	Check	How are the cows' behaving?
	Goal	All cows look alert, calm and comfortable.

A content cow:

- looks alert
- is calm
- looks comfortable
- is chewing their cud or grazing.

Unusual behaviour signs to take note of:

Sign	Potential cause
Flighty/skittish/ spook easily	Magnesium deficiency (winter/spring), Endophytes (late spring/summer).
Depressed & lethargic	Too much protein, not enough protein, illness.
'Tucked up'	Low DMI (see 2: Rumen fill).
Rapid breathing rate	Heat stress, pain, fever.

Questions to ask – if seeing above signs is it a herd problem, or individual cows that need assessing?

4		
	Check	What is the consistency of the manure?
	Goal	All cows are Score 3.

Manure is the number one indicator of rumen health and should always be monitored. Use manure score to determine manure consistency of the herd.

Manure score 1
Very liquid manure with the consistency of pea soup. May 'arc' from the cow's rump. The bubbles indicate an unstable rumen, fast gut flow, and hind-gut fermentation.

Manure score 2
Runny manure which does not form a distinct pile. Manure will splatter on impact and may form loose piles less than 25mm high.

Manure score 3
Manure has a porridge-like consistency. Forms a soft pile 40–50mm high, which may have several concentric rings and a small depression in the middle. Makes a plopping sound when it hits concrete floors and will stick to the toe of your shoe. This is what you are aiming for.

Is manure consistency throughout the herd uniform or highly variable? If highly variable, which cows have liquid or runny manure? e.g. fresh cows, heifers.

Manure	Potential reasons
Score 3	Diet is well balanced for fibre, protein and starch.
Score 2 (runny – loose piles)	Lack of effective fibre in the diet/too much starch/high DCAD (prevents water reabsorption).
Sour smelling	Post rumen fermentation – Lack of effective fibre in the diet/too much starch.
Dark green/black and watery	Usually nitrates.
Only fresh cows/ heifers score 1/2	Check lead feed and post calving program.
Firm, like a rock	Not enough protein.
Undigested feed	Not enough protein/high lignin content/rumen upset i.e. mycotoxins.
Very watery, pale and foul smelling	Potentially Salmonella, *E.Coli.*

5		
	Check	How are the cows' walking?
	Goal	90 per cent of cows are Score 0. They stand and walk normally with a level back and make long, confident strides.

Use locomotion score to determine level of lameness in the herd. The best time to check is as cows are walking to the dairy. Take note of the tail of the herd, cows may not be obviously lame but can be tender in all 4 feet. This is shown by the arch of the back when walking.
Lameness can be from:
- staff pushing cows too hard to dairy
- overcrowding cows in dairy yard
- poor tracks
- sharp turns into/out of dairy
- SARA/acidosis (Laminitis)
- poor mineral nutrition.
- lame cows to be treated and/or rested.

6		
	Check	How do the cows' coat's look?
	Goal	All cows' coats look shiny with no hair standing up.

Coat condition is a good sign of overall health status of the cow. Black should be black (not brown), line between colours should be well defined.
Poor coat condition can be due to:
- stress – hair standing up along back
- mineral deficiencies and toxicities
- bodyweight loss
- parasite infection
- low DMI
- imbalanced diet.

7		
	Check	What is the cows' breathing rate?
	Goal	Cows' breathing rate is less than 60 per minute.

It is important to notice the breathing rate of cows as this is an indicator of stress. Possible causes of stress:

Heat stress

- A whole herd problem.
- True heat stress due to elevated ambient temperature and/or humidity. Read more about managing heat stress in cows here **Cool Cows | Dairy Australia.**
- Heat stress due to endophytes. One of the alkaloids produced when pastures get stressed is called Ergovaline – it is a vasoconstrictor that reduces blood flow. This can be seen when cows stand in the dam, have a high respiration rate, seem hot when the temperature is not considered high enough for heat stress. A toxin binder can be used in this scenario.

Pain/fever

- A small group of cows rather than the whole herd.

8		
	Check	Is there enough pasture on offer?
	Goal	4–6cm pasture residuals post grazing with no pasture scalding.

There is a delicate balance between maximising DMI, and maximising pasture growth and utilisation.
For maximum pasture growth and utilization of ryegrass pastures:

- Pre-grazing levels should be at 2½ (spring) – 3 (winter) leaf stage.
- Post grazing levels should be 4-6 cm or 1500 kg DM.
  - overgrazing will impact regrowth (often sets growth back 2 weeks)
  - undergrazing reduces feed quality for the next rotation.

The paddock shouldn't look like a bowling green! If forcing cows to chew down on manure patches, cows are underfed and milk production will suffer.
Check recently grazed paddocks for scalding. This is due to too much soluble protein in the diet, the cow converts excess protein to urea and excretes this via urine. Ammonia smell will often be noticed in the dairy too at this time. Excess protein costs the cow energy and may impact on fertility so if scalding is seen or ammonia smelt, review the diet.

9		
	Check	How stable is milk yield and concentration from day-to-day?
	Goal	Per cow milk yield varies by less than 1.5 litres from day-to-day. Fat test and protein test vary by less than 0.2 per cent from day-to-day. If this goal is not being achieved, repeat check 1 to 9.

The vat should be monitored daily to check per cow litres, solids and BMCC. If a nutrition problem occurs and is detected quickly and adequately acted on then milk yield can usually recover to the level prior the problem. If it is a week or more until the problem is detected and/or it is not adequately acted on, then milk yield may not recover.
Troubleshooting milk protein % and fat % (in conjunction with litres): there are no 'rules' for what each component percentage should be, but for a cow to produce her bodyweight in kg MS per year, a 600kg cow will need to average 2kg MS per day for the lactation.

Potential reasons for			
High protein %	**Low protein %**	**High fat %**	**Low fat %**
Check litres are on target, not too low for energy consumed.	• not enough fermentable carbohydrates - sugars and starches • not enough RDP and/or bypass protein • genetics.	• too much fibre when combined with low litres • cows losing weight (when combined with low protein %) • genetics.	• SARA/lactic acidosis • not enough NDF • high unsaturated fat intake (typically from pasture during winter/early spring, or byproducts).

For further information

Please visit **dairyaustralia.com.au**

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