

Observing and quantifying cow signs

Handout for Unit 1 workshop session 1.7b

Don't just observe. Quantify your observations and consider what changes have occurred over time. Detecting existing problems and acting on them early before they escalate should be an integral part of a farm's risk management. Having already body condition scored the herd, here are 10 more steps to assess a herd:

"You can't manage what you don't measure"

- 1**
Check: Are most cows chewing their cud or grazing?
Goal: 80% 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% of cows are Score 1 (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
- 7**
Check: Do the first calvers blend in with the older cows?
Goal: First calvers are difficult to distinguish from older cows
- 8**
Check: What is the cows' breathing rate?
Goal: Cows' breathing rate is less than 60 per minute
- 9**
Check: Is there enough feed on offer?
Goal: 5cm pasture residuals post grazing with no pasture scalding
- 10**
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% from day to day.

1

Check: Are most cows chewing their cud or grazing?

Goal: 80% of cows in the herd are grazing or chewing their cud.

Rumination scoring is simply assessing what % 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 % of cows aren't chewing.

Some points to consider:

Who?

- › The whole herd
- › Only fresh cows
- › Only fresh heifers
- › Cows on heat

Why? Possibilities:

- › Decreased appetite due to illness
 - › Ketosis
 - › Fatty liver
 - › Sub clinical milk fever
 - › Metritis
 - › High respiration rate > infection
 - › Check alertness (eyes, ears and head position)
- › Rapid change in diet
- › Too much grain/grain crushed too fine/no buffers at higher grain levels/forage : concentrate ratio out of balance = SARA (Sub Acute Ruminal Acidosis). Check how much grain/concentrate is left in the bails
- › Not enough feed is being offered
- › Not enough effective fibre in diet to help form the rumen mat
- › Lameness. Cow doesn't want to walk
- › Excessive competition for feed in the dairy/at the hay ring/on the feed pad
- › 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.

2

Check: How full are the cows' rumens?

Goal: All milking cows are Score 3 (Late lactation & dry cows are score 4).

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

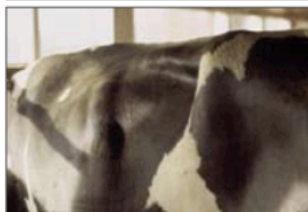
Use rumen score to determine how full the cows are. Look on the left flank of the cow where the rumen is located.

Why is the rumen not full? Potential reasons for Scores 1–2:

- › Not enough feed on offer
 - › Check pre and post grazing pasture heights
 - › Hay/silage wastage (allow 20% if fed on the ground) (see DA Fact Sheet: Feed – Don't Waste It)
 - › Calculate total DMI – aiming for 20–24 kgDM depending on production targets/stage of lactation.

- › 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
- › Excessive competition for feed in the dairy/at the hay ring/on the feed pad
- › Problem with water access and/or quality is suppressing feed intake
- › Heat stress is suppressing feed intake
- › Mycotoxins/endophytes are causing a rumen upset.

Rumen scores



Score 1

A deep dip in the left flank. The skin under the lumbar vertebrae curves inwards. The skin fold from the hook bone goes vertically downwards. The paralumbar fossa behind the last rib is more than one hand-width deep. Viewed from the side, this part of the flank has a rectangular appearance. The cow has eaten little or nothing, which could be due to sudden illness, insufficient or unpalatable food.



Score 2

The skin under the lumbar vertebrae curves inwards. The skin fold from the hook bone runs diagonally forward towards the last rib. The paralumbar fossa behind the last rib is one hand-width deep. Viewed from the side, this part of the flank has a triangular appearance. This score is often seen in cows in the first week after calving. Later in lactation, this is a sign of insufficient food intake, or a rate of passage that is too high.



Score 3

The skin under the lumbar vertebrae goes vertically down for one hand-width and then curves outward. The skin fold from the hook bone is not visible. The paralumbar fossa behind the last rib is still just visible. This is the right score for milking cows who have a good food intake and when the food is in the rumen for the correct amount of time.



Score 4

The skin under the lumbar vertebrae curves outwards. No paralumbar fossa is visible behind the last rib. This is the correct score for cows nearing the end of lactation, and for dry cows.



Score 5

The lumbar vertebrae are not visible as the rumen is very well filled. The skin over the whole belly is quite tight. There is no visible transition between the flank and ribs. This is the correct score for dry cows.

Source: D. Zaaijer, W.D.J. Kremer, J.P.T.M. Noordhuizen (2001), in J. Hulsen, *Cow Signals*.

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.

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.

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.

Unusual behaviour signs to take note of:

Sign	Potential cause
Flighty/skittish/spook easily	Magnesium deficiency(winter/spring), Endophytes (Late spring/summer)
Depressed and 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?

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 25 mm high.

Manure score 3



Manure has a porridge-like consistency. Forms a soft pile 40–50 mm 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.

Manure	Potential reasons
Score 3	Diet is well balanced for fibre, protein and starch
Score 2	Lack of effective fibre / not enough kgDM / too much starch / high DCAD (prevents water reabsorption)
Sour smelling	Post rumen fermentation – Lack of effective fibre/not enough kgDM/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 ie mycotoxins
Very watery, pale and foul smelling	Potentially Salmonella, E.Coli

5

Check: How are the cows walking?

Goal: 90% of cows are Score 0.

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.

Score	Walking speed	Stride	Weight bearing	Backline	Head
0 Walks evenly No action required This cow is normal	Confident. Similar walking speed to a person. Maintains position in the herd.	Long, even and regular. Rear foot placement matches front foot placement.	Evenly placed and weight bearing when standing and walking.	Straight (level) at all times.	Held in line or slightly below the backline and steady when walking.
1 Walks unevenly Minor action required Record and keep an eye on her – some cows normally walk unevenly	Not normally affected, should easily maintain position in the herd.	May have uneven stride and/or rhythm. Rear foot placement may miss front foot placement.	May stand or walk unevenly but difficult to identify which leg/s are affected.	Straight when standing, may be mildly arched when walking.	May have slight bob and or may be held lower than normal.
2 Lame Action required This cow is lame and needs to be reported, drafted and examined within 24 hours	May be slower than normal; may stop, especially when turning a corner.	Shortened strides rear foot placement falls short of front foot placement.	Uneven – lame leg can be identified.	Often arched when standing and walking.	Bobs up and down when walking.
3 Very lame Urgent action required This cow is very lame and needs urgent attention. Draft and examine as soon as possible	Very slow, stops often and will lie down in paddock. Cannot keep up with the healthy herd.	Shortened and very uneven. Non lame leg will swing through quickly.	Lame leg easy to identify – “limping”; may barely stand on lame leg/s.	Arched when standing and walking.	Large head movements up and down when walking.

6

Check: How do the cows' coats look?

Goal: 90% of 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: Do the first calvers blend in with the older cows?

Goal: First calvers are difficult to distinguish from older cows.

It is important to check how well first calvers blend in with the older cows.

A successful heifer rearing program will see first calvers at more than 85% of mature cow weight and 95% of mature cow height. This maximises lifetime production and fertility and longevity in herd.

Despite being well grown, the stress of a first calving, competing with older cows and continuing to grow may cause them to strip bodyweight, not reach their production potential and struggle to get back in calf.

8

Check: What is the cow's breathing rate?

Goal: Cows' breathing rate is less than 60 per minute.

First calvers should not stand out dramatically in the herd.

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. See the Cool Cows website for heat stress management strategies.
 - › 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.

9

Check: Is there enough feed on offer?

Goal: 5cm 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 5cm/1500kgDM
 - › 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.

10

Check: How stable is milk yield and concentration from day to day?

Goal: Per cow milk yield varies by less than 1.5 litres. Fat test and protein test vary by less than 0.2% 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 Protein and Butterfat (in conjunction with litres): There are no 'rules' for what each component % should be, but for a cow to produce her bodyweight in kgMS per year, a 600kg cow will need to average 2kgMS per day for the lactation.

Potential reasons for:

High Protein %	Low Protein %	High Butterfat %	Low Butterfat %
Check litres are on target, not too low for energy going in	<ul style="list-style-type: none"> x Not enough kgDM x Not enough FME (Fermentable Energy – sugars and starches) x Losing weight x Not enough quality bypass protein x Genetics 	<ul style="list-style-type: none"> x Too much fibre when combined with low litres x Cows losing weight (when combined with low Protein %) x Genetics 	<ul style="list-style-type: none"> x SARA/lactic acidosis x Not enough kgDM x High unsaturated fat intake (typically from pasture during winter/early spring, or byproducts)

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Cow signs recording sheet

Farm: _____ Date: _____

1

Cow sign	Goal
Rumination	80% of cows in the herd are grazing or chewing their cud
<i>Notes/Observations</i>	

2

Rumen fill	All milking cows are score 3 (Late lactation and dry cows are score 4)	
<i>Notes/Observations</i>		Score

3

Behaviour	All cows look alert, calm and comfortable
<i>Notes/Observations</i>	

4

Manure consistency	All cows are score 3	
<i>Notes/Observations</i>		Score

5

Locomotion	90% of cows are score 1	
<i>Notes/Observations</i>		Score

Cow sign		Goal
6	Coat condition	All cows' coats look shiny with no hair standing up
	Notes/Observations	
7	First calvers	First calvers are difficult to distinguish from older cows
	Notes/Observations	
8	Breathing rate	Cows' breathing rate is less than 60 per minute
	Notes/Observations	
9	Feed on offer	5cm pasture residuals post grazing with no pasture scalding
	Notes/Observations	
10	Vat	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% from day to day.
	Notes/Observations	