



Slug feeding

Technical Note N19

What is slug feeding

Slug feeding is when cows are fed a large amount of grain or molasses at one time, potentially having a negative effect on rumen health and digestion, and reducing milk production. While concentrates are an important part of a balanced diet for high milk production, slug feeding is a common 'feeding fault' on dairy farms.

How it happens ...

- Cows consume high levels (more than 3–4 kg/cow/milking) of grain or molasses in the dairy at milking time.
- Cows are suddenly shifted from a 'low-energy/high neutral detergent fibre (NDF) dry cow diet to a 'high-energy/low NDF' lactating diet.
- Cows are suddenly shifted from one grain type to another.



A dairy cow being fed high levels of grain and molasses in the dairy at milking time.

The implications

Digestion of a large quantity of starch or sugar by rumen microbes at one time will cause a drop in rumen pH. Ideal rumen pH is neutral to slightly acid (6.2 to 7.0). The cow may develop ruminal acidosis, having a negative impact on rumen health and digestion.

Milk production and composition are affected. Digestion of starch from grain produces glucose and propionic acid—the precursors of milk yield, milk protein, and lactose. A low milk-fat test indicates a high-concentrate/low fibre diet, and the possibility of slug feeding and acidosis.

Cud chewing and saliva production is likely to be reduced. If <50% of the herd is ruminating while resting, rumen health may be suffering. (Refer to Technical Note N02: Managing for healthy rumen function.)

Manure may be loose and inconsistent. Bubbly manure indicates hindgut fermentation of starch and potential acidosis. Mucous in manure indicates sloughing of the lining of the intestines—also an indication of acidosis. (Refer to Technical Note N14: Nutrition and animal health.)

Practical ways to avoid slug feeding

Aim for a forage:concentrate ratio of 60:40, with an absolute maximum of 60% concentrate in diet DM. Include fibre (NDF) at 28–34% of diet DM, with at least 20% of diet NDF as effective fibre (forage that is 2–5 cm in length).

Limit the amount of grain or molasses fed in the milking shed to 3 kg/cow at each milking. When feeding grain above 6 kg/cow/day, look at alternative feeding systems away from the dairy.

If feeding a mixed ration, combine all supplementary grain or molasses with conserved forages in the mix, rather than feeding concentrates separately in the dairy. Ensure rations are mixed properly and aim for a dry

matter content of around 50% to minimise sorting.

Spread high intakes (>8 kg/cow/day) of grain over 3–4 feeds throughout the day. Feeding small amounts frequently is preferable to one large daily amount. This will hold rumen pH at a more stable (neutral to slightly acid) state. See Figure 1.

Feeding grain one or two times/day produces a larger decline in rumen pH, resulting in sub-acute (pH 5.5 to 6.2) or acute (pH < 5.5) acidosis.

Feeding grain three or four times/day helps maintain a stable rumen pH for optimum microbial growth. It may also increase daily intake through improved rumen health and providing cows more time/access to feed.

Practical ways to minimise the impact

The aim is to keep the diet as consistent as possible for maximum microbial production (more rumen microbes = more milk), and to reduce the risk of dramatic changes in milk composition.

Move cows quickly out to pasture or forage after feeding grain/molasses in the milking bales, or provide hay/roughage immediately after exiting the dairy to stimulate cud chewing and saliva production.

Feed all grain and molasses in a total or partial mixed ration with conserved forages if a mixer wagon is available.

Increase energy concentrates in the late dry period to acclimatise rumen microbes to the lactating ration. Make a gradual transition from dry-cow to lactating-cow diets by increasing grain intake at 0.5 kg/day.

Change grain types gradually. The digestion rate and release of energy in the rumen varies widely between grains. (Refer to Technical Note N05: Important nutrients).

Adjust grain processing. The more processed the grain, the faster it is broken down in the rumen. If feeding high amounts of grain in the dairy, cracked/rolled grain may be more beneficial than steam-flaked or hammer-milled.

Provide a buffer (sodium bicarbonate) with grain fed in the dairy at a rate of 100–150 grams/cow/day, and up to 300 grams/day in hot weather.

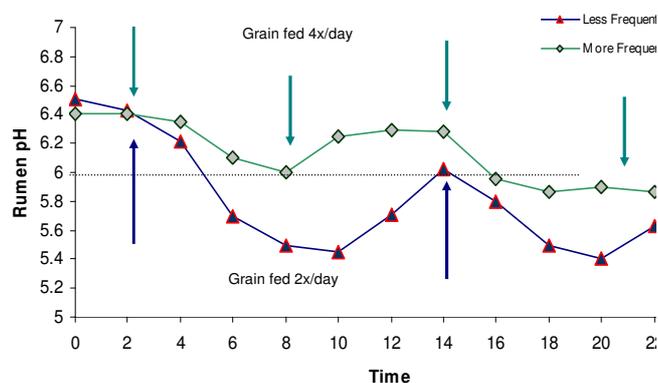


Figure 1: Effect of feeding frequency on rumen pH (Source: Bucholtz & Patton, 2004).



Grain being fed with forages mixed in a mixing wagon will reduce the incidence of slug feeding.

Further information

Contact the DAFF Customer Service Centre by Phone 13 25 23, or Email callweb@daff.qld.gov.au

More technical notes can be found at: www.dairyinfo.biz

Protein Plu\$ checkbook (Published 2006 by DPI&F Qld)

Feed Plu\$ CD v4.0 (Published 2008 by DPI&F Qld)

Condition magician booklet (Published 2003 by DPI Vic)

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