



Nutrition and milk fat%

Technical Note N09

Milk composition is affected by many factors, including body condition, stage of lactation, number of lactations, breed and climate; however, nutrition is one of the most important factors. Improvements in diet composition offer the quickest and sometimes the largest potential for lifting milk fat %. Any large variation in milk composition indicates an inconsistent diet. A decline in milk fat % below 3.3–3.5% over 2–4 days may indicate a rumen health problem.

Feeding for optimum milk fat %

Milk fat % of the herd can be maximised by attention to five aspects of the ration—dietary fibre; forage to concentrate ratio; consistent diet; buffers; and fat/oil intake.

Fibre

Fibre is important for rumen health and increasing or maintaining milk fat %. (Refer to Technical Note N02: Managing for healthy rumen function.)

A drop in milk fat % often occurs (and is therefore a good indicator) when fibre is lacking in the diet. For example with high amounts of readily available starch and/or lush pastures.

Aim for 28–30% neutral detergent fibre (NDF) in diet. (Refer to Technical Note N03: Feed intake, Technical Note N04: Factors affecting feed intake, Technical Note N05: Important nutrients and Technical Note N06: Balancing the diet.)

The rumen requires fibre particles of 2–5 cm long that promote cud chewing and rumination to produce saliva, to reduce feed size for faster digestion, and to maintain milk fat %.

To assess if fibre levels in the diet are adequate, 50% of the herd should be chewing their cud when resting. If less than 30%, then fibre content is too low; if greater than 70%, then fibre content is too high.



Forage to concentrate ratio

A low milk-fat test indicates a high concentrate/low fibre diet, and the possibility of slug feeding and sub-acute acidosis.

A drop in both milk production and milk fat % indicates acidosis. A rumen pH below 5.4 causes fibre-digesting bacteria to die out, and lactic acid-producing bacteria to increase, resulting in acidosis. This can be caused by abrupt changes in the diet, insufficient effective fibre, and/or excess rumen-available carbohydrates (usually grain).

To avoid acidosis, digestive upsets and low milk fat %, aim for a recommended maximum of 60% concentrate in diet dry matter (DM).

Spread high daily grain intake (>6 kg/day) over several feeds for a more steady nutrient supply to the rumen, and to avoid large energy slugs which may lead to acidosis. (Refer to Technical Note N19: Slug feeding.)

Move cows onto fresh or conserved forage immediately after feeding grain in the dairy. Limit grain fed in the dairy to 3 kg/cow/milking.

Consistent diet

Keep the diet as consistent as possible from day to day and avoid sudden changes in feed types.

Rumen microbes take time to recover and build up after sudden feed changes. Fibre-digesting microbes, which provide the precursors for milk fat production, may take 4–6 weeks to build up.

If the diet keeps changing every few days, the required microbes will not be present in sufficient numbers for optimum digestion so the diet should be as consistent as possible.

Rumen buffers

Common buffers include sodium bicarbonate and magnesium oxide.

Buffers help stabilise rumen pH, providing a favourable environment for fibre-digesting rumen microbes.

On high grain diets, feeding buffers can reduce the incidence of acidosis. On these diets, buffers help to maintain rumen health and fibre digestion, preventing potential depression of milk fat %.

Significant milk fat responses have been reported by including dietary buffers when corn silage is the main forage in the diet.

Provide buffers at 1–1.5 % of ration DM or 150–200 grams/cow/day.

Feeding rumen buffers in hot weather has also maintained/improved milk fat %.

Fats and oils

50% of milk fat synthesized in the mammary gland is derived from fat sources in the diet.

However, high levels of fat in the diet (>5–6%) will affect rumen health and potentially reduce milk fat %.

Fat sources from feeds such as whole cottonseed (Photo 2) have less impact on rumen health, as they are slowly broken down in the rumen.



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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