

Keeping cows on the curve when changing diets

Substantial changes in diets of dairy cows should be made gradually to allow the rumen time to adapt to the new feed. If these changes occur too abruptly, and cow responses are not monitored for early warning signs of problems, healthy rumen function, feed intake and health can be disrupted and cause reduced milk production, ill health and potentially death.

Gradual changes to diet are essential for healthy rumen function

The majority of feed that cows eat is digested by microbes in the rumen and the composition of the population of rumen microbes depends on the diet the cows eat. Changes in diet composition such as introducing a new type of feed will cause the rumen-microbe population to change and adapt. However, this process takes time. Gradual changes to the diet will allow time to monitor how cows are responding to the new diet and make adjustments if necessary before they receive the full amount.

Sufficient levels of fibre are essential for healthy rumen function in lactating cows. Large and abrupt changes in their diet may have a risk of (temporarily) not providing enough fibre, resulting in rumen acidosis. Adding substantial amounts of a new feed into the diet may alter cows feeding routines and negatively affect intake. Gradual feed changes allow time to monitor if fibre levels remain safe.

Cows need time to adapt to the difference in palatability of feeds particularly if they have not been exposed to them before. Palatability can also affect the amount that individual cows eat.

This can be compounded by not providing equal access to the feed for all cows. Varying levels of poisonous or toxic components in the diet may cause palatability issues also. Sometimes cows have to 'learn' to graze certain crops or eat certain feeds, if they have not been exposed to them before.

KEY MESSAGES

Change cows gradually onto new feed over 7–14 days

Rumen microbes need time to adapt to new feed sources

Also monitor animal responses to other risk factors such as toxic components in feed

Equal access to feed for each cow is essential

It is not about what you feed, it is about what they eat

Highest risk is when introducing very palatable, low fibre feeds to the diet



Examples of this might include grazed turnips or other brassicas. The slow learners might eat less and leave the new feed for the quicker learners who could consume excessive amounts.

In general, a substantial change in the diet of dairy cows should be introduced gradually in steps over a period of 7 to 14 days to provide sufficient time for most of the rumen

adaptation to occur, and to monitor and correct for any other ill effects. However, this timeframe may change depending on the magnitude of the dietary change, types of feed used and the risk factors involved with the diet.

Before making any substantial diet changes or introducing new feed products and types to your cows, determine the risks and take mitigating action.

Changing diets

Rumen adaptation

New feeds or substantial changes to a diet should be introduced in increments of not more than 2kg DM/cow, and in a minimum of three to four steps spread out over 7 to 14 days. The last steps can be a bit smaller, when getting close to the maximum that can be fed.

For example when introducing 6kg DM of a new feed, provided no ill effects are observed during the changeover onto the new feed: on day one start with 2kg, day four raise to 3.5kg, day seven to 5kg, and day 10 to 6kg.

Changing from a full TMR to a diet consisting only of grazing pasture and concentrate in the bail (and reverse) will require a longer changeover period of about three weeks, changing pasture allocation in steps of about 2kg DM/cow every three days, while reducing the TMR quantity and adjusting its composition.

Major changes like these often require a separate 'in-between' PMR type diet to be fed mid-way, to aid in a seamless changeover onto the new diet. If introducing a new concentrate feed, then it is recommended to be more conservative, and only adjust the amount by 1kg DM/day of concentrate.

Recent Australian research indicates that changing cows from a grazed pasture-based diet to a conserved forage-based diet, as may be necessary in late spring/early summer, should be done gradually over a 10-day period to keep cows on their target lactation curves.

If the changeover is made abruptly, cows may drop in milk as a result of:

- Reduced feed digestibility due to disruption in rumen function
- Reduced daily energy intake and rumen microbial protein production.

Very palatable feeds

Equal access to the feed for each cow is very important to avoid over-eating by some cows in the herd. When animals have to compete for trough space on a feed pad (ideal to have at least 0.7m/cow feed space), or when fodder crops are strip grazed, some groups of cows can miss out on the feed, and others can eat far too much. Examples of this is when strip-grazing turnips and the strip face lay-out is wrong, or when cows trickle back into a paddock after milking over a long period of a few hours. If it takes a long

time before the last cows have reached the turnips, it might be that the first part of the herd has eaten it all, resulting in some cows eating too much to ill effect, and some have eaten none.

Less palatable feeds

These feeds have a low risk of being over-eaten as intake will be slow and 'self-limiting'. However, it can still result in essential components of a diet, such as fibre, not being eaten in sufficient quantities by some or all cows. Slow changeover to these feeds can help cows get used to eating them, and feeding practices can be adapted during this process to improve intake. When introducing extra feed into a diet, sometimes the intake of these less palatable feeds can drop off.

Poisonous or toxic components

Feed products can contain poisonous components, toxins and/or mycotoxins. If it is not possible to analyse feeds beforehand, manage feeds that have known risks by limiting the amount offered. Introducing a new feed slowly in small increments provides the opportunity to monitor the cows for health issues, particularly in the first few days, to assess if the new feed is of higher risk than expected.

Monitor cows when changing to paddocks with a high proportion of clover where there is the risk of bloat, or to a brassica crop where unique amino acids can cause liver damage resulting in photosensitisation and dark red urine. Some fodder crops or lush autumn grass can contain higher levels of toxic nitrate, especially in drier years and/or with higher N-fertiliser rates.

Equal and limited access is important to reduce risks. Hungry cows that have unequal or unlimited access can gorge themselves and easily consume these toxic components above safe thresholds, resulting in severe illness and even death.

'Learning' to eat

If cows have not been exposed to a new feed before, they might have to 'learn' to eat it. This occurs sometimes when starting to feed certain crops or feeds. Extending the time between the first steps of changing over onto that feed can help train them eat the feed. For example, it can take a few days before cows learn that they actually should be eating the fodder beet bulbs. The slow learners eat none or less and leave the new feed for the fast learners, who may consume excessive amounts.

FOR FURTHER INFORMATION

Consult your nutritionist for further information. More information can be found in fact sheets on the Dairy Australia website. Please visit feed.dairyaustralia.com.au