

# Feed additives



Feed additives are for prevention, not treatment. They are not a substitute for good feeding management but can play a role in managing the risk of acidosis associated with low effective fibre and high grain/concentrate diets.

Feed additives work in different ways. Many farmers are unsure of the differences between buffers, neutralising agents and rumen modifiers. In a previous study, more than 50 per cent of farmers were not supplying correct amounts of additives per cow per day.

You miss out on the benefits if the additive dose rates in your feed aren't right for your daily per cow feeding rate.

## Sodium bicarbonate

- Well known and trusted as a rumen buffer
- Works best in a range for optimum activity of pH 6.2–6.5
- Buffering ability drops when rumen pH is less than 6.0
- A good source of sodium in the diet. For this reason, 'bicarb' is not recommended as an inclusion in transition feeds prior to calving
- Recommended daily feed rates vary, depending on what is fed and how (up to 200–300 grams/cow/day in maize silage based diets). Seek advice

- When included in grain/concentrate, bicarb. helps buffer the rumen immediately after feeding. However, it doesn't replace the need for effective (long) fibre in the diet. Saliva produced by the animal while chewing long fibre makes large quantities of bicarb. and other buffers available to help maintain a stable rumen pH throughout the day.

## Magnesium oxide

- Many farmers believe it is a buffer – but it is not.
- Magnesium oxide is a slow release neutralising agent (alkaliniser)
- Normally recommended at 30–45 grams/cow/day. Daily feed rates exceeding 50 grams/cow/day are not recommended without advice
- Magnesium oxide has a distinct role as a source of magnesium in the diet. Cows do not have the ability to store magnesium and therefore require a daily intake to maintain normal body functions and prevent grass tetany during times of stress, e.g. winter.

## Sodium bentonite

- Bentonite is not a buffer but has a high ion exchange and moisture absorbing capacity
- Bentonite is a colloidal, hydrated aluminium silicate clay
- There is a lack of consistent data with this product re. its role in controlling rumen pH
- High feeding rates are recommended (0.5–1.0 kg/cow/day), depending on what is fed and how much

May assist, but probably has a limited role to play in controlling ruminal acidosis.

## ACIDOSIS

Do you understand the role of feed additives in acidosis control?

## Rumen modifiers

Rumen modifiers are not buffers or neutralising agents. They act by directly altering the balance between the different populations of microbes in the rumen and the proportions of the VFAs (volatile fatty acids) they produce. Please consult your local Vet and nutritionist before feeding additives to ensure that these are suitable for your herd.

- If your risk of acidosis is high, seek advice on the use of Tylosin or Virginiamycin
- Tylosin and Virginiamycin, require gradual in steps when first introduced to avoid possible adverse reactions (milk drop, scours, red urine)
- Avoid using rumen modifiers in powdered products – they can separate out of a feed mix and be sifted out by cows when feeding, resulting in poor control over daily intakes
- Make sure your feedmill / feed additive supplier is well aware of your current or intended per cow feeding rate so that feed additive delivery is at the recommended rate.

## Monensin (e.g. Rumensin™)

- Selectively changes the rumen bugs and modifies rumentotal VFAs – propionate per cent increase
- Reduces the lactic acid producing rumen bacteria *Strep. bovis*
- Dose for dairy cows is specified at 250–300 mg/cow/day
- Underdosing significantly reduces the effectiveness of this product
- If used, is best commenced in the transition diet prior to calving
- Can be used with Tylosin or Virginiamycin
- Watch for toxicity which can easily occur at 2–3 times the recommended daily per cow dose.

## Tylosin (e.g. Tylan™)

- An antibiotic recently registered for use in Australian dairy herds
- Has a registered claim in reducing liver abscesses (not preventing acidosis)
- Data on its use alone does not show an efficacy similar to Virginiamycin (see below). Tylosin is recommended to be used in combination with Monensin
- Dose for dairy cows is specified at 150 mg/cow/day
- Underdosing significantly reduces the effectiveness of this product
- If used, is best commenced in the transition diet prior to calving
- Caution is required when first introducing to the diet to avoid possible adverse reactions.

Could you get an advantage for rumen modifiers? Discuss with your advisor.

## Virginiamycin (e.g. Eskalin™)

- An antibiotic which acts principally by reducing *Strep. bovis* numbers
- Has a registered claim in prevention of acidosis
- Dose for dairy cows is specified at 0.5 mg of Virginiamycin per kg of body weight
- If used, is best commenced in the transition diet prior to calving
- Caution is required when first introducing to the diet, to avoid possible adverse reactions
- Only available with a medicated feed order provided by a vet. Seek veterinary advice on whether this additive is appropriate for your herd.

### FOR FURTHER INFORMATION

Visit [feed.dairyaustralia.com.au](https://feed.dairyaustralia.com.au)

These fact sheets were originally published in 2007 with the support of The Department of Agriculture, Australian Dairy Industry Council Inc, Cattle Council of Australia, and Meat and Livestock Australia.