

High quality feed wins

For profitability and for emissions

This fact sheet is part of the Profitable Dairying series - *Good business management reduces greenhouse gas emissions.*

The Australian dairy industry has committed to reducing greenhouse gas emissions intensity by 30% by 2020.

Cows on quality feed with a good feed conversion efficiency will burp less methane per litre of milk produced than cows on poor quality feed.

Feeding cows high quality feed is a win-win for farm profitability and managing emissions.

Feed the cows well

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Enteric methane produced by methanogen bacteria in the rumen is the largest source of greenhouse gas emissions from dairy farms – around 55%. Approximately 6-10% of the energy consumed by cows is converted to methane released via breath. Forage quality has a major impact on methane production, being highest with low forage quality. It is a major source of energy loss for the cow, and if it could be minimised, milk production would likely increase.

[Click here](#) for more information.



"We farm in an unreliable climate. We need to be flexible with each season and grow as much quality grass as we can when water is available. The feedpad and TMR system give us control in uncertain seasons," *Glen Dohnt, Monteith, SA.*



Cows grazing on lower quality kikuyu pasture (*left*) will have a higher emissions intensity (t CO₂ equivalent per L milk) than cows on high quality ryegrass (*right*)if this was their only feed intake. Many farms with kikuyu pastures supplement the cows with higher quality feed.



Farmers in NSW are trialling the best use of nitrogen and grazing strategies to maximize the quality and digestibility of kikuyu/ryegrass pastures in subtropical dairy systems. This will improve milk production and decrease emissions intensity.



Pasture breeding

Traditionally, pasture breeding has focussed on increasing dry matter yields and the longevity of sown pastures. These are still vital traits, but now that the ability to manipulate plant genes has dramatically increased, plant breeders in Australia are working on mechanisms that significantly increase the digestibility of pasture species. Increasing the digestibility of ryegrass is currently being investigated, with studies on fescue and C4 grasses to follow.

Feeding fats and oils

This is common practice in some herds - usually through high protein meals that are by-products from oilseed crops, and direct feeding of whole cotton seed. A review of feeding experiments showed that for each 1% increase in dietary fat, methane production was reduced by 3.5%. Inclusions of fats can boost production, and reduce emissions.

The suppression of methane emissions is most effective when pasture quality declines – i.e. summer and autumn in southern Australia, and this is likely to be the time when production responses to fats and oils are greatest. This strategy is limited by the fact that if total diet fat content (including the fat contained in the pasture and other forage supplements) exceeds 6-7% then intake and milk production will be suppressed.

Other feed additives

One of the feed additives being trialed in beef cattle in Canada as part of an international collaborative research effort is 3-nitrooxypropanol, commonly referred to as NOP. Initial trials with this chemical have been promising.

Further resources:

[Practices to reduce emissions on Australian dairy farms](#)
[Global Research Alliance on Agricultural greenhouse gases](#)

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