

Productivity Highlights

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Fill pasture feed gaps with nitrogen

Background

The use of nitrogen on grassy pastures is an opportunistic tool that will grow additional pasture quickly and assist with feed gaps. Tactical nitrogen will not only improve the quantity and quality of the pasture, it is also very cost effective.

How much nitrogen should be applied?

CSBP research has shown that applying nitrogen in early winter can produce 15 kg of dry matter (DM) per kilogram of nitrogen applied. To compare this to the alternative of buying in hay:

1 kg of N produces an extra 15 kg DM so you need 67 kg of N to produce 1 t DM of pasture. With urea landed and spread for \$500/t the cost of nitrogen is \$1.09/kg N or \$73 to produce 1 t DM of pasture. Hay at 85% DM would have to be as cheap as \$62/t to match the same costs of the extra pasture produced.

The advantages of nitrogen on pasture are much greater when you take into account the quality aspects. A typical grass/clover hay has metabolisable energy (ME) levels around 8 MJ/kg DM whilst fresh grown new pasture is typically 11.5 MJ/kg DM. Assuming the same costs for nitrogen as above and production is the same it costs 0.6 c/MJ for the extra feed produced using nitrogen whereas the hay will be 2.2 c/MJ - more than 3 times the cost!

In a trial near Narrogin 150 kg/ha Urea was applied to a grassy pasture in late May 2003. Over the next 20 days an extra 600 kg/ha dry matter was produced.

Quality was also improved, with protein increasing from 13 to 25.5% and ME from 11.8 to 12.6 MJ/kg. The improvement was equivalent to about 24 MJ/ha/day, enough to support an extra 2.4 DSE/ha.

How to get the best results

A few simple tips to get the best results:

- Select dense ryegrass and or self sown cereals. Some of these types of paddocks may have been cropped for some time and had a build-up of ryegrass.
- Defer grazing until the 2.5-3 leaf stage. Allowing ryegrass to attain 2.5 to 3 leaves before grazing will maximise the response.
- In high rainfall, intensively grazed pasture situations, use lower rates more often. (I.e. two applications of 70L/ha of Flexi-N 4 weeks apart will be better than one application of 140L/ha).
- In broadacre situations it is highly likely the response to 100L/ha of Flexi-N will be more than double that of one



The effect of nitrogen on pasture is dramatically demonstrated at Narrogin. Nitrogen benefited clover as well as grasses.

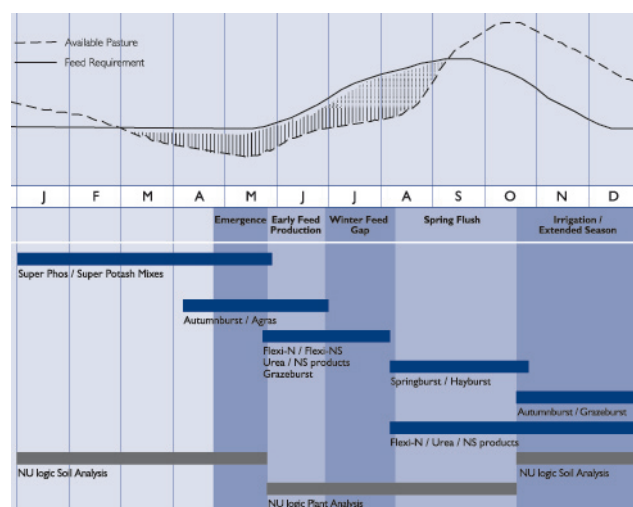
application of 50L/ha.

- Ensure adequate supply of other nutrients before applying nitrogen.

You do not have to do your whole farm, but simply select the best areas and do them properly. Applying nitrogen post-grazing is the way to go. Delay grazing for at least 14 days but preferably 21 days. Again planning ahead is crucial for this.

Summary

Nitrogen applications can boost pasture dry matter production and quality in a short period of time, especially if dominated by grasses.



Matching pasture production with livestock requirements

Strategic applications of N can be used to increase pasture carrying capacity during winter when feed is in short supply, even in low to medium rainfall regions.