

Wise Use of N-Fertiliser on Hill Country

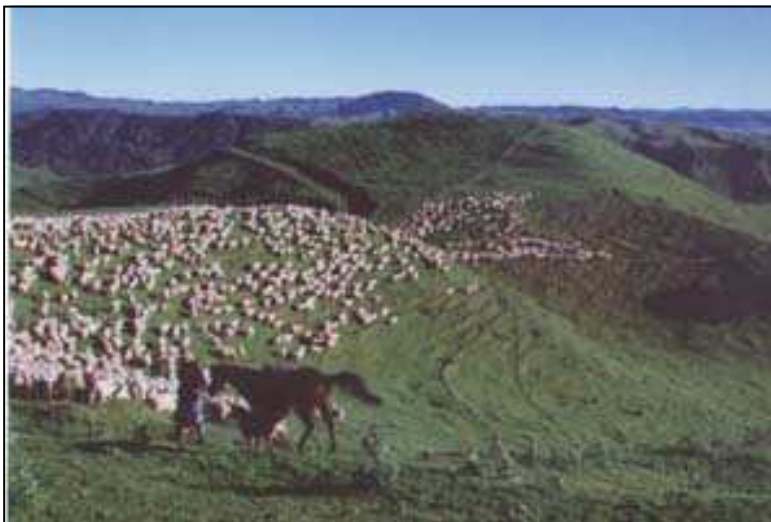
Which N-Fertiliser Gives the Best 'Bang for My Buck'?

Frequently Asked Questions



Comparison of Response Efficiency of N-Fertilisers

Several NZ studies comparing urea and ammonium sulphate have shown only small differences in the pasture production response at the same rate of N applied provided that sulphur is adequately supplied to the pasture. Additionally, trials have shown similar responses between urea, dried blood and liquid N when applied in the same conditions at equivalent rates of N.



Form of N-Fertiliser

There is some recent evidence from commercial trials that urea applied in a suspended form (FPA) will result in substantially greater pasture production than granular urea. Until this work is published in more detail to allow scientific peer review, caution should be used, since FPA spreading costs are high. Alternatively the FPA product could be tested by the farmer in a half-paddock comparison with granular urea.

In contrast, published trials using a high level of replication, and therefore good statistical power, have shown that there is no measured increase in pasture production from applying DAP as a slurry (FPA) compared with the granular form.

Additives to N-Fertiliser

Nitrification inhibitors (e.g. Eco-N and N-Care)

Nitrification inhibitors (NI) slow down the conversion of ammonium-N to nitrate-N and thus reduce nitrate-N leaching and nitrous oxide losses from the soil. Trials have shown that nitrate-N losses are reduced by 20-60%. The application of nitrification inhibitors also increases pasture production from 5-10%.

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Urease inhibitors (e.g. Sustain)

Urease inhibitors (UI) slow down the conversion of ammonium-N to ammonia gas and reduce N losses to the atmosphere. Published research on UI applications to perennial ryegrass in Ireland show 8-9% yield increases with N applications of 100kg N/ha. Commercial trials show that the use of urease inhibitors with urea result in greater responses in pasture production, especially at rates of N of 100-150 kg N/ha as a single application, but the research results need to be presented in more detail for scientific peer review.

Recommendations

- Use the N-fertiliser that gives the lowest cost per kg of N applied. This is usually urea.
- Ensure that soil pH, Olsen P and sulphate-S are all in the optimum range.
- Published research evidence shows no advantage in applying N in a slurry compared with a granular form. If considering FPA, carry out a half paddock comparison with the solid form taking into account the higher cost of FPA on your farm.
- If applying greater than 100 kg N/ha/yr with cattle grazing in a sensitive catchment for nitrate-N loss, the use of nitrification and urease inhibitors should be considered.



For more information call Clare Johnston on 06 324 7033