

Wise Use of N-Fertiliser on Hill Country

Which N-Fertiliser Should I Use?

Frequently Asked Questions



Three issues need to be addressed when answering this question:

1. What is the best basic type of nitrogen fertiliser?
2. What is the best form to apply it; solid (granular) or suspension (fine particle application (FPA))
3. Is it worthwhile applying additives that reduce N losses e.g. urease and nitrification inhibitors (see FAQ 5: What is the Cost-Effectiveness of Different Forms of N-Fertiliser?)?

Types of N-Fertiliser



There are several N-fertilisers available in the marketplace:

Urea (46%N)

- Urea, either manufactured at Kapuni in Taranaki or imported, is the most widely used N fertiliser in New Zealand, mainly because it is the cheapest per kg of N applied.
- Urea is rapidly converted to the ammonium form of N at the soil surface. Ammonium-N can be lost to the air as ammonia gas in a process termed volatilisation.
- In normal circumstances, where 25-50 kg N/ha is applied from late autumn to early spring, 0-15% of the total N applied can be lost. However if high rates (> 100 kg N/ha) are applied in a single dressing or when urea is applied under dry soil conditions with little pasture cover, losses can be as high as 30-40%.
- Direct losses of urea N by leaching are also small, about 1% of the N applied at 200 kg/ha/yr and about 10% at 400kg N/ha/yr.

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Di-ammonium phosphate (18% N)

- The use of imported di-ammonium phosphate (DAP) is greatest when the cost is low in relation to urea and superphosphate or where no sulphur is required.
- Gaseous losses of ammonia are about 40% of those from urea and direct leaching of nitrate-N will be similar.

Ammonium sulphate (21% N)

- Losses of N from volatilisation to ammonia gas are very low while leaching losses of nitrate-N will be similar to urea and DAP.

Nitrate-containing N fertilisers (CAN, ASN)

- These are not widely used in pastoral farming and do not lose N as ammonia gas but may have slightly greater nitrate-N leaching losses.

Acidifying effects of N-Fertilisers (see FAQ2: How Does N-Fertiliser Affect Soil pH?)

Ammonium sulphate is the most acidifying fertiliser followed by urea and DAP and ASN (both equal). Lime is required to neutralise the acidification effect.



For more information call Clare Johnston on 06 324 7033