

CAL-AM FACTSHEET

January 2006

- Calcium Ammonium Nitrate (CAN).
- Cal-Am is an imported granular fertiliser. It is comprised of approximately 80% ammonium nitrate and 20% calcium carbonate.
- Due to the dilutant effects of the calcium carbonate, Cal-am is not classified as a Dangerous Good (Class 5.1 Oxidising Agent) like straight ammonium nitrate fertilisers such as Nitram. Incitec Pivot no longer sells this product.
- Cal-Am is, however, classified as a Security Sensitive Ammonium Nitrate (SSAN) product. A License is required to transport, sell or use SSAN, effective July 2005 in Queensland and the ACT, and January 2006 in NSW and Victoria. The likely implementation date in South Australia is 1 July 2006. SSAN fertilisers have been banned in Tasmania.
- Cal-Am contains 27% N, 50% of which is present in the ammonium form, and 50% as nitrate. The nitrate is immediately available for plant uptake once the fertiliser dissolves in the soil.
- Cal-Am is less subject to volatilisation than fertilisers that contain all their nitrogen in the ammonium form, or form ammonium after application to the soil, e.g. urea. Volatilisation (gaseous losses of ammonia to the atmosphere) may occur when ammonium fertilisers are applied to the soil surface without incorporation. Volatilisation losses can be minimised by applying the fertiliser into the soil, applying it with the irrigation water, irrigating it in immediately after application, or top-dressing immediately prior to forecast rain.
- On soils prone to acidification, Cal-am is not as acidifying per kg of nitrogen as nitrogen fertilisers such as urea or straight ammonium nitrate, due to the neutralising value of the calcium carbonate (lime) that is present in Cal-Am. Lime, however, may still be required to correct soils acidity (improve the pH).
- As well as supplying nitrogen, Cal-Am may be a useful source of calcium. On acid (low pH) soils, the calcium carbonate (lime) in Cal-Am will slowly react in the soil to release calcium. Its use will help maintain soil calcium levels and meet crop demands for this nutrient. Cal-Am should not be used where a quick response is required to soil-applied calcium, e.g. when side-dressing vegetable crops, as the calcium carbonate takes time to react in the soil. The calcium carbonate in Cal-Am is of little value on alkaline soils, in which it is virtually insoluble. Calcium deficiency is unlikely on alkaline soils.
- **In summary, Cal-Am is popular for top-dressing forage and pasture and in horticultural crops, e.g. side-dressing vegetables, and in tree crops.**

SOIL REACTIONS

Cal-am (27% N) supplies nitrogen in the ammonium (13.5%) and nitrate (13.5%) forms. While plants take up both forms, most take up nitrogen as nitrate.

The nitrate nitrogen is immediately available for plant uptake, once it dissolves in the soil water.

The ammonium nitrogen becomes available (is converted to nitrate by soil bacteria) over a longer period of time, usually within a few weeks. Being a biological process, the conversion occurs more slowly under cold temperatures, and if the soil is dry. Ammonium nitrate fertilisers such as Cal-am may give a quicker response than urea in cold weather.



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Cal-am is less subject to volatilisation loss (gaseous loss of ammonia to the atmosphere following the surface application of fertiliser without incorporation by cultivation, irrigation or rainfall) than urea or fertilizers containing all their nitrogen in the ammonium form, e.g. ammonium sulfate. Half the nitrogen in Cal-am is present as nitrate, and therefore not subject to volatilisation. Only that nitrogen present as ammonium will be subject to volatilisation.

USE OF CAL-AM AS A FERTILISER

Cal-am is not used as widely as urea, which is more concentrated (46% N compared to 27% N) and costs less per kilogram of nitrogen.

As half the nitrogen in Cal-am is present in the immediately available nitrate form, it is often used where a quick response to nitrogen is required, eg.:

- side-dressing vegetables;
- in tree and plantation crops;
- in winter, when the bacterial conversion of ammonium nitrogen to nitrate is slowed by low soil temperatures.

Cal-am may also be used for topdressing rain-grown crops and pastures where ammonia volatilisation losses may be high, e.g. dairy pastures in southern Australia during the drier times of the year, when rain is less reliable.

In sugarcane, Cal-am is often used instead of urea where nitrogen fertiliser is surface-applied over green cane trash blankets to minimise volatilisation losses.

Cal-am is not suitable for use in flood-irrigated rice. Under permanent water (paddy conditions) the nitrate will be lost through denitrification (gaseous loss of nitrous oxide to the atmosphere).

Cal-am is not fully water-soluble, i.e. the calcium carbonate component is insoluble. Cal-am is therefore unsuitable for application in solution. Cal-am cannot be used in fertigation programs (dissolved in irrigation water).

On acid soils, the calcium carbonate in Cal-am is of nutritional value. It should not be used where a quick response to calcium is required. More soluble fertilisers such as calcium nitrate can be used in these situations (in high value horticultural crops). On acid soils, the calcium carbonate will react in the soil, slowly like lime does.

Cal-am is less acidifying per kilogram of nitrogen than urea or Nitram.

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