

Cal-Am[®]

FACT SHEET

April 2010

- 27% nitrogen (N) as ammonium nitrate;
- Less subject to volatilization loss when surface applied without incorporation than urea and other fertilisers containing all their nitrogen in the ammonium form;
- Nitrate component can provide a quick response in short season annual crops and cold weather;
- Used, on its own or in blends, to;
 - Side-dress vegetable crops;
 - Topdress raingrown pasture, forage and grain crops; and in
 - Ratoon sugarcane where fertiliser is applied over the top of a green cane trash blanket without incorporation.

THE PRODUCT

Cal-Am is Incitec Pivot's name for Calcium Ammonium Nitrate (CAN), an imported granular fertiliser comprised of 80% ammonium nitrate and 20% calcium carbonate.

The calcium carbonate is added during the manufacturing process. It reduces the sensitivity of the ammonium nitrate to detonation. Ammonium nitrate products that are capable of detonation are classified as being a Dangerous Good (Class 5.1 Oxidising Agent).

Due to the dilutant effects of the calcium carbonate, Cal-Am is not classified as a Dangerous Good. It is, however, classified as a Security Sensitive Ammonium Nitrate (SSAN) product, and must be kept secure at all times. A License is required to transport, sell or use Cal-Am on the Australian mainland. SSAN fertilisers have been banned in Tasmania.

USE AS A FERTILISER

Cal-Am is not used as widely as urea (46% N), which is more concentrated, stores and handles better, and costs less per kilogram of nitrogen.

Cal-Am contains 27% N, 50% of which is present in the ammonium form (13.5% NH₄-N) and 50% as nitrate (13.5% NO₃-N). While plants take up both these forms of nitrogen, most take up the bulk of their nitrogen as nitrate.

The nitrate nitrogen in Cal-Am is immediately available for plant uptake once it dissolves in the soil.

The ammonium nitrogen is converted to nitrate by soil bacteria. This process is usually complete within a few weeks of application. 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 be used where a quick response to nitrogen is required, e.g.:

- When side-dressing vegetables;
- In winter, when the bacterial conversion of ammonium nitrogen to nitrate is slowed by low soil temperatures.

Volatilisation

Cal-Am is less subject to volatilisation (gaseous loss of ammonia to the atmosphere following surface application) than urea or fertilisers 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 is subject to volatilisation.

Volatilisation losses can be minimised or eliminated by applying the fertiliser into the soil, applying it with irrigation water (fertigation), irrigating it in immediately after application, or top-dressing shortly before rain is forecast. If reliant on irrigation or rain, it is best that this occurs on the same day that the fertiliser is applied. Overnight dew can dissolve the fertiliser and start the volatilization process from as early as the following morning. Losses typically occur over several days, becoming cumulatively greater with time.

Situations where Cal-Am may be preferred to Urea and other nitrogen fertilisers containing all their nitrogen in the ammonium form are:

- Topdressing rain-grown crops and pastures, particularly at those times of the year when rainfall is variable and none is predicted in the coming days.
- In ratoon sugarcane where nitrogen fertiliser is surface-applied over a green cane trash blanket, it cannot be placed through the trash into the soil or watered in by a travelling irrigator, and rain is not forecast.

It is usually more economical to use urea than Cal-Am where the fertiliser can be applied into the soil or incorporated soon after application.

Calcium

Cal-Am contains 7% calcium (Ca) as calcium carbonate, which is insoluble and reacts slowly in the soil. This calcium will only be of nutritional value on acid soils and will not provide a quick response when used to side-dress high value horticultural crops. Soluble calcium fertilisers such as calcium nitrate should be used in these situations. Calcium nitrate can be applied in fertigation programs and as foliar sprays. Cal-Am can not be applied in solution.

In the longer term, the calcium in Cal-Am is of nutritional value in acid soils. Its use will help maintain soil calcium levels and help meet crop demands for this nutrient.

Cal-Am is less acidifying per kilogram of nitrogen than straight nitrogen fertilisers such as urea due to the neutralising value of the calcium carbonate. Cal-Am, however, does not contain sufficient calcium carbonate to totally prevent soil acidification or to correct soil acidity. Where acid soil infertility exists, lime will need to be applied, at higher rates.

The calcium carbonate in Cal-Am is of little or no value on alkaline soils.

Cal-Gran Blends

On its own, Cal-Am is classified as a security sensitive product. It can only be sold to and used by those farmers licensed to receive it.

Recognizing that this is inconvenient for many growers, Incitec Pivot has formulated a range of blends with other ingredients, including Gran-am (granulated ammonium sulphate), that contain less than the threshold amount of ammonium nitrate above which the security arrangements apply. A SSAN license is not required to buy and use Cal-Gran Blends.