

C.A.N

(Calcium Ammonium Nitrate)

Summary of placement and timing trials

Studies of nitrogen in WA have been carried out extensively over the past forty years.

There are several common sources of nitrogen used, of which Urea is the most common as it is an internationally traded commodity around the world and is also the cheapest Nitrogen source at the present time.

Other sources include:

Sulphate of Ammonia (either as a powdered/fine crystal product, or a granulated form—either way it contains about 21% N).

CAN (Calcium Ammonium Nitrate) which is an Ammonium Nitrate, coated with a calcium Oxide powder.

Liquid Nitrogen.

Coated nitrogens. Coatings of a polymer resin or with nitrification inhibitors are designed to slow nitrogen release and make it safer to place N in close proximity to the seed.

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Calcium Ammonium Nitrate (CAN) is an Ammonium Nitrate product coated with Calcium Oxide.

Nitrogen content is generally around 27% N, compared with Urea which is 46%. The nitrogen source is 50% Nitrate and 50% Ammonium.

The advantages of CAN include

- two types of nitrogen supply—which in theory will be more rapidly available to the plant.
- It is less acidifying than Urea
- Safer to apply next to the seed.
- Supplies some calcium.
- Is less likely to volatilise than Urea

The disadvantages of CAN include

- Almost twice as much is needed for the same yield—increasing spreading and cartage costs.
- The cost of the product is similar or higher than urea, meaning the cost per hectare is near double.
- *Claims that half the rate can be used for the same final yield result are not true. Work done in WA since the 1970's have shown that it is equal to Urea on a unit of N basis*
- It is not suitable for blending.

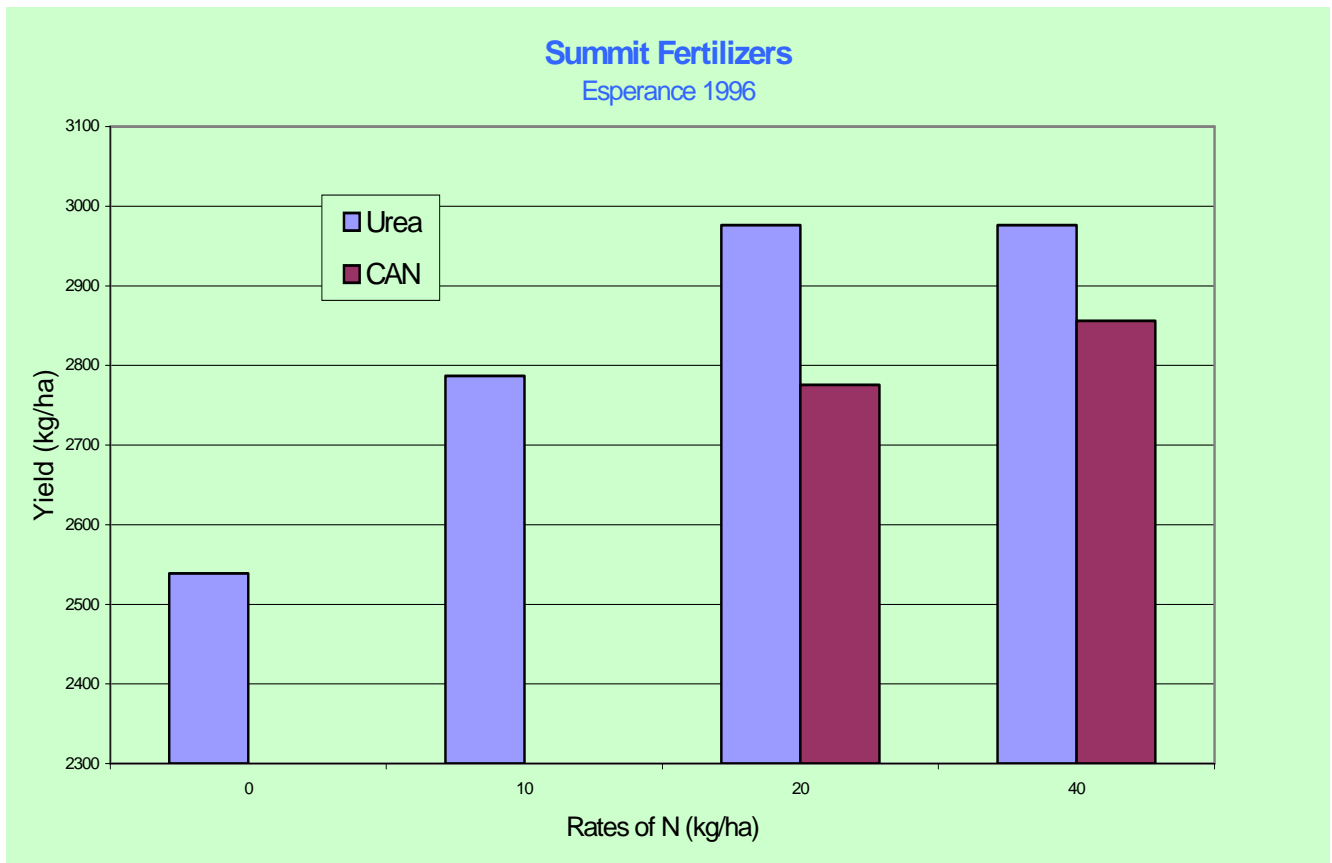
Summit undertook a series of Nitrogen research trials in 1998—2001 looking at C.A.N. as a source of N in WA conditions.

This follows on from work done in the past 3 decades by Mel Mason at the WA Dept of Agriculture and by others since.

This prior research concluded that C.A.N. was a reasonable source of N, but not superior to Urea.

Ammonium nitrate is less damaging to the seed as it germinates, so C.A.N. can be used at seeding to supply up to about 25—30 N safely. The question really is, is it worth the extra cost to achieve that small advantage, when urea could be spread in front for the same or better response?

C.A.N. may be less acidifying than urea, but that depends on how much of the Nitrogen is leached. It may also be no less acidifying under some conditions.

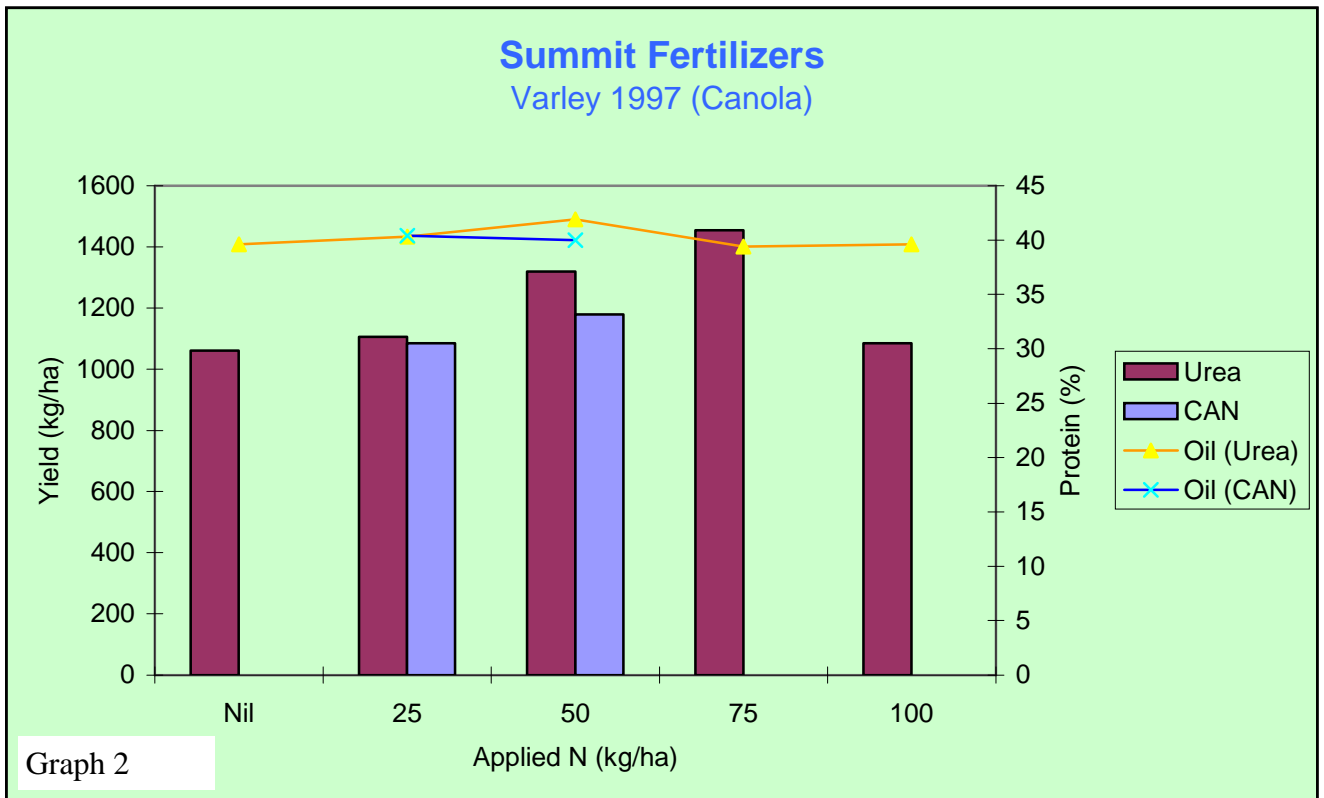


Graph 1

Graph 1: Discussion.

In this trial there was a good N response. Both sources of Nitrogen performed similarly.

A quick gross margin, {using wheat at \$150.00, Freight at \$20.00, products priced at 2003 prices (Urea \$377.00 [ex Esp] and CAN at \$370.00).} would reveal that the return from Urea is \$411.90/ha compared with \$368.34/ha for CAN. This is a huge difference in return for no benefit. The limiting benefit (if any) would only be a few dollars per hectare.)



Graph 2: Discussion.

This canola trial gave a nitrogen response of nearly 500kg/ha. Once again there was no agronomic benefit from using CAN over Urea, however CAN is about twice the cost.

Over the years, 1996 to 2001 Summit conducted a range of Nitrogen source trials comparing many sources of nitrogen.

Applied correctly, Urea IBS inevitably gave the best results. Other sources, such as CAN, were often agronomically equal but rarely better than urea, and usually more expensive.