Get more from nitrogen with Cal-Gran

By Rob Dwyer - Tropical Systems Agronomist

Choosing the right nitrogen fertiliser for the right situation can make a big difference in cane yields.

A particularly challenging situation for growers is when ratoon fertilisers are to be surface applied on to green cane trash blankets.

Applying urea blends to the surface of a green cane trash blanket comes with a high risk of significant volatilisation losses, unless rain or irrigation occurs soon after application.

Volatilisation is a nitrogen loss mechanism where ammonia, derived from fertiliser, is lost as a gas and is no longer available to the crop.

There are several factors that influence and drive the rate of volatilisation, including urease activity (for urea), surface trash levels, moisture, soil pH, fertiliser pH levels, evaporation rates, the presence or absence of carbonates and the time to fertiliser incorporation.

Different fertilisers respond differently as well.

If you are in a situation where the fertiliser can't be applied subsurface, and you have no access to irrigation for incorporation, the next best option for managing volatilisation losses is through fertiliser choice.

Fertilisers with nitrogen in the ammonium form and with localised acid reactions are significantly less prone to volatilisation losses than urea. Nitrate nitrogen is not subject to volatilisation at all.

That's why Cal-Gran® is so well suited to surface fertiliser applications in ratoon cane. It is a long-term low volatilisation risk-management option that can help ensure more of the nitrogen applied is available to the crop to help maximise yields.

Cal-Gran contains 23.9% nitrogen with 7.4% as nitrate nitrogen and 16.5% ammonium nitrogen, as well as 10.8% sulphate sulphur and 4.4% calcium.

There are a range of Cal-Gran blends on the product range that are popular for supplying balanced nutrition for ratoons, such as Cal-Gran 150, Cal-Gran 50/50(S) and Cal-Gran Nitra King. Custom fertiliser blends can also be created using Cal-Gran.

Cal-Gran and Cal-Gran blends

Product	Product Analysis (% w/w)				
	N	P	K	S	Ca
Cal-Gran	23.9			10.8	4.4
Cal-Gran 50/50	17.9		15.0	3.6	4.4
Cal-Gran 50/50 (S)	16.9		14.4	8.7	4.4
Cal-Gran 130	18.8	1.0	12.5	3.7	4.4
Cal-Gran 140	18.7	2.0	12.5	2.6	4.4
Cal-Gran 150	18.6	3.0	12.5	1.4	4.4
Cal-Gran 160	19.7	2.0	10.0	3.8	4.4
Cal-Gran Nitra King	18.9		12.5	4.8	4.4
Cal-Gran Extra K	15.8		19.0	3.2	3.9

Not just for surface applications

Under certain seasonal conditions, such as in very moist clay or dry, heavily compacted soils, it is difficult to get fertiliser furrow closure and 10 cm of compacted soil cover.

Any situation with an open furrow of fertiliser could leave it exposed to potential losses.

Inadequate soil coverage over urea has been found to allow volatilisation losses to occur[1]. Under these conditions and with extended time frames without irrigation or rainfall for additional incorporation (i.e. more than three to four days) a volatilisation risk potential exists.

Cal-Gran can be used in these situations to minimise potential volatilisation losses while using existing machinery and application techniques.

Alternatively, consider adding finger press wheels to the fertiliser application set up to improve soil coverage.

Good to know

Be aware that Cal-Gran and Cal-Gran blends are hydroscopic (they will absorb moisture), potentially reducing product quality and making application difficult.

To maintain optimum product quality, cane growers are encouraged to order Cal-Gran and Cal-Gran blends as close as possible to the intended time of use.

Plastic bag liners are available to offer better protection from the elements and reduce the risk of quality issues.

An added benefit is that Cal-Gran and Cal-Gran blends are not classified as security sensitive ammonium nitrate (SSAN) products, which means growers do not require a licence to purchase, transport or store these fertilisers.

Cal-Gran is not recommended in plant cane.

For more information on using Cal-Gran in ratoons, feel free to contact me on 0428 111 471 or rob.dwyer@incitecpivot.com.au.

Incitec Pivot Fertilisers

Nutrient Advantage®
Knowledge | Productivity | Responsibility

Organisation FERTCARE®

incitecpivotfertilisers.com.au
nutrientadvantage.com.au

[1] *Philippe Rochette, Denis A. Angers, Martin H. Chantigny, Marc-Olivier Gasser, J. Douglas MacDonald, David E. Pelster, and Normand Bertrand (2014) 'Ammonia volatilization and nitrogen retention: How deep to incorporate urea?' Journal of Environmental Quality, published June 25, 2014 by the American Society of Agronomy.*