



Fertilising the 2014 ratoon crop



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With the planting for 2014 well advanced, attention needs to be paid to the nutrition of the ratoon cane.

Why a soil test is essential

Sugarcane needs 17 nutrients for growth. For the crop to reach optimal production, each of these nutrients must be in adequate supply. Therefore, it is important to know the amount of each nutrient to be applied because the excessive application of one nutrient, for example, nitrogen, will not compensate for the lack of another nutrient.

A soil test is the only way to determine the exact amount of each nutrient to

be applied to your crop. The sample should be analysed at a reputable laboratory that is aware of the sugar industry's nutrient recommendations. This point is critical to the development of a sound fertiliser program.

Nutrients required for cane growth

Carbon (C), Hydrogen (H), Oxygen (O)

C, H and O are all provided by air and water so we never have to worry

about applying them. Over 99 per cent of the fresh weight of millable cane is made up of C, H and O. The remainder, made up of all the other 14 nutrients, is obtained from the soil and applied fertiliser.

Major elements: Nitrogen (N), Phosphorus (P), Potassium (K), Calcium (Ca), Magnesium (Mg), Sulfur (S), Silicon (Si)

- All growers in all years will apply some or all of the 'big three' nutrients – N, P and K.



- Instances of Ca, Mg and S deficiency are now reasonably common in all regions.
- Many regions now report cases of low soil Si levels.

Minor (trace) elements: Copper (Cu), Zinc (Zn), Iron (Fe), Boron (B), Manganese (Mn), Chlorine (Cl), Molybdenum (Mo)

- Cu is deficient in isolated small areas and Fe is deficient in pockets in all regions.
- Zn deficiencies can be found in most regions.
- Deficiencies of B, Mn, Cl and Mo have, to SRA's knowledge, never been positively identified in the Australian sugar industry.

Fertiliser types

Two forms of fertiliser are suitable for sugarcane nutrition – solid and liquid. Liquid fertilisers are increasingly being used these days. However, growers should consider a number of factors when selecting this product for use on their crop.

Liquid fertilisers can be applied consistently, evenly, easily and safely to a crop. If used correctly and at rates that apply the same quantity of nutrients as a granular fertiliser, the only disadvantage of liquid fertiliser might be the cost.

Nutrient rates

The industry has long adopted SRA's SIX EASY STEPS nutrient application rates. These recommendations have been tailored for each of the sugarcane-growing regions. And no matter what form of fertiliser is used, the rates apply.

Placement of fertiliser

Generally, most ratoon blocks are treated with a single fertiliser application. As a standard recommendation, fertiliser should be applied subsurface in the middle of the drill or in a band on each side of the drill – but never in the interspace. This applies both to solid and liquid fertilisers.

Subsurface placement ensures that volatilisation of nitrogen and runoff losses of fertiliser are avoided. Volatilisation losses occur when the nitrogen in surface-applied urea or urea-based products, including liquid fertilisers, is converted to ammonia that is lost to the atmosphere.

However, surface application may be acceptable under certain circumstances – when the new ratoon cane canopy is about 50 cm high, or the crop is on steep, erodible slopes.

Advanced canopy development signals the stage where the new root system has formed sufficiently to use the applied fertiliser. The canopy itself also provides some protection from the elements that cause volatilisation.

On erodible slopes, heavy rainfall after the fertiliser is applied can scour the fertiliser into furrows, resulting in fertiliser runoff.

Timing of application

After harvest, the old cane root system dies. A new root system takes up to eight weeks to develop. Therefore, fertiliser should not normally be applied to ratoons soon after harvest as the fertiliser is subject to environmental losses until the roots are able to absorb the nutrients.

Of course, it is not always practical to delay fertiliser application for an extended period, such as for cane harvested in the final round. Seasonal storms and wet-season rain could prevent any fertiliser application at all. In such situations, fertiliser should be applied, with possible wet weather consequences in mind.

Other ways to minimise environmental losses from N application

- Split applications of nitrogen may reduce N losses. Instead of a single fertiliser application, two applications separated by a period of weeks might help to cut nutrient losses and maximise cane yields. It is not possible to be prescriptive because weather conditions have a huge bearing on the outcome of splitting applications. Splitting applications is more expensive than a single application.

- Ammonium-stabilised fertilisers may reduce nitrogen loss through denitrification. All N fertilisers are subject to denitrification losses where N is broken down under waterlogged conditions and lost to the atmosphere. Ammonium-stabilised fertilisers, such as the Entec range, are more expensive than the traditional products.
- Controlled release (CR) N products, such as the Agrocote range, release N over a longer period than the standard fertilisers. Slower release will potentially minimise N losses. While these products are relatively expensive, current research using a 25:75 mixture of CR product:urea is showing promise as an economic alternative.

Helpful hints

- Base your fertiliser program on soil test results
- Always stick to the SRA SIX EASY STEPS nutrient recommendations
- Fertilise ratoons four or more weeks after harvest, if practical
- Subsurface-apply fertiliser into or beside the stool, but never in the interspace
- Surface application on the row may be warranted under some circumstances
- Never broadcast-apply fertiliser
- Both solid and liquid fertilisers are acceptable, depending on cost and other factors
- Other nitrogen products and split applications of fertiliser might be useful as part of a nutrient management program

Additional nutrition resources available on the SRA website www.sugarresearch.com.au:

- SIX EASY STEPS regional recommendations
- Extension videos on Nitrogen Use Efficiency, The Story of Mud and Ash, and Liquid Fertilisers

