

Do I need to apply more or less nitrogen after the fallow?



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As you've read in the previous article, growing a fallow crop can provide a wide range of benefits. Growing legumes in the fallow is a common practice. However, questions remain about the amount of nitrogen (N) available for sugarcane in plant and ratoon crops following legume fallows, and whether N applications to these crops can be reduced.

The release of N and the impact of rain

A recent SRA and Queensland Department of Science, Information Technology, Innovation and the Arts (DSITIA) research project, supported by the Australian Government's Caring for Our Country Reef Rescue Water Quality Research and Development Program, investigated aspects of N release from legume break crops in sugarcane rotations, and the implications for water quality.

The project included a desk-top study, several field trials in the Herbert, Bundaberg and Mackay cane-growing districts, pot experiments and laboratory investigations.

Previous investigations indicated that there is some carry-over of N from fallow legume crops to the first ratoon sugarcane crops. The recent trials have shown that this is highly dependent on rainfall conditions.

For example in the Herbert district, a 'good' legume fallow supplied enough N for the sugarcane plant crop, but

insufficient N to meet the needs of the first ratoon crop. In Bundaberg, marked differences in the rainfall pattern experienced in two separate sugarcane crop cycles indicated that we cannot easily predict what N will be available to a sugarcane ratoon crop following a legume fallow.

What works best are the SIX EASY STEPS™ guidelines

From this recent study we found that N applied to the first ratoon sugarcane crop after a good legume fallow could possibly be reduced.

However, this reduction in applied N will be dependent on several factors which include legume residue management (surface or incorporated), soil type, position in the landscape, weather and climate, and tillage practices.

These factors need to be assessed for a particular site or block when decisions are being made about possible reduced N applications.

We concluded that the SIX EASY STEPS™ guidelines for applying N to the first ratoon crop following legume fallows should remain unchanged.

SIX EASY STEPS™ guidelines

Many growers have been trained on the SIX EASY STEPS™ guidelines to help them farm sugarcane more economically, effectively and sustainably through applying balanced nutrition.

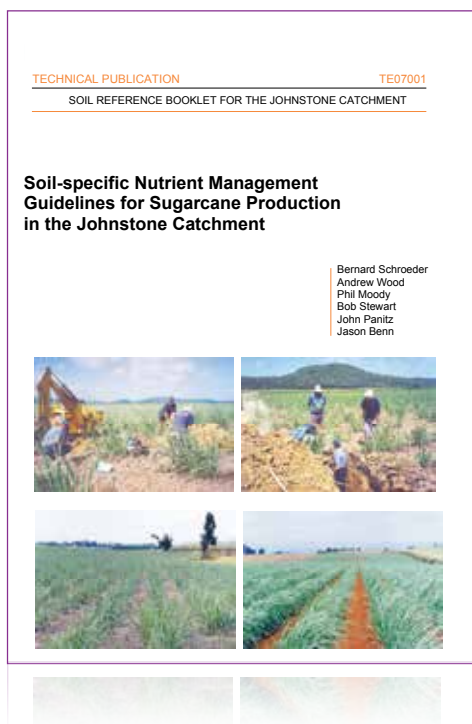
This means neither under nor over-applying nutrients to individual blocks. Over-applying a specific nutrient that is not needed, will cost money and will not improve yield. It may also have negative environmental consequences.

Under-applying a specific nutrient, or not applying a nutrient that is needed, can result in a yield reduction and will limit potential income. It may also result in the 'mining' of nutrients on-farm and possible degradation of the soil resource.

Using the SIX EASY STEPS™ guidelines can minimise these risks.

What are the SIX EASY STEPS™ ?

- 1 Knowing and understanding your soils – identifying soils according to basic properties such as colour, texture, structure, depth and position in the landscape. This knowledge will form the basis for making management decisions on-farm.
- 2 Understanding and managing nutrient process and losses – identifying where nutrient losses occur and the management actions that can minimise their risk.
- 3 Regular soil testing – understanding the chemical and nutrient properties of soil within a particular block to help determine fertiliser type and rates.
- 4 Adopting soil-specific nutrient management guidelines – using soil-specific nutrient guidelines to manage fertiliser inputs in a more precise way, versus a traditional ‘one size fits all’ approach.
- 5 Checking the adequacy of nutrient inputs – through a combination of soil and leaf analyses to check the adequacy of fertiliser recommendations and nutrient inputs.
- 6 Keeping good records – using farm data to enable growers to make informed decisions about nutrient management, especially modifications to nutrient inputs for individual blocks of cane.



Getting to know your soils better

Soil-specific nutrient management guidelines are available for these cane-growing districts:

- > Bundaberg
- > Herbert
- > Johnstone Catchment
- > New South Wales
- > Plane Creek
- > Proserpine

These books can be downloaded from the SRA website – simply visit www.sugarresearch.com.au/growing_cane/resource_library/ebooks/

Coming in 2014

Guidelines for Isis, Mackay and the Wet Tropics.



Australian Government



Queensland Government



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