



# Determining the best fit for enhanced efficiency fertilisers for the cane industry

**EEF60 is a joint initiative of Queensland CANEGROWERS and SRA, with SRA as the lead research agency, and a number of productivity services organisations partnering in the project to deliver extension to industry.**

**In most parts of the industry this year, farmers have worn a well-trodden path to their rain gauge.**

Numerous floods, heavy rainfall, and near-hit cyclones have peppered the industry across the summer.

The conditions have been positive for some growers and horrendous for others, especially those in the hardest-hit flood regions.

Where there is heavy rain, and more generally, there is also discussion about the best timing and efficient uptake of nutrient inputs by the cane plant.

Against that backdrop, a major project is underway assessing various types of enhanced efficiency fertilisers (EEFs) and their role for productivity, profitability, and

sustainability outcomes for the Australian sugarcane industry.

EEFs are not new products, but in the sugar industry there remain a number of important questions for growers and advisors, especially around these products' efficacy and how this stacks up against the extra cost that comes with most of these products when compared to standard urea.

EEFs come in two main forms: polymer-coated products and nitrification inhibitors.

The polymer coated products release nitrogen slowly and ideally this release pattern matches with the nitrogen requirements of the cane, while the nitrification inhibitors stabilise N in the ammonium form, which is available for the cane but less likely to be lost than nitrate.

It has been a busy year for the teams on the ground, led by SRA's Julian Connellan at Gordonvale, Nick Hill at Mackay, and John Panitz at Bundaberg.

Across the project, from the Wide Bay north, there are to be 60 trials controlled and replicated field trials, which will be assessed and analysed over three seasons, representing a massive 180 trial-years of data. As the project progresses, this wealth of knowledge will be combined with economic information and continually extended back to industry through the extension officers and regular communication.

In recent months, the teams have been in the field and undertaking biomass sampling of crops, targeting the 9-month crop stage.



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Nick Hill explained that the purpose of this is to gather information about nitrogen uptake by the crop.

“The process involves counting and cutting stalks across a defined distance, weighing the samples and then processing a subsample in preparation for chemical analysis so as to determine what amount of nitrogen was taken up and how it is partitioned by the plant into millable stalk or leaf and cabbage,” he said.

“This is important for determining whether EEF products improve nitrogen use efficiency.

“My team works across the Central and Burdekin regions, where the wet weather has been largely welcome, but also meant

some juggling to get the job done, just is the case with everyone in the industry.”

In the north, Julian Connellan and his team have faced even wetter conditions, which they are hopeful will put the products to the test and produce useful results for industry after the harvest data has been collected.

The project team is now looking ahead to the busy harvest period.

*At each trial site, four N treatments are being applied:*

1. SIX EASY STEPS N rate using urea;
2. 80 percent of the SIX EASY STEPS N rate using urea;

3. 80 percent of the SIX EASY STEPS N rate using a 1/3 nitrification inhibitor and 2/3 polymer coated urea; and

4. A wildcard treatment, which is any EEF at 80 percent of the SIX EASY STEPS N rate. Thus far these have included: Entec® and Entrench® and Urea and polymer coated blends.

There are also six water quality monitoring sites across the project, and this data has been collected. ■

EEF60 – Trials of Enhanced Efficiency Fertiliser

*(Over page) Julian Connellan loading samples at Mulgrave for assessment. (Above left) Weighing biomass samples at the SRA Meringa research station. (Above right) SRA technicians Eric Kok and David Martyr with the team based at Mackay removing the last of the water quality monitoring equipment. (Bottom right) SRA Researcher Julian Connellan and technician James Oldacre biomass sampling at Mulgrave, south of Cairns.*