

(Right) Trials going in the ground in the Burdekin region as part of EEF60. (Below) A range of different enhanced efficiency fertilisers are being assessed in trials as part of the EEF60 project. Photo: Lawrence Di Bella.



EEF60 – 60 FIELD TRIALS, REPEATED OVER THREE YEARS

The EEF60 project is designed to identify when and where enhanced efficiency fertilisers (EEFs) can provide a significant increase in nitrogen use efficiency (NUE) and a reduction in nitrogen losses, resulting in a more profitable and sustainable farming business.

The project is running replicated field trials over three seasons at sites in Queensland from Mossman to Childers. The objective is to capture 180 “years” worth of trial data.

These trials will provide information on the effect of EEFs in terms of cane and sugar yield, CCS, and nitrogen use efficiency. This will be put into context with an economic analysis.

Environmental losses (run-off and deep drainage) are also being assessed at six of the 60 sites.

The project team has completed its first full year of trials across 2018, and has re-established sites for 2019. This will allow the assessment of EEF products over a new set of environmental conditions.

The range of weather conditions in early 2019 – from floods to droughts – will provide important opportunity to assess the EEF treatments. It will improve our ability to identify conditions where EEFs offer a benefit to growers and industry.

Grower participants have received preliminary data from their harvest results.

With one year of data collected, the project is not able to provide definitive results and conclusions for the industry. There have been a range of results at different sites, which is a demonstration of the complexity of factors influencing these products.

As data builds over the next two years, and is then combined with an economic analysis, this project will be in a solid position to communicate and extend meaningful results for the industry. These results will also be put into the context of other EEF activities happening across projects and among other organisations.

EEF – WHAT ARE THEY AND WHAT DO THEY DO?

There are two main types of EEFs: controlled release fertilisers and nitrification inhibitors.

Controlled release fertilisers (CRFs) release nitrogen slowly through a protective coating. Currently, polymers are used but, in the future, coatings are likely to be made from biodegradable products.

Nitrification inhibitors (NIs) are applied alongside or added to the urea to temporarily stabilise the nitrogen in the

ammonium form, which makes it less susceptible to losses.

In both cases, the aim is to keep the amount of soil nitrate low to reduce the risk of nitrogen loss and therefore optimise efficiency and yield.

EEFs may allow “trickle feeding” of nitrogen to the crop over time to better match crop nitrogen (N) demand with N supply. Matching demand and supply reduces risk associated with having large amounts of available N in the soil when the crop does not require it.

WHEN TO USE THEM

Multiple research and extension projects are underway across the Australian sugarcane industry, helping to build our knowledge on when and where EEFs may provide the most benefit.

The efficacy of EEFs is complex and site-specific and we strongly recommend seeking advice before using them.

Researchers and productivity services are working on tools and information to help growers define the specific conditions where these products show a benefit. From results to date it appears unlikely that their general use across a whole farm in all seasons will be beneficial.

Given these products can also be more expensive than conventional fertiliser, the EEF60 project is also considering economics, with the help of the Queensland Department of Agriculture and Fisheries. ■

For more information, please contact:

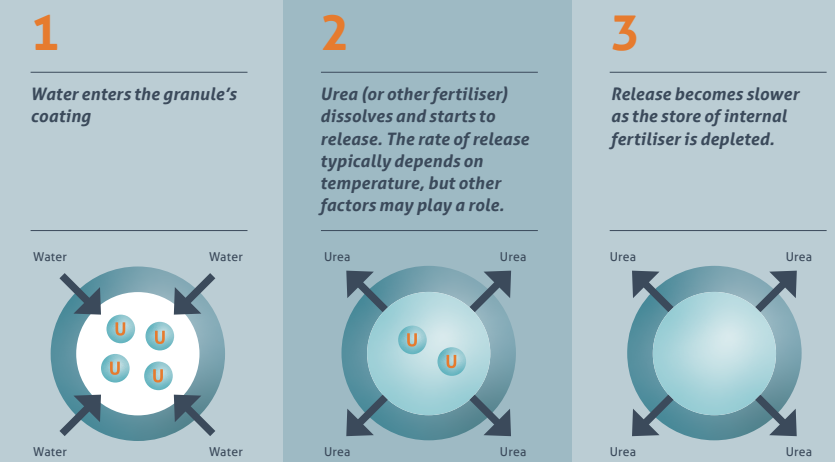
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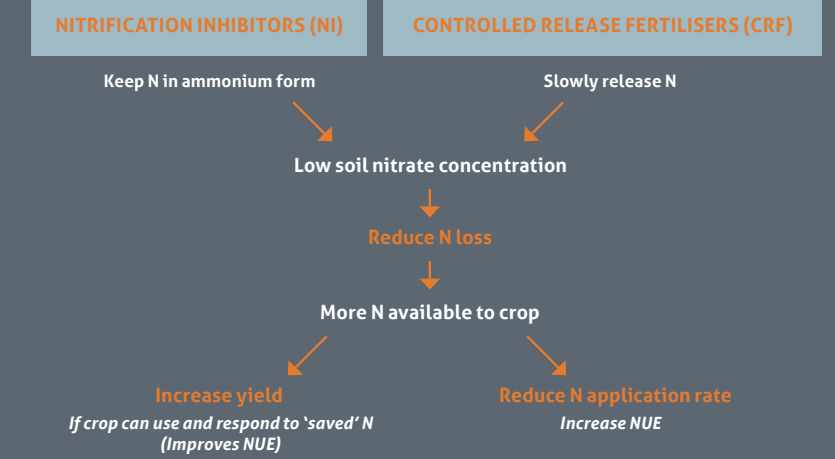
SRA acknowledges Herbert Cane Productivity Services Ltd & CSIRO in assisting with this information.

How controlled release fertilisers work

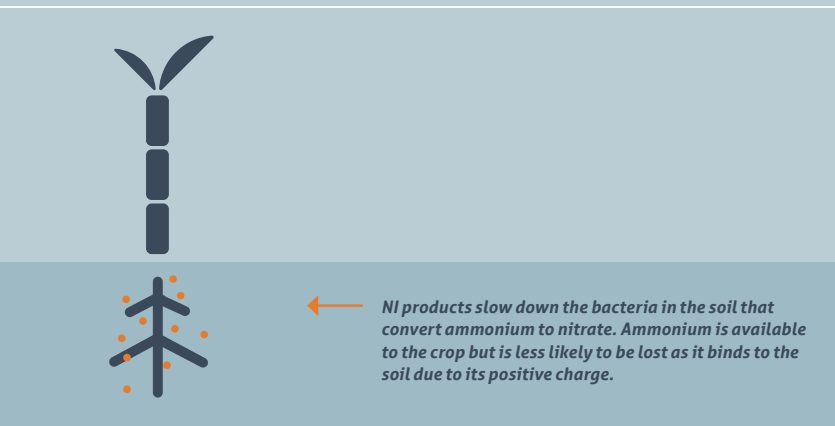
There are a range of commercially available controlled release fertilisers, most of which rely on a coating to slow release. While the composition of fertiliser coatings varies, many follow a similar process for releasing nutrients.



How EEFs can help



Nitrification Inhibitors



The EEF60 project is funded by the Australian Government Reef Trust and Queensland Government Great Barrier Reef Innovation Fund.

