



Professor Bernard Schroeder and David Calcino.



SRA technician Matt Tinai in the field with Professor Bernard Schroeder, USQ, and SRA Adoption Officer, David Calcino.

Research continues to inform nitrogen use efficiency

Sugar Research Australia plays a pivotal role investing in and researching activities related to nitrogen use. One of these current investments through the University of Southern Queensland is providing information to ensure the SIX EASY STEPS™ guidelines continue to evolve based on sound scientific evidence.

With scientific information continuing to improve our understanding of sugarcane's nutrient use and requirements, a research project being led by the University of Southern Queensland is playing an important role in ensuring that the industry's nitrogen management guidelines are current.

The project is a collaboration between USQ and SRA, with input from other industry stakeholders through a project consultative group. The project involves multiple trials in the field throughout the industry, as well as laboratory investigations and glasshouse work.

The project is specifically aimed at boosting nitrogen use efficiency (NUE) in sugarcane production. It has two main parts to its investigation.

The first is looking at the environment where fertiliser is applied, studying factors such as soil type and soil variability, and the need to be more precise in recognising the significant impact of soil types (the spatial environment) on nitrogen (N) availability and uptake.

The second is looking at enhanced efficiency fertilisers, and in particular how they release nitrogen over time in relation to the crop's needs (the temporal environment), and how this compares with the N availability and uptake patterns of N from standard urea fertiliser.

Professor Bernard Schroeder is the lead investigator of the project and said that the objective was to ensure that the industry had the best information to match the supply of nitrogen fertiliser with the uptake in the crop.

"We are answering the question: is there evidence to suggest that we can change our guidelines to further meet the spatial and temporal needs of the crop," he said. "As the SIX EASY STEPS™ is a process that promotes profitable cane production in combination with environmental responsibility, we need to base any further development of the system on sound science.

"Part of the project is annually looking at the evidence available from ourselves and the research from others, to assess this information and incorporate new results into SIX EASY STEPS™, where appropriate."

"The SIX EASY STEPS™ nutrient management guidelines need to suit the needs of growers. It's a foundation to remain productive, remain profitable on their farms, and for the industry to remain viable.

"We also need to ensure that we recognise and take consideration of the bigger environmental picture. Sustainability means a combination of all of the above," he said.

"Our objective is to optimise cane production all the time. We don't want to under-apply N because that will lead to yield losses. We also do not want to over-apply N because that may create a risk to the environment and it can also affect on-farm economic prosperity."

The research being conducted by USQ forms part of a much bigger picture of nutrient research that is being funded through SRA in collaboration with the Queensland Government.

SRA acknowledges the funding contribution from the Queensland Department of Agriculture and Fisheries towards this research activity.