

New research to better use nitrogen in mango production

A research project into helping mango growers better understand and utilise nitrogen and other nutrients in production, has begun in the Northern Territory.

It is embedded in a larger national framework called "More Profit from Nitrogen", which includes agricultural sectors such as Dairy, Sugar, Cotton and Horticulture - in particular Mangoes and Cherries.

"There are very similar methodologies between cherry researchers down south and us up here in the NT to work out how we can get the best possible use of nitrogen into the plant, reduce the losses as it goes through the soil system or up in the atmosphere, and how will that impact on fruit quality," Senior Research Scientist at NT Primary Industry and Resources, Dr Mila Bristow said.

The four year project was co-funded by the Australian Government, the NT Department of Primary Industries, Horticulture Innovation Australia, Queensland University of Technology and Australian Mango Industry Association. It is hoped the information gained from the study will secure the long-term sustainability of their farming enterprises.

"We've done the first soil survey of the Darwin and Katherine regions," Dr Bristow said. "We've also done our first lot of above and below ground harvest as well, to work out how nitrogen is used in a plant. On some sites we've dug up the roots, separated all the stems, and the leaves. That is all going through the ovens and through the grinders and off to the lab to find out what the baseline is. From that we will turn that into information for growers fairly quickly."

Dr Bristow says nitrogen use in mango production is essential as it controls the flowering, and the chemical is being used as a platform to understand other forms of mango nutrition. She adds, up to half of the cost of fertilizers can be wasted if not utilised correctly.

"It is quite common that it is applied in particular forms where it will be lost in the atmosphere or leaks through the soil," she said. "It is often applied in the wet season, so we get quite a lot of rainfall. Also over-fertilising with nitrogen can lead to more vegetative growth, which can reduce the yield, or fruit quality, and increase the risk of diseases. Nitrogen controls that part of the production cycle, but it is important to get the right amount of nitrogen applied at the right time."

The Northern Territory provides 50% of Australia's national mango crop, with 6,500 hectares of orchards growing 24 million tonnes of mangoes each year. Dr Bristow says the study hopes to not only discover ways to increase profits, but also reduce greenhouse gas emissions.

"Nitrogen will interact in the soil with climate, irrigation and plant systems," Dr Bristow said. "In the soil it is converted into various forms that can circulate, and can be lost as nitrous oxide. All of those losses are greenhouse gases which impact our carbon intensity, or emissions intensity of the product which is mango. They also have a negative impact on the environment."

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