

**Queensland Government
Department of Agriculture and Fisheries**

Article for sugarcane industry newsletter

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SPRAY RIGS UNDER THE SPOTLIGHT

New technology is now available to growers in the north to help ensure spray nozzles are working as accurately and efficiently as possible. This technology is portable and diagnostic testing can be carried at a grower's property with results available immediately.

Based in Innisfail, Department of Agriculture and Fisheries (DAF) Coastal Farming Systems extension officers Allan Blair and Jack Robertson have been involved with pesticide application technology for a number of years and have been demonstrating nozzle flow rates and techniques at field days and workshops.

They noticed a query coming up a few times from growers regarding using nozzle flow rates to determine accuracy. In response the DAF team looked round for a portable patternator - a device which measures the accuracy of the flow over a section of the sprayer's swath.

"We had seen striping, overdosing and associated phytotoxicity issues associated with sprayers that appeared to be in very good working order," said Allan Blair.

"We thought of constructing a testing machine from scratch, but we managed to find a suitable (commercially available) patternator from Belgium."

The components arrived in early March 2020 and then locally manufactured parts completed the project.

The first tests were conducted with Mossman growers with the support of Bec Stone and Kate Armstrong from Mossman Ag services. A number of growers volunteered their spray rigs for testing.

Tests revealed problems with the spray pattern. While some were minor, others demonstrated unacceptable variation over the swath.

One example came from an Innisfail grower who was using offset nozzles at the end of his boom to increase swath; this is common practice in flat booms. The patternator showed a deficiency of spray volume where the boom proper ends and the offset nozzles merge with the last flat fan nozzle. This low dose region could not be seen visually or by testing individual nozzle flow rates. Adjustment of the offset nozzle mounting fixed the problem.

Other tests on sprayers revealed design or manufacturing faults where the nozzle carriers became misaligned when the boom was folded and failed to return to the correct operating position during use.

“None of the sprayers were in bad condition, or were outside any regulations. In fact, all were using air inducted nozzles and operating correctly in line with reef regulations,” explained Jack Robertson.

“The patternator tests have demonstrated that there is room for refinement which will be beneficial to growers’ productivity, enhance the Smart Cane BMP and reduce variability in pesticide application.

“All of this benefits both growers and the reef. Under dosing may mean a second application and overdosing can, depending on weather and slope cause higher than normal pesticide loss and runoff.”

DAF has been providing sprayer tests with the patternator in far north Queensland under the Reef Water Quality Project- Sugarcane. Each sprayer diagnosis takes about two hours which is followed up with a written report to the grower. To request a visit, please contact DAF on 13 25 23.

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