



SRA Researcher Emilie Fillols with Mossman farmer Chris McClelland, who is also Chairman of Mossman Ag Services.



The rainfall simulator in action in Far North Queensland.

Rainfall simulator improves research efficiency

Just as unexpected rain or drought events severely impact farming operations, they can also impact important research activities that SRA is investing in for the Australian sugarcane industry.

In the Wet Tropics, the next rainfall event is never far away. But as farmers and millers in the region understand, despite the large rainfall, the forecasts for rain events can often prove to be dramatically different to what actually occurs.

And just as an inaccurate forecast puts a spanner in the plans of farm work, the same applies to many important research activities undertaken by Sugar Research Australia (SRA).

One such project that has a crucial relationship with the weather and rainfall is the current project called: *Developing an alternative herbicide management strategy to replace PSII herbicides in the Wet Tropics area*, led by SRA Researcher Emilie Fillols.

A part of that project involves assessing the runoff of herbicides when a major rain event occurs 48 hours after herbicide application on the paddock.

According to Ms Fillols, the challenge of timing the research to synchronise with the forecasts is very difficult and, the dry year in 2015 made things very challenging to get the research trials completed.

So Ms Fillols and her research team devised a solution that has been commonly used by researchers in this field of work. They built their own rainfall simulator, based on specifications developed by runoff experts. Owning a rainfall simulator increases work flexibility and reduces the cost compared to contracting the service.

It has been used several times this year at sites in the Wet Tropics and the runoff samples are currently being analysed. It will also be used in important future research activities, including a new project that seeks to increase the adoption of practices that reduce pesticide loss in the Wet Tropics.

How it works

The rainfall simulator covers two fixed areas of three metres by 75cm, and in recent trials it has simulated an 80mm-in-one-hour rainfall event.

This is considered to be a standard benchmark for a one-in-five-year rain event in the Wet Tropics, marking a large event but also one that is reasonably possible to occur.

"We are analysing the results of a worst case scenario," Ms Fillols said. "We apply the chemical, let the chemical bind for 48 hours and then assess what happens when massive rainfall occurs.

"We sample the runoff and we also sample the soil and the trash blanket to find out how much chemical has bound to the soil and the trash.

"This is important to provide growers with information about the runoff that is occurring in considering a range of factors such as soil type and slope.

"This data is important for the industry to ensure it has sound science when it comes to all issues around water quality."

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More information

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