

Refining weed management at Tully: less on = less off

Tully grower Frank Hughes has faced an ongoing battle with Calopo vine. This weed pressure has always been highest at the end of rows where the vines access more sunlight and grow vigorously before they can be shaded by the cane.

With the risk of weed pressure creeping further into blocks of older ratoons, Frank was keen to improve his weed control.

In the past, this would mean he would need to resort to photosystem II (PSII) residual herbicides, which Frank has been minimising due to the environmental concerns.

With that in mind, but also needing to get the vine under control, Frank wanted to find out if his system could be fine-tuned in a way that delivered the same weed control outcomes while also improving sustainability outcomes by reducing the risk of herbicide running off his farm.

This is how he became involved in project called Protecting our Chemicals for Future, where researchers are looking at real-world trials with growers on a range of farming practices that marry productivity, profitability, and sustainability outcomes.

At Frank's place, which is at Bilyana about 20km south of Tully, trials in 2017 looked at using targeted PSII residuals only across the first 20 metres of the row, where there was more sunlight from the end-of-row and weed pressure was higher. The vine in the rest of the paddock was controlled with knockdown herbicide and the enclosed canopy of the cane.

The trial was in older ratoon Q208(b) grown on 1.65m wheel spacing. Frank was able to vary the application thanks to his spray rig having two tanks connected to a flat boom and octopus legs, controlled by a GPS variable-rate controller.

SRA Researcher leading the project, Ms Belinda Billing, said that the block had medium pressure grasses, sickle pod, and various broadleaf weeds.

"Frank rotates chemicals over the crop cycle to avoid resistance, while also paying attention to weed pressure," she explained.

The block was harvested in June 2017, and had two treatments with two applications per treatment as well as an unsprayed control. Spot spraying for guinea grass was completed across the block.

(Above) Tully grower Frank Hughes has been a keen participant in the Protecting our Chemicals for the Future project.

Treatments applied

T1: FRANK'S CURRENT PRACTICE	T2: PROPOSED ZONAL CONTROL	CONTROL
1 September 2017 2,4-D @ 1 L/ha Picloram & 2,4-D /Tordon @0.5L/ha – applied with boom COST: \$15/ha	1 September 2017 2,4-D @ 1 L/ha Picloram & 2,4-D /Tordon @0.5L/ha – applied to whole row with boom Imazapic & hexazinone (Bobcat Imaxx) Paraquat 20m application on end of both rows with octopus legs Cost: \$35/ha	No treatment applied
14 February 2018 Imazapic @ 400g/L (Flame, Spark etc.) Paraquat @1.2L/ha applied through octpus legs 2,4-D @ 1.5L/ha Picloram/2,4-D (Tordon, Trooper) applied with boom COST: \$25/ha	14 February 2018 2,4-D @ 1 L/ha Picloram & 2,4-D /Tordon @0.5L/ha – applied to whole row with boom Imazapic & hexazinone (Bobcat Imaxx) 20m application on end of both rows with octopus legs COST: \$35/ha	No treatment applied
Spot spray glyphosate @ \$10/ha Total cost: \$50/ha	Spot spray glyphosate @ \$10/ha Total cost: \$80/ha	

Weed pressure was assessed throughout.

Frank noted that the 2017 was a dry year, which meant weed pressure was less when the crop was young.

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TREATMENT 1	TREATMENT 2
Med-high weed pressure early, majority blue top.	Med-high weed pressure early, majority blue top.
Weed pressure increased significantly with onset of wet season.	Improved control on ends evident as weed pressure increased with onset of wet season.
Weed pressure reduced by both sprays, long-term reduction in weed pressure achieved with final residual spray.	Final spray successful in reducing pressure on ends and mid section, with shading reducing weed pressure where knock down chemicals only applied.
Limited weed pressure in mid section of cane where shading occurs.	

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14 February 2018 (T1)



14 February 2018 (T2)

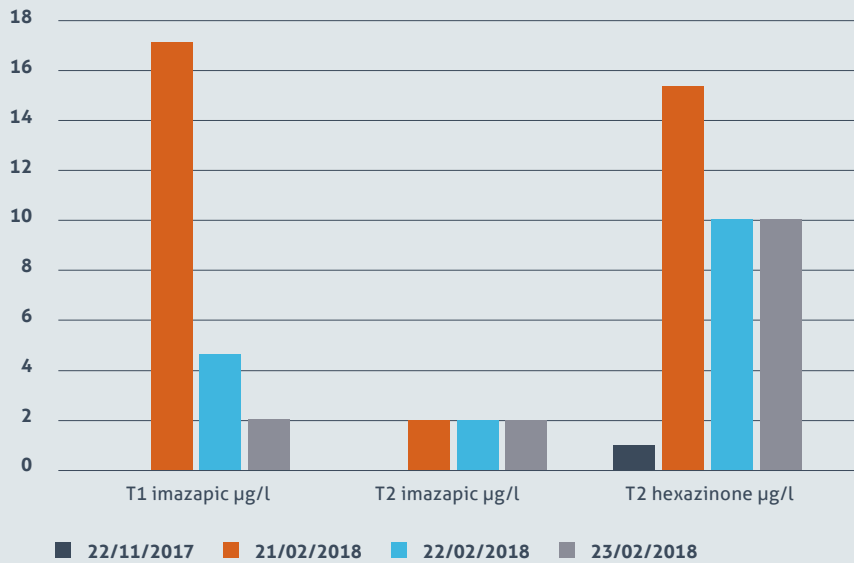


5 March 2018 (T1)



5 March 2018 (T2)

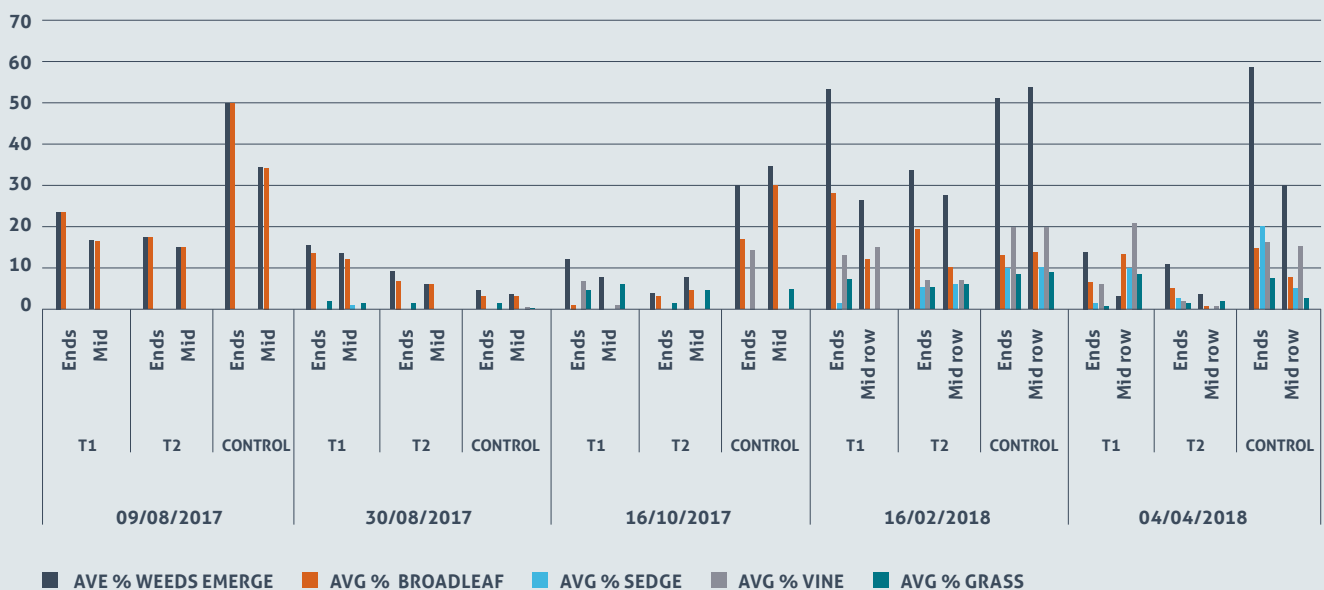
Frank Hughes zonal vs broadcast control over four events



RAINFALL AND RUNOFF

The first rainfall that produced runoff fell on 22 November 2017 (21mm), almost three months after application resulting in a small loss of hexazinone from the Bobcat® I-MAXX only. Subsequent events on 21/02/2018 (14mm), 22/02/2018 (109mm) and 24/02/2018 (17mm) fell one week after application, with a wet soil profile and resulted in the majority of losses. Hexazinone is the greatest component of Bobcat® I-MAXX and is known to be a mobile chemical and therefore makes up the majority of losses from this demonstration. This chemical provides good control of calopo, the weed targeted on the block ends. This strategic use of such a chemical is a good way to get effective control while minimising environmental risk.

2017/ 18 Frank Hughes Weed Observations



Frank is keen to investigate further as he sees there is potential for adopting this approach for tailoring a more specific chemical program into a scenario that works for both him and for the environment.

Frank welcomed the opportunity to participate in the trials and reinforced the value that growers received from seeing results from trials conducted on commercial farms.

"We know the results are directly related to our own environment, our own weed pressure, and the specific weeds we face.

"I think it's fantastic that SRA are running these trials with growers."

This project is a collaboration with SRA, Bayer, James Cook University, Tully Cane Productivity Services Limited, Queensland Government, Nufarm, and Tully Sugar. ■

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