PROJECT CATALYST

PRACTICE FACT SHEET

ESTABLISHING THE OPTIMUM DELAY TIME BEFORE IRRIGATING, FOLLOWING A METRIBUZIN APPLICATION

Project Catalyst is a grower-led innovation project in sugar cane that was formed to explore and validate farm management practice change leading to improved water quality for the Great Barrier Reef.

BACKGROUND

Effective weed management is a critical aspect of cane production, particularly important in the early stages of crop development. Weeds compete with the cane for light, nutrients and moisture and it is widely recognised that significant yield loss can result from excessive weed competition.

Metribuzin, marketed in Australia as a product called Mentor by ADAMA Australia, has been used throughout Great Barrier Reef catchments as a replacement for Diuron in post-emergent weed control, with Diuron (amongst other herbicides) usage due to be scaled back to meet the 'Reef 2050 Long-Term Sustainability Plan' guidelines. Metribuzin has shown to be particularly effective at controlling emergent wild sorghum, broadleaf weeds and other large grasses and also provides residual weed control for up to 12 weeks.

Previous Metribuzin products used in Australia recommended a 48-hour delay before commencing irrigation following application. However, the Mentor product does not specify a recommended irrigation delay following application. Monitoring of water samples from Barratta Creek in the Burdekin region in 2016 detected the presence of Metribuzin, showing that some Metribuzin was leaving farms in run-off. In a fully irrigated production area such as the Burdekin and other regions of central and northern Queensland, there is a necessity for growers to know the correct timing of irrigation following Metribuzin application. This is to ensure maximum efficiency of the product and also to minimise the levels of herbicide leaving farms and entering natural waterways through irrigation tailwater.

Trials were undertaken through Project Catalyst to establish the optimum time to commence irrigating following a Metribuzin application, to ensure growers were achieving maximum benefit from the product whilst also meeting their environmental obligations.

TRIAL DESIGN

A trial block comprised of 5 sets containing 50 rows of plant cane each, was sprayed with Metribuzin herbicide. Two days later, irrigation was commenced on set 1 and KP samplers used to collect irrigation run-off. Sets 2, 3, 4 and 5 were then irrigated on consequent days to assess Metribuzin concentrations in run-off up to 6 days post-application.

Set 1	Set 2	Set 3	Set 4	Set 5
Sampled 2 days post-application	Sampled 3 days post-application	Sampled 4 days post-application	Sampled 5 days post-application	Sampled 6 days post-application

***Table 1** - Trial design for monitoring metribuzin concentration in irrigation run-off over days following application.*

TRIAL RESULTS

The trial results demonstrated that when delaying irrigation for at least 2 days after Metribuzin application, the amount of the chemical leaving the block was reduced from the original application concentration. However, the greatest results were achieved when waiting for at least 4 days after application, as the concentration of Metribuzin in the irrigation runoff water was halved from the 2-day delay treatment. Results also indicated that delaying irrigation post-application was likely to improve the efficacy of the Metribuzin on more persistent grass weeds.

The results of this trial have verified direct benefits to the environment, through minimising herbicides leaving the farm in irrigation run-off and entering natural watercourses. Additionally, there are no disadvantages to the grower of adopting the practice of waiting for 4 days post Metribuzin application to irrigate.

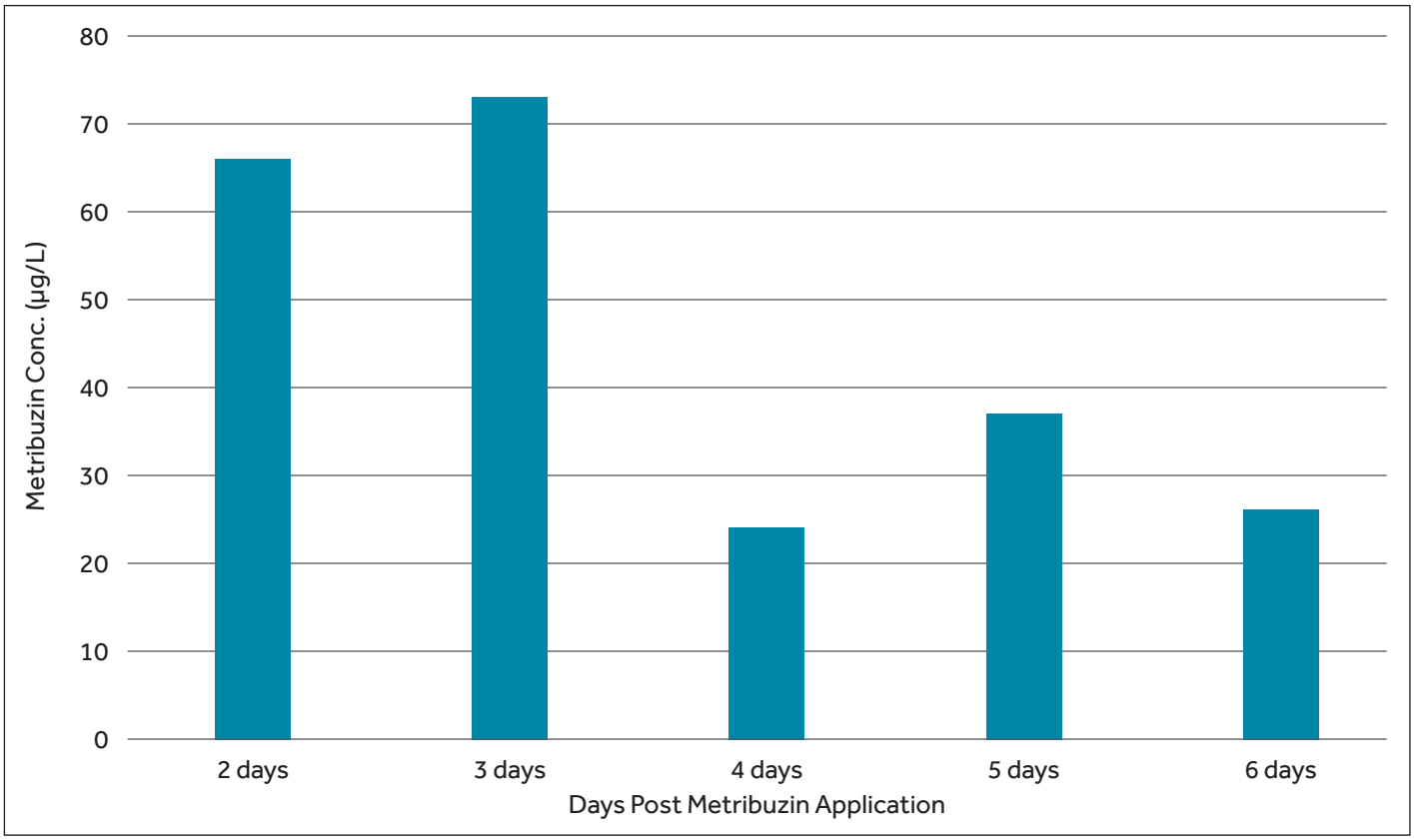

***Figure 1** - Metribuzin concentration (µg/L) in irrigation run-off between 2 and 6-days post-application.*

EXPANSION

Since the trial results were analysed in early 2017, Metribuzin usage has been curtailed mainly due to the increase price of the product. However, this product is still being used for control of weeds and grasses and the practice of delaying irrigation for 4 days after Metribuzin applications has been recommended to all growers in the Burdekin region involved with Project Catalyst. Moving forward, all growers operating within Project Catalyst will be recommended to adopt the practice when applying Metribuzin for weed control.

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https://www.projectcatalyst.net.au/