

PATHWAYS TO WATER QUALITY IMPROVEMENT IN THE MYRTLE CREEK SUB-CATCHMENT

2018/2019 WET SEASON

Pathways to water quality improvement in the Myrtle Creek sub-catchment, is monitoring paddock-scale run-off water quality on four farms in the sub-catchment (Proserpine mill area). Funded by the Department of Environment and Science, each site compares a different management practice related to nutrient or herbicide management. The results support previous research and demonstration results linking practices such as:

- timing application to avoid run-off for at least the first 20 days after application
- incorporation of herbicides and nutrients with irrigation can assist in improving water quality.
- Less on, less off

The project aims to allow growers to look at water quality at the farm scale, with the opportunity to compare different practices they are interested in. Please note these are demonstration sites, not statistically analysed research trials.

A summary of the results is provided below. Please contact Molly O'Dea for further information.

Note:

LOR = limit of reporting (concentration too low to be detected by the lab equipment used)

DIN = Dissolvable inorganic nitrogen (measure of the plant available forms of nitrogen)

FRP = Filterable reactive phosphorous (measure of the plant available forms of phosphorous)



SITE 1 – UP RIVER

Drop N rates in old ratoon?

Sampler 1 – 500 kg/ha Prosi ratooner fert (116 N, 14 P)

Sampler 2 – 700 kg/ha Prosi ratooner fert (162 N, 20 P)

Total runoff DIN as % of applied N:

1 – 0.189%

2 – 0.221%

Total runoff FRP as % of applied P:

1 – 0.100%

2 – 0.114%

*2 runoff events missed due to localised flooding

LESS ON LESS OFF

SITE 2 – STRATHDICKIE

Account for N in mill mud?

Sampler 1 – mill mud 100tph + Econo LOS 3.5m3/ha (158 N, 0.3 P)

Sampler 2 – mill mud 100tph + Econo LOS 2.5m3/ha (113 N, 0.2 P)

Total runoff DIN as % of applied N:

1 – 0.111%

2 – 0.068%

FRP lost in runoff*:

1 – 1289 g/ha

2 – 2154 g/ha

*negligible P applied, can't calculate % P lost

DIURON AND ISOXAFLUTOLE (balance) applied and TESTED, all concentrations were less than the LOR (<1 ppb).

SITE 3 – THE GREGORY

Nitrification Inhibitor?

Sampler 1 – Vizura Econo LOS (nitrification inhibitor) + P applied at 3.5m3/ha (157 N, 13 P)

Sampler 2 – Vizura Econo LOS (NO nitrification inhibitor) + P applied at 3.5m3/ha (157 N, 13 P)

Total runoff DIN as % of applied N:

1 – 1.13%

2 – 1.38%

Total runoff FRP as % of applied P:

1 – 0.218%

2 – 0.343%

No herbicides 2018. Diuron 2017. Imidacloprid (Confidor) 2016.

DIURON concentrations below LOR (<1 ppb).

IMIDACLOPRID: sampler 1—all below LOR (<1 ppb), sampler 2—3 readings below LOR (<1 ppb), 1 reading = 1 ppb.

CHEMICALS STILL PRESENT YEARS AFTER APPLICATION

SITE 4 – HAMILTON PLAINS

BOBCAT i-MAXX vs FLAME & ATRADEX?

Sampler 1 – Bobcat i-MAXX @ 3.8 L/ha (imazapic 25 g/L, hexazinone 125 g/L)

Sampler 2 – Flame @ 360ml/ha and Atradex @ 2.2kg/ha (imazapic 240g/L, atrazine 900g/L)

Both samplers 160 N, 0 P

Total runoff DIN as % of applied N:

1 – 0.062%

2 – 0.048%

FRP lost in runoff*:

1 – 61 g/ha

2 – 133 g/ha

*no P applied, can't calculate % P lost

DIURON AND ISOXAFLUTOLE (balance) applied and TESTED, all concentrations were less than the LOR (<1 ppb).

ATRAZINE LOSS

1 – 0.172%

2 – 1.416%

IMAZAPIC LOSS

1 – 3.417%

2 – 2.234%

HEXAZINONE LOSS

1 – 6.028%

2 – 0.5537%

IMIDACLOPRID LOSS

1 – 1.985%

2 – 1.842%

FOR FURTHER INFORMATION PLEASE CONTACT

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