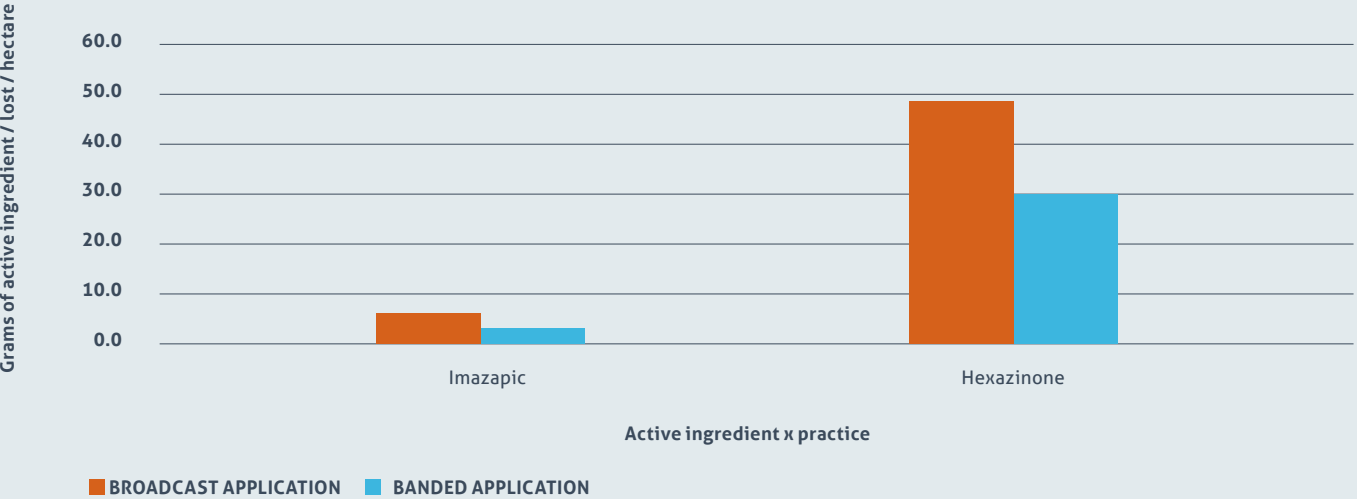


Compare these results with Mulgrave Protecting our Chemicals for the Future Rainfall simulation comparing banding of Bobcat Imazix, a mixture of imazapic and hexazinone.

Broadcast vs Banded Application



Protecting our Chemicals for the Future Through the Acceleration of Best Management Practices.



For more information

**Belinda Billing**  
M 0475 954 437  
E Bbilling@sugarresearch.com.au

# COMPARISON OF BROADCAST VS BANDED USE OF RESIDUALS IN SUGARCANE



**Grower: Mark Savina**

**Location:** Barron Delta, Cairns  
**Ratoon:** 1 Variety: Q242  
**Harvested:** 2 August 2017  
**Row spacing:** 1.8m

Mark is interested in reducing his use of residual herbicides for environmental and economic reasons. He is interested in band spraying as he has found the weed pressure in his wheel tracks is greatly reduced through his controlled traffic farming system (the wheel track is compacted, reducing weed growth). This block had high vine pressure the previous year and was expected to have the some issue in 2017/18.



Treatments applied

T1: BROADCASTS PSII RESIDUAL	T2: BANDED PSII RESIDUAL	CONTROL
07 December 2017 Atrazine (Atradex) 2.2 kg/ha Diuron + Hexazinone (Barrage) 900g Paraquat @ 1L/ha <b>Cost: \$45/ha</b>	07 December 2017 Atrazine (Atradex) 2.2 kg/ha Diuron + Hexazinone (Barrage) 900g glyphosate @ 1.2L/ha <b>Cost: \$25/ha</b>	No treatment
05 January 2018 high rise spray broadcast Fluroxypyr (Comet, Starane) 800ml/ha Picloram, 2,4-D (Tordon) 700ml/ha 2,4-D 800ml/ha <b>Cost: \$35</b>	05 January 2018 high rise spray broadcast Fluroxypyr (Comet, Starane) 800ml/ha Picloram, 2,4-D (Tordon) 700ml/ha 2,4-D 800ml/ha <b>Cost: \$35</b>	05 January 2018 high rise spray broadcast Fluroxypyr (Comet, Starane) 800ml/ha Picloram, 2,4-D (Tordon) 700ml/ha 2,4-D 800ml/ha <b>Cost: \$35</b>

**Efficacy for after harvest:** Monitoring for treatment efficacy was undertaken post treatment

T1: BROADCASTS	T2: BANDED	CONTROL
Early weed pressure dominated by grasses. Grasses controlled well by December spray and shade from cane.  Vine present with rain in January, appears well controlled by final spray. Block survey shows higher pressure on ends of rows with some concentrated areas of high pressure.	Early weed pressure dominated by grasses. Grasses controlled well by December spray and shade from cane.  Vine present with rain in January, appears well controlled by final spray. Block survey shows higher pressure on ends of rows and some concentrated areas of high pressure. Slightly higher vine pressure in T2.	Early weed pressure dominated by grasses. Grass pressure reduced by shade from cane.  Heavy vine present with rain in January, well controlled by high rise spray. Block survey shows higher pressure on ends of rows and some concentrated areas of high pressure.



Weed pressure under banded vs broadcast residual chemicals + knock down application with highrise to all

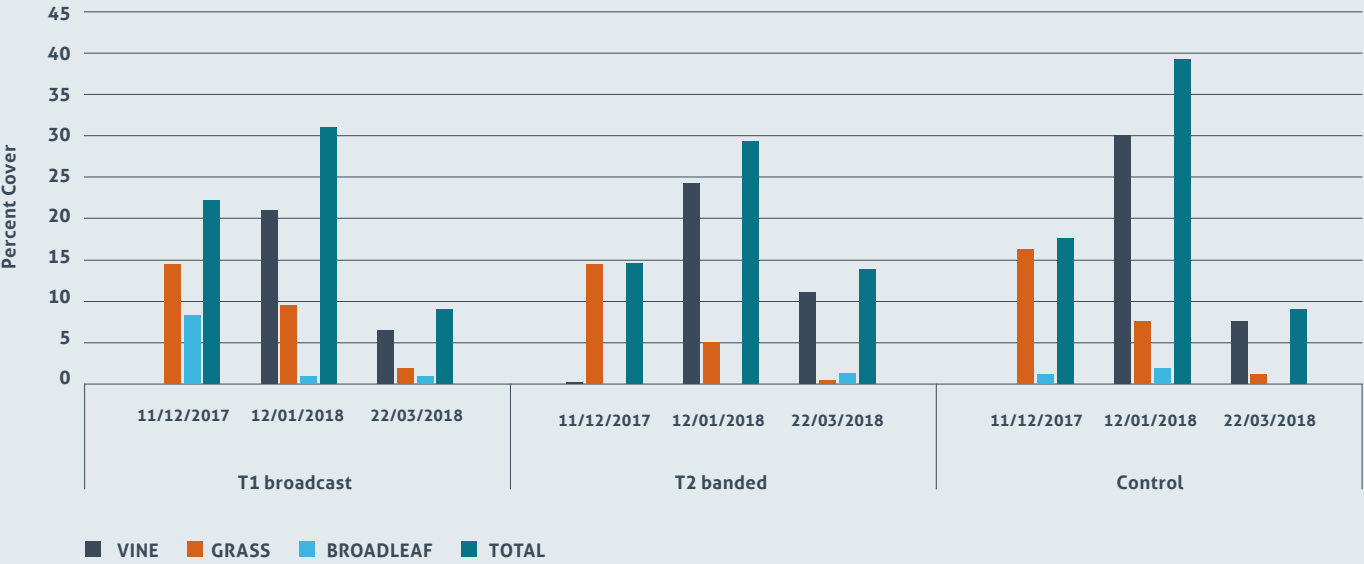


Chart shows percent coverage of monitoring plots of grass, broadleaf, vine and total weeds.



T1 broadcast + high rise spray March 2018



T2 band + high rise spray March 2018



Control –broadcast only March 2018

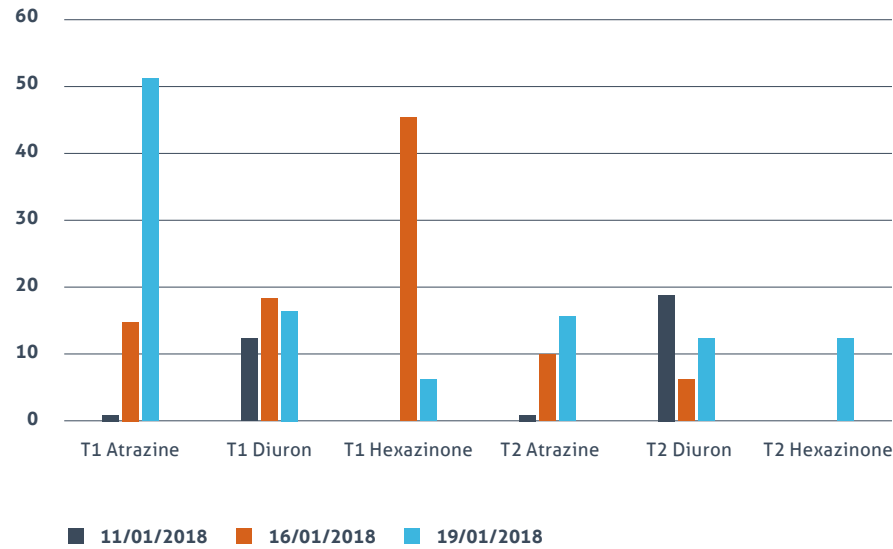
(Left) Dual herbicide spray set up to allow banding of residual chemical.



What about water quality?

The graph to the right shows losses in micrograms per litre for three rainfall events subsequent to chemical application. As this is a well drained site chemical was analysed from water that collected from fullstops buried around 1m below ground in both the inter-row and row. This allows us to look at chemical leaching to the ground water.

Banded vs Broadcast PSII



Rainfall: 06 January 2018, 10 January 2018, 04 February 2018 and 05 February 2018

Proposed freshwater eco-toxicity thresholds - the lower the value, the greater the toxicity.

ACTIVE	TRADE NAME	99% PROTECTION IN µg/l	95% PROTECTION IN µg/l
Atrazine	Atradex	0.17	0.989
Hexazinone	Barrage	0.31	1.1
Diuron	Barrage, Diurex	0.08	0.23
2,4-D	Amine 2,4-D (marine values only available)	1,040	2,516

Proposed freshwater eco-toxicity thresh-holds - the lower the value the greater the toxicity.  
Note; Atrazine values are draft and have not been approved – for mark only  
Waterhouse et al, 2017 Scientific Consensus Statement 2017: A synthesis of the science of land-based water quality impacts on the Great Barrier Reef, Proposed ecotoxicity thresh-holds King, O et al. 2017

Key messages:

**Less on = Less off** – Less product applied results in less product leaving the farm. This principle can be applied to banding, zonal application within a block or zonal application across a farm with the focus on using the most effective chemical where it is most needed. Lower rates of herbicide usually result in lower rates of run off. Exceptions to this rule are pendimethalin and paraquat which bind very tightly to soil particles.

