

Pre-emergent herbicide options to help growers overcome diuron restrictions



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A recent collaborative demonstration—between Sugar Research Australia, the Department of Agriculture, Fisheries and Forestry (DAFF), and Plane Creek Productivity Services—has shown that other pre-emergent herbicide strategies can manage weeds just as effectively as traditional mixes based on diuron.

The different herbicide options investigated

John Hughes, Senior Agronomist, Agri-Science Queensland, DAFF, said that increased restrictions on the use of herbicides containing the active ingredient diuron had fuelled growers' interest in other herbicide options.

'The demonstration at Koumala compared a traditional mix of Velpar® K4 plus atrazine against Flame® and against Balance® plus Soccer®. All the treatments also included Gramoxone and Baton®.

'The herbicides were applied to plant cane as a directed spray just before the out-of-hand stage,' John said.

'This stage in crop growth is the last opportunity for most growers to apply a pre-emergent herbicide, before the crop gets too high for machinery access. It is important that pre-emergent herbicides applied at this stage maintain weed control until the cane canopy closes in.'

Encouraging results with other herbicides

Emilie Fillols, Weed Agronomist, Sugar Research Australia, said that the untreated plots showed an abundance of weeds, including mainly Barnyard grass, nutgrass and couch grass. Some pink convolvulus, summer grass, sida, crotalaria and sesbania were also present.

This showed the weed pressure that the block would have been subjected to had herbicides not been applied.

All the treatments reduced the emergence of weeds, with specific results as follows:

- > The Flame® mix (Mix 1) gave the best result as it also suppressed nutgrass despite the application rate for Flame® being reduced to 300 mL/ha to account for the lighter textured soil.

There were also patches of couch grass but this was expected as pre-emergents are not effective against perennial weeds re-establishing from stolons or underground tubers. A few pink convolvulus vines also escaped, probably benefiting from the low application rate.

- > The Velpar® K4 and atrazine mix (Mix 2) controlled grass, broadleaf and vine well, but nutgrass and couch (both perennial weeds) re-established.

- > The Balance® and Soccer® mix (Mix 3) generally controlled grasses and broadleaf well except nutgrass and couch grass. Some pink convolvulus also escaped.

This mix may have suffered from the Soccer® not being incorporated within the optimum time of between two and seven days after application. Follow-up rain fell two weeks after application.

This demonstration clearly showed that alternatives to diuron-based herbicides are available.

Growers should always read product labels to make sure their herbicide choice matches their weed situation.



Queensland Government



Plane Creek
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Limited

Treatment	Rate/ha	Cost \$/ha
Mix 1		
Flame®	300 mL	20
+ Gramoxone	1.2 L	9
+ Baton®	0.625 kg	8
Total cost/ha (product)		37
Mix 2		
Velpar® K4	1.9	32
+ atrazine	2.2 kg	20
+ Gramoxone	1.2 L	9
+ Baton®	0.625 kg	8
Total cost/ha (product)		69
Mix 3		
Balance®	200 g	77
+ Soccer®	2 kg	72
+ Gramoxone	1.2 L	9
+ Baton®	0.625 kg	8
Total cost/ha (product)		166

Note: Treatments were applied before the period of a reduced application rate of 450 g a.i./ha for diuron.



Figure 1: Weed growth in unsprayed plots (mainly Barnyard grass).



Figure 3: Velpar® + atrazine mix (Mix 2).



Figure 4: Balance® + Soccer® mix (Mix 3).



Figure 2: Flame® mix (Mix 1).



Figure 5: Vine escape from Balance® + Soccer® mix.



Figure 6: Nutgrass regrowth occurred in the Velpar® + atrazine and Balance® + Soccer® mixes.