EFFICACY OF ALTERNATIVE PRE-EMERGENT HERBICIDES APPLIED IN TRASH-BLANKETED RATOONS IN THE WET TROPICS

By

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AS A RESULT of continued exceedances in permissible pesticide levels in watercourses, the Australian sugar industry is under considerable environmental scrutiny, which has resulted in the restriction of use of products such as diuron.

Efficacies of alternative pre-emergent herbicide options to diuron were assessed in four field trials carried out in 2014–15 across the Wet Tropics region.

The trials were designed as randomised complete blocks with imbricated untreated controls and three replicates. Tested herbicides were sprayed just after harvest. The reduction in weed coverage was assessed every two weeks and weather data recorded at each site.

A spatial power model computed by SAS software was used to analyse the data sets. As 2014–15 wet season was really delayed and abnormally low in rainfall for the Wet Tropics, the following conclusions will be validated in 2015–16 trials.

Diuron at the high rate was the most efficient herbicide across all trial sites, regardless of the soil type and the weed composition. It was particularly stable during the very long drought period that preceded its incorporation.

Amicarbazone was nearly as effective as the diuron high rate in most situations (no significant difference) especially against broadleaves and vines, however its efficacy did not last as long.

Imazapic performance varied in relation to the weed species present in the trials. It was particularly effective against grasses and broadleaves but did not control legume vines like calopo (*Calopogonium mucunoides*).

Isoxaflutole performance varied in relation to the weed species present in the trials. It was particularly effective against legume vines (calopo), but controlled poorly the broadleaf square weed (*Spermacoce latifolia*).

Diuron at the low rate was effective at controlling weeds for a short term only.

Metolachlor efficacy was mediocre for all trials, probably because it was not incorporated within 24 h as stated in the label.