

Early spray topping for ryegrass control.

Necessity is the mother of invention. Increased in crop germination of ryegrass and other grass weeds and resistance to pre-emergent control options have necessitated growers and researchers to seek out alternative methods of weed control. As part of the Mid North High Rainfall Zone (MNHRZ) trials Mick Faulkner and Jeff Braun of Agrilink Agricultural Consultants are experimenting with the use of non-selective herbicides to spray-top grass weeds in barley and wheat at alternative timings.

The objective of the trial is to establish the impact of earlier spray-topping on cereal yield and weed control.

The current recommendation to control late germinating grass weeds is to spray-top after grain moisture has fallen below 32%. At this point the grain has reached physiological maturity, that is grain growth and filling has ceased and dehydration to suitable harvest moisture is the only process occurring. Current recommendations for spray-topping to control ryegrass is at ryegrass flowering. This generally occurs before cereal grain moisture reaches 32%.

In 2007, the first year of the trial ryegrass flowered when the barley grain moisture was 35% and the wheat 54%; both moistures contents were above the current spray-topping recommendation.

The replicated trial is now in the second year at a site near Riverton. Treatments were label rates of diquat (Reglone(R)) or glyphosate 540g (Power Max(R)) applied at five timings on Keel barley or Wyalkatchem wheat.

Barley plots received an application in the first week of October when the grain moisture was 64% and the wheat plots in the third week in October when the grain moisture was 59%. A further four timings/moisture contents were targeted with the lowest moisture content being 14% in barley and 6% in wheat. Each plot only received one application of herbicide.

While the early timings (grain moisture above 61%) of both herbicides resulted in a reduction in barley yield, treatments at 44% grain moisture and less resulted in small increases in yield. At high moisture diquat produced the greater yield reduction in barley but below 44% grain moisture it produced the greater gains in yield. This may be due to the rapid desiccation associated with herbicides such as diquat.

No significant negative effect on yield was recorded in the Wyalkatchem wheat with either herbicide at any timing. Indeed at some timings significant positive impacts on yield were recorded in the first year of the trial. Data from the second year has yet to be analysed.

“One reason for this improvement in wheat yield could be that the herbicides knocked out the late order tillers, allowing the plant to divert its carbohydrate or soil water reserves to advanced tillers,” explained Jeff Braun.

No impact on the viability of germination was recorded with either crop or either herbicide.

While the yield work has been funded by the National Landcare Project the impact on ryegrass control is being assessed by researchers from the University of Adelaide with funding from the Grain Research and Development Corporation.

Between 60 and 90% of viable ryegrass seed was killed by the spray-topping treatments. None of the plots received any prior forms of chemical weed control.

The researchers are surprised at these results and although a large number of hectares in the mid north were spray-topped early this year, they emphasise that the first year of results need further verification and investigation.

The in-crop application of non-selective herbicide requires great vigilance to ensure no spray drift occurs. Low drift nozzles, low pressure to produce large droplets and high water rates of 100l are used in these trials.

While further work is required Jeff Braun is excited by these earlier results and the possibilities they create for the control of ryegrass and for other grass weeds such as brome grass, and the impact they might have on early germinating summer weeds.

These trials fit well with others being carried out in the project, such as the use of hay for weed control.

“All our trials are focused on improving the viability of farming, particularly in the Mid North but many of the results will provide useful information for farmers in other regions.”

The results from the MNHRZ research are available by e-mail. To request a copy contact Mick Faulkner at faulkner@sa.chariot.net.au

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