

Atrazine to control fop resistant ryegrass in TT canola

The aim of this trial was to determine whether Atrazine (alone or in combination with Select) can assist in the control of ryegrass

Summary

Small ryegrass (less than 4 leaves) was controlled by Atrazine with oil in crop. An additional benefit was the control of radish (however, there was some regrowth). The addition of Select enhanced the activity on ryegrass and resulted in total control. Note: continued use of Atrazine and Select to control ryegrass will result in herbicide resistance developing.

Background

The triazine group of chemicals (which include Atrazine) has activity on ryegrass. The optimum timing for ryegrass control using Atrazine is not well known. The BCG investigated better management techniques for the control of ryegrass using Atrazine on TT canola (Triazine Tolerant canola).

Method

Pinnacle canola (TT canola) was sown on May 7 with MAP at 55kg, and Urea at 120kg deep banded. Trifluralin (2L) was applied across the demonstration block prior to sowing. The demonstration consisted of large plots (100 x 10m) of six treatments. The control was the paddock practice of 1.5L of atrazine applied post sowing pre-emergent. Every atrazine treatment was located adjacent to a control. Atrazine was applied early post emergent when ryegrass was at the 1 to 2 leaf and 3 to 4 leaf stage. Select® was included as a treatment because of the increased level of activity this herbicide has on annual ryegrass.

Results

Ryegrass, wild oats and radish populations were reduced following the second application of Atrazine in crop (either at the 1 to 2 leaf or 3 to 4 leaf stage of the ryegrass), the addition of Select reduced the grass population even further (Table 2.8). Canola yields improved in relation to location in the paddock which was a reflection of frost damage and not a herbicide treatment effect (note: the yields of the control also increased).

Table 2.8 Ryegrass, wild radish and wild oat populations and canola yield in relation to the application of atrazine at different timings.

IBS or PSPE Treatment	EPE treatment	Ryegrass m ²	Radish m ²	Wild oats m ²	Canola yield t/ha
Atrazine 1.5 L IBS	-	35	5	23	1.42
Control Atrazine 1.5L PSPE	-	17	6	18	1.23
Atrazine 0.5L PSPE	Atrazine 1L + oil ryegrass 1-2 leaf	7	0	1	1.57
Atrazine 0.5L PSPE	Atrazine 1L + oil ryegrass 3-4 leaf	4	7	1	1.58
Control Atrazine 1.5L PSPE	-	23	1	5	1.61
Atrazine 0.5L PSPE	Atrazine 1L + Select 200ml + oil ryegrass 3-4 leaf	0	1	1	1.96
Atrazine 0.5L PSPE	Atrazine 1L + Select 200ml + oil ryegrass 1-2 leaf	0	0	1	1.91
Control Atrazine 1.5L PSPE	-	18	9	5	1.85

Interpretation

Atrazine applied at the very early stages of ryegrass development is effective for control. As a mix with Select it controlled 100% of the ryegrass (note: the ryegrass in this paddock was still susceptible to Select). Atrazine applied in-crop is also effective in controlling radish. There was some re-growth of radish later in the season. It is essential to add oil to Atrazine if using post-emergent to control radish. The oil type will have an effect on efficacy, with the mineral oils (without surfactant system) giving best results.

Commercial Practice

Triazine use in canola is still only allowed under a permit held by the Australian Canola Association. Simazine is only allowed to be used PSPE. Atrazine is registered by permit for use once per season; either PSPE or EPE. The use of two applications of Simazine and/or Atrazine is not registered. For effective ryegrass and radish control a good option may be to use Trifluralin pre-sowing followed by Atrazine with oil in-crop when the ryegrass and radish plants are still small (ryegrass less than 4 leaves). Select is very effective in the control of ryegrass, and can be used in a tank mix with Atrazine. Be aware that some other work has suggested a reduction in grass herbicide activity by the addition of atrazine.

Warning

Continued use of Select will result in resistance developing in ryegrass. The addition of oil is essential for effective radish and ryegrass control - the BCG will undertake trials in 1999 with different oil and wetter additives to atrazine.