

Kill Half Leaf Ryegrass With Spray.Seed® at Night

Aim: To determine which knockdown herbicide is best for small grass

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Company: Department of Agriculture, Geraldton



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Location: Coorow

Background: Half leaf ryegrass is very hard to kill with herbicides alone. Glyphosate is translocated to the tip of the grass where it is ineffective. Spray.Seed® burns off the top of the plant, which can then recover as it is living on its seed reserves. Trial work in 2000 and 2001 showed that Spray.Seed® and glyphosate are equally ineffective when applied to half to one leaf ryegrass with control ranging from 30% to 79%. It has been hypothesised that weed control with Spray.Seed® may be improved when applied in the absence of sunlight due to improved translocation of the chemical.

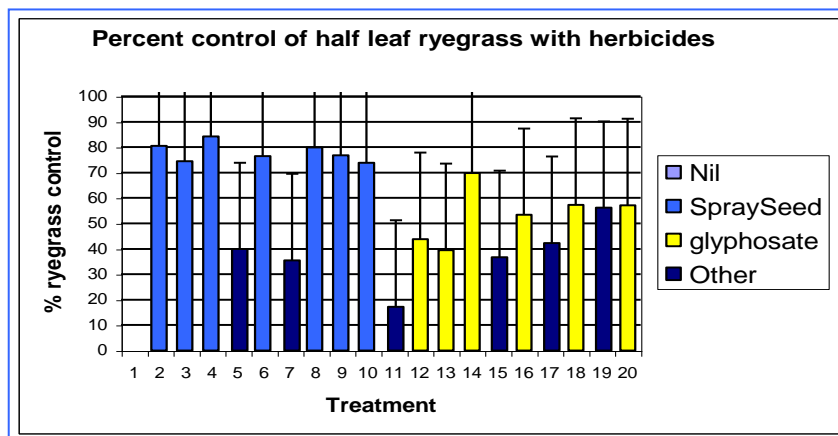
Trial Details:

Plots / reps	3 m wide x 30 m long plots, 2 reps
Soil type	Yellow sand over gravel
10 th May 2002	Site was pegged and sprayed with Spray.Seed® 2 L/ha to kill a background population of 3 to 4 leaf ryegrass that had germinated on a previous rainfall
14 th May 2002	Sprayed all treatments using the Department of Agriculture boom spray. The boom spray was set up to apply 50 L water /ha at 12 kph, through 02 (blue) nozzles. Ryegrass was at the half leaf stage, approximately 240 plants /m ² . Spray conditions were extremely overcast (ie. no sun visible), winds 5/8 km/h decreasing towards nightfall. Glyphosate treatments were applied from 2pm. Spray.Seed® treatments were applied from 5pm onwards.

Results:

Treatments – applied 14 th May 2002		21 st May rye/m ²
1. Nil		342
2. Spray.Seed 1 L/ha		66
3. Spray.Seed 1 L/ha + Logran Lightning 50 g/ha + Hasten 0.5%		87
4. Spray.Seed 1 L/ha + Diuron 150g/ha		54
5. Diuron 150 g/ha		205
6. Spray.Seed 1 L/ha + Trifluralin 480 @ 1.2 L/ha		80
7. Trifluralin 1.2 L/ha		220
8. Spray.Seed 1 L/ha + Hammer 30 mL/ha		69
9. Spray.Seed 1 L/ha + Pledge 30 g/ha + Hasten 1%		79
10. Spray.Seed 1 L/ha + Kerb 1 kg/ha		89
11. Kerb 1 kg/ha		283
12. Glyphosate 750 mL/ha		192
13. Glyphosate 750 mL/ha + Diuron 150 g/ha		207
14. Glyphosate 750 mL/ha + Pledge 30 g/ha + 1% Hasten		103
15. Pledge 30 g/ha + 1% Hasten		216
16. Glyphosate 750 mL/ha + Hammer 30 mL/ha		159
17. Hammer 30 mL/ha		197
18. Glyphosate 750 mL/ha + Logran Lightning 50 g/ha + Hasten 0.5%		146
19. Logran Lightning 50 g/ha + Hasten 0.5%		150
20. Touchdown B Power 1.63 L/ha (equiv of gly 490 @ 750 mL/ha) + 0.5% Hasten		146
LSD		118

Ryegrass counts include late germinating ryegrass that germinated between spraying the treatments and counting. The vast majority of ryegrass counted in the Spray.Seed® treatments appeared to be freshly germinated ryegrass as there were no visible burnt tip symptoms as seen in previous trials. Ryegrass counted in the glyphosate treatments were a mix of freshly germinated ryegrass and ryegrass that exhibited burnt tip symptoms (ie. had survived the glyphosate).



Conclusions: It appears that Spray.Seed® gave approximately 100% control of the half leaf ryegrass. While the data suggests that Spray.Seed® gave only 80% control of the ryegrass, anecdotal evidence suggests that the surviving plants were actually a new germination of ryegrass that was never sprayed with Spray.Seed®. Previous trial work has shown that half leaf ryegrass that survive applications of Spray.Seed® typically exhibit the symptom of a burnt leaf tip. This symptom was not apparent in the Spray.Seed® plots in this trial.

Ryegrass control with glyphosate was significantly lower than ryegrass control with Spray.Seed®. Ryegrass plants that survived glyphosate exhibited the burnt leaf tip symptom. When ryegrass is at the half leaf stage all translocation is from the roots and the seed upwards. It is not until approximately the 1.5 leaf stage that translocation occurs in both directions. Glyphosate applied to half leaf ryegrass is translocated to the tip of the leaf where it is ineffective.

The “Hair Cutting” technique involves spraying wheat at the half leaf stage with Spray.Seed® with the objective of killing weeds larger than one leaf. Bowran & Buckley (1991) demonstrated that wheat can recover from this treatment to yield 95% of the unsprayed control. The standard recommendation for this practice has been to spray wheat at the half leaf stage with Spray.Seed® in full sunlight where no Diuron has been applied pre-sowing or in a mix with Spray.Seed® to avoid killing the wheat crop. If we apply this to killing half leaf grass, the recommendation should be to spray small grass with Spray.Seed® + Diuron in overcast conditions or at night. Further laboratory and field research will test this hypothesis.

Some new group G herbicides are now on the market. Their main role is as a glyphosate spike to improve control of hard to kill broadleaf weeds such as Mallow and Wild Radish. They appear to have some activity on ryegrass, albeit a low level of activity. Glyphosate + Pledge (ie. new group G) was the best of the glyphosate treatments, although this result was not significant.

Kerb is primarily a root uptake herbicide. This trial is not a fair test of Kerb.