

Summer weed control

SUMMARY

Good heliotrope control was obtained by applying Glean, Ally or Atrazine on fallow (the chemicals were applied 5 days prior a good rain). These three herbicides had no residual control of love or witch grass.

Three Glyphosate mixes with different adjuvants were sprayed out at three timings (early when the weeds were small, mid when heliotrope was approximately 12cm high, and late when heliotrope was large and flowering). At the early spraying the small heliotrope plants were killed by the herbicides, however new germinations of weeds resulted in a re-infestation. The late spraying did not kill the large fully flowering heliotrope plants. The mid spraying was most effective. There were no differences in weed kill of the three glyphosate mixes with different adjuvants.

For most effective weed control of heliotrope an early applied residual herbicide such as Glean, Ally or Atrazine (be careful with plant backs for different crops!) is most effective. For grass and heliotrope control later in the season, weeds have to be sprayed before they are fully grown and flowering.

The aim of this trial was to determine the best options for controlling summer weeds using residual and knockdown herbicides with different adjuvants.

BACKGROUND

In previous trial work the BCG have reported large increases in wheat yield following the control of summer weeds. Summer weeds use stored water which potentially should be available to the crop. The best options for controlling summer weeds is still a difficult issue. In 1999-00 the BCG investigated the effect of water volume, adjuvants and time of spraying (evening or morning) on the effectiveness with which Spray.Seed and RoundUp controlled weeds. In the 2000-01 trial the efficacy of weed control using residual and knock down herbicides was investigated.

METHODS

In both the residual and knockdown spray trial the plots were sprayed with a motor bike boom (4m width) with 100L/ha of water.

1. Residual herbicides

Three residual herbicides were investigated for their efficacy in controlling summer weeds: Glean 10g, Ally 5g and Atrazine 1L/ha. Treatments were replicated and compared to unsprayed controls. The plots were sprayed on bare fallow, 5 days after 32mm of rain, before weeds had germinated on November 7, 2000. Six days after spraying 25mm of rain washed the herbicides into the soil.

2. Knock down herbicides

The main summer weeds at the time of spraying were widespread heliotrope, love grass and witch grass; and isolated plants or patches of radish, couch grass and skeleton weed. The weed control was assessed approximately 6 weeks post herbicide application.

Three knockdown herbicide mixes sprayed at three timings were investigated. The mixes were:

- * Glyphosate CT 1.5L + Liaise 2% + wetter 0.2% (Liaise is Ammonium Sulphate and is used to improve the performance of Glyphosate under adverse environmental conditions and it also improves the efficacy of Glyphosate with hard water)
- * Glyphosate CT 1.5L + HotUp 1% (HotUp contains Ammonium Sulphate, mineral oil and a surfactant)
- * Credit + Bonus 1.25L (Credit is Glyphosate 540g/L and Bonus is mixture of Ammonium Sulphate, LI700 and surfactants)

The herbicides were applied at three different timings: early on December 5, 2000 (heliotrope at 2 to 3 leaf); mid on December 15, 2000 (heliotrope at 6 to 8 leaf) and late on January 9, 2001 (heliotrope was flowering).

RESULTS

1. Residual herbicides

The residual herbicides used had excellent control of heliotrope, but no control on radish, love grass, witch grass or skeleton weed (Table 1).

Table 1. Summer weed control with residual herbicides.

Herbicide	Cost \$/ha	Weed population plants/m ²				
		heliotrope	radish	skeleton weed	love grass	witch grass
control		11	0.2	0.4	8	3
Glean 10g	2.40	0	0.2	0.1	13	6
Ally 5g	1.90	1	0.7	0.3	14	6
Atrazine 1L	5.20	1	0.6	0.2	6	6
Significant difference:		P<0.001 LSD=1	NS	NS	NS	NS

2. Knock down herbicides

Three Glyphosate mixes with different adjuvants were applied at three timings. The level of heliotrope and grass weed control is outlined in Table 2.

Table 2. Level of heliotrope and grass control from three herbicide mixes applied early (small weeds), mid (medium size weeds) and late (large weeds).

Herbicide	Cost \$/ha#	Heliotrope (plants/ m ²)			Grasses (plants/m ²)		
		early	mid	late	early	mid	late
control		8.2			15		
Glyphosate CT 1.5L + Liaise 2% + wetter 0.2%	13.25	2	0	3	14	11	1
Glyphosate CT 1.5L + HotUp 1%	16.75	2	2	4	17	13	9
Credit + Bonus 1.25L	12.20	3	1	5	16	12	9
Significant difference:		P<0.001 LSD=2.8			P<0.05 LSD=7		

Cost of adjuvants worked out at 100L water volume

INTERPRETATION

The residual herbicides Glean, Ally and Atrazine all had excellent control of heliotrope. The products had little or no activity on love grass, radish and witch grass, and a follow up knock down herbicide will be required to control these weeds.

Heliotrope control was effective with the Glyphosate mixes (including Credit/Bonus) when the weeds were sprayed at the mid growth stage (up to 12cm in height). With the early spraying the weeds present were killed but there were some new germinations. Spraying Glyphosate mixes late was not as successful. The large heliotrope plants which were flowering were difficult to kill.

Grass weed control was most effective with the late spraying.

COMMERCIAL PRACTICE

- Residual herbicides such as Glean, Ally and Atrazine are excellent for the control of heliotrope. These herbicides need to be applied before germination of the weeds.
- Glean, Ally and Atrazine do not have activity on grass weeds such as witch grass which will need to be controlled with a follow up knock down herbicide
- Glean 10g can be safely used in front of wheat; Ally 5g can be safely used in front of wheat and barley; whereas Atrazine 1L can only be used in front of pulse crops and TT canola. These products cannot be used in front of other crops.