Group B tolerant crops

Key findings

- New crop varieties have been recently released that have improved tolerance to imidazoline (imi) herbicides
- Group B tolerant varieties showed only slight damage symptoms to herbicides registered for use. Damage to non-group B tolerant varieties was observed in many treatments

Why do the trial?

To compare the tolerance of the new varieties to a range of group B herbicides relative to conventional non-tolerant varieties. To also measure the efficacy of herbicides for controlling crop volunteers with group B tolerance.

How was it done?

Plot size	2m x 3m	**Fertiliser**	50kg/ha DAP Zn 2%
Seeding date	12th June 2012		

The crops included:

- 2 strips of canola were sown. AV Garnet (not tolerant) & Clearfield 43C80 (tolerant).
- 2 strips of barley were sown. Buloke (not tolerant) & Scope (tolerant).
- 3 strips of wheat were sown. Gladius (not tolerant), Justica CL plus & Clearfield JNZ (tolerant).
- 2 strips of lentils were sown. Nipper (not tolerant) & PBA Herald XT (tolerant).

The herbicide treatments for all the crops included:

- 2 residual herbicide treatments were applied prior to sowing
- 5 group B post emergent (3-4 leaf or node) herbicide treatments applied 18th July
- 4 group H, I or G post emergent (3-4 leaf or node) herbicide treatments applied 18th July

Treatments were visually assessed and scored for herbicide damage symptoms 5 weeks after application.

Results

Many of the herbicides are not registered for the crops that have been sprayed. It is important to check the herbicide label before following strategies used in this demonstration. Herbicide effects can vary between seasons and depend on soil and weather conditions at time of application.

There were only slight effects to the tolerant crop lines of wheat, barley, canola and lentils from the residual herbicide treatments. Damage to the non-tolerant lines ranged from moderate to severe.

For the tolerant wheat the post emergent applications of group B herbicides gave no effect. Whereas for the barley post emergent Intervix and Spinnaker produced slight effects. There was no visual difference in the new wheat variety Justica CL Plus (twin gene) compared to the older Clearfield JNZ (single gene).

Post emergent Logran at 10kg/ha produced a moderate effect in the tolerant canola. Spinnaker, Raptor or Intervix produced no effect.

PBA Herald XT (formally CIPAL 702) the new lentil variety released for improved tolerance to Broadstrike and group B herbicide residues was slightly affected by all of the post emergent group B herbicides. Other research conducted by SARDI has previously demonstrated that certain group B herbicides and their residues can cause significant damage symptoms to PBA Herald XT. Nipper (non tolerant) lentils incurred a moderate to severe level of damage to both residual and post timing applications of group B herbicides.

The 700 ml/ha rate of Intervix resulted in severe effects or death of the non tolerant varieties Nipper, Buloke, Gladius and AV Garnet. Tolerant varieties Herald XT, Scope, Justica CL Plus, Clearfield JNZ and 44C79 were not affected.

The broadleaf herbicide treatments used to control the herbicide tolerant lines included Precept, Conclude, Banvel M, Affinity Force and 2,4-D Amine. The treatments produced severe effects or death to the tolerant lentil and canola lines and satisfactory control.

			Lentil		Barley		Wheat			Canola	
			Not Tol	Tol	Not Tol	Tol	Not Tol	Tol	Tol	Not Tol	Tol
Timing	Herbicide	Row	Nipper	Herlad XT	Buloke	Scope	Gladius	Justica CL	Clf JNZ	Garnet	43C80
	Nil	1	1	1	1	1	1	1	1	1	1
Residual	7g logran	2	4	1	3	2	2	1	1	4	1
3-4 leaf or node	10g logran	3	4	2	2	1	2	1	1	5	3
Residual	180mL Intervix	4	3	1	2	1	3	2	2	1	1
3-4 leaf or node	Intervix 700mL	5	3	1	4	2	4	1	1	5	1
3-4 leaf or node	Raptor 45g	7	3	1	4	1	4	1	1	4	1
3-4 leaf or node	Spinnaker 100g	8	3	2	4	2	4	1	1	4	1
3-4 leaf or node	Precept 750mL	9	4	4	1	1	1	1	1	5	5
3-4 leaf or node	Conclude 700mL	10	4	4	1	1	1	1	1	5	5
3-4 leaf or node	Banvel M 1.0L	11	4	4	1	1	1	1	1	4	4
3-4 leaf or node	Affinity	12	4	4	2	2	1	1	1	4	5
3-4 leaf or node	2,4-D 1.0L	13	5	4	1	1	1	1	1	4	4

Crop damage ratings:
1 = no effect
2 = slight effect
3 = moderate effect
4 = severe effect
5 = death