Dual Gold® safe in Lupins at Coorow

Aim: To assess the potential for the use of Dual Gold® for ryegrass control in lupins.

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Location: Coorow

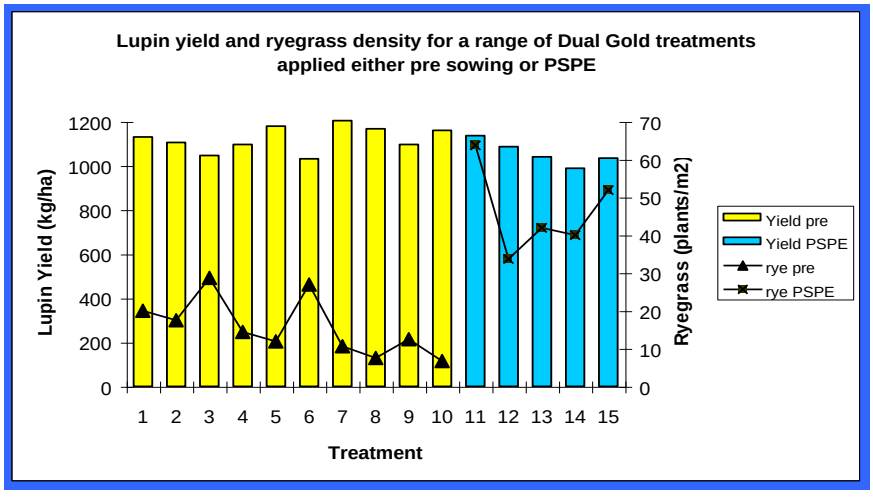
Background: Dual Gold® (s~Metolochlor) is a group K herbicide that has some activity on ryegrass, particularly when applied in a mixture with Diuron. As ryegrass develops resistance to a range of herbicide groups, novel mode of action herbicides (such as group K) are sought after by growers. Dual Gold® is currently registered for ryegrass suppression in Barley and Oats. Trifluralin currently forms the backbone of ryegrass control for many growers in a cropping rotation. There is a temptation to use Trifluralin in every phase of the rotation, which will no doubt result in wide spread Trifluralin resistant ryegrass. Dual Gold® may offer an alternative for ryegrass control in a cropping rotation if it is registered.

Trial Details: Trial area sown with knife points and presswheels by farmer as part of a bulk lupin crop. Ten herbicide treatments were applied pre sowing with knife points and presswheels, and five post sowing / pre emergent (PSPE) herbicide treatments applied to a level (ie. levelled using harrows PSPE) seed bed. In total 15 treatments with 3 replicates. Plots 37 m long X 3 m.

The front half of the trial received no basal Simazine.

The plots containing Trifluralin mixes were run over with finger harrows to incorporate the Trifluralin immediately after spraying.

Results:



Yield pre = lupin yield for treatments applied pre sowing, rye pre = ryegrass /m^2 for treatments applied pre sowing, PSPE = Post sowing pre emergent.

- Average number lupin plants = 47 / m^2 (+ harrows) and 44 / m^2 (- harrows)
- There was no significant difference in yield between any treatments

Treatment	Rye / m^2	Yield T/ha	1000 seed wt. (g)
Pre – sowing with knife points and presswheels			
1. Nil	20	1.13	156.1
2. Dual Gold 500 mL/ha	18	1.11	157.7
3. Diuron 500 mL/ha	29	1.05	155.6
4. Dual Gold 500 mL/ha + Diuron 500 mL/ha	15	1.10	157.4
5. Dual Gold 1 L/ha + Diuron 1 L/ha	12	1.18	161.0
6. Diuron 2 L/ha	27	1.03	157.4
7. Trifluralin 480 1.25 L/ha	11	1.27	158.5
8. Dual Gold 500 mL/ha + Trifluralin 1.25 L/ha + Avadex 500 mL/ha	8	1.17	156.4
9. Dual Gold 500 mL/ha + Trifluralin 1.25 L/ha	13	1.10	156.7
10. Dual Gold 500 mL/ha + Diuron 500 mL/ha + Trifluralin 1.25 L/ha	7	1.16	156.5
Post – sowing / pre emergent to level seed bed (harrowed)			
11. Nil	64	1.14	155.6
12. Dual Gold 500 mL/ha	34	1.09	155.0
13. Diuron 500 mL/ha	42	1.04	153.7
14. Dual Gold 500 mL/ha + Diuron 500 mL/ha	40	0.99	153.1
15. Dual Gold 1 L/ha + Diuron 1 L/ha	52	1.03	153.1
LSD	26.6	n.s.	1.41

Conclusions: There appeared to be no difference in yield between the plus and minus basal Simazine areas. All of the results presented and discussed received Simazine 2 L/ha pre sowing. Dual Gold® had no effect on lupin yield in this trial. The dry seasonal conditions may have contributed to this high level of crop safety. This trial is not a herbicide tolerance trial, however, it does suggest that Lupins do have some tolerance to Dual Gold® and future investigation is warranted.

Dual Gold® requires moist soil conditions for optimal ryegrass control. Dual Gold® plus Diuron at label rates controlled only 25 to 40% of the ryegrass. Dual Gold® is taken up by plants largely through the coleoptile as it emerges through the soil surface. Ideally the soil surface should be moist for two to three weeks after seeding of the crop for Dual Gold® to work at its best. 2002 was a dry season at Coorow, which is the most likely reason for the poor ryegrass control.

Treatments including Trifluralin gave the best ryegrass control in this trial. Trifluralin, when incorporated into moist soil forms a gas which impedes ryegrass germination. This gas appears to have the ability to persist when the soil dries, and continues to kill ryegrass.

The use of harrows to level out the seed bed for the PSPE treatments appears to have stimulated a germination of ryegrass. The control treatment for the harrowed area had 64 ryegrass / m^2 compared to 20 / m^2 for the control of the un-harrowed area. Applying Dual Gold® PSPE to a level seed bed is the recommended practice, however, if harrowing is necessary to level the seed bed, the increased ryegrass germination may outweigh the benefits of Dual Gold®. Regression analysis suggests a trend that high ryegrass density reduced yield.

If Dual Gold® was registered for ryegrass control in Lupins it may be possible to use it as an alternative to Trifluralin or in a mix with Trifluralin to reduce the development of Trifluralin resistance. Applying full rates of two alternative modes of action herbicides for ryegrass control is a good strategy to delay the onset of herbicide resistance.