Angel survives summer SU residues

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Key Messages

- Angel shows excellent tolerance to summer SU herbicide application.
- After using SU herbicides for summer weed control Angel can be grown with minimal effect on pasture productivity.

Why do **the** trial?
To test the tolerance of the new strand medic, Angel, to sulfonylurea (SU) herbicide residues from a summer weed application.

Our work has focused on Angel's tolerance to SU herbicide residues from the previous year (eg. 10-12 month break). Farmers asked the question, "How will Angel tolerate SU residues from a summer application?" (Eg. 3-6 months) as they noticed significant damage in their regenerating legume pastures following a summer applied SU herbicide.

How was it **done?**
Two low rainfall, alkaline soil sites were selected: Wirrulla and Walpeup in the Victorian mallee. Herbicide treatments of metsulfuron-methyl & triasulfuron were applied at 3.5 & 7 g/ha and 9 & 18 g/ha respectively to simulate a summer sulfonylurea herbicide application (i.e. 50 & 100% typical summer application rates). Herbicide treatments were applied in January and February to allow for an approximate period of 3-4 months until the normal break of the season. Angel and Herald were then sown dry at Wirrulla on the 2nd June and Walpeup on the 24th May in the soil residues. To measure the herbicide effect on the medic we have taken emergence counts, visual scores and dry matter cuts to determine the production difference.

What happened?
Plant establishment for both cultivars was good at both sites (Wirrulla 252 plants/m^2, Walpeup 416 plants/m^2). Following the emergence counts we took visual scores, comparing all herbicide treatments to the 'nil' treatments and then took dry matter cuts to confirm the score data. The figures below show the visual scores and dry matter cuts from Wirrulla and visual scores from Walpeup that demonstrate the good tolerance of Angel to the SU residues.

Figure 1. Effect of SU herbicide applied at 0, 50 100% rate upon Angel and Herald dry matter production at Wirrulla (visual score 0-10).

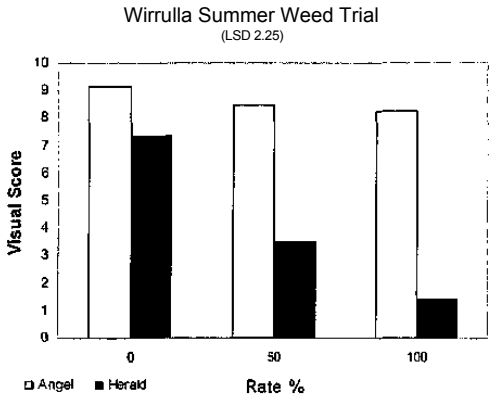


Figure 2. Effect of SU herbicide applied at 0,50 & 100% rate upon Angel and Herald dry matter production at Walpeup (visual score 0-10).

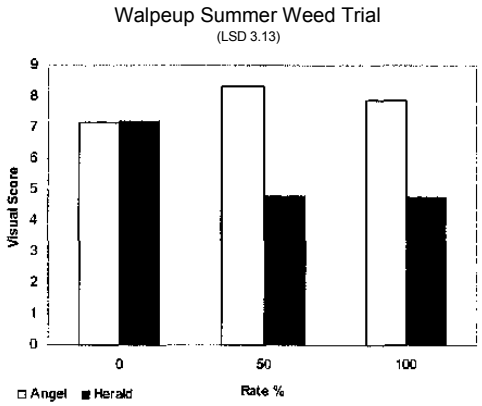
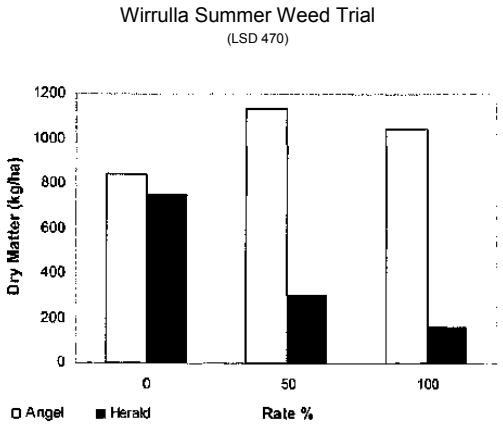


Figure 3. Effect of SU herbicide applied at 0,50 & 100% rate upon Angel and Herald dry matter production at Wirrulla (kg/ha).



Although the break to the season did not occur until mid June, the very dry soil conditions in the interim would have contributed to the persistence of SU residues in the soil. Results from Wirrulla (scored 24^{m} August and dry matter sampled 21st September show the robust tolerance of Angel to SU residues compared to that of Herald. Angel's production was unaffected in the 100% treatment whereas Herald was reduced by >80% (Figures 1&3). The results from Walpeup (scored 29th August) showed a similar trend with Angel unaffected but a significant reduction in Herald's production. Like Wirrulla, the results show the excellent tolerance of Angel to the short-term SU residues. Although not significant, there was a trend in both the Wirrulla and Walpeup dry matter data suggesting improved Angel performance in the treated plots that may be a result of some weed suppression.

What does this mean?

These findings are significant for dryland farming where summer weeds are an issue for example Lincoln weed, in the coastal districts of Eyre Peninsula and Caltrop and Skeleton weed, in the Murray Mallee. These weeds are usually controlled with a summer application of metsulfuron or triasulfuron before being left to pasture, however SU residues can have a devastating effect on the growth of susceptible legumes as demonstrated by the Wirrulla data. The research shows that Angel has good tolerance to SU residues applied during summer compared to intolerant cultivars and farmers can be confident that by growing Angel medic either as regenerating pasture or sowing for the first time that pasture productivity will be maintained.

Acknowledgements:

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Category: Best Practice

Location:
Wirrulla - Craig Rule
Nunjikompita Ag Bureau
Rainfall
2005 Total - 299mm
2005 GSR-241 mm
Av Annual - 300mm
Av GSR - 208mm
Soil Type
Alkaline sandy loam

Location:
Walpeup- Ron Sly
Rainfall
2005 Total - 338 mm
2005 GSR-219 mm
Av Annual - 342 mm
AvGSR -224 mm
Soil Type
Alkaline red sandy loam