

In-field Group A resistant ryegrass testing demonstration

Summary

In-situ herbicide resistance testing can be very effective. It gives a realistic indication of how ryegrass populations will respond to a range of herbicides. These demonstrations backed up past research which suggests that resistance within Group A is a staggered, complex process.

In the demonstrations undertaken (9 sites): ryegrass at all sites was resistant to Hoegrass and Verdict (Group A - Fop); 2 sites also had resistance to Select (Group A – Dim); and three sites had resistance to Achieve (Group A – Dim).

Background

Group A resistant ryegrass is a major problem for most grain growers in North West Victoria. There are two parts to the group A herbicide family, Fops (eg: Hoegrass®, Verdict®) and Dims (eg: Select®, Achieve®). Understanding resistance to fops is simple. If you have found ryegrass populations resistant to Hoegrass it is safe to say Verdict will not have activity on those populations. The dims are more complex. There are two sub groups within the dim family, which means ryegrass that is resistant to Achieve may still be susceptible to Select.

Nine small demonstrations across North West Victoria were set up to help growers understand the concepts of herbicide resistance and also verify the resistance status in specific paddocks. Following application, we returned 3 – 4 weeks to the site for monitoring with the local farmer group. This created discussion on herbicide resistance and related topics.

Methods

Each of these demonstrations was applied using the BCG Herbicide Resistance Boom, a single boom with four 3 metre sections all capable of spraying a different spray mix in a single pass. The mixes used are listed in Table 1. All sites were sprayed with XR11002 nozzles, 80L/ha of water at 2 bar. The aim was to spray ryegrass populations at the 3-5 leaf stage.

Table 1. Herbicide mixes used for demonstration

Tank no.	Herbicide
1	Hoegrass 750ml/ha + 0.25% wetter
2	Verdict 75ml/ha + 0.5% Uptake
3	Achieve 380g/ha + Supercharge 0.75%
4	Select 250ml/ha + 1% hasten

Scoring of plots was carried out 24 days after spraying using the EWRS scoring method.

Results

The phyto-toxicity scores obtained 3 to 4 weeks post spraying are listed in Table 2.

Table 2. Phyto-toxicity scores from treatments applied.

Site	Hoegrass	Verdict	Achieve	Select
1 (south mallee)	2	2	6	9
2 (south mallee)	2	2	9	9
3 (west wimmera)	1	1	2	2
4 (north central)	1	2	8	9
5 (south mallee)	2	2	2	9
6 (north wimmera)	2	2	2	3
7 (south mallee)	2	2	8	9
8 (south mallee)	4	5	8	9
9 (north central)	2	2	6	9

EWRC phytotoxicity scoring system: 1 = no symptoms, 3 = slight damage effects reversible, 5 = severe discoloration and stunting, 7 = heavy damage, some plants killed and 9 = complete loss of plants.

Interpretation

At all sites the fop's (Hoegrass and Verdict) provided unacceptable control of ryegrass. Almost every population of ryegrass sprayed was either fully resistant or developing resistance to fop's and as we expected there was no difference in efficacy between the two fop's. Select still seem to have good control of ryegrass in most cases, the only exceptions being sites 3 and 6. These two populations are resistant to Select and therefore more than likely resistant to all other Group A herbicides. In one case, site 5, Achieve only scored a 2 (very slight damage symptoms) whereas Select scored a 9 (complete loss of plants). This is a good example of why resistance testing is critical; labelling ryegrass from a particular paddock resistant to Group A dim's is not good enough. Resistance to Achieve does not necessarily mean resistance to all dims, but resistance to Select does mean resistance to fop's and more than likely to all other dim's as well.

Commercial Practice

In field resistance testing is a good way to establish resistance status of a paddock. This can be done with a custom built boom such as the one used by BCG or by using the full width of your own boom. Keep good records of observations while in the field. Remember, Select is the last line of defence within Group A, once resistance has developed to Select there likely to be no further options within that group.

If you are interested in field testing ryegrass in one of your paddocks with the BCG Herbicide Resistance boom contact the BCG office on 03 54922787.