Thursday 21 April 2011

Weed Control in Autumn Sown Cereals

Controlling weeds in autumn sown cereals involves a programmed approach utilising a range of herbicides and cultural techniques. These practices need to be co-ordinated in order to maximise weed control. Relying on a single pass herbicide(s) rarely gives sufficient weed control in autumn sown crops. An autumn herbicide application made pre-emergent or early post emergent to weeds removes weeds when they are small and more easily controlled. Allowing them to establish and grow through until late winter/early spring will lead to incomplete control and a probable yield loss, if the weeds are competitive. At that stage, smaller weeds covered by large weeds and crop may survive because the herbicide may not come into contact with them.

There are five “timings” in successful weed control in autumn sown cereals;

- Previous crop
- Pre plant/Pre-emergent stage of cereal crop
- Early post emergent stage of cereal crop
- Tillering of cereal crop
- Stem extension of cereal crop

Take the opportunity in the previous crop to remove/reduce problematic weeds e.g. if the previous crop is broad-leaved, then control grasses in that crop to reduce seed shedding and returning to the seed bank.

If perennial weeds (e.g. Yarrow, Couch/Twitch, Grasses) are present before sowing, consider spraying off with glyphosate plus Granstar®. Ensure the target weeds have sufficient leaf area and apply at least seven days prior to any cultivation or drilling. This allows some breakdown of weed structure which in turn allows easier cultivation and/or drilling.

There are some cultural techniques that could be used where Brome grasses are a problem.

If the Bromes are confined to the headlands then consider the following;

1. Use a higher sowing rate for the headlands – this may out-compete the Brome and minimise seed formation.
2. Sow the headland in a spring wheat or spring barley crop – most Bromes germinate in autumn/winter. The use of glyphosate and/or cultivation prior to sowing will control most grass weeds.
3. Take the headlands for silage – this should remove seed heads and lower the seed load in the soil.
If the Bromes are more widespread throughout the field, then;

1. A post-harvest burn of the previous crop stubble should kill many Brome seeds.
2. Consider sowing non grass/cereal crops where specific grass killers can be used to minimise the Brome problem in the next crop.
3. Sow a spring crop of cereals instead of autumn sowing cereals – this allows Bromes to germinate over autumn/winter and they can be controlled either by herbicides or cultivation.

Firebird® is a newly registered herbicide applied pre-emergent to the weeds. It contains diflufenican (DFF) and flufenacet and can be used in both wheat and barley but must be applied before the end of July. The main attributes are control of Hair grass, Cleavers, Annual Meadowgrass (Poa annua), Field madder as well as most of the weeds that are controlled by Cougar® or diflufenican. If any of the above weeds, especially Hair grass, are likely to be a problem, then the use of Firebird would be appropriate. Firebird will not control Fumitory, Ryegrasses, Brome grasses and weeds growing from root chips.

Follow up options at the pre-emergent/early post-emergent stage of the crop include;
- Gardoprim® for Fumitory control and some Ryegrass control (not registered).
- For Brome control in wheat, Gardoprim + Glean® or Sencor® (not registered) give some control of Bromes as well as other broad-leaved weeds. Sencor can be more phytotoxic to wheat than Gardoprim. Bromes will germinate over a longer time frame than Ryegrass or Poa.

Follow up options for the early tillering stage of the crop include;
- Hussar® for Ryegrass control as well as some weeds growing from root chips.
- Othello OD® for Ryegrass control as well as some weeds growing from root chips (wheat only).
- Mecoprop for Fumitory control as well as some weeds growing from root chips.
- Glean for control of some weeds growing from root chips.
- The selection of which product(s) to use will depend on the spectrum of weeds present.

Othello® will control Ryegrasses, Poa and Phalaris as well as a range of broad-leaved weeds but can be used in wheat only. Othello is slightly more robust on grass weeds than Hussar but the timing is very similar. Hussar is more robust on thistles than Othello. Both Hussar and Othello give better control if a pre-emergent or early post emergent herbicide has been applied.

If Firebird, Cougar or diflufenican has been used earlier then followed up by Othello, then this may restrict which broad-leaved crops can be direct drilled after harvest. brassicas and clover are most at risk, especially if a disc type drill is used. This is due to the amount of diflufenican (DFF) applied. Firebird applies 60 g/ha DFF at the full rate of 0.3 l/ha and Othello applies 50 g/ha DFF (again at full rate 1.0 l/ha) giving a combined amount of 110 g/ha – this equates to applying 1.1 l/ha of Cougar. DFF forms a ‘film’ on the soil surface and has a half-life in the soil of 15 – 30 weeks. Direct drilling brassicas or clover using disc type drills is more problematic as the press wheel can re-establish the DFF ‘film’ which can kill emerging brassicas or clover. Coulter type drills that move the ‘film’ to the side and leave it there allow crops to emerge without coming into contact with the DFF. There are no issues where the field is ploughed and/or thoroughly cultivated after the cereal harvest.
Phalaris can be controlled by Puma® S or Twinax®. Both also control Wild oats and Twinax will provide control of Ryegrass if it is small – coverage is important. Puma and Twinax can be applied up to the 1st node stage. Puma S can be used in wheat only and Twinax can be used in wheat and barley.

Resistance

Resistance has already occurred to ALS inhibitors (Granstar, Glean, Hussar etc). Unfortunately, new products, especially for grass weed control, tend to come from this group so care needs to be exercised – do not overuse these products.

There are some generic products other than those mentioned.

Cougar® is a registered trademark of Bayer.
Firebird® is a registered trademark of Bayer.
Granstar® is a registered trademark of E I Du Pont de Nemours & Co.
Glean® is a registered trademark of E I Du Pont de Nemours & Co.
Othello® is a registered trademark of Bayer.
Sencor® is a registered trademark of Bayer.
Twinax® is a registered trademark of a Syngenta Group Co.

FAR Herbicide Trials

FAR continues to monitor herbicide performance in number of trials around New Zealand. With the recent introduction of a number of new active ingredients FAR has compared the performance of these herbicides in a range of situations. The following results’ table features the results from the South Canterbury Hub trial at Milford near Temuka where the natural population of volunteer Italian ryegrass was the target grass weed in wheat.

**Herbicides for volunteer Italian ryegrass control in wheat** (2010-11 season results at the South Canterbury Hub)

**Sow date:** 29 April 2010

**Cultivar:** Oakley wheat
Table 1. The effect of various herbicides on the volunteer populations of Italian ryegrass and wheat yield.

<table>
<thead>
<tr>
<th></th>
<th>Pre-emergence (6 May)</th>
<th>Post-em (Crop GS12-13) (23 June)</th>
<th>Mid-end tillering (24 Aug)</th>
<th>Italian ryegrass control (%)</th>
<th>Yield (t/ha)</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Untreated</td>
<td>Untreated</td>
<td></td>
<td>0.0</td>
<td>DNH</td>
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<tr>
<td>2</td>
<td>Twinax 0.3 l/ha + Hasten 0.5%</td>
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<td></td>
<td>67.5</td>
<td>6.9</td>
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<tr>
<td>3</td>
<td>Hussar 150 g/ha + partner @ 1% solution</td>
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<td>77.5</td>
<td>7.1</td>
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<tr>
<td>4</td>
<td>*Gardoprim 1.5 l/ha</td>
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<tr>
<td>5</td>
<td>*Gardoprim 0.75 l/ha</td>
<td>Sencor 375 g/ha</td>
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<td>*Gardoprim 0.75 l/ha</td>
<td>Hussar 50 g/ha + Partner @ 1% solution</td>
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<td>7</td>
<td>*Gardoprim 0.75 l/ha</td>
<td>Twinax 0.1 l/ha + Hasten 0.5%</td>
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<td>0.0</td>
<td>DNH</td>
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<tr>
<td>8</td>
<td>Othello 0.25 l/ha + Partner @ 1% solution</td>
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<td>2.5</td>
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<td>9</td>
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<td>12.5</td>
<td>DNH</td>
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<td>52.5</td>
<td>6.9</td>
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<tr>
<td>13</td>
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<td>0.0</td>
<td>DNH</td>
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<td>Othello 1.0 l/ha + Partner @ 1% solution</td>
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<td>20</td>
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</table>

*N.B.*

* Not registered for use in cereals

DNH = did not harvest because of the severity of Italian ryegrass infestation – these plots would have been very low yielding.
The most effective herbicide treatments for Italian ryegrass control and subsequent yield were Othello at 1.0 l/ha at mid to the end of tillering of the ryegrass and wheat and Firebird 0.3 l/ha pre-em followed by Othello 1.0 l/ha at mid to end of tillering.

Intermediate control was achieved with the early post-em treatments of Hussar 150 g/ha. The pre-em treatments were applied after some ryegrass had begun to emerge which together with the high density of volunteers and cloddy seedbed may have affected the performance of these treatments.

Our guest contributor to FAR Crop Action this week is consultant Pramda Lallu.