Effect of 2,4-D on stand of Brassica napus (Dwarf Essex)

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Objective
To evaluate effect of preplant 2,4-D application on establishment of the cover crop, Brassica napus.

Background
Crop Year: 2012
Location: OSU Unger Farm
County: Crawford
Soil Type: Blount (Silt Loam)
Drainage: Systematic
Previous Crop: Wheat
Tillage: No-tillage

Soil Test: pH 6.8, P 23 ppm
K 124 ppm
Wheat Planting Date: Oct. 17, 2011
Wheat Variety: Marion
Cover crop: Brassica napus
Cover Crop planted: 8/25/2012
Fertilizer: 99-46-60
Cover crop seeding rate: 40 lbs./acre

Methods
Glyphosate-resistant marestail can be controlled by using a systems approach that often includes a fall herbicide treatment to control the weeds that emerge in late summer and fall. The herbicide 2,4-D controls marestail when applied in fall, but has been known to injure/kill broadleaf plants that are planted too soon after application. This study used a randomized complete block design with two treatments replicated 4 times to compare the stand of Brassica napus over 2,4-D treated plots and a control. The treatment of 2,4-D ester at 0.5 lb ai/A plus glyphosate at 0.75 lb ae/A was applied to 10 by 40 feet plots utilizing a 10 foot CO2 plot sprayer calibrated to apply 15 gallons/acre at 40 psi. The control plot was glyphosate at 0.75 lb ae/A. Brassica napus (Dwarf Essex Rape seed) was broadcast spread over all plots at 40 pounds/acre utilizing a calibrated broadcast spreader immediately after herbicide applications on 8/25/2012.

A second trial (same 2 treatments and methods as described above) was conducted with one change; plots were tilled lightly using a tractor-mounted roto tiller (about 1 to 2 inches deep) 3 days after herbicide application and seeding. Rainfall in the amount of 0.5 inch occurred on 8/28/12. A steel rod square frame was thrown randomly into each plot 3 times to measure plant stand on November 15, 2012. An average plant stand was calculated for each replication.

Treatments
1. 2,4-D ester @0.5 lb ai/A + glyphosate @0.75 lb ae/A
2. Control (glyphosate @ .75 lb ae/A)
Results

Table 1. Stand of Brassica napus* (broadcast herbicide with no seed incorporation) on 11/15/2012

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Ave. Stand</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,4-D @ 0.5 lb ai/A</td>
<td>18.3</td>
</tr>
<tr>
<td>Control</td>
<td>18.5</td>
</tr>
</tbody>
</table>

F=0; Not significant. CV =7.8, * Seeded and treated with herbicide on 8/25/2012

Table 2. Stand of Brassica napus* (incorporated herbicide and seed on 8/28) on 11/15/2012

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Ave. Stand</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,4-D @ 0.5 lb ai/A</td>
<td>21.5</td>
</tr>
<tr>
<td>Control</td>
<td>19.7</td>
</tr>
</tbody>
</table>

F=3.8; Not significant. CV = 6.2; * Seeded and treated with herbicide on 8/25/2012

Summary

There was not a significant effect of preplant 2,4-D application on Brassica napus stand, regardless of whether the herbicide was broadcast spread or broadcast spread and lightly incorporated 3 days after treatments. It is not known at this time what the herbicide label interpretation of this treatment is. Further investigation of this treatment with other cover crops, timing and tillage effect is planned. Pesticide applicators are reminded to read and follow pesticide label directions.

Acknowledgement

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