

## X PRE-SEEDING BURNOFF TIMING TRIAL

**Objective:** To investigate the appropriate timing for pre-seeding burnoff using glyphosate prior to seeding a specialty oil (conventional herbicide) canola variety.

**Background:** A pre-seeding application of glyphosate has become a relatively standard practice for growers in reduced tillage situations. The addition of a pre-seed or pre-emergent burnoff may also be an advantage when growing conventional herbicide canola varieties for controlling weeds that are competing with the crop near the time of emergence. The timing of the pre-emergent burnoff may be critical in extracting the most benefit from the application.

**Methodology:** This trial consisted of the following treatments:

1. Burnoff with glyphosate 5-7 days before seeding (DBS)
2. Burnoff with glyphosate -1 day before seeding (DBS)
3. Burnoff with glyphosate 3-5 days after seeding (DAS)
4. Check - no burnoff

The herbicide used was Vantage Plus, at 0.5 to 1 L/ac depending on weeds present (thistle, quackgrass or dandelion required 1 L/ac). The variety used was Nex 710. Weeds were recorded at time of burnoff and in-crop herbicide applications (size, number).

### **Western Canadian Summary:**

CPC Location	Selkirk MB		Grenfell SK		Vegreville AB		Rycroft AB	
	NYD	CMD	NYD	CMD	NYD	CMD	NYD	CMD
<b>PRE-SEEDING BURNOFF TIMING TRIAL</b>								
Burnoff 5-7 Days before seeding	38.4	105	33.0	48	35.4	133	29.0	87
Burnoff 0.5-1 Day before seeding	37.8	91	36.3	72	35.3	132	28.9	86
Burnoff 3-5 Days before seeding	36.9	85	37.8	80	35.1	131	-	-
Check - No burnoff	30.1	44	29.5	38	35.1	138	29.4	98

Note: NYD - Net Yield Data (bu/ac), CMD - Contribution Margin Data (\$/ac)  
(-) Indicates treatment not conducted.

### **SELKIRK**

**Methodology:** The initial burnoff application treatment was actually applied nine days prior to the seeding date of May 27, as a result of wet conditions. The second burnoff timing was applied in the evening prior to seeding the following morning. The final burnoff treatment was made four days after seeding. The Vantage Plus was applied at a rate of 0.6 L/ac based on the weeds present. The trial was not cultivated following the broadcast fertilizer application, but was harrowed. In-crop herbicide applications

included Select (0.08 L/ac), Muster (8 g/ac) and Lontrel (0.17 L/ac) for all treatments at about the 2-leaf stage of the crop. All other management was as described in the *Site Information*.

**Observations:**

The burnoff applications prior to seeding appeared to be quite effective in removing the weeds present, but the application four days after seeding received a heavy rain shower about 45 minutes after spraying was completed. Efficacy was somewhat reduced in patches where the weeds had been more advanced. Wild oats provided the greatest in-crop competition, but wild mustard, stinkweed, lamb's quarters and wild buckwheat were also present. In-crop herbicide applications were effective, but it was evident that the check treatment suffered from greater weed competition. The wild oats in particular were very dense in patches of these plots, and quite advanced (tillering). While the check was somewhat stunted compared to the other treatments at swathing, there was no difference in maturity observed.

**Results: (a) Weed data**

<b>PRE-SEEDING BURNOFF TIMING TRIAL</b>			
<b>Selkirk, MB</b>			
<b>Treatment</b>	<b>Spray Date</b>	<b>Broadleaf Weeds #/m<sup>2</sup> (stage)</b>	<b>Grassy Weeds #/m<sup>2</sup> (stage)</b>
Burnoff 5-7 DBS	May 18	5-10 (1-2 leaf)	100-150 (1-2 leaf)
Burnoff _-1 DBS	May 26	15-25 (3-5 leaf)	200-300 (3-5 leaf)
Burnoff 3-5 DAS	May 31	20-30 (4-6 leaf)	200-300 (4-6 leaf)
Check - no burnoff	N/A	N/A	N/A

Note: N/A - not applicable

**Results: (b) Yield and quality data**

<b>PRE-SEEDING BURNOFF TIMING TRIAL</b>					
<b>Selkirk, MB</b>					
<b>Treatment</b>	<b>Dockage (%)</b>	<b>Yield (bu/ac)</b>	<b>Oil (%)</b>	<b>Grade</b>	<b>Contribution Margin (\$/ac)</b>
Burnoff 5-7 DBS	1.4	38.4	45.7	1	105.37
Burnoff _-1 DBS	1.3	37.8	45.8	2	90.84
Burnoff 3-5 DAS	1.3	36.9	45.8	2	84.61
Check - no burnoff	1.4	30.1	45.7	2	43.59
LSD	0.22	1.78	0.58		
CV%	12.8	3.8	1.0		

**Discussion:** All burnoff applications improved yield as compared to the check, but the timing of the application had no significant impact. Dockage and oil content were similar for all treatments. Three of the four treatments were downgraded based on the cutoff of 2 % green seed for a grade of #1, but it is important to note that the range in green seed among the treatments was relatively small (1.8 to 2.6 %). Contribution margins reflected the yield, herbicide cost and grade.

## **GRENFELL**

**Methodology:** Seeding took place on May 17. The conventional specialty oil variety Nex 710 was seeded at 6.2 lb/ac. A fertilizer blend of 10-25-10-5 (actual) was seed-placed for all treatments. Vantage Plus was applied at 1.0 L/ac as a burnoff. A tank mix of Muster (8 g/ac or 40 ac/pouch), Poast Ultra (0.13 L/ac or 60 ac/case) and Lontrel (0.17 L/ac or 26 ac/jug) was applied at the 2 to 3-leaf stage. A fungicide was applied to control sclerotinia stem rot at the 20 to 25 % bloom stage.

**Observations:** Growing conditions (see *Site Information - Comments*) were very good. Excellent moisture and warm soil temperatures resulted in rapid emergence. Canada thistle, wild buckwheat and volunteer barley were the predominant weeds. Weed pressure was moderate in most areas. Weed pressure was most severe in the check treatment at time of seeding. Periodic showers resulted in a second flush of volunteer barley in the 5 to 7 DBS treatment. In-crop weed control was good. Flea beetles caused some damage during early plant development. Shot hole damage reached 25 % in some areas. Plants outgrew damage quickly because of excellent growing conditions. Canada thistle re-growth at swathing was more prevalent in the check and 5 to 7 DBS treatments.

**Results: (a) Emergence and weed data**

<b>PRE-SEEDING BURNOFF TIMING TRIAL Grenfell, SK</b>				
<b>Treatment</b>	<b>Emergence Counts (plants/m<sup>2</sup>)</b>	<b>Spray Date</b>	<b>Broadleaf Weeds (#/m<sup>2</sup>)</b>	<b>Grassy Weeds (#/m<sup>2</sup>)</b>
Burnoff 5-7 DBS	121	May 9	22	52
Burnoff _-1 DBS	118	May 16	29	54
Burnoff 3-5 DAS	114	May 21	25	49
Check - no burnoff	116	N/A	30	72

Note: N/A - not applicable

**Results: (b) Yield and quality data**

<b>PRE-SEEDING BURNOFF TIMING TRIAL Grenfell, SK</b>				
<b>Treatment</b>	<b>Dockage (%)</b>	<b>Yield (bu/ac)</b>	<b>Oil (%)</b>	<b>Contribution Margin (\$/ac)</b>
Burnoff 5-7 DBS	2.9	33.0	44.5	47.95
Burnoff _-1 DBS	2.8	36.6	45.4	72.25
Burnoff 3-5 DAS	2.6	37.8	45.7	80.35
Check - no burnoff	3.7	29.5	45.3	37.63
LSD		3.78	1.96	
CV%		7.0	2.7	

**Discussion:** Yield differences of 3.78 bu/ac or more are significant. Only the \_-1 day before and 3 to 5 days after seeding burnoff treatments yielded significantly higher than the check. Contribution margins reflect differences in yield and costs associated with applying glyphosate.

Increased weed pressure contributed to the higher dockage and reduced yield and contribution margin of the check treatment.

## **VEGREVILLE**

**Methodology:** This trial was seeded on May 12. All burnoff treatments were sprayed with Vantage Plus (0.7 L/ac) at their respective intervals. Post emergent weed control consisted of Select (40 ac/case) on June 6 and Fusion (20 ac/case) on June 20.

**Observation:** Due to the dry conditions during seeding (*Site Information - Comments*), there were very few weeds present during each burnoff treatment. There were no differences among treatments throughout the growing season.

**Results: (a) Weed data**

<b>PRE-SEEDING BURNOFF TIMING TRIAL</b>			
<b>Vegreville, AB</b>			
<b>Treatment</b>	<b>Spray Date</b>	<b>Broadleaf Weeds (#/m<sup>2</sup>)</b>	<b>Grassy Weeds (#/m<sup>2</sup>)</b>
Burnoff 5-7 DBS	May 7	0	0
Burnoff _-1 DBS	May 11	0	0
Burnoff 3-5 DAS	May 15	0	1
Check - no burnoff	N/A	0	1

Note: N/A - not applicable

**Results: (b) Yield and quality data**

<b>PRE-SEEDING BURNOFF TIMING TRIAL</b>				
<b>Vegreville, AB</b>				
<b>Treatment</b>	<b>Dockage (%)</b>	<b>Yield (bu/ac)</b>	<b>Oil (%)</b>	<b>Contribution Margin (\$/ac)</b>
Burnoff 5-7 DBS	2.9	35.4	45.8	133.23
Burnoff _-1 DBS	2.9	35.3	46.5	132.10
Burnoff 3-5 DAS	2.8	35.1	46.4	131.07
Check - no burnoff	3.3	35.1	45.8	138.20
LSD		2.40	0.95	
CV%		1.1	1.6	

**Discussion:**

There were no significant differences in yield or oil content among treatments. The check treatment had the highest contribution margin because there was no added cost of having a burnoff treatment. Results from this trial at this site display the importance of walking fields to determine whether or not a burnoff is needed.

**RYCROFT**

**Methodology:**

This trial was seeded into good soil moisture conditions on May 23 at a rate of 8 lb/ac. Harrows were used to incorporate a fertilizer blend (60-20-20-15 actual) that was spring broadcast. Vantage Plus (0.5 L/ac rate) was used as the burnoff herbicide. Muster Gold II (Muster @ 8 g/ac and Assure II @ 0.2 L/ac) was sprayed on June 30. The whole trial was swathed on September 6 and harvested on October 2.

**Observations:**

Due to unfavourable spraying conditions after seeding, the 3 to 5 days after seeding treatment could not be included at this site. Very few weeds were present at the time of burnoff. Most weeds emerged

approximately one to two weeks after seeding. Adequate rainfall continued throughout the rest of the growing season.

**Results: (a) Weed data**

<b>PRE-SEEDING BURNOFF TIMING TRIAL Rycroft, AB</b>			
<b>Treatment</b>	<b>Spray Date</b>	<b>Broadleaf Weeds (#/m<sup>2</sup>)</b>	<b>Grassy Weeds (#/m<sup>2</sup>)</b>
Burnoff 5-7 DBS	May 16	0	0
Burnoff _-1 DBS	May 22	24	4
Check - no burnoff	N/A	0	0

Note: N/A - not applicable

**Results: (b) Yield and quality data**

<b>PRE-SEEDING BURNOFF TIMING TRIAL Rycroft, AB</b>				
<b>Treatment</b>	<b>Dockage (%)</b>	<b>Yield (bu/ac)</b>	<b>Oil (%)</b>	<b>Contribution Margin (\$/ac)</b>
Burnoff 5-7 DBS	8.6	29.0	47.1	87.15
Burnoff _-1 DBS	9.0	28.9	46.4	86.43
Check - no burnoff	9.4	29.4	46.0	98.25
LSD		2.19	1.28	
CV%		5.5	2.0	

**Discussion:** Due to minimal weed emergence at the time of burnoff, no significant differences were noted between each treatment. Contribution margins reflect differences in yield and herbicide costs.