

XI PRE-SEEDING BURNOFF TIMING TRIAL

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

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

Methodology: Four treatments were used in an RCB design with four replicates:

1. 5 to 7 Days Before Seeding (DBS)
2. ½ to 1 Day Before Seeding (DBS)
3. 3 to 5 Days After Seeding (before crop emergence) (DAS)
4. Check (no burnoff)

The variety used was Nex 715. The herbicide used was Vantage Plus, applied at ½ to 1 L/ac depending upon weed spectrum present (ie. presence of quack grass, dandelion, or thistle would require the 1 L/ac rate). In-crop applications of appropriate herbicides were used.

Western Canadian Summary:

CPC Location	Selkirk, MB		Lethbridge (Dryland), AB		Lethbridge (Irrigation), AB		Rycroft, AB	
	NYD	CMD	NYD	CMD	NYD	CMD	NYD	CMD
PRE-SEEDING BURNOFF TIMING TRIAL								
Burnoff 5-7 Days Before Seeding	30.8	146	10.5	28	49.5	318	22.1	65
Burnoff 1 Day Before Seeding	29.3	131	9.9	22	51.2	334	24.4	84
Burnoff 3-5 Days After Seeding	30.3	141	11.0	33	48.8	311	23.3	75
Check - No burnoff	28.5	134	5.1	(17)	46.0	295	18.5	45
LSD (bu/ac)	2.88		1.51		2.31		3.01	
CV (%)	7.5		12.7		3.6		10.5	

Note: NYD - Net Yield Data (bu/ac), CMD - Contribution Margin Data (\$/ac)
 (-) Indicates treatment not conducted.
 Brackets in the CMD reflect a negative value.

Discussion:

A burnoff application of glyphosate prior to emergence tended to improve yield and economic returns at all locations. Regardless of when the burnoff was applied, the weed control advantage was still obtained and provided an additional \$12/ac return on average. The closer the burnoff is applied to crop emergence, the longer the weed-free period will be extended during early crop development. However, there are risks involved in delaying the burnoff application until after seeding. If weather conditions are not favourable prior to emergence, the opportunity for applying a burnoff can be lost. If a burnoff opportunity is missed, there is potential for weeds to reach a stage of development that will make them harder to control with an in-crop herbicide application.

SELKIRK

Methodology:

Seeding of this trial was delayed until May 29 in order to allow for the 5 day timing between the first burn-off treatment and seeding. The seed was placed at a depth of ¾". Vantage Plus was applied at a rate of 0.75 L/ac as a burn-off treatment on May 24, May 28 and June 2 to the appropriate treatments. In-crop herbicide applications included Select (0.075 L/ac), Muster (8 g/ac) and Lontrel (0.17 L/ac) applied at the 5-leaf stage of the canola.

Observations:

Cold conditions delayed emergence of most of the annual weeds, so the weeds present at the time of the burn-off treatments were primarily over-wintering broadleaves such as stinkweed and dandelion. Densities were low to moderate. Soil moisture was excellent at seeding, and the delayed seeding allowed for warmer temperatures that resulted in emergence in approximately 6 days. Most of the annual grasses and broadleaf weeds emerged after the burn-off treatments due to rain showers and improved temperatures. Both the burn-off and in-crop herbicide applications provided good weed control. No visible differences in crop growth were noted during the latter part of the growing season.

Results: (a) Weed data

PRE-SEEDING BURNOFF TIMING TRIAL			
Selkirk, MB			
Treatment	Spray Date	Broadleaf Weeds (#/m²)	Grassy Weeds (#/m²)
Burnoff 5-7 DBS	May 24	14	3
Burnoff 1 DBS	May 28	26	14
Burnoff 3-5 DAS	June 2	10	7
Check - no burnoff	N/A	N/A	N/A

Note: N/A - not applicable

Results: (b) Yield and quality data

PRE-SEEDING BURNOFF TIMING TRIAL					
Selkirk, MB					
Treatment	Dockage (%)	Yield (bu/ac)	Oil (%)	Grade	Contribution Margin (\$/ac)
Burnoff 5-7 DBS	2.5	30.8	44.0	1	146.25
Burnoff 1 DBS	2.3	29.3	43.8	1	131.25
Burnoff 3-5 DAS	2.4	30.3	43.8	1	141.25
Check - no burnoff	2.2	28.5	44.0	1	134.41
LSD		2.88	0.47		
CV%		7.5	0.8		

Discussion: There were no significant differences in yield, dockage, grade or oil content among the treatments. Contribution margins reflected minor differences in yield as well as differences in herbicide and equipment costs.

LETHBRIDGE (IRRIGATION)

Methodology: Vantage Plus was sprayed at 0.5 L/ac on the three burnoff treatments at 5 days before seeding, the day of seeding and 5 days after seeding. All treatments were seeded with Nex 715 at a rate of 4 lb/ac. Weed counts were done prior to spraying. All treatments received an in-crop application of Poast Ultra (0.19 L/ac) and Muster (12 g/ac), followed with an application of Lontrel (0.2 L/ac) three days later to control newly emerged sow thistle.

Observations: Weeds were not readily visible, however, upon closer examination weeds were present in all plots prior to burnoff applications. Weeds present were primarily volunteer cereals and some stinkweed. Plots sprayed with Vantage Plus had excellent weed control. Weeds were prevalent and were flourishing quite well in the check treatment prior to spraying at the two-leaf stage of the crop. In-crop weed control was excellent in all treatments. Maturity differences were negligible.

Results: (a) Weed data

PRE-SEEDING BURNOFF TIMING TRIAL Lethbridge (Irrigation), AB			
Treatment	Spray Date	Broadleaf Weeds (#/m²)	Grassy Weeds (#/m²)
Burnoff 5-7 DBS	May 15	0	56
Burnoff 1 DBS	May 20	1	55
Burnoff 3-5 DAS	May 26	6	13
Check - no burnoff	N/A	2	21

Note: N/A - not applicable

Results: (b) Yield and quality data

PRE-SEEDING BURNOFF TIMING TRIAL Lethbridge (Irrigation), AB					
Treatment	Dockage (%)	Yield (bu/ac)	Oil (%)	Grade	Contribution Margin (\$/ac)
Burnoff 5-7 DBS	4.6	49.5	44.0	2	318.21
Burnoff 1 DBS	4.4	51.2	44.1	2	334.71
Burnoff 3-5 DAS	4.1	48.8	44.2	2	311.41
Check - no burnoff	3.6	46.2	44.2	2	294.96
LSD		2.31	0.67		
CV%		3.6	1.1		

Discussion: The check treatment yielded significantly lower than all other treatments. The results emphasize the importance of scouting fields and controlling weeds prior to seeding. Weeds emerging prior to the crop can cause greater yield losses. There were no significant differences in oil content.

LETHBRIDGE (DRYLAND)

Methodology: Vantage Plus was sprayed at 0.5 L/ac on the three burnoff treatments at 5 days before seeding, the day of seeding and 5 days after seeding. All treatments were seeded with Nex 715 at a rate of 4 lb/ac. Weed counts were done prior to spraying. All treatments received an in-crop application of Poast Ultra (0.19 L/ac) and Muster (12 g/ac), followed with spot spraying of Lontrel (0.2 L/ac) three days later.

Observations: Weeds were present in all plots prior to spraying and or seeding. Weed control was excellent in the pre-seed burnoff treatments, following both the burnoff and in-crop herbicide applications. Weed stages were near the upper limit for acceptable control (based on label recommendations) in the check treatment at the time of in-crop herbicide applications. As a result, weed control in the check was fair with a number of volunteer wheat and stinkweed escapes.

Results: (a) Weed data

PRE-SEEDING BURNOFF TIMING TRIAL Lethbridge (Dryland), AB			
Treatment	Spray Date	Broadleaf Weeds (#/m²)	Grassy Weeds (#/m²)
Burnoff 5-7 DBS	May 6	103	3
Burnoff 1 DBS	May 16	71	28
Burnoff 3-5 DAS	May 21	42	6
Check - no burnoff	N/A	84	18

Note: N/A - not applicable

Results: (b) Yield and quality data

PRE-SEEDING BURNOFF TIMING TRIAL Lethbridge (Irrigation Dryland), AB					
Treatment	Dockage (%)	Yield (bu/ac)	Oil (%)	Grade	Contribution Margin (\$/ac)
Burnoff 5-7 DBS	12.0	10.5	42.6	1	28.09
Burnoff 1 DBS	9.8	9.9	41.7	1	22.09
Burnoff 3-5 DAS	13.0	11.0	41.5	1	33.09
Check - no burnoff	17.0	5.1	41.8	1	(17.07)
LSD		1.51	0.67		
CV%		12.7	1.24		

Brackets in Contribution Margin column reflect a negative value.

Discussion: The check treatment yielded significantly lower than all other treatments. Although the yields were low, the importance of controlling weeds was demonstrated. There were no significant differences in oil content.

RYCROFT

Methodology:

Due to wet conditions in mid May, seeding was delayed until June 4 to allow for the appropriate timing of weed removal according to protocols. All treatments received a total of 70-30-15-15 lb/ac of actual nutrients. 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 used for in-crop weed removal on July 7.

Observations:

All burnoff applications appeared to be very effective in removing the weeds present. Wild oats and volunteer wheat provided the greatest in-crop competition. In-crop herbicide application was delayed based on the stage of the canola and the recommended window of application for Muster (2-leaf stage to bolting for canola). Weed control was not effective due to the advanced stage of the weeds, especially in the check treatment.

Results: (a) Weed data

PRE-SEEDING BURNOFF TIMING TRIAL Rycroft, AB			
Treatment	Spray Date	Broadleaf Weeds (#/m²)	Grassy Weeds (#/m²)
Burnoff 5-7 DBS	May 31	22	22
Burnoff 1 DBS	June 4	24	20
Burnoff 3-5 DAS	June 8	28	12
Check - no burnoff	N/A	N/A	N/A

Note: N/A - not applicable.

Results: (b) Yield and quality data

PRE-SEEDING BURNOFF TIMING TRIAL Rycroft, AB					
Treatment	Dockage (%)	Yield (bu/ac)	Oil (%)	Grade	Contribution Margin (\$/ac)
Burnoff 5-7 DBS	5.4	22.1	45.3	sample	65.90
Burnoff 1 DBS	6.1	24.4	45.0	sample	83.61
Burnoff 3-5 DAS	6.0	23.3	45.2	sample	75.11
Check - no burnoff	6.5	18.5	44.5	sample	44.80
LSD		3.01			
CV%		10.5			

Discussion:

The check treatment yielded significantly lower than all other treatments. Although the yields were low, the importance of controlling weeds was demonstrated.