

# 10. SOYBEANS

**NOTES:** Weed control ratings are given as 0–9 where 0 indicates no control and 9 indicates 90%–100% control under ideal conditions. Ratings are subjective values based on best available information and give general comparisons based on use as described in this guide. Under unfavourable conditions (e.g., too dry, too wet, too cold or poor application) the herbicides may not be as effective as indicated. Ratings may vary with weed and crop stage and with the timing and rates of the product(s) being used. Always refer to the product label for more information on registered weed species, product uses and precautions.

**TABLE 10–1. Conventional Soybean Herbicide Weed Control Ratings**

Trade Name	WSSA group(s)	Grasses								Annual Broadleaves										Perennials					Crop Tolerance				
		barnyard grass	crabgrass	fall panicum	foxtail, giant	foxtail, green	foxtail, yellow	witchgrass	proso millet	buckwheat, wild	cocklebur	fleabane, Canada	lady's thumb	lamb's-quarters	mustards	nightshades, annual	pigweeds	ragweed, common	ragweed, giant	velvetleaf	waterhemp	bindweed, field	horsetail	milkweed		nutsedge	quackgrass	sow-thistle	thistle, Canada
Preplant burndown and/or early preemergence (3 days after planting) Herbicides. Ratings are based on weeds being emerged at the time of application. Also refer to Table 10–4. Soybean Herbicide Weed Control Ratings in Glyphosate Tolerant Soybeans, for a list of herbicides along with their contact and residual weed control ratings.																													
2,4-D ESTER 700	4	0	0	0	0	0	0	0	0	–	8	7	–	8	8	–	–	8	9	–	5	–	–	–	–	8 <sup>4</sup>	8 <sup>4</sup>	G	
ASSIGNMENT*	2+9	9	9	9 <sup>5</sup>	9	9 <sup>5</sup>	9 <sup>5</sup>	9	9 <sup>5</sup>	8	9	8 <sup>R</sup>	8	9	9	9	9	9 <sup>R</sup>	8 <sup>R</sup>	9	9 <sup>R</sup>	8 <sup>4</sup>	5	8	8 <sup>1</sup>	9	8 <sup>4</sup>	9 <sup>4</sup>	E
BLACKHAWK	14,4	0	0	0	0	0	0	0	0	–	8	7	–	8	8	–	9	8	9	–	7	–	7 <sup>4</sup>	–	–	–	8 <sup>4</sup>	8 <sup>4</sup>	G
ELEVORE	4	0	0	0	0	0	0	0	0	–	–	7	–	8	–	–	5	8	–	–	5	–	–	–	–	–	–	–	G
ERAGON LQ	14	0	0	0	0	0	0	0	0	9	–	8	9	9	9	–	9	7	6	–	4	7 <sup>4</sup>	7 <sup>4</sup>	–	–	–	8 <sup>4</sup>	–	E
EXPRESS SG + glyphosate <sup>3</sup>	2+9	9	9	9	9	9	9	9	9	9	9	9 <sup>R</sup>	9	9	9	9	9	9 <sup>R</sup>	8 <sup>R</sup>	9	9 <sup>R</sup>	–	–	–	–	9	8 <sup>4</sup>	7 <sup>4</sup>	E
glyphosate <sup>3</sup>	9	9	9	9	9	9	9	9	9	9	9	9 <sup>R</sup>	9	9	9	9	9	9 <sup>R</sup>	8 <sup>R</sup>	9	9 <sup>R</sup>	8 <sup>4</sup>	5	8	8 <sup>1</sup>	9	8 <sup>4</sup>	9 <sup>4</sup>	E
GUARDIAN MAX*	2+9	9 <sup>5</sup>	9 <sup>5</sup>	9	9	9	9	9	9 <sup>5</sup>	9	9	9 <sup>R</sup>	9	9	9	9	9	9 <sup>R</sup>	9 <sup>R</sup>	8	0	8 <sup>4</sup>	5	8	8 <sup>1</sup>	9	8 <sup>4</sup>	9 <sup>4</sup>	G
INTEGRITY	15,14	7	7	–	–	7	7	–	–	9	–	8	9	9	9	–	9	7	6	–	7	7 <sup>4</sup>	7 <sup>4</sup>	–	–	–	8 <sup>4</sup>	–	E
OPTILL	14,2	8	7	7	9 <sup>R</sup>	9 <sup>R</sup>	9	8	7	8	7	8	9	9 <sup>R</sup>	9	9 <sup>R</sup>	9 <sup>R</sup>	7	7	9	–	7 <sup>4</sup>	7 <sup>4</sup>	–	7	6	8 <sup>4</sup>	2	E
<b>Soil Applied Grass Herbicides</b>																													
DUAL II MAGNUM or KOMODO	15	9	9	8 <sup>2</sup>	8	9	9	9	4	2	2	0	2	7	2	8 <sup>2</sup>	8 <sup>2</sup>	4	3	2	8 <sup>2</sup>	0	0	0	8 <sup>1,2</sup>	0	0	0	G
FOCUS	15,14	9	9	–	9	9	9	–	–	8	–	–	–	7	8	8 <sup>2</sup>	8 <sup>2</sup>	7	–	–	6	–	–	–	–	–	–	–	G

<sup>1</sup> PPI timing and the highest labeled rate is required to achieve this level of control.

<sup>2</sup> Use the high rate of herbicide for optimum control.

<sup>3</sup> Various equivalent products exist, see Table 3–1. *Herbicides Used in Ontario*

<sup>4</sup> Top growth only, re-growth will occur.

<sup>5</sup> Will provide early season residual control of this weed.

<sup>6</sup> Must be applied prior to weed emergence to achieve this level of control.

**TABLE 10–1. Conventional Soybean Herbicide Weed Control Ratings (cont'd)**

**LEGEND:** Numbers (0–9) = weed control ratings Crop tolerance ratings: E = Excellent, G = Good, F = Fair, P = Poor – = insufficient information available to make a rating  
 \* = sold as a co-pack under this trade name R = populations resistant to this herbicide exist in Ontario and won't be adequately controlled if present

Trade Name	WSSA group(s)	Grasses								Annual Broadleaves										Perennials						Crop Tolerance			
		barnyard grass	crabgrass	fall panicum	foxtail, giant	foxtail, green	foxtail, yellow	witchgrass	proso millet	buckwheat, wild	cocklebur	fleabane, Canada	lady's thumb	lamb's-quarters	mustards	nightsades, annual	pigweeds	ragweed, common	ragweed, giant	velvetleaf	waterhemp	bindweed, field	horsetail	milkweed	nutsedge		quackgrass	sow-thistle	thistle, Canada
<b>Soil Applied Grass Herbicides (Cont'd)</b>																													
FRONTIER MAX	15	9	9	8 <sup>2</sup>	8	9	9	9	4	2	2	0	2	7	2	8 <sup>2</sup>	8 <sup>2</sup>	4	3	2	7 <sup>2</sup>	0	0	0	8 <sup>1,2</sup>	0	0	0	G
PROWL H2O	3	9	9	9	8	8	8	-	5	-	-	-	7	-	-	8	-	-	-	7	-	-	-	-	-	-	-	-	F
TREFLAN, BONANZA 480, RIVAL EC or TRIFLUREX 40 EC	3	9	9	8	9	9	9	9	6	5	2	0	2	8	2	2	8	2	1	2	-	2	2	2	2	2	2	2	G
ZIDUA SC	15	9	9	8 <sup>2</sup>	9	9	9	9	4	2	2	0	2	7	2	8 <sup>2</sup>	8 <sup>2</sup>	4	3	2	7 <sup>2</sup>	0	0	0	8 <sup>1,2</sup>	0	0	0	G
<b>Soil Applied Broadleaf Herbicides</b>																													
AUTHORITY 480	14	-	8	-	-	-	-	-	-	9	-	-	-	9	-	9	9	4	-	-	6	-	-	-	-	-	-	-	G
BIFECTA EZ	14,2	7	6	7	5	6	6	8	3	9	7	8 <sup>6</sup>	9	9	9	9	9	7	7	7	8	2	2	2	2	2	2	2	G
BROADSTRIKE RC	2	0	0	0	0	5	0	0	0	-	7 <sup>R</sup>	8 <sup>R</sup>	8	9 <sup>R</sup>	8	7 <sup>R</sup>	9 <sup>R</sup>	8 <sup>R</sup>	7 <sup>R</sup>	9	-	-	8	-	-	-	-	-	E
CANOPY PRO*	2+5	7	6	7	5	5	5	8	3	8	7	8 <sup>R</sup>	9	9 <sup>R</sup>	9	3	9 <sup>R</sup>	8 <sup>R</sup>	8 <sup>R</sup>	8	-	2	2	2	8	2	2	2	G
FIRSTRATE	2	0	0	0	0	0	0	0	0	-	9 <sup>R</sup>	9 <sup>R</sup>	-	9 <sup>R</sup>	-	2	9 <sup>R</sup>	9 <sup>R</sup>	9 <sup>R</sup>	9	1	-	2	-	-	2	6	-	E
LOROX	7	5	5	5	5	5	5	5	5	8	5	5	9	9	9	9	9 <sup>R</sup>	8	6	6	-	2	2	2	2	2	2	2	G
SENCOR, metribuzin <sup>3</sup>	5	7	6	7	5	5	5	8	3	7	7	8 <sup>2</sup>	9	9 <sup>R</sup>	9	3	9 <sup>R</sup>	8 <sup>R</sup>	7	7	8 <sup>R</sup>	2	2	2	2	2	2	2	G
VALTERA EZ	14	3	3	3	5	6	6	3	-	-	4	8 <sup>6</sup>	7	9	6	9	9	7	3	7	8	-	-	-	-	-	-	-	G
<b>Soil Applied Grass and Broadleaf Herbicides</b>																													
AUTHORITY SUPREME	14,15	9	9	8 <sup>2</sup>	9	9	9	9	4	9	-	-	-	9	6	9	9	6	-	-	8	-	-	-	8 <sup>2</sup>	-	-	-	G
BOUNDARY LQD	15,5	9	9	8	8	9	9	9	4	-	-	5 <sup>6</sup>	-	7	-	8 <sup>2</sup>	8 <sup>2</sup>	6	-	-	8	-	-	-	8 <sup>1</sup>	-	-	-	E
COMMAND 360 ME	13	9	9	-	-	9	9	-	-	-	-	-	8	9	-	9	6	8	-	9	-	-	-	-	-	-	-	-	E
COMMENZA*	2,5,15	9	9	9	9	9	9	9	6	8	7	8 <sup>R</sup>	9	9 <sup>R</sup>	9	9	9 <sup>R</sup>	8 <sup>R</sup>	8 <sup>R</sup>	9	8 <sup>2</sup>	-	8	-	8 <sup>1</sup>	-	-	-	E
CONQUEST LQ*	2,5	8	7	7	9	9	9	8	7	8	7	5	9	9 <sup>R</sup>	9	9 <sup>R</sup>	9 <sup>R</sup>	7	6	9	-	2	2	2	7	6	2	2	G

<sup>1</sup> PPI timing and the highest labeled rate is required to achieve this level of control.

<sup>2</sup> Use the high rate of herbicide for optimum control.

<sup>3</sup> Various equivalent products exist, see Table 3–1. *Herbicides Used in Ontario*

<sup>4</sup> Top growth only, re-growth will occur.

<sup>5</sup> Will provide early season residual control of this weed.

<sup>6</sup> Must be applied prior to weed emergence to achieve this level of control.

**TABLE 10–1. Conventional Soybean Herbicide Weed Control Ratings (cont'd)**

**LEGEND:** Numbers (0–9) = weed control ratings  
\* = sold as a co-pack under this trade name

Crop tolerance ratings: E = Excellent, G = Good, F = Fair, P = Poor

– = insufficient information available to make a rating

R = populations resistant to this herbicide exist in Ontario and won't be adequately controlled if present

Trade Name	WSSA group(s)	Grasses							Annual Broadleaves										Perennials						Crop Tolerance				
		barnyard grass	crabgrass	fall panicum	foxtail, giant	foxtail, green	foxtail, yellow	witchgrass	proso millet	buckwheat, wild	cocklebur	fleabane, Canada	lady's thumb	lamb's-quarters	mustards	nightshades, annual	pigweeds	ragweed, common	ragweed, giant	velvetleaf	waterhemp	bindweed, field	horsetail	milkweed		nutsedge	quackgrass	sow-thistle	thistle, Canada
<b>Soil Applied Grass and Broadleaf Herbicides (Cont'd)</b>																													
FIERCE EZ	14,15	9	9	8 <sup>2</sup>	9	9	9	8	–	8	5	8 <sup>6</sup>	8	9	9	9	9	6	5	7	9	–	–	–	–	–	–	–	G
FREESTYLE*	2,2	8	7	7	9 <sup>R</sup>	9 <sup>R</sup>	9	8	7	8	7 <sup>R</sup>	8 <sup>R</sup>	9	9 <sup>R</sup>	9	9 <sup>R</sup>	9 <sup>R</sup>	8 <sup>R</sup>	8 <sup>R</sup>	9	1	2	2	2	8	6	2	2	F
PURSUIT, PHANTOM or NU-IMAGE	2	8	7	7	9 <sup>R</sup>	9 <sup>R</sup>	9	8	7	8	7 <sup>R</sup>	2	9	9 <sup>R</sup>	9	9 <sup>R</sup>	9 <sup>R</sup>	8 <sup>R</sup>	6	9	1	2	2	2	7	6	2	2	F
STRIM MTZ	15+5	9	9	8	8	9	9	9	5	7	7	5 <sup>6</sup>	9	9	9	8 <sup>2</sup>	9	6	7	7	8 <sup>2</sup>	2	2	2	7	2	2	2	G
TRIACTOR EZ	2,5,14	8	7	7	9	9	9	8	7	8	7	8 <sup>6</sup>	9	9	9	9	9	9 <sup>R</sup>	6	9	8	2	2	2	7	6	2	2	G
<b>Soil Applied Tank-Mixes</b>																													
BROADSTRIKE RC + DUAL II MAGNUM	15+5	9	9	8	8	9	9	9	6	7	7	9 <sup>R</sup>	9	9 <sup>R</sup>	9	9	9	8 <sup>R</sup>	7	9	8 <sup>2</sup>	2	8	–	8 <sup>1</sup>	0	3	4	E
BROADSTRIKE RC + TREFLAN <sup>3</sup>	2+3	9	9	8	9	9	9	9	6	5	4	8 <sup>R</sup>	8	9	8	7	9	8 <sup>R</sup>	7	9	–	2	2	2	2	2	2	2	E
COMMAND 360 ME + DUAL	13+15	9	9	8	9	9	9	9	4	–	–	–	–	9	–	9	8	8	–	9	–	–	–	–	8	–	–	–	E
COMMAND 360 ME + LOROX	13+7	9	9	–	–	9	9	–	–	–	–	–	–	9	–	9	9	9	–	9	–	–	–	–	–	–	–	–	G
COMMAND 360 ME + PURSUIT <sup>3</sup>	13+2	9	9	7	9	9	9	8	7	8	7	–	9	9	9	9	9	8	6	9	–	–	–	–	7	–	–	–	E
COMMAND 360 ME + SENCOR <sup>3</sup>	13+5	9	9	–	–	9	9	–	–	–	–	5 <sup>6</sup>	–	9	–	9	9	9	–	9	–	–	–	–	–	–	–	–	G
DUAL II MAGNUM <sup>3</sup> + LOROX	15+7	9	9	8	8	9	9	9	5	8	5	3 <sup>6</sup>	9	9	9	8	9	8	6	6	8 <sup>2</sup>	2	2	2	7	2	2	2	G
DUAL II MAGNUM <sup>3</sup> + SENCOR <sup>3</sup>	15+5	9	9	8	8	9	9	9	5	7	7	5 <sup>6</sup>	9	9	9	8 <sup>2</sup>	9	8	7	7	8 <sup>2</sup>	2	2	2	7	2	2	2	G
DUAL II MAGNUM <sup>3</sup> + PURSUIT	15+2	9	9	8	8	9	9	9	7	8	7	–	9	9	9	9 <sup>2</sup>	9	8	6	9	8 <sup>2</sup>	2	2	2	7	6	2	2	G
FRONTIER MAX + SENCOR <sup>3</sup>	15+5	9	9	8	8	9	9	9	5	7	7	5 <sup>6</sup>	9	9 <sup>R</sup>	9 <sup>R</sup>	8 <sup>2</sup>	9	8 <sup>R</sup>	7	7	8 <sup>2</sup>	2	2	2	8 <sup>1</sup>	2	2	2	G
FRONTIER MAX + PURSUIT <sup>3</sup>	15+2	9	9	8	9	9	9	9	7	8	7 <sup>R</sup>	–	9	9 <sup>R</sup>	9	9	9	8 <sup>R</sup>	6	9	7 <sup>2</sup>	2	2	2	7	6	2	2	G
PURSUIT <sup>3</sup> + FIRSTRATE	2+2	8	7	7	9 <sup>R</sup>	9 <sup>R</sup>	9	8	7	8	9 <sup>R</sup>	9 <sup>R</sup>	9	9 <sup>R</sup>	9	9 <sup>R</sup>	9 <sup>R</sup>	9 <sup>R</sup>	9	9	1	2	2	2	7	6	2	2	E
PURSUIT <sup>3</sup> + PROWL H20	2+3	9	9	9	9	9	9	8	7	8	7 <sup>R</sup>	2	9	9	9	9 <sup>R</sup>	9 <sup>R</sup>	8 <sup>R</sup>	6	9	2	2	2	2	7	6	2	2	G

<sup>1</sup> PPI timing and the highest labeled rate is required to achieve this level of control.

<sup>2</sup> Use the high rate of herbicide for optimum control.

<sup>3</sup> Various equivalent products exist, see Table 3–1. *Herbicides Used in Ontario*

<sup>4</sup> Top growth only, re-growth will occur.

<sup>5</sup> Will provide early season residual control of this weed.

<sup>6</sup> Must be applied prior to weed emergence to achieve this level of control.

**TABLE 10–1. Conventional Soybean Herbicide Weed Control Ratings (cont'd)**

**LEGEND:** Numbers (0–9) = weed control ratings Crop tolerance ratings: E = Excellent, G = Good, F = Fair, P = Poor – = insufficient information available to make a rating  
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Trade Name	WSSA group(s)	Grasses								Annual Broadleaves										Perennials					Crop Tolerance				
		barnyard grass	crabgrass	fall panicum	foxtail, giant	foxtail, green	foxtail, yellow	witchgrass	proso millet	buckwheat, wild	cocklebur	fleabane, Canada	lady's thumb	lamb's-quarters	mustards	nightsades, annual	pigweeds	ragweed, common	ragweed, giant	velvetleaf	waterhemp	bindweed, field	horsetail	milkweed		nutsedge	quackgrass	sow-thistle	thistle, Canada
<b>Soil Applied Tank-Mixes (Cont'd)</b>																													
PURSUIT <sup>3</sup> + LOROX	2+7	8	7	7	9 <sup>R</sup>	9 <sup>R</sup>	9	8	7	8	7	3 <sup>6</sup>	9	9	9	9	9	8	6	9	–	2	2	2	7	6	2	2	G
PURSUIT <sup>3</sup> + SENCOR <sup>3</sup>	2+5	8	7	7	9 <sup>R</sup>	9 <sup>R</sup>	9	8	5	8	7	5 <sup>6</sup>	9	9 <sup>R</sup>	9	9 <sup>R</sup>	9 <sup>R</sup>	8	7	9	–	2	2	2	7	6	2	2	G
PURSUIT <sup>3</sup> + TREFLAN <sup>3</sup>	2+3	9	9	8	9	9	9	9	7	8	7 <sup>R</sup>	–	9	9 <sup>R</sup>	9	9	9 <sup>R</sup>	8 <sup>R</sup>	6	9	–	2	2	2	7	6	2	2	G
TREFLAN <sup>3</sup> + SENCOR <sup>3</sup>	3+5	9	9	8	9	9	9	9	6	7	7	5 <sup>6</sup>	9	9	9	3	9	8	7	8	–	2	2	2	2	2	2	2	G
<b>Postemergence Grass Herbicides</b>																													
ASSURE II, CONTENDER or YUMA GL	1	9	8	9	9	9	9	9	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	E
POAST ULTRA	1	9	8	9	9	9	9	9	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	E
SELECT, STATUE, ANTLER, CLETHODIM 240 or ARROW ALL-IN	1	9	8	9	9	9	9	9	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	E
VENTURE L	1	9	8	9	8	8	9	9	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	E
<b>Postemergent Broadleaf Herbicides</b>																													
BASAGRAN FORTÉ, BROADLOOM or BENTA SUPER	6	0	0	0	0	0	0	0	0	7	9	5	9	7	9	7	7	8	6	9	1	5	2	2	7	0	5	7	G
BLAZER, ULTRA	14	0	0	0	0	0	0	0	0	7	6	2	8	7	9	8	9	9	7	7	8	7	6	5	2	2	6	6	G
CLASSIC or CHAPERONE	2	0	0	0	0	0	0	0	0	4	8 <sup>R</sup>	8 <sup>R</sup>	8	3	9	3	9 <sup>R</sup>	8 <sup>R</sup>	8 <sup>R</sup>	8	0	2	2	8	9	2	8	4	G
FIRSTRATE	2	0	0	0	0	0	0	0	0	7	9 <sup>R</sup>	9 <sup>R</sup>	–	2	9	2	2	9 <sup>R</sup>	9 <sup>R</sup>	9	0	–	2	–	–	2	7	7	E
HURRICANE	6,14	0	0	0	0	0	0	0	0	–	–	–	–	6	–	–	8	8	–	8	8	–	–	–	–	–	–	–	G
PINNACLE SG	2	0	0	0	0	0	0	0	0	–	5	2	8	9 <sup>R</sup>	8	3	9 <sup>R</sup>	5	2	8	1	2	2	2	2	2	2	2	G
REFLEX	14	0	0	0	0	0	0	0	0	8	7	2	8	6	9	8	9	9	7	6	8	3	6	2	–	0	5	3	G

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<b>Postemergence Grass and Broadleaf Herbicides</b>																														
CLEAN SWEEP*	2+6	9	8	6	9 <sup>R</sup>	9 <sup>R</sup>	9	9	7	8	9	5	9	8	9	9 <sup>R</sup>	9 <sup>R</sup>	8	6 <sup>R</sup>	9	1	5	2	2	8	2	5	7	G	
PURSUIT, PHANTOM or NU-IMAGE	2	9	8	6	9 <sup>R</sup>	9 <sup>R</sup>	9	9	7	8	8 <sup>R</sup>	2	9	8 <sup>R</sup>	9	9 <sup>R</sup>	9 <sup>R</sup>	8 <sup>R</sup>	8 <sup>R</sup>	9	0	2	2	2	7	2	2	2	G	
ZIDUA SC	15	9 <sup>6</sup>	9 <sup>6</sup>	8 <sup>2,6</sup>	9 <sup>6</sup>	9 <sup>6</sup>	9 <sup>6</sup>	9 <sup>6</sup>	4 <sup>6</sup>	2 <sup>6</sup>	2 <sup>6</sup>	0	2 <sup>6</sup>	7 <sup>6</sup>	2	8 <sup>2,6</sup>	8 <sup>2,6</sup>	4 <sup>6</sup>	3 <sup>6</sup>	2 <sup>6</sup>	7 <sup>2,6</sup>	0	0	0	0	0	0	0	G	
<b>Postemergence Tank-Mixes</b>																														
ASSURE II <sup>3</sup> + BASAGRAN FORTÉ <sup>3</sup> + PINNACLE SG	1+6 +2	9	8	9	9	9	9	9	9	7	9	5	9	9	9	7	9 <sup>R</sup>	8	6	9	1	6	2	2	7	9	5	7	G	
ASSURE II <sup>3</sup> + PINNACLE SG	1+2	9	8	9	9	9	9	9	9	–	5	2	8	9 <sup>R</sup>	8	3	9 <sup>R</sup>	5	2	8	1	2	2	2	9	2	2	G		
ASSURE II <sup>3</sup> + CLASSIC <sup>3</sup>	1+2	9	8	9	9	9	9	9	9	4	9 <sup>R</sup>	8	8	3	9	3	9 <sup>R</sup>	8 <sup>R</sup>	8 <sup>R</sup>	8	0	2	2	8	9	9	8	4	G	
BLAZER + BASAGRAN FORTÉ <sup>3</sup>	14+6	0	0	0	0	0	0	0	0	7	9	5	9	8	9	8	9	9	6	9	–	7	6	5	7	2	6	7	F	
PINNACLE + BASAGRAN FORTÉ <sup>3</sup>	2+6	0	0	0	0	0	0	0	0	7	9	5	9	8	9	7	7	8	6	9	1	6	2	2	7	1	5	7	G	
PINNACLE + REFLEX	2+14	0	0	0	0	0	0	0	0	8	7	2	8	9 <sup>R</sup>	9	8	9	9	7	8	8	–	–	–	–	–	–	–	G	
PURSUIT + FIRSTRATE	2+2	9	8	6	9 <sup>R</sup>	9 <sup>R</sup>	9	9	7	8	9 <sup>R</sup>	9 <sup>R</sup>	9	8 <sup>R</sup>	9	9 <sup>R</sup>	9 <sup>R</sup>	9 <sup>R</sup>	9 <sup>R</sup>	9	9	1	2	2	–	7	2	7	7	G
PURSUIT + REFLEX	2+14	9	8	6	9 <sup>R</sup>	9 <sup>R</sup>	9	9	7	8	8 <sup>R</sup>	2	9	8 <sup>R</sup>	9	9 <sup>R</sup>	9	8	7	9	8	2	2	2	7	2	2	2	G	
REFLEX + VENTURE L	14+1	9	8	9	8	8	9	9	9	8	7	2	8	6	9	8	9	9	7	6	8	3	6	2	–	0	5	3	G	
VENTURE L + BASAGRAN <sup>3</sup>	1+6	9	8	9	8	8	8	9	8	7	9	5	9	7	9	7	7	8	6	9	1	6	2	2	8	9	5	7	G	

<sup>1</sup> PPI timing and the highest labeled rate is required to achieve this level of control.

<sup>2</sup> Use the high rate of herbicide for optimum control.

<sup>3</sup> Various equivalent products exist, see Table 3–1. *Herbicides Used in Ontario*

<sup>4</sup> Top growth only, re-growth will occur.

<sup>5</sup> Will provide early season residual control of this weed.

<sup>6</sup> Must be applied prior to weed emergence to achieve this level of control.

**TABLE 10–2.** Additional Weed Control Ratings in Conventional Soybean

**Notes:** Weed control ratings are given as 0–9 where 0 indicates no control and 9 indicates 90%–100% control under ideal conditions. Ratings are subjective values based on best available information and give general comparisons based on use as described in this guide. Under unfavourable conditions (e.g., too dry, too wet, too cold, or poor application) the herbicides may not be as effective as indicated. Ratings may vary with weed and crop stage and with the timing and rates of the product(s) being used. Always refer to the product label for more information on registered weed species, product uses and precautions.

**LEGEND:** Numbers (0–9) = weed control ratings \* = herbicides sold as a co-pack under this trade name

Weed Species	Timing	Herbicides (control rating – out of 10)
atriplex, spreading	Preplant	glyphosate + either SENCOR (8/9), BROADSTRIKE RC + DUAL MAGNUM/KOMODO (8), COMMENZA (8), CONQUEST LQ* (8), FIRSTRATE (7), LOROX (8) or PHANTOM/PURSUIT/NU-IMAGE (7), GUARDIAN* (7/8)
	Postemergence	PINNACLE SG (6), CLEANSWEEP* (5), BASAGRAN FORTÉ/BROADLOOM/BENTA SUPER (4)
adzuki beans, volunteer	Preplant	glyphosate (8), GUARDIAN MAX* (8)
	Postemergence	CLASSIC/CHAPERONE (7), BLAZER (6), PINNACLE SG (2), BASAGRAN FORTÉ/BROADLOOM/BENTA SUPER (1), FIRSTRATE (1), REFLEX (1)
beggarsticks, nodding	Preplant	GUARDIAN MAX* (8)
	Preemergence	FIRSTRATE (9), LOROX (9), SENCOR/metribuzin <sup>1</sup> (7), DUAL II MAGNUM/KOMODO (3)
	Postemergence	BASAGRAN FORTÉ/BROADLOOM/BENTA SUPER (9), CLASSIC/CHAPERONE (9), FIRSTRATE (9), CLEANSWEEP* (9), PINNACLE SG (8), PHANTOM/PURSUIT/NU-IMAGE (7), BLAZER (4), REFLEX (4)
bur-cucumber	Preplant	GUARDIAN MAX* (8)
	Preemergence	SENCOR/metribuzin <sup>1</sup> (4)
	Postemergence	CLASSIC/CHAPERONE (5), PINNACLE SG (3)
corn, volunteer	Postemergence	ASSURE II/CONTENDER/YUMA GL (9), VENTURE L (9), POAST ULTRA (7), SELECT/STATUE/ARROW ALL-IN/CLETHODIM 240 (7)
dandelion	Preplant	GUARDIAN* (9), glyphosate <sup>1</sup> (9), GUARDIAN PLUS (8), EXPRESS SG + glyphosate (8), VALTERA (8 <sup>2</sup> ), glyphosate <sup>1</sup> + ERAGON LQ + MERGE <sup>1</sup> (7)
flower of an hour	Preplant	GUARDIAN* (9)
	Postemergence	BASAGRAN FORTÉ/BROADLOOM/BENTA SUPER (8), CLEANSWEEP (8), FIRSTRATE (8), PINNACLE SG (8), CLASSIC/CHAPERONE (7), PHANTOM/PURSUIT/NU-IMAGE (7), REFLEX (7), BLAZER (6)
horsenettle	Preplant	GUARDIAN* (8), glyphosate <sup>1</sup> + either BROADSTRIKE RC + DUAL MAGNUM/KOMODO (8), COMMENZA (8), FIRSTRATE (8), LOROX (8) or PHANTOM/PURSUIT/NU-IMAGE (8), TRIACTOR (8), CONQUEST LQ* (7/8), SENCOR/metribuzin <sup>1</sup> (7/8)
	Postemergence	REFLEX (7), FIRSTRATE (6)
prickly lettuce	Preplant	glyphosate <sup>1</sup> alone (9), GUARDIAN MAX* (8), glyphosate <sup>1</sup> + either FIRSTRATE (9), CONQUEST LQ* (8), COMMENZA (8), PHANTOM/PURSUIT/NU-IMAGE (8), BROADSTRIKE RC + DUAL MAGNUM/KOMODO (7), LOROX (4) or SENCOR/metribuzin <sup>1</sup> (4)
	Postemergence	CLASSIC/CHAPERONE (6), FIRSTRATE (6), REFLEX (6), CLEANSWEEP (2), BLAZER (4), PINNACLE SG (3), BASAGRAN FORTÉ/BROADLOOM/BENTA SUPER (2), PHANTOM/PURSUIT/NU-IMAGE (2)
sandbur	Preemergence	PHANTOM/PURSUIT/NU-IMAGE (7), TRIACTOR (7)
	Postemergence	ASSURE II/CONTENDER/YUMA GL (9), VENTURE L (8), POAST ULTRA (7), SELECT/STATUE/ANTLER/ARROW ALL-IN/CLETHODIM 240 (7)

<sup>1</sup> Various formulations available, see Table 3–1. *Herbicides Used in Ontario.*

<sup>2</sup> Provides residual control to inhibit germination of seedlings but does not control emerged plants.

**TABLE 10–2. Additional Weed Control Ratings in Conventional Soybean (cont'd)**

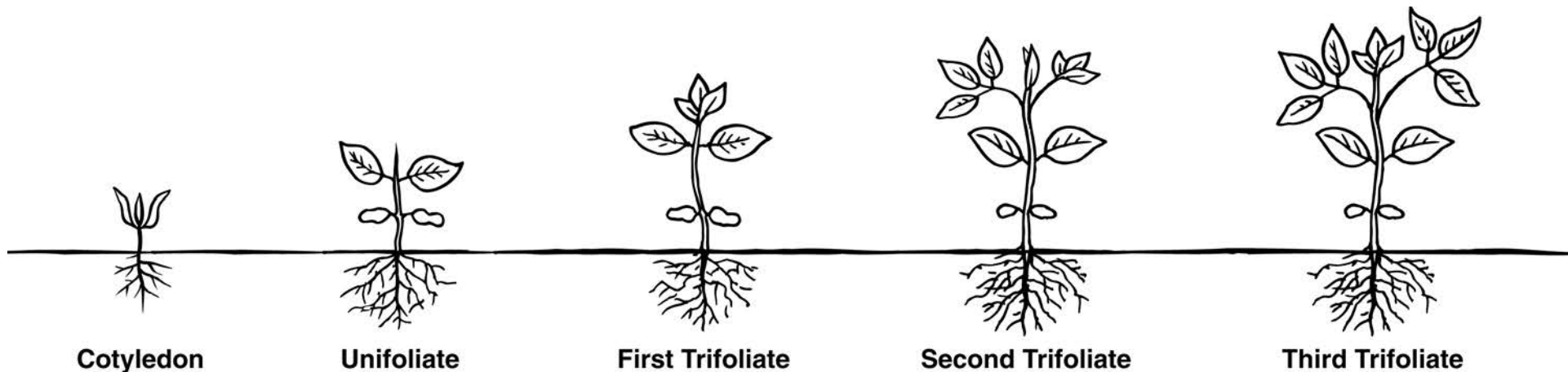
**Notes:** Weed control ratings are given as 0–9 where 0 indicates no control and 9 indicates 90%–100% control under ideal conditions. Ratings are subjective values based on best available information and give general comparisons based on use as described in this guide. Under unfavourable conditions (e.g., too dry, too wet, too cold, or poor application) the herbicides may not be as effective as indicated. Ratings may vary with weed and crop stage and with the timing and rates of the product(s) being used. Always refer to the product label for more information on registered weed species, product uses and precautions.

**LEGEND:** Numbers (0–9) = weed control ratings \* = herbicides sold as a co-pack under this trade name

Weed Species	Timing	Herbicides (control rating – out of 10)
three-seeded mercury	Preplant	VALTERA (9), FIERCE (9), TRIACTOR (9), GUARDIAN MAX* (8), glyphosate <sup>1</sup> + either FIRSTRATE (9), SENCOR (8), BROADSTRIKE RC + DUAL MAGNUM (8), COMMENZA (8), CONQUEST LQ* (7), LOROX (6) or PHANTOM/PURSUIT/NU-IMAGE (5)
	Preemergence	BROADSTRIKE RC + DUAL MAGNUM (8), SENCOR/metribuzin <sup>1</sup> (7), LOROX (5)
	Postemergence	CLASSIC/CHAPERONE (7), FIRSTRATE (7), REFLEX (7), BLAZER (6), CLEANSWEEP (6), PINNACLE SG (5), BASAGRAN FORTÉ/BROADLOOM/BENTA SUPER (5), PHANTOM/PURSUIT/NU-IMAGE (5)
wild carrot	Preplant	GUARDIAN* (8), glyphosate <sup>1</sup> + either BROADSTRIKE RC + DUAL MAGNUM (8), COMMENZA (8), CONQUEST LQ* (7), PHANTOM/PURSUIT/NU-IMAGE (7), FIRSTRATE (6), SENCOR/metribuzin <sup>1</sup> (5) or LOROX (1)
	Preemergence	BROADSTRIKE RC + DUAL MAGNUM (6), PHANTOM/PURSUIT/NU-IMAGE (5)
	Postemergence	CLASSIC/CHAPERONE (8), FIRSTRATE (6), CLEANSWEEP (5), PHANTOM/PURSUIT/NU-IMAGE (5), BASAGRAN FORTÉ/BROADLOOM/BENTA SUPER (4), REFLEX (2), BLAZER (2), PINNACLE SG (2)
wirestem muhly	Postemergence	VENTURE L (7), ASSURE II/CONTENDER/YUMA GL (6), POAST ULTRA (3), SELECT/STATUE/ANTLER/ARROW ALL-IN/CLETHODIM 240 (3)
wood-sorrel	Preemergence	BROADSTRIKE RC + DUAL MAGNUM (8), COMMENZA (8), LOROX (8), TRIACTOR (7), SENCOR/metribuzin <sup>1</sup> (6)
	Postemergence	FIRSTRATE (8), BLAZER (6), CLASSIC/CHAPERONE (5), CLEANSWEEP* (5), PHANTOM/PURSUIT/NU-IMAGE (5), BASAGRAN FORTÉ/BROADLOOM/BENTA SUPER (4), PINNACLE SG (3)
violet, field	Postemergence	FIRSTRATE (8), BLAZER (6), CLASSIC/CHAPERONE (5), CLEANSWEEP* (5), PHANTOM/PURSUIT/NU-IMAGE (5), BASAGRAN FORTÉ/BROADLOOM/BENTA SUPER (4), PINNACLE SG (3)

<sup>1</sup> Various formulations available, see Table 3–1. *Herbicides Used in Ontario*.

<sup>2</sup> Provides residual control to inhibit germination of seedlings but does not control emerged plants.



**FIGURE 10-1.** Soybean Development Stages.

## Soybeans

Unless otherwise specified, apply all treatments in 150–300 L/ha (60–120 L/acre) water.

Thoroughly clean all equipment used to apply non soybean herbicides (e.g., ACCENT, LONTREL XC, MARKSMAN, 2,4-D etc.) immediately after use, as well as before spraying soybeans.

**Total Weed Control System** – Although herbicides themselves may be effective, there is a benefit to using other methods of weed control. Crop rotation, herbicide rotation, early weed control with a rotary hoe, harrowing, cultivating and preventing the spread of weeds as much as possible are all a part of weed management. See Chapter 8, *Corn (Field, Seed & Sweet)* for details of each of these methods.

**Resistant Weeds** – Biotypes of a number of weeds have been found resistant to Group 5 (triazine), Group 2 herbicides (e.g., Pursuit), Group 14 (e.g. Reflex) and Group 9 herbicides (e.g., Roundup). Weed species that are resistant to a particular herbicide treatment

are identified in the weed control rating tables with a subscript “R”, meaning that the identified herbicide treatment will not control a biotype that is resistant but a weed rating without the subscript “R” will, provided the rating indicates a control level of 8 or higher.

### Herbicide Treatments include:

- **Preplant (PP)** – See Preplant Chapter 5 *Preplant & Postharvest Weed Control*, for details of products, rates and remarks.
- **Preplant Incorporated (PPI)** – Two incorporations at right angles operating at a depth of 10 cm using a double disk (7–10 km/h) or vibrating shank S-tine cultivator (10–13 km/h) are required unless otherwise stated. Cultivation-type equipment used for herbicide incorporation is known to spread perennial weeds to previously uninfested areas. Ensure machines are clean and/or treat fields with perennial weeds last.

- **Preemergence (PRE)** – Rainfall of 15–20 mm within 10 days after application is necessary to activate preemergence treatments. Shallow cultivation, rotary hoeing or harrowing will control weed escapes and improves herbicide activity in the absence of rainfall.
- **Postemergence (POST)** – Leaf stage of the weeds is critical for good weed control. Smaller weeds are usually more sensitive to herbicide injury. Apply according to the leaf stage specified on the pesticide label. Crop stage is important to optimize crop safety. Adjuvants will frequently improve the weed control when used as directed. Weather or other conditions may influence the optimum rate of adjuvant, see the product label for more details. Always use appropriate drift management technology.



**TABLE 10–3.** Herbicide Treatment Rates for Conventional (Non-GMO) Soybean

<b>ACTIVE INGREDIENT (rate)</b>	<b>TRADE NAME (Concentration)</b>	<b>PRODUCT RATE</b>	<b>PRECAUTIONS</b> For more information, see Chapter 3, Herbicides Used in Ontario and Chapter 4, Notes on Adjuvants.
<b>Preplant burndown and/or early preemergence (3 days after planting) Herbicides</b>			
<p>Non-selective herbicides such as glyphosate are used to control emerged weeds prior to no-till planting. Tank-mixing of a residual herbicide with glyphosate can be used to improve application efficiency with a “one pass” weed management program.</p> <p>Refer to Chapter 5, Preplant &amp; Postharvest Weed Control for preplant application rates for glyphosate.</p> <p>It is also important to note that when targeting perennial weeds, the addition of a triazine-based herbicide (i.e., SENCOR) will reduce the level of activity achieved with glyphosate. Increasing the rate of glyphosate should overcome this antagonism.</p>			
2,4-D (528 g/ha)	2,4-D ESTER 700 (660 g/L)	0.8 L/ha (0.32 L/acre)	<ul style="list-style-type: none"> <li>• Apply a minimum of 7 days before planting soybean.</li> <li>• Apply to emerged giant ragweed. This treatment will not provide residual control of giant ragweed.</li> <li>• <b>Do NOT</b> use in sandy soils with less than 1% organic matter. Plant soybean seeds as deep as possible, but not less than 2.5 cm (1 in.). Adjust planter to ensure adequate coverage of planted seed.</li> <li>• <b>Do NOT</b> graze or cut treated crops for forage or hay until 30 days after application.</li> <li>• Tank-mix with glyphosate to control a broader spectrum of emerged broadleaf and grassy weeds.</li> </ul>
glyphosate (0.9 kg/ha) + imazethapyr (0.1 kg/ha)	ASSIGNMENT (sold as a co-pack): RU WEATHERMAX (540 g/L) + PURSUIT (240 g/L)	1.67 L/ha (0.67 L/acre) + 420 mL/ha (168 mL/acre)	<ul style="list-style-type: none"> <li>• Apply PP or PRE.</li> <li>• See precautions for PURSUIT alone.</li> <li>• Some rotational cropping restrictions apply (see PURSUIT label and Table 3–3. <i>Herbicide Crop Rotation and Soil pH Restrictions: Field Crops</i>).</li> </ul>
pyraflufen-ethyl (6.1 g/L) (6.71 g/ha) + 2,4-D ester (473 g/L) (520 g/ha)	BLACKHAWK	1.1 L/ha (0.44 L/acre)	<ul style="list-style-type: none"> <li>• Apply PP or a maximum of 3 days after planting and before ground crack.</li> <li>• Apply to emerged, young, actively growing weeds that are less than 10 cm tall or across. Apply in a tank-mix with glyphosate or a non-ionic surfactant such as Agral or Carrier at 2 L/1,000 L spray solution.</li> <li>• <b>Do NOT</b> use in sandy soils with less than 1% organic matter. Plant soybean seeds a minimum of 2.5 cm (1") deep. Adjust planter to ensure adequate coverage of planted seed.</li> <li>• <b>Do NOT</b> graze or cut treated crops for forage or hay until 30 days after application.</li> </ul>
halauxifen (5 g/ha)	ELEVORE (68.5 g/L) + methylated seed oil	73 mL/ha (29 mL/acre) 5–10 L/1,000 L	<ul style="list-style-type: none"> <li>• Apply a minimum of 7 days before planting soybeans and when weeds are actively growing at the 1–8 leaf stage. Plant to a minimum of 4 cm deep.</li> <li>• Applications made to very coarse-textured soils, low in organic matter (&lt;3%) , or in fields with poor soil conditions may increase the risk of crop injury.</li> <li>• Use the higher rate of methylated seed oil when weed populations are high or environmental conditions are unfavourable.</li> <li>• ELEVORE only controls weeds emerged at the time of application. Tank-mix with glyphosate to control a broader spectrum of emerged broadleaf and grassy weeds.</li> </ul>

**TABLE 10–3.** Herbicide Treatment Rates for Conventional (Non-GMO) Soybean (cont'd)

ACTIVE INGREDIENT (rate)	TRADE NAME (Concentration)	PRODUCT RATE	PRECAUTIONS For more information, see Chapter 3, Herbicides Used in Ontario and Chapter 4, Notes on Adjuvants.
<b>Preplant burndown and/or early preemergence (3 days after planting) Herbicides (cont'd)</b>			
saflufenacil (25.2 g/ha) + adjuvant (1 L/ha)	ERAGON LQ (342 g/L) + MERGE	73 mL/ha (29.5 mL/acre) + 1 L/ha (0.4 L/acre)	<ul style="list-style-type: none"> <li>Apply PP or PRE from 21 days prior to planting up to three days after planting.</li> <li><b>Do NOT</b> use rates higher than 73 mL/ha (29.5 mL/acre) or crop injury may result.</li> <li>Tank-mix with glyphosate to control a broader spectrum of emerged broadleaf and grassy weeds. Tank-mix with glyphosate and metribuzin at 412.5 g a.i./ha for more consistent control of glyphosate resistant Canada fleabane.</li> </ul>
tribenuron-methyl (7.5 g/ha) + glyphosate (450 g/ha)	EXPRESS SG (50%) + glyphosate (540 g/L)*	15 g/ha (6 g/acre) + 0.83 L/ha (0.33 L/acre)	<ul style="list-style-type: none"> <li>Apply as a PP burndown a minimum of 1 day prior to planting.</li> <li>Apply in a total spray volume of 55–110 L/ha (22–44 L/acre).</li> <li>EXPRESS SG will not provide residual weed control, but will enhance control of certain broadleaf weeds, allowing for a lower rate of glyphosate to be used.</li> </ul>
glyphosate (0.9 kg/ha) + chlorimuron-ethyl (9 g/ha)	GUARDIAN MAX (sold as co-pack): POLARIS MAX (540 g/L) + CLASSIC (25 DF)	1.67 L/ha (0.67 L/acre) 36 g/ha (14 g/acre)	<ul style="list-style-type: none"> <li>Apply as a PP burndown.</li> <li>Some rotational restrictions apply (see CLASSIC label and Table 3–3. <i>Herbicide Crop Rotation and Soil pH Restrictions: Field Crops</i>).</li> <li>GUARDIAN MAX is a co-pack of POLARIS MAX + CLASSIC.</li> </ul>
saflufenacil/ dimethenamid-P (247 g/ha) + glyphosate (900 g/ha)	INTEGRITY (668 g/L) + glyphosate (540 g/L)* + MERGE	0.37 L/ha (0.15 L/acre) 1.67 L/ha (0.67 L/acre) + 1 L/ha (0.4 L/acre)	<ul style="list-style-type: none"> <li>Apply PP or PRE.</li> <li><b>Do NOT</b> use rates higher than 0.15 L/acre, as crop injury may result.</li> </ul> <p>* Various formulations available, see Table 3–1. <i>Herbicides Used in Ontario</i></p>
saflufenacil/imazethapyr (100 g/ha) + glyphosate (900 g/ha)	OPTILL (68%) + glyphosate (540 g/L)* + MERGE	147 g/ha (60 g/acre) 1.67 L/ha (0.67 L/acre) + 1 L/ha (0.4 L/acre)	<ul style="list-style-type: none"> <li>Apply PP or PRE from 21 days prior to planting up to three days after planting.</li> <li>Provides early-season weed control. Refer to glyphosate label for recommended rate.</li> </ul> <p>* Various formulations available, see Table 3–1. <i>Herbicides Used in Ontario</i></p>
<b>Soil Applied Grass Herbicides</b>			
s-metolachlor/benoxacor (1.05–1.6 kg/ha)	DUAL II MAGNUM (915 g/L) KOMODO (915 g/L)	1.15–1.75 L/ha (0.46–0.7 L/acre)	<ul style="list-style-type: none"> <li>Apply PP, PPI or PRE.</li> <li>Can be used for weed control in EDAMAME. Can be tank-mixed with glyphosate for PP burndown of emerged annual and perennial weeds, see Chapter 5, Preplant &amp; Postharvest Weed Control for more information.</li> <li>Control of yellow nutsedge is obtained when applied PPI.</li> <li>Optimal control of nightshade is obtained when applied PRE.</li> <li><b>Do NOT</b> use on muck, peat or high organic matter soils.</li> <li>Use the higher rate for heavier weed populations.</li> <li>Incorporation depth should not exceed 10 cm.</li> </ul>

**TABLE 10–3.** Herbicide Treatment Rates for Conventional (Non-GMO) Soybean (cont'd)

ACTIVE INGREDIENT (rate)	TRADE NAME (Concentration)	PRODUCT RATE	PRECAUTIONS For more information, see Chapter 3, Herbicides Used in Ontario and Chapter 4, Notes on Adjuvants.
<b>Soil Applied Grass Herbicides (cont'd)</b>			
pyroxasulfone (447 g/L) (100–150 g/ha)  carfentrazone-ethyl (53 g/L) (8.76–21.6 g/ha)	FOCUS (500 g/L)	224–336 mL/ha (90–136 mL/acre)	<ul style="list-style-type: none"> <li>• Apply PP or PRE.</li> <li>• Tank-mix with glyphosate to control emerged weeds prior to planting.</li> <li>• Do NOT apply when soybean have emerged as crop injury will occur.</li> <li>• Apply the 224 mL/ha (90 mL/acre) rate as a “set-up” treatment for early season weed control. A POST herbicide treatment will likely be needed.</li> <li>• Apply the 290 mL/ha (113 mL/acre) rate on coarse/medium textured soil with 1%–4% organic matter.</li> <li>• Apply the 336 mL/ha (136 mL/acre) rate on medium/fine textured soil with 4%–7% organic matter.</li> </ul>
dimethenamid (544–693 g/ha)	FRONTIER MAX (720 g/L)	756–963 mL/ha (305–390 mL/acre)	<ul style="list-style-type: none"> <li>• Apply PP, PPI or PRE.</li> <li>• For PPI applications, the minimum rate is 860 mL/ha (348 mL/acre) and should be cultivated into the top 5 cm of soil within 7 days of planting.</li> <li>• Can be tank-mixed with glyphosate for PP burndown of emerged annual and perennial weeds.</li> <li>• Use higher rate for heavier weed pressure, for the control of nightshade and pigweed (PPI or PRE only) or on fine textured or high organic matter soils.</li> <li>• Control of nutsedge is achieved by applying FRONTIER MAX PPI at the highest rate.</li> <li>• Soybeans should be seeded at least 4 cm deep or crop injury may result.</li> </ul>
pendimethalin (1,000 g/ha)	PROWL H2O (455 g/L)	2.2 L/ha (0.89 L/acre)	<ul style="list-style-type: none"> <li>• Apply PP, PPI or PRE</li> <li>• Provides early-season weed control only.</li> <li>• Tank-mix with glyphosate to control emerged broadleaf and grassy weeds.</li> </ul>
trifluralin (0.6–1.155 kg/ha)	TREFLAN (480 g/L)	1.25–2.4 L/ha (0.5–0.96 L/acre)	<ul style="list-style-type: none"> <li>• Apply PPI.</li> <li>• Conduct first incorporation as soon as possible after application, may be delayed up to 8–24 hours. A second incorporation should occur any time before planting.</li> </ul>
	RIVAL (500 g/L)	1.2–2.3 L/ha (0.48–0.92 L/acre)	
	BONANZA 480 (480 g/L)	1.25–2.4 L/ha (0.5–0.96 L/acre)	
	TRIFLUREX 40 EC (412 g/L)	1.45–2.8 L/ha (0.58–1.12 L/acre)	
pyroxasulfone (125, 166, 208.5 or 246.5 g/ha)	ZIDUA SC (500 g/L)	Coarse: 250 mL/ha (100 mL/acre) Med: 332 mL/ha (133 mL/acre) (> 3% O.M.): 417 mL/ha (167 mL/acre) Fine: 493 mL/ha (197 mL/acre)	<ul style="list-style-type: none"> <li>• Apply PP or PRE.</li> <li>• <b>Do NOT</b> use on peat or muck soils with 7% organic matter content.</li> <li>• Tank-mix with glyphosate to control emerged broadleaf and grassy weeds.</li> </ul>
<b>Soil Applied Broadleaf Herbicides</b>			
sulfentrazone (105 – 140 g/ha)	AUTHORITY 480 (480 g/L)	219–292 mL/ha (88–117 mL/acre)	<ul style="list-style-type: none"> <li>• Apply PP or PRE but no later than 3 days after planting.</li> <li>• Some rotational cropping restrictions apply (see Table 3–3. <i>Herbicide Crop Rotation and Soil pH Restrictions: Field Crops</i>).</li> <li>• <b>Do NOT</b> apply to soybean grown on coarse-textured (sandy) soils.</li> <li>• <b>Do NOT</b> apply to soils with organic matter greater than 6%.</li> <li>• <b>Do NOT</b> apply to soils with a pH greater than 7.8.</li> <li>• The highest use rate should be used when applied to soils with a pH of less than 7 and with organic matter greater than 3% but less than 6%.</li> </ul>

**TABLE 10–3.** Herbicide Treatment Rates for Conventional (Non-GMO) Soybean (cont'd)

ACTIVE INGREDIENT (rate)	TRADE NAME (Concentration)	PRODUCT RATE	PRECAUTIONS For more information, see Chapter 3, Herbicides Used in Ontario and Chapter 4, Notes on Adjuvants.
<b>Soil Applied Broadleaf Herbicides (cont'd)</b>			
metribuzin (397.5 g/ha) flumioxazin (88.75 g/ha)	BIFECTA EZ (318 g/L: 71 g/L)	1.25 L/ha (500 mL/acre)	<ul style="list-style-type: none"> <li>• Apply PP or PRE but no longer than 3 days after planting. Applications made to soybeans that have begun to crack or are emerged will result in severe crop injury</li> <li>• Tank-mix with glyphosate to control emerged broadleaf and grassy weeds.</li> <li>• The risk of crop injury is minimized when Valtera is used on well drained soils and planted to a depth of 4 cm or more</li> <li>• When using no-till planters with coulters that incorporate the soil, weed control may be reduced, therefore applications should be done after planting, but within 3 days of planting.</li> </ul>
flumetsulam (70 g/ha)	BROADSTRIKE RC (80%)	87.5 g/ha (35 g/acre)	<ul style="list-style-type: none"> <li>• Apply PP, PPI or PRE. For PPI treatments uniformly incorporate with equipment set to work at a depth of 5–8 cm.</li> <li>• Can be applied up to 21 days before planting in minimum or no-tillage systems.</li> <li>• Can be tank-mixed with glyphosate for PP burndown of emerged annual and perennial weeds-</li> <li>• <b>Do NOT</b> apply to areas where the soil pH is greater than 7.8 and organic matter is less than 2%.</li> <li>• <b>Do NOT</b> apply to soils containing more than 5% organic matter.</li> <li>• Sufficient rainfall to moisten the soil to a depth of 5 cm should be received within 7–10 days for optimum weed control.</li> <li>• Some rotational cropping restrictions apply (see Table 3–3. <i>Herbicide Crop Rotation and Soil pH Restrictions: Field Crops</i>).</li> </ul>
chlorimuron-ethyl (9 g ai/ha) + metribuzin (412 g/ha)	CANOPY PRO (sold as a co-pack): CLASSIC GRANDE (25 DF) + TRICOR 75 DF	36 g/ha (14.4 g/acre) + 550 g/ha (220 g/acre)	<ul style="list-style-type: none"> <li>• Apply PP up to 14 days before planting</li> <li>• Some rotational restrictions apply (see CLASSIC label and Table 3–3. <i>Herbicide Crop Rotation and Soil pH Restrictions: Field Crops</i>).</li> <li>• <b>Do NOT</b> use on sandy soils or on coarse soils with less than 2% organic matter.</li> <li>• Tank-mix with glyphosate to control emerged broadleaf and grassy weeds. Use higher rate of glyphosate for large perennials weeds, refer to Table 7–3. for specific details.</li> </ul>
cloransulam-methyl (35 g/ha)	FIRSTRATE (84 WG)	41.7 g/ha (17 g/acre)	<ul style="list-style-type: none"> <li>• Apply PRE.</li> <li>• Apply in both conventional and conservation tillage systems.</li> <li>• Some rotational cropping restrictions apply (see Table 3–3. <i>Herbicide Crop Rotation and Soil pH Restrictions: Field Crops</i>).</li> <li>• Tank-mix with glyphosate to control emerged broadleaf and grassy weeds.</li> </ul>
linuron (1.13–2.25 kg/ha)	LOROX L (480 g/L)	2.25–4.5 L/ha (0.9–1.8 L/acre)	<ul style="list-style-type: none"> <li>• Apply PRE. <b>Do NOT</b> use on sands (less than 2% organic matter).</li> <li>• Plant soybeans at least 4 cm deep.</li> <li>• Heavy rainfall and adverse weather conditions may result in temporary crop injury.</li> <li>• Use higher rate for muck soils and clay soils.</li> <li>• Tank-mix with glyphosate to control emerged broadleaf and grassy weeds.</li> </ul>

**TABLE 10–3.** Herbicide Treatment Rates for Conventional (Non-GMO) Soybean (cont'd)

ACTIVE INGREDIENT (rate)	TRADE NAME (Concentration)	PRODUCT RATE	PRECAUTIONS For more information, see Chapter 3, Herbicides Used in Ontario and Chapter 4, Notes on Adjuvants.
<b>Soil Applied Broadleaf Herbicides (cont'd)</b>			
metribuzin (0.56–1.12 kg/ha)	SENCOR 75 DF (75 %)	0.75–1.5 kg/ha (0.3–0.6 kg/acre)	<ul style="list-style-type: none"> <li>• Apply PP, PPI or PRE.</li> <li>• Can be tank-mixed with glyphosate for PP burndown of emerged annual and perennial weeds.</li> <li>• <b>Do NOT</b> use on sandy or coarse soils with less than 2% organic matter.</li> <li>• Use the label rate for each soil types (see label), otherwise crop injury may occur.</li> <li>• Excessive rainfall and adverse weather conditions may result in crop injury.</li> <li>• Plant soybeans at least 4 cm deep.</li> <li>• For preplant applications:                             <ul style="list-style-type: none"> <li>– Apply up to 30 days prior to seeding the crop.</li> <li>– Use the higher rate when weeds are dense and are on soils with high organic matter (over 4%) and on soils with high clay content.</li> <li>– If emerged weeds are taller than 4 cm, apply in tank-mix with glyphosate.</li> </ul> </li> <li>• Some rotational cropping restrictions apply (see Table 3–3. <i>Herbicide Crop Rotation and Soil pH Restrictions: Field Crops</i>).</li> </ul>
	TRICOR 75 DF (75%)		
	SQUADRON (75% WDG)		
	BUZZIN 70 WDG (70%)	0.8–1.6 kg/ha (0.32–0.64 kg/acre)	
	METRIX SC (480 g/L)	1.1–2.25 L/ha (0.44–0.9 L/acre)	
flumioxazin (71.4–107.1 g/ha)	VALTERA EZ (480 g/L)	150–225 mL/ha (60–90 mL/acre)	<ul style="list-style-type: none"> <li>• Can be tank-mixed with glyphosate for PP burndown of emerged annual and perennial weeds-</li> <li>• Apply to soybeans prior to planting or within 3 days after planting but prior to soybean emergence.</li> <li>• Severe crop injury will result if applications are made to soybeans that have begun to crack through the soil surface or have emerged.</li> <li>• <b>Do NOT</b> apply within 100 metres of non-dormant pears.</li> <li>• <b>Do NOT</b> tank-mix with DUAL II MAGNUM, BOUNDARY LQD or FRONTIER MAX.</li> <li>• Any tillage operation performed after application will reduce weed control.</li> <li>• Apply only <b>ONCE</b> per growing season.</li> </ul>
<b>Soil Applied Grass and Broadleaf Herbicides</b>			
pyoxasulfone (250 g)/ sulfentrazone (250 g) (250 – 300 g/ha)	AUTHORITY SUPREME	500 – 600 mL/ha (200 – 240 mL/acre)	<ul style="list-style-type: none"> <li>• Apply PP or PRE but no later than 3 days after planting.</li> <li>• DO NOT use on peat or muck soils and soils with 7% or more organic matter content.</li> <li>• If adequate moisture is not received within 7 to 10 days of application, a shallow incorporation no deeper than 5 cm may be needed to obtain adequate weed control.</li> <li>• Soybean seeds must be planted a minimum of 2.5 cm deep.</li> <li>• Use the lower rate on coarse/medium textured soils with 1–4% organic matter.</li> <li>• Tank-mix with glyphosate to control emerged broadleaf and grassy weeds.</li> </ul>
s-metolachlor/metribuzin (1,443 g/ha–1943 g/ha)	BOUNDARY LQD (628 g/L + 149 g/L)	1.85–2.5 L/ha (0.74–1 L/acre)	<ul style="list-style-type: none"> <li>• Apply PP or PRE.</li> <li>• <b>Do NOT</b> apply if soybeans have emerged.</li> <li>• <b>Do NOT</b> apply to coarse textured soils with less than 1% organic matter.</li> <li>• Can be tank-mixed with glyphosate or GRAMOXONE for PP burndown of emerged annual and perennial weeds, see Chapter 5, Preplant &amp; Postharvest Weed Control for more information.</li> </ul>

**TABLE 10–3.** Herbicide Treatment Rates for Conventional (Non-GMO) Soybean (cont'd)

ACTIVE INGREDIENT (rate)	TRADE NAME (Concentration)	PRODUCT RATE	PRECAUTIONS For more information, see Chapter 3, Herbicides Used in Ontario and Chapter 4, Notes on Adjuvants.
<b>Soil Applied Grass and Broadleaf Herbicides (cont'd)</b>			
clomazone (0.576–0.846 kg/ha)	COMMAND 360 ME (360 g/L)	1.6–2.35 L/ha (0.64–0.94 L/acre)	<ul style="list-style-type: none"> <li>• <b>Do NOT</b> use on natto soybeans.</li> <li>• Apply PRE.</li> <li>• <b>Do NOT</b> incorporate.</li> <li>• For light textured soils – apply COMMAND at 1.6 L/ha (0.64 L/acre).</li> <li>• For medium textured soils – apply COMMAND at 2.3 L/ha (0.92 L/acre).</li> <li>• For heavy textured soils – apply COMMAND at 2.35 L/ha (0.94 L/acre).</li> <li>• Control of yellow foxtail is achieved when COMMAND is applied at 2.3–2.35 L/ha (0.92 - 0.94 L/acre).</li> <li>• Some rotational cropping restrictions apply (see Table 3–3. <i>Herbicide Crop Rotation and Soil pH Restrictions: Field Crops</i>).</li> </ul>
flumetsulam (70 g/ha) + metribuzin (420 g/ha) + s-metolachlor (1.24 kg/ha)	COMMENZA (sold as a co-pack): BROADSTRIKE RC (80%) + TRICOR (75%) + S-METOLACHLOR 960 (960 g/L)	88 g/ha (35.75 g/acre) + 560 g/ha (227 g/acre) + 1.3 L/ha (0.525 L/acre)	<ul style="list-style-type: none"> <li>• Apply PP, PPI or PRE. For PPI treatments uniformly incorporate with equipment set to work at a depth of 5–8 cm.</li> <li>• Can be applied up to 21 days before planting in minimum or no-tillage systems.</li> <li>• Can be tank-mixed with glyphosate for PP burndown of emerged annual and perennial weeds.</li> <li>• <b>Do NOT</b> apply to areas where the soil pH is greater than 7.8 and organic matter is less than 2%.</li> <li>• <b>Do NOT</b> apply to soils containing more than 5% organic matter.</li> <li>• Sufficient rainfall to moisten the soil to a depth of 5 cm should be received within 7–10 days to achieve optimum weed control.</li> <li>• Some rotational cropping restrictions apply (see Table 3–3. <i>Herbicide Crop Rotation and Soil pH Restrictions: Field Crops</i>).</li> </ul>
imazethapyr (0.075–0.1 kg/ha) + metribuzin (0.425–0.542 kg/ha)	CONQUEST LQ (sold as a co-pack): (PURSUIT (240 g/L) + SENCOR 480 F (480 g/L))	0.312–0.42 L/ha (0.126–0.168 L/acre) + 0.815–1.14 L/ha (0.33–0.46 L/acre)	<ul style="list-style-type: none"> <li>• Apply PPI or PRE.</li> <li>• Can be tank-mixed with glyphosate for PP burndown of emerged annual and perennial weeds, see Chapter 5, Preplant &amp; Postharvest Weed Control for more information.</li> <li>• For use on medium and heavy textured soils only.</li> <li>• Use higher rates for heavier weed pressure, for fine textured soils or soils high in organic matter.</li> <li>• See PURSUIT for additional comments.</li> </ul>
flumioxazin (70.4–105.6 g/ha) pyoxasulfone (89.32–133.98 g/ha)	FIERCE EZ (160 g/L:203 g/L)	440–660 mL/ha (176–264 mL/acre)	<ul style="list-style-type: none"> <li>• Apply PP or PRE but no longer than 3 days after planting. Applications made to soybeans that have begun to crack or are emerged will result in severe crop injury</li> <li>• The risk of crop injury is minimized when used on well drained soils and planted to a depth of 4 cm or more</li> <li>• When using no-till planters with coulters that incorporate the soil, weed control may be reduced, therefore applications should be done after planting, but within 3 days of planting.</li> <li>• Do not use FIERCE herbicide in soybeans in the same field that BOUNDARY, DUAL II MAGNUM or FRONTIER MAX will be used or soybean injury may occur.</li> </ul>

**TABLE 10–3.** Herbicide Treatment Rates for Conventional (Non-GMO) Soybean (cont'd)

ACTIVE INGREDIENT (rate)	TRADE NAME (Concentration)	PRODUCT RATE	PRECAUTIONS For more information, see Chapter 3, Herbicides Used in Ontario and Chapter 4, Notes on Adjuvants.
<b>Soil Applied Grass and Broadleaf Herbicides (cont'd)</b>			
chlorimuron-ethyl (9 g ai/ha) + imazethapyr (75 g/ha)	FREESTYLE (sold as a co-pack); CLASSIC GRANDE (25 DF) + DUPONT IMAZETHAPYR (240 g/L)	36 g/ha (14.4 g/acre) + 312 mL/ha (126 mL/acre)	<ul style="list-style-type: none"> <li>• Apply as a Pre-Plant or PRE.</li> <li>• Some rotational restrictions apply (refer to CLASSIC and PURSUIT in Table 3–3. <i>Herbicide Crop Rotation and Soil pH Restrictions: Field Crops</i>).</li> <li>• Can be tank-mixed with glyphosate for PP burndown of emerged annual and perennial weeds.</li> </ul>
imazethapyr (0.075–0.1 kg/ha)	PURSUIT (240 g/L)  PHANTOM (240 g/L)  NU-IMAGE (240 g/L)	0.312–0.42 L/ha (0.126–0.168 L/acre)	<ul style="list-style-type: none"> <li>• Apply PP, PPI or PRE.</li> <li>• Can be tank-mixed with glyphosate for PP burndown of emerged annual and perennial weeds-</li> <li>• Some rotational cropping restrictions apply (see Table 3–3. <i>Herbicide Crop Rotation and Soil pH Restrictions: Field Crops</i>).</li> <li>• Addition of non-ionic surfactant and liquid fertilizer is required if emerged weeds are present at application.</li> <li>• For preplant applications: <ul style="list-style-type: none"> <li>– apply PURSUIT at 0.168 L/acre.</li> <li>– apply up to 30 days prior to planting.</li> <li>– for minimum tillage, only 1 working of the soil to prepare a seedbed is suggested following application. Make this final seedbed preparation no deeper than 10 cm and do not turn untreated soil to the surface.</li> </ul> </li> <li>• For preplant incorporated applications apply PURSUIT at 0.126 L/acre.</li> <li>• For preemergence applications, heavy infestations of ragweed and/or barnyard grass require a tank-mix.</li> <li>• For preplant incorporated applications, heavy infestations of lamb's-quarters, ragweed or barnyard grass may require a tank-mix.</li> <li>• <b>Do NOT</b> apply as preplant incorporated application more than 1 year in sequence. Use only <b>ONCE</b> per season.</li> </ul>
s-metolachlor (1.17–1.58 kg/ha) + metribuzin (0.392–0.527 kg/ha)	STRIM MTZ (405 g/L: 135 g/L)	2.9–3.9 L/ha (0.126–0.168 L/acre)	<ul style="list-style-type: none"> <li>• Apply PPI or PRE.</li> <li>• Can be tank-mixed with glyphosate for PP burndown of emerged annual and perennial weeds, see Chapter 5, Preplant &amp; Postharvest Weed Control for more information.</li> </ul>
flumioxazin (100 g/ha) + metribuzin (450 g/ha) + imazethapyr (80 g/ha)	TRIACTOR EZ (80: 360: 64 g/L)	1.25 L/ha (0.126–0.168 L/acre)	<ul style="list-style-type: none"> <li>• Apply PP or PRE but no longer than 3 days after planting. Applications made to planted soybeans where the soil has begun to crack or where beans are emerged will result in severe crop injury.</li> <li>• The risk of crop injury is minimized when VALTERA is used on well drained soils and planted to a depth of 4 cm or more.</li> <li>• When using no-till planters with coulters that incorporate the soil, weed control may be reduced, therefore applications should be done after planting, but within 3 days of planting.</li> <li>• Tank-mix with glyphosate to control emerged broadleaf and grassy weeds.</li> </ul>

**TABLE 10–3.** Herbicide Treatment Rates for Conventional (Non-GMO) Soybean (cont'd)

ACTIVE INGREDIENT (rate)	TRADE NAME (Concentration)	PRODUCT RATE	PRECAUTIONS For more information, see Chapter 3, Herbicides Used in Ontario and Chapter 4, Notes on Adjuvants.
<b>Soil Applied Tank-Mix Options</b>			
flumetsulam (70 g/ha) + s-metolachlor/benoxacor (1.05–1.6 kg/ha)	BROADSTRIKE RC (80%) + DUAL II MAGNUM (915 g/L)	87.5 g/ha (35 g/acre) + 1.15–1.75 L/ha (0.46–0.7 L/acre)	<ul style="list-style-type: none"> <li>• Apply PP, PPI or PRE. For PPI treatments uniformly incorporate with equipment set to work at a depth of 5–8 cm.</li> <li>• Can be applied up to 21 days before planting in minimum or no-tillage systems.</li> <li>• Can be tank-mixed with glyphosate for PP burndown of emerged annual and perennial weeds:</li> <li>• <b>Do NOT</b> apply to areas where the soil pH is greater than 7.8 and organic matter less than 2%.</li> <li>• <b>Do NOT</b> apply to soils containing more than 5% organic matter.</li> <li>• Sufficient rainfall to moisten the soil to a depth of 5 cm should be received within 7–10 days for optimum weed control.</li> <li>• Some rotational cropping restrictions apply (see Table 3–3. <i>Herbicide Crop Rotation and Soil pH Restrictions: Field Crops</i>).</li> </ul>
flumetsulam (70 g/ha) + trifluralin* (0.6–1.155 kg/ha)	BROADSTRIKE RC (80%) + TREFLAN (480 g/L)	87.5 g/ha (35 g/acre) 1.25–2.4 L/ha (0.5–0.96 L/acre)	<ul style="list-style-type: none"> <li>• Apply PPI, uniformly incorporate with equipment set to work at a depth of 5–8 cm.</li> <li>• Must be incorporated within 24 hours of application.</li> <li>• Can be applied up to 21 days before planting.</li> <li>• <b>Do NOT</b> apply to areas where the soil pH is greater than 7.8 and organic matter is less than 2%.</li> <li>• <b>Do NOT</b> apply to soils containing more than 5% organic matter.</li> <li>• Sufficient rainfall to moisten the soil to a depth of 5 cm should be received within 7–10 days for optimum weed control.</li> <li>• Some rotational cropping restrictions apply (see Table 3–3. <i>Herbicide Crop Rotation and Soil pH Restrictions: Field Crops</i>).</li> </ul>
clomazone (0.576–0.846 kg/ha) + s-metolachlor/benoxacor (1.6 kg/ha)	COMMAND 360 ME (360 g/L) + DUAL II MAGNUM (915 g/L)	1.6–2.35 L/ha (0.64–0.94 L/acre) + 1.75 L/ha (0.7 L/acre)	<ul style="list-style-type: none"> <li>• <b>Do NOT</b> use on natto soybeans.</li> <li>• Apply PRE.</li> <li>• <b>Do NOT</b> incorporate.</li> <li>• For light textured soils – Apply COMMAND at 1.6 L/ha (0.64 L/acre).</li> <li>• For medium textured soils – Apply COMMAND at 2.3 L/ha (0.92 L/acre).</li> <li>• For heavy textured soils – Apply COMMAND at 2.35 L/ha (0.94 L/acre).</li> <li>• Some rotational cropping restrictions apply (see Table 3–3. <i>Herbicide Crop Rotation and Soil pH Restrictions: Field Crops</i>).</li> </ul>
clomazone (0.576–0.846 kg/ha) + linuron (0.96–1.080 kg/ha)	COMMAND 360 ME (360 g/L) + LOROX L (480 g/L)	1.6–2.35 L/ha (0.64–0.94 L/acre) + 2–2.25 L/ha (0.8–0.9 L/acre)	<ul style="list-style-type: none"> <li>• <b>Do NOT</b> use on natto soybeans.</li> <li>• Apply PRE.</li> <li>• <b>Do NOT</b> incorporate.</li> <li>• For light textured soils – Apply COMMAND at 1.6 L/ha (0.64 L/acre) and LOROX L at 2 L/ha (0.8 L/acre).</li> <li>• For medium textured soils – Apply COMMAND at 2.3 L/ha (0.92 L/acre) and LOROX L at 2.25 L/ha (0.9 L/acre).</li> <li>• For heavy textured soils – Apply COMMAND at 2.35 L/ha (0.94 L/acre) and LOROX L at 2.25 L/ha (0.9 L/acre).</li> <li>• Some rotational cropping restrictions apply (see Table 3–3. <i>Herbicide Crop Rotation and Soil pH Restrictions: Field Crops</i>).</li> </ul>



**TABLE 10–3.** Herbicide Treatment Rates for Conventional (Non-GMO) Soybean (cont'd)

ACTIVE INGREDIENT (rate)	TRADE NAME (Concentration)	PRODUCT RATE	PRECAUTIONS For more information, see Chapter 3, Herbicides Used in Ontario and Chapter 4, Notes on Adjuvants.
<b>Soil Applied Tank-Mix Options (cont'd)</b>			
clomazone (0.576–0.846 kg/ha) + imazethapyr (0.075 kg/ha)	COMMAND 360 ME (360 g/L) + PURSUIT (240 g/L)	1.6–2.35 L/ha (0.64–0.94 L/acre) + 0.312 L/ha (0.126 L/acre)	<ul style="list-style-type: none"> <li>• <b>Do NOT</b> use on natto soybeans.</li> <li>• Apply PRE.</li> <li>• <b>Do NOT</b> incorporate.</li> <li>• For light textured soils – Apply COMMAND at 1.6 L/ha (0.64 L/acre) (0.64 L/acre).</li> <li>• For medium textured soils – Apply COMMAND at 2.3 L/ha (0.94 L/acre).</li> <li>• For heavy textured soils – Apply COMMAND at 2.35 L/ha (0.94 L/acre).</li> <li>• Some rotational cropping restrictions apply (see Table 3–3. <i>Herbicide Crop Rotation and Soil pH Restrictions: Field Crops</i>).</li> </ul>
clomazone (0.576–0.846 kg/ha) + metribuzin (0.281–0.398 kg/ha)	COMMAND 360 ME (360 g/L) + SENCOR 75 DF (75 WG)	1.6–2.35 L/ha (0.64–0.94 L/acre) + 0.375–0.530 kg/ha (0.15–0.212 kg/acre)	<ul style="list-style-type: none"> <li>• <b>Do NOT</b> use on natto soybeans.</li> <li>• Apply PRE.</li> <li>• <b>Do NOT</b> incorporate.</li> <li>• For light textured soils – Apply COMMAND at 1.6 L/ha (0.64 L/acre) and SENCOR at 0.375 kg/ha (150 g/acre).</li> <li>• For medium textured soils – Apply COMMAND at 2.3 L/ha (0.92 L/acre) and SENCOR at 0.530 kg/ha (212 g/acre).</li> <li>• For heavy textured soils – Apply COMMAND at 2.35 L/ha (0.94 L/acre) and SENCOR at 0.530 kg/ha (212 g/acre).</li> <li>• Some rotational cropping restrictions apply (see Table 3–3. <i>Herbicide Crop Rotation and Soil pH Restrictions: Field Crops</i>).</li> </ul>
s-metolachlor/benoxacor (1.05–1.6 kg/ha) + linuron (0.85–1.15 kg/ha)	DUAL II MAGNUM (915 g/L) + LOROX L (480 g/L) KOMODO (915 g/L) + LOROX L (480 g/L)	1.15–1.75 L/ha (0.46–0.7 L/acre) + 1.77–2.39 L/ha (0.71–0.96 L/acre)	<ul style="list-style-type: none"> <li>• Apply PRE.</li> <li>• Can be tank-mixed with glyphosate for PP burndown of emerged annual and perennial weeds, see Chapter 5, Preplant &amp; Postharvest Weed Control for more information.</li> </ul>
s-metolachlor/benoxacor (1.05–1.6 kg/ha) + metribuzin (0.41–1.13 kg/ha)	DUAL II MAGNUM (915 g/L) + SENCOR 75 DF (75 WG)	1.15–1.75 L/ha (0.46–0.7 L/acre) + 0.55–1.5 kg/ha (0.22–0.6 kg/acre)	<ul style="list-style-type: none"> <li>• Apply PPI or PRE.</li> <li>• Can be tank-mixed with glyphosate for PP burndown of emerged annual and perennial weeds, see Chapter 5, Preplant &amp; Postharvest Weed Control for more information.</li> <li>• KOMODO (915 g/L) is equivalent to DUAL II MAGNUM and can be tank-mixed with SENCOR 75DF.</li> <li>• Numerous metribuzin products that are similar or equivalent to SENCOR 75DF and can be tank-mixed with DUAL II MAGNUM. Refer to Table 3-1.</li> </ul>
s-metolachlor/benoxacor (1.05–1.6 kg/ha) + imazethapyr (0.075–0.1 kg/ha)	DUAL II MAGNUM (915 g/L) + PURSUIT (240 g/L)	1.15–1.75 L/ha (0.46–0.7 L/acre) + 0.312–0.42 L/ha (0.126–0.168 L/acre)	<ul style="list-style-type: none"> <li>• Apply PP, PPI or PRE.</li> <li>• Maximum PURSUIT rate for PPI treatments is 0.312 L/ha.</li> <li>• KOMODO (915 g/L) is equivalent to DUAL II MAGNUM and can be tank-mixed with PURSUIT (240 g/L).</li> <li>• Numerous imazethapyr products that are equivalent to PURSUIT exist and can be tank-mixed with DUAL II MAGNUM. Refer to Table 3-1.</li> </ul>

**TABLE 10–3. Herbicide Treatment Rates for Conventional (Non-GMO) Soybean (cont'd)**

ACTIVE INGREDIENT (rate)	TRADE NAME (Concentration)	PRODUCT RATE	PRECAUTIONS For more information, see Chapter 3, Herbicides Used in Ontario and Chapter 4, Notes on Adjuvants.	
<b>Soil Applied Tank-Mix Options (cont'd)</b>				
dimethenamid-P (544–693 g/ha) + metribuzin (408–528 g/ha)	FRONTIER MAX (720 g/L) + SENCOR 480 F (480 g/L)	756–963 mL/ha (305–390 mL/acre) + 850 mL–1.1 L/ha (340–440 mL/acre)	<ul style="list-style-type: none"> <li>Apply PP, PPI or PRE.</li> <li>Refer to precautions for FRONTIER MAX and SENCOR.</li> <li>Numerous metribuzin products that are similar or equivalent to SENCOR 75DF and can be tank-mixed with FRONTIER MAX. Refer to Table 3–1. <i>Herbicides Used in Ontario.</i></li> </ul>	
	FRONTIER MAX (720 g/L) + SENCOR 75 DF (75%)	756–963 mL/ha (305–390 mL/acre) + 550–700 g/ha (220–280 g/acre)		
dimethenamid-P (544–693 g/ha) + imazethapyr (0.075–0.1 kg/ha)	FRONTIER MAX (720 g/L) + PURSUIT (240 g/L)	756–963 mL/ha (305–390 mL/acre) + 0.312–0.42 L/ha (0.126–0.168 L/acre)	<ul style="list-style-type: none"> <li>Apply PP, PPI or PRE.</li> <li>Refer to precautions for FRONTIER MAX and PURSUIT.</li> <li>Numerous imazethapyr products that are equivalent to PURSUIT exist and can be tank-mixed with FRONTIER MAX. Refer to Table 3–1. <i>Herbicides Used in Ontario.</i></li> </ul>	
	PURSUIT (240 g/L) + FIRSTRATE (84 WG) PHANTOM (240 g/L) + FIRSTRATE (84 WG) NU-IMAGE (240 g/L) + FIRSTRATE (84 WG)	0.312 L/ha (0.126 L/acre) + 20.8 g/ha (8.5 g/acre)		
imazethapyr (75 g/ha) + cloransulam-methyl (17.5 g/ha)				
			imazethapyr (75 g/ha) + pendimethalin (1,000 g/ha)	PURSUIT (240 g/L) + PROWL H2O (455 g/L)
	PURSUIT (240 g/L) + LOROX L (480 g/L) PHANTOM (240 g/L) + LOROX L (480 g/L) NU-IMAGE (240 g/L) + LOROX L (480 g/L)	0.312–0.42 L/ha (0.126–0.168 L/acre) + 1.77–2.39 L/ha (0.71–0.96 L/acre)		
imazethapyr (0.075–0.1 kg/ha) + linuron (0.85–1.15 kg/ha)				
			imazethapyr (0.075–0.1 kg/ha) + metribuzin (0.4–1.13 kg/ha)	PURSUIT (240 g/L) + SENCOR 75 DF (75 WG)
	PHANTOM (240 g/L) + SENCOR 75 DF (75 WG)			
NU-IMAGE (240 g/L) + SENCOR 75 DF (75 WG)				

**TABLE 10–3.** Herbicide Treatment Rates for Conventional (Non-GMO) Soybean (cont'd)

ACTIVE INGREDIENT (rate)	TRADE NAME (Concentration)	PRODUCT RATE	PRECAUTIONS For more information, see Chapter 3, Herbicides Used in Ontario and Chapter 4, Notes on Adjuvants.
<b>Soil Applied Tank-Mix Options (cont'd)</b>			
imazethapyr (0.075 kg/ha) + trifluralin (0.6–1.155 kg/ha)	PURSUIT (240 g/L) or PHANTOM (240 g/L) or NU-IMAGE (240 g/L) + TREFLAN (480 g/L)	0.312 L/ha (0.126 L/acre) + 1.25–2.4 L/ha (0.5–0.96 L/acre)	• Apply PPI.
	PURSUIT (240 g/L) or PHANTOM (240 g/L) or NU-IMAGE (240 g/L) + RIVAL (500 g/L)	0.312 L/ha (0.126 L/acre) + 1.2–2.3 L/ha (0.48–0.92 L/acre)	
	PURSUIT (240 g/L) or PHANTOM (240 g/L) or NU-IMAGE (240 g/L) + BONANZA 480 (480 g/L)	0.312 L/ha (0.126 L/acre) + 1.25–2.4 L/ha (0.5–0.96 L/acre)	
metribuzin (0.33–0.75 kg/ha) + linuron (0.5–1.2 kg/ha)	SENCOR 75 DF (75 WG) + LOROX L (480 g/L)	0.44–1 kg/ha (0.18–0.4 kg/acre) + 1.04–2.5 L/ha (0.42–1 L/acre)	• Apply PRE. • Numerous metribuzin products that are similar or equivalent to SENCOR 75DF and can be tank-mixed with LOROX L. Refer to Table 3-1.
trifluralin (0.6–1.155 kg/ha) + metribuzin (0.42–0.55 kg/ha)	TREFLAN EC (480 g/L) + SENCOR 75 DF (75 WG)	1.25–2.4 L/ha (0.5–0.96 L/acre) + 0.56–0.73 kg/ha (0.22–0.29 kg/acre)	• Apply PPI. • Numerous metribuzin products that are similar or equivalent to SENCOR 75DF and can be tank-mixed with TREFLAN. Refer to Table 3-1.
	RIVAL (500 g/L) + SENCOR 75 DF (75 WG)	1.2–2.3 L/ha (0.48–0.92 L/acre) + 0.56–0.73 kg/ha (0.22–0.29 kg/acre)	
	BONANZA 480 (480 g/L) + SENCOR 75 DF (75 WG)	1.25–2.4 L/ha (0.5–0.96 L/acre) + 0.56–0.73 kg/ha (0.22–0.29 kg/acre)	
<b>Postemergence Grass Herbicides</b>			
quizalofop-p-ethyl (0.036–0.072 kg/ha) + oil concentrate (0.5% v/v)	ASSURE II (96 g/L) + SURE-MIX	0.38–0.75 L/ha (0.15–0.3 L/acre) + 5 L/1,000 L	• Apply to emerged annual grasses and volunteer cereals in 2 leaf to tillering stage and volunteer corn and quackgrass in the 2–6 leaf stage. • Use the 0.38 L/ha (0.15 L/acre) rate of ASSURE II for control of volunteer corn, volunteer cereals, long spined sandbur and green foxtail. • Volunteer “ENLIST” corn <b>WILL NOT</b> be controlled by this herbicide. • The 0.5 L/ha (0.2 L/acre) rate of ASSURE II will suppress quackgrass and also control barnyard grass. • Use the 0.75 L/ha (0.3 L/acre) rate of ASSURE II for control of quackgrass. • <b>Do NOT</b> apply to soybeans within 80 days of harvest.
	CONTENDER (96 g/L) + CONTENDER MSO		
	YUMA GL (96 g/L) + XA OIL CONCENTRATE		

**TABLE 10–3. Herbicide Treatment Rates for Conventional (Non-GMO) Soybean (cont'd)**

ACTIVE INGREDIENT (rate)	TRADE NAME (Concentration)	PRODUCT RATE	PRECAUTIONS For more information, see Chapter 3, Herbicides Used in Ontario and Chapter 4, Notes on Adjuvants.
<b>Postemergence Grass Herbicides (cont'd)</b>			
sethoxydim (0.15–0.2 kg/ha) + oil concentrate (2 L/ha)	POAST ULTRA (450 g/L) + ASSIST	0.32–0.47 L/ha (0.13–0.19 L/acre) + 2 L/ha (0.8 L/acre)	<ul style="list-style-type: none"> <li>Apply the 0.47 L/ha (0.19 L/acre) rate for wild oats or volunteer cereal control.</li> <li>Apply POAST ULTRA to emerged grasses in the 1–6 leaf stage during active growth while crop is small enough to permit thorough spray coverage.</li> <li>Complete control is normally obtained 7–21 days after application. A second application may be necessary to control grasses that emerge after the first treatment.</li> <li>Use MERGE for conditions or weeds requiring medium to high rates of POAST ULTRA.</li> <li>Water rates of 100–200 L/ha (40–80 L/acre) provide the best results.</li> </ul>
sethoxydim (0.15–0.2 kg/ha) + surfactant/solvent (1 L/ha)	POAST ULTRA (450 g/L) + MERGE	0.32–0.47 L/ha (0.13–0.19 L/acre) + 1 L/ha (0.4 L/acre)	
sethoxydim (0.5 kg/ha) + surfactant/solvent (1–2 L/ha)	POAST ULTRA (450 g/L) + MERGE	1.1 L/ha (0.45 L/acre) + 1–2 L/ha (0.4–0.8 L/acre)	
clethodim (45-90 g/ha) + surfactant (0.5% v/v)	SELECT (240 g/L) + AMIGO	190–375 mL/ha (75-150 mL/acre) + 5-10 L/1,000 L	<ul style="list-style-type: none"> <li>Soybeans are tolerant at any growth stage.</li> <li>Apply when annual grasses and volunteer cereals are in the 2–6 leaf stage.</li> <li>Use the higher rate for quackgrass control. Apply to quackgrass in the 2–5 leaf stage.</li> <li>Add the surfactant at 5 L/1,000 L of spray solution to the low herbicide rate and 10 L/1,000 L of spray solution to the high herbicide rate for quackgrass control.</li> <li>ARROW ALL-IN has an adjuvant included in its formulation, therefore does not require the addition of an adjuvant that is required when using SELECT, STATUE or ANTLER.</li> </ul>
	STATUE (240 g/L) + CARRIER		
	ANTLER (240 g/L) + X-ACT or ADAMA ADJUVANT 80		
	CLETHODIM 240 (240 g/L) + SURF-ACT		
	ARROW ALL-IN (120 g/L)		
fluzifop-P-butyl (0.075–0.25 kg/ha)	VENTURE L (125 g/L)	0.6–2 L/ha (0.243–0.8 L/acre)	<ul style="list-style-type: none"> <li>The 0.6 L/ha (0.243 L/acre) rate is for the control of volunteer corn at the 2–5 leaf stage. <b>WILL NOT</b> control volunteer “ENLIST” corn.</li> <li>The 1 L/ha (0.4 L/acre) rate is for the control of annual grasses at the 2–4 leaf stage.</li> <li>The 2 L/ha (0.8 L/acre) rate is for the control of quackgrass or wirestem muhly at the 3–5 leaf stage.</li> </ul>
<b>Postemergence Broadleaf Herbicides</b>			
bentazon (0.84–1.08 kg/ha)	BASAGRAN FORTÉ (480 g/L)	1.75–2.25 L/ha (0.7–0.9 L/acre)	<ul style="list-style-type: none"> <li>Apply when soybeans are in unifoliate to 4th trifoliate leaf stage and when weeds are small and actively growing.</li> <li>Temporary crop injury may occur under abnormally hot, humid conditions.</li> <li>Cool weather or drought may delay control.</li> <li>For improved and more consistent control of velvetleaf and lamb's-quarters, 10 L/ha of 28% urea ammonium nitrate (UAN) or 6 L/ha of liquid ammonium sulphate may be added. The addition of either nitrogen source may cause slight leaf burn, but new growth is normal and crop vigour is not reduced.</li> <li>Use the higher rate when weed pressure is high, weeds are large or conditions for activity are unfavourable.</li> </ul>
	BROADLOAM (480 g/L) + XA OIL CONCENTRATE	1.75–2.25 L/ha (0.7–0.9 L/acre) + 1–2 L/ha (0.4–0.8 L/acre)	
	BENTA SUPER (480 g/L) + XA OIL CONCENTRATE		

**TABLE 10–3.** Herbicide Treatment Rates for Conventional (Non-GMO) Soybean (cont'd)

ACTIVE INGREDIENT (rate)	TRADE NAME (Concentration)	PRODUCT RATE	PRECAUTIONS For more information, see Chapter 3, Herbicides Used in Ontario and Chapter 4, Notes on Adjuvants.
<b>Postemergence Broadleaf Herbicides (Cont'd)</b>			
acifluorfen (0.6 kg/ha)	BLAZER, ULTRA (240 g/L)	2.5 L/ha (1 L/acre)	<ul style="list-style-type: none"> <li>Apply to emerged weeds up to 10 cm in height (refer to labels for weed heights) when soybeans are in the 1–3 trifoliolate leaf stage.</li> <li><b>Do NOT</b> apply before the first trifoliolate leaf stage of the soybeans.</li> <li>Good spray coverage on the weeds is important for good weed control.</li> <li>Soybeans may exhibit speckling, bronzing and/or leaf burn. The trifoliolate leaf emerging at the time of application may be distorted. Soybeans usually outgrow these conditions and continue to grow at a normal rate with no adverse effects on vigour, maturity, or crop yield.</li> <li><b>Do NOT</b> apply BLAZER to soybeans that have been subjected to stress (see product label).</li> <li><b>Do NOT</b> add oils or surfactants to applications of BLAZER at 2.5 L/ha alone.</li> </ul>
acifluorfen (0.3 kg/ha) + oil concentrate (0.5% v/v)	BLAZER, ULTRA (240 g/L) + ASSIST	1.25 L/ha (0.5 L/acre) + 5 L/1,000 L	<ul style="list-style-type: none"> <li>Apply to emerged redroot pigweed up to and including the 4 leaf stage and to common ragweed up to and including the 8 leaf stage when soybeans are in the 1–3 trifoliolate leaf stage.</li> <li><b>Do NOT</b> apply before the first trifoliolate leaf stage of the soybeans.</li> <li>Good spray coverage on the weeds is important for good weed control.</li> <li>Soybeans may exhibit speckling, bronzing and/or leaf burn. The trifoliolate leaf emerging at the time of application may be distorted. Soybeans usually outgrow these conditions and continue to grow at a normal rate with no adverse effects on vigour, maturity or crop yield.</li> </ul>
chlorimuron-ethyl (9 g/ha) + non-ionic surfactant (0.2% v/v)	CLASSIC (25 DF) + non-ionic surfactant CHAPERONE (25 DF) + non-ionic surfactant	36 g/ha (14 g/acre) + 2 L/1,000 L	<ul style="list-style-type: none"> <li>Apply to small emerged weeds (2–6 leaf) and ideally when soybeans have the 1st trifoliolate leaf fully expanded. Applications may occur prior to the 1st trifoliolate leaf stage if targeted weed species are at the maximum leaf stage for control.</li> <li><b>Do NOT</b> apply after the initiation of flowering.</li> <li>Addition of 28% UAN may improve control of velvetleaf.</li> <li>Some rotational cropping restrictions apply (see Table 3–3. <i>Herbicide Crop Rotation and Soil pH Restrictions</i>).</li> </ul>
cloransulam-methyl (17.5 g/ha) + non ionic surfactant (0.25% v/v) + liquid fertilizer (2.5% v/v)	FIRSTRATE (84 WG) + non-ionic surfactant + liquid fertilizer (28-0-0 or 32-0-0)	20.8 g/ha (8.5 g/acre) + 2.5 L/1,000 L + 25 L/1,000 L	<ul style="list-style-type: none"> <li>Apply up to the 8 leaf stage for common ragweed and cocklebur, 6 leaf stage for giant ragweed, and 4 leaf stage for velvetleaf.</li> <li>Apply any time prior to flowering stage of soybeans.</li> <li>Application prior to full emergence of first trifoliolate may cause temporary yellowing of soybeans.</li> </ul>
bentazon (320 g/L) (561.6 g/ha)/ acifluorfen (160 g/L) (280.8 g/ha)	HURRICANE (480 g/L) + MERGE + 28% UAN HURRICANE (480 g/L) + SURE-MIX + 28% UAN	1.755 L/ha (0.7 L/acre) + 5–10 L/1,000 L + 4.68–9.36 L/ha (1.87–3.7 L/acre) 1.755 L/ha (0.7 L/acre) + 5–10 L/1,000 L + 4.68–9.36 L/ha (1.87–3.7 L/acre)	<ul style="list-style-type: none"> <li>Apply when susceptible broadleaf weeds are 5–10 cm tall. (velvetleaf and lamb's-quarters should be no larger than 5 cm tall).</li> <li>Apply between the 1–2 trifoliolate stage of soybean.</li> <li>HURRICANE can be tank-mixed with ASSURE II, CLASSIC, FIRSTRATE, PINNACLE, POAST ULTRA or PURSUIT for a broader spectrum of weed control.</li> <li>When tank-mixing with CLASSIC, FIRSTRATE, PINNACLE or PURSUIT, a non-ionic surfactant should be used instead of MERGE or SURE-MIX.</li> <li>If the air temperature and relative humidity added together exceed “100” (e.g. 29°C + 75% R.H.) at time of application, then use the lower adjuvant rate.</li> </ul>

**TABLE 10–3.** Herbicide Treatment Rates for Conventional (Non-GMO) Soybean (cont'd)

ACTIVE INGREDIENT (rate)	TRADE NAME (Concentration)	PRODUCT RATE	PRECAUTIONS For more information, see Chapter 3, Herbicides Used in Ontario and Chapter 4, Notes on Adjuvants.
<b>Postemergence Broadleaf Herbicides (cont'd)</b>			
thifensulfuron-methyl (4.1–6 g/ha) + surfactant (0.1% v/v)	PINNACLE SG TOSS-N-GO (50%) + non ionic surfactant	8.25–12 g/ha (3.3–4.8 g/acre) + 1 L/1,000 L	<ul style="list-style-type: none"> <li>Apply to small emerged weeds (2–6 leaf) and ideally when soybeans have the 1st trifoliolate leaf fully expanded. Applications may occur prior to the 1st trifoliolate leaf stage if targeted weed species are at the maximum leaf stage for control.</li> <li><b>Do NOT</b> apply to soybeans, which have initiated flowering.</li> <li>Use the higher rate for lamb's-quarters and velvetleaf.</li> <li>The addition of UAN (28-0-0) at 4% v/v will enhance the control of velvetleaf.</li> </ul>
fomesafen (0.24 kg/ha) + mineral oil/surfactant (0.5% v/v)	REFLEX (240 g/L) + TURBOCHARGE	1 L/ha (0.4 L/acre) + 5 L/1,000 L	<ul style="list-style-type: none"> <li>Apply early postemergence at 1–2 trifoliolate to crop when weeds are small and actively growing (2–4 leaf stage).</li> <li>Use 200–350 L/ha (80–140 L/acre) water. Use higher rates of water and pressure for a heavy weed or crop canopy.</li> <li>Some bronzing may occur to soybean leaves at the time of application, but plants outgrow these effects without harming maturity or yield.</li> <li><b>Do NOT</b> apply REFLEX to any field more often than once every 2 years.</li> <li><b>Do NOT</b> apply to soybeans under stress.</li> <li>Some rotational cropping restrictions apply (see Table 3–3. <i>Herbicide Crop Rotation and Soil pH Restrictions</i>).</li> </ul>
<b>Postemergence Grass and Broadleaf Herbicides</b>			
imazethapyr/ bentazon (0.075 + 0.84 kg/ha) + liquid fertilizer (2 L/ha)	CLEAN SWEEP (sold as a co-pack): (PURSUIT (240 g/L) + BASAGRAN FORTÉ (480 g/L) + liquid fertilizer (28-0-0, 10-34-0 or 32-0-0)	0.312 L/ha (0.126 L/acre) + 1.75 L/ha (0.7 L/acre) + 2 L/ha (0.8 L/acre)	<ul style="list-style-type: none"> <li>Available as a co-pack containing PURSUIT and BASAGRAN FORTÉ.</li> <li>Apply postemergence to actively growing weeds in the 2–6 leaf stage.</li> <li>Some rotational cropping restrictions apply (see label and Table 3–3. <i>Herbicide Crop Rotation and Soil pH Restrictions: Field Crops</i>).</li> </ul>
imazethapyr (0.075–0.1 kg/ha) + non-ionic surfactant (0.25% v/v) + liquid fertilizer (2 L/ha)	PURSUIT (240 g/L) + non-ionic surfactant + liquid fertilizer (28-0-0, 10-34-0, or 32-0-0)	0.312–0.42 L/ha (126–168 mL/acre) + 2.5 L/1,000 L + 2 L/ha (0.8 L/acre)	<ul style="list-style-type: none"> <li>Apply when the weeds are up to the 2-true leaf stage.</li> <li>Some rotational cropping restrictions apply (see label and Table 3–3. <i>Herbicide Crop Rotation and Soil pH Restrictions: Field Crops</i>).</li> <li>Use only <b>ONCE</b> per season.</li> <li><b>Do NOT</b> apply to soybeans after the 3rd trifoliolate stage of growth as severe crop injury and yield loss can occur.</li> </ul>
	PHANTOM (240 g/L) + non-ionic surfactant + liquid fertilizer (28-0-0, 10-34-0, or 32-0-0)		
	NU-IMAGE (240 g/L) + non-ionic surfactant + liquid fertilizer (28-0-0, 10-34-0, or 32-0-0)		
pyroxasulfone (60–120 g/ha)	ZIDUA SC (500 g/L)	120–240 mL/ha (48–96 mL/acre)	<ul style="list-style-type: none"> <li>Apply POST from soybean emergence up until prior to flowering.</li> <li>Must be applied and activated prior to weed seedling emergence.</li> <li>If a sequential application of ZIDUA SC is used (e.g. pre-emergent application followed by a post emergent application), the maximum seasonal rate of ZIDUA SC that may be applied is 250 mL/ha (100 mL/acre) on coarse soils and 493 mL/ha (197 mL/acre) on medium to fine soils.</li> </ul>

**TABLE 10–3.** Herbicide Treatment Rates for Conventional (Non-GMO) Soybean (cont'd)

<b>ACTIVE INGREDIENT (rate)</b>	<b>TRADE NAME (Concentration)</b>	<b>PRODUCT RATE</b>	<b>PRECAUTIONS</b> For more information, see Chapter 3, Herbicides Used in Ontario and Chapter 4, Notes on Adjuvants.
<b>Postemergence Tank-Mix Options</b>			
quizalofop-p-ethyl (0.06 kg/ha) + thifensulfuron-methyl (4.1–6 g/ha) + bentazon (0.84–1.08 kg/ha) + oil concentrate (0.5% v/v)	ASSURE II (96 g/L)* + PINNACLE SG (50%) + BASAGRAN FORTÉ (480 g/L) + SURE-MIX	0.63 L/ha (0.25 L/acre) + 8.25–12 g/ha (3.3–4.8 g/acre) + 1.75–2.25 L/ha (0.7–0.9 L/acre) + 5 L/1,000 L	<ul style="list-style-type: none"> <li>Apply to soybeans from the 1–4 trifoliolate leaf stage. Applications may occur prior to the 1st trifoliolate leaf stage of soybean if targeted weed species are at the maximum leaf stage for control.</li> <li><b>Do NOT</b> apply to soybeans, which have initiated flowering.</li> <li>If leaf stages of the grass and broadleaf weeds do not coincide, a sequential application of the grass and broadleaf herbicides is required to ensure satisfactory control.</li> <li>*CONTENDER and YUMA GL are equivalents of ASSURE II and can be used interchangeably.</li> </ul>
quizalofop-p-ethyl (0.048 kg/ha) + thifensulfuron-methyl (4.1–6 g/ha) + oil concentrate (0.5% v/v)	ASSURE II (96 g/L) + PINNACLE SG (50%) + SURE-MIX	0.5 L/ha (0.2 L/acre) + 8.25–12 g/ha (3.3–4.8 g/acre) + 5 L/1,000 L	<ul style="list-style-type: none"> <li>Apply to soybeans from the 1–3 trifoliolate leaf stage. Applications may occur prior to the 1st trifoliolate leaf stage of soybean if targeted weed species are at the maximum leaf stage for control.</li> <li><b>Do NOT</b> apply to soybeans that have initiated flowering.</li> <li>If leaf stages of the grass and broadleaf weeds do not coincide, a sequential application of the grass and broadleaf herbicides is required to ensure satisfactory control.</li> <li>Velvetleaf control may be reduced with a tank-mix application.</li> <li>For optimum control, make separate applications of PINNACLE and ASSURE.</li> <li>*CONTENDER and YUMA GL are equivalents of ASSURE II and can be used interchangeably.</li> </ul>
quizalofop-p-ethyl (0.036–0.060 kg/ha) + chlorimuron-ethyl (9.0 g/ha) + oil concentrate (0.5%–1.0%)	ASSURE II (96 g/L)* + CLASSIC (25 DF)* + SURE-MIX	0.38–0.63 L/ha (0.15–0.255 L/acre) + 36 g/ha (14 g/acre) + 5 L/1,000 L	<ul style="list-style-type: none"> <li>Apply to soybeans from the 1–3 trifoliolate leaf stage. Applications may occur prior to the 1st trifoliolate leaf stage of soybean if targeted weed species are at the maximum leaf stage for control.</li> <li><b>Do NOT</b> apply to soybeans that have initiated flowering.</li> <li>If leaf stages of the grass and broadleaf weeds do not coincide, a sequential application of the grass and broadleaf herbicides is required to ensure satisfactory control.</li> <li>If targeting yellow foxtail or quackgrass use ASSURE II at a rate of 0.63 L/ha.</li> <li>*CONTENDER and YUMA GL are equivalents of ASSURE II and can be used interchangeably. * CHAPERONE is a generic equivalent of CLASSIC.</li> </ul>
acifluorfen (0.3 kg/ha) + bentazon (0.6 kg/ha)	BLAZER, ULTRA (240 g/L) + BASAGRAN FORTÉ (480 g/L)	1.25 L/ha (0.5 L/acre) + 1.25 L/ha (0.5 L/acre)	<ul style="list-style-type: none"> <li>Use when common ragweed and/or redroot pigweed are the dominant weed(s).</li> </ul>
	BLAZER, ULTRA (240 g/L) + BROADLOOM (480 g/L) + XA OIL CONCENTRATE	1.25 L/ha (0.5 L/acre) + 1.25 L/ha (0.5 L/acre) + 1–2 L/ha (0.4–0.8 L/acre)	
acifluorfen (0.15 kg/ha) + bentazon (0.84 kg/ha)	BLAZER, ULTRA (240 g/L) + BASAGRAN FORTÉ (480 g/L)	0.63 L/ha (0.25 L/acre) + 1.75 L/ha (0.7 L/acre)	<ul style="list-style-type: none"> <li>Use when lamb's-quarters is the dominant weed.</li> </ul>
	BLAZER, ULTRA (240 g/L) + BROADLOOM (480 g/L) + XA OIL CONCENTRATE	0.63 L/ha (0.25 L/acre) + 1.75 L/ha (0.7 L/acre) + 1–2 L/ha (0.4–0.8 L/acre)	

**TABLE 10–3. Herbicide Treatment Rates for Conventional (Non-GMO) Soybean (cont'd)**

ACTIVE INGREDIENT (rate)	TRADE NAME (Concentration)	PRODUCT RATE	PRECAUTIONS For more information, see Chapter 3, Herbicides Used in Ontario and Chapter 4, Notes on Adjuvants.
<b>Postemergence Tank-Mix Options (cont'd)</b>			
thifensulfuron-methyl (4.1–6 g/ha) + bentazon (0.84–1.08 kg/ha)	PINNACLE SG (50%) + BASAGRAN FORTÉ (480 g/L)	8.25–12 g/ha (3.3–4.8 g/acre) + 1.75–2.25 L/ha (0.7–0.9 L/acre)	<ul style="list-style-type: none"> <li>• Apply to emerged weeds when soybeans have the first trifoliolate leaf fully expanded.</li> <li>• <b>Do NOT</b> apply to soybeans that have initiated flowering.</li> <li>• If Canada thistle, yellow nutsedge and field bindweed are target species a 2nd application may be required.</li> </ul>
fomesafen (0.24 kg/ha) + thifensulfuron-methyl (6 g/ha) + non-ionic surfactant (0.25% v/v)	REFLEX (240 g/L) + PINNACLE SG (50%) + AGRAL 90	1 L/ha (0.4 L/acre) + 12 g/ha (4.8 g/acre) + 2.5 L/1,000 L	<ul style="list-style-type: none"> <li>• Apply early postemergence at the 2–4 leaf stage of weeds and 1–2 trifoliolate stage of the crop.</li> </ul>
fomesafen (0.24 kg/ha) + fluazifop-p-butyl (6 g/ha) + surfactant (0.5% v/v)	REFLEX (240 g/L) + VENTURE L (125 g/L) + TURBOCHARGE-	1 L/ha (0.4 L/acre) + 0.6–2.0 L/ha (0.243–0.8 L/acre) + 5 L/1,000 L	<ul style="list-style-type: none"> <li>• Apply early postemergence at the 2–4 leaf stage of weeds and 1–2 trifoliolate stage of the crop.</li> <li>• Apply in 200 L/ha (80 L/acre) water.</li> </ul>
imazethapyr (75 g/ha) + cloransulan-methyl (17.5 g/ha) + non-ionic surfactant (0.25% v/v) + liquid fertilizer (2 L/ha)	PURSUIT (240 g/L) + FIRSTRATE (84 WG) + non-ionic surfactant + liquid fertilizer (28-0-0 or 32-0-0)	0.312 L/ha (0.126 L/acre) + 20.8 g/ha (8.5 g/acre) + 2.5 L/1,000 L + 2 L/ha (0.8 L/acre)	<ul style="list-style-type: none"> <li>• Apply when weeds are up to the 2-true leaf stage.</li> <li>• Use for control of annual grasses, lamb's-quarters and redroot pigweed.</li> </ul>
imazethapyr (0.075 kg/ha) + fomesafen (0.19–0.24 kg/ha) + non-ionic surfactant (0.25% v/v) + liquid fertilizer (2 L/ha)	PURSUIT (240 g/L) + REFLEX (240 g/L) + AGRAL 90 + liquid fertilizer	0.312 L/ha (0.126 L/acre) + 0.8–1 L/ha (0.32–0.4 L/acre) + 2.5 L/1,000 L + 2 L/ha (0.8 L/acre)	<ul style="list-style-type: none"> <li>• Use the lower rate of REFLEX for ragweed only.</li> <li>• Use the higher rate of REFLEX for lamb's-quarters.</li> </ul>
fluazifop-p-butyl (0.125–0.25 kg/ha) + bentazon (0.84–1.08 kg/ha) + oil concentrate (0.5% v/v)	VENTURE L (125 g/L) + BASAGRAN (480 g/L) + ASSIST	1–2 L/ha (0.4–0.8 L/acre) + 1.75–2.25 L/ha (0.7–0.9 L/acre) + 5 L/1,000 L	<ul style="list-style-type: none"> <li>• Apply when soybeans are at the unifoliolate to 3rd trifoliolate stage and when weeds are small and actively growing.</li> <li>• Use the 0.8 L/acre rate of VENTURE L to control wirestem muhly.</li> <li>• Temporary crop injury may occur under abnormally hot and humid conditions.</li> </ul>



**TABLE 10–3.** Herbicide Treatment Rates for Conventional (Non-GMO) Soybean (cont'd)

ACTIVE INGREDIENT (rate)	TRADE NAME (Concentration)	PRODUCT RATE	PRECAUTIONS For more information, see Chapter 3, Herbicides Used in Ontario and Chapter 4, Notes on Adjuvants.
<b>Spot Treatments – see Spot Treatments with Hand-Held Equipment, chapter 5 for a list of options.</b>			
<b>Wick Wiper and Roller Application – see Wick Wiper and Roller Application, chapter 5 for a list of options.</b>			
<b>Preharvest</b>			
carfentrazone-ethyl (0.0175–0.028 kg/ha) + adjuvant	AIM EC (240 g/L) + non-ionic surfactant	0.073–0.117 L/ha (30–47 mL/acre) + 2.5 L/1,000 L	<ul style="list-style-type: none"> <li>• Apply to actively growing weeds, up to 10 cm.</li> <li>• Coverage of weed and crop foliage is essential for control.</li> <li>• Preharvest interval (PHI) is 3 days.</li> </ul>
	AIM EC (240 g/L) + MERGE	0.073–0.117 L/ha (30–47 mL/acre) + 10 L/1,000 L	
saflufenacil (25.2–49.7 g/ha) + adjuvant (1 L/ha)	ERAGON LQ (342 g/L) + MERGE	73–146 mL/ha (29.5–59 mL/acre) + 1 L/ha (0.4 L/acre)	<ul style="list-style-type: none"> <li>• Apply when the stems are green to brown in colour and pods are mature (yellow-brown) and 80%–90% of the original leaves have dropped.</li> <li>• Apply in 200 L/ha (80 L/acre) of water.</li> <li>• Preharvest interval (PHI) is 3 days.</li> </ul>
	ERAGON LQ (342 g/L) + glyphosate (540 g/L)* + MERGE	73–146 mL/ha (29.5–59 mL/acre) + 1.67 L/ha (0.67 L/acre) + 1 L/ha (0.4 L/acre)	
* Numerous products exist, refer to Table 3–1.			
glyphosate (0.9 kg/ha)	glyphosate (540 g/L)*	1.67 L/ha (0.67 L/acre)	<ul style="list-style-type: none"> <li>• End use restrictions may apply if growing for the food grade market. Contact the end use purchaser of your crop to confirm if glyphosate can be used as a preharvest treatment.</li> <li>• Apply in 50–100 L/ha (20–40 L/acre) water when the crop is 30% grain moisture or less.</li> <li>• <b>Do NOT</b> apply to crops grown for seed.</li> <li>• Apply at least 7 days prior to harvest when pod tissue is dry and brown and 80%–90% of original leaves have dropped.</li> </ul>
	other glyphosate products	See Table 10–5.	
diquat (0.30–0.55 kg/ha) + surfactant (0.1% v/v)	REGLONE DESICCANT (240 g/L) + AGRAL 90	1.25–2.3 L/ha (0.5–0.92 L/acre) + 1 L/1,000 L	<ul style="list-style-type: none"> <li>• Apply in 225 L/ha water to burn off weeds when 80% natural crop leaf defoliation has occurred and 80% of the pods have turned yellow.</li> <li>• Avoid regrowth by targeting spray within 7 days of variety maturity date and harvest 5–7 days after application.</li> <li>• For ground application use 1.25–1.7 L/ha (0.5–0.68 L/acre).</li> <li>• For aerial application use 1.7–2.3 L/ha (0.68–0.92 L/acre).</li> </ul>
	BOLSTER DESICCANT (240 g/L) + AGRAL 90		
	ARMORY DESICCANT (240 g/L) + AGRAL 90		
	DESSICASH DESICCANT (240 g/L) + AGRAL 90		

## Glyphosate Tolerant (“Roundup Ready”) Soybean

### Weed Management Strategies for Glyphosate Tolerant Soybean

University of Guelph research trials have shown that when weed competition is high, two applications of glyphosate in glyphosate tolerant soybeans maximized yields and gross returns over 5 years at multiple locations in Ontario, see table 10–4. below.

**TABLE 10–4.** Soybean Yield From Different Weed Management Strategies in Glyphosate Tolerant Soybeans

Time of Glyphosate Application	Weed Control (% visual)	Yield (%)
Preplant followed by a Post application at the 1–3 trifoliolate stage	96	100
Unifoliolate followed by a Post application at the 1–3 trifoliolate stage	96	98
Post at the 1–3 trifoliolate stage (no Preplant Burndown applied)	93	83

Source: Swanton and Deen, 1999, University of Guelph.

In fields with historically low weed pressure and where the in-crop glyphosate application is not delayed past the third trifoliolate stage there is little benefit to applying a residual herbicide. In fields with historically high weed pressure and when there is a risk of delayed in-crop glyphosate application (for reasons such as poor spraying conditions or a large amount of acres over a large geographic area) the application of a residual herbicide will minimize any risk of yield losses due to early season weed competition. It is important to select a residual herbicide that addresses the weed spectrum in your field. Refer to the weed control ratings for soil applied herbicide in Table 10–1. *Conventional Soybean Herbicide Weed Control Ratings.*

## Glyphosate Resistant Weeds

**Giant Ragweed** – Populations resistant to glyphosate exist in southwestern Ontario. University of Guelph research has shown that, to date, an application of 2,4-D Ester 700 or BLACKHAWK + glyphosate prior to planting soybeans, is the most effective way to control emerged glyphosate resistant giant ragweed. FIRSTRATE provides the best control of glyphosate resistant giant ragweed postemergence in glyphosate tolerant soybeans. However, there are populations of giant ragweed that are also resistant to group 2 herbicides such as FIRSTRATE. LOROX provides effective residual control of giant ragweed when the highest label rate is used.

### Canada Fleabane

Glyphosate resistant Canada fleabane is most difficult to control in soybean because of a lack of options to control it once the soybean crop has emerged. Therefore, it must be controlled prior to planting. When research trials were initially conducted, the pre-plant tank-mix of glyphosate + ERAGON LQ + MERGE was the most effective option. However, as that treatment was evaluated over several seasons and locations, about one third of the time, glyphosate+ ERAGON LQ + MERGE failed to provide commercially acceptable control of glyphosate resistant Canada fleabane. To address this inconsistency, different tank-mix options were evaluated over two seasons and the addition of SENCOR 75 DF (metribuzin) at 38 g/ha (15 g/acre) to the pre-plant tank-mix of glyphosate + ERAGON LQ + MERGE improved control of glyphosate resistant Canada fleabane. The equivalent rate of metribuzin used in SENCOR 75 DF can also be found in a number of soil applied herbicides.

## Common Ragweed

If glyphosate resistant common ragweed is emerged prior to planting then the tank-mix of glyphosate + ERAGON LQ + MERGE is the best option to control populations of this resistant species. SENCOR 75 DF (metribuzin) applied pre-plant at the highest labelled rate has provided effective residual control of glyphosate resistant common ragweed, however this rate can only be safely used on clay soils that have greater than 4% organic matter, otherwise unacceptable crop injury is likely. When glyphosate resistant common ragweed is present when the soybean crop has emerged then either FLEXSTAR GT + TURBOCHARGE or glyphosate + REFLEX + TURBOCHARGE has provided the best control of this species in Roundup Ready Soybeans.

### Waterhemp

Control of glyphosate resistant waterhemp is best achieved with a two-pass herbicide program where one of AUTHORITY SUPREME, BOUNDARY LQD, FIERCE, FOCUS, FRONTIER MAX or VALTERA is applied preemergence. If a second flush of waterhemp emerges once the crop has emerged, then one of REFLEX or ULTRA BLAZER can be applied. ENLIST 1, ENLIST DUO provide good postemergence control when growing ENLIST E3 soybean varieties. If growing Roundup Ready 2 Xtend soybean varieties, postemergence products containing the active ingredient “dicamba” also provide good control.

**NOTES:** Weed control ratings are given as 0–9 where 0 indicates no control and 9 indicates 90%–100% control under ideal conditions. Ratings are subjective values based on best available information and give general comparisons based on use as described in this guide. Under unfavourable conditions (e.g., too dry, too wet, too cold, or poor application) the herbicides may not be as effective as indicated. Ratings may vary with weed and crop stage and with the timing and rates of the product(s) being used. Always refer to the product label for more information on registered weed species, product uses and precautions

**TABLE 10–5. Soybean Herbicide Weed Control Ratings in Glyphosate Tolerant Soybeans**

**LEGEND:** Numbers (0–9) = weed control ratings  
 \* = sold as a co-pack under this trade name  
 Crop tolerance ratings: E = Excellent, G = Good, F = Fair, P = Poor  
 – = insufficient information available to make a rating  
 R = populations resistant to this herbicide exist in Ontario and won't be adequately controlled if present.

Trade Name	Stage	Grasses								Annual Broadleaves										Perennials					Crop Tolerance				
		barnyard grass	crabgrass	fall panicum	foxtail, giant	foxtail, green	foxtail, yellow	witchgrass	proso millet	buckwheat, wild	cocklebur	fleabane, Canada	lady's thumb	lamb's-quarters	mustards	nightshades, annual	pigweeds	ragweed, common	ragweed, giant	velvetleaf	waterhemp	bindweed, field	horsetail	milkweed		nutsedge	quackgrass	sow-thistle	thistle, Canada
<b>Preplant Burndown Herbicides</b>																													
2,4-D Ester 700 + glyphosate <sup>3</sup>	emerged weeds	9	9	9	9	9	9	9	9	8	9	7	8	9	9	9	9	9	9	9 <sup>R</sup>	8	5	8	8 <sup>2</sup>	9	8	9	G	
	residual weed control	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
ASSIGNMENT*	emerged weeds	9	9	9	9	9	9	9	9	8	9	9 <sup>R</sup>	8	9	9	9	9 <sup>R</sup>	9 <sup>R</sup>	9	9 <sup>R</sup>	7/8	5	8	8 <sup>1</sup>	9	8	9	E	
	residual weed control	–	–	8	–	9	9	–	7	–	4	2	9	8 <sup>R</sup>	9	9 <sup>R</sup>	9 <sup>R</sup>	8 <sup>R</sup>	5 <sup>R</sup>	8	0	0	0	0	–	0	0	0	
BLACKHAWK	emerged weeds	–	–	–	–	–	–	–	–	–	9	7	9	9	–	9	9	9	9	5	–	–	–	–	–	–	–	G	
	residual weed control	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
BIFECTA EZ + glyphosate <sup>3</sup>	emerged weeds	9	9	9	9	9	9	9	9	7	9	9 <sup>R</sup>	9	9	9	9	9 <sup>R</sup>	9 <sup>R</sup>	9 <sup>R</sup>	9	9 <sup>R</sup>	7/8	5	8	8 <sup>1</sup>	9	8	9	G
	residual weed control	7	6	7	5	6	6	8	3	9	9	8	9	9	9	9	9	8	6	7	8	2	2	2	2	2	2	2	
BOUNDARY LQD + glyphosate <sup>3</sup>	emerged weeds	9	9	9	9	9	9	9	9	8	9	9 <sup>R</sup>	8	9	9	9	9	9 <sup>R</sup>	8 <sup>R</sup>	9	9 <sup>R</sup>	7/8	5	8	8 <sup>1</sup>	9	8	9	F
	residual weed control	9	9	8	8	9	9	9	4	–	–	5 <sup>6</sup>	–	7	–	8 <sup>2</sup>	8 <sup>2</sup>	–	–	–	8	–	–	–	8 <sup>1</sup>	–	–	–	
CANOPY PRO* + glyphosate	emerged weeds	9	9	9	9	9	9	9	9	8	9	9 <sup>R</sup>	8	9	9	9	9	9 <sup>R</sup>	9 <sup>R</sup>	9	9 <sup>R</sup>	7/8	5	8	9	9	8	9	G
	residual weed control	7	6	7	5	5	5	8	3	8	7 <sup>R</sup>	8	9	9 <sup>R</sup>	9	9 <sup>R</sup>	9 <sup>R</sup>	8 <sup>R</sup>	6	9	–	2	2	2	6	8	2	2	
DILIGENT + glyphosate <sup>3</sup>	emerged weeds	9	9	9	9	9	9	9	9	8	9	9 <sup>R</sup>	8	9	9	9	9	9 <sup>R</sup>	9 <sup>R</sup>	9	9 <sup>R</sup>	7/8	5	8	9	9	8	9	G
	residual weed control	7	7	6	5	5	6	6	7	8	8	8	8	9	9	9	9	7	4	7	–	5	3	8	6	5	5	5	
ELEVORE + glyphosate	emerged weeds	9	9	9	9	9	9	9	9	8	9	7	8	9	9	9	9	8	9 <sup>R</sup>	9	5	7/8	5	8	8 <sup>1</sup>	9	8	9	G
	residual weed control	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	

<sup>1</sup> A glyphosate rate of 1.8 kg/ha is required to achieve this level of control.

<sup>2</sup> Use only on certified soybean seed designated as “Roundup Ready” Soybean.

<sup>3</sup> Numerous products exist. See Table 10–5. *Glyphosate Products Rates, Manufacturer, Rainfast and Salt Type Labeled for Use on Glyphosate Tolerant “Roundup Ready” Soybean* for a complete list of registered products.

**TABLE 10–5. Soybean Herbicide Weed Control Ratings in Glyphosate Tolerant Soybeans (cont'd)**

**LEGEND:** Numbers (0–9) = weed control ratings Crop tolerance ratings: E = Excellent, G = Good, F = Fair, P = Poor – = insufficient information available to make a rating  
 \* = sold as a co-pack under this trade name R = populations resistant to this herbicide exist in Ontario and won't be adequately controlled if present.

Trade Name	Stage	Grasses							Annual Broadleaves										Perennials					Crop Tolerance				
		barnyard grass	crabgrass	fall panicum	foxtail, giant	foxtail, green	foxtail, yellow	witchgrass	proso millet	buckwheat, wild	cocklebur	flabane, Canada	lady's thumb	lamb's-quarters	mustards	nightshades, annual	pigweeds	ragweed, common	ragweed, giant	velvetleaf	waterhemp	bindweed, field	horsetail		milkweed	nutsedge	quackgrass	sow-thistle
<b>Preplant Burndown Herbicides (cont'd)</b>																												
ERAGON LQ + glyphosate + MERGE	emerged weeds	9	9	9	9	9	9	9	9	8	9	9	8	9	9	9	9	6	9	5	7/8	7	8	8 <sup>1</sup>	9	8	9	F
	residual weed control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EXPRESS SG + glyphosate	emerged weeds	9	9	9	9	9	9	9	9	9	9	9 <sup>R</sup>	9	9	9	9	9 <sup>R</sup>	8 <sup>R</sup>	9	9 <sup>R</sup>	-	-	-	-	9	8 <sup>4</sup>	7 <sup>4</sup>	E
	residual weed control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FIERCE + glyphosate	emerged weeds	9	9	9	9	9	9	9	9	9	9	9 <sup>R</sup>	9	9	9	9	9 <sup>R</sup>	9 <sup>R</sup>	9	9 <sup>R</sup>	7/8	5	8	8 <sup>1</sup>	9	8	9	G
	residual weed control	9	9	-	9	9	9	-	-	8	5	8	8	9	9	9	8	4	7	9	-	-	-	-	-	-	-	-
FLEXSTAR GT	emerged weeds	9	9	9	9	9	9	9	9	8	9	9 <sup>R</sup>	8	9	9	9	9	9 <sup>R</sup>	9	8	7/8	7	8	8 <sup>1</sup>	9	8	9	E
	residual weed control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	8	-	-	-	-	-	-	-	-	-	-	-
FREESTYLE* + glyphosate	emerged weeds	9	9	9	9	9	9	9	9	8	9	9 <sup>R</sup>	8	9	9	9	9 <sup>R</sup>	9 <sup>R</sup>	9	9 <sup>R</sup>	7/8	5	8	8	9	8	9	E
	residual weed control	8	7	7	9 <sup>R</sup>	9 <sup>R</sup>	9	8	7	8	7 <sup>R</sup>	7 <sup>R</sup>	9	9 <sup>R</sup>	9	9 <sup>R</sup>	9 <sup>R</sup>	8 <sup>R</sup>	8 <sup>R</sup>	9	0	2	2	2	7	2	2	2
GUARDIAN MAX*	emerged weeds	9	9	9	9	9	9	9	9	8	9	9 <sup>R</sup>	8	9	9	9	9 <sup>R</sup>	9 <sup>R</sup>	9	9 <sup>R</sup>	7/8	5	8	9	9	8	9	G
	residual weed control	7	7	6	6 <sup>R</sup>	6 <sup>R</sup>	6	6	7	8	4	8 <sup>R</sup>	8	7 <sup>R</sup>	9	2	7 <sup>R</sup>	7 <sup>R</sup>	7	0	5	3	8	8	5	5	5	
INTEGRITY + glyphosate <sup>3</sup> + MERGE	emerged weeds	9	9	9	9	9	9	9	9	8	9	8	9	9	9	9	9	7	9	9 <sup>R</sup>	7/8	7	8	8 <sup>1</sup>	9	8	9	E
	residual weed control	-	-	-	5	8	-	-	-	-	-	-	-	6	-	-	5	5	-	3	7	-	-	-	-	-	-	-
OPTILL + glyphosate <sup>3</sup> + MERGE	emerged weeds	9	9	9	9	9	9	9	9	8	9	8	9	9	9	9	9 <sup>R</sup>	7	9	9 <sup>R</sup>	7/8	7	8	8 <sup>1</sup>	9	8	9	E
	residual weed control	8	7	7	9 <sup>R</sup>	9 <sup>R</sup>	9	8	7	8	7	-	9	9 <sup>R</sup>	9	9 <sup>R</sup>	9 <sup>R</sup>	8 <sup>R</sup>	7	9	-	-	-	-	-	-	-	-
PROWL H2O + glyphosate <sup>3</sup>	emerged weeds	9	9	9	9	9	9	9	9	9	9	9 <sup>R</sup>	9	9	9	9	9 <sup>R</sup>	8 <sup>R</sup>	9	9 <sup>R</sup>	7/8	5	8	8 <sup>1</sup>	9	8	9	E
	residual weed control	9	9	9	9	9	9	-	5	-	-	-	-	7	-	-	8	-	-	-	2	-	-	-	-	-	-	-
STRIM MTZ + glyphosate <sup>3</sup>	emerged weeds	9	9	9	9	9	9	9	9	8	9	9 <sup>R</sup>	8	9	9	9	9 <sup>R</sup>	8 <sup>R</sup>	9	9 <sup>R</sup>	7/8	5	8	8 <sup>1</sup>	9	8	9	G
	residual weed control	9	9	8	8	9	9	9	5	7	7	5 <sup>6</sup>	9	9	9	8 <sup>2</sup>	9	8	7	7	8 <sup>2</sup>	2	2	2	7	2	2	2

<sup>1</sup> A glyphosate rate of 1.8 kg/ha is required to achieve this level of control.

<sup>2</sup> Use only on certified soybean seed designated as "Roundup Ready" Soybean.

<sup>3</sup> Numerous products exist. See Table 10–5. *Glyphosate Products Rates, Manufacturer, Rainfast and Salt Type Labeled for Use on Glyphosate Tolerant "Roundup Ready" Soybean* for a complete list of registered products.

**TABLE 10–5. Soybean Herbicide Weed Control Ratings in Glyphosate Tolerant Soybeans (cont'd)**

**LEGEND:** Numbers (0–9) = weed control ratings Crop tolerance ratings: E = Excellent, G = Good, F = Fair, P = Poor – = insufficient information available to make a rating  
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Trade Name	Stage	Grasses							Annual Broadleaves											Perennials					Crop Tolerance				
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<b>Preplant Burndown Herbicides (cont'd)</b>																													
VALTERA EZ + glyphosate <sup>2,3</sup>	emerged weeds	9	9	9	9	9	9	9	9	9	9 <sup>R</sup>	8	9	9	9	9	9 <sup>R</sup>	9 <sup>R</sup>	9	9 <sup>R</sup>	7/8	5	8	8 <sup>1</sup>	9	8	9	G	
	residual weed control	–	–	–	5	6	6	–	–	–	4	8	7	9	–	9	9	7	3	7	8	–	–	–	–	–	–	–	
ZIDUA SC + glyphosate <sup>2,3</sup>	emerged weeds	9	9	9	9	9	9	9	9	8	9	9 <sup>R</sup>	9	9	9	9	9 <sup>R</sup>	9 <sup>R</sup>	9	9 <sup>R</sup>	7/8	7	8	8 <sup>1</sup>	9	8	9	G	
	residual weed control	9	9	8 <sup>2</sup>	8	9	9	9	4	2	2	0	2	7	2	8 <sup>2</sup>	8 <sup>2</sup>	4	3	2	7 <sup>2</sup>	0	0	0	8	0	0	0	
<b>Postemergence Grass and Broadleaf Herbicides (no residual weed control) for “Roundup Ready” (Glyphosate Tolerant) Varieties Only</b>																													
glyphosate <sup>2,3</sup>	emerged weeds	9	9	9	9	9	9	9	9	8	9	9 <sup>R</sup>	8	9	9	9	9	9 <sup>R</sup>	8 <sup>R</sup>	9	9 <sup>R</sup>	7/8	5	8	8 <sup>1</sup>	9	8	9	E <sup>2</sup>
HURRICANE + glyphosate <sup>2,3</sup>	emerged weeds	9	9	9	9	9	9	9	9	8	9	9 <sup>R</sup>	8	9	9	9	9	9	8 <sup>R</sup>	9	8	7/8	7	8	8 <sup>1</sup>	9	8	9	G <sup>2</sup>
<b>Postemergence Tank-Mixes with residual weed control for “Roundup Ready” (glyphosate tolerant) varieties only</b>																													
ASSIGNMENT <sup>*,2</sup>	emerged weeds	9	9	9	9	9	9	9	9	8	9	9 <sup>R</sup>	8	9	9	9	9	9 <sup>R</sup>	8	9	9 <sup>R</sup>	7/8	5	8	8 <sup>1</sup>	9	8	9	F <sup>2</sup>
	residual weed control	–	–	8	–	–	–	–	7	–	–	–	–	8 <sup>R</sup>	–	9 <sup>R</sup>	9 <sup>R</sup>	–	5	8	0	0	0	0	–	0	0	0	
FIRSTRATE + glyphosate <sup>2,3</sup>	emerged weeds	9	9	9	9	9	9	9	9	8	9	9 <sup>R</sup>	8	9	9	9	9	9 <sup>R</sup>	9 <sup>R</sup>	9	9 <sup>R</sup>	7/8	5	8	8 <sup>1</sup>	9	8	9	E <sup>2</sup>
	residual weed control	0	0	0	0	0	0	0	0	7	9 <sup>R</sup>	9 <sup>R</sup>	–	2	9	2	2	9 <sup>R</sup>	9 <sup>R</sup>	9	0	–	2	–	–	2	7	7	
FLEXSTAR GT <sup>2</sup>	emerged weeds	9	9	9	9	9	9	9	9	8	9	9 <sup>R</sup>	8	9	9	9	9	9	8 <sup>R</sup>	9	8	7/8	7	8	8 <sup>1</sup>	9	8	9	G <sup>2</sup>
	residual weed control	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	8	8	–	–	–	–	–	–	–	–	–	–	
GUARDIAN MAX <sup>*,2,3</sup>	emerged weeds	9	9	9	9	9	9	9	9	8	9	8 <sup>R</sup>	8	9	9	9	9	9 <sup>R</sup>	8 <sup>R</sup>	9	9 <sup>R</sup>	7/8	5	8	8	9	8	9	G <sup>2</sup>
	residual weed control	7	7	6	6 <sup>R</sup>	6 <sup>R</sup>	6	6	7	8	7	8 <sup>R</sup>	8	7 <sup>R</sup>	9	2	7 <sup>R</sup>	7 <sup>R</sup>	7 <sup>R</sup>	7	0	5	3	8	8	5	5	5	
ZIDUA SC + glyphosate <sup>2,3</sup>	emerged weeds	9	9	9	9	9	9	9	9	8	9	9 <sup>R</sup>	8	9	9	9	9	9 <sup>R</sup>	8 <sup>R</sup>	9	9 <sup>R</sup>	7/8	5	8	8 <sup>1</sup>	9	8	9	G <sup>2</sup>
	residual weed control	9	9	8	8	9	9	9	4	2	2	0	2	7	2	8	8	4	3	2	7	0	0	0	8	0	0	0	

<sup>1</sup> A glyphosate rate of 1.8 kg/ha is required to achieve this level of control.

<sup>2</sup> Use only on certified soybean seed designated as “Roundup Ready” Soybean.

<sup>3</sup> Numerous products exist. See Table 10–5. *Glyphosate Products Rates, Manufacturer, Rainfast and Salt Type Labeled for Use on Glyphosate Tolerant “Roundup Ready” Soybean* for a complete list of registered products.

**TABLE 10–6.** Glyphosate Product Rates, Manufacturer, Rainfast and Salt Type Labeled for Use on Glyphosate Tolerant (“Roundup Ready”) Soybean

**LEGEND:** a.i. = active ingredient    ✓ = salt type    — = not in product

Glyphosate Products	PRODUCT RATE			Manufacturer	Rainfast	SALT TYPE		
	0.9 kg/ha a.i.	1.35 kg/ha a.i.	1.8 kg/ha a.i.			Dimethylamine	Isopropylamine	Potassium
CREDIT XTREME (540 g/L) <sup>1</sup>	0.67 L/acre	1 L/acre	1.34 L/acre	NUFARM	1 hour	—	✓	✓
CRUSH'R 540 (540 g/L) <sup>1</sup>	0.67 L/acre	1 L/acre	1.34 L/acre	AGRI STAR	1 hour	—	—	✓
FACTOR 540 (540 g/L) <sup>1</sup>	0.67 L/acre	1 L/acre	1.34 L/acre	IPCO	1 hour	—	—	✓
GLYFOS (360 g/L)	1 L/acre	1.5 L/acre	2 L/acre	CHEMINOVA	not specified	—	✓	—
MAD DOG K PLUS (540 g/L) <sup>1</sup>	0.67 L/acre	1 L/acre	1.34 L/acre	LOVELAND	1 hour	—	—	✓
MATRIX (480 g/L)	0.75 L/acre	1.13 L/acre	1.5 L/acre	IPCO	not specified	✓	—	—
POLARIS MAX (540 g/L) <sup>1</sup>	0.67 L/acre	1 L/acre	1.34 L/acre	CORTEVA	1 hour	—	—	✓
ROUNDUP TRANSORB HC (540 g/L) <sup>1</sup>	0.67 L/acre	1 L/acre	1.34 L/acre	MONSANTO	1 hour	—	—	✓
ROUNDUP WEATHERMAX (540 g/L) <sup>1</sup>	0.67 L/acre	1 L/acre	1.34 L/acre	MONSANTO	1 hour	—	—	✓
SHARDA GLYPHOSATE (360 g/L) <sup>1</sup>	1 L/acre	1.5 L/acre	2 L/acre	SHARDA	not specified	—	✓	—
STONEWALL (540 g/L) <sup>1</sup>	0.67 L/acre	1 L/acre	1.34 L/acre	WINFIELD	1 hour	—	—	✓
VP 480 (480 g/L)	0.75 L/acre	1.13 L/acre	1.5 L/acre	CORTEVA	not specified	✓	—	—

<sup>1</sup> IMPORTANT NOTE: Only tank-mix products containing the active ingredient “dicamba” (e.g. ENGENIA, FEXAPAN or XTENDIMAX) with a glyphosate product containing a potassium salt. Tank-mixing with other glyphosate products can increase the potential for off-target drift through volatilization. Refer to each product label in the tank-mix and follow the directions of the more restrictive label.

**TABLE 10–7.** Herbicide Treatment Rates for Glyphosate Tolerant (“Roundup Ready”) Soybean

<b>ACTIVE INGREDIENT (rate)</b>	<b>TRADE NAME (Concentration)</b>	<b>PRODUCT RATE</b>	<b>PRECAUTIONS</b> For more information, see Chapter 3, Herbicides Used in Ontario and Chapter 4, Notes on Adjuvants.
<b>Preplant Burndown Herbicides – Refer also to Chapter 5, Preplant &amp; Postharvest Weed Control.</b>			
<ul style="list-style-type: none"> <li>• Non-selective herbicides such as glyphosate are used to control emerged weeds prior to no-till planting. Tank-mixing of a residual herbicide with glyphosate can be used to improve application efficiency with a “one pass” weed management program. Refer to Chapter 5, Preplant &amp; Postharvest Weed Control, for preplant application rates for glyphosate.</li> <li>• It is also important to note that when targeting perennial weeds, the addition of a triazine-based herbicide (i.e., SENCOR, LOROX L) will reduce the level of activity achieved with glyphosate. Increasing the rate of glyphosate should overcome this antagonism.</li> </ul>			
2,4-D (528 g/ha) + glyphosate (0.9 - 1.8 kg/ha)	2,4-D ESTER 700 (660 g/L) + glyphosate (540 g/L)*	0.8 L/ha (0.32 L/acre) + 1.67–3.3 L/ha (0.67–1.34 L/acre)	<ul style="list-style-type: none"> <li>• Apply a minimum of 7 days before planting soybean.</li> <li>• Apply to emerged giant ragweed. This treatment will not provide residual control of giant ragweed.</li> <li>• <b>Do NOT</b> use in sandy soils with less than 1% organic matter. Plant soybean seeds as deep as possible, but not less than 2.5 cm (1 in.). Adjust planter to ensure adequate coverage of planted seed.</li> <li>• <b>Do NOT</b> graze or cut treated crops for forage or hay until 67 days after application.</li> </ul> <p>* Numerous products exist, refer to Table 10–6. <i>Glyphosate Products Rates, Manufacturer, Rainfast and Salt Type Labeled for Use on Glyphosate Tolerant “Roundup Ready” Soybean</i> for a complete list of registered products.</p>
glyphosate (0.9 kg/ha) + imazethapyr (0.1 kg/ha)	ASSIGNMENT (sold as a co-pack): RU WEATHERMAX (540 g/L) + PURSUIT (240 g/L)	1.67 L/ha (0.67 L/acre) + 420 mL/ha (168 mL/acre)	<ul style="list-style-type: none"> <li>• See precautions for PURSUIT alone.</li> <li>• Some rotational cropping restrictions apply (see PURSUIT label and Table 3–3. <i>Herbicide Crop Rotation and Soil pH Restrictions: Field Crops</i>).</li> </ul>
pyraflufen-ethyl (6.1 g/L) (6.71 g/ha) + 2,4-D ester (473 g/L) (520 g/ha)	BLACKHAWK + glyphosate (540 g/L)*	1.1 L/ha (0.44 L/acre) + 1.67 L/ha (0.67 L/acre)	<ul style="list-style-type: none"> <li>• Apply PP or a maximum of 3 days after planting.</li> <li>• Apply to emerged, young, actively growing weeds that are less than 10 cm tall or across.</li> <li>• <b>Do NOT</b> use in sandy soils with less than 1% organic matter. Plant soybean seeds a minimum of 2.5 cm (1") deep. Adjust planter to ensure adequate coverage of planted seed.</li> <li>• <b>Do NOT</b> graze or cut treated crops for forage or hay until 67 days after application.</li> </ul>
flumioxazin (88.75 g/ha) + metribuzin (397.5 g/ha) + glyphosate (900 g/ha)	BIFECTA EZ (318 g/L: 71 g/L) + glyphosate (540 g/L)*	1.25 L/ha (500 mL/acre) + 1.34 L/ha (0.67 L/acre)	<ul style="list-style-type: none"> <li>• Apply PP or PRE but no longer than 3 days after planting. Applications made to planted soybeans where the soil has begun to crack or where beans are emerged will result in severe crop injury.</li> <li>• The risk of crop injury is minimized when Valtera is used on well drained soils and planted to a depth of 4 cm or more</li> <li>• When using no-till planters with coulters that incorporate the soil, weed control may be reduced, therefore applications should be done after planting, but within 3 days of planting.</li> </ul> <p>* Numerous products exist, refer to Table 10–6. <i>Glyphosate Products Rates, Manufacturer, Rainfast and Salt Type Labeled for Use on Glyphosate Tolerant “Roundup Ready” Soybean</i> for a complete list of registered products.</p>
s-metolachlor/metribuzin (1,443 g/ha–1943 g/ha) + glyphosate (0.9 kg/ha)	BOUNDARY LQD (628 g/L + 149 g/L) + glyphosate (540 g/L)*	1.85–2.5 L/ha (0.74–1 L/acre) + 1.67 L/ha (0.67 L/acre)	<ul style="list-style-type: none"> <li>• Apply PP or PRE.</li> <li>• <b>Do NOT</b> apply if soybeans have emerged.</li> <li>• <b>Do NOT</b> apply to coarse textured soils with less than 1% organic matter.</li> </ul>

**TABLE 10–7. Herbicide Treatment Rates for Glyphosate Tolerant (“Roundup Ready”) Soybean (cont’d)**

ACTIVE INGREDIENT (rate)	TRADE NAME (Concentration)	PRODUCT RATE	PRECAUTIONS For more information, see Chapter 3, Herbicides Used in Ontario and Chapter 4, Notes on Adjuvants.
<b>Preplant Burndown Herbicides – Refer also to Chapter 5, Preplant &amp; Postharvest Weed Control (cont’d).</b>			
chlorimuron-ethyl (9 g ai/ha) + metribuzin (412 g/ha) + glyphosate (900 g/ha)	CANOPY PRO (sold as a co-pack): CLASSIC GRANDE (25 DF) + TRICOR 75 DF + glyphosate (540 g/L)*	36 g/ha (14.4 g/acre) + 550 g/ha (220 g/acre) + 1.67 L/ha (0.67 L/acre)	<ul style="list-style-type: none"> <li>• Apply as a Pre-Plant burndown up to 14 days before planting</li> <li>• Some rotational restrictions apply (see CLASSIC label and Table 3–3. <i>Herbicide Crop Rotation and Soil pH Restrictions: Field Crops</i>).</li> <li>• <b>Do NOT</b> use on sandy soils or on coarse soils with less than 2% organic matter.</li> </ul> <p>* Numerous products exist, refer to Table 10–6. <i>Glyphosate Products Rates, Manufacturer, Rainfast and Salt Type Labeled for Use on Glyphosate Tolerant “Roundup Ready” Soybean</i> for a complete list of registered products.</p>
chlorimuron-ethyl (5.14%) /flumioxazin (40.6%) (80.5 g/ha) + glyphosate (0.9 kg/ha)	DILIGENT (sold as a co-pack): + glyphosate (540 g/L)*	176 g/ha (70.4 g/acre) + 1.67 L/ha (0.67 L/acre)	<ul style="list-style-type: none"> <li>• Apply as a PP burndown.</li> <li>• Some rotational restrictions apply (see CLASSIC label and Table 3–3. <i>Herbicide Crop Rotation and Soil pH Restrictions: Field Crops</i>).</li> <li>• Refer to precautionary statements for VALTERA.</li> </ul> <p>* Numerous products exist, refer to Table 10–6. <i>Glyphosate Products Rates, Manufacturer, Rainfast and Salt Type Labeled for Use on Glyphosate Tolerant “Roundup Ready” Soybean</i> for a complete list of registered products.</p>
halauxifen (5 g/ha) + glyphosate (0.9 - 1.8 kg/ha)	ELEVORE (68.5 g/L) + glyphosate (540 g/L)* + methylated seed oil	73 mL/ha (29 mL/acre) + 1.67 L/ha (0.67 L/acre) + 5–10 L/1,000 L	<ul style="list-style-type: none"> <li>• Apply a minimum of 7 days before planting soybeans and when weeds are actively growing at the 1–8 leaf stage. Plant to a minimum of 4 cm deep.</li> <li>• Applications made to very coarse-textured soils, low in organic matter (&lt;3%) , or in fields with poor soil conditions may increase the risk of crop injury.</li> <li>• Use the higher rate of methylated seed oil when weed populations are high or environmental conditions are unfavourable.</li> <li>• This tank-mix only controls weeds emerged at the time of application.</li> </ul> <p>* Numerous products exist, refer to Table 10–6. <i>Glyphosate Products Rates, Manufacturer, Rainfast and Salt Type Labeled for Use on Glyphosate Tolerant “Roundup Ready” Soybean</i> for a complete list of registered products.</p>
saflufenacil (25 g/ha) + glyphosate (0.9 - 1.8 kg/ha)	ERAGON LQ (342 g/L) + glyphosate (540 g/L)* + MERGE	73 mL/ha (29.5 mL/acre) + 1.67 L/ha (0.67 L/acre) + 1 L/ha (0.4 L/acre)	<ul style="list-style-type: none"> <li>• Apply PP or PRE, from 21 days prior to planting up to three days after planting.</li> <li>• <b>Do NOT</b> use rates higher than 73 mL/ha (29.5 mL/acre) or crop injury may result.</li> <li>• For more consistent control of glyphosate resistant Canada fleabane, tank-mix SENCOR 75 DF at 550 g/ha (200 g/acre) or SENCOR 480 F 850 mL/ha (340 mL/acre)</li> </ul> <p>* Numerous products exist, refer to Table 10–6. <i>Glyphosate Products Rates, Manufacturer, Rainfast and Salt Type Labeled for Use on Glyphosate Tolerant “Roundup Ready” Soybean</i> for a complete list of registered products.</p>



**TABLE 10–7. Herbicide Treatment Rates for Glyphosate Tolerant (“Roundup Ready”) Soybean (cont’d)**

ACTIVE INGREDIENT (rate)	TRADE NAME (Concentration)	PRODUCT RATE	PRECAUTIONS For more information, see Chapter 3, Herbicides Used in Ontario and Chapter 4, Notes on Adjuvants.
<b>Preplant Burndown Herbicides – Refer also to Chapter 5, Preplant &amp; Postharvest Weed Control (cont’d).</b>			
tribenuron-methyl (7.5 g/ha) + glyphosate (450 g/ha)	EXPRESS SG (50%) + glyphosate (540 g/L)*	15 g/ha (6 g/acre) + 0.83 L/ha (0.33 L/acre)	<ul style="list-style-type: none"> <li>• Apply as a PP burndown a minimum of 1 day prior to planting. Ideally weeds are less than 10 cm. tall at the time of application to maximize control.</li> <li>• Apply in a total spray volume of 55–110 L/ha (22–44 L/acre).</li> <li>• EXPRESS SG will not provide residual weed control, but will enhance control of certain broadleaf weeds, allowing for a lower rate of glyphosate to be used.</li> </ul> <p>* Numerous products exist, refer to Table 10–6. <i>Glyphosate Products Rates, Manufacturer, Rainfast and Salt Type Labeled for Use on Glyphosate Tolerant “Roundup Ready” Soybean</i> for a complete list of registered products.</p>
flumioxazin/ pyroxasulfone (159.6 g/ha)	FIERCE (76%) + glyphosate (540 g/L)*	210 g/ha (85 g/acre) + 1.67–3.3 L/ha (0.67–1.34 L/acre)	<ul style="list-style-type: none"> <li>• Apply PP or PRE but no longer than 3 days after planting. Applications made to soybeans that have begun to crack or are emerged will result in severe crop injury</li> <li>• The risk of crop injury is minimized when used on well drained soils and planted to a depth of 4 cm or more</li> <li>• When using no-till planters with coulters that incorporate the soil, weed control may be reduced, therefore applications should be done after planting, but within 3 days of planting.</li> <li>• Do not use FIERCE herbicide in soybeans in the same field that BOUNDARY, DUAL II MAGNUM or FRONTIER MAX will be used preemergence, or soybean injury may occur.</li> </ul> <p>* Numerous products exist, refer to Table 10–6. <i>Glyphosate Products Rates, Manufacturer, Rainfast and Salt Type Labeled for Use on Glyphosate Tolerant “Roundup Ready” Soybean</i> for a complete list of registered products.</p>
fomesafen/glyphosate (1200 g/ha)	FLEXSTAR GT (67 g/L + 271 g/L)	3.5 L/ha (1.4 L/acre)	<ul style="list-style-type: none"> <li>• Apply PP up to 7 days before planting and PRE.</li> <li>• <b>Do NOT</b> apply more than once per season and to any field in consecutive years.</li> <li>• Apply with Turbocharge at 0.25% v/v if weeds are emerged.</li> </ul>
chlorimuron-ethyl (9 g ai/ha) + imazethapyr (75 g/ha) + glyphosate (900 g/ha)	FREESTYLE (sold as a co-pack): CLASSIC GRANDE (25 DF) + DUPONT IMAZETHAPYR (240 g/L) + glyphosate (540 g/L)*	36 g/ha (14.4 g/acre) + 312 mL/ha (126 mL/acre) + 1.67 L/ha (0.67 L/acre)	<ul style="list-style-type: none"> <li>• Apply PP up to 14 days before planting</li> <li>• Some rotational restrictions apply (refer to CLASSIC and PURSUIT in Table 3–3. <i>Herbicide Crop Rotation and Soil pH Restrictions: Field Crops</i>).</li> </ul> <p>* Numerous products exist, refer to Table 10–6. <i>Glyphosate Products Rates, Manufacturer, Rainfast and Salt Type Labeled for Use on Glyphosate Tolerant “Roundup Ready” Soybean</i> for a complete list of registered products.</p>
glyphosate (0.9 kg/ha) + chlorimuron-ethyl (9 g/ha)	GUARDIAN MAX (sold as co-pack): POLARIS MAX (540 g/L) + CLASSIC (25 DF)	1.67 L/ha (0.67 L/acre) + 36 g/ha (14 g/acre)	<ul style="list-style-type: none"> <li>• Apply as a PP burndown.</li> <li>• Some rotational restrictions apply (see CLASSIC label and Table 3–3. <i>Herbicide Crop Rotation and Soil pH Restrictions: Field Crops</i>).</li> <li>• GUARDIAN MAX is a co-pack of POLARIS MAX + CLASSIC.</li> <li>• CLASSIC can only be applied once per growing season.</li> </ul>

**TABLE 10–7. Herbicide Treatment Rates for Glyphosate Tolerant (“Roundup Ready”) Soybean (cont’d)**

ACTIVE INGREDIENT (rate)	TRADE NAME (Concentration)	PRODUCT RATE	PRECAUTIONS For more information, see Chapter 3, Herbicides Used in Ontario and Chapter 4, Notes on Adjuvants.
<b>Preplant Burndown Herbicides – Refer also to Chapter 5, Preplant &amp; Postharvest Weed Control. (cont’d)</b>			
saflufenacil (68 g/L)/ dimethenamid-P (600 g/L) (247 g/ha) + glyphosate (900 g/ha)	INTEGRITY (668 g/L) + glyphosate (540 g/L)* + MERGE	0.37 L/ha (0.15 L/acre) 1.67 L/ha (0.67 L/acre) + 1 L/ha (0.4 L/acre)	<ul style="list-style-type: none"> <li>• Apply PP or PRE from 21 days prior to planting up to three days after planting.</li> <li>• <b>Do NOT</b> use rates higher than 0.15 L/acre, as crop injury may result.</li> </ul> <p>* Numerous products exist, refer to Table 10–6. <i>Glyphosate Products Rates, Manufacturer, Rainfast and Salt Type Labeled for Use on Glyphosate Tolerant “Roundup Ready” Soybean</i> for a complete list of registered products.</p>
saflufenacil (17.8%) /imazethapyr (50.2%) (216 g/ha) + glyphosate (900–1,800 g/ha)	OPTILL (68%) + glyphosate (540 g/L)* + MERGE	147 g/ha (59 g/acre) + 1.67–1.3 L/ha (0.67–1.34 L/acre) + 1 L/ha (0.4 L/acre)	<ul style="list-style-type: none"> <li>• Apply PP or PRE, from 21 days prior to planting up to three days after planting.</li> <li>• Provides early-season weed control. Refer to glyphosate label for recommended rate.</li> </ul> <p>* Numerous products exist, refer to Table 10–6. <i>Glyphosate Products Rates, Manufacturer, Rainfast and Salt Type Labeled for Use on Glyphosate Tolerant “Roundup Ready” Soybean</i> for a complete list of registered products.</p>
pendimethalin (1,000 g/ha) + glyphosate (900 g/ha)	PROWL H2O (455 g/L) + glyphosate (540 g/L)*	2.2 L/ha (0.89 L/acre) + 1.67 L/ha (0.67 L/acre)	<ul style="list-style-type: none"> <li>• Apply PP.</li> <li>• Provides early-season weed control only.</li> </ul> <p>* Numerous products exist, refer to Table 10–6. <i>Glyphosate Products Rates, Manufacturer, Rainfast and Salt Type Labeled for Use on Glyphosate Tolerant “Roundup Ready” Soybean</i> for a complete list of registered products.</p>
s-metolachlor (1.17–1.58 kg/ha) metribuzin (392–526 g/ha) + glyphosate (900 g/ha)	STRIM MTZ (405 g/L: 135 g/L) + glyphosate (540 g/L)*	2.9–3.9 L/ha (1.16–1.56 L/acre) + 1.67 L/ha (0.67 L/acre)	<ul style="list-style-type: none"> <li>• Apply PPI or PRE.</li> </ul> <p>* Numerous products exist, refer to Table 10–6. <i>Glyphosate Products Rates, Manufacturer, Rainfast and Salt Type Labeled for Use on Glyphosate Tolerant “Roundup Ready” Soybean</i> for a complete list of registered products.</p>
flumioxazin (71.4–107.1 g/ha) + glyphosate (0.9 kg/ha)	VALTERA EZ (480 g/L) + glyphosate (540 g/L)*	150 - 225 mL/ha (60- 90 mL/acre) + 1.67 L/ha (0.67 L/acre)	<ul style="list-style-type: none"> <li>• Apply to coarse and medium textured soils.</li> <li>• Apply to soybeans prior to planting or within 3 days after planting but prior to soybean emergence.</li> <li>• Severe crop injury will result if applications are made to soybeans that have begun to crack through the soil surface or have emerged.</li> <li>• <b>Do NOT</b> within 100 metres of non-dormant pears.</li> <li>• <b>Do NOT</b> tank-mix with DUAL II MAGNUM, BOUNDARY or FRONTIER MAX.</li> <li>• Any tillage operation performed after application will reduce weed control.</li> <li>• Apply only <b>ONCE</b> per growing season.</li> </ul> <p>* Numerous products exist, refer to Table 10–6. <i>Glyphosate Products Rates, Manufacturer, Rainfast and Salt Type Labeled for Use on Glyphosate Tolerant “Roundup Ready” Soybean</i> for a complete list of registered products.</p>

**TABLE 10–7. Herbicide Treatment Rates for Glyphosate Tolerant (“Roundup Ready”) Soybean (cont’d)**

ACTIVE INGREDIENT (rate)	TRADE NAME (Concentration)	PRODUCT RATE	PRECAUTIONS For more information, see Chapter 3, Herbicides Used in Ontario and Chapter 4, Notes on Adjuvants.
<b>Preplant Burndown Herbicides – Refer also to Chapter 5, Preplant &amp; Postharvest Weed Control. (cont’d)</b>			
pyoxasulfone (125–246.5 g/ha)	ZIDUA SC (500 g/L) + glyphosate (540 g/L)*	250–493 mL/ha (100–197 mL/acre) + 1.67 L/ha (0.67 L/acre)	<ul style="list-style-type: none"> <li>• Apply PP or PRE. For early season residual weed control, a postemergence application of glyphosate will likely be required.</li> <li>• Can also be tank-mixed with either ERAGON LQ and MERGE adjuvant or INTEGRITY + MERGE for the control of glyphosate resistant Canada fleabane.</li> </ul> <p>* Numerous products exist, refer to Table 10–6. <i>Glyphosate Products Rates, Manufacturer, Rainfast and Salt Type Labeled for Use on Glyphosate Tolerant “Roundup Ready” Soybean</i> for a complete list of registered products.</p>
<b>Postemergence Grass and Broadleaf Herbicides (no residual weed control) – “Roundup Ready” (Glyphosate Tolerant) Varieties Only</b>			
glyphosate (0.9–1.8 kg/ha)	glyphosate (540 g/L)*	1.67–3.33 L/ha (0.67–1.34 L/acre)	<ul style="list-style-type: none"> <li>• For use <b>ONLY</b> with pedigreed (certified) soybean seed designated as “Roundup Ready” soybeans.</li> <li>• Apply between the first trifoliolate leaf stage and the full flower stage of the soybeans.</li> <li>• Weeds are more easily controlled and weed competition avoided when applications are made when weeds are small, although weeds up to 25 cm tall will be controlled.</li> <li>• Sequential applications are desirable when there are perennial weeds emerging over a long period of time (i.e. sow-thistle, Canada thistle).</li> <li>• For best results, apply the second application 14 days after the first.</li> <li>• Apply when milkweed, perennial sow-thistle and Canada thistle are 15–60 cm.</li> <li>• Apply when nutsedge is 5–15 cm in height and at the high rate.</li> <li>• A second application may be made for later flushes emerging after the initial application.</li> <li>• Use 100–200 L/ha (40–80 L/acre) water.</li> </ul> <p>* Numerous products exist, refer to Table 10–6. <i>Glyphosate Products Rates, Manufacturer, Rainfast and Salt Type Labeled for Use on Glyphosate Tolerant “Roundup Ready” Soybean</i> for a complete list of registered products.</p>
	other glyphosate products	See Table 10–6.	
bentazon (320 g/L) (561.6 g/ha)/ acifluorfen (160 g/L) (280.8 g/ha) + glyphosate (0.9–1.8 kg/ha)	HURRICANE (480 g/L) + glyphosate (540 g/L)*	1.755 L/ha (0.7 L/acre) 1.67–3.33 L/ha (0.67–1.34 L/acre)	<ul style="list-style-type: none"> <li>• For use <b>ONLY</b> with pedigreed (certified) soybean seed designated as “Roundup Ready” soybeans.</li> <li>• Apply between the 1–2 trifoliolate stage of soybean and to emerged weeds.</li> <li>• This tank-mix will control certain glyphosate resistant weeds (specifically: waterhemp and common ragweed) when applied at the six leaf stage of growth (&lt;10 cm tall) or less.</li> </ul>

**TABLE 10–7. Herbicide Treatment Rates for Glyphosate Tolerant (“Roundup Ready”) Soybean (cont’d)**

ACTIVE INGREDIENT (rate)	TRADE NAME (Concentration)	PRODUCT RATE	PRECAUTIONS For more information, see Chapter 3, Herbicides Used in Ontario and Chapter 4, Notes on Adjuvants.
<b>Postemergence Tank-Mixes for Residual Weed Control – “Roundup Ready” (Glyphosate Tolerant) Varieties Only</b>			
glyphosate (0.9–1.8 kg/ha) + imazethapyr (0.038–0.05 kg/ha)	ASSIGNMENT (sold as a co-pack): RU WEATHERMAX (540 g/L) + PURSUIT (240 g/L)	1.67–3.33 L/ha (0.67–1.34 L/acre) + 160–210 mL/ha (65–85 mL/acre)	<ul style="list-style-type: none"> <li>• For use <b>ONLY</b> with pedigreed (certified) soybean seed designated as “Roundup Ready” soybeans.</li> <li>• Apply up to the 3rd trifoliolate stage of soybean.</li> <li>• Use <b>ONLY</b> once per season.</li> <li>• Other glyphosate products can be tank-mixed with PURSUIT or PHANTOM or NU-IMAGE to make up the same treatment.</li> <li>• Some rotational cropping restrictions apply (see PHANTOM or PURSUIT or NU-IMAGE label and Table 3–3. <i>Herbicide Crop Rotation and Soil pH Restrictions: Field Crops</i>).</li> </ul>
fomesafen/glyphosate (1200 g/ha)	FLEXSTAR GT	3.5 L/ha (1.4 L/acre)	<ul style="list-style-type: none"> <li>• For use <b>ONLY</b> with pedigreed (certified) soybean seed designated as “Roundup Ready” soybeans.</li> <li>• Apply between the 1–2 trifoliolate stage of soybean.</li> <li>• Provides residual control of common ragweed and redroot pigweed.</li> <li>• If weeds are large or under stress then the addition of TURBOCHARGE at 0.25% v/v is required.</li> <li>• <b>Do NOT</b> apply to soybeans within 90 days of harvest.</li> </ul>
glyphosate (0.45–0.9 kg/ha) + cloransulam-methyl (17.5 g/ha)	glyphosate (540 g/L)* + FIRSTRATE (84 WG)	1.67–3.33 L/ha (0.67–1.34 L/acre) + 20.8 g/ha (8.5 g/acre)	<ul style="list-style-type: none"> <li>• For use <b>ONLY</b> with pedigreed (certified) soybean seed designated as “Roundup Ready” soybeans.</li> <li>• The addition of FIRSTRATE will provide residual control of common ragweed, velvetleaf, cocklebur, jimsonweed and giant ragweed.</li> <li>• <b>Do NOT</b> apply to soybeans within 65 days of harvest.</li> </ul> <p>* Numerous products exist, refer to Table 10–6. <i>Glyphosate Products Rates, Manufacturer, Rainfast and Salt Type Labeled for Use on Glyphosate Tolerant “Roundup Ready” Soybean</i> for a complete list of registered products.</p>
glyphosate (0.9–1.8 kg/ha) + imazethapyr (0.038–0.05 kg/ha)	glyphosate (540 g/L)* + PURSUIT (240 g/L)	1.67–3.33 L/ha (0.67–1.34 L/acre) + 160–210 mL/ha (65–85 mL/acre)	<ul style="list-style-type: none"> <li>• For use <b>ONLY</b> with pedigreed (certified) soybean seed designated as “Roundup Ready” soybeans.</li> <li>• Apply up to the 3rd trifoliolate stage of soybean.</li> <li>• Use only <b>ONCE</b> per season.</li> <li>• Some rotational cropping restrictions apply (see PURSUIT label and Table 3–3. <i>Herbicide Crop Rotation and Soil pH Restrictions: Field Crops</i>).</li> </ul> <p>* Numerous products exist, refer to Table 10–6. <i>Glyphosate Products Rates, Manufacturer, Rainfast and Salt Type Labeled for Use on Glyphosate Tolerant “Roundup Ready” Soybean</i> for a complete list of registered products.</p>
	glyphosate (540 g/L)* + PHANTOM (240 g/L)	1.67–3.33 L/ha (0.67–1.34 L/acre) + 160–210 mL/ha (65–85 mL/acre)	
glyphosate (0.9 kg/ha) + chlorimuron-ethyl (9 g/ha)	glyphosate (540 g/L)* + NU-IMAGE (240 g/L)	1.67–3.33 L/ha (0.67–1.34 L/acre) + 160–210 mL/ha (65–85 mL/acre)	<ul style="list-style-type: none"> <li>• For use <b>ONLY</b> with pedigreed (certified) soybean seed designated as “Roundup Ready” soybeans.</li> <li>• Apply up to the 3rd trifoliolate stage of soybean.</li> <li>• Use <b>ONLY</b> once per season.</li> <li>• GUARDIAN is a co-pack of POLARIS + CLASSIC.</li> <li>• Some rotational cropping restrictions apply (see CLASSIC label and Table 3–3. <i>Herbicide Crop Rotation and Soil pH Restrictions: Field Crops</i>).</li> </ul>
	GUARDIAN MAX (sold as co-pack): POLARIS MAX (540 g/L) + CLASSIC (25 DF)	1.67 L/ha (0.67 L/acre) + 36 g/ha (14 g/acre)	

**TABLE 10–7. Herbicide Treatment Rates for Glyphosate Tolerant (“Roundup Ready”) Soybean (cont’d)**

ACTIVE INGREDIENT (rate)	TRADE NAME (Concentration)	PRODUCT RATE	PRECAUTIONS For more information, see Chapter 3, Herbicides Used in Ontario and Chapter 4, Notes on Adjuvants.
<b>Postemergence Tank-Mixes for Residual Weed Control – “Roundup Ready” (Glyphosate Tolerant) Varieties Only (cont’d)</b>			
glyphosate (0.9–1.8 kg/ha) + pyroxasulfone (60–120 g/ha)	glyphosate (540 g/L)* + ZIDUA SC (500 g/L)	1.67–3.33 L/ha (0.67–1.34 L/acre) + 120–240 mL/ha (48–96 mL/acre)	<ul style="list-style-type: none"> <li>• Apply POST from soybean emergence up until prior to flowering.</li> <li>• Will provide residual control of weeds that are susceptible to ZIDUA SC.</li> <li>• If a sequential application of ZIDUA SC is used (e.g. pre-emergent application followed by a post emergent application), the maximum seasonal rate of ZIDUA SC that may be applied is 250 mL/ha (100 mL/acre) on coarse soils and 493 mL/ha (197 mL/acre) on medium to fine soils.</li> </ul>
<b>Tank-Mixes to Address “Roundup Ready” Volunteer Corn in “Roundup Ready” (Glyphosate Tolerant) Soybean Varieties</b>			
glyphosate (0.9–1.8 kg/ha) + quizalofop-p-ethyl (0.024 kg/ha)	glyphosate (540 g/L)* + ASSURE II (96 g/L)	1.67–3.33 L/ha (0.67–1.34 L/acre) + 0.25 L/ha (0.1 L/acre)	<ul style="list-style-type: none"> <li>• For use <b>ONLY</b> with pedigreed (certified) soybean seed designated as “Roundup Ready” soybeans.</li> <li>• The addition of ASSURE II is to control volunteer “Roundup Ready” corn.</li> <li>• Apply to volunteer corn up to 30 cm (12 in.) in height.</li> <li>• <b>Do NOT</b> apply to soybeans within 80 days of harvest.</li> <li>• SUREMIX may or may not be added to this tank-mix. If adding SUREMIX do so at a rate of 5 L/1,000 L water.</li> <li>• Volunteer “ENLIST” corn <b>WILL NOT</b> be controlled by this herbicide.</li> </ul>
	glyphosate (540 g/L)* + CONTENDER (96 g/L)		* Numerous products exist, refer to Table 10–6. <i>Glyphosate Products Rates, Manufacturer, Rainfast and Salt Type Labeled for Use on Glyphosate Tolerant “Roundup Ready” Soybean</i> for a complete list of registered products.
	glyphosate (540 g/L)* + YUMA GL (96 g/L)		
glyphosate (0.9–1.8 kg/ha) + clethodim (45 g/ha) + surfactant (0.5% v/v)	glyphosate (540 g/L)* + SELECT, STATUE, ANTLER or CLETHODIM 240 (240 g/L) + AMIGO, CARRIER, X-ACT/ADAMA ADJUVANT 80 or SURF-ACT	1.67–3.33 L/ha (0.67–1.34 L/acre) + 190 mL/ha (75 mL/acre) + 5 L/1,000 L	<ul style="list-style-type: none"> <li>• For use <b>ONLY</b> with pedigreed (certified) soybean seed designated as “Roundup Ready” soybeans.</li> <li>• Apply to volunteer corn at the 2–5 leaf stage.</li> <li>• SELECT, STATUE, ANTLER or ARROW ALL-IN will control all types of volunteer corn.</li> </ul>
	glyphosate (540 g/L)* + ARROW ALL-IN (120 g/L)	1.67–3.33 L/ha (0.67–1.34 L/acre) + 380 mL/ha (152 mL/acre)	* Numerous products exist, refer to Table 10–6. <i>Glyphosate Products Rates, Manufacturer, Rainfast and Salt Type Labeled for Use on Glyphosate Tolerant “Roundup Ready” Soybean</i> for a complete list of registered products.
glyphosate (0.9–1.8 kg/ha) + fluazifop-p-butyl (0.075 kg/ha)	glyphosate (540 g/L)* + VENTURE (125 g/L)	1.67–3.33 L/ha (0.67–1.34 L/acre) + 0.6 L/ha (0.243 L/acre)	<ul style="list-style-type: none"> <li>• For use <b>ONLY</b> with pedigreed (certified) soybean seed designated as “Roundup Ready” soybeans.</li> <li>• The addition of VENTURE is needed to control volunteer “Roundup Ready” corn.</li> <li>• Apply to volunteer corn at the 2–5 leaf stage.</li> <li>• Volunteer “ENLIST” corn <b>WILL NOT</b> be controlled by this herbicide.</li> </ul> <p>* Numerous products exist, refer to Table 10–6. <i>Glyphosate Products Rates, Manufacturer, Rainfast and Salt Type Labeled for Use on Glyphosate Tolerant “Roundup Ready” Soybean</i> for a complete list of registered products.</p>
<b>Preharvest – Refer to the Preharvest Treatments listed for Conventional (non GMO) Soybeans.</b>			

# Glufosinate Tolerant (“Liberty Link”) Soybean

## Weed Management Strategies for Glufosinate Tolerant Soybean

A “Two pass” application system, whereby a soil applied herbicide with residual control is applied first (see pre-plant and preemergence herbicide options in Table 11–5) followed by a postemergence herbicide in the table below, is the most effective way to manage weeds in soybean.

**NOTES:** Weed control ratings are given as 0–9 where 0 indicates no control and 9 indicates 90%–100% control under ideal conditions. Ratings are subjective values based on best available information and give general comparisons based on use as described in this guide. Under unfavourable conditions (e.g., too dry, too wet, too cold, or poor application) the herbicides may not be as effective as indicated. Ratings may vary with weed and crop stage and with the timing and rates of the product(s) being used. Always refer to the product label for more information on registered weed species, product uses and precautions.

**TABLE 10–8.** Soybean Herbicide Weed Control Ratings in Glufosinate Tolerant (“Liberty Link”) Soybeans

**LEGEND:** Numbers (0–9) = weed control ratings      Crop tolerance ratings: E = Excellent, G = Good, F = Fair, P = Poor      – = insufficient information available to make a rating  
R = populations resistant to this herbicide exist in Ontario and won't be adequately controlled if present.

Trade Name	Weed Stage	Grasses								Annual Broadleaves										Perennials					Crop Tolerance				
		barnyard grass	crabgrass	fall panicum	foxtail, giant	foxtail, green	foxtail, yellow	witchgrass	proso millet	buckwheat, wild	cocklebur	fleabane, Canada	lady's thumb	lamb's-quarters	mustards	nights Shades, annual	pigweeds	ragweed, common	ragweed, giant	velvetleaf	waterhemp	bindweed, field	horsetail	milkweed		nutsedge	quackgrass	sow-thistle	thistle, Canada
<b>Postemergence Grass and Broadleaf Herbicides and Tank-Mixes – “Liberty Link” (glufosinate tolerant) varieties only</b>																													
LIBERTY <sup>1</sup>	emerged weeds	9	9	9	9	9	8	9	9	8	9	7	8	8	9	9	9	9	6	8	4	6	6	–	6	6	8	7	E <sup>1</sup>
	residual weed control	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
LIBERTY <sup>1</sup> + BASAGRAN FORTÉ	emerged weeds	9	9	9	9	9	8	9	9	8	9	7	9	8	9	9	9	9	6	8	4	6	6	–	8	6	8	7	G <sup>1</sup>
	residual weed control	0	0	0	0	0	0	0	0	–	9	9 <sup>R</sup>	–	9 <sup>R</sup>	–	2	9 <sup>R</sup>	9 <sup>R</sup>	9 <sup>R</sup>	9	0	–	2	–	–	2	6	–	
LIBERTY <sup>1</sup> + FIRSTRATE	emerged weeds	9	9	9	9	9	8	9	9	8	9	9 <sup>R</sup>	8	9	9	9	9	9	9 <sup>R</sup>	8	4	6	6	–	6	6	8	7	E <sup>1</sup>
	residual weed control	0	0	0	0	0	0	0	0	–	9	9 <sup>R</sup>	–	9 <sup>R</sup>	–	2	9 <sup>R</sup>	9 <sup>R</sup>	9 <sup>R</sup>	9	0	–	2	–	–	2	6	–	
LIBERTY <sup>1</sup> + HURRICANE	emerged weeds	9	9	9	9	9	8	9	9	8	9	7	8	8	9	9	9	9	6	8	8	6	6	–	6	6	8	7	G <sup>1</sup>
	residual weed control	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
LIBERTY <sup>1</sup> + PURSUIT	emerged weeds	9	9	9	9	9	9	9	9	8	9	7	9	8	9	9	9	9	6	8	4	6	6	–	7	6	8	7	G <sup>1</sup>
	residual weed control	8	7	7	9 <sup>R</sup>	9 <sup>R</sup>	9	8	7	8	7 <sup>R</sup>	2	9	8 <sup>R</sup>	9	9 <sup>R</sup>	9 <sup>R</sup>	8 <sup>R</sup>	6 <sup>R</sup>	9	1	2	2	2	4	2	2	2	

<sup>1</sup> Use only on certified soybean seed designated as “Liberty-Link” Soybean.

**TABLE 10–9.** Herbicide Treatment Rates for Glufosinate Tolerant (“Liberty Link”) Soybean

ACTIVE INGREDIENT (rate)	TRADE NAME (Concentration)	PRODUCT RATE	PRECAUTIONS For more information, see Chapter 3, Herbicides Used in Ontario and Chapter 4, Notes on Adjuvants.
<b>Preplant Burndown Herbicides – Refer Table 10–5 for burndown and residual control herbicides, and refer also to Chapter 5, Preplant &amp; Postharvest Weed Control.</b>			
Non-selective herbicides such as glyphosate are used to control emerged weeds prior to no-till planting. Tank-mixing of a residual herbicide with glyphosate can be used to improve application efficiency with a “one pass” weed management program.			
Refer to Chapter 5, Preplant & Postharvest Weed Control for preplant application rates for glyphosate.			
It is also important to note that when targeting perennial weeds, the addition of a triazine-based herbicide (i.e., SENCOR, LOROX L) will reduce the level of activity achieved with glyphosate. Increasing the rate of glyphosate should overcome this antagonism.			
<b>One Pass Strategies</b>			
glufosinate ammonium (0.5 kg/ha)	LIBERTY 200 SN (200 g/L)	2.5 L/ha (1 L/acre)	<ul style="list-style-type: none"> <li>• Use <b>ONLY</b> on soybean varieties that are tolerant to LIBERTY 200 SN.</li> <li>• LIBERTY 200 SN can be applied from the cotyledon to flowering stage of soybean.</li> <li>• LIBERTY 200 SN is a contact herbicide and has no residual activity.</li> <li>• Ammonium sulphate can be applied at 6 L/ha (2.4 L/acre) (liquid) or 3.3 kg/ha (1.3 kg/acre) (dry) for improved control of specific weeds.</li> <li>• <b>Do NOT</b> add oil or any other surfactants.</li> </ul>
glufosinate ammonium (0.5 kg/ha) + bentazon (0.84 kg/ha)	LIBERTY 200 SN (200 g/L) + BASAGRAN FORTÉ (480 g/L)	2.5 L/ha (1 L/acre) + 1.75 L/ha (0.7 L/acre)	<ul style="list-style-type: none"> <li>• Use <b>ONLY</b> on soybean varieties that are tolerant to LIBERTY 200 SN.</li> <li>• This tank-mix can be applied from the cotyledon to flowering stage of soybean.</li> <li>• This tank-mix consists of contact herbicides that have no residual activity.</li> <li>• Weeds should be targeted when small and actively growing (8 leaf stage or less).</li> </ul>
glufosinate ammonium (0.5 kg/ha) + cloransulam-methyl (17.5 g/ha)	LIBERTY 200 SN (200 g/L) + FIRSTRATE (84 WG)	2.5 L/ha (1 L/acre ) + 20.8 g/ha (8.5 g/acre)	<ul style="list-style-type: none"> <li>• Use <b>ONLY</b> on soybean varieties that are tolerant to LIBERTY 200 SN.</li> <li>• This tank-mix can be applied from the cotyledon to flowering stage of soybean.</li> <li>• The addition of FIRSTRATE is for residual activity of labeled broadleaf weeds.</li> <li>• Weeds should be targeted when small and actively growing (6 leaf stage or less).</li> </ul>
glufosinate ammonium (0.5 kg/ha) + imazethapyr (0.075 kg/ha)	LIBERTY 200 SN (200 g/L) + PURSUIT (240 g/L)	2.5 L/ha (1 L/acre) + 0.312 L/ha (0.126 L/acre)	<ul style="list-style-type: none"> <li>• Use <b>ONLY</b> on soybean varieties that are tolerant to LIBERTY 200 SN.</li> <li>• This tank-mix can be applied from the cotyledon to flowering stage of soybean.</li> <li>• The addition of PURSUIT is for residual activity of labeled grass and broadleaf weeds.</li> <li>• Weeds should be targeted when small and actively growing (8 leaf stage or less).</li> </ul>
<b>Two Pass Strategies</b>			
glufosinate ammonium (0.5 kg/ha) followed by glufosinate ammonium (0.4 kg/ha)	LIBERTY 200 SN (200 g/L) followed by LIBERTY 200 SN (200 g/L)	2.5 L/ha (1 L/acre) followed by 2 L/ha (0.8 L/acre)	<ul style="list-style-type: none"> <li>• Use <b>ONLY</b> on soybean varieties that are tolerant to LIBERTY 200 SN.</li> <li>• LIBERTY 200 SN can be applied from the cotyledon to flowering stage of soybean.</li> <li>• Ideally, the first application is made between the uni-foliolate and 2nd trifoliolate stage of soybean, the second application is made between the 4th and 6th trifoliolate stage of soybean.</li> </ul>

## Weed Control for Enlist E3 Soybeans

A “Two pass” application system, whereby a soil applied herbicide with residual control is applied first (see pre-plant and preemergence herbicide options in Table 11-5) followed by a postemergence herbicide listed in the table below, is the most effective way to manage weeds in soybean.

**NOTES:** Weed control ratings are given as 0–9 where 0 indicates no control and 9 indicates 90%–100% control under ideal conditions. Ratings are subjective values based on best available information and give general comparisons based on use as described in this guide. Under unfavourable conditions (e.g., too dry, too wet, too cold, or poor application) the herbicides may not be as effective as indicated. Ratings may vary with weed and crop stage and with the timing and rates of the product(s) being used. Always refer to the product label for more information on registered weed species, product uses and precautions.

**TABLE 10–10.** Weed Control for Enlist Soybeans

**LEGEND:** Numbers (0–9) = weed control ratings      Crop tolerance ratings: E = Excellent, G = Good, F = Fair, P = Poor

Trade Name	Grasses									Annual Broadleaves										Perennials						Crop Tolerance				
	barnyard grass	crabgrass, smooth	crabgrass, large	fall panicum	foxtail, giant	foxtail, green	foxtail, yellow	witchgrass	proso millet	buckwheat, wild	cocklebur	corn spurry	feabane, Canada	lady's thumb	lamb's-quarters	mustards	nightshades	pigweeds	ragweed, common	ragweed, giant	velvetleaf	waterhemp	bindweed, field	horsetail	milkweed		nutsedge	quackgrass	sow-thistle	thistle, Canada
<b>Postemergence Herbicides for Enlist Hybrids Only</b>																														
ENLIST 1	0	0	0	0	0	0	0	0	0	4	8	2	7	4	9	9	7	9	8	9	8	8	7	0	7	0	0	8	8	F <sup>1</sup>
ENLIST DUO	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	5	8	7	9	8	9	9	9	F	
glyphosate	9	9	9	9	9	9	9	8	9	9	9	9 <sup>R</sup>	8	9	9	9	9	9 <sup>R</sup>	8 <sup>R</sup>	9	9 <sup>R</sup>	7/8	5	8	8 <sup>1</sup>	9	8	9	F <sup>1</sup>	
LIBERTY 200SN	9	9	9	9	9	9	8	9	9	8	9	–	7	8	8	9	9	9	9	6	8	4	6	6	–	6	6	8	7	F <sup>1</sup>

<sup>1</sup> Use only on certified soybean seed designated as “Enlist E3” Soybean.

**TABLE 10–11.** Herbicide Treatment Rates for Enlist Soybeans

ACTIVE INGREDIENT (rate)	TRADE NAME (Concentration)	PRODUCT RATE	PRECAUTIONS For more information, see Chapter 3, Herbicides Used in Ontario and Chapter 4, Notes on Adjuvants.
<b>Postemergence Herbicides for Enlist Soybean Varieties Only</b>			
2,4-D choline (500–817 g/ha)	ENLIST 1 (454 g/L)*	1.1–1.8 L/ha (0.44–0.72 L/acre)	<ul style="list-style-type: none"> <li>Apply when weeds are small and Enlist E3 soybean growth stage is no later than R2 (full flowering stage).</li> <li>Controls broadleaf weeds only. Use the lower rate when weeds are in the seedling stage (2-4 Leaf) and the higher rate for harder to control species.</li> <li>Make one to two applications with a minimum of 12 days between applications.</li> <li>Do not apply more than two post emergent applications per use season.</li> <li>Do not apply more than 3.6 L/ha of ENLIST 1 Herbicide (1.64 kg acid equivalent) per use season.</li> <li>ENLIST 1 can be tank-mixed with a VP 480 (glyphosate) at 1.88 L/ha (0.75 L/acre).</li> <li>Read and follow the Stewardship Program (<a href="http://www.traitstewardship.com">www.traitstewardship.com</a>) that accompanies the use of field corn seed containing the DAS-40278-9 gene.</li> </ul>



**TABLE 10–11.** Herbicide Treatment Rates for Enlist Soybeans (cont'd)

ACTIVE INGREDIENT (rate)	TRADE NAME (Concentration)	PRODUCT RATE	PRECAUTIONS For more information, see Chapter 3, Herbicides Used in Ontario and Chapter 4, Notes on Adjuvants.
<b>Postemergence Herbicides for Enlist Soybean Varieties Only (cont'd)</b>			
2,4-D choline salt (194 g/L) glyphosate (204 g/L)	ENLIST DUO	2.9–4.3 L/ha (1.17–1.74 L/acre)	<ul style="list-style-type: none"> <li>• Apply POST up to the full flowering stage (R2)</li> <li>• Make 1–2 applications with a minimum of 12 days between applications.</li> <li>• Two applications may be necessary for control of perennial weeds or late weed flushes that emerged after the initial application.</li> <li>• Apply as a coarse to extremely coarse spray (ASABE S-572 Standard).</li> <li>• Re-Entry interval is 48 hours after application.</li> <li>• Do not apply more than two post emergent applications per use season.</li> <li>• Do not apply more than 8.6 L/ha of ENLIST DUO per use season.</li> <li>• Read and follow the DAS Stewardship Program (<a href="http://www.traitstewardship.com">http://www.traitstewardship.com</a>) that accompanies the use of soybean seed containing the DAS-40278-9 gene.</li> </ul>
2,4-D choline salt (194 g/L) glyphosate (204 g/L) + clethodim (45 g/ha)	ENLIST DUO + SELECT (240 g/L) + AMIGO	4.3 L/ha (11.74 L/acre) 190 mL/ha (75 mL/acre) + 5 L/1,000 L	<ul style="list-style-type: none"> <li>• This tank-mix will control volunteer ENLIST corn in ENLIST E3 soybean.</li> <li>• Apply when volunteer corn is in the 2–6 leaf stage.</li> <li>• STATUE, ANTLER, CLETHODIM 240 or ARROW ALL-IN can be used in place of SELECT. Refer to the precautionary notes for those herbicides in this chapter for more information around timing and application rates.</li> </ul>
glyphosate (0.9–1.8 kg/ha)	glyphosate (540 g/L)*	1.67–3.33 L/ha (0.67–1.34 L/acre)	<ul style="list-style-type: none"> <li>• For use <b>ONLY</b> with pedigreed (certified) soybean seed designated as “Roundup Ready” or “ENLIST E3” soybeans.</li> <li>• Apply between the first trifoliolate leaf stage and the full flower stage of the soybeans.</li> <li>• Weeds are more easily controlled and weed competition avoided when applications are made when weeds are small, although weeds up to 25 cm tall will be controlled.</li> <li>• Sequential applications are desirable when there are perennial weeds emerging over a long period of time (e.g., sow-thistle, Canada thistle).</li> <li>• For best results, apply the second application 14 days after the first.</li> <li>• Apply when milkweed, perennial sow-thistle and Canada thistle are 15–60 cm.</li> <li>• Apply when nutsedge is 5–15 cm in height and at the high rate.</li> <li>• A second application may be made for later flushes emerging after the initial application.</li> <li>• Use 100–200 L/ha (40–80 L/acre) water.</li> </ul> <p>* Numerous products exist, refer to Table 11–6. Glyphosate Products Rates, Manufacturer, Rainfast and Salt Type Labeled for Use on Glyphosate Tolerant “Roundup Ready” Soybean for a complete list of registered products.</p>
glufosinate ammonium (0.5 kg/ha)	LIBERTY 200 SN (200 g/L)	2.5 L/ha (1 L/acre)	<ul style="list-style-type: none"> <li>• Use <b>ONLY</b> on soybean varieties that are tolerant to LIBERTY 200 SN, such as ENLIST E3 soybean.</li> <li>• LIBERTY 200 SN can be applied from the cotyledon to flowering stage of soybean.</li> <li>• LIBERTY 200 SN is a contact herbicide and has no residual activity.</li> <li>• Ammonium sulphate can be applied at 6 L/ha (2.4 L/acre) (liquid) or 3.3 kg/ha (1.3 kg/acre) (dry) for improved control of specific weeds.</li> <li>• Do <b>NOT</b> add oil or any other surfactants.</li> </ul>

## GLYPHOSATE AND DICAMBA TOLERANT (“ROUNDUP READY 2 XTEND™”) SOYBEAN

### Weed Management Strategies in Roundup Ready 2 Xtend Soybeans

The chosen herbicide program and timing of glyphosate + dicamba applications should be tailored to the target weed species and method of tillage in a given field. Always consider using additional herbicide modes of action or traditional residual herbicides as needed.

#### No-till/conservation tillage:

Use the high label rate of dicamba with glyphosate when applied pre-plant or preemergence. The high label rate of dicamba provides short term residual weed control of broadleaf weeds to assist in early weed removal.

Early weed removal and short term residual weed control with dicamba applied early at the high label rate provides the best chance to improve soybean yield compared to glyphosate only applications<sup>1</sup>.

#### Conventional tillage:

Start clean with tillage and apply dicamba with glyphosate to small weeds (<10 cm or 4 inches), as the first in-crop herbicide application (emergence to 2<sup>nd</sup> trifoliolate leaf stage).

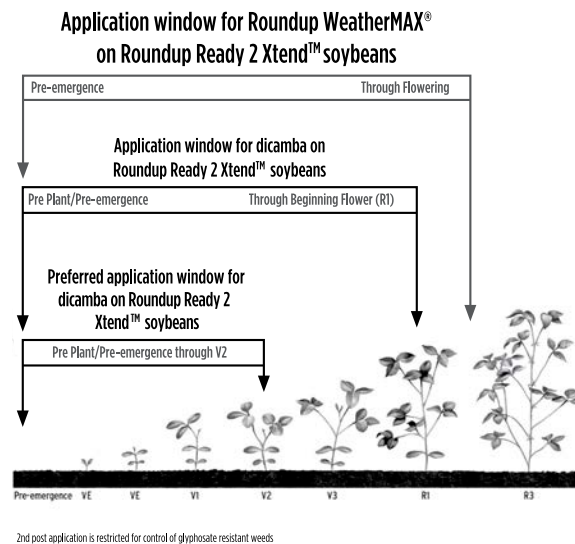
In fields with historically high weed pressure, a pre-emergence residual herbicide should be applied to minimize risk of yield loss due to early season weed competition.

### Management of Glyphosate-Resistant Weeds

In Bayer CropScience Inc. and University of Guelph trials, dicamba has provided excellent control of giant ragweed, Canada fleabane and common ragweed<sup>2</sup>.

Where glyphosate-resistant weeds exist, include an additional, effective mode of action in a tank mix or in sequential applications.

### Window of Application



### Application Requirements<sup>3</sup>

Choose nozzles that produce large droplets to minimize drift potential (examples below).

Droplet Sizes and Categories <sup>1</sup>				
Category	Symbol	Colour Code	Approximate Volume Median Diameter (VMD) (microns)	
Extremely Coarse	XC	White	429 - 622	💧💧
	Hypro Ultra Lo-Drift™	AIT J60 TeeJet®	#8 MR Wilger	AI TeeJet® Air Induction (80°)
Ultra-Coarse	UC	Black	> 622	💧
	Turbo TeeJet® Induction			
<b>Use nozzles that produce Extremely Coarse to Ultra-Coarse droplets in the Roundup Ready® Xtend Crop System</b>				

<sup>1</sup>ASABE (American Society of Agricultural & Biological Engineers) Standard S72.1 [http://www.teejet.com/media/408987/cat51-us\\_tores\\_all.pdf](http://www.teejet.com/media/408987/cat51-us_tores_all.pdf)

- Apply when wind speed is between 3–15 km/h.
- Apply in minimum carrier volume of 100 L/ha (10 GPA).
- Select a ground speed below 25 km/h.
- Set boom to lowest effective height over the target.
- Do NOT apply during a temperature inversion.

- <sup>1</sup> 2008-2014 Bayer CropScience and University of Guelph field trials (n = 39).
- <sup>2</sup> giant ragweed (2010-2013) at 5 locations; Canada fleabane (2011-2013) at 6 locations; common ragweed (2013-2015) at 4 locations
- <sup>3</sup> Refer to dicamba herbicide label for more detailed application requirements.

ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS.

# GLYPHOSATE AND DICAMBA TOLERANT (“ROUNDUP READY 2 XTEND™”) SOYBEAN

## Weed Management Strategies in Roundup Ready 2 Xtend Soybeans

**NOTES:** Weed control ratings are given as 0–9 where 0 indicates no control and 9 indicates 90%–100% control under ideal conditions. Ratings are subjective values based on best available information and give general comparisons based on use as described in this guide. Under unfavourable conditions (e.g., too dry, too wet, too cold, or poor application) the herbicides may not be as effective as indicated. Ratings may vary with weed and crop stage and with the timing and rates of the product(s) being used. Always refer to the product label for more information on registered weed species, product uses and precautions.

**TABLE 10–12.** Glyphosate and dicamba Tolerant (“Roundup Ready 2 Xtend”) Soybean Herbicide Weed Control Ratings

Trade Name		Weed Stage		Annual Grasses							Annual Broadleaves										Perennials					Crop Tolerance						
				barnyard grass	smooth crabgrass	large crabgrass	fall panicum	foxtail, giant	foxtail, green	foxtail, yellow	witchgrass	proso millet	buckwheat, wild	cocklebur	corn spurry	fleabane, Canada	lady's thumb	lamb's-quarters	mustards	nightsades, annual	pigweeds	ragweed, common	ragweed, giant	velvetleaf	waterhemp		bindweed, field	horsetail	milkweed	nutsedge	quackgrass	sow-thistle
<b>Soil Applied Broadleaf Herbicides for Dicamba Tolerant (Xtend) Varieties Only (Pre-plant or Preemergence timing only)</b>																																
ENGENIA <sup>2</sup> , FEXAPAN <sup>2</sup> or XTENDIMAX <sup>2</sup>		residual weed control	0	0	0	0	0	0	0	0	8	6	8	9	9	9	6	9	9	9	7	8	8	2	0	0	0	0	2	2	E <sup>2</sup>	
<b>Soil Applied Grass and Broadleaf Herbicides for Dicamba Tolerant (Xtend) Varieties Only (Pre-plant or Preemergence timing only)</b>																																
TAVIUM <sup>2</sup>		residual weed control	9	9	9	8 <sup>2</sup>	8	8	8	9	2	8	6	8	9	9	9	6	9	9	9	9 <sup>4</sup>	9 <sup>4</sup>	8	8 <sup>4</sup>	0	0	8	9 <sup>4</sup>	8 <sup>4</sup>	8 <sup>4</sup>	E <sup>2</sup>
ZIDUA SC + ENGENIA		residual weed control	9	9	9	8	8	9	9	9	4	8	6	8	9	9	9	6	9	9	9	9 <sup>4</sup>	9 <sup>4</sup>	8	8 <sup>4</sup>	0	0	8	9 <sup>4</sup>	8 <sup>4</sup>	8 <sup>4</sup>	E <sup>2</sup>
<b>Postemergence Herbicides for Glyphosate and Dicamba Tolerant (Xtend) Varieties Only</b>																																
ENGENIA <sup>2</sup> , FEXAPAN <sup>2</sup> or XTENDIMAX <sup>2</sup>		emerged weed control	0	0	0	0	0	0	0	0	8	6	8	8	9	9	6	9	9	9	7	8	8	2	0	0	0	0	2	2	E <sup>2</sup>	
glyphosate (540 g/L) <sup>2,3</sup>		emerged weed control	9	9	9	9	9	9	9	9	8	9	9	9 <sup>R</sup>	8	9	9	9	9	9	9 <sup>R</sup>	9 <sup>R</sup>	9	8	7/8	5	8	8 <sup>1</sup>	9	8	9	E <sup>2</sup>
<b>One Pass Postemergence Tank-Mixes with Residual Weed Control for Glyphosate and Dicamba Tolerant (Xtend) Varieties Only</b>																																
ENGENIA <sup>2</sup> , FEXAPAN <sup>2</sup> or XTENDIMAX <sup>2</sup> + glyphosate <sup>2,3</sup>		emerged weed control	9	9	9	9	9	9	9	9	8	9	9	8	8	9	9	9	9	9	7	9	8	7/8	5	8	8 <sup>1</sup>	9	8	9	E <sup>2</sup>	
		residual weed control	0	0	0	0	0	0	0	0	0	8	6	8	8	9	9	6	9	9	9	7	8	8	2	0	0	0	0	2	2	E <sup>2</sup>
ROUNDUP XTEND <sup>2</sup>		emerged weed control	9	9	9	9	9	9	9	9	8	9	9	8	8	9	9	9	9	9	7	9	8	7/8	5	8	8 <sup>1</sup>	9	8	9	E <sup>2</sup>	
		residual weed control	0	0	0	0	0	0	0	0	0	8	6	8	8	9	9	6	9	9	9	7	8	8	2	0	0	0	0	2	2	E <sup>2</sup>
ZIDUA SC + ENGENIA + glyphosate (540 g/L) <sup>2,3</sup>		emerged weed control	9	9	9	9	9	9	9	9	8	9	9	8	8	9	9	9	9	9	7	9	8	7/8	5	8	8 <sup>1</sup>	9	8	9	E <sup>2</sup>	
		residual weed control	9	9	9	8	8	9	9	9	4	8	6	8	9	9	9	6	9	9	9	9 <sup>4</sup>	9 <sup>4</sup>	8	8 <sup>4</sup>	0	0	8	9 <sup>4</sup>	8 <sup>4</sup>	8 <sup>4</sup>	E <sup>2</sup>

<sup>1</sup> A glyphosate rate of 1.8 kg/ha is required to achieve this level of control.

<sup>2</sup> Use only on certified soybean seed designated as “Roundup Ready 2 Xtend” Soybean.

<sup>3</sup> Numerous products exist. See Table 10–6. *Glyphosate Products Rates, Manufacturer, Rainfast and Salt Type Labeled for Use on Glyphosate Tolerant “Roundup Ready” Soybean* for a complete list of registered products.

<sup>4</sup> Weed must be emerged to achieve this level of control.

**TABLE 10–13.** Herbicide Treatment Rates for Roundup Ready 2 Xtend Soybeans

ACTIVE INGREDIENT (rate)	TRADE NAME (Concentration)	PRODUCT RATE	PRECAUTIONS For more information, see Chapter 3, Herbicides Used in Ontario and Chapter 4, Notes on Adjuvants.
<b>Preplant Burndown Herbicides – Refer Table 10–5 for burndown and residual control herbicides, and refer also to Chapter 5, Preplant &amp; Postharvest Weed Control.</b>			
Non-selective herbicides such as glyphosate are used to control emerged weeds prior to no-till planting. Tank-mixing of a residual herbicide with glyphosate can be used to improve application efficiency with a “one pass” weed management program.			
Refer to Chapter 5, Preplant & Postharvest Weed Control for preplant application rates for glyphosate.			
It is also important to note that when targeting perennial weeds, the addition of a triazine-based herbicide (i.e., SENCOR, LOROX L) will reduce the level of activity achieved with glyphosate. Increasing the rate of glyphosate should overcome this antagonism.			
<b>Soil Applied Broadleaf Herbicides for Dicamba Tolerant (Xtend) Varieties Only (Pre-plant or Preemergence timing only)</b>			
dicamba (288–600 g/ha)	ENGENIA (600 g/L)	0.48–1 L/ha (0.19–0.4 L/acre)	<ul style="list-style-type: none"> <li>• Can only be applied to dicamba/glyphosate tolerant soybean varieties (e.g., Roundup Ready 2 Xtend). Applications made to non “Xtend” soybean will result in complete plant death.</li> <li>• Apply POST up to the early flower stage of the crop (R1).</li> <li>• The highest rate can only be used once in a season.</li> <li>• <b>Do NOT</b> apply more than 3.36 L/ha of XtendiMax/FeXapan with VaporGrip Technology or 1.96 L/ha of Engenia in a single growing season.</li> <li>• Off-target drift mitigation (summary only: refer to the label for complete details):                1) Sprayer speed should be less than 25 km/hr. 2) Use nozzles that deliver an extremely coarse to ultra-coarse droplets. 3) Boom height should be 50 cm or less above the crop canopy. 4) Do not spray during fog or a temperature inversion. 5) Spray when wind speeds are between 5 and 15 km/hr. 6) Spray when air temperatures are between 10 and 25°C. 7) Avoid spraying during high humidity. 8) Do not add any acidifying agents or ammonium sulphate (AMS) to condition water prior to adding both products.</li> </ul>
	FEXAPAN (350 g/L)	0.82–1.71 L/ha (0.33–0.68 L/acre)	
	XTENDIMAX (350 g/L)		
<b>Soil Applied Grass and Broadleaf Herbicides for Dicamba Tolerant (Xtend) Varieties Only (Pre-plant or Preemergence timing only)</b>			
dicamba (134 g/L) (563 g/ha)/  s-metolachlor (271 g/L) (1,125 g/ha)	TAVIUM (405 g/L)	4.15 L/ha (1.7 L/acre)	<ul style="list-style-type: none"> <li>• Can only be applied to dicamba/glyphosate tolerant soybean varieties (e.g., Roundup Ready 2 Xtend). Applications made to non “Xtend” soybean will result in complete plant death.</li> <li>• Apply PP or PRE in a minimum of 100 L/ha (40 L/acre) and prior to weed emergence.</li> <li>• Apply in a tank-mixture with Roundup Weathermax or other glyphosate products formulated as a potassium salt (Table 10–6) if annual grasses, American and Eastern Black Nightshade or other perennial weeds are emerged at application.</li> <li>• Refer to off-target drift mitigation guidelines in the precautionary notes of dicamba in this section.</li> </ul>
	ZIDUA SC (500 g/L) + ENGENIA (600 g/L)	120–240 mL/ha (48–96 mL/acre) + 0.48–1 L/ha (0.19–0.4 L/acre)	
pyoxasulfone (60–120 g/ha)  + dicamba (288–600 g/ha)	ZIDUA SC (500 g/L) + ENGENIA (600 g/L)	120–240 mL/ha (48–96 mL/acre) + 0.48–1 L/ha (0.19–0.4 L/acre)	<ul style="list-style-type: none"> <li>• Can only be applied to dicamba/glyphosate tolerant soybean varieties (e.g., Roundup Ready 2 Xtend). Applications made to non “Xtend” soybean will result in complete plant death.</li> <li>• Apply PP or PRE in a minimum of 100 L/ha (40 L/acre) and prior to weed emergence.</li> <li>• Apply in a tank-mixture with Roundup Weathermax or other glyphosate products formulated as an isopropylamine or potassium salt (Table 11–6) if annual grasses, American and Eastern Black Nightshade or other perennial weeds are emerged at application.</li> <li>• Refer to off-target drift mitigation guidelines in the precautionary notes of dicamba in this section.</li> </ul>

**TABLE 10-13.** Herbicide Treatment Rates for Roundup Ready 2 Xtend Soybeans (cont'd)

<b>ACTIVE INGREDIENT (rate)</b>	<b>TRADE NAME (Concentration)</b>	<b>PRODUCT RATE</b>	<b>PRECAUTIONS</b> For more information, see Chapter 3, Herbicides Used in Ontario and Chapter 4, Notes on Adjuvants.
<b>Postemergence Herbicides for Glyphosate and Dicamba Tolerant (Xtend) Varieties Only</b>			
dicamba (288–600 g/ha)	ENGENIA (600 g/L)	0.48–1 L/ha (0.19–0.4 L/acre)	<ul style="list-style-type: none"> <li>• For use ONLY with certified soybean seed designated as “Roundup Ready 2 Xtend” soybeans.</li> <li>• Apply POST up to the early flower stage of the crop (R1).</li> <li>• The highest rate can only be used once in a season.</li> <li>• <b>Do NOT</b> apply more than 3.36 L/ha of XtendiMax/FeXapan with VaporGrip Technology or 1.96 L/ha of Engenia in a single growing season.</li> <li>• Off-target drift mitigation (summary only: refer to the label for complete details): 1) Sprayer speed should be less than 25 km/hr. 2) Use nozzles that deliver an extremely coarse to ultra-coarse droplets. 3) Boom height should be 50 cm or less above the crop canopy. 4) Do not spray during fog or a temperature inversion. 5) Spray when wind speeds are between 5 and 15 km/hr. 6) Spray when air temperatures are between 10 and 25°C. 7) Avoid spraying during high humidity. 8) Do not add any acidifying agents or ammonium sulphate (AMS) to condition water prior to adding both products.</li> </ul>
	FEXAPAN (350 g/L)	0.82–1.71 L/ha (0.33–0.68 L/acre)	
	XTENDIMAX (350 g/L)		
glyphosate (0.9–1.8 kg/ha)	glyphosate (540 g/L)*	1.67–3.33 L/ha (0.67–1.34 L/acre)	<ul style="list-style-type: none"> <li>• For use <b>ONLY</b> with pedigreed (certified) soybean seed designated as “Roundup Ready” soybeans.</li> <li>• Apply between the first trifoliolate leaf stage and the full flower stage of the soybeans.</li> <li>• Weeds are more easily controlled and weed competition avoided when applications are made when weeds are small, although weeds up to 25 cm tall will be controlled.</li> <li>• Apply when milkweed, perennial sow-thistle and Canada thistle are 15–60 cm.</li> <li>• Apply when nutsedge is 5–15 cm in height and at the high rate.</li> <li>• A second application may be made for later flushes emerging after the initial application.</li> <li>• Use 100–200 L/ha (40–80 L/acre) water.</li> </ul> <p>* Numerous products exist, refer to Table 10–6. <i>Glyphosate Products Rates, Manufacturer, Rainfast and Salt Type Labeled for Use on Glyphosate Tolerant “Roundup Ready” Soybean</i> for a complete list of registered products.</p>
	other glyphosate products	See Table 10–6.	
<b>One Pass Postemergence Tank-Mixes with Residual Weed Control for Glyphosate and Dicamba Tolerant (Xtend) Varieties Only</b>			
dicamba (288–600 g/ha)  + glyphosate (900–2500 g/ha)	ENGENIA (600 g/L) + glyphosate (540 g/L)	0.48–1 L/ha (0.19–0.4 L/acre) + 1.67–4.67 L/ha (0.67–1.89 L/acre)	<ul style="list-style-type: none"> <li>• Apply PP or PRE, for use ONLY with certified soybean seed designated as “Roundup Ready 2 Xtend” soybeans</li> <li>• The highest rate can only be used once in a season and is typically used at the PP or PRE timing to enhance burndown activity on glyphosate resistant weeds (e.g. Canada fleabane) and provide short term residual weed control. When the highest rate is applied PP or PRE, the lower rate should be used for POST timings.</li> <li>• <b>Do NOT</b> apply more than 3.36 L/ha of XtendiMax/FeXapan with VaporGrip Technology or 1.96 L/ha of Engenia in a single growing season.</li> <li>• Off-target drift mitigation (summary only: refer to the label for complete details): 1) Sprayer speed should be less than 25 km/hr. 2) Use nozzles that deliver an extremely coarse to ultra-coarse droplets. 3) Boom height should be 50 cm or less above the crop canopy. 4) Do not spray during fog or a temperature inversion. 5) Spray when wind speeds are between 5 and 15 km/hr. 6) Spray when air temperatures are between 10 and 25°C. 7) Avoid spraying during high humidity. 8) Do not add any acidifying agents or ammonium sulphate (AMS) to condition water prior to adding both products.</li> </ul>
	FEXAPAN (350 g/L) + glyphosate (540 g/L)	0.82–1.71 L/ha (0.33–0.68 L/acre) + 1.67–4.67 L/ha (0.67–1.89 L/acre)	
	XTENDIMAX (350 g/L) + glyphosate (540 g/L)		

**TABLE 10–13.** Herbicide Treatment Rates for Roundup Ready 2 Xtend Soybeans (cont'd)

<b>ACTIVE INGREDIENT (rate)</b>	<b>TRADE NAME (Concentration)</b>	<b>PRODUCT RATE</b>	<b>PRECAUTIONS</b> For more information, see Chapter 3, Herbicides Used in Ontario and Chapter 4, Notes on Adjuvants.
<b>One Pass Postemergence Tank-Mixes with Residual Weed Control for Glyphosate and Dicamba Tolerant (Xtend) Varieties Only (Cont'd)</b>			
dicamba (120 g/L) (300–600 g/ha)  + glyphosate (240 g/L) (600–1,200 g/ha)	ROUNDUP XTEND	2.5–5 L/ha (1–2 L/acre)	<ul style="list-style-type: none"> <li>• Can only be applied to dicamba/glyphosate tolerant soybean varieties (e.g., Roundup Ready 2 Xtend). Applications made to non “Xtend” soybean will result in complete plant death.</li> <li>• Apply to weeds less than 10 cm tall with a minimum spray volume of 100 L/ha (40 L/acre or 10 U.S. gal/acre).</li> <li>• The highest rate can only be used once in a season and is typically used at the PP or PRE timing. When the highest rate is applied PP or PRE, the lower rate should be used for POST timings.</li> <li>• Do NOT apply more than 10 L/ha (4 L/acre) of Roundup Xtend in a single growing season.</li> <li>• Off-target drift mitigation (summary only: refer to the label for complete details): 1) Sprayer speed should be less than 25 km/hr. 2) Use nozzles that deliver an extremely coarse to ultra-coarse droplets. 3) Boom height should be 50 cm or less above the crop canopy. 4) Do not spray during fog or a temperature inversion. 5) Spray when wind speeds are between 5 and 15 km/hr. 6) Spray when air temperatures are between 10 and 25°C. 7) Avoid spraying during high humidity. 8) Do not add any acidifying agents or ammonium sulphate (AMS) to condition water prior to adding Roundup Xtend.</li> </ul>
pyoxasulfone (60–120 g/ha)  + dicamba (288–600 g/ha)  + glyphosate (0.9 kg/ha)	ZIDUA SC (500 g/L) + ENGENIA (600 g/L) + glyphosate (540 g/L)*	120–240 mL/ha (48–96 mL/acre) + 0.48–1 L/ha (0.19–0.4 L/acre) + 1.67 L/ha (0.67 L/acre)	<ul style="list-style-type: none"> <li>• Can only be applied to dicamba/glyphosate tolerant soybean varieties (e.g., Roundup Ready 2 Xtend). Applications made to non “Xtend” soybean will result in complete plant death.</li> <li>• Apply POST from soybean emergence up until prior to flowering.</li> <li>• If a sequential application of ZIDUA SC is used (e.g. a pre-emergent application followed by a post emergent application), the maximum seasonal rate of ZIDUA SC that may be applied is 250 mL/ha (100 mL/acre) on coarse soils and 493 mL/ha (197 mL/acre) on medium to fine soils.</li> <li>• Refer to off-target drift mitigation guidelines in the precautionary notes of dicamba in this section.</li> </ul>