

9. FORAGE CROPS

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. Please see product label for more information on registered weed species, product uses and precautions.

TABLE 9–1. Forages Herbicide Weed Control Ratings

LEGEND: Numbers (0–9) = weed control ratings – = insufficient information available to make a rating ✓ = can be used on this crop x = not indicated for use on this crop

Trade Name	WSSA Group(s)	Crop										Grasses										Annual Broadleaves										Perennials												
		seedling forage grasses	seedling alfalfa	seedling birdsfoot trefoil	seedling clovers	established alfalfa	established birdsfoot trefoil	established clovers	forage sorghum and pearl millet	pasture (mostly grasses)	barnyard grass	crabgrass	fall panicum	foxtail, giant	foxtail, green	foxtail, yellow	witchgrass	wild oats	buckwheat, wild	chickweed, common	cleavers	corn spurry	fleabane, Canada	hempnettle	lady's thumb	lamb's-quarters	mustards	pigweeds	ragweed, common	ragweed, giant	velvetleaf	bindweed, field	chickweed, mouse-eared	curled dock	dandelion	horsetail	milkweed	nutsedge	quackgrass	sow-thistle	thistle, Canada			
Soil Applied Grass Herbicides																																												
EPTAM	8	x	✓	✓	x	x	x	x	x	x	9	9	9	9	9	9	–	–	6	7	–	–	0	–	7	9	6	9	2	0	–	–	–	0	0	0	0	8	2	0	0			
TREFLAN or RIVAL or BONANZA or TRIFLUREX	3	x	✓	x	x	x	x	x	x	x	9	9	9	9	9	9	8	5	–	–	–	0	5	2	8	2	8	2	1	3	–	–	0	0	0	0	0	0	0	0	0			
Postemergence Grass Herbicides																																												
ACHIEVE LIQUID or BISON ¹	1	✓	x	x	x	x	x	x	x	x	8	–	–	–	9	9	–	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
ASSURE ¹ or CONTENDER ¹ or YUMA GL ¹	1	x	x	x	x	✓ ¹	x	x	x	x	9	8	9	9	9	9	9	–	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0
KERB SC	15	x	x	x	x	✓	✓	x	x	x	8	8	6	–	8	8	8	–	8	0	0	0	0	0	0	0	0	6	0	5	0	0	0	0	0	0	0	0	0	0	8	0	0	
VENTURE L	1	x	✓	✓	✓	✓	✓	✓	x	x	9	8	9	8	8	8	9	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0
POAST ULTRA	1	x	✓	✓	✓	✓	x	✓	x	x	9	8	9	9	9	9	9	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	
SELECT or clethodim ²	1	x	✓	x	x	x	x	x	x	x	9	8	9	9	9	9	9	–	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	

¹ For seed crops only.

² Various formulations available, see Table 3–1, *Herbicides Used in Ontario*. See label for specific uses and rates.

³ Do not use on sweet clover.

⁴ On established legumes, use fall spot treatment only.

⁵ CLOVITOX PLUS and TOPSIDE not for established clovers.

⁶ Can only be applied to glyphosate tolerant alfalfa varieties (e.g. HarvXtra). Applications made to non-glyphosate tolerant alfalfa will result in complete plant death.

TABLE 9-1. Forages Herbicide Weed Control Ratings (cont'd)

LEGEND: Numbers (0-9) = weed control ratings - = insufficient information available to make a rating ✓ = can be used on this crop x = not indicated for use on this crop

Trade Name	WSSA Group(s)	Crop									Grasses								Annual Broadleaves								Perennials													
		seedling forage grasses	seedling alfalfa	seedling birdsfoot trefoil	seedling clovers	established alfalfa	established birdsfoot trefoil	established clovers	forage sorghum and pearl millet	pasture (mostly grasses)	barnyard grass	crabgrass	fall panicum	foxtail, giant	foxtail, green	foxtail, yellow	witchgrass	wild oats	buckwheat, wild	chickweed, common	cleavers	corn spurry	fleabane, Canada	hempenettle	lady's thumb	lamb's-quarters	mustards	pigweeds	ragweed, common	ragweed, giant	velvetleaf	bindweed, field	chickweed, mouse-eared	curled dock	dandelion	horsetail	milkweed	nutsedge	quackgrass	sow-thistle
Postemergence Broadleaf Herbicides																																								
2,4-D ²	4	✓	x	x	x	x	x	x	✓	✓	0	0	0	0	0	0	0	4	7	-	-	-	-	4	9	9	9	8	-	8	-	-	7	7	-	0	0	0	8	8
2,4-DB: CALIBER ^{3,4} or COBUTOX ^{3,4} or EMBUTOX ^{3,4}	4	✓	✓	✓	✓	✓	✓	✓	x	✓	0	0	0	0	0	0	0	4	5	-	-	-	-	4	7	8	9	8	-	8	8	-	8	-	-	-	0	0	8	8
BASAGRAN ¹ , BROADLOOM ¹ or BENTA SUPER ¹	6	✓	✓	x	✓	✓	x	x	✓	x	0	0	0	0	0	0	0	7	-	-	-	5	-	9	7	9	7	8	6	9	6	-	-	-	-	2	8	0	6	7
dicamba ² (e.g. ENGENIA)	4	✓	x	x	x	x	x	x	✓	✓	0	0	0	0	0	0	0	8	-	8	9	9	-	9	9	7	7	9	8	9	8	-	9	7	-	0	0	0	9	8
INFINITY	27,6	✓ ¹	x	x	x	x	x	x	x	✓	0	0	0	0	0	0	0	9	9	8	-	9	9	9	9	9	9	9	7	9	-	-	-	7	-	-	-	0	7	7
MCPA Amine 500 ²	4	x	x	x	x	x	x	x	✓	✓	0	0	0	0	0	0	0	4	-	4	-	-	8	-	9	9	8	8	-	8	7	-	-	-	8	-	0	0	6	5
MILESTONE	4	x	x	x	x	x	x	x	✓	✓	0	0	0	0	0	0	0	9	-	8	-	-	-	-	-	-	9	-	-	9	-	-	6	-	-	-	-	9	9	
PARDNER or bromoxynil ²	6	x	x	x	x	x	x	✓	x	✓	0	0	0	0	0	0	0	8	2	-	2	-	2	8	9	7	7	9	-	9	5	-	-	-	0	0	0	0	6	5
PEAK	2	x	x	x	x	x	x	✓	x	✓	0	0	0	0	0	0	0	8	9	-	-	7	-	9	9	9	9	9	7	9	-	-	-	5	-	-	-	-	7	7
TOPSIDE ⁵ or TROPOTOX PLUS or CLOVITOX PLUS ⁵	4	✓	x	x	✓	x	x	✓	x	✓	0	0	0	0	0	0	0	7	2	-	-	-	8	-	9	9	9	8	-	9	8	-	-	-	-	-	0	0	9	9

¹ For seed crops only.

² Various formulations available, see Table 3-1, *Herbicides Used in Ontario*. See label for specific uses and rates.

³ Do not use on sweet clover.

⁴ On established legumes, use fall spot treatment only.

⁵ CLOVITOX PLUS and TOPSIDE not for established clovers.

⁶ Can only be applied to glyphosate tolerant alfalfa varieties (e.g. HarvXtra). Applications made to non-glyphosate tolerant alfalfa will result in complete plant death.

TABLE 9–1. Forages Herbicide Weed Control Ratings (cont'd)

LEGEND: Numbers (0–9) = weed control ratings – = insufficient information available to make a rating ✓ = can be used on this crop x = not indicated for use on this crop

Trade Name	WSSA Group(s)	Crop										Grasses							Annual Broadleaves										Perennials												
		seedling forage grasses	seedling alfalfa	seedling birdsfoot trefoil	seedling clovers	established alfalfa	established birdsfoot trefoil	established clovers	forage sorghum and pearl millet	pasture (mostly grasses)	barnyard grass	crabgrass	fall panicum	foxtail, giant	foxtail, green	foxtail, yellow	witchgrass	wild oats	buckwheat, wild	chickweed, common	cleavers	corn spurry	fleabane, Canada	hempenettle	lady's thumb	lamb's-quarters	mustards	pigweeds	ragweed, common	ragweed, giant	velvetleaf	bindweed, field	chickweed, mouse-eared	curled dock	dandelion	horsetail	milkweed	nutsedge	quackgrass	sow-thistle	thistle, Canada
Postemergence Grass and Broadleaf Herbicides																																									
SIMAZINE 480	5	x	x	x	x	✓	✓	✓	x	x	6	8	8	-	-	8	8	9	9	-	-	-	-	9	9	9	9	8	-	6	7	-	-	-	-	-	-	-	6	-	-
PURSUIT ¹ or PHANTOM ¹ or NU-IMAGE ¹	2	x	✓ ¹	x	x	✓ ¹	x	x	x	x	8	7	7	7	9	9	8	8	8	-	-	-	2	-	9	9	9	9	8	6	9	2	-	-	6	2	2	7	5	2	2
Postemergence Grass and Broadleaf Herbicides – For use ONLY on glyphosate tolerant alfalfa varieties																																									
glyphosate ^{2,6} (0.9 kg/ha)	9	x	✓ ⁶	x	x	✓ ⁶	x	x	x	x	9	9	9	9	9	9	9	9	8	9	9	9	9 ^R	9	8	9	9	9	9 ^R	9 ^R	9	7	9	8	7	5	9	7	9	8	9
glyphosate ^{2,6} (1.8 kg/ha)	9	x	✓ ⁶	x	x	✓ ⁶	x	x	x	x	9	9	9	9	9	9	9	9	9	9	9	9	9 ^R	9	9	9	9	9	9 ^R	9 ^R	9	8	9	9	9	5	9	8	9	9	9
Postemergence Tank-Mixes																																									
2,4-DB ² + MCPA ^{2,3,4}	4+4	x	✓	x	x	x	x	x	x	x	0	0	0	0	0	0	0	0	8	5	-	-	-	-	7	9	9	9	-	-	8	-	-	-	-	-	-	0	0	8	8
2,4-DB ² + MCPA SODIUM ²	4+4	✓	✓	✓	x	x	x	x	x	x	0	0	0	0	0	0	0	0	8	5	-	-	-	-	7	9	9	9	-	-	8	-	-	-	-	-	-	0	0	8	8
MILESTONE + 2,4-D ²	4+4	x	x	x	x	x	x	x	x	✓	0	0	0	0	0	0	0	0	9	-	-	-	-	9	9	9	9	9	9	9	-	8	8	8	-	-	-	-	-	9	9

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³ Do not use on sweet clover.

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⁶ Can only be applied to glyphosate tolerant alfalfa varieties (e.g. HarvXtra). Applications made to non-glyphosate tolerant alfalfa will result in complete plant death.

TABLE 9–2. Herbicide Treatment Rates for Forages

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.
FORAGE GRASSES (SEED PRODUCTION ONLY)			
Herbicide Treatments include:			
<ul style="list-style-type: none"> • Preplant (PP) – Also see Chapter 5 <i>Preplant & Postharvest Weed Control</i>, 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. Special attention should be directed toward machinery cleanliness, and/or treating fields with perennial weeds last. • Preemergence (PRE) • 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 labelled leaf stages 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. 			
Apply all treatments in 100–200 L/ha (40–80 L/acre) water except where otherwise noted.			
Postemergence Grass Herbicides			
tralkoxydim (0.2 kg/ha) + adjuvant (0.5% v/v)	ACHIEVE LIQUID (400 g/L) + TURBOCHARGE BISON (400 g/L) + ADDIT ADJUVANT	0.5 L/ha (0.2 L/acre) + 0.5 L/100 L (0.5 L/100 L)	<ul style="list-style-type: none"> • Apply to wild oats, volunteer oats, green foxtail and yellow foxtail prior to tillering. Applications made to weeds that have tillered may result in unacceptable control. • For the following forage grasses grown for seed only: Seeding and established intermediate and crested wheatgrass, creeping red fescue, meadow and smooth brome grass either underseeded to cereals or grown alone. • For establishment of northern wheatgrass, western wheatgrass and slender wheatgrass. • Do NOT tank mix ACHIEVE liquid with any other herbicides, insecticides, fungicides, fertilizers, micronutrients or adjuvants other than those listed on the label.
Postemergence Broadleaf Herbicides			
bentazon (0.84–1.08 kg/ha) + oil concentrate (1–2 L/ha)	BASAGRAN (480 g/L) + ASSIST BROADLOOM (480 g/L) + ASSIST BENTA SUPER (480 g/L) + ASSIST	1.75–2.25 L/ha (0.7–0.9 L/acre) + 1–2 L/ha (0.4–0.8 L/acre)	<ul style="list-style-type: none"> • For seed production ONLY. • Apply from the 1–7 leaf stage of brome grass, creeping red fescue, meadow foxtail, orchardgrass, timothy and crested wheatgrass. • Top growth of nutsedge and Canada thistle are controlled and field bindweed may be suppressed by 2 applications of 1.75 L/ha (0.7 L/acre), 10 days apart. • Cool weather or drought may reduce control. • Reduce rate of oil concentrate to 1 L/ha (0.4 L/acre) under abnormally hot and humid weather conditions or temporary crop injury may occur.
pyrasulfotole/bromoxynil (213 kg/ha)	INFINITY	0.83 L/ha (0.33 L/acre)	<ul style="list-style-type: none"> • For use ONLY on timothy grown for seed production. • Apply postemergence and prior to flag leaf emergence. • The addition of ammonium sulphate at 1 L/ha (0.4 L/acre) is required for the control of cleavers at the 4–6 whorl growth stage.

TABLE 9–2. Herbicide Treatment Rates for Forages (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.
FORAGE LEGUMES (DIRECT SEEDED)			

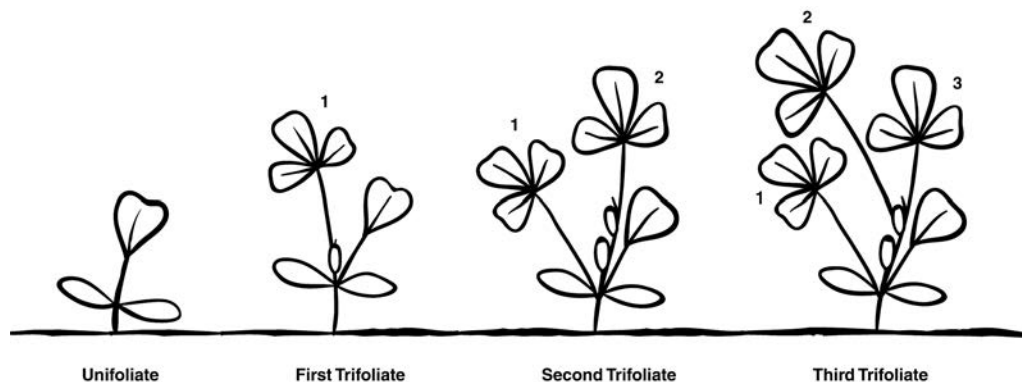


FIGURE 9–1. Stages of Alfalfa Leaf Development.

Soil Applied Grass Herbicides			
EPTC (3.4 kg/ha)	EPTAM (800 g/L)	4.25 L/ha (1.7 L/acre)	<ul style="list-style-type: none"> Apply PPI. For pure stands of alfalfa or bird's-foot trefoil ONLY. Apply to a dry soil surface and incorporate into the soil immediately. Some broadleaf weeds such as ragweed, mustards, and pigweeds frequently escape.
trifluralin (0.6–1.148 kg/ha)	TREFLAN (480 g/L)	1.25–2.4 L/ha (0.5–0.96 L/acre)	<ul style="list-style-type: none"> Apply PPI. For pure stands of alfalfa ONLY. Use lower rate on sandy soils, higher rate for loam to clay soils.
	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 40EC (412 g/L)	1.45–2.79 L/ha (0.58–1.12 L/acre)	
Postemergence Grass Herbicides			
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"> For pure stands of alfalfa, bird's-foot trefoil and clover ONLY. Apply POAST ULTRA to emerged annual grasses in the 1–6 leaf stage during active growth while the crop is small enough to permit thorough spray coverage. Alfalfa is tolerant to POAST ULTRA at any stage of growth. Use MERGE for conditions or weeds requiring medium to high rates of POAST ULTRA. Complete control is normally obtained 7–21 days after application. Allow 70 days between spraying and harvest.
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)	

TABLE 9–2. Herbicide Treatment Rates for Forages (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.
FORAGE LEGUMES (DIRECT SEEDED) (CONT'D)			
Postemergence Grass Herbicides (cont'd)			
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)	<ul style="list-style-type: none"> • For pure stands of alfalfa, bird's-foot trefoil and clover ONLY. • Apply at the 1–3 leaf stage of actively growing quackgrass. • Thorough preplant tillage will give more uniform quackgrass emergence. • Gives 6–8 weeks control of quackgrass. • Allow 70 days between spraying and harvest.
clethodim (45-90 g/ha) + surfactant (0.5% v/v)	SELECT (240 g/L) + AMIGO	188–375 mL/ha (75-150 mL/acre) + 5 L/1,000	<ul style="list-style-type: none"> • For pure stands of alfalfa ONLY. • Apply when the annual grasses and volunteer cereals are in the 2–6 leaf stage. • Alfalfa is tolerant at any growth stage. • Use the higher rate for control of quackgrass. • Allow 30 days between application and harvest.
	STATUE (240 g/L) + CARRIER		
	ANTLER (240 g/L) + X-ACT or ADAMA ADJUVANT 80		
	CLETHODIM 240 (240 g/L) + SURF-ACT		
fluazifop-p-butyl (0.1–0.25 kg/ha)	VENTURE L (125 g/L)	380-760 mL/ha (152-304 mL/acre) 0.8–2 L/ha (0.32–0.8 L/acre)	<ul style="list-style-type: none"> • For pure stands of alfalfa, bird's-foot trefoil and clover ONLY. • Use the higher rate (2 L/ha (0.8 L/acre)) when quackgrass is present. • Apply at 2–4 leaf stage of annual grasses and at 3–5 leaf stage of quackgrass. • VENTURE L may be tank-mixed with 2,4-DB at label rates for control of a broad range of weeds. (Consult 2,4-DB label). • Do NOT feed alfalfa to livestock within 41 days of treatment. • Do NOT feed or graze red clover or bird's-foot trefoil in the year of treatment.
Postemergence Broadleaf Herbicides			
bentazon (0.84–1.08 kg/ha) + oil concentrate (1–2 L/ha)	BASAGRAN (480 g/L) + ASSIST	1.75–2.25 L/ha (0.7–0.9 L/acre) 1–2 L/ha (0.4–0.8 L/acre)	<ul style="list-style-type: none"> • For alfalfa, red clover, alsike clover and sainfoin seed production ONLY. • Apply after third trifoliate stage. • Top growth of nutsedge and Canada thistle are controlled and field bindweed may be suppressed by 2 applications of 1.75 L/ha (0.7 L/acre), 10 days apart. • Cool weather or drought may reduce control. • Reduce rate of oil concentrate to 1 L/ha (0.4 L/acre) under abnormally hot and humid weather conditions or temporary crop injury may occur.
	BROADLOOM (480 g/L) + ASSIST		
	BENTA SUPER (480 g/L) + ASSIST		
2,4-DB (1.1–1.4 kg/ha)	EMBUTOX (625 g/L)	1.75–2.25 L/ha (0.7–0.9 L/acre)	<ul style="list-style-type: none"> • Apply in at least 150 L/ha (60 L/acre) water, when alfalfa, bird's-foot trefoil or clovers are in the 1–4 trifoliate leaf stage and seedling forage grasses are at the 2–4 leaf stage. • Do NOT graze or cut legumes for hay within 30 days of treatment. • NOT intended for grass forage crops grown for hay or grazing in the year of application. • Do NOT apply to crops grown for seed. • Do NOT apply under drought conditions. • 2,4-DB usually suppresses legume growth for a period of 2–3 weeks. • Severe injury to legumes may occur under drought, high temperature or other stress conditions.
	CALIBER 625 (625 g/L)		
	COBUTOX 625 (625 g/L)		

TABLE 9–2. Herbicide Treatment Rates for Forages (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.
FORAGE LEGUMES (DIRECT SEEDED) (cont'd)			
Postemergence Broadleaf Herbicides (cont'd)			
MCPB/MCPA (15:1) (1.1–1.7 kg/ha)	CLOVITOX PLUS (400 g/L)	2.75–4.25 L/ha (1.1–1.7 L/acre)	<ul style="list-style-type: none"> • Apply when clovers are at the unifoliate to the 4th trifoliate leaf stage and seedling forage grasses are at the 2–4 leaf stage. • Clovers may be suppressed for 2–3 weeks. • Do NOT exceed 3.5 L/ha of TOPSIDE for seedling forage grasses. • Do NOT apply TOPSIDE and TROPOTOX PLUS in less than 150 L/ha (60 L/acre) of water. • Do NOT apply CLOVITOX PLUS in less than 175 L/ha (70 L/ha) of water. • Do NOT apply CLOVITOX PLUS when temperatures exceed 27°C. • Do NOT apply under drought conditions. • Do NOT graze or cut for forage in the year of application.
	TROPOTOX PLUS (400 g/L)		
	TOPSIDE (400 g/L)		
2,4-DB (0.8 kg/ha) + MCPA (35 g/ha)	EMBUTOX (625 g/L)	1.25 L/ha (0.5 L/acre) + 70 mL/ha (28 mL/acre)	<ul style="list-style-type: none"> • Apply when the legumes are in the 1–4 leaf stage. • Do NOT graze or cut for hay within 30 days of treatment. • Do NOT apply to crops grown for seed. • The addition of MCPA gives better control of common mustard than 2,4-DB alone. • Apply in at least 150 L/ha (60 L/acre) water.
	+ MCPA AMINE (500 g/L)		
	CALIBER 625 (625 g/L)		
	+ MCPA AMINE (500 g/L)		
	COBUTOX 625 (625 g/L)		
	+ MCPA AMINE (500 g/L)		
Postemergence Grass and Broadleaf Herbicides			
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 (10-34-0, 28-0-0 or 32-0-0)	0.312–0.42 L/ha (0.126–0.168 L/acre) + 2.5 L/1,000 L + 2 L/ha (0.8 L/acre)	<ul style="list-style-type: none"> • Apply ONLY after the crop has one fully developed trifoliate leaf. • For seed alfalfa ONLY. • One application per year. Apply when weeds are less than 7.5 cm tall. • Apply in 200 L/ha (80 L/acre) water.
	PHANTOM (240 g/L) + non-ionic surfactant + liquid fertilizer (10-34-0, 28-0-0 or 32-0-0)		
	NU-IMAGE (240 g/L) + non-ionic surfactant + liquid fertilizer (10-34-0, 28-0-0 or 32-0-0)		

TABLE 9–2. Herbicide Treatment Rates for Forages (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.
FORAGE LEGUMES (DIRECT SEEDED) (cont'd)			
Postemergence Grass and Broadleaf Herbicides - For use ONLY on glyphosate tolerant alfalfa varieties			
glyphosate (900-1,800 g/ha)	glyphosate (360 g/L)*	2.5–5 L/ha (1–2 L/acre)	<ul style="list-style-type: none"> • Can only be applied to glyphosate tolerant alfalfa varieties (e.g., HarvXtra). Applications made to non glyphosate tolerant alfalfa will result in complete plant death. • New stand establishment: Apply at or before the 4th trifoliolate stage of alfalfa. • Applications should be made at least 25 days apart. Do NOT exceed 3 application per season. • 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. • Apply when milkweed, perennial sow-thistle and Canada thistle are 15–60 cm. • Apply when nutsedge is 5–15 cm in height and at the high rate. • Use 40–80 L/acre water. <p>* See Table 3-1. <i>Herbicides Used in Ontario</i>, for formulations available. See label for specific uses and rates.</p>
	glyphosate (480 g/L)*	1.88–3.75 L/ha (0.75–1.5 L/acre)	
	glyphosate (540 g/L)*	1.67–3.34 L/ha (0.67–1.34 L/acre)	
FORAGE LEGUMES (ESTABLISHED)			
Postemergence Grass Herbicides			
quizalofop-p-ethyl (0.036–0.072 kg/ha) + oil concentrate (0.5% v/v)	ASSURE II (96 g/L) + SURE-MIX	0.375–0.75 L/ha (0.15–0.3 L/acre) + 5 L/1,000 L	<ul style="list-style-type: none"> • Apply to emerged annual grasses and volunteer cereals in the 2 leaf to tillering stage and to quackgrass in the 2–6 leaf stage of growth. • For seed alfalfa ONLY. • Do NOT graze or cut for hay in the year of treatment. • Use the 0.375 L/ha rate (0.15 L/acre) for control of volunteer corn, volunteer cereals and green foxtail. • The 0.5 L/ha (0.2 L/acre) rate provides suppression of quackgrass and will also control barnyard grass. • Use the 0.75 L/ha (0.3 L/acre) rate for control of quackgrass.
	CONTENDER (96 g/L) + CONTENDER MSO		
	YUMA GL (96 g/L) + XA OIL CONCENTRATE		
propyzamide (1.12–1.6 kg/ha)	KERB SC (400 g/L)	2.8–4 L/ha (1.12–1.6 L/acre)	<ul style="list-style-type: none"> • For grass control ONLY in alfalfa and bird's-foot trefoil. • Apply in late September to early November before the soil freezes. • Do NOT graze or harvest treated forage within 90 days for the high rate and 60 days for lower rates.
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)	<ul style="list-style-type: none"> • Apply at the 1–3 leaf stage of actively growing quackgrass. • Apply in 110–200 L/ha (44–80 L/acre) water. • Quackgrass control will be provided for 6–8 weeks. • Allow 70 days between spraying and harvest.
fluazifop-p-butyl (0.075–0.25 kg/ha)	VENTURE L (125 g/L)	0.6–2 L/ha (0.24–0.8 L/acre)	<ul style="list-style-type: none"> • Use the higher rate (2 L/ha (0.8 L/acre)) when quackgrass is present. • Apply at 2–4 leaf stage of annual grasses and at 3–5 leaf stage quackgrass. • VENTURE L may be tank-mixed with 2,4-DB at label rates for control of a broad range of weeds. (Consult 2,4-DB label). • Alfalfa may be fed to livestock 41 days after treatment. • Do NOT feed red clover or bird's-foot trefoil to livestock in the year of treatment.

TABLE 9–2. Herbicide Treatment Rates for Forages (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.
FORAGE LEGUMES (ESTABLISHED) (cont'd)			
Postemergence Broadleaf Herbicides			
bentazon (0.84–1.08 kg/ha) + oil concentrate (1–2 L/ha)	BASAGRAN (480 g/L) + ASSIST	1.75–2.25 L/ha (0.7–0.9 L/acre) + 1–2 L/ha (0.4–0.8 L/acre)	<ul style="list-style-type: none"> For alfalfa, red clover, alsike clover and sainfoin seed production ONLY. Apply when prior to alfalfa flowering and before the canopy closes. Apply after clovers and sainfoin are 7.5 cm tall and before canopy closes. Top growth of nutsedge and Canada thistle are controlled and field bindweed may be suppressed by 2 applications of 1.75 L/ha (0.7 L/acre), 10 days apart. Cool weather or drought may reduce control. Reduce rate of oil concentrate to 1 L/ha (0.4 L/acre) under abnormally hot and humid weather conditions or temporary crop injury may occur.
	BROADLOOM (480 g/L) + ASSIST		
	BENTA SUPER (480 g/L) + ASSIST		
2,4-DB (1.4–1.7 kg/ha)	EMBUTOX (625 g/L)	2.25–2.75 L/ha (0.9–1.1 L/acre)	<ul style="list-style-type: none"> Apply after cutting or grazing when alfalfa is dormant and is less than 7.5 cm high. Do NOT apply to established alfalfa that is actively growing or crop injury may occur. Apply after cutting or grazing when alfalfa is dormant and is less than 7.5 cm high. Do NOT graze or cut for hay within 30 days of treatment. Do NOT apply to crops grown for seed. Apply in at least 150 L/ha (60 L/acre) water.
	CALIBER 625 (625 g/L)		
	COBUTOX 625 (625 g/L)		
MCPB/MCPA (15:1) (1.7 kg/ha)	TOPSIDE (400 g/L)	4.25 L/ha (1.7 L/acre)	<ul style="list-style-type: none"> For pure stands or mixtures containing red and alsike clovers ONLY. Apply as spot treatment, or when regrowth after cutting or grazing when weeds are at a susceptible stage.
	CLOVITOX PLUS (400 g/L)		
	TROPOTOX PLUS (400g/L)		
glyphosate (1.71–4.32 kg/ha)	glyphosate (360 g/L)*	4.75–12 L/ha (1.7–4.8 L/acre)	<ul style="list-style-type: none"> SPOT TREATMENT ONLY: Apply when field bindweed has reached full bloom and other weeds are in the bud to full bloom stage. Do NOT graze or harvest forage from treated spots until the treated plants turn brown. <p>* See Table 3–1. <i>Herbicides Used in Ontario</i>, for formulations available. See label for specific uses and rates.</p>
	glyphosate (480 g/L)*	3.56–9 L/ha (1.42–3.6 L/acre)	
	glyphosate (540 g/L)*	3.17–8 L/ha (1.27–3.2 L/acre)	

TABLE 9–2. Herbicide Treatment Rates for Forages (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.
FORAGE LEGUMES (ESTABLISHED) (cont'd)			
Postemergence Grass and Broadleaf Herbicides			
imazethapyr (0.075–0.1 kg/ha) + N.I.S. + liquid fertilizer (0.25% v/v, 2 L/ha)	PURSUIT (240 g/L) + non-ionic surfactant + liquid fertilizer (10-34-0, 28-0-0 or 32-0-0)	0.312–0.42 L/ha (0.126–0.168 L/acre) + 2.5 L/1,000 L + 2 L/ha (0.8 L/acre)	<ul style="list-style-type: none"> Apply ONLY after the crop has one fully developed trifoliolate leaf. For seed alfalfa ONLY. One application per year. Apply when weeds are less than 7.5 cm tall. Apply in 200 L/ha (80 L/acre) water.
	PHANTOM (240 g/L) + non-ionic surfactant + liquid fertilizer (10-34-0, 28-0-0 or 32-0-0)		
	NU-IMAGE (240 g/L) + non-ionic surfactant + liquid fertilizer (10-34-0, 28-0-0 or 32-0-0)		
simazine (1.1 kg/ha)	SIMAZINE (480 g/L)	2.29 L/ha (0.92 L/acre)	<ul style="list-style-type: none"> Apply in September to November before freeze up. This treatment prevents legume seedlings from establishing for approximately 8 months. Do NOT use in the fall before seeding another crop. Do NOT apply to the same field for more than 3 consecutive years. Allow 30 days between applications and grazing of cattle or sheep.
Postemergence Grass and Broadleaf Herbicides – For use ONLY on glyphosate tolerant alfalfa varieties			
glyphosate (900-1,800 g/ha)	glyphosate (360 g/L)*	2.5–5 L/ha (1–2 L/acre)	<ul style="list-style-type: none"> Can only be applied to glyphosate tolerant alfalfa varieties (e.g., HarvXtra). Applications made to non glyphosate tolerant alfalfa will result in complete plant death. Established stand: Allow a minimum of 5 days between application and cutting. Applications should be made at least 25 days apart. Do NOT exceed 3 application per season. 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. Apply when milkweed, perennial sow-thistle and Canada thistle are 15–60 cm. Apply when nutsedge is 5–15 cm in height and at the high rate. Use 40–80 L/acre water.
	glyphosate (480 g/L)*	1.88–3.75 L/ha (0.75–1.5 L/acre)	
	glyphosate (540 g/L)*	1.67–3.34 L/ha (0.67–1.34 L/acre)	

TABLE 9–2. Herbicide Treatment Rates for Forages (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.
FORAGE LEGUMES (ESTABLISHED) (cont'd)			
Preharvest – Seed production only			
glufosinate ammonium (405 g/ha) INTERLINE (150 g/L) 2.7 L/ha (1.1 L/acre)	INTERLINE (150 g/L)	2.7 L/ha (1.1 L/acre)	<ul style="list-style-type: none"> • INTERLINE Herbicide may be applied for desiccation to Alfalfa (grown for seed). • Apply INTERLINE Herbicide at 50-75% pod turn (brown) stage. Do NOT apply more than once per year. • INTERLINE Herbicide will also desiccate weeds, which are present in the field at time of application (Wild Buckwheat may not be completely desiccated). • Desiccation of crops and weeds will be best when environmental conditions are favourable (warm temperatures, good moisture conditions, high humidity).
Preharvest – Forage production			
glyphosate (0.9–1.8 kg/ha)	glyphosate (360 g/L)*	2.5–5 L/ha (1–2 L/acre)	<ul style="list-style-type: none"> • Apply 3–7 days prior to last cut in the final year of the forage. Forage can be harvested as hay, haylage or grazed. <p>* See Table 3–1. <i>Herbicides Used in Ontario</i> for formulations available. See label for specific uses and rates.</p>
	glyphosate (450 g/L)*	2–4 L/ha (0.8–1.6 L/acre)	
	glyphosate (480 g/L)*	1.875–3.75 L/ha (0.75–1.5 L/acre)	
	glyphosate (500 g/L)*	1.8–3.6 L/ha (0.73–1.46 L/acre)	
	glyphosate (540 g/L)*	1.67–3.34 L/ha (0.67–1.34 L/acre)	
ALFALFA TERMINATION (GLYPHOSATE TOLERANT VARIETIES)			
2,4-D (0.858 kg/ha)	2,4-D Ester 700 (660 g/L)*	1.3 L/ha (0.52 L/acre)	<p>The following precautionary statements apply to all three options for terminating glyphosate tolerant alfalfa:</p> <ul style="list-style-type: none"> • Apply in a minimum of 100 L/ha or 40 L/acre (10 U.S. gal/acre) of water. Can be tank-mixed with glyphosate to control other perennial plants. • Apply to alfalfa anywhere from the pre-bud to start of flowering stage. Ontario field trials comparing the effectiveness of these herbicides found that applications made in early October when daytime air temperatures were consistently above 10 °C after application were significantly more effective than applications made in late October where air temperatures were often less than 10 °C. • Tillage at 2–3 weeks following herbicide application can improve control and consistency under stressed conditions (drought, frost, cold temperatures).
dicamba (0.6 kg/ha)	ENGENIA (600 g/L)	1 L/ha (0.4 L/acre)	
	FEXIPAN (350 g/L)	1.71 L/ha (0.68L/acre)	
	XTENDIMAX (350 g/L)		
2,4-D (0.592 kg/ha) + dicamba (0.6 kg/ha)	2,4-D Ester 700 (660 g/L)* + ENGENIA (600 g/L)	0.9 L/ha (0.52 L/acre) + 1 L/ha (0.4 L/acre)	
	2,4-D Ester 700 (660 g/L)* + FEXIPAN (350 g/L)	0.9 L/ha (0.36 L/acre) + 1.71 L/ha (0.68 L/acre)	
	2,4-D Ester 700 (660 g/L)* + XTENDIMAX (350 g/L)		

TABLE 9–2. Herbicide Treatment Rates for Forages (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.
FORAGE SORGHUM AND FORAGE MILLET			
Postemergence Broadleaf Herbicides			
2,4-D (0.28–0.56 kg/ha)	2,4-D AMINE (470 g/L)*	0.6–1.2 L/ha (0.24–0.48 L/acre)	<ul style="list-style-type: none"> Apply when crop is at 4–6 leaf stage before closure of canopy. Do NOT apply within 30 days of harvest. Do NOT spray in hot (over 27°C), humid weather. <p>* See Table 3–1. <i>Herbicides Used in Ontario</i>, for formulations available. See label for specific uses and rates.</p>
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"> Apply when crop is at 3–6 leaf stage before closure of canopy. Do NOT apply within 30 days of harvest. Hot, humid weather may result in temporary leaf yellowing.
bromoxynil (0.28 kg/ha)	PARDNER (280 g/L)	1 L/ha (0.4 L/acre)	<ul style="list-style-type: none"> Apply post in 200–300 L/ha of water. Apply when the crop has more than 4 leaves, but before it is 20 cm tall. Apply ONLY 1 application per year. Do NOT harvest within 30 days of application. <p>* See Table 3–1. <i>Herbicides Used in Ontario</i>, for formulations available. See label for specific uses and rates.</p>
	BROMOXYNIL (240 g/L)*	1.2 L/ha (0.48 L/acre)	
	BROMOXYNIL (480 g/L)*	0.6 L/ha (0.24 L/acre)	
prosulfuron (10 g/ha) + crop oil concentrate (1% v/v)	PEAK (75 WG) + ASSIST	13.3 g/ha (5.3 g/acre) + 10 L/1,000 L	<ul style="list-style-type: none"> Apply when the crop is between 3–5 leaf stage. Best results when applied to actively growing weeds in the 1–6 leaf stage. Do NOT apply by air. Make ONLY 1 application per year. Do NOT harvest within 60 days of application. A non-ionic surfactant mixed at 2 L/1,000 L spray solution can be used instead of ASSIST.

PASTURE RENOVATION WITH BIRD'S-FOOT TREFOIL

The introduction of this legume into a pasture requires control of competition from weeds and forage grasses for the first 2–4 months after the legume seed begins to germinate. Control of established perennial weeds should start at least one year before the legume seeding operation. Treatments in Chapter 5 of this publication could be used. If the field cannot be plowed and worked to prepare a seedbed, one of the following chemical treatments can be used to suppress the sod.

The success of these programs depends on many management factors such as inoculation of the trefoil seed as well as control of fertility and grazing.

Postemergence Grass and Broadleaf Herbicides			
glyphosate (1.71–4.32 kg/ha)	glyphosate (360 g/L)*	4.75–12 L/ha (1.9–4.8 L/acre)	<ul style="list-style-type: none"> Apply when the forage grasses have at least 2 leaves.
	glyphosate (450 g/L)*	3.8–9.6 L/ha (1.52–3.84 L/acre)	<ul style="list-style-type: none"> See Table 3–1. <i>Herbicides Used in Ontario</i>, for formulations available. See label for specific uses and rates.
	glyphosate (540 g/L)*	3.17–8 L/ha (1.27–3.2 L/acre)	

TABLE 9–2. Herbicide Treatment Rates for Forages (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.
PASTURES (MOSTLY GRASSES)			
<p>Biennials: Unless otherwise noted, most chemicals are best applied in early fall to first year growth or in late spring to second year growth.</p>			
<p>Perennials: Unless otherwise noted, apply in late spring (end of May to mid-June) when weeds are actively growing. Overgrazing tends to thin the grass stand and allows the establishment of weeds. Undergrazing allows weeds like wild carrot to establish and spread seed. Timely mowing can reduce the amount of weed seeds produced.</p>			
<ul style="list-style-type: none"> • Chemicals are available to control most of the troublesome weeds in grass pastures and these can give faster kill of established weeds than any other management practice. A chemical may have to be applied more than once to kill established perennial weeds and the new crop of weeds that emerges through a thin grass stand. A poor grass stand can be improved by using a combination of chemicals, fertility and grazing management. • Extend chemical weed control into fencerows and other areas around the pasture to keep these areas from becoming sources of weed seeds. • Generally, clovers are severely damaged by chemical treatments. However, white clover and black medic show some resistance and re-establish quickly. • Consult the label to determine the period of time to keep livestock out of the treated area. • Prevent grazing where poisonous plants (water hemlock, buttercup, chokecherry, etc.) may be made more attractive to livestock after the chemical treatment. It is a good practice to prevent grazing on the field for at least a week after spraying to reduce the chances of the livestock consuming harmful plants. • Apply chemical treatments in at least 200 L/ha (80 L/acre) water and increase this rate if it is necessary to contact weeds through dense vegetation. • Avoid drift or vapour drift from 2,4-D or dicamba onto susceptible crops by using drift reducing techniques such as high spray volume, coarse droplets or anti-drift nozzles. 			
2,4-D (0.85–1.1 kg/ha)	2,4-D (470 g/L)*	1.8–2.34 L/ha (0.72–0.94 L/acre)	<ul style="list-style-type: none"> • Use the low rate for chicory. • Use the high rate for: Goldenrod. Yellow rocket: Mow before spraying if plants are in flowering stage. Blueweed and burdock: Apply as low volatile ester. Wild carrot: Early spring or early fall. If 2,4-D resistant strains are present, mow to reduce seed spread. Goat's-beard: Early spring or early fall. Milkweed: Spray undersides of leaves. Only top growth is killed. Water hemlock: Apply in May or June. Dandelion: Can also apply in September. <hr/> <p>* See Table 3–1. <i>Herbicides Used in Ontario</i>, for formulations available. See label for specific uses and rates.</p>
	2,4-D (564 g/L)*	1.5–1.95 L/ha (0.6–0.78 L/acre)	
	2,4-D (660 g/L)*	1.29–1.67 L/ha (0.52–0.67 L/acre)	

TABLE 9–2. Herbicide Treatment Rates for Forages (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.
PASTURES (MOSTLY GRASSES) (CONT'D)			
2,4-D (1.1–1.75 kg/ha)	2,4-D (470 g/L)*	2.34–3.72 L/ha (0.94–1.49 L/acre)	<ul style="list-style-type: none"> • For ox-eye daisy and hawk's-beard: Use 2 treatments, one in late spring and the second in early September if there is sufficient growth.
	2,4-D (564 g/L)*	1.95–3.1 L/ha (0.6–1.24 L/acre)	
	2,4-D (660 g/L)*	1.29–2.65 L/ha (0.52–1.06 L/acre)	
2,4-D (2.25 kg/ha)	2,4-D (470 g/L)*	4.5 L/ha (1.8 L/acre)	<ul style="list-style-type: none"> • For tansy ragwort. Apply to rosettes in spring or fall. • Retreat as necessary to control new seedlings and regrowth.
	2,4-D (564 g/L)*	3.99 L/ha (1.6 L/acre)	
	2,4-D (660 g/L)*	3.40 L/ha (1.36 L/acre)	
2,4-D (1.1 kg/ha) + dicamba (0.792 kg/ha)	2,4-D (564 g/L)* + ENGENIA (600 g/L)	1.95 L/ha (0.6 L/acre) + 1.32 L/ha (528 mL/acre)	<ul style="list-style-type: none"> • For poison ivy and wild carrot: Apply in early fall for control of first year plants. • Wait 14 days between treatment and harvest or grazing for dairy animals. • Meat animals may graze or feed in treated pastures 30 days after dicamba application without restrictions on slaughter. • If treated vegetation has been consumed by meat animals within 30 days of dicamba application, feed the animals with untreated diet for 30 days before slaughter.
	2,4-D (564 g/L)* + FEXAPAN (350 g/L)	1.95 L/ha (0.6 L/acre) + 2.26 L/ha (905 mL/acre)	
	2,4-D (564 g/L)* + XTENDIMAX (350 g/L)		
dicamba (0.6 kg/ha)	ENGENIA (600 g/L)	1 L/ha (0.4 L/acre)	<ul style="list-style-type: none"> • FOR ALL RATES OF DICAMBA: Meat animals may graze or feed treated pastures 30 days after dicamba application without restrictions on slaughter. If treated vegetation has been consumed by meat animals within 30 days of dicamba application, feed the animals with untreated diet for 30 days before slaughter. • For leafy and cypress spurges: for control of top growth, apply when weed is actively growing. • No delay is required between treatment and harvest or grazing for dairy animals.
	FEXAPAN (350 g/L)	1.7 L/ha (0.68 L/acre)	
	XTENDIMAX (350 g/L)		
dicamba (1.08 kg/ha)	ENGENIA (600 g/L)	1.68 L/ha (0.67 L/acre)	<ul style="list-style-type: none"> • For goldenrod and tansy ragwort: Apply when weed is actively growing. • For Canada thistle and field bindweed: Apply at bud stage of thistle and at flowering of bindweed. • Wait 14 days between treatment and harvest or grazing for dairy animals. • Meat animals may graze or feed treated pastures 30 days after dicamba application without restrictions on slaughter.
	FEXAPAN (350 g/L)	2.88 L/ha (1.15 L/acre)	
	XTENDIMAX (350 g/L)		
dicamba (2.205 kg/ha)	ENGENIA (600 g/L)	3.87 L/ha (1.47 L/acre)	<ul style="list-style-type: none"> • For goat's beard: Apply when actively growing. • Wait 14 days between treatment and harvest or grazing for dairy animals. • Meat animals may graze or feed treated pastures 30 days after dicamba application without restrictions on slaughter.
	FEXAPAN (350 g/L)	6.3 L/ha (2.52 L/acre)	
	XTENDIMAX (350 g/L)		

TABLE 9–2. Herbicide Treatment Rates for Forages (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.
PASTURES (MOSTLY GRASSES) (CONT'D)			
2,4-DB (1.72 kg/ha)	EMBUTOX (625 g/L)	2.75 L/ha (1.1 L/acre)	<ul style="list-style-type: none"> • Nodding, Scotch, or bull thistles, perennial sow-thistle, and chicory: Apply to rosette stage. • Yellow rocket: Apply in fall. • Plantains: Apply before flowering. • Curled dock: Apply to early growth. • Top growth only controlled for: Canada thistle: Apply when 15 cm high to early bud stage. Field bindweed: Apply in late summer. Dandelion: Apply before bud stage. Horsetail: Apply at 10–12 cm tall. • Do NOT graze or cut for forage in the year of treatment.
	CALIBER 625 (625 g/L)		
	COBUTOX 625 (625 g/L)		
MCPB/MCPA (1.7 kg/ha)	CLOVITOX PLUS (400 g/L)	4.25 L/ha (1.7 L/acre)	<ul style="list-style-type: none"> • Controls top growth of weeds only. • Canada thistle: Apply when 15 cm high to early bud stage. • Curled dock, plantains and perennial sow-thistle: Apply to rosette stage. • Buttercup and field bindweed: Apply in spring. • Horsetail: Apply when 15 cm high. • This treatment has some safety on legumes. • Apply TOPSIDE after grazing or cutting when weeds are at a susceptible stage. • Do NOT apply TOPSIDE and TROPOTOX PLUS in less than 150 L/ha (60 L/acre) of water. • Do NOT apply CLOVITOX PLUS in less than 175 L/ha (70 L/acre) of water. • Do NOT apply CLOVITOX PLUS when temperatures exceed 27°C. • For CLOVITOX PLUS and TOPSIDE: Do NOT apply under drought conditions. • Do NOT graze or harvest for forage in the year of application.
	TROPOTOX PLUS (400 g/L)		
	TOPSIDE (400 g/L)		
glyphosate (1.71–4.32 kg/ha)	glyphosate (360 g/L)*	4.75–12 L/ha (1.9–4.8 L/acre)	<ul style="list-style-type: none"> • SPOT TREATMENT ONLY: • For Canada thistle, field bindweed and milkweed. • Always use high rate for milkweed. • Apply when thistle and milkweed are in the bud to full bloom stage and bindweed is flowering. • For colt's-foot: Apply when leaves are fully expanded. • For tansy ragwort: Apply when tansy is in bud to full bloom stage. • Wait until the treated areas have turned brown before grazing. <p>* See Table 3–1. <i>Herbicides Used in Ontario</i>, for formulations available. See label for specific uses and rates.</p>
	glyphosate (480 g/L)*	3.56–9 L/ha (1.42–3.6 L/acre)	
	glyphosate (540 g/L)*	3.17–8 L/ha (1.27–3.2 L/acre)	
MCPA (1.1 kg/ha)	MCPA (500 g/L)*	2.2 L/ha (0.88 L/acre)	<ul style="list-style-type: none"> • For buttercup: Use 2 treatments, one in June and the second in early September. • Wait 7 days after treatment before grazing. <p>* See Table 3–1. <i>Herbicides Used in Ontario</i> for formulations available. See label for specific uses and rates.</p>

TABLE 9–2. Herbicide Treatment Rates for Forages (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.
PASTURES (MOSTLY GRASSES) (CONT'D)			
aminopyralid (60–120 g/ha)	MILESTONE (240 g/L)	0.25–0.5 L/ha (0.10–0.20 L/acre)	<ul style="list-style-type: none"> • Apply Postemergence. • Will control: absinth (biennial) wormwood, goldenrod, knapweed, scentless chamomile, Canada thistle, yellow star thistle, musk (nodding) thistle, sulphur cinquefoil, tropical soda apple and tansy ragwort. • Will suppress: Common tansy and dandelion. • Do NOT move manure compost containing MILESTONE onto sensitive crops, flowers, gardens, etc., or injury may occur.
aminopyralid (60–120 g/ha) + 2,4-D AMINE (840–1,440 g/ha)	MILESTONE (240 g/L) + 2,4-D AMINE (564 g/L)*	0.25–0.5 L/ha (0.10–0.20 L/acre) + 1.49–2.55 L/ha (0.596–1.02 L/acre)	<ul style="list-style-type: none"> • Apply Postemergence. • For wider spectrum of weed control, 2,4-D AMINE may be added at a ratio of 1 part Milestone ai/ha to 12 parts 2,4-D AMINE ai/ha. • Do NOT move manure compost containing MILESTONE onto sensitive crops, flowers, gardens, etc., or injury may occur. <p>* See Table 3–1. <i>Herbicides Used in Ontario</i>, for formulations available. See label for specific uses and rates.</p>