

**North Dakota Noxious and Troublesome Weeds**

*www.ag.ndsu.nodak.edu/invasiveweeds/*


Photographs and descriptions of weeds (except quackgrass) in this section can be found in NDSU Extension publication W-1411. Identification and control publications for specific invasive weeds can be found at <http://www.ag.ndsu.edu/publications/crops/weeds>.

**By North Dakota Law, all land owners must control noxious weeds on their property.**

**Refer to the following Extension Circulars for additional information:**

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# BINDWEED, FIELD

Herbicide	Product/A (ai/A)	Weeds	When to Apply	Remarks and Paragraphs
Glyphosate <sup>9</sup> + dicamba <sup>4</sup>	Up to 1.5 lb ae + <b>1 pt 4SL</b> (0.5 lb) <b>See Remarks.</b>	Preplant, fallow, post-harvest, and CRP.	Actively growing. Vines: At least 12 inches long. Apply at beyond full bloom.	Tankmixture provides less potential for soil residual than with higher rates of dicamba applied alone. Add AMS at 8.5 lb/100 gal. A3-7 T9 T10
Glyphosate <sup>9</sup> + 2,4-D <sup>4</sup>	<0.38 lb + <b>1.5 pt 4EC/SL</b> (0.75 lb)	Preplant, fallow, post-harvest.	Vines: 6 to 18 inches long.	Suppression in patches or individual plants. Allow at least 7 days between application and tillage. Control is reduced under dry conditions. Add AMS at 8.5 lb/100 gal. A3-7 T9-10
2,4-D <sup>4</sup> amine or ester	<b>1.5 to 2 pt 4SL</b> (0.75 to 1 lb) <b>1.33 to 2 pt 4EC</b> (0.66 to 1 lb)	Spring wheat and barley.	Crop: Tiller stage.	The high rate may injure crop but is beneficial in small areas to control bindweed. Does not provide long term control. T11
<b>Express</b> / generic tribenuron <sup>2</sup> + 2,4-D <sup>4</sup> + dicamba <sup>4</sup>	<b>0.17 to 0.3 oz DF</b> <b>0.25 to 0.5 oz SG +</b> <b>0.5 pt 4EC/SL +</b> <b>2 to 3 fl oz 4SL</b> (0.125 to 0.25 oz + 0.25 lb + 1 to 1.44 oz)	Spring wheat including durum.	Crop: Tillering and before crop exceeds the 5-leaf stage.	Provides season-long control. 2,4-D enhances weed control and crop safety. Add NIS at 0.125% v/v.
Metsulfuron <sup>2</sup> + 2,4-D <sup>4</sup> + dicamba <sup>4</sup>	<b>0.05 to 0.1 oz XP +</b> <b>0.5 pt 4EC/SL</b> <b>+ 2 to 3 fl oz 4SL</b> (0.0375 to 0.075 oz + 0.25 lb + 1 to 1.44 oz)			Do not apply metsulfuron within 22 months from last metsulfuron treatment or on soils above a pH of 7.9. Refer to metsulfuron label for additional restrictions. C5 T14 Y3 Y15
2,4-D <sup>4</sup>	<b>1 pt 4EC/SL</b> (0.5 lb)	Corn.	Corn: 3 to 8 inches tall.	Use drop nozzles after corn is more than 8 inches tall. Provides field bindweed suppression only.
Dicamba <sup>4</sup>	<b>0.5 to 1 pt 4SL</b> (0.25 lb)		Corn: See remarks.	Apply 0.5 to 1 pt/A up to 8 inches tall. Apply 0.5 pt/A post-direct from 8 inches to 36 inches tall or 15 days prior to tassel. A3-8 B6 C4 D3 T13 Y15
Glyphosate <sup>9</sup>	<b>1 to 1.5% solution</b> or up to 3 lb ae <b>See Remarks.</b>	Patches in wheat, barley, oat, corn, soybean or trees.	Crop: Prior to heading or flowering.  Bindweed: Bud to flowering stage.	Crop will be killed in treated area. Avoid drift or spraying tree foliage. Repeat applications are required for complete control. Apply to actively growing bindweed. Add AMS fertilizer at 8.5 lb/100 gal. A3-7 B8 T9-10
<b>Facet L</b> + MSO adjuvant (quinclorac <sup>4,26</sup> )  Ransom and Richland counties	<b>22 to 32 fl oz L +</b> <b>2 pt</b> (4 to 6 oz)	Fallow, post-harvest or preplant to wheat including durum.	In fall prior to a killing frost. Allow 30 days after tillage.	Plant wheat at least 1 inch deep. Add AMS at 2.5 lb/A or UAN at 1 gal/A. Refer to label for tank-mix rates in wheat and fallow. B10 T1 Y15
2,4-D ester <sup>4</sup>	<b>2 to 4 pt 4EC</b> (1 to 2 lb)	Fallow or post-harvest, and CRP.	Bindweed: Actively growing and regrowth 12 inches long to bud.	Apply only registered brands of 2,4-D in CRP. Cultivate fallow land until early July to achieve optimum growth at time of application. Spray in late August or September. Respray in following crop. Does not provide long term control. T11
Dicamba <sup>4</sup>	<b>2 to 4 pt 4SL</b> (1 to 2 lb)			Mid to late fall treatments more effective than summer treatments. Rotate to wheat, corn, soybean or sorghum only. Crop injury may occur if the interval between application and planting is less than 45 days per pt/A dicamba used, excluding days when ground is frozen. Add oil adjuvant to improve control. A3-8 B6 T13 Y15

## BINDWEED, FIELD cont.

Herbicide	Product/A (ai/A)	Weed Location	When to Apply	Remarks and Paragraphs
Dicamba <sup>4</sup>	<b>4 to 16 pt 4SL</b> (2 to 8 lb)	Patches or individual plants in CRP, pastures, fallow, and noncropland.	Bindweed: Actively growing and regrowth 12 inches long to bud.	Apply to foliage and/or soil. Consult label for grazing restrictions. Use low rate only in fall and high rates in dense or old stands. Add oil adjuvant to improve control. A3-8 B6 T13 Y15
<b>Tordon 22K</b> (picloram <sup>4</sup> ) + 2,4-D <sup>4</sup> <b>RUP</b>	<b>2 to 4 pt SL + 1 to 2 pt 4EC/SL</b> (0.5 to 1 + 0.5 to 1 lb)	Pasture, rangeland, CRP, and noncropland.		Picloram + 2,4-D is more cost-effective than picloram alone at higher rates. Consult reference for grazing restrictions. T17 Y15
<b>Facet L + Overdrive +</b> MSO adjuvant (quinclorac <sup>4,26</sup> + dicamba <sup>4</sup> & diflufenzopyr <sup>19</sup> )	<b>32 fl oz L + 6 oz WDG + 2 pt</b> (6 oz + 3 oz & 1.2 oz)		Fall: Bindweed: In fall prior to a killing frost. At least 4 inches of stem.	B10 T1 T13 Y15
<b>Perspective</b> (aminocyclopyrachlor <sup>4</sup> & chlorsulfuron <sup>2</sup> )	<b>3 to 4.75 oz DF</b> (1.2 to 1.9 oz & 0.5 to 0.75 oz)	Non-crop and wildlife habitats.	Actively growing in early summer or fall rosettes.	<b>Use only in non-crop areas.</b> Allow 365 days before grazing or haying. Do not apply near trees. Add NIS at 1 qt/100 gal or MSO at 1 gal/100 gal.

## KNAPWEED, DIFFUSE AND SPOTTED AND YELLOW STARHISTLE

Herbicide	Product/A (ai/A)	Weed Location	When to Apply	Remarks and Paragraphs
2,4-D <sup>4</sup> amine or ester	<b>2 to 4 pt 4EC/SL</b> (1 to 2 lb)	Fallow, post-harvest, CRP, pasture, and rangeland.	Rosette stage is preferred.	Several years of annual treatment are necessary. Use only registered 2,4-D brands for CRP. T11
Dicamba <sup>4</sup>	<b>2 to 4 pt 4SL</b> (1 to 2 lb)		Bud to bloom is second best.	Plants are controlled slowly. Add NIS at 1 qt/100 gal water to improve consistency of control. A3-8 B6 T13
<b>Tordon 22K</b> (picloram <sup>4</sup> ) <b>RUP</b>	<b>1 to 2 pt SL</b> (0.25 to 0.5 lb)	CRP, pasture, rangeland, and noncropland.		Consult label for grazing restriction. Apply up to 2 pt/A broadcast and 4 pt/A for spot treatment. T17 Y15
<b>Tordon 22K +</b> (picloram <sup>4</sup> ) 2,4-D <sup>4</sup> amine / ester <b>RUP</b>	<b>1 to 2 pt SL + 1 qt 4EC/SL</b> (0.25 to 0.5 lb + 1 lb)			
<b>Method</b> (aminocyclopyrachlor <sup>4</sup> )	<b>4 to 8 fl oz SL</b> (1 to 2 oz)	Noncropland and wildlife habitats.	Spring: Prior to flowering or fall rosettes.	<b>Use only in noncropland.</b> Allow 365 days before grazing or haying. Do not apply near trees. Apply Method with MSO at 1 gal/100 gal. Apply Perspective with NIS at 1 qt/100 gal or MSO at 1 gal/100 gal. Use lowest rate for yellow starthistle.
<b>Perspective</b> (aminocyclopyrachlor <sup>4</sup> & chlorsulfuron <sup>2</sup> )	<b>3 to 4.75 oz DF</b> (1.2 to 1.9 oz & 0.5 to 0.75 oz)			
<b>Plateau</b> (imazapic <sup>2</sup> )	<b>6 fl oz SL</b> (1.5 oz)	CRP, pasture, rangeland, and noncropland.	Rosette stage in the fall.	<b>For yellow starthistle only.</b> Do not apply more than 4 oz/A in CRP. Add MSO adjuvant at 1 qt/A + 28% UAN at 1 qt/A. Refer to label for restrictions. T16
<b>Milestone</b> (aminopyralid <sup>4</sup> )	<b>3 to 7 fl oz SL</b> (0.75 to 1.75 oz)		Spring: Rosette to bolting. Fall: Rosettes.	Apply up to 14 fl oz/A for spot treatment. Use lower rates for yellow starthistle. Apply with NIS at 1 qt/100 gal. Refer to label for grazing restrictions. T15
<b>Transline</b> (clopyralid <sup>4</sup> )	<b>2/3 to 1 pt SL</b> (4 to 6 oz)	Noncropland and right-of-way.	Rosette to bud stage.	Add NIS at 1 qt/100 gal water. Stinger is labeled for CRP. A3 A6
Glyphosate <sup>9</sup>	1.5 to 2.25 lb ae <b>See Remarks.</b>	Fallow and noncropland.	Bud to bloom stage - late summer to early fall.	Other vegetation will also be killed. Retreat the following spring with 2,4-D at 2 to 4 pt/A to control seedlings and escapes. Refer to label for adjuvant use. Add AMS at 8.5 lb/100 gal water. A3-7 B8 T10

## KNAPWEED, RUSSIAN

Herbicide	Product/A (ai/A)	Weed Location	When to Apply	Remarks and Paragraphs
<b>Method</b> (aminocyclopyrachlor <sup>4</sup> )	<b>8 to 12 fl oz SL</b> (2 to 3 oz)	Noncropland and wildlife habitats.	Spring: Prior to flowering or fall rosettes.	<b>Use only in noncropland.</b> Allow 365 days before grazing or haying. Do not apply near trees. Apply Method with MSO at 1 gal/100. Apply Perspective with NIS at 1 qt/100 gal or MSO at 1 gal/100 gal.
<b>Perspective</b> (aminocyclopyrachlor <sup>4</sup> & chlorsulfuron <sup>2</sup> )	<b>3 to 4.75 oz DF</b> (1.2 to 1.9 oz & 0.5 to 0.75 oz)			
<b>Milestone</b> (aminopyralid <sup>4</sup> )	<b>5 to 7 fl oz SL</b> (1.25 to 1.75 oz)	CRP, pasture, rangeland, and noncropland.	Spring: Bud to flowering stage. Fall: Dormant plants.	Apply up to 14 oz/A for spot treatment. Apply with NIS at 1 qt/100 gal. Refer to label for grazing restrictions. T15
<b>Plateau + MSO adjuvant</b> (imazapic <sup>2</sup> )	<b>12 fl oz SL + 2 pt</b> (3 oz)		Apply following several hard frosts (mid-October). Plants may be dormant with grey stems and no leaves.	Rates above 8 fl oz/A can reduce grass production. T16
<b>Tordon 22K</b> (picloram <sup>4</sup> ) <b>RUP</b>	<b>3 to 4 pt SL</b> (0.75 to 1 lb)		Application in mid-September or during flowering in mid-summer provides shorter-term control than late applications.	Consult label for grazing restriction. Apply up to 2 pt/A broadcast and 4 pt/A for spot treatment.

## PURPLE LOOSESTRIFE OR LYTHRUM

Herbicide	Product/A (ai/A)	Weeds	When to Apply	Remarks and Paragraphs
Rodeo / generic 4 lb ae/gal glyphosate <sup>9</sup> approved for aquatic use	<b>1 to 1.5 gal/100 gal</b> <b>1.3 to 1.9 fl oz/gal water of a 4 lb/gal conc.</b> (1 to 1.5% conc.)	Drainage and aquatic sites.	July to early September.	Use only registered 4 lb ae/gal glyphosate formulations. Add NIS approved for use in aquatic sites at 1 gal/100 gal water. Control seedlings using a 2,4-D formulation labeled for use near water. Biological control agents have been introduced for control. A3-7 B8 T10
<b>Garlon 3A</b> (triclopyr-amine <sup>4</sup> ) <b>Vastlan</b> (triclopyr-choline <sup>4</sup> )	<b>1 to 3 gal/100 gal water</b> (3 to 9 lb) <b>4.5 to 6 qt/A</b> (4.5 to 6 lb)			Add NIS. Minimize overspray to open water especially application along shore of flowing water. Does not affect cattail or desirable grass species. For backpack application add Vastlan at 1 to 1.5%. T12
<b>Habitat</b> (imazapyr <sup>2</sup> )	<b>1 pt SL</b> (0.25 lb)		Plants actively growing.	Can be applied only by federal or state agency personnel trained in aquatic pest control. Will injure cattail.
<b>Milestone</b> (aminopyralid <sup>4</sup> )	<b>1 pt/100 gal SL</b> (0.125% conc.)	Non-irrigation ditch banks, wildlife or natural areas, seasonally dry wetlands, including riparian areas.	July to early September.	Do not apply directly to water. Safe under or near many tree species. Apply with NIS at 1 qt/100 gal. T15
<b>Capstone</b> (triclopyr <sup>4</sup> & aminopyralid <sup>4</sup> )	<b>1 gal/100 gal SL</b> (1% conc.)			
<b>Biological Control</b>	Insects			Two leaf feeding beetles ( <i>Galerucella</i> spp.) have been successful in the state. Contact your local weed control officer or state APHIS officer in Bismarck. T21



## QUACKGRASS

Herbicide	Product/A (ai/A)	Weed Location	When to Apply	Remarks and Paragraphs
Glyphosate <sup>9</sup>	0.75 lb	See label.	See label. Generally 6 to 12 inches tall	See label for registered uses, rates for different formulations, and application information. A3-7 B8
<b>Maverick<sup>2</sup></b> <b>Olympus<sup>2</sup></b>	<b>2/3 oz DF</b> <b>0.6 to 0.9 oz WDG</b>	- HRS wheat - Winter wheat		See label for registered uses, rates for different formulations, and application information. C12
<b>SU herbicides<sup>2</sup></b> Accent/nicosulfuron Resolve/rimsulfuron Option/foramsulfurn	<b>See label.</b>	Registered crops.		See label for application information, adjuvants, and use information. Add MSO at 1.5 pt/A. Y3
<b>POST grass herbicides<sup>1</sup></b>	See page 27.	Labeled broadleaf crops.		Add oil adjuvant at at 1 gal/100 gal water but not less than 1.25 pt/A. A3 E2


## SALT CEDAR

Herbicide	Product/A (ai/A)	Weed Location	When to Apply	Remarks and Paragraphs
<b>Arsenal</b> (imazapyr <sup>2</sup> )	1% solution to foliage or 2 qt/A aerial applied to foliage or 12 oz/gal as a cut stump treatment immediately after cutting.	Wildlife openings and wildlands.	August or September is best but can be applied anytime saltcedar is found. Plants should have green leaves (foliar application).	Thoroughly wet foliage. Do not cut down and remove for at least three years following foliar treatment or regrowth will occur. Add MSO adjuvant at 1 qt/A for foliar application or 0.5 to 1% for backpack sprayer. Avoid drift and contact with desirable plants. Do not contaminate surface water.
<b>Garlon 4</b> (triclopyr-ester <sup>4</sup> )	<b>25% v/v + oil adjuvant</b> (1 qt + 2 qt) (1 lb)	Non-cropland as basal bark or cut stump.	Treatment in late fall or early spring is best; otherwise any time when the bark is not frozen.	Do not spray over open water or irrigation ditches. Complete coverage around the trunk (Garlon only) or stump is required. Garlon 4A in oil can be applied up to 30 days after to cut stumps. Vastlan should be applied as soon as possible after cutting stumps (no effect as a bark treatment). T12
<b>Vastlan</b> (triclopyr-choline <sup>4</sup> )	Undiluted	Cut stump only.		

# SPURGE, LEAFY

Herbicide	Product/A (ai/A)	Weed Location	When to Apply	Remarks and Paragraphs
2,4-D <sup>4</sup> amine or ester	<b>2 to 4 pt 4EC/SL</b> (1 to 2 lb)	CRP, pasture, and rangeland	Leafy spurge: Early bud stage and fall.	Apply both spring and fall for satisfactory control. Do not graze dairy cows for 7 days or beef cows for 3 days after treatment. Apply only registered 2,4-D brands in CRP. A3 A6 T7 T11
<b>Tordon 22K</b> (picloram <sup>4</sup> ) + 2,4-D <sup>4</sup> ester or amine  <b>RUP</b>	<b>1 to 2 pt SL + 2 pt 4EC/SL</b> (0.25 to 0.5 lb + 1 lb)	CRP, pasture, rangeland and roadsides.	Leafy spurge: Spring: True flower stage. Fall: 4 to 12 inch regrowth.	Tordon + 2,4-D at 1 pt/A + 2 pt/A is the most cost-effective treatment in NDSU data. Retreatment at the same rate will be necessary for several years regardless of herbicide or rate. Annual control was greater and years of retreatment needed were less with the 2 pt/A Tordon rate. Fall treatments should use 2 pt/A and apply for 3 to 5 years consecutively. T7 T17-18
<b>Tordon 22K + Plateau +</b> 2,4-D <sup>4</sup> + MSO adjuvant (picloram <sup>4</sup> + imazapic <sup>2</sup> ) <b>RUP</b>	<b>1 pt SL + 4 fl oz SL+ 1 qt 4EC/SL + 1 qt</b> (4 oz + 1 oz + 1 lb)		Leafy spurge: True flower growth in spring.	<b>Do not apply in fall.</b> Addition of Plateau improves long-term leafy spurge control. 2,4-D is not required but does increase spectrum of weeds controlled. Follow labels of all herbicides used. Apply only in spring when plants are in true flower. Some grasses may show temporary stunting. T7 T16-18
<b>Tordon 22K + Overdrive</b> (picloram <sup>4</sup> + dicamba <sup>4</sup> & diflufenzopyr <sup>19</sup> ) <b>RUP</b>	<b>1 to 2 pt SL+ 4 to 6 oz WDG</b> (4 to 8 oz + 2 to 3 oz & 0.8 to 1.2 oz)		Leafy spurge: Spring: True flower stage.	Add oil adjuvant to improve control. Overdrive improves long-term leafy surge control with spring but not fall application timing. T7 T13 T17
Dicamba <sup>4</sup>	<b>4 pt 4SL</b> (2 lb)			Add oil adjuvant to improve control. T13
	<b>4 to 16 pt 4SL</b> (2 to 8 lb)	Patches or individual plants in CRP, pasture or noncropland.	Leafy spurge: Spring: True flower stage. Fall: 4 to 12 inch regrowth.	Consult label for grazing restrictions. Add oil adjuvant to improve control. Re-treatment necessary.
<b>Tordon 22K</b> (picloram <sup>4</sup> ) <b>RUP</b>	<b>4 pt SL</b> (1 lb)			Consult narrative for grazing restrictions. T17
Glyphosate <sup>9</sup>	0.75 to 1.5 lb ae <b>See Remarks.</b>	CRP and trees.	Leafy spurge: After July 1 to actively growing plants.	Glyphosate is non-selective. Avoid spraying tree foliage. Retreat with 2,4-D at 2 to 4 pt/A following spring application to control seedlings and escapes. Add AMS at 8.5 lb/100 gal. A3-7 B8 T7 T10
<b>Facet L +</b> MSO adjuvant (quinclorac <sup>4,26</sup> )  Ransom and Richland counties	<b>32 to 64 fl oz L+ 2 pt</b> (6 to 12 oz)	CRP, pasture and rangeland.	Spring: True flower stage. Fall: 4 to 12 inches of regrowth.	Can be used near trees and in areas with sandy soils/high water tables. Tank-mix with Overdrive for long-term control. Allow 7 days before haying. There are no grazing restrictions. B10 Y15
<b>Facet L + Overdrive +</b> MSO adjuvant (quinclorac <sup>4,26</sup> + dicamba <sup>4</sup> & diflufenzopyr <sup>19</sup> )  Ransom and Richland counties	<b>32 fl oz L + 6 oz WDG + 2 pt</b> (6 + 3 oz & 1.2 oz)	Noncrop, pasture, rangeland, and wildlife habitats.	Spring: True flower. Fall: Prior to frost.	Allow 7 days before haying. B10 T13
<b>Krenite</b> (fosamine)	<b>12 to 16 pt</b> (6 to 8 lb)	Noncropland, adjacent to water and trees.	Spring: True flower growth stage. Fall: Early.	Inconsistent control. Best control with high humidity and good soil moisture. Do not contaminate water during application.

## SPURGE, LEAFY cont.

Herbicide	Product/A (ai/A)	Weed Location	When to Apply	Remarks and Paragraphs
<b>Rodeo</b> / generic 4lb ae/gal glyphosate <sup>9</sup> approved for aquatic use	<b>2 pt SL</b> (0.75 lb)	Adjacent to water.	Mid-July to mid-September.	Use only registered glyphosate formulations. Add NIS approved for use near water at 2 to 4 qt/100 gal water. Subsequent years: Control seedlings with a 2,4-D formulation labeled near water. A3-7 T10
2,4-D <sup>4</sup> amine	<b>2 to 4 pt SL</b> (1 to 2 lb)		Leafy spurge: Actively growing.	Use only 2,4-D formulations labeled for use in or near water, such as Agrilience "AgriSolutions 2,4-D Amine 4", Nufarm "Weedar 64", or Loveland "Savage" and "Amine 4 2,4-D". T7-8
<b>Landmaster BW</b> / generic glyphosate <sup>9</sup> & 2,4-D <sup>4</sup>	<b>54 fl oz 2.4 SL</b> (0.38 & 0.63 lb)	Noncropland, pasture, and fallow.	Leafy spurge: Seed set stage or actively growing in fall.	Some grass injury and stunting may occur. Injury is greater with fall than spring treatments. Not to be used in consecutive years. A3-8 B8 T10-11
<b>Method</b> (aminocyclopyrachlor <sup>4</sup> )	<b>8 to 12 oz SL</b> (2 to 3 oz)	Noncropland and wildlife habitats.	Spring: Prior to flowering or fall rosettes.	<b>Use only in noncropland.</b> Allow 365 days before grazing or haying. Do not apply near trees. Apply Method with MSO at 1 gal/100 gal. Apply Perspective with NIS at 1 qt/100 gal or MSO at 1 gal/100 gal.
<b>Perspective</b> (aminocyclopyrachlor <sup>4</sup> & chlorsulfuron <sup>2</sup> )	<b>4.75 to 6 oz DF</b> (1.9 to 2.4 oz & 0.75 to 0.95 oz)			
<b>Plateau + MSO</b> adjuvant (imazapic <sup>2</sup> )	<b>8 to 12 fl oz SL + 2 pt</b> (2 to 3 oz)	Pasture, new or existing grass plantings in cropland, CRP or noncropland.	Early to mid September.	May be used on CRP, pasture, rangeland, industrial sites, roadside right-of-way or noncropland. Rates above 8 fl oz can reduce grass production, especially cool season species. Safe under most tree species but will cause temporary yellowing of spruce candles. See label for additional information. T16 T18
<b>Plateau + Sharpen + NIS</b> adjuvant (imazapic <sup>2</sup> + saflufenacil <sup>14</sup> )	<b>4 to 6 fl oz SL+ 1 to 2 fl oz SC+ 1 qt/100 gallon</b> (1 to 1.5 oz + 0.36 to 0.72 oz)	Noncropland and wildlife habitats.	Spring: True flower stage.	<b>Allow 365 days before grazing or haying.</b> Do not apply in the fall. Can also be applied with AMS. Substituting MSO adjuvant for NIS will injure grasses. See label for additional information. T16 T18
<b>Casoron 4G</b> <b>Norosac 10G</b> (dichlobenil)	<b>150 to 200 4G</b> <b>60 to 80 lb 10G</b> (6 to 8 lb)	Sensitive areas such as near trees or water where long residual herbicides cannot be used.	Leafy spurge: Late Nov. to early March - before emergence.	Season long suppression only. Must be applied before leafy spurge emerges. No POST control.
<b>Overdrive + MSO</b> adjuvant (dicamba <sup>4</sup> & diflufenzopyr <sup>19</sup> )	<b>6 oz WDG + 2 pt</b> (3 oz & 1.2 oz)	herbicides cannot be used.	Spring: True flower.	<b>Do not allow spray to contact basal bark or tree leaves.</b> A3 A6 T13
<b>GrazonNext HL + Overdrive + MSO</b> adjuvant (aminopyralid <sup>4</sup> & 2,4-D <sup>4</sup> + dicamba <sup>4</sup> & diflufenzopyr <sup>19</sup> )	<b>2.1 pt + 4 oz WDG + 2 pt</b> (1.7 & 14 oz + 2 & 0.8 oz)		Fall: Early to mid-September.	
 Ransom and Richland counties		Cropland.	Leafy spurge: 2 to 4 inches tall.	Leafy spurge will not survive intensive tillage. Repeat when plants are 2 to 4 inches tall. T8
			Late fall.	Cultivate when plants are 3 to 6 inches tall on fallow or post-harvest in September and again in October. T8
<b>Cultivation</b> <sup>31</sup>			See narrative.	Several insects are available. Sheep and goats can be used for management of leafy spurge infestations. See narrative for additional information. T20
<b>Biological Control</b>	<b>Insects and Grazing</b>	CRP, pasture, rangeland and noncropland.		

# THISTLE, CANADA

Herbicide	Product/A (ai/A)	Weed Location	When to Apply	Remarks and Paragraphs
<b>Express /</b> generic tribenuron <sup>2</sup>	<b>0.17 to 0.33 oz DF</b> <b>0.25 to 0.5 SG</b>	Wheat, barley and pasture.	Thistle: Rosette to pre-bud stage.	Add 2,4-D ester. Add NIS except when adding 2,4-D ester at 0.75 pt/A. A4-6 T3 T9 Y1-2
Thifen <sup>2</sup> & Triben <sup>2</sup> 4:1 ratio 75DF <b>Affinity T/M 50SG</b> 3:1 <b>Audit 75DF</b> 2:1 ratio 75DF 1:1 ratio 75DF <b>Affinity B/S 50SG</b>	<b>0.4 to 0.67 oz DF</b> <b>0.6 to 1 oz SG</b> <b>0.3 to 0.5 oz DF</b> <b>0.3 to 0.66 oz DF</b> <b>0.25 to 0.5 oz DF</b> <b>0.4 to 0.8 oz SG</b>	Provides a broader spectrum of control than either a.i. alone. Choose ratio based on prevalent weeds.		
MCPA <sup>4</sup> or 2,4-D <sup>4</sup> amine or ester	<b>1.5 pt 4SL</b> (0.75 lb) <b>1.33 pt 4EC</b> (0.66 lb)	Wheat and barley.	Crop: Tiller stage.	Patch spray at higher rates may injure crop but may provide greater thistle control. Small grains are more tolerant to MCPA than 2,4-D. Suppression only. B3 T3 T9
2,4-D <sup>4</sup> ester or amine	<b>2 to 4 pt 4EC/SL</b> (1 to 2 lb)	Fallow or post-harvest.	12 inches tall and actively growing.	Cultivate fallow until early July to achieve rosette stage at time of application. Spray in late August or September. Re-treatment necessary. Suppression only. B3 T3
	<b>3 to 4 pt 4EC/SL</b> (1.5 to 2 lb)	CRP, pasture, and rangeland or trees.		Apply only registered 2,4-D brands in CRP. Refer to paragraph for livestock grazing restrictions. Use only amine formulation in trees. Suppression only. B3 T3 T7-11
<b>Curtail M /</b> generic clopyralid <sup>4</sup> &MCPA <sup>4</sup>	<b>1.75 to 2.33 pt SL</b> (0.09 to 0.122 lb & 0.5 to 0.68 lb)	Wheat, barley, and CRP.	Crop: 3-leaf to jointing.	<u>Rosette technique</u> : Products containing glyphosate or clopyralid fall-applied to Canada thistle in the rosette stage provides greater control than when applied to bolting or flowering stems. Refer to paragraph T3 for control of Canada thistle using the rosette technique. A3 A6 C5 T3 T9 T11 Y15
<b>Curtail /</b> generic clopyralid <sup>4</sup> & 2,4-D <sup>4</sup>	<b>2 pt SL</b> (0.09 lb & 0.5 lb)		Crop: 4-leaf through jointing.	
	<b>4 pt SL</b> (0.19 lb & 1 lb)	Fallow.	Thistle: Rosette until prior to bloom.	
	<b>4 to 6 pt SL</b> (0.19 to 0.29 lb & 1 to 1.5 lb)	CRP and pasture.		
<b>Stinger /</b> generic clopyralid <sup>4</sup>	<b>0.25 to 0.67 pt SL</b> (0.09 to 0.25 lb)	Sugarbeet, wheat, barley, oat, corn.	Thistles: Rosette to pre-bud stage.	High rates in pasture is expensive but more effective. A3 A6 C5 M12 T3 Y15
	<b>0.67 to 1.3 pt SL</b> (0.25 to 0.5 lb)	CRP, pasture and rangeland.		
<b>Hornet</b> (flumetsulam <sup>2</sup> & clopyralid <sup>4</sup> )	<b>2 to 5 oz WDG</b> (0.37 to 0.09 oz & 1 to 2.5 oz)	Corn.	Corn: Up to 24 inches tall. Use drop nozzles on 20 to 24 inch corn.	Add a oil adjuvant at 1 to pt/A. Refer to label for tank-mix options. A3 C5 T3 Y2 Y15
Dicamba <sup>4</sup>	<b>0.5 to 1 pt 4SL</b> (0.25 to 0.5 lb)		Corn: POST up to 5 inches tall.	Do not apply more than 0.5 pt/A after corn is more than 5 inches tall. Can be applied 15 days prior to tasseling. A3 A6 B6 T3 Y
<b>Distinct Overdrive</b> (dicamba <sup>4</sup> & diflufenzopyr <sup>19</sup> )	<b>6 oz WDG</b> (3 oz & 1.2 oz)	Corn, fallow, and noncropland.	Corn: 4 to 24 inches tall.	Distinct is labeled in cropland - allow 7 days before haying/grazing. Overdrive is labeled in CRP, pasture, rangeland, and noncropland. Add NIS at 1 qt/100 gal water + 28% UAN at 1.25 qt/A or AMS at 8.5 lb/100 gal. Canada thistle suppression only. A3 A6 B6 C4 T3 Y9
<b>Basagran</b> <sup>6</sup>	<b>1 to 2 pt SL</b> (0.5 to 1 lb)	Soybean and dry bean: Any stage.  Field pea: More than 3 leaf pairs or 4 nodes.	Canada thistle: 6 to 8 inches tall.	Contact herbicide requiring thorough coverage. Apply in two sequential applications with MSO at 1.5 pt/A. <u>Rosette technique</u> : Repeated in-crop applications control Canada thistle during the growing season but allow fall rosette growth. Refer to paragraph T3 for control of Canada thistle using the rosette technique. E3 T3



## THISTLE, CANADA cont.

Herbicide	Product/A (ai/A)	Weed Location	When to Apply	Remarks and Paragraphs
Glyphosate <sup>9</sup>	Up to 2.25 lb ae. <b>See Remarks.</b>	Patches in corn, wheat, oat or soybean.	Prior to heading or flowering.	<p><u>Rosette technique</u>: Glyphosate or clopyralid fall-applied to Canada thistle in the rosette stage provides greater control than when applied to bolting or flowering plants. Refer to paragraph T3 for control of Canada thistle using the rosette technique. Add AMS fertilizer at 8.5 lb/100 gal. Crop will be killed in treated area. A3-7 T3 T7-10</p> <p>Avoid spraying tree foliage. A3-7 R1 T3 T7</p>
	<b>Refer to label.</b>	RR Corn: Up to 30 inches tall/6 collars. RR Soybean: Emerge to 14 day PHI. RR canola: Prior to bolting.		
	Up to 2.25 lb ae. <b>See Remarks.</b>	Preharvest wheat, corn, soybean, field pea, and lentil.	Crop seed is physiologically mature. Thistle: At or beyond bud stage.	
		Fallow or post-harvest. CRP, noncropland and around trees.	Canada thistle: Rosette or beyond bud stage.	
Dicamba <sup>4</sup>	<b>2 to 4 pt 4SL</b> (1 to 2 lb)	Fall or post-harvest.	Thistle: At least 6 inches tall. Most effective when thistle is in the rosette stage.	May be applied at a lower rate with 2,4-D or glyphosate to reduce soil residue. Add oil adjuvant at 1 to 2 pt/A. A3 A6 B6 C4 T3 T7-9 T13 Y15
	<b>1 pt 4SL</b> (0.5 lb)	CRP, pasture and rangeland.	Thistle: Rosette to 12 inches tall.	Consult label for grazing restrictions. Add oil adjuvant at 1 to 2 pt/A. Mow in noncrop or cultivate in fallow until early July to achieve rosette stage at time of application, followed by spray in late August or September. Retreatment necessary. Refer to label for additional information. A3 A6 B6 T3 T13 Y15
	<b>4 to 8 pt 4SL</b> (2 to 4 lb)	Patches in CRP, pastures, fallow and noncropland.	Spring. Thistle: Rosette to prebud stage. Fall: Rosette following light frost but prior to a killing frost.	Add oil adjuvant at 1 to 2 pt/A. Observe grazing restriction for lactating animals. A3 T3
<b>Transline</b> (clopyralid <sup>4</sup> )	<b>0.67 to 1.3 pt SL</b> (0.25 to 0.5 lb)	Pasture, rangeland, and noncropland.		
<b>Overdrive +</b> MSO adjuvant (dicamba <sup>4</sup> & diflufenzopyr <sup>19</sup> )	<b>6 oz WDG +</b> <b>2 pt/A</b> (3 oz & 1.2 oz)	Trees.		<b>Do not allow spray to contact basal bark or tree leaves.</b> Mid-summer mowing promotes active growth for effective fall control of rosettes. A3 A6 T3 T13
<b>Milestone</b> (aminopyralid <sup>4</sup> )	<b>5 to 7 fl oz SL</b> (1.25 to 1.75 oz)	CRP, pasture, rangeland, and noncropland.		Apply up to 14 oz/A for spot treatment. Use low rate in fall, in low density stands, or areas with good grass stands. Fall application is more consistent than spring. Provides good control when applied in late-fall to freeze-up. Refer to label for grazing restrictions. Commercial mixture with 2,4-D available (GrazonNext HL) to increase spectrum of weed control. T15
Chlorsulfuron <sup>2</sup> & Metsulfuron <sup>4</sup>	<b>0.5 to 2 oz DF</b> (0.188 to 0.75 oz & 0.15 to 0.6 oz)			Apply oil adjuvant at 1 to 2 pt/A. T3 T14 Y3
<b>Tordon 22K</b> (picloram <sup>4</sup> )	<b>0.5 to 2 pt SL</b> (0.125 to 0.5 lb)	CRP, pasture, rangeland and fallow.	Thistle: At least 12 inches tall and actively growing.	Retreat at the same rate the following year. Add 2,4-D at 1 qt/A with Tordon at 1 pt/A to improve control. Mid-summer mowing promotes active growth for fall treatment. Mid-September is optimum fall application time and control decreases thereafter. Refer to label for additional information. T3 T17-18
				<b>4 pt SL</b> (1 lb)
<b>Method</b> (aminocyclopyrachlor <sup>4</sup> )	<b>8 to 12 oz SL</b> (2 to 3 oz)	Noncropland and wildlife habitats.	Actively growing in early summer or fall rosettes.	<b>Use only in noncropland.</b> Allow 365 days before grazing or haying. Do not apply near trees. Apply Method with MSO at 1 gal/100 gal. Apply Perspective with NIS at 1 qt/100 gal or MSO at 1 gal/100 gal. Only use helicopter for aerial application on rights-of-ways. Read label for other restrictions.
<b>Perspective</b> (aminocyclopyrachlor <sup>4</sup> & chlorsulfuron <sup>2</sup> )	<b>3 to 4.75 oz DF</b> (1.2 to 1.9 oz & 0.5 to 0.75 oz)			

# THISTLE, BIENNIAL: BULL, MUSK, AND PLUMELESS

Herbicide	Product/A (ai/A)	Weed Location	When to Apply	Remarks and Paragraphs
2,4-D <sup>4</sup>	<b>3 to 4 pt 4EC/SL</b> (1.5 to 2 lb)	CRP, pasture, rangeland, and noncropland. (Refer to Remarks and Paragraphs for restrictions)	Late-fall or early spring when thistles are in the seedling to rosette stage.  Biennial thistles reproduce only by seed, so control prior to flowering will eventually eradicate infestations.  Consult respective label for grazing restrictions.	Apply only registered 2,4-D brands in CRP. A3 A6 B3 T11
2,4-D <sup>4</sup> + dicamba <sup>4</sup>	<b>2 pt 4EC/SL + 1 to 4 pt</b> (1 lb + 0.5 to 2 lb)			Add oil adjuvant at 1 to 2 pt/A. A3 A6 B3 T11 T13
Chlorsulfuron <sup>2</sup> & Metsulfuron <sup>2</sup>	<b>0.5 to 2 oz DF</b> (0.188 to 0.75 oz & 0.15 to 0.6 oz)			Add oil adjuvant at 1 to 2 pt/A. A3 A5-6 T3 T14
Dicamba <sup>4</sup>	<b>1 to 2 pt 4SL</b> (0.5 to 1 lb)			Add oil adjuvant at 1 to 2 pt/A. Use high rate for patch treatment. A3 A6 B6 Y9 Y13 Y15
<b>Curtail</b> / generic clopyralid <sup>4</sup> & 2,4-D <sup>4</sup>	<b>4 to 6 pt SL</b> (0.19 to 0.29 lb & 1 to 1.5 lb)			See remarks for Redeem below. A3 A6 C5
Glyphosate <sup>9</sup>	Up to 2.25 lb ae <b>See Remarks.</b>			Non-selective, non-residual, foliar herbicide. Refer to label for adjuvant use. Add AMS fertilizer at 8.5 lbs/100 gal. A4-7 T3 T10
<b>Milestone</b> (aminopyralid <sup>4</sup> )	<b>3 to 5 fl oz SL</b> (0.75 to 1.25 oz)	Pasture, rangeland, and noncropland	Spring: Rosette to bolting plants. Fall: Seedlings and rosette plants.	Use higher rate on plants in late-bolt to flowering growth stages and/or dense stands. Commercial mixture with 2,4-D available (GrazonNext HL) to increase spectrum of weed control. Apply with NIS at 1 qt/100 gal. Refer to label for grazing restrictions. T15
<b>Overdrive</b> (dicamba <sup>4</sup> & diflufenzopyr <sup>19</sup> )	<b>6 oz WDG</b> (3 oz & 1.2 oz)			<b>Labeled only in noncropland.</b> Add oil adjuvant at 1 to 2 pt/A. T13
<b>Transline</b> (clopyralid <sup>4</sup> )	<b>0.33 to 1.33 pt SL</b> (0.125 to 0.5 lb)			Very effective but more expensive than other treatments.
<b>Tordon 22K</b> (picloram <sup>4</sup> ) <b>RUP</b>	<b>0.5 to 2 pt SL</b> (0.125 to 0.5 lb)			Use high rate for patch treatment. Apply up to 2 pt/A broadcast and up to 4 pt/A for spot treatment. A17
<b>Tordon 22K</b> (picloram <sup>4</sup> ) + 2,4-D <sup>4</sup> <b>RUP</b>	<b>1 + 2 pt 4EC/SL</b> (0.125 + 1 lb)			Apply only registered 2,4-D brands in CRP. T17
<b>Method</b> (aminocyclopyrachlor <sup>4</sup> )	<b>4 to 8 fl oz SL</b> (1 to 2 oz)	Noncropland and wildlife habitats.	Spring: Prior to flowering or fall rosettes.	<b>Use only in noncropland.</b> Allow 365 days before grazing or haying. Do not apply near trees. Apply Method with MSO at 1 gal/100 gal. Apply Perspective with NIS at 1 qt/100 gal or MSO at 1 gal/100 gal.
<b>Perspective</b> (aminocyclopyrachlor <sup>4</sup> & chlorsulfuron <sup>2</sup> )	<b>1.75 to 2.75 oz DF</b> (0.7 to 1.1 oz & 0.3 to 0.4 oz)			

## TOADFLAX, DALMATIAN AND YELLOW

Herbicide	Product/A (ai/A)	Weed Location	When to Apply	Remarks and Paragraphs
Plateau + MSO adjuvant (imazapic <sup>2</sup> )	12 fl oz SL + 2 pt (3 oz)	CRP, pasture, rangeland, and noncropland.	After hard frost when 25% of foliage is necrotic.	<b>FOR DALMATIAN TOADFLAX ONLY.</b> Applications prior to hard frost may result in poor control. Retreat as necessary.
Chlorsulfuron <sup>2</sup>	2 to 3 oz DF (1.5 to 2.25 oz)	Pasture and noncropland.	PRE to early POST.	<b>FOR DALMATIAN TOADFLAX ONLY.</b> Apply at >25 gpa. Add oil adjuvant at 1 to 2 pt/A. Retreat as necessary.
Tordon 22K (picloram <sup>4</sup> )	RUP 1 to 2 qt SL (0.5 to 1 lb)	CRP, pasture, rangeland, and noncropland.	Toadflax: Actively growing through full bloom.	Use maximum rate for yellow toadflax. Apply 2 pt/A for broadcast and 4 pt/A for spot spray. Retreat as necessary. Y17
Tordon 22K + Overdrive (picloram <sup>4</sup> + dicamba <sup>4</sup> & diflufenzopyr <sup>19</sup> )	RUP 1 to 2 qt SL + 6 to 8 oz WDG (0.5 to 1 lb + 3 to 4 oz & 1.2 to 1.6 oz)		Yellow toadflax: Mid-summer during flowering or in fall prior to frost.	Add oil adjuvant at 1 to 2 pt/A. Overdrive added to Tordon greatly improves long-term <b>yellow toadflax</b> control. Use higher rates for yellow toadflax. T13 T17
Method (aminocyclopyrachlor <sup>4</sup> )	4 to 8 oz SL (1 to 2 oz)	Noncropland and wildlife habitats.	Best in June prior to flowering. Late season application is less effective.	<b>Use only in noncropland.</b> Control of yellow toadflax decreases the later applications are made in the season. Allow 365 days before grazing or haying. Do not apply near trees. Apply Method with MSO at 1 gal/100 gal. Apply Perspective with NIS at 1 qt/100 gal or MSO at 1 gal/100 gal.
Perspective (aminocyclopyrachlor <sup>4</sup> & chlorsulfuron <sup>2</sup> )	3 to 4.75 oz DF (1.2 to 1.9 oz & 0.5 to 0.75 oz)			

## WORMWOOD, ABSINTH

Herbicide	Product/A (ai/A)	Weed Location	When to Apply	Remarks and Paragraphs
2,4-D <sup>4</sup>	4 pt 4EC/SL (2 lb)	CRP, pasture, rangeland, noncropland, trees, fallow, or post-harvest.	Apply in early spring and fall when plants are at least 12 inches tall and actively growing. Plants can be mowed in early to mid-summer to promote active regrowth prior to fall treatment.	Apply only registered 2,4-D brands in CRP. Plants are controlled slowly. Do not graze dairy cows for 7 days after treatment. Use amine formulation near trees. A3 A6 B3 T11
Dicamba <sup>4</sup>	1 to 2 pt 4SL (0.5 to 1 lb)			DO NOT apply near trees. Apply with oil adjuvant at 1 to 2 pt/A. Observe grazing restrictions. A3 A6 B6 T13
Curtail / generic clopyralid <sup>4</sup> & 2,4-D <sup>4</sup>	2 pt SL (0.09 lb & 0.5 lb)	Cropland.		Do not apply to new seedings of grass. Do not cut treated grass for hay within 30 days PHI. Consult label for grazing restrictions. A3 A6 C5 Y15
	4 to 8 pt SL (0.19 to 0.38 lb & 1 to 2 lb)	CRP, pasture, rangeland and noncropland.		
Tordon 22K (picloram <sup>4</sup> )	RUP 0.5 to 2 pt SL (0.125 to 0.25 lb)			0.5 pt/A is the most cost-effective. Apply 4 pt/A for spot treatment. Refer to paragraph for grazing restriction. Use high rate for dense stands. T17-18
Glyphosate <sup>9</sup>	Up to 1.125 lb ae. See Remarks.	Trees, noncropland, fallow or post-harvest.		Avoid spraying tree foliage. Add AMS fertilizer at 8.5 lbs/100 gal. Use high rates for dense stands. A3-7 T10
Milestone (aminopyralid <sup>4</sup> )	6 to 7 oz SL (1.5 to 1.75 oz)	CRP, pasture, rangeland and noncropland.	Early spring or fall. Mow plants prior to fall application.	Use higher rate when plants are taller than 12 inches. Commercial mixture with 2,4-D available (GrazonNext HL) to broaden spectrum of weed control. Apply with NIS at 1 qt/100 gal. Refer to label for grazing restrictions. T14-15
Chaparral (aminopyralid <sup>4</sup> & metsulfuron <sup>2</sup> )	3 to 3.3 oz DF (1.6 to 1.7 oz & 0.28 to 0.31 oz)		Early spring to plants 12 inches tall or less.	
Method (aminocyclopyrachlor <sup>4</sup> )	4 to 8 oz SL (1 to 2 oz)	Noncropland and wildlife habitats.	Actively growing in early summer or fall rosettes.	<b>Use only in noncropland.</b> Allow 365 days before grazing or haying. Do not apply near trees. Apply Method with MSO at 1 gal/100 gal. Apply Perspective with NIS at 1 qt/100 gal or MSO at 1 gal/100 gal.
Perspective (aminocyclopyrachlor <sup>4</sup> & chlorsulfuron <sup>2</sup> )	3 to 4.75 oz DF (1.2 to 1.9 oz & 0.5 to 0.75 oz)			