



CHEMICAL WEED CONTROL FOR FIELD CROPS

Hard Red Spring and Durum Wheat, Winter Wheat and Barley

Herbicide	Product/A (ai/A)	Weeds	When to Apply	Remarks and Paragraphs
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Refer to page 6 for additional Fall, Early Preplant, and PRE Herbicides.

Soil-Applied Herbicides

Far-Go (triallate) 	HRSW & DURUM. 1 qt / 10 lb 10G (1 lb) BARLEY: 1.25 qt/12.5 lb 10G (1.25 lb)	Wild oat.	Spring: HRSW, Durum and Barley. Apply before or after seeding. PPI 3 or more days before seeding.	Application before seeding: PPI with field cultivator set at 4 inches deep. Two pass incorporation is recommended. Application after seeding: Apply before kernel sprouts exceed 0.5 inch in length and incorporate with harrows set more shallow than seed. A1 B1 C15 S6					
	Buckle (triallate & trifluralin) 				DURUM & BARLEY. 10 to 12.5 lb G (1 to 1.25 lb & 0.3 to 0.4 lb)	Wild oat and foxtails.	Fall: Apply within 3 weeks of freeze up. Spring: Barley only. Prior to seeding. HRWW: Fall. HRSW: Spring PPI only.	Do not apply to HRSW. Incorporate within 24 hours after application. Set 2 nd incorporation more shallow than first. Stand reduction may occur. Do not apply on soil treated with trifluralin the previous year. A1 B1 C15 C22 S2 S6 Y14 X1 Use only in designated counties in North Dakota. Apply only to fields fallowed the previous year. Do not apply to soil treated with trifluralin the previous year. A1 B1 C15 C22 S6	
Treflan / generic trifluralin Not for Winter Wheat	HRWW. Fall: 12.5 to 15 lbG HRSW. Spring: 10 lb G (1 lb & 0.3 lb)	Foxtail.	Spring: PPI.	FOR BARLEY ONLY. Incorporate twice 2 to 3 inches deep. A1 B1 Pages: 104-105, 108-110 FOR DURUM WHEAT ONLY. For foxtail suppression only. A1 B1 C22 S2 Y14 X1. Pages: 104-105, 108-110 FOR HRSW ONLY. For suppression of foxtail only. Use west of Hwy 3 only. B1 C22 S2 Pages: 104-105, 108-110					
	1 pt 4E (0.5 lb)				Spring: After seeding.	Plant 2 to 2.5 inches deep. Incorporate shallow twice with flex-tyne or diamond harrow 1 to 1.5 inches deep. A1 B1 C22 S2 Y14 X1 Pages: 104-105, 108-110			
	4 lb 10G (0.4 lb)						Fall: After September 1 until freeze-up.	Incorporate once in fall within 24 hours after application. Keep spring incorporation depth more shallow than fall. Stand reduction may occur. A1 B1 C22 S2 X1 Y14 Pages: 104-105, 108-110	
	3.5 to 4 lb 10G (0.35 to 0.4 lb)								FOR HRSW AND DURUM ONLY. For foxtail suppression only. B1 C22 S2 Pages: 104-105, 108-110
	1 pt 4E (0.5 lb)								
	1 pt 4E 5 lb 10G (0.5 lb)								
3.5 to 5 lb 10G (0.35 to 0.5 lb)									

Pages 102-103 = Herbicide resistance, Pages 104-105 = Generic and commercial names, Pages 108-110 = Crop rotation restrictions.

Hard Red Spring and Durum Wheat, Winter Wheat and Barley

Herbicide	Product/A (ai/A)	Weeds	When to Apply	Remarks and Paragraphs
POST-Applied Herbicides				
Prowl H20 (pendimethalin) Not for Barley	1.5 to 3 pt (0.7 to 1.4 lb)	Foxtail and some small-seeded broadleaf weeds.	Wheat: 1- to 3-leaf.	Soil residue provides PRE control of weeds. Does not control emerged weeds. Adjust rate for soil type. Allow a 60 day PHI. Refer to label for tank-mixtures. B1 C22 E10 Pages: 104-105, 108-110
MCPA amine MCPA ester	0.5 to 1.33 pt 4SL 0.5 to 1.33 pt 4EC (0.25 to 0.66 lb ae)	Broadleaf weeds.	Crop: Emergence until prior to boot. Winter wheat: In spring from 4-leaf until prior to boot.	Apply 0.5 to 1 pt/A from emergence to tiller stage. Use high rate for large or perennial weeds. A3 A6 C1-2 S3-5 Pages: 102-103, 104-105
2,4-D amine 2,4-D ester	0.5 to 1 pt 4SL 0.5 to 1 pt 4EC (0.25 to 0.5 lb ae)		Crop: 3-leaf until prior to boot. Winter wheat: Well tillered until prior to boot.	Follow label directions as 2,4-D labels vary on application timing. Do not apply from early boot to dough stage. Do not apply to winter wheat in fall. A3 A6 B3 C1-2 S3-5 Pages: 102-103, 104-105
Banvel / generic dicamba	2 to 4 fl oz (1 to 2 oz) Barley: 2 to 3 fl oz (1 to 1.5 oz ae)	Broadleaf weeds including wild buckwheat, sunflower, Russian thistle and kochia.	HRSW/Durum: Up to 5-leaf. Barley: Up to 4-leaf. HRWW: Pre-joint.	Apply at proper crop stage to avoid injury. Dicamba must be applied before 6-leaf stage. Use low dicamba rate and high MCPA rate on 4-leaf HRSW or durum. Barley is relatively susceptible to injury from dicamba. Do not apply dicamba with 2,4-D to barley. A3 A6 B5 C1-2 C10 S1 S3-5 X1 Y10 Pages: 102-103, 104-105
Pulsar (dicamba & fluroxypyr)	8.3 - 12.5 fl oz (0.75 to 1.1 oz & 1 to 1.5 oz ae)	Broadleaf weeds.	Wheat: Up to 5-leaf stage. Barley: Up to 4-leaf stage.	Add NIS at 0.125 to 0.25% v/v. No adjuvant is required if tank mix partner has surfactant in the formulation. May be mixed with several broadleaf and grass herbicides. Allow a 40 day PHI. A3 C10-11 S3 Pages: 102-103, 104-105
Starane / generic fluroxypyr	0.5 - 0.67 pt 1.5EC 0.25-0.35 pt 2.8EC 3.75 - 5 oz 40WDG (1.5 to 2 oz ae)	Kochia, volunteer flax, and few other broadleaf weeds.	Crop: 2-leaf through flag leaf emergence. Weeds: Small.	Refer to label for weeds controlled, registered tank-mix options, and rates. Commercial mixture with MCPA ester available as Hat Trick. A3 C11 S3 Pages: 102-103, 104-105
Curtail M / generic clopyralid & MCPA	1.75 to 2.33 pt (0.09 to 0.12 lb ae & 0.5 to 0.68 lb ae)	Broadleaf weeds and Canada thistle.	Crop: 3-leaf until prior to boot.	Apply to Canada thistle at rosette to early bolting stage. Do not harvest hay from treated fields. A3 C11 S1 T2 T6 Pages: 102-103, 104-105, 108-110
Curtail / generic clopyralid & 2,4-D	2 to 2.67 pt (0.09 to 0.13 lb ae & 0.5 to 0.67 lb ae)		Crop: 4-leaf until prior to boot.	
WideMatch / generic clopyralid & fluroxypyr	1 to 1.33 pt (0.09 to 0.125 & 0.09 to 0.125 lb ae)	Broadleaf weeds including kochia, wild buckwheat, vol. flax, and Canada thistle.	Crop: 3-leaf through flag leaf emergence. Weeds: Up to 4 inches tall or vining.	An economical formulation of clopyralid. Apply with 2,4-D, MCPA, or thifensulfuron to increase spectrum of broadleaf weed control. Does not antagonize POST grass herbicides labeled in small grains. Commercial mixture with MCPA ester available as Hat Trick. Refer to label for application information. A3 C11 S1 S3 T2 T6 Pages: 102-103, 104-105, 108-110

Pages 102-103 = Herbicide resistance, Pages 104-105 = Generic and commercial names, Pages 108-110 = Crop rotation restrictions.

Hard Red Spring and Durum Wheat, Winter Wheat and Barley

Herbicide	Product/A (ai/A)	Weeds	When to Apply	Remarks and Paragraphs
Buctril / generic bromoxynil	1 to 2 pt (0.25 to 0.5 lb ae)	Small broadleaf weeds including small kochia.	Crop: Emergence until prior to boot.	Contact, non-residual herbicide requiring thorough coverage. Most active in hot and sunny conditions. Refer to label for tank-mix options.
Bronate / generic bromoxynil&MCPA	1 to 2 pt 4EC 0.8 to 1.6 pt 5EC (0.25 to 0.5 lb ae & 0.25 to 0.5 lb ae)	Small broadleaf weeds including wild buckwheat, sunflower, Russian thistle and kochia.	Crop: 3-leaf stage until prior to boot.	A3 C1-2 S1 S3 S4 X1 Pages: 104-105
WECO Max / generic bromoxynil & 2,4-D	0.75 to 1.5 pt (0.18 to 0.38 lb ae & 0.25 to 0.5 lb ae) Rates vary by label.			A3 C1-2 S1 S3 X1 Pages: 104-105
Starane NXT / generic bromoxynil & fluroxypyr	14 to 21 fl oz (4 to 6 oz & 1 to 1.5 oz)		Crop: 3-leaf to flag leaf emergence.	Higher rates or a tank-mix partner may be required for high weed populations and weeds greater than 4 inches tall. A3 C1-2 C11 S1 S3 X1
Aim (carfentrazone)	0.5 fl oz EC (0.128 oz)	Small broadleaf weeds including pigweed and kochia.	Crop: Up to jointing stage. Weeds: Small. Up to 2 inches tall.	Contact, non-residual herbicide requiring thorough coverage. May cause cosmetic speckling on wheat leaves. Add NIS at 0.25% v/v. Refer to label for tank- mix options and application information. A3 B4 C5 S1 S3 S5 X1
Rage D-Tech (carfentrazone & 2,4-D)	8 to 12 fl oz (0.128 to 0.192 oz & 4 to 6 oz ae)	Broadleaf weeds.	Crop: 3-tillers to jointing stage. Weeds: Small.	Add NIS at 0.25% v/v. May cause cosmetic speckling on wheat leaves. Do not apply with bromoxynil. Refer to label for application information. A3 B4 C2 C5 S1 S3 S5 X1
Huskie (bromoxynil & pyrasulfotole & mefenpyr safener)	11 to 15 fl oz EC (2.4 to 3.3 oz ae & 0.43 to 0.58 oz ae)	Most annual broadleaf weeds including resistant weeds.	Crop: Up to flag leaf emergence. Weeds: Up to 4 inches tall.	Most crops can be planted the year following application. Do not plant lentil for 18 months after application. Refer to label for tank-mix options and application information. C17 S1 S3-5 S7 X1
Wolverine (fenoxaprop & bromoxynil & pyrasulfotole & mefenpyr safener)	1.7 pt EC (1.3 oz & 2 oz ae & 0.58 oz)	Annual grass and broadleaf weeds.	Wheat: Emergence to 60 days PHI. Barley: Emergence to 57 days PHI. Grass weeds: 1-leaf to 2-tiller.	A3 C17 C20 Pages: 102-103

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Hard Red Spring and Durum Wheat, Winter Wheat and Barley

Herbicide	Product/A (ai/A)	Weeds	When to Apply	Remarks and Paragraphs
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Short Residual ALS Herbicides

Orion (florasulam & MCPA ester)	17 fl oz (0.07 oz & 0.31 lb)	Some broadleaf weeds.	Crop: 3-leaf to jointing. Weeds: Small.	Add NIS at 0.25% v/v. May be tank-mixed with grass herbicides. Allow a 60 day PHI. Commercial mixture with Axial XL available as Axial TBC. Refer to label for application information. A3 X1
Starane Flex (florasulam & fluroxypyr)	13.5 fl oz (0.07 oz & 1.4 oz)	Some broadleaf weeds.	Crop: 3-leaf to flag leaf emergence. Weeds: Small.	May be tank-mixed with most POST grass herbicides. Allow a 60 day PHI. Has shorter crop rotation restrictions than WideMatch. A3 X1
Harmony / generic thifensulfuron	0.3 to 0.6 oz DF 0.45 to 0.9 oz SG (0.225 to 0.45 oz)	Mustards, redroot pigweed, lambsquarters, wild buckwheat, smartweed, and sunflower.	Crop: 2-leaf until prior to flag leaf emergence.	Do not apply higher tribenuron rates with POST grass herbicides. Addition of MCPA ester or 2,4-D ester improves broadleaf weed control and crop safety. Add NIS at 0.125% v/v except when adding 2,4-D or MCPA at 0.75 pt/A. Apply with a broadleaf herbicide with a different mode of action to delay weed resistance. No crop rotation restrictions the following year. Refer to label for list of registered tank-mixes. A3 A5 C4 S1 S3 S5 X1 Y1 Y3 Pages: 102-103, 104-105
Express / generic tribenuron	0.17 to 0.33 oz DF 0.25 to 0.5 oz SG (0.125 to 0.25 oz)	Mustards, marshelder, prickly lettuce, Russian thistle, Canada thistle.		
thifen & tribenuron 4:1 ratio 75DF Affinity T/M 50SG 3:1 Audit 75DF 2:1 ratio 75DF 1:1 ratio 75DF Affinity B/S 50SG	0.4 to 0.67 oz DF 0.6 to 1 oz SG 0.3 to 0.5 oz DF 0.3 to 0.66 oz DF 0.25 to 0.5 oz DF 0.4 to 0.8 oz SG	Provides a broader spectrum of control than either a.i. alone. Choose ratio based on prevalent weeds.		
Supremacy (fluroxypyr & thifensulfuron & tribenuron) Registration Pending	4 to 6 oz (1 to 1.5 oz ae & 0.18 to 0.27 oz ai & 0.06 to 0.09 oz ai)	Broadleaf weeds including pigweed, buckwheat, Kochia, mustard, flax, and Canada thistle.	Wheat: 2-leaf through flag leaf emergence.	

Long Residual ALS Herbicides

Ally / generic metsulfuron	0.1 oz XP (0.06 oz)	Broadleaf weeds including perennial sowthistle. Partial control of wild buckwheat.	Crop: 2-leaf until prior to boot.	Addition of 2,4-D ester or MCPA ester improves broadleaf weed control and crop safety. Add NIS at 0.125% except when adding 2,4-D or MCPA at 0.75 pt/A. Refer to label for crop rotation restrictions. Apply with a broadleaf herbicide with a different mode of action to delay weed resistance. Do not apply within 22 months of last metsulfuron treatment. Do not apply to soils above pH 7.9. A3 A5 C6 S1 X1 Y13 Y36 Y6 Pages: 102-103, 104-105, 108-110
Ally Extra / generic metsulfuron & thifensulfuron & tribenuron	0.2 to 0.4 oz DF (0.116 to 0.231 oz)	Broadleaf weeds including perennial sowthistle. Improved control of wild buckwheat.	Crop: 2-leaf until prior to flag leaf emergence.	
Peak (prosulfuron)	0.38 to 0.5 oz DF (0.22 to 0.29 oz)	Broadleaf weeds.	Crop: 3-leaf until 2nd node.	A3 C20 X1 Y1 Y3 Pages: 102-103, 108-110

Very Long Residual ALS Herbicides

Amber / generic triasulfuron	0.28 to 0.56 oz DF (0.21 to 0.42 oz)	Broadleaf weeds.	Crop: 2-leaf until prior to boot stage.	Add NIS at 0.125 to 0.25%v/v. A3 A5 C7 X1 Y1 Y3 Y6 Pages: 102-103, 108-110
Glean / generic chlorsulfuron	1.67 to 0.33 oz DF (0.125 to 0.25 oz)	Broadleaf weeds and suppression of foxtail and Canada thistle.	Crop: 2-leaf until prior to flag leaf emergence.	Add NIS at 0.125% v/v except when adding 2,4-D ester or MCPA ester at 0.75 pt/A. Refer to label for application timings, tank-mix options, weeds controlled, and soil pH restrictions. A3 A5 C7 X1 Y1 Y3 Y6 Pages: 102-103, 104-105, 108-110
Finesse / generic chlorsulfuron & metsulfuron	0.2 to 0.4 oz DF (0.15 to 0.3 oz)			

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Hard Red Spring and Durum Wheat, Winter Wheat and Barley

Herbicide	Product/A (ai/A)	Weeds	When to Apply	Remarks and Paragraphs
POST-Applied Grass Herbicides				
Axial XL (pinoxaden & cloquintocet safener) Not for Durum	16.4 fl oz (0.86 oz)	Foxtail, wild and volunteer oat, Persian darnel, and annual ryegrass.	Crop: 2-leaf to boot. Grasses: 1-leaf to 6-leaf + 3 tillers.	Axial XL is formulated with Adigor adjuvant. May be tank-mixed with most broadleaf herbicides. Refer to label for tank-mix information, and restrictions. A3 C9 S2 S6 X1 Pages: 102-103
Axial TBC (pinoxaden & florasulam & safener) Not for Durum	8.85 fl oz (0.93 oz)	Some broadleaf weeds.	Crop: 3-leaf to prior to boot. Grasses: 1-leaf to 6-leaf + 3 tillers.	Add Adigor adjuvant at 9.6 fl oz/A. May be tank-mixed with most broadleaf herbicides. Refer to label for tank-mix information, and restrictions. A3 C9 S2 S6 X1 Pages: 102-103
Achieve Liquid (tralkoxydim)	6.9 fl oz (0.18 lb)	Green and yellow foxtail, wild and volunteer oat, Persian darnel, and annual ryegrass.	Crop: 2-leaf to boot. Foxtail: 1- to 5-leaf. Wild oat: 1- to 6-leaf.	Do not apply Achieve on spring wheat east of ND Hwy 281 or in the following ND counties: Dickey, LaMoure, Stutsman, Foster, Eddy, Ramsey, and Towner. Add AMS at 7 to 15 lb/100 gal water. Add Supercharge at 0.5% v/v. Refer to label for tank-mix information and restrictions. A3 A6 C3 S2 S6 X1 Pages: 102-103
Discover NG (clodinafop & cloquintocet safener) Not For Barley	12.8 to 16 fl oz (0.05 to 0.06 lb)	Oat, green and yellow foxtail, barnyardgrass, Persian darnel, and annual ryegrass.	Wheat: 2-leaf until prior to boot. Wild oat: 1- to 6-leaf. Foxtails: 1- to 5-leaf.	Discover NG is formulated with oil adjuvant. Add MSO adjuvant at 0.25% v/v if <10 gpa. Apply higher rates for Persian darnel and ryegrass. Refer to label for rates and tank-mix information. A3 C12 S2 S6 X1 Pages: 102-103
Puma / generic fenoxaprop & mefenpyr safener	0.33 to 0.66 pt (0.04 to 0.08 lb)	Wild oat, green and yellow foxtail, millets, corn, and barnyardgrass.	Wheat: Emergence to 60 days PHI. Barley: 1-leaf to 4-leaf. Grass weeds: 1-leaf to 2-tiller.	Apply 0.33 pt/A for green foxtail, corn and millet. Apply 0.4 pt/A for yellow foxtail and proso millet. Apply 0.66 pt/A for barnyardgrass and wild oat. Refer to label for tank-mix options. A3 A6 C21 S2 S6 X1 Pages: 102-103
Wolverine (fenoxaprop & bromoxynil & pyrasulfotole & mefenpyr safener)	1.7 pt EC (0.08 lb & 0.176 lb & 0.036 lb)	Annual grass and broadleaf weeds.	Wheat: Emergence to 60 days PHI. Barley: Emergence to 57 days PHI. Grass weeds: 1-leaf to 2-tiller.	Most crops can be planted the year following application. Do not plant lentil for 18 months after application. A3 C17 C21 S1 S3-5 X1 Pages: 102-103
Avenge (difenzoquat)	2.5 to 4 pt (0.62 to 1 lb)	Wild oat.	Crop: Prior to flag leaf emergence. Wild oat: 3- to 5-leaf.	Labeled on all barley varieties. Refer to label for registered wheat varieties. Use the high rate on 3-leaf wild oat. Injury may occur when crop is under stress. A3. Pages: 102-103
Assert (imazamethabenz) Long Residual	1 to 1.5 pt (0.31 to 0.47 lb)	Wild oat, wild mustard, and other mustard species.	Crop: 2-leaf to jointing. Wild oat: 1- to 4-leaf.	Do not tank-mix with dicamba, or amine phenoxy. Add MSO-type adjuvants. Refer to label for tank-mix options and adjuvant information. A3 C8 S6 Y2 Y6 Pages: 102-103, 108-110
Everest 2.0 (flucarbazone & safener) Not for Barley Short to Long Residual	0.5 to 1 fl oz (0.224 to 0.432 oz)	Wild oat, green foxtail, mustards, and pigweed. Partial control of yellow foxtail, barnyardgrass, downy brome, Japanese brome and Persian darnel	Wheat: 1-leaf to prior to jointing. Grass weeds: Up to 4 leaves.	Add basic pH blend adjuvant at 0.5 to 1% v/v or NIS at 0.25% v/v + AMS. Apply 0.5 fl oz/A for green foxtail or sequentially after Pre-Pare. Apply 0.75 to 1 fl oz/A for wild oat and other grasses. Tankmixes with tribenuron improve grass control. A3 C13 S2 S6 X1 Pages: 102-103, 108-110
Raze (flucarbazone & fluroxypyr & safener) Registration Pending Not for Barley	5 to 9 fl oz (0.2 to 0.37 oz ai & 1.06 to 1.9 oz ae)	Wild oat, foxtail, kochia, mustards, pigweed, flax, and bedstraw.	Wheat: 2-leaf to prior to jointing. Grass weeds: 1 to 4 leaves. Broadleaf weeds: 2 to 4 inches.	Add basic pH blend adjuvant at 0.5 to 1% v/v or NIS at 0.25% v/v + AMS. Apply 5 fl oz/A for green foxtail or sequentially after Pre-Pare. Apply 7 to 9 fl oz/A for wild oat, other grasses, and kochia. Tankmixes with SU broadleaf herbicides will improve grass control and expand spectrum of grasses controlled. A3 C13 S2 S6 X1 Pages: 102-103, 108-110

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Hard Red Spring and Durum Wheat, Winter Wheat and Barley

Herbicide	Product/A (ai/A)	Weeds	When to Apply	Remarks and Paragraphs
Maverick (sulfosulfuron) Not For Barley Very Long Residual	0.67 oz DF (0.5 oz)	Downy brome, Japanese brome, quackgrass, mustard species and volunteer sunflower.	Wheat: Emergence to prior to jointing. Bromes: 2- to 3- tillers. Wild oat: 1- to 4-leaf.	Add NIS at 0.5%v/v. Fall applications provide greater brome and cheatgrass control than spring applications. Spring applications may control wild oat. Refer to label for tank-mix options. A3 A5 C18 X1 Y3 Y6 Pages: 102-103, 108-110
Olympus (propoxy-carbazone) Not For Barley Very Long Residual	0.6 to 0.9 oz/A WG (0.42 to 0.63 oz)	Quackgrass, downy brome, Japanese brome, foxtail barley and mustard species.	Wheat: 2-leaf to jointing. Grasses: 2-leaf to 2-tiller. Broadleaf weeds: Less than 2 inches tall or in diameter.	Application to spring wheat may cause injury. Do not apply after jointing begins. Allow a 71 day PHI. Add NIS at 0.25 to 0.5% v/v. May be applied with liquid fertilizer. Use high rate for wild oat and brome species. Refer to label for tank-mix options. A3 S2 S6 X1 Y2 Y4 Pages: 102-103, 108-110
Rimfire Max (mesosulfuron & propoxycarbazone & mefenpyr safener) Not For Barley Short to Long Residual	3 oz WG (0.057 oz & 0.143 oz)	Wild oat, barnyardgrass, seedling foxtail barley, bromus grass species, and mustard species. Rimfire Max improves Persian darnel control.	Wheat: 1-leaf to flag leaf emergence. Grasses: 1-leaf to 2-tiller. Broadleaf weeds: Less than 2 inches tall.	Add MSO adjuvant at 1.25 pt/A, or NIS at 0.5% v/v + 28% UAN at 1 to 2 qt/A, or basic pH blend adjuvant at 1% v/v (0.8 to 1.6 pt/A). Do not use petroleum oil or adjuvants containing organosilicone because wild oat control will be reduced. Refer to label for tank-mix options. A3 C18 S2 S6 X1 Y2 Y6 Pages: 102-103, 108-110
PowerFlex (pyroxsulam + cloquintocet safener) Only for Winter Wheat Short Residual	3.5 oz WDG (0.26 oz)	Wild oat, downy brome and suppression of green foxtail.	Wheat: 3-leaf to prior to jointing. Grass weeds: 2- to 4-leaf. Broadleaf weeds: Less than 3 inches tall.	Do not apply after jointing begins. Will control ACC-ase resistant wild oat. Allow a 60 day PHI. For PowerFlex: Add NIS at 0.25 to 0.5% v/v + AMS at 1.5 lb/A or PO at 0.8% v/v. May be applied with 50% N spray solution.
GoldSky (pyroxsulam + florasulam + fluroxypyr + cloquintocet safener) Not for Barley Short Residual	1 pt (0.21 oz & 0.04 oz & 1.42 oz)	Wild oat, downy brome, green foxtail, kochia, wild mustard, and wild buckwheat.		For GoldSky: Add NIS at 0.25 to 0.5% v/v + AMS at 1.5 lb/A. Do not add NIS with tank-mix of EC herbicides. Refer to label for tank-mix information and restrictions. A3 C11 C16 X1

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HERBICIDE RESISTANT WHEAT

Clearfield Wheat

Herbicide	Product/A (ai/A)	Weeds	When to Apply	Remarks and Paragraphs
Beyond (imazamox)	4 fl oz (0.5 oz)	Annual grass and broadleaf weeds including wild oat, green and yellow foxtail, Japanese and downy brome, and Persian darnel.	Wheat: 4-leaf to prior to jointing.	Apply only to Clearfield wheat varieties. Add NIS at 0.25% v/v + UAN at 1 to 2 qt/A. Will not control ALS-resistant kochia and wild oat. Refer to label for tank-mix options and application information. Will suppress feral rye. A3 A5-7 C23 X1 Y2 Pages: 102-103, 108-110
Long Residual			Weeds: 1 to 3 inches tall.	
ClearMax (imazamox & MCPA)	4 + 8 fl oz (0.5 oz & 4 oz) Winter wheat: Up to 18 fl oz.			

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Grass weed control from postemergence applications.


POST GRASS HERBICIDES	Wild oat	Foxtail, Green	Foxtail, Yellow	Barley, Volunteer	Barnyardgrass	Corn, Volunteer	Brome, Downy*	Brome, Japanese*	Persian darnel	Ryegrass, Annual	Quackgrass	Foxtail barley
Achieve	E	G-E	G	N	F	-	N	N	G	G	N	N
Assert	F-G	P	P	N	P	-	-	-	-	-	N	N
Axial XL/TBC	E	G-E	G-E	N	G-E	N	N	N	E	E	N	N
Beyond/ClearMax	E	E	G-E	E	E	G-E	G-E	E	E	G-E	F	-
Discover NG	E	E	G-E	P-G	E	E	N	N	G-E	G-E	-	N
Everest 2.0	G-E	E	P-G	P-F	F-G	E	P-F	G-E	F-G	P-F	P-F	F
GoldSky	G-E	F	F-G	N	F-G	-	F-G	G-E	-	G-E	F	F
Maverick**	E	P-F	P-F	-	P	-	F-G	G	-	P-F	G	-
Olympus	G-E	P-F	P-F	F-G	G	-	F-G	E	N	-	F-G	G
PowerFlex	G-E	F	F-G	-	F-G	-	F-G	G-E	-	G-E	F	F
Puma	E	E	E	N	E	E	N	N	-	-	N	N
Rimfire Max	G-E	P-F	P-F	P-F	G	F-G	P-F	G	G	-	F	F-G

*Early fall applications provide better control than late fall or spring. Earlier spring application are more effective than late spring or mid-season application.

**Suggested for use only in continuous wheat because of crop rotation restrictions.

Weed control ratings are based on the following scale:

- E = Excellent = 90 to 99% control
- G = Good = 80 to 90% control
- F = Fair = 65 to 80% control
- P = Poor = 40 to 65% control
- N = None = No control
- "-" = insufficient information

Herbicide	Product/A (ai/A)	Weeds	When to Apply	Remarks and Paragraphs
Refer to page 6 for Fall or Spring Early Preplant Herbicides.				
Callisto (mesotrione) 	3 to 6 fl oz (1.5 to 3 oz)	Many broadleaf weeds including those resistant to other herbicides.	PRE.	Callisto PRE requires rain for activation. For POST application add petroleum oil at 1% v/v or NIS at 0.25% v/v + UAN at 2.5% v/v or AMS at 8.5 lb/100 gal water. Addition of bromoxynil will increase risk of oat injury. Allow a 50 day PHI. A3 A7 D7 X1 Y9 Pages: 108-110
	3 fl oz (1.5 oz)		POST. Weeds: Up to 5 inches tall.	
Aim (carfentrazone)	0.5 fl oz EC (0.128 oz)	Small broadleaf weeds.	Crop: Up to jointing stage. Weeds: Small.	Contact, non-residual herbicide requiring thorough coverage. May cause cosmetic speckling on crop. Add NIS at 0.25% v/v. A3 B4 C5 S1 S3 S5 X1
MCPA amine MCPA ester	0.5 to 1 pt 4SL 0.5 to 1 pt 4EC (0.25 to 0.5 lb ae)	Broadleaf weeds.	Oat: Emergence until prior to boot stage.	Possible oat injury at any stage. A3 A6 C1-2 S3 X1 Pages: 102-103, 104-105
Buctril / generic bromoxynil	1 to 1.5 pt EC (0.25 to 0.38 lb)	Small broadleaf weeds including wild buckwheat, and volunteer sunflower.		Bromoxynil is a non-residual, contact herbicide requiring thorough coverage. Most active in hot and sunny conditions. Controls ALS-resistant kochia. Refer to label for tank-mix options. A3 C1-2 S3 S4 X1 Pages: 102-103, 104-105
Bronate / generic bromoxynil & MCPA	1 to 2 pt 4EC 0.8 to 1.6 pt 5EC (0.25 to 0.5 lb & 0.25 to 0.5 lb ae)		Oat: 3-leaf until prior to boot stage.	
Banvel / generic dicamba + MCPA	2 to 4 fl oz + 0.5 to 0.75 pt 4L (0.06 to 0.12 lb ae + 0.25 to 0.38 lb ae)	Broadleaf weeds.	Oat: 2- through 5-leaf stage.	Use the low dicamba rate and high MCPA rate on 5-leaf oat. Early application increases crop safety. A3 A5-7 C2 C10 S1 S3 X1 Y10 Pages: 102-103, 104-105
Curtail M / generic clopyralid & MCPA	1.75 to 2.33 pt (0.09 to 0.12 lb ae & 0.5 to 0.68 lb ae)	Broadleaf weeds and Canada thistle.	Oat: 3-leaf to jointing.	Apply to Canada thistle at the rosette to early bolting stage. A3 C11 T2 T6 Pages: 102-103, 104-105, 108-110
Starane / generic fluroxypyr	0.5 - 0.67 pt 1.5EC 0.25 - 0.35pt 2.8EC 3.75 - 5 oz 40WDG (1.5 to 2 oz ae)	Kochia including ALS-resistant and volunteer flax.	Oat: 2-leaf through flag leaf emergence. Weeds: Small.	Non-residual herbicide. Allow a 40 day PHI. Refer to label for tank-mix options. Commercial mixtures with bromoxynil available as Starane NXT and with MCPA as Colt + Sword. A3 C11 S3 Pages: 102-103, 104-105
Widematch / generic clopyralid & fluroxypyr	1 to 1.33 pt (0.09 to 0.125 lb ae & 0.09 to 0.125 lb ae)	Broadleaf weeds including kochia, wild buckwheat, volunteer flax, and Canada thistle.	Oat: 3-leaf through flag leaf emergence. Weeds: Up to 4 inches tall or vining.	An economical formulation of clopyralid. Addition of 2,4-D, MCPA, or thifensulfuron increases broadleaf weed control. Compatible with all POST grass herbicides labeled in small grains. A3 C11 S1 S3 T2 T6 Pages: 102-103, 104-105, 108-110
thifen & tribenuron 1:0 75DF 1:0 50SG 4:1 ratio 75DF Affinity T/M 50SG 3:1 Audit 75DF 2:1 ratio 75DF 1:1 ratio 75DF Affinity B/S 50SG	0.3 to 0.4 oz DF 0.45 to 0.6 oz SG 0.4 to 0.67 oz DF 0.6 to 1 oz SG 0.3 to 0.5 oz DF 0.3 to 0.66 oz DF 0.25 to 0.5 oz DF 0.4 to 0.8 oz SG	Provides a broader spectrum of control than either a.i. alone. Choose ratio based on prevalent weeds.	Oat: 3- through 5-leaf stage but before jointing.	Do not use on Ogle, Porter, or Premier oat varieties. Addition of MCPA ester at 0.75 pt/A enhances broadleaf weed control and oat safety. Add NIS at 0.125% v/v except when adding MCPA at 0.75 pt/A. Refer to label for list of tank-mix options. A3 A5-7 C4 S1 S3 X1 Pages: 102-103, 104-105
Orion (florasulam & MCPA ester)	17 fl oz (0.07 oz & 0.31 lb)	Some broadleaf weeds.	Crop: 3-leaf to jointing. Weeds: Small.	Add NIS at 0.25% v/v. Allow a 60 day PHI. Refer to label for application information. A3 X1
Supremacy (fluroxypyr & thifensulfuron & tribenuron) Registration Pending	4 to 6 oz (1 to 1.5 oz ae & 0.18 to 0.27 oz ai & 0.06 to 0.09 oz ai)	Broadleaf weeds including pigweed, buckwheat, kochia, mustard, flax, and Canada thistle.	Wheat: 2-leaf through flag leaf emergence.	Add NIS at 0.25 to 0.5% v/v except when adding an EC or ester formulated herbicide. Use higher rates for larger weeds. A3 C4 C11 S2 S6 X1 Pages: 102-103

Pages 102-103 = Herbicide resistance, Pages 104-105 = Generic and commercial names, Pages 108-110 = Crop rotation restrictions.

SMALL GRAIN PRE/POST-HARVEST

Herbicide	Product/A (ai/A)	Weeds	When to Apply	Remarks and Paragraphs																									
Roundup / generic glyphosate For HRS, Durum and Winter Wheat and Feed Barley Only.	Up to 0.75 lb ae See Remarks.	Annual and perennial grass and broadleaf weeds including Canada thistle.	Wheat and barley: Hard-dough stage, 30% or less grain moisture. Allow a 7 day PHI.	<table border="1"> <tr> <td>lb ae/gal</td> <td>lb ai/gal</td> <td>0.38 ae</td> <td>0.57 ae</td> <td>0.75 ae</td> </tr> <tr> <td>3</td> <td>4</td> <td>= 16 fl oz</td> <td>24 fl oz</td> <td>32 fl oz</td> </tr> <tr> <td>4/4.17</td> <td>5.4/5.1</td> <td>= 12 fl oz</td> <td>18 fl oz</td> <td>24 fl oz</td> </tr> <tr> <td>4.5</td> <td>5.5</td> <td>= 11 fl oz</td> <td>16 fl oz</td> <td>22 fl oz</td> </tr> <tr> <td>5</td> <td>6.1</td> <td>= 10 fl oz</td> <td>15 fl oz</td> <td>20 fl oz</td> </tr> </table> <p>Do not apply more than 0.75 lb ae/season. Do not apply on wheat or barley grown for seed because reduced germination/vigor may occur. Apply 0.75 lb ae/A or more for Canada thistle control. May be applied with 2,4-D or dicamba for improved broadleaf weed control. Add AMS fertilizer at 4 lb/100 gal, or more for hard water. Refer to label for adjuvant use and application information. A3-7 B2 C24-28 T2 T6-7 X1</p>	lb ae/gal	lb ai/gal	0.38 ae	0.57 ae	0.75 ae	3	4	= 16 fl oz	24 fl oz	32 fl oz	4/4.17	5.4/5.1	= 12 fl oz	18 fl oz	24 fl oz	4.5	5.5	= 11 fl oz	16 fl oz	22 fl oz	5	6.1	= 10 fl oz	15 fl oz	20 fl oz
lb ae/gal	lb ai/gal	0.38 ae	0.57 ae	0.75 ae																									
3	4	= 16 fl oz	24 fl oz	32 fl oz																									
4/4.17	5.4/5.1	= 12 fl oz	18 fl oz	24 fl oz																									
4.5	5.5	= 11 fl oz	16 fl oz	22 fl oz																									
5	6.1	= 10 fl oz	15 fl oz	20 fl oz																									
2,4-D ester For HRS, Durum, and Winter Wheat, Barley, and Rye	1.5 to 3 pt 4EC/SL (0.75 to 1.5 lb ae)	Broadleaf weeds.	Wheat: Dough stage to harvest.	Use only when the weeds will interfere with harvest operations. Do not feed straw to livestock. Use only 2,4-D brands labeled for preharvest application. CAUTION: Drift to broadleaf crops is especially hazardous at this time. C24-28 T4-6 X1																									
Banvel / generic dicamba + 2,4-D For HRS, Durum, and Winter Wheat Only	0.5 to 1 pt + 1 to 2 pt 4EC/SL (0.25 to 0.5 lb ae + 0.5 to 1 lb ae)		Wheat: Hard-dough stage and green color is gone from the nodes (joints) of the stem.	Allow a 7 day PHI. Do not feed treated straw to livestock. CAUTION: Drift to broadleaf crops is especially hazardous at this time. A3 A6 C2 C24-28 T5-6 X1 Y10																									
thifen & tribenuron 4:1 ratio 75DF Affinity T/M 50SG 3:1 Audit 75DF 2:1 ratio 75DF 1:1 ratio 75DF Affinity B/S 50SG	0.6 to 1 oz DF 0.4 to 0.66 oz SG 0.3 to 0.5 oz DF 0.3 to 0.66 oz DF 0.25 to 0.5 oz DF 0.4 to 0.8 oz SG	Provides a broader spectrum of control than either a.i. alone. Choose ratio based on prevalent weeds.	Wheat and barley: Dough stage. Allow a 10 day PHI.	May be applied with glyphosate, 2,4-D, Aim, or fluroxypyr. Add NIS at 0.25% v/v. Refer to label for grazing restrictions. Use only registered brands for preharvest application. A3 A5-6 C4																									
Ally / generic metsulfuron + 2,4-D For HRS, Durum, and Winter Wheat and Barley Only	0.1 oz DF + 1.5 to 3 pt 4EC/SL (0.06 oz + 0.75 to 1.5 lb ae)			For use in wheat/fallow or continuous wheat. Do not use if crop was treated previously with an ALS herbicide. Add NIS at 0.25% v/v. May be tank-mixed with dicamba in wheat for resistant weed management. Metsulfuron has no grazing restrictions. Refer to 2,4-D label for grazing restrictions and for brands labeled for preharvest application. A3 A5-6 C6 C26 Y3 Pages: 102-103, 108-110																									
Aim (carfentrazone)	0.5 to 1 fl oz EC (0.128 to 0.256 oz)	Small broadleaf weeds.	Wheat: Dough stage to harvest.	Non-residual, contact herbicide requiring thorough coverage. Most active in hot and sunny conditions. Add NIS at 0.25% v/v. Allow a 3 day PHI. B4 C5 S1 S3-4 X1																									
Rage D-Tech (carfentrazone & 2,4-D)	16 to 32 fl oz (0.256 to 0.512 oz & 0.5 to 1 lb ae)	Broadleaf weeds.		Add MSO at 1 to 2% v/v or petroleum oil at 1.5 to 2% v/v. May add UAN at 2 to 4% v/v or AMS at 2 to 4 lb/A. Allow a 3 day PHI. B4 C5 S1 S3-4 X1																									

Pages 102-103 = Herbicide resistance, Pages 104-105 = Generic and commercial names, Pages 108-110 = Crop rotation restrictions.

HERBICIDES REGISTERED ON SMALL ACREAGE CROPS AND TURF

The following chart is only an aid to identify registered herbicides on the following crops. Not all labels of similar active ingredients cover identical crops. Not all formulations are registered in the state of North Dakota. Refer to the ND Dept of Ag web site for formulations registered in the state. Many products require specific application instructions and not all formulations can be used in-crop with adequate crop tolerance. For example, glyphosate is registered on most crops listed as a PRE or directed application between rows but glyphosate applied POST on crop foliage will kill crop plants. Refer to Herbicide Compendium for additional information on products listed. User must follow label directions. Refer to label of specific product:

1. To determine what crops are registered.

2. For application instructions.

3. For all other restrictions and use information.

Herbicides registered on small acreage crops.

BUCKWHEAT	
Aim (carfentrazone) - Preplant ET (pyraflufen)	Poast (sethoxydim) Roundup/glyphosate* - Preplant
JUNEBERRY	
Chateau (flumioxazin) Poast (sethoxydim)	Roundup/glyphosate* - Preplant
MILLET	
Aim (carfentrazone) Banvel / dicamba* Callisto - Pearl millet	Starane / fluroxypyr* Peak (prosuluron) 2,4-D
MINT	
Assure II / Targa (quizalofop) Basagran / bentazon* Buctril / bromoxynil* Chateau (flumioxazin) Goal (oxyfluorfen) Karmex / diuron* paraquat* - Preplant	Poast (sethoxydim) Prowl H2O (pendimethalin) Roundup/glyphosate* - Preplant Select / clethodim* Stinger / clopyralid* Spartan (sulfentrazone)
ONION	
Buctril / bromoxynil* Dacthal (DCPA) Outlook / dimethenamid* Fusilade DX (fluazifop) Goal (oxyfluorfen) paraquat* - Preplant	Poast (sethoxydim) Prefar (bensulide) Prowl H2O (pendimethalin) Roundup/glyphosate* - Preplant Select / clethodim* Treflan / trifluralin*

RYE	
Aim/Rage D-Tech (carfentrazn) Buctril / bromoxynil* Roundup/glyphosate* - Preplant Orion (florasulam & MCPA)	MCPA Peak (prosuluron) Sharpen (saflufenacil) 2,4-D
SORGHUM	
Aim (carfentrazone) atrazine Banvel / dicamba* Basagran / bentazon* Buctril / bromoxynil* Callisto (mesotrione) Dual / S/metolachlor* G-Max Lite (atra&dimethenmd) Lasso / alachlor* Outlook / dimethenamid* paraquat* - Preplant	Paramount (quinclorac) Peak (prosuluron) Permit (halosulfuron) Priority (carfentrzn&halosulfrn) Prowl H2O (pendimethalin) Rage D-Tech (carfentrzn&2,4-D) Sequence (glyt & metolachlor) Sharpen (saflufenacil) Starane / fluroxypyr* Yukon (dicamba&halosulfuron) 2,4-D
TRITICALE	
Achieve (tralkoxydim) Affinity / thifen & triben* Aim (carfentrazone) Ally / metsulfuron* Ally Extra* Banvel / dicamba* Buctril / bromoxynil* DoubleUp B+G (brmxynl&2,4-D) ET (pyraflufen) Express / tribenuron*	Far-Go (triallate) Finesse / chlor & metsulfuron* Glean / chlorsulfuron* Huskie (bromox&pyrasulfatole) Orion (florasulam & MCPA) Peak (prosuluron) Rhomene (MCPA) Sharpen (saflufenacil) Starane / fluroxypyr* 2,4-D

* Or generic equivalent

LAWN (Grass weed control)											
Acclaim Extra (fenoxaprop), Certainty (sulfosulfuron), Dimension/Ultra (dithiopyr), Drive (quinclorac), Pendulum (pendimethalin), Weed B Gon Max + Crabgrass Control .											
LAWN (Broadleaf weed control)											
	MCP	2,4-D	dic	tric	other		MCP	2,4-D	dic	tric	other
All in One Weed Killer	MCPP	+	+	-	MSMA	Turflon Ester	-	-	-	+	-
Brush Killer	DCPP	+	+	-	-	WBG/Chickweed, clover...	-	-	-	+	-
Coolpower	MCPA	-	+	+	-	WBG Max	MCPP	+	+	-	-
Horsepower	MCPA	-	+	+	-	WBG Max - 25% more..	MCPA	-	+	+	-
Tenacity	-	-	-	-	meso	WBG Max + Crabgrass	MCPP	+	+	-	quin
Trimec Classic	MCPP	+	+	-	-	Weed Stop for Lawns2X	MCPP	+	+	-	sulf
Trimec Plus	MCPP	+	-	-	MSMA	WS for L + Crabgrass	-	+	+	-	sulf+quin
Trimec 889	MCPA	+	+	-	-						
Abbreviation: dic=dicamba, meso=mesotrione, quin=quinclorac, sulf = sulfentrazone, tric = triclopyr, WBG = Weed B Gon.											