


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
Refer to page 6 for additional Fall, Early Preplant, and PRE Herbicides.				
Soil-Applied Herbicides				
Far-Go (triallate ⁸) 	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. C1 C8
Treflan / generic trifluralin ³ Not for Winter Wheat	1 pt 4EC 5 lb 10G (0.5 lb)	Foxtail.	Spring: PPI.	FOR BARLEY ONLY. Incorporate twice 2 to 3 inches deep. C1 C13
	4 lb 10G (0.4 lb)			FOR DURUM WHEAT ONLY. For foxtail suppression only. C1 C13
	3.5 to 4 lb 10G (0.35 to 0.4 lb)			FOR HRSW ONLY. For suppression of foxtail only. Use west of Hwy 3 only. C1 C13
	1 pt 4E (0.5 lb)		Spring: After seeding.	Plant 2 to 2.5 inches deep. Incorporate shallow twice with flex-tine or diamond harrow 1 to 1.5 inches deep. C1 C13
	1 pt 4E 5 lb 10G (0.5 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. C1 C13
	3.5 to 5 lb 10G (0.35 to 0.5 lb)		FOR HRSW AND DURUM ONLY. For foxtail suppression only. C13	
Anthem Flex (pyroxasulfone & carfentrazone ^{14,15}) Not for barley or durum	2 to 4.5 fl oz SC (1 to 2.25 oz)	Pre: Foxtail and pigweed. POST: Broadleaf weeds less than 2 inches.	PRE to 4 th tiller.	PRE requires precipitation for activation. Sequential rain events will improve weed control. Adjust rate for soil type. Add NIS at 1 qt/100 gal or PO at 1-2 pt/A + UAN or AMS. C1
Olympus (propoxy- carbazono ²) Not for barley or durum V. Long Residual	HRWW. 0.6 oz WDG (0.42 oz) HRSW. 0.2 oz WDG (0.14 oz)	Japanese and downy brome, mustard and pigweed species.	PRE.	Add NIS at 1 qt/100 gal for control of emerged species. Maximum propoxycarbazono rate per year allowed from Olympus or with combined products is 0.84 oz ai/A in winter wheat or 0.28 oz ai/A in spring wheat. C1 C12
Pre-Pare (flucarbazone ²) Not for barley or durum Short to Long Residual	HRSW. 0.2 to 0.3 oz WDG (0.14 to 0.21 oz)	G. foxtail, mustard and pigweeds. Soil residue may control y. foxtail, wild oat, Japanese and downy brome.	Preplant within 10 days of planting or PRE.	Add NIS at 1 qt/100 gal for control of emerged species. Maximum flucarbazone rate per year allowed from Pre- Pare with combined products is 0.43 oz WDG. C7
Quelex (halauxifen ⁴ & florasulam ²) Short to Long Residual	0.55 to 0.75 oz WDG (0.055 to 0.075 & 0.055 to 0.075 oz)	Pre: Small emerged broadleaf weeds.	Preplant until cracking.	PRE requires precipitation for activation. Add NIS at 1 to 2 qt/100 gal. C1

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 ³) Not for Barley	1.5 to 3 pt ACS (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. C1 C13
Zidua SC (pyroxasulfone ¹⁵) Not for Barley or Durum wheat	1.25 to 4 fl oz SC (0.65 to 2 oz)	Some small-seeded weeds.	Wheat: Preplant through 4 th tiller.	Soil residue provides PRE control of weeds. Requires 1 inch of rainfall for activation. Sequential rain events will improve weed control. Refer to label for use directions and restrictions. C1
MCPA ⁴ amine MCPA ⁴ ester	0.5 to 1.33 pt 4SL 0.5 to 1.33 pt 4EC (0.25 to 0.66 lb)	Broadleaf weeds.	Crop: 3-leaf until prior to boot depending on label.	Follow label directions as MCPA labels vary on application timing. Use high rate for large or perennial weeds. C1-2
2,4-D ⁴ amine 2,4-D ⁴ ester	0.5 to 1 pt 4SL 0.5 to 1 pt 4EC (0.25 to 0.5 lb)		Winter wheat: In spring - well tillered until prior to boot. <i>Do not apply to winter wheat in fall.</i>	Follow label directions as 2,4-D labels vary on application timing. Do not apply from early boot to dough stage. C1-2
Dicamba ⁴	2 to 4 fl oz 4SL 1.6 to 3.2 fl oz 5 SL (1 to 2 oz) Barley: 2 to 3 fl oz (1 to 1.5 oz)	Broadleaf weeds including wild buckwheat, sunflower, Russian thistle and kochia.	HRSW/Durum: Up to 5-leaf. Barley: Up to 4-leaf. HRWW: Pre-joint.	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. C1-2 C4
Starane Ultra / generic fluroxypyr ⁴	0.67 pt 1.5EC 0.35 pt 2.8EC 5 oz 40WDG (2 oz)	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. C5
Curtail M / generic clopyralid ⁴ & MCPA ⁴	1.75 to 2.33 pt EC (0.09 to 0.12 lb & 0.5 to 0.68 lb)	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. C5
Curtail / generic clopyralid ⁴ & 2,4-D ⁴	2 to 2.67 pt SL (0.09 to 0.13 lb & 0.5 to 0.67 lb)		Crop: 4-leaf until prior to boot.	
WideMatch / generic clopyralid ⁴ & fluroxypyr ⁴	1 to 1.33 pt EC (0.09 to 0.125 lb & 0.09 to 0.125 lb)	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. WideMatch commercial mixture with MCPA ester available as Hat Trick or Weld. Refer to label for application information. C5
PerfectMatch (pyroxsulam ² & clopyralid ⁴ & fluroxypyr ⁴) Not for Barley	1 pt SE (0.014 lb & 0.094 lb & 0.094 lb)	Also controls foxtail, wild oat, barnyardgrass, and partial control of bromes.	Crop: 3-leaf until prior to jointing. Weeds: Up to 4 inches tall.	

Hard Red Spring and Durum Wheat, Winter Wheat and Barley

Herbicide	Product/A (ai/A)	Weeds	When to Apply	Remarks and Paragraphs
Bromoxynil ⁶	1 to 2 pt EC (0.25 to 0.5 lb)	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. C1-2
Bromoxynil ⁶ & MCPA ⁴	1 to 2 pt 4EC 0.8 to 1.6 pt 5EC (0.25 to 0.5 lb & 0.25 to 0.5 lb)	Small broadleaf weeds including wild buckwheat, sunflower, Russian thistle and kochia.	Crop: 3-leaf stage until prior to boot.	Higher rates or a tank-mix partner may be required for high weed populations and weeds greater than 4 inches tall. C1-2 C5
Bromoxynil ⁶ & 2,4-D ⁴	0.75 to 1.5 pt EC (0.18 to 0.38 lb & 0.25 to 0.5 lb) Rates vary by label.		Crop: 3-leaf to flag leaf emergence.	
Bromoxynil ⁶ & fluroxypyr ⁴	14 to 21 fl oz EC (4 to 6 oz & 1 to 1.5 oz)			
Aim (carfentrazone ¹⁴)	0.5 fl oz EC (0.128 oz)	Small broadleaf weeds including pigweed and kochia.	Crop: Up to jointing stage. Weeds: Small. Up to 1 inch tall.	Contact, non-residual herbicide requiring thorough coverage. May cause cosmetic speckling on wheat leaves. Add NIS at 1 qt/100 gal. Refer to label for tank-mix options and application information. C1
Huskie Complete (bromoxynil ⁶ & pyrasulfotole ²⁷ & thiencarbazone ² & mefenpyr safener) Not for Barley RUP	13.7 fl oz OD (0.156 lb phenol or 0.22 lb ester & 0.028 lb & 0.072 oz)	Wild oat, foxtails, barnyardgrass, Persian darnel, and most annual broadleaf weeds	Wheat: 1-leaf to 60 day PHI. Grass weeds: Up to 2 tillers. Broadleaf weeds: Up to 4 inches tall.	Do not apply to barley. Will control some ACC-ase resistant grass biotypes. Refer to label for crop rotation restrictions, tank-mix options, and application information. C1 C11
Huskie (bromoxynil ⁶ & pyrasulfotole ²⁷ & mefenpyr safener)	11 to 15 fl oz EC (0.16 to 0.2 lb & 0.027 to 0.036 lb)	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. Huskie = C1 C11
Wolverine Advanced (fenoxaprop ¹ & bromoxynil ⁶ & pyrasulfotole ²⁷ & mefenpyr safener)	1.7 pt EC (0.085 lb & 0.223 lb & 0.028 lb)	Annual grass and broadleaf weeds.	Wheat: Emergence to 60 days PHI. Barley: Emergence to 5-leaf. Grass weeds: 1-leaf to 2-tiller.	Wolverine Advanced = C1 C11
Talinor (bromoxynil ⁶ & bicyclopyrone ²⁷ & safener)	13.7 to 18.2 fl oz EC (0.156 to 0.208 lb & 0.033 to 0.044 lb)	Most annual broadleaf weeds including resistant weeds.	Crop: 2-leaf to pre-boot. Weeds: Up to 4 inches tall.	Must include co-pack of CoAct adjuvant and COC at 1 gal/100 gal or NIS at 1 qt/100 gal. Do not add oil or surfactant if tank mixed with a herbicide containing a built-in adjuvant. Do not add AMS-containing products or UAN as severe injury may occur.

Hard Red Spring and Durum Wheat, Winter Wheat and Barley

Herbicide	Product/A (ai/A)	Weeds	When to Apply	Remarks and Paragraphs
Short Residual ALS Herbicides				
Orion (florasulam ² & MCPA ⁴ ester)	17 fl oz SE (0.07 oz & 0.31 lb)	Some broadleaf weeds.	Crop: 3-leaf to jointing. Weeds: Small.	Add NIS at 1 qt/100 gal. May be tank-mixed with grass herbicides. Allow a 60 day PHI. Refer to label for application information. C1-2
Starane Flex (florasulam ² & fluroxypyr ⁴)	13.5 fl oz EC (0.07 oz & 1.4 oz)		Crop: 3-leaf to flag leaf emergence. Weeds: Small.	May be tank-mixed with Group 1 POST grass herbicides. Allow a 60 day PHI. Has shorter crop rotation restrictions than WideMatch. C1 C5
Quelex (florasulam ² & halauxifen ⁴)	0.75 oz WDG (0.075 oz & 0.075 oz)		Crop: 2-leaf to flag leaf emergence. Weeds: Small.	Add NIS at 1 to 2 qt/100 gal. Has not been proven safe to some rotational crops. Allow a 60 day PHI. C1
thifensulfuron ²	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. Allow a 45 day PHI.	Do not apply higher tribenuron rates with POST Group 1 (ACCase) grass herbicides to avoid grass herbicide antagonism. Tribenuron may enhance control of some Group 2 (ALS) herbicides (e.g. flucarbazone) for yellow foxtail. Addition of MCPA ester or 2,4-D ester improves broadleaf weed control and crop safety. Add NIS at 1 pt/100 gal except when adding 2,4-D or MCPA at 0.75 pt/A. Sentrallis may control kochia. No crop rotation restrictions the following year. Refer to label for list of registered tank-mixes. C1
Sentrallas (thifensulfuron ² & fluroxypyr ⁴)	7 to 14 fl oz OD (0.22 to 0.44 & 1.12 to 2.24)			
Express / generic tribenuron ²	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 ² & tribenuron ² 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 ⁴ & thifensulfuron ² & tribenuron ²)	4 to 6 oz WDG (1 to 1.5 oz ae & 0.18 to 0.27 oz & 0.06 to 0.09 oz)	Broadleaf weeds including pigweed, buckwheat, kochia, mustard, flax, and Canada thistle.		Add NIS at 1-2 qt/100 gal except when adding an EC or ester formulated herbicide. Use higher rates for larger weeds. C1 C5 C9
Long Residual ALS Herbicides				
Ally / generic metsulfuron ²	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 1 pt/100 gal except when adding 2,4-D or MCPA at 0.75 pt/A. Refer to label for crop rotation restrictions. Do not apply within 22 months of last metsulfuron treatment. Do not apply to soils above pH 7.9. C1
Ally Extra / generic metsulfuron ² & thifensulfuron ² & tribenuron ²	0.3 to 0.6 oz DF (0.174 to 0.347 oz)	Broadleaf weeds including perennial sowthistle. Improved control of wild buckwheat.	Crop: 2-leaf until prior to flag leaf emergence.	
Travallas (metsulfuron ² & thifensulfuron ² & fluroxypyr ⁴)	7 fl oz OD (0.022 & 0.22 & 1.1 oz)			
Very Long Residual ALS Herbicides				
Amber / generic triasulfuron ²	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 1 qt/100 gal. C1
Glean / generic chlorsulfuron ²	0.167 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 1 pt/100 gal 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. C1
Finesse / generic chlorsulfuron ² & metsulfuron ²	0.2 to 0.4 oz DF (0.15 to 0.3 oz)			

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 ¹ & cloquintocet safener) Not for Durum	16.4 fl oz EC (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, Axial Star and Axial Bold are formulated with Adigor adjuvant. May be tank-mixed with most broadleaf herbicides. Refer to label for tank-mix information and restrictions. C1 C3
Axial Star (pinoxaden ¹ & fluroxypyr ⁴) Not for Durum	16.4 fl oz EC (0.053 lb & 0.094 lb)	fluroxypyr also controls kochia with partial control of annual broadleaf weeds.	Crop: 2-leaf until prior to boot. Foxtail: 1- to 3-leaf. Wild oat: 1- to 6-leaf.	
Axial Bold (pinoxaden ¹ & fenoxaprop ¹) Not for Durum	15 fl oz EC (0.054 lb & 0.027)	Foxtail, wild oat, barnyardgrass, Persian darnel	Wheat: Emerge to pre-boot. Barley: Prior to jointing. P. Darnel, wild oat: 1- to 6-leaf. Foxtails, Bygrass: 1- to 5-leaf.	
Discover NG (clodinafop ¹ & cloquintocet safener) Not For Barley	12.8 to 16 fl oz EC (0.05 to 0.06 lb)	Wild 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 1 qt/100 gal if >10 gpa. Apply higher rates for Persian darnel and ryegrass. Refer to label for rates and tank-mix information. C1 C6
Fenoxaprop ¹ & mefenpyr safener	0.33 to 0.66 pt EC (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. C1 C9
Wolverine Advanced (fenoxaprop ¹ & bromoxynil ⁶ & pyrasulfotole ²⁷ & mefenpyr safener)	1.7 pt EC (0.085 lb & 0.223 lb & 0.028 lb)	Annual grass and broadleaf weeds.	Wheat: Emergence to 60 days PHI. Barley: Emergence to 5-leaf. 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. C1 C9 C11
Everest 3.0 Sierra (flucarbazone ² & safener) Not for Barley Short to Long Residual	1 to 2 fl oz OD 0.5 to 1 fl oz SC (0.219 to 0.438 oz)	Wild oat, green foxtail, mustards, and pigweed. Partial control of yellow foxtail, barnyardgrass, downy brome, Japanese brome and Persian darnel	Wheat: Everest: 1-leaf to 60 days PHI. Sierra: 1-leaf to prior to jointing. Grass weeds: Up to 4 leaves.	Add basic pH blend adjuvant at 2-4 qt/100 gal or NIS at 1 qt/100 gal + AMS. Apply Everest at 2 fl oz/A or Sierra at 0.75 to 1 fl oz/A for wild oat and other grasses. Everest at 1 to 1.3 fl oz/A can be applied after Pre-Pare. Apply Sierra at 0.5 fl oz/A for green foxtail or sequentially after Pre-Pare. Do not apply more than a total of 0.438 oz ai/A flucarbazone to the crop. Tankmixes with tribenuron improve grass control. C1 C7
Varro (thiencarbazone ² & mefenpyr safener) Not for Barley Short Residual	6.85 fl oz EC OD (0.072 oz)	Wild oat, foxtails, barnyardgrass, Persian darnel, and some annual broadleaf weeds.	Wheat: 1-leaf to prior to jointing. Grass weeds: Up to 2 tillers. Broadleaf weeds: Up to 3 inches tall.	May control some ACC-ase resistant grass biotypes. Varro may be tank-mixed with many broadleaf herbicides. Adjuvants are not required with Varro. AMS is not recommended for durum. Refer to label for crop rotation restrictions, tank-mix options, and application information. C1 C11
Huskie Complete (bromoxynil ⁶ & pyrasulfotole ²⁷ & thiencarbazone ² & mefenpyr safener) Not for Barley Short Residual RUP	13.7 fl oz EC OD (0.156 lb phenol or 0.22 lb ester & 0.028 lb & 0.072 oz)	Wild oat, foxtails, barnyardgrass, Persian darnel, and most annual broadleaf weeds including resistant weeds.	Wheat: 1-leaf to 60 day PHI. Grass weeds: Up to 2 tillers. Broadleaf weeds: Up to 3 inches tall.	

Hard Red Spring and Durum Wheat, Winter Wheat and Barley

Herbicide	Product/A (ai/A)	Weeds	When to Apply	Remarks and Paragraphs
Olympus (propoxy-carbazone ²) Not For Barley Very Long Residual	Winter wheat: 0.6 to 0.9 oz WDG (0.42 to 0.63 oz) Spring/durum wheat 0.2 oz WDG (0.14 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 at high rates may injure spring wheat. Do not apply after wheat jointing begins. Add NIS at 1 to 2 qt/100 gal. May be applied with liquid fertilizer in winter wheat. Use high rate for wild oat and brome species. Allow a 71 day PHI. Refer to label for tank-mix options. C1 C12
Osprey (mesosulfuron ² & mefenpyr safener) Winter wheat only Short Residual	3.2 to 4.75 oz WDG (0.14 to 0.21 oz)	Wild oat, Persian darnel, and mustard species.	Wheat: Up to jointing. Weeds: Less than 2 inches or 1-tiller.	Do not use in spring wheat. Add MSO adjuvant at 1.5 pt/A. May control some ACC-ase resistant wild oat biotypes. Refer to label for tank-mix options. C1 C12
Rimfire Max (mesosulfuron ² & propoxycarbazone ² & 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, Persian darnel and mustard species.	Wheat. Spring: 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 2 qt/100 gal + 28% UAN at 1 to 2 qt/A, or basic pH blend adjuvant at 1 gal/100 gal (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. C1 C12
PowerFlex HL (pyroxsulam ² + cloquintocet safener) Only for Winter Wheat Short Residual	2 oz WDG (0.26 oz)	Wild oat, foxtail, bromes, barnyardgrass, and Persian darnel.	Wheat: 3-leaf to prior to jointing. Grass weeds: 2- to 4-leaf.	May control some ACC-ase resistant wild oat biotypes. Allow a 60 day PHI. For PowerFlex: Add NIS at 1-2 qt/100 gal + AMS at 1.5 lb/A or petroleum oil adjuvant at 0.8 gal/100 gal. May be applied in a 50% N spray solution. Refer to label for application information. C5
Teammate (pyroxsulam ² & safener) Not for Barley Short Residual Registration Pending	1 oz WDG (0.21 oz)			
GoldSky (pyroxsulam ² + florasulam ² + fluroxypyr ⁴ + cloquintocet safener) Not for Barley Short Residual	1 pt OD (0.21 oz & 0.04 oz & 1.42 oz)	Wild oat, bromes, barnyardgrass, foxtail, P. darnel, and many annual broadleaf weeds.	Wheat: 3-leaf to prior to jointing. Grass weeds: 2- to 4-leaf. Broadleaf weeds: Less than 3 inches tall.	Add NIS at 1-2 qt/100 gal + 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. C1 C5 C10
OpenSky (pyroxsulam ² + fluroxypyr ⁴ + cloquintocet safener) Not for Barley Short Residual	Spring wheat: 1 pt SE (0.21 oz & 1.9 oz) Winter wheat: 1.25 pt SE (0.27 oz & 2.38 oz)	Greater kochia control.	Wheat: 3-leaf to prior to flag leaf emergence. Grass weeds: 2- to 4-leaf. Broadleaf weeds: Less than 4 inches tall.	
PerfectMatch (pyroxsulam ² & clopyralid ⁴ & fluroxypyr ⁴) Not for Barley Long Residual	1 pt OD (0.014 lb & 0.094 lb & 0.094 lb)	Also controls Canada thistle.	Crop: 3-leaf until prior to jointing. Weeds: Up to 4 inches tall.	Apply with 2,4-D or MCPA to increase spectrum of broadleaf weed control. Refer to label for application information. C5

HERBICIDE-RESISTANT WHEAT

Clearfield Wheat

Herbicide	Product/A (ai/A)	Weeds	When to Apply	Remarks and Paragraphs
Beyond (imazamox ²) Long Residual	4 fl oz SL (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. Weeds: 1 to 3 inches tall.	Apply only to Clearfield wheat varieties. Beyond at 4 to 6 fl oz/A may be used on winter wheat and Clearfield Plus spring wheat. Add NIS at 1 qt/100 gal + UAN at 1 to 2 qt/A or AMS at 8.5 lbs/100 gal. PO and MSO at 1 to 2 pts/A may be used only on Clearfield Plus spring wheat. Will not control ALS-resistant kochia and wild oat. Refer to label for tank-mix options and application information. Will suppress feral rye. C1-2

Grass weed control from POST applied herbicides.

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
Axial XL ¹ /Star ^{1,4} /Bold ¹	E	G-E	G-E	N	G-E	N	N	N	E	E	N	N
Beyond ² /ClearMax ^{2,4}	E	E	G-E	E	E	G-E	G-E	E	E	G-E	F	-
Discover NG ¹	E	E	G-E	P-G	E	E	N	N	G-E	G-E	-	N
Everest 3.0 / Sierra ²	G-E	E	P-G	P-F	P	F-G	P	G-E	F-G	P-F	P-F	F
Fenoxaprop ¹	E	E	E	N	E	E	N	N	N	-	N	N
GoldSky ^{2,2,4}	G-E	F-G	G-E	N	G-E	G	F-G	G-E	G	G-E	F	F
Huskie Complete ^{2,6,27}	G	F-G	F-G	-	G-E	-	P-F	F-G	F-G	-	-	F
Outrider ^{2**}	E	P-F	P-F	P-F	P	-	F-G	G	-	P-F	G	-
Olympus ²	G-E	P-F	P-F	P-F	G	-	F-G	E	N	-	F-G	G
OpenSky ^{2,4}	G-E	F-G	G-E	N	G-E	G	F-G	G-E	G	G-E	F	F
Perfectmatch ^{2,4,4}	G-E	F-G	G-E	N	G-E	G	F-G	G-E	G	G-E	F	F
PowerFlex ²	G-E	F-G	G-E	N	G-E	G	F-G	G-E	G	G-E	F	F
Rimfire Max ^{2,2}	G-E	P-F	P-F	P-F	G	F-G	P-F	G	G	-	F	F-G
Teammate ²	G-E	F-G	G-E	N	G-E	G	F-G	G-E	G	G-E	F	F
Varro ²	G	G	G	-	G-E	N	P-F	F-G	F-G	-	-	F-G
Wolverine Advanced ^{1,6,27}	E	G-E	G-E	N	E	E	N	N	N	N	N	N

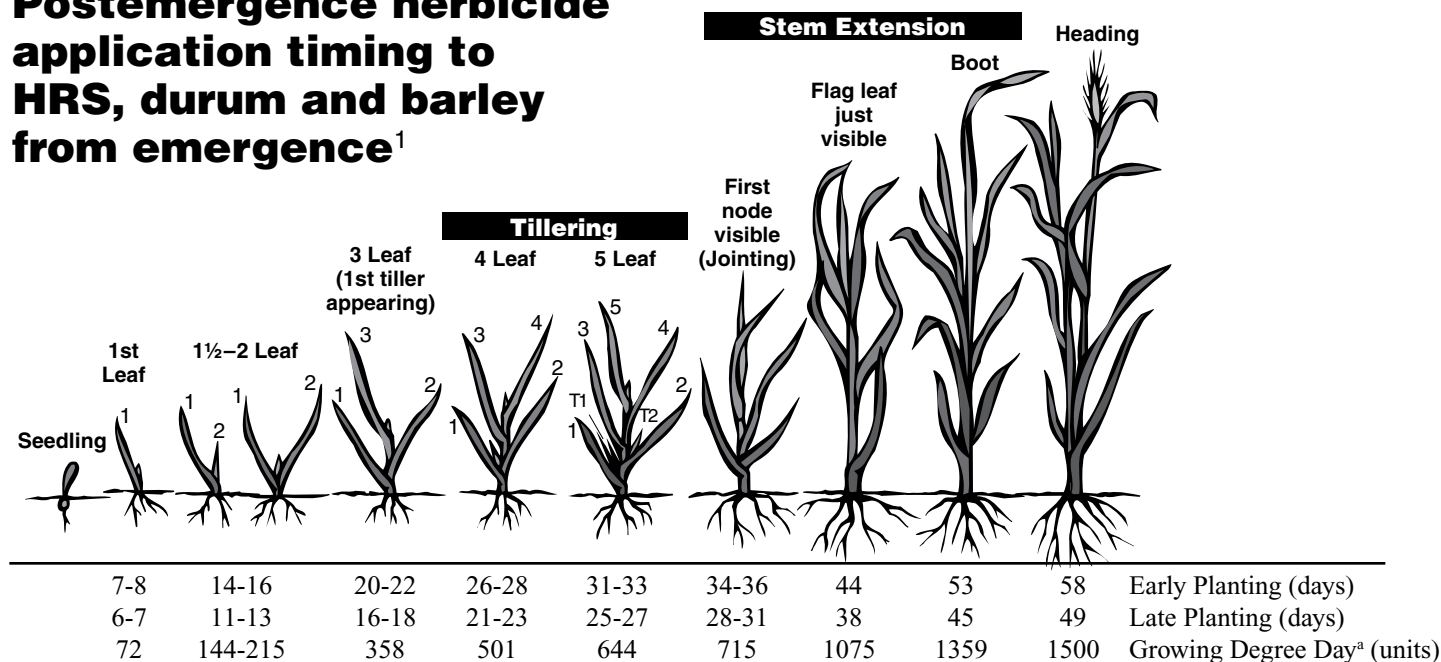
*Early fall applications provide better control than late fall or spring. Earlier spring application are more effective than late spring or mid-season application.

**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

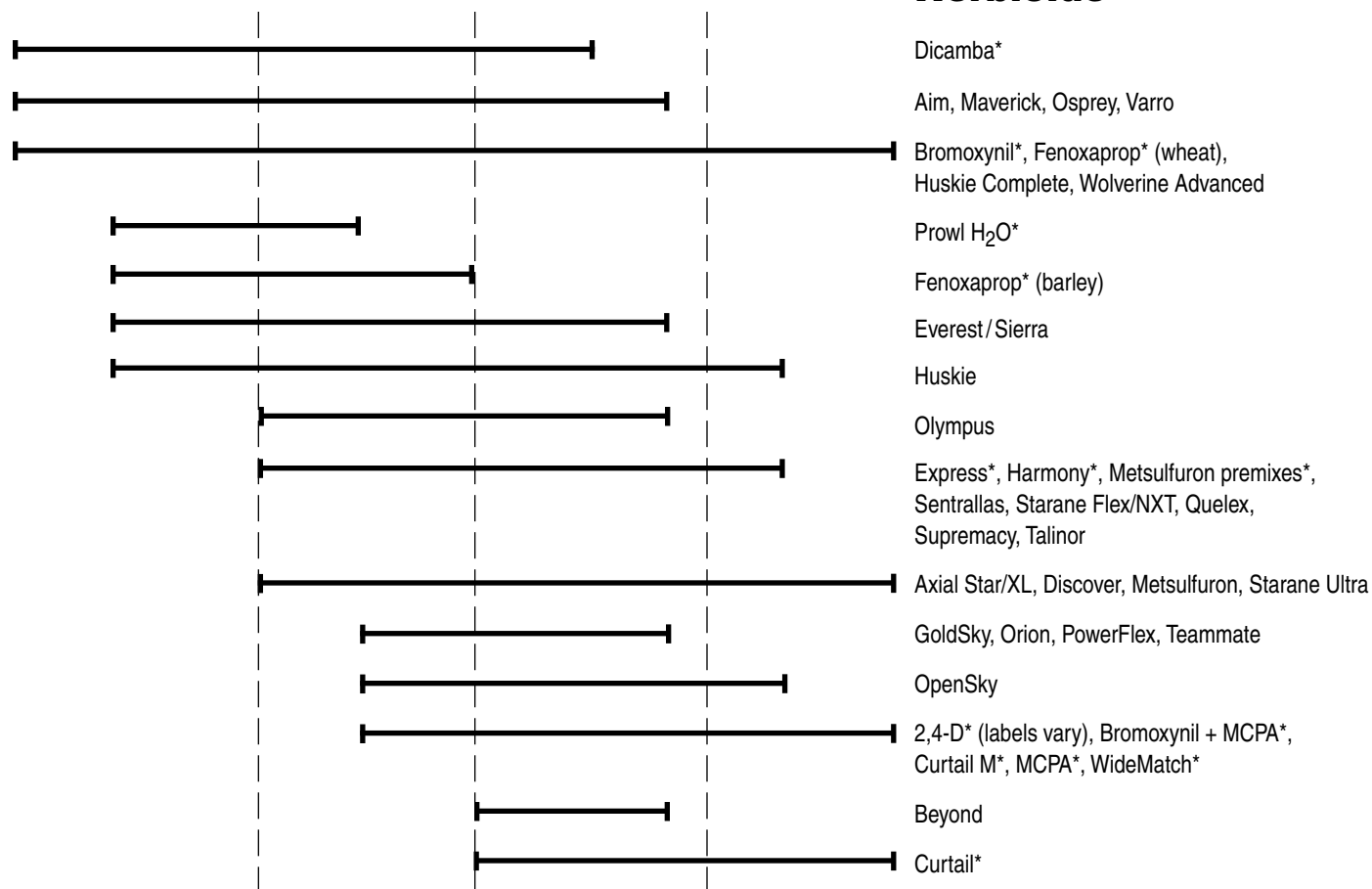
Postemergence herbicide application timing to HRS, durum and barley from emergence¹



The lettering on the drawing represents the following: 1=1st leaf on the main stem of the plant; and so forth to 5=5th leaf on the main stem; and T=Tiller – not counted as a leaf when determining leaf stages.

$$^a\text{Growing Degree Day Units} = \frac{(\text{Maximum Day Temperature} + \text{Minimum Day Temperature}) - 32}{2}$$

Herbicide



¹ Herbicide may have different application timings for individual crops. Use specific label information for individual crops.

* or generic equivalent

Remember to always follow the label — it's the law!

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 ²⁷)	3 to 6 fl oz (1.5 to 3 oz)	Many broadleaf weeds including those resistant to other herbicides. Suppresses 2-leaf foxtail or smaller.	PRE.	Callisto PRE requires rain for activation. For POST application add petroleum oil at 1 qt/A or NIS at 1 qt/100 gal + UAN at 2.5 gal/100 gal 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
	3 fl oz (1.5 oz)		POST. Weeds: Up to 5 inches tall.	
Aim (carfentrazone ²)	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 oat. Add NIS at 1 qt/100 gal. A3 B4
MCPA ⁴ amine MCPA ⁴ ester	0.5 to 1 pt 4SL 0.5 to 1 pt 4EC (0.25 to 0.5 lb)	Broadleaf weeds.	Oat: 3-leaf until prior to boot stage.	Possible oat injury at any stage. A3 A6 B4
Bromoxynil ⁶	1 to 1.5 pt EC (0.25 to 0.38 lb)	Small broadleaf weeds including wild buckwheat, and volunteer sunflower.	Oat: 3-leaf until prior to boot stage.	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
Bromoxynil ⁶ & MCPA ⁴	1 to 2 pt 4EC 0.8 to 1.6 pt 5EC (0.25 to 0.5 lb & 0.25 to 0.5 lb)			
Dicamba ⁴ + MCPA ⁴	2 to 4 fl oz 4SL + 0.5 to 0.75 pt 4L (0.06 to 0.12 lb + 0.25 to 0.38 lb)	Broadleaf weeds.	Oat: 3- 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 B6 C2 C4
Curtail M / generic clopyralid ⁴ & MCPA ⁴	1.75 to 2.33 pt (0.09 to 0.12 lb & 0.5 to 0.68 lb)	Broadleaf weeds and Canada thistle.	Oat: 3-leaf to jointing.	Apply to Canada thistle at the rosette to early bolting stage. A3 C5
Fluroxypyr ⁴	0.67 pt 1.5EC 0.35 pt 2.8EC 5 oz 40WDG (2 oz)	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 C5
Widematch / generic clopyralid ⁴ & fluroxypyr ⁴	1.33 pt (0.125 lb & 0.125 lb)	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. Commercial mixture with MCPA ester available as Hat Trick or Weld. A3 C5 S1
thifen ² & tribenuron ² 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 Sentrallas	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 7 to 9 fl oz	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 1 pt/100 gal except when adding MCPA at 0.75 pt/A. Refer to label for list of tank-mix options. A3 A5-7 Sentrallas = thifensulfuron & fluroxypyr
Orion (florasulam ² & MCPA ⁴ ester)	17 fl oz (0.07 oz & 0.31 lb)	Some broadleaf weeds.	Crop: 3-leaf to jointing. Weeds: Small.	Add NIS at 1 qt/100 gal. Allow a 60 day PHI. Refer to label for application information. A3
Supremacy (fluroxypyr ⁴ & thifensulfuron ² & tribenuron ²)	4 to 6 oz (1 to 1.5 oz & 0.18 to 0.27 oz & 0.06 to 0.09 oz)	Broadleaf weeds including pigweed, buckwheat, kochia, mustard, flax, and Canada thistle.	Wheat: 2-leaf through flag leaf emergence.	Add NIS at 1-2 qt/100 gal except when adding an EC or ester formulated herbicide. Use higher rates for larger weeds. A3 C5

RYE

Herbicide	Product/A (ai/A)	Weeds	When to Apply	Remarks and Paragraphs
Sharpen (saflufenacil ¹⁴)	1 to 2 fl oz SC (0.36 to 0.71 oz)	Broadleaf weeds including winter annuals.	PRE or PPI.	Add MSO at 1 to 1.5 pt/A plus an ammonium source if weeds are present. Use 2 fl oz/A for short residual control of weeds.
Starane Flex (florasulam ² & fluroxypyr ⁴)	13.5 fl oz EC (0.07 oz & 1.4 oz)	Broadleaf weeds up to 4 inches tall.	Crop: 3-leaf to flag-leaf emergence.	Adjuvant is not necessary but might aid control under adverse conditions. Allow a 60 day PHI.
Orion (florasulam ² & MCPA ⁴ ester)	17 fl oz EC (0.07 oz & 5 oz)		Crop: 3-leaf to jointing.	Add NIS at 1 qt/100 gal. Allow a 60 day PHI.
MCPA ⁴ amine MCPA ⁴ ester	0.5 to 1.3 pt 4SL 0.5 to 1.3 pt 4EC (4 to 10.4 oz) Rates vary by label.	Broadleaf weeds. Use high end of rate range for larger or perennial weeds.	Crop: 3-leaf until prior to boot stage, labels vary.	Follow label for specific application timing. Some labels allow higher rates. <i>Do not apply 2,4-D to winter rye in fall.</i>
2,4-D amine ⁴ 2,4-D ester ⁴	0.5 to 1 pt 4SL 0.5 to 1 pt 4EC (4 to 8 oz) Rates vary by label.			
Bromoxynil ⁶ & MCPA ⁴	1 to 2 pt 4EC 0.8 to 1.6 pt 5EC (4 to 8 oz & 4 to 8 oz) Rates vary by label.	Small broadleaf weeds including wild buckwheat, sunflower, kochia, Russian thistle.	Crop: 3-leaf until prior to boot stage, labels vary.	Follow label for specific application timing. Some labels allow higher rates. Ratios of bromoxynil to MCPA/2,4-D vary by label
Bromoxynil ⁶ & 2,4-D ⁴	0.75 to 1.5 pt EC (3 to 6 oz & 4 to 8 oz) Rates vary by label.			
Bromoxynil ⁶	1 to 2 pt 2EC 0.5 to 1 pt 4EC (4 to 8 oz)	Broadleaf weeds smaller than 2 inches tall	Crop: Emergence until prior to boot.	Bromoxynil is a non-residual, contact herbicide requiring thorough coverage. Most active in hot and sunny conditions. Controls ALS-resistant kochia.
Huskie (bromoxynil ⁶ & pyrasulfotole ²⁷ & mepenpyr safener)	11 to 15 fl oz EC (2.4 to 3.3 oz & 0.43 to 0.58 oz)	Most annual broadleaf weeds including resistant weeds up to 3 inches tall.	Crop: Up to flag leaf emergence.	Do not plant lentil for 18 months after Huskie application. Adjuvants such as AMS, UAN, or NIS might improve herbicidal activity under adverse conditions. Allow a 60 day PHI.
Aim (carfentrazone ¹⁴)	0.5 fl oz EC (0.128 oz)	Broadleaf weeds smaller than 2 inches tall.	Crop: Up to jointing stage.	Contact, non-residual herbicide requiring thorough coverage. May cause cosmetic speckling on rye. Add NIS at 1 qt/100 gal.

SMALL GRAIN PRE-HARVEST WEED CONTROL

Herbicide	Product/A (ai/A)	Weeds	When to Apply	Remarks and Paragraphs																									
Glyphosate ⁹ 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="0"> <tr> <td><u>lb ae/gal</u></td> <td><u>lb ai/gal</u></td> <td><u>0.38 ae</u></td> <td><u>0.57 ae</u></td> <td><u>0.75 ae</u></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 for Canada thistle control. May be applied with 2,4-D or dicamba for improved broadleaf weed control. Add AMS fertilizer at 8.5 lb/100 gal. Refer to label for adjuvant use and application information. A3-7 B2 B8</p>	<u>lb ae/gal</u>	<u>lb ai/gal</u>	<u>0.38 ae</u>	<u>0.57 ae</u>	<u>0.75 ae</u>	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
<u>lb ae/gal</u>	<u>lb ai/gal</u>	<u>0.38 ae</u>	<u>0.57 ae</u>	<u>0.75 ae</u>																									
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 ⁴ ester For HRS, Durum, and Winter Wheat, Barley, and Rye	1.5 to 3 pt 4EC/SL (0.75 to 1.5 lb)	Broadleaf weeds.	Wheat and oat: Dough stage to harvest. Allow a 14 day PHI.	Do not feed straw to livestock. Use only 2,4-D brands labeled for preharvest application. Drift to broadleaf crops is especially hazardous at this time. B3																									
Dicamba ⁴ + 2,4-D ⁴ For HRS, Durum, and Winter Wheat Only	0.5 to 1 pt 4SL + 1 to 2 pt 4EC/SL (0.25 to 0.5 lb + 0.5 to 1 lb)		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. Drift to broadleaf crops is especially hazardous at this time. A3 A7 B6 C4																									
Sharpen (saflufenacil ¹⁴) For HRS, Durum, and Winter Wheat Barley and Triticale Only	1 to 2 fl oz (0.36 to 0.72 oz)	Annual broadleaf weeds.	Wheat: Hard-dough stage and grain with less than 30% moisture. Allow a 3 day PHI.	Do not apply Sharpen to cereals grown for seed because reduced germination/vigor may occur. Apply with MSO adjuvant at 1.5 pt/A + AMS at 8.5 to 17 lbs/100 gal or 28% N at 1.25 to 2.5 gal/100 gal. Apply with glyphosate for additional weed control weed and desiccation. Sharpen has no grass activity. Refer to label for crop rotation intervals. Caution: MRL's may change and growers/exporters are responsible for checking a reliable database to ensure an MRL is in effect prior to export. B12																									
Valor SX Valor EZ + MSO adjuvant (flumioxazin ¹⁴) For HRS, Durum, and Winter Wheat Only	2 oz WDG 2 fl oz EZ + 2 pt (1.02 oz)	Annual broadleaf weeds.	Wheat: Hard dough stage and grain with less than 30% moisture. Allow 10 day PHI	Apply with MSO adjuvant at 2 pt/A. Spray grade nitrogen source (AMS at 2.5 lb/A or 28% or 32% nitrogen solution at 2-4 pt/A) may be added to spray mixture with MSO. Tank mix with glyphosate to increase control of emerged weeds and aid in harvest.																									

Small Grains – Spring, Durum and Winter Wheat, Barley and Oat

IDENTIFYING LEAF STAGES OF SMALL GRAIN:

The plant leaf stage is determined by the number of leaves present on the main stem (see page 16). Leaves arise on opposite sides of the stem and develop a collar at the junction of the leaf sheath and leaf blade. The first leaf has a blunt tip. Position the small grain plant with the first leaf pointing to the left. All leaves on the left side of the main stem are designated with an odd number and those on the right side with an even number. Count the youngest leaf when it is at least one-half the length of the leaf below it. Follow this procedure to properly stage small grain plants.

Tillers (stooling) appear at the third to fifth leaf stage. Most tillers arise between the main axis (stem) and leaf. A coleoptilar tiller may also be present. The coleoptilar tiller originates below the soil (near the seed) and is located on the opposite side of the stem from the first leaf. Frequently, tiller leaves are confused with leaves of the main stem when determining correct leaf stage.

Remember to count the leaves on the main stem, but do not include tiller leaves in the leaf stage count. Leaf stage determination in the field can be complicated by loss of older leaves; for example, the first and second leaves may have been removed by abrasion from wind blown soil, drought, frost, disease, or some other form of weathering. The base of the stem should be carefully examined for evidence of scars from lower leaves that have been removed. Such leaves must be counted when making correct leaf stage determination.

Plant growth rate varies considerably and the approximate days after emergence for appearance of a given leaf stage is influenced mostly by temperature. Daytime highs less than 55 F delay development, while warm temperatures advance development. Days to emergence can vary greatly depending on soil temperature and moisture.

HARROWING FOR WEED CONTROL

Harrowing a few days after a spring sown crop has sprouted but before emergence is effective in reducing stands of foxtails, wild oat and other weeds. The weeds should be emerging. Since foxtails are shallow rooted, set the teeth back on the harrow to minimize crop injury. Also, small grains can be harrowed after they have 2 or 3 leaves but before tillering. Harrowing should be performed when the soil surface is dry so damaged weeds will desiccate rather than be transplanted. Wheat can be harrowed one to three times but barley only once. Oat normally is not harrowed because risk of injury is greater than to wheat or barley.

HERBICIDE USE IN SMALL GRAINS

C1. Weed control in small grains is required to achieve a profitable yield. Applicable cultural control techniques plus use of herbicides or mixtures may be required to control all weeds. Normal height wheat varieties, rye, and winter wheat are more competitive than semi-dwarf wheat. Herbicides generally are most effective when the crop is competitive. Small grains underseeded to sweetclover, alfalfa, or other legumes should not be treated with growth regulator or non-registered herbicides because serious injury or death of the legumes may result. However, Buctril* is registered for use on small grain/legume mixtures even though some legume injury may occur.

C2. Do not apply 2,4-D or MCPA to small grains less than 3 leaf stage or small grains in the boot stage. Wheat and barley are more tolerant to 2,4-D than oat when treated from 5-leaf until prior to the boot stage.

Wheat and barley varieties are tolerance to MCPA and 2,4-D. Oat is more tolerant to MCPA than to 2,4-D but injury to oat is possible with either chemical at any growth stage. Use 2,4-D on oat only for such hard-to-kill weeds as Russian thistle, common ragweed, and redroot pigweed and only when the crop is in the 3- to 4-leaf stage. While oat injury may occur, greater weed control from 2,4-D may compensate for any yield loss caused by oat injury. Several brands of 2,4-D are available, but there are some differences in application information; for example, Hi-Dep allows use at spray volumes as low as 1 gpa by ground or 0.5 gpa by air.

C3. Axial XL (pinoxaden & safener) is of a different chemical family than other ACCase inhibitors. It controls annual grass weeds and is not antagonized by broadleaf tank-mix partners. It controls several ACCase-resistant biotypes, but is an ACCase inhibitor. Some resistant grass biotypes express resistance to Axial after selection with other ACCase inhibitors, and a few biotypes have become more resistant to Axial following treatment with Axial.

Axial Star (pinoxaden & fluroxypyr & safener) includes a growth regulator herbicide for control of kochia and several weeds in the composite family. Tankmix with another herbicide for broad-spectrum weed control.

Axial Bold (pinoxaden & fenoxaprop) is equivalent to the full rate of Axial XL and a lower rate of Puma (0.21 pt).

C4. Dicamba applied alone controls many broadleaf weeds but usually is applied with other herbicides such as MCPA, 2,4-D, and SU herbicides to increase control of wild mustard and other annual and perennial broadleaf weeds. Oat is more tolerant than wheat to dicamba.

C5. Curtail* (clopyralid & 2,4-D) or **Curtail M*** (clopyralid & MCPA) controls Canada thistle and annual broadleaf weeds. Canada thistle is most susceptible at rosette to early bolting stages. Curtail*/M* will not provide long-term control of Canada thistle with one application but will reduce populations with repeated use. See herbicide residue section for recropping restrictions.

WideMatch* (clopyralid & fluroxypyr) controls most broadleaf weeds volunteer flax, and suppresses field bindweed. Apply with MCPA, 2,4-D, or Affinity* to control mustard, pigweed, lambsquarters, and Russian thistle control. Canada thistle is most susceptible at rosette to early bolting stages and repeat applications are required to reduce underground roots. All POST grass herbicides labeled in small grains can be applied with Widematch*. Allow a 40 day PHI. See label for crop rotation restrictions.

Starane Ultra* (fluroxypyr) controls some broadleaf weed including kochia, cleavers, common mallow, volunteer flax, and suppresses field bindweed. Starane* is very effective on kochia and has benefits over dicamba that include excellent crop safety; a wider application window that extends to flag leaf emergence; control of larger kochia; and option to tank-mix with all registered POST grass herbicides. Starane Ultra* at 0.5 pt/A controls kochia <4 inches tall and at 0.67 pt/A up to 8 inches tall while Buctril* controls small kochia less than 2 inches tall. Apply Starane* with 2,4-D or MCPA for broad-spectrum broadleaf weed control. Starane* is labeled with most registered POST grass herbicides. Refer to label of tank-mix partner for mixing options. Starane* is available in several commercial premixes.

C6. Discover NG (clodinafop & safener) controls grass weeds including volunteer corn, giant foxtail, Persian darnel, and annual ryegrass. Do not apply to winter wheat in the fall. Discover controls grass weeds over wide environmental conditions and when applied with several broadleaf herbicides. See label for tank-mix options.

*Or generic equivalent.

C7. Everest 3.0/Sierra (flucarbazone + safener) can be applied POST to wheat (including durum) at 0.75 to 1 fl oz/A. Use 0.75 fl oz/A for wild oat and green foxtail control, including ACCase resistant grasses, and control of mustards and pigweed. Use 1 fl oz/A for control of high populations of wild oat, yellow foxtail, Persian darnel, barnyardgrass, and Japanese brome and 0.5 fl oz/A can be used sequentially with Pre-Pare for control of green foxtail. Everest suppresses downy brome. Add a basic blend adjuvant or NIS + AMS. Soil residue of flucarbazone may control flushes of grass and broadleaf weeds. Addition of tribenuron increases grass control. Most crops can be planted the year following application. Do not exceed 0.027 lb/A total of flucarbazone in all products applied.

PrePare (flucarbazone) can be applied in the fall for fall emerging brome species. Winter, spring (including durum) wheat can be planted the following season. PrePare is more active on higher pH soils with lower organic matter. Do not use on soils with OM less than 2 and pH above 7.8. High clay soils can reduce activity.

C8. Far-Go (triallate) can volatilize and must be incorporated immediately after application. Spring-applied liquid formulations have given more consistent wild oat control with less crop thinning than the granular formulation. Far-Go applied before seeding should be incorporated 3 to 4 inches deep. Delay wheat seeding for 3 days. Far-Go applied before seeding may injure certain wheat varieties. Far-Go applied after seeding (PoPI) should be incorporated **less deep** than the depth of the crop seed. Spring PPI Far-Go has greater potential for injury to wheat than applied at other times. Refer to label for varieties that may be susceptible to PPI Far-Go.

C9. Fenoxaprop* (fenoxaprop + mefenpyr safener) controls many grass weeds. Do not apply to jointed barley and to avoid potential injury terminate application at 4-leaf barley. Low humidity and high temperature reduces grass weed control. Fenoxaprop is included in Wolverine - see paragraph on Wolverine for broadleaf components.

C10. GoldSky (pyroxsulam & florasulam & fluroxypyr & safener) **PerfectMatch** (pyroxsulam & clopyralid & fluroxypyr) controls grass and broadleaf weeds. The ALS grass component (pyroxsulam) may control downy brome. Wild oat control is best when applied to plants with less than three leaves. ALS inhibitors are less effective on foxtail than ACCase products but pyroxsulam provides better yellow foxtail control than most ALS inhibitors. Although all three components contribute to broadleaf activity, control of mallow, nightshades, prickly lettuce, and smartweed may be improved with another herbicide. PerfectMatch also controls Canada thistle.

PowerFlex or **Teammate** (pyroxsulam & safener) have grass activity. The broadleaf spectrum is greatly reduced compared with GoldSky or PerfectMatch so an effective broadleaf herbicide should be added.

C11. Huskie (bromoxynil & pyrasulfotole & mefenpyr safener) controls most annual broadleaf weeds including false chamomile, cleavers, cockle species, chickweed, and annual and perennial sowthistle. Huskie does not control grass weeds. No additional adjuvants are required. Huskie can be applied with POST grass herbicides, fungicides, and insecticides but combination with strobilurin fungicides may cause crop injury. Most crops can be planted the year following application. Refer to label for other information. Both bromoxynil and pyrasulfotole act at different sites in the photosynthetic pathway and will control broadleaf weeds resistant to other herbicides.

Wolverine Advanced (fenoxaprop & bromoxynil & pyrasulfotole & mefenpyr safener) controls most grass and broadleaf weeds in wheat and barley fields. Wolverine can be mixed with several fungicides and insecticides and does not require additional adjuvant. Most crops can be planted the year following application. Do not plant lentil for 18 months after application. Refer to the label for other information and restrictions.

Huskie Complete (bromoxynil & pyrasulfotole & thiencazabone & mefenpyr safener) is a premix similar to Wolverine except the grass component is an ALS-inhibitor instead of ACCase-inhibitor. Huskie Complete at 13.7 fl oz/A combines the broadleaf spectrum of Huskie or Wolverine with control of foxtail, wild oat (including ACCase-resistant), and partial control of downy and Japanese brome and Persian darnel. Most crops can be planted the year following application, except for an 18 month restriction for lentil.

Varro (thiencazabone & mefenpyr safener) is the grass component of Huskie Complete to control barnyardgrass, foxtails, and wild oat including some ACCase resistant biotypes. It also gives partial control of downy and Japanese brome and Persian darnel. Broadleaf activity is limited. Most crops, including lentil, can be grown the next season. Refer to label for more information and restrictions.

C12. Olympus (propoxycarbazone) gives adequate control of winter-annual brome grasses but herbicide residue may injure the rotation crop. Maximum propoxycarbazone rate per year allowed from Olympus or with combined products is 0.84 oz ai/A in winter wheat or 0.28 oz ai/A in spring wheat.

Rimfire Max (mesosulfuron + propoxycarbazone + safener) contains a safener for high wheat tolerance and controls several difficult-to-control grass and some broadleaf weeds including volunteer canola and mustards. Rimfire Max at 3 oz/ac controls Persian darnel. Refer to label for tank-mix options. Rimfire Max will control many ACCase resistant wild oat populations. Most crops can be planted the year following application. See label for tank-mix options, crop rotation restrictions, and application information.

C13. Treflan* (trifluralin) should be incorporated by harrowing twice at right angles and depth of herbicide incorporation must be above the wheat seed. Wheat should be seeded 2 to 2.5 inches deep to permit incorporation above the seed. Some wheat varieties, especially semi-dwarfs, emerge poorly from deep seeding so seed should be placed no deeper than 2 to 2.5 inches. A heavy rain or irrigation immediately after trifluralin application may cause wheat injury on light and medium textured soils. Treflan* applied in this manner does not control wild oat. **Prowl** is not degraded by the UV spectrum of sunlight and can be applied without incorporation in wheat. Precipitation after application is required for activation.

*Or generic equivalent.

