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Minimum Interval Between Application and Rain for Maximum POST Weed Control.

Herbicide	Time Intrvl.	Herbicide	Time Intrvl.
Accent	4-6 hr	Maverick	4 hr
Achieve	1 hr	MCPA amine	4-6 hr
Aim	6-8 hr	MCPA ester	1 hr
Amber	4 hr	metsulfuron	4 hr
Assert	3 hr	Milestone	4 hr
Assure II*	1 hr	Olympus	4 hr
atrazine	4 hr	Option	2 hr
Avenge	6 hr	Orion	4 hr
Axial XL	0.5 hr	Paramount	6 hr
Basagran*	4-8 hr	paraquat	0.5 hr
Betamix*/Betanex*	6 hr	Peak	4 hr
bromoxynil	1 hr	Permit*	4 hr
bromoxynil + MCPA	1 hr	Plateau	1 hr
Cadet	1 hr	Poast	1 hr
Callisto	1 hr	Progress*	6 hr
Celebrity Plus	4 hr	Puma	1 hr
Cimarron X-tra	4 hr	PowerFlex	4 hr
chlorsulfuron	4 hr	Pursuit	1 hr
Clarity/Banvel*	6-8 hr	Rage D-Tech	6-8 hr
ClearMax	1 hr	Raptor	1 hr
clethodim	1 hr	Redeem	2 hr
clopyralid	6-8 hr	Reflex	1 hr
clopyralid+2,4-D/MCPA*	6-8 hr	Remedy	6-8 hr
Cobra	0.5 hr	Require Q	4 hr
Curtail/M	6-8 hr	Resolve/Q	4 hr
dicamba	6-8 hr	Resource	1 hr
Discover NG	0.5 hr	Rezult	4 hr
Distinct/Overdrive	4 hr	Rimfire	4 hr
diquat	0.5 hr	rimsulfuron	4 hr
Everest	1 hr	Select Max	1 hr
Extreme	1 hr	Silverado	4 hr
FirstRate	2 hr	Spartan Advance	4-8 hr
Flexstar	1 hr	Spartan Charge	6-8 hr
fluroxypyr	4 hr	Starane*/NXT	1 hr
Fusilade DX	1 hr	Status	4 hr
Fusion	1 hr	Steadfast	4 hr
glufosinate	4 hr	thifensulfuron	4 hr
glyphosate (Partial or Full adjuvant)	6-12 hr	tribenuron	4 hr
glyphosate (No adj.)	6-12 hr	Tordon 22K	6-8 hr
Goal	1 hr	Ultra Blazer	4 hr
GoldSky	4 hr	UpBeet	6 hr
Halex GT	4 hr	Weedmaster*	6-8 hr
Hornet	2 hr	WideMatch*	6 hr
Huskie	1 hr	Wolverine	1 hr
Ignite 280	4 hr	2,4-D amine	4-8 hr
Impact	1 hr	2,4-D ester	1 hr
Laudis	1 hr		
Lumax	4 hr		

*Or generic equivalent

Mixing Instructions:

A.P.P.L.E.S.

Agitate

Powders soluble

Powders dry

Liquid flowables and suspensions

Emulsiifiable concentrates

Solutions.

Some herbicide labels list a specific mixing sequence. In absence of specific directions, the recommended sequence for adding pesticide formulations to a tank partially filled with water follows the A.P.P.L.E.S. method.

Each ingredient must be uniformly mixed before adding the next component, e.g., a soluble powder must be completely dissolved before adding the next component. Adjuvants are added in the same sequence as pesticides, e.g., ammonium sulfate is a soluble powder, petroleum oil and MSO (methylated seed oil) are emulsifiable concentrates; and most surfactants are solutions. Within each group, usually add the pesticide before the adjuvant, e.g., a soluble-powder pesticide before ammonium sulfate.

Backpack Sprayer Calibration

No-Math Version:

- Step 1. Mark a calibration plot 18.5 foot wide X 18.5 feet long.
 Step 2. Spray the plot uniformly with water while recording the number of seconds required to spray the plot.
 Step 3. Spray into a bucket for the same number of seconds.
 Step 4. Measure the collected volume of water in ounces.
 Step 5. The number of ounces collected equals the number of gallons per acre the sprayer is delivering.

Hand-held Sprayers:

Hand-held sprayers are used for spot treating weeds or small areas. Spray coverage should be uniform and the foliage of target plants should be wet but the amount of spray solution applied should be limited so that run-off does not occur.

Hand-held sprayers should be calibrated by:

- 1) spraying a known area using water following a standard, reproducible procedure
- 2) measuring the amount of water applied
- 3) calculating gallons per acre (gpa).

For example, 0.75 gallon on 500 sq ft is the same as 65 gallons per acre: 43,560 sq ft per acre / 500 sq ft x 0.75 gallon = 65 gpa. The desired rate in lb/A or pt/A can be used to calculate the amount of herbicide to add to the spray solution. If 3 pt/A is desired: $3 \text{ pt/A} / 65 \text{ gpa} = 0.046 \text{ pt}$ or 0.73 fl oz or 1.5 tbsp/gal of spray solution (16 fl oz = 1 pt, 2 Tbsp = 1 fl oz).

When calibration of a hand-held sprayer is not possible and the herbicide being used is safe to the environment and non-target plants, a volume of 50 to 70 gpa can be assumed. However, the actual volume applied can vary considerably with the type of sprayer, spray pressure, and technique of the applicator, so calibration is strongly encouraged.

Some herbicide labels specify a percent solution for use in hand-held sprayers. The following chart provides mixing instructions to obtain solutions of varying percent concentrations on a volume/volume basis:

Desired solution volume	% concentration of herbicide				
	0.5	1.0	1.5	2.0	5.0
gallons	Amount of herbicide to add, fl oz				
1	0.6	1.3	1.9	2.6	6.4
2	1.3	2.6	3.8	5.2	12.8
5	3.2	6.4	9.6	12.8	32.0
10	6.4	12.8	19.2	25.6	64.0
100	64.0	128.0	192.0	256.0	640.0
1 pt = 16 fl oz	16 Tbls = 1 cup				
1 Tbls = 3 tsp	1 fl oz = 30 mls				
1 Tbls = 15 ml	1 fl oz = 2 Tbls				

Sprayer Cleaning Solutions For Herbicides:

Water: Command, Extreme, glyphosate, Lightning, Raptor.

Ammonia or commercial tank cleaner + water:

2,4-D, Accent, Amber, Amplify, Assure II, Basagran, Beacon, Buctril + Atra, bromoxynil, Cadet, Callisto, Cimarron/Xtra, chlorsulfuron, Classic, clethodim, clopyralid, Cobra, dicamba, Dual/II/Magnum, Extreme, FirstRate, Fusilade DX, Fusion, Gramoxone, Harness, Harmony Extra XP, Hornet WDG, Lasso, Lightning, metolachlor, metsulfuron, Moxy, Moxynil, Northstar, Option, paraquat, Peak, Permit, Prowl, Pursuit, Pursuit Plus, Python, Raptor, Reflex, Resolve, Resource, Select, Steadfast, Stinger, Surpass, Targa, thifensulfuron, Treflan, trifluralin, and Ultra Blazer.

Detergent or commercial tank cleaner + water:

Aim, atrazine, Clarity, Distinct, Flexstar, Ignite, Marksman, metribuzin, Liberty, Poast, Poast Plus, Shotgun, Status, Ultra Blazer, Yukon.

Herbicide Storage Temperatures:

Herbicides may be exposed to freezing temperatures in storage. The following information gives the minimum storage temperature to avoid risk of reduced herbicide activity.

No storage temperature restriction

acetochlor, Aim, Authority MTZ, Axial XL, Balance Pro, clethodim, dicamba, Discover NG, EPTC, Extreme, glyphosate-K, Impact, metolachlor, Laudis, Outlook, Rage D-Tech, Status, Touchdown, Valor, and **most dry formulated herbicides in DF or WDG formulations.**

May store below freezing but warm before using

2,4-D amine, 2,4-D ester, atrazine 4L, Betamix, Betanex, Dual Magnum, MCPA amine and ester, Tordon, Weedmaster.

Do not store below 40 F

Assert, Authority First, clopyralid + 2,4-D, Flexstar, Extreme, LI-700, Prowl, Pursuit Plus, Sonalan, Spartan 4F, trifluralin.

Do not store below 32 F

Assure II, Basagran, Beyond, bromoxynil + MCPA, ClearMax, clopyralid, Far-Go EC, Flexstar, Fusilade DX, Fusion, Goal, Grazone P+D, Hyvar, Ignite 280, Liberty, Lorox DF, Nortron SC, paraquat, Poast, Pramitol, Progress, Prowl H2O, Puma, Pursuit, Quest, Raptor, Redeem, Reflex, Reglone, Remedy, Resource, Select Max, Stinger, Thistrol, Ultra Blazer.

Do not store below 20 F

Define, Fusilade DX, Plateau, Milestone, Ro-Neet, Starane NXT, Weedar 64

Do not store below 10 F

Amitrole T, Arsenal, clopyralid + MCPA, Crossbow, Fusion, glyphosate, Rodeo, Roundup, Starane, WideMatch.

Do not store below 3 F

bromoxynil, bromoxynil + atrazine, Discover, Huskie, Shotgun.

Do not store below -10 F

Callisto, Halex GT, Lumax, Spartan Advance

Crop Rotation Restrictions for North Dakota

Herbicide	Alf- alfa	Bar- ley	Can- ola	Corn	Cra- mbe	CRP grss	Dry bean	Field pea	Flax	Oat	Edibl Leg.*	Pot- ato	Saff lowr	Soy- bean	Sgr- beet	Sun- flwr	HRS/ Drm
	----- (months after application) -----																
Herbicides that allow most crops to be planted the year following application: 2,4-D, 2,4-DB, MCPA, Aim, alachlor, Basagran, bromoxynil, Cadet, Cobra, desmedipham, dimethenamid-P, diquat, EPTC, glyphosate, GoldSky, Ignite 280, Liberty, linuron, metolachlor, Orion, paraquat, phenmedipham, POST grass herbicides, PowerFlex, Resource, Rezult, Ro-Neet, Starane, thifensulfuron, Thistrol, tribenuron, Ultra Blazer, UpBeet.																	
DO NOT USE IN ND = Beacon, chlorimuron, Exceed, Scepter, Spirit, Steel.																	
Accent (<0.68 oz DF/A)	10j	8	18	0	18	18	10j	10j	18	8	10	18j	18	0.5	18a	10j	8
acetochlor	9	NCS	NCS	0	NCS	NCS	NCS	NCS	NCS	NCS	NCS	NCS	NCS	NCS	NCS	NCS	4
Ally Extra (0.2 oz) e	22	10	22	22	22	6	22	22	22	10	22	22	22	22	22b	22	1/10
Amber	4b	18c	B	22b	B	B	B	B	B	18c	B	B	B	36b	B	24b	0
Assert	15	NCS	12/15f	NCS	12/15	4	NCS	15	15	15	15	15	NCS	NCS	20	NCS	NCS
atrazine (0.38 lb ai)	NCS	NCS	NCS	0	NCS	NCS	NCS	NCS	NCS	NCS	NCS	NCS	NCS	12	NCSb	NCS	NCS
atrazine (0.38-0.5 lb ai)	2CS	NCS	2CS	0	2CS	2CS	2CS	2CS	NCS	2CS	2CS	NCS	2CS	12	2CSb	2CS	2CS
atrazine (0.5-1 lb ai)	2CS	2CS	2CS	0	2CS	2CS	2CS	2CS	2CS	2CS	2CS	2CS	2CS	12	2CSb	2CS	2CS
Authority Assist	12	9.5	40b	10	40b	12	4	4	26	18	4/12*	26	18	0	40b	18	4
Authority First/Sonic	12	12	24	10	30b	30b	12	12	30b	12	12	18	30b	0	30b	30b	4
Authority MTZ	12	4	24	10	18	12	12	18	18	18	18	12	18	4	36	12	4
Balance Pro / Flexx (j)	10	6	18	0	18	18	18	18	18	6	18	6	6	6	18	10	6
Basis	10	8	18	0	18	18	8	8	18	8	18	0	18	0.5	10	10	8
Beacon (r)	8	8	18	0.5	18	18	8	8	18	8	8	2CS	18	8	B	8	8
Beyond	9	18t	18	8.5	18	9	0	9	18	9	9	18t	18	0	18t	9	3
Callisto	10	4	NCS	0	18	18	18	18	10	4	18	10	18	10	18	10	4
Camix	18	4.5	18	0	18	18	18	18	18	NCS	18	NCS	18	NCS	18	18	NCS
ClearMax	9	18t	18	8.5	18	9	9	9	18	9	9	18t	18	0	18t	9	3
clopyralid	10.5	0	0	0	0	0	10.5m	18	0	0	18	18	10.5m	10.5m	0	10.5m	0
clopyralid&2,4-D/MCPA	10.5m	1	5	1	5	1	10.5m	18	5	1	18	18	10.5m	10.5m	5	10.5m	1
dicamba (<1.5 pt) h	4	4h	4	0h	4h	4	4	4	4	4h	4	4	4	4	4	4	0h
Everest	NCS	9	9	NCS	NCS	NCS	9	11	9	18	24	9	9	9	9	9	0/4
Extreme	4	9.5	40b	8.5	40b	4	4	4	26	18	4	26	18	0	40b	18	4
Far-Go	NCS	0	NCS	NCS	NCS	NCS	NCS	NCS	NCS	18	NCS	NCS	NCS	NCS	NCS	NCS	0
Glean / Finesse	B	16	B	B	B	4	B	B	B	10	B	B	B	B	B	B	0
FirstRate	9	30b	30b	9	B	9	9	9	30b	9	9	18	B	0	30b	30b	3
Flexstar / Reflex	18	4	18	10	18	4	10	10	18	4	10	18	18	0	18	18	4
Gangster	12	B	B	9	B	9	9	B	9	9	9	18	B	0	30b	30b	3
GoldSky	9	0.25	9	9	9	B	9	9	9	0.25	9	9	9	4	9	9	0.25
Halex GT	10	4	10	0	18	18	18	18	10	18	18	10	18	10	18	10	4
Hornet	10.5m	4	26b	0	B	12	10.5m	10.5m	26b	4	10.5m	18	B	10.5m	26b	18	4
Huskie	9	0.25	9	9	9	B	9	9	9	0.25	9	9	9	4	9	9	0.25
Ignite 280	6	2.33	0	0	2.33	2.33	6	6	6	2.33	6	2.33	6	0	0	6	2.33
Impact	9	3	18	0	18	18	18	9	18	3	18	9	18	18	18	9	3
Laudis	10	4	10	0	18	18	18	10	18	4	18	10	18	8	18	18	4
Liberty	4	2.33	0	0	4	4	4	4	4	2.33	4	4	4	0	0	4	2.33
Lightning	9.5	9.5	40b	8.5	40b	40	9.5	9.5	40b	18	9.5	26	18	9.5	40b	18b	4
Lumax (<3 pt/A)	18	4.5	18	0	18	18	18	18	18	NCS	18	18	18	NCS	18	18	NCS
Matrix	12	9/18p	18	0	18	18	10	18	18	9	18	0	18	4	18	10	9
Maverick	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	0
metribuzin (u)	4	8u	12	4	12	4	12	8	12	12	8	4	12	4	18	12	8u
metsulfuron (c)	34d	10	34d	34e	34d	6	34e	34d	34e	10	34d	34d	34e	34d	34d	34e	1/10
Milestone (b)	36b	B	24b	12b	B	B	B	B	B	B	B	B	B	B	B	B	B

Herbicide	Alf- alfa	Bar- ley	Can- ola	Corn	Cra- mbe	CRP grss	Dry bean	Field pea	Flax	Oat	Edibl Leg.*	Pot- ato	Saff lowr	Soy- bean	Sgr- beet	Sun- flwr	HRS/ Durm
	----- (months after application) -----																
Nortron	12	12	12	12	12	12	12	12	12	12	12	12	12	12	0	12	12
Olympus	B	18k	22k	B	B	B	B	12k	B	B	22k	B	B	B	B	18k	0
Option	Corn is 7 days, soybean is 14 days, and all other crops are 60 days.																
Paramount	24b	10	10	10	10	10	24b	24b	24b	10	24b	24b	24b	10	24b	10	0
Peak (r)	22	0	22	1	22	10	22	10	22	0	10	22r	22	22	22r	22	0
Permit / Sandea	9	2	15	1	B	2	9	9	B	2	9	9	B	9	36	18	2
Plateau	36	24	48b	36	36	0	36	36	36	24	36	48b	36	18	48b	36	12
Prowl EC / H2O	NCS	NCS	NCS	0s	NCS	NCS	0	0	NCS	NCS	0	0	NCS	0	2CS	0	NCS
Pursuit	4	9.5	40b	8.5	40b	4	4	4	26	18	4	26	18	0	40b	18	4
Pursuit Plus	9.5	9.5	40b	8.5	40b	NCS	4	4	26	18	4	26	18	0	40b	18	4
Python	4	4	26b	0	26b	12	4	4	26b	4	4	12	26b	0	26b	18	4
Raptor / Beyond	9	18t	18	8.5	18	9	0	9	18	9	9	18t	18	0	18t	9	3
Rave	B	18c	B	22	B	B	B	B	B	18c	B	B	B	36b	B	24b	0
Reflex	18	4	18	10	18	4	10	10	18	4	10	18	18	0	18	18	4
Require Q	10j	9	10j	0	18	18	10	18	18	9	18	0	18	10	10j	10	9
Resolve (<1.1 oz DF/A)	10j	9	10j	0	18	18	10	18	18	9	18	0	18	10	10j	10	9
Resolve Q	10j	9	10j	0	18	18	10	18	18	9	18	0	18	10	10j	10	9
Rimfire	10	10	10	12	12	12	10	10	10	10	10	12	10	10	10	10	0
Silverado	10	1	10	12	10	10	3	3	10	10	10	10	10	3	10	1	0.25
Sharpen	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Sonalan	NCS	NCS	0	NCS	0	13w	0	0	NCS	NCS	0	NCS	NCS	0	2CS	0	NCS
Spartan	12	4	24	10	24	12	0	0	10	12	0/12*	12	10	0	36	0	4
Spartan Advance	12	4	24	10	24	12	0	0	10	12	0/12*	12	10	0	36	0	4
Spartan Charge	12	4	24	10	24	12	0	0	10	12	0/12*	12	10	0	36	0	4
Starane	4	0	4	0	4	0	4	4	4	0	4	4	4	4	4	4	0
Status / Distinct (h)	4	4	4	0.25	4	4	4	4	4	4	4	4	4	4	4	4	1
Steadfast (<0.76 oz/A)	10j	8	18	0	18	18	10j	10j	18	8	10j	18j	18	0.5	18a	10j	8
SureStart	18	NCS	26b	0	26b	26b	18	NCS	26b	NCS	NCS	18	26b	NCS	26b	18	4
Tordon (1.5 oz)	2CS	NCS	2CS	2CSx	2CS	1	2CS	2CS	NCS	NCS	2CS	2CS	2CS	2CS	2CS	2CS	NCS
trifluralin (y)	0	NCS	0	NCS	0	18/21	0	0	0	18	0	0	0	0	2CS	0	NCS
Valor / Chateau	See page 12																
WideMatch / generics	10.5	0	4	0	4	0	10.5	10.5z	4	0	18	18	10.5	10.5	0	10.5	0
Wolverine	9	0.25	9	9	9	B	9	9	9	0.25	9	9	9	4	9	9	0.25

*Edible legumes = chickpea (garbanzo bean) and lentils.

NCS = Next cropping season after herbicide application.

2CS = Second cropping season after herbicide application.

MAA = months after application.

Field Bioassay Instructions - Refer to label or paragraph Y6 in the narrative section.

- a** Soil pH <7.5 = 10 MAA for sorghum and 11 MAA for sunflower.
 Soil pH >7.5 = 18 MAA for sorghum and sunflower
 Soil pH <6.5 = 10 MAA for sugarbeet and all other crops not listed.
 Soil pH >6.5 = 18 MAA for sugarbeet, potato, and all other crops not listed and cumulative precipitation in the 18 MAA period must exceed 28 inches.

B or b = Bioassay. Do not plant until field bioassay indicates it is safe. Crop rotation after atrazine is rate and soil pH dependant.

Python, Hornet, and SureStart require a 26 month rotation and a successful field bioassay.

FirstRate requires a 30 month rotation and a successful field bioassay.

Lightning, Pursuit, and Pursuit Plus requires a 40 month rotation and a successful field bioassay.

- c** Do not use on soil with pH greater than 7.9. Barley and oat can be planted 6 months after application west of highway 83.

- d** Requires soil pH of 7.9 or less and a 34 month minimum rotation interval and 28 inches of cumulative precipitation.
- e** Requires soil pH of 7.9 or less, 22 months and 22 inches of precipitation west of Hwy 1 or 34 months and 34 inches of precipitation east of Hwy 1. These restrictions also apply to Ally Extra at rates greater than 0.2 oz DF/A.
- f** Clearfield (imidazolinone resistant) canola varieties may be planted the season after application. Conventional canola varieties may be planted the following season after application at 1 pt/A in ND counties of Cavalier, Pembina, Ramsey, Rolette, Towner, and Walsh and MN counties of Kittson, Marshall, Pennington, Red Lake, and Roseau.
- h** Any rotational crop may be planted 120 days following application of dicamba at 1.5 pt/A or less, excluding days when ground is frozen. For all crops and rates greater than 1.5 pt/A allow 45 days per 1 pt/A of dicamba used excluding days when ground is frozen.
- j** Requires 15 inches of cumulative precipitation during the growing season following application. An 18 month restriction applies to Accent, Resolve, and Steadfast applied above rates indicated or if drought follows application. Refer to label for crop rotation restrictions if rates greater than those indicated are used.
- k** Requires 24 inches of accumulated precipitation.
- m** Do not plant dry bean, dry pea, soybean or sunflower for 18 months on soil with less than 2% OM and rainfall less than 15 inches during the 12 MAA OR may be planted 12 MAA if risk of injury is acceptable. Perform a field bioassay prior to planting for areas that receive less than 15 inches of rainfall and have less than 2% OM. Do not plant lentil, potato or any other broadleaf crop grown for seed for 18 months unless risk of injury is acceptable.
- p** Barley can be planted 9 months after application in Cass, Grand Forks, Pembina, Towner, Traill, and Walsh counties of ND. In all other counties of ND allow an 18 month rotation restriction before planting barley.
- r** Do not apply Beacon, NorthStar, Peak, or Spirit in the Red River Valley of ND and MN or on soil with pH greater than 7.8. User must follow crop rotation restrictions as given on labels. Refer to label for additional information on soil pH, rotation intervals, maximum use rates, application timing and other restrictions. The number of months after application given in the previous table are applicable only on soil with a pH less than 7.8, only using less than maximum rates allowed, only using approved application timings, and only on approved locations (inside or outside Red River Valley) as indicated on the label. Do not replant to any broadleaf crop if less than 10 inches of precipitation has occurred since Peak application. For situations not covered on the label or in the previous table, conduct a soil bioassay to determine if Peak soil residue will allow successful planting of desired rotational crop.
- s** Corn can be planted only if Prowl EC / Prowl H20 is applied PRE. DO NOT APPLY PPI.
- t**
 - Rotation to barley is: 9 months east of Hwy 83 and 18 months west of Hwy 83.
 - Rotation to potato is: 9 months if soil pH is >6.2 and rainfall is >18 inches/year or
18 months if soil pH is <6.2 and rainfall is < 18 inches/year
 - Rotation to sugarbeet: 18 months if soil pH is >6.2 or
26 months if soil pH is less than 6.2.
- u** Must add 2 months if soil pH is 7.5 or above. Wheat and barley can be planted 4 MAA following lentil or soybean.
- w** CRP grasses may be planted 13 MAA under the following conditions:
 1. By label this is deemed as a non-standard rotation.
 2. Dow assumes no liability for injury.
 3. Fall is recommended as the best time to plant CRP grasses.
 4. A field bioassay is recommended prior to planting CRP grasses.
- x** Do not plant corn or sorghum until soil samples analyzed for Tordon residue indicates no detectable levels present. Restriction is based on non-legal herbicide residue that may be found in corn and sorghum and not on crop safety.
- y** Oats, sorghum, and annual or perennial grass crops may be planted at least 12 MAA in areas that received 20 inches or more of precipitation during the growing season. CRP grasses may be planted 18 MAA if trifluralin is spring-applied or 21 MAA if fall-applied.
- z** For rotation to field pea in 10.5 months, precipitation must be greater than 7 inches during the 10.5 months following application and greater than 5.5 inches of precipitation from June 1 to August 31 following application. Otherwise allow 18 months.

Laboratories That Analyze For Pesticide Residue in soil, water, and plant samples.

For links to labs in each state see AGLABS website:
<http://aglabs.sdstate.org>

For specific category testing of labs see:
<http://www.findtesting.com>

The following list shows laboratories that can analyze for pesticide residues:

A & L Great Lakes Lab
 3505 Conestoga Drive, Fort Wayne, IN 46808
 (219) 483-4759, <http://www.algreatlakes.com>

Agvise Laboratories
 Northwood, ND
 (701) 587-6010, johtlee@polarcomm.com

Analytical Laboratory
 McCall Hall, PO Box 173620
 Montana State University, Bozeman, MT 59717
 406 994-3383, Heidi Hickes
 Developed the most sensitive test available for Oust.

Animal Disease Lab,
 9732 Shattuc Road, Centralia, IL 62801-5858
 (618) 532-6701,
<http://agr.state.il.us/animalHW/labs/centralialab.html>

APT Labs Inc.
 1050 Spring Str., Wyomissing, PA 19610
 610 375-3888

Harris Laboratories
 621 Rose Street, P.O. Box 80837, Lincoln, NE 68501
 (402) 476-2811, <http://www.mdsharris.com>

Hazelton Environmental Services
 525 Science Drive, Madison, WI 53711
 (608) 232-3300

Midwest Laboratories
 13611 B Street, Omaha, NE 68144
 (402) 334-7770, <http://www.midwestlabs.com>

Minnesota Valley Testing Laboratories, Inc.,
 326 Center Street, New Ulm, MN 56073
 (507) 354-8517, (800) 782-3557

Minnesota Valley Testing Laboratories, Inc.,
 1411 South 12th Street, Bismarck, ND 58504
 (701) 258-9720, (800) 782-3557

Olson Biochem Labs, Duane Matthees
 South Dakota State University
 Office = 134 ASC, Brookings, SD 57007-1217
 Samples = 152 ASC, Brookings, SD 57007-1217
 Office = (605) 688-6160, Lab = (605) 688-6171
duane.matthees@sdstate.edu, <http://anserv.sdstate.edu>

Professional Service Industries
 4820 West 15th Street, Lawrence, KS 66049
 (800) 548-7901

General Guidelines for Laboratory Analysis: Safe Level*

Herbicide	Parts per billion (ppb)	Parts per million (ppm)	Crop
chlorimuron	1-3	0.001-0.003	Corn
	2-5	0.002-0.005	Wheat
clomazone	75-150	0.075-0.15	Corn
	15-75	0.015-0.075	Wheat/Alfalfa
Dintroaniline	100-200	0.1-0.2	Corn
	200-300	0.2-0.3	Wheat
	50-70	0.05-0.07	Sugarbeet
Imazethapyr	1-25	0.01-0.025	Corn
	4-10	0.004-0.01	Sorghum
	<1	<0.001	Sugarbeet
Triazine	100-250	0.1-0.25	Soybean
	40-100	0.04-0.1	Alfalfa
	60-150	0.06-0.15	Oat
	75-180	0.075-0.18	Wheat
	<5	<0.005	Sugarbeet

*"Safe" values for herbicide residues differ by soil type and pH because of differences in availability in soil. Low-range values are for coarse textured soils with low levels of organic matter, higher values are for fine textured soils with high organic matter. 1 ppm = 1,000 ppb

"Safe" Triazine Residue Level		
3 inch sample (No-till)	6 inch sample (moldboard plow)	Crop
<0.17 ppm	<0.08 ppm	Oat, alfalfa
0.17 to 0.35 ppm	0.08 to 0.17 ppm	Soybean
>0.35 ppm	>0.17 ppm	Corn

Publications on Herbicide Injury Symptoms:

W-1141 Herbicide and Nonherbicide Injury Symptoms on Spring Wheat and Barley, NDSU Extension Service.

A-1085 Herbicide Mode of Action and Sugarbeet Injury Symptoms NDSU Extension Service

PNW-498 Herbicide Drift and Carryover Injury in Potatoes Ag Publications, U of ID, 208 885-7982, ckink@uidaho.edu

CD-ROM:

Herbicide Mode of Action and Crop Injury Symptoms (U of MN)
 To order go to: <http://shop.extension.umn.edu/>
 In the "Search" window type: 06893
 Cost is \$20.00 per CD-ROM

Web sites:

Herbicide Mode of Action Symptoms (U of WI):
http://ipcm.wisc.edu/pubs/PestMngmt_ref.htm

Herbicide Injury Diagnostic Key:
http://ipcm.wisc.edu/uw_weeds/herbinjkey/

Dicamba Injury to Soybean (U of WI):
http://ipcm.wisc.edu/pubs/PestMngmt_ref.htm

Recognizing Residue and Drift Injury in Canola - Alberta Res. Council:
www.canola-council.org.PDF/toolbook.pdf#zoom=100

Herbicide Classification and Mechanism of Action for Resistant Weed Management

Mode of Action	Common Name	Herbicide Tradename	Premix or Co-pack Tradenames	
ACC-ase Inhibitor (1) Aryloxyphenoxy propionic acid "Fop"	clodinafop-P fenoxaprop-P fluzafop-P quizalofop	Discover NG Puma Fusilade DX Assure II = Targa.	- Fusion, Wolverine Fusion -	
	Cyclohexanedione "Dim"	clethodim	Select = Trigger = Volunteer = Intensity. Arrow, Clethodim, Envoy, Section, Select Max, Shadow.	-
sethoxydim tralkoxydim		Poast Achieve	Rezult -	
Phenylpyrazolin "Den"	pinoxaden	Axial XL	-	
ALS Enzyme Inhibitor (2)	imazamethabenz imazamox imazapic	Assert Beyond = Clearcast = Raptor. Cadre = Impose = Plateau.	- ClearMax -	
	Imidazolinone "Imi"	imazapyr imazaquin imazethapyr	Arsenal = Habitat. Scepter Pursuit Lightning, OneStep, Sahara Squadron Authority Assist, Extreme, Lightning, Pursuit Plus	
Sulfonylurea "SU"	chlorimuron chlorsulfuron foramsulfuron halosulfuron iodosulfuron mesosulfuron metsulfuron	Classic Glean = Report = Telar. Option Permit = Sandea. Autumn Silverado	Canopy, Canopy EX, Synchrony STS/XP. Chisum, Cimarron Max/X-tra, Finesse/G&B, Report Extra. Equip Priority Equip Olympus Flex, Rimfire.	
	nicosulfuron primisulfuron prosulfuron rimsulfuron sulfometuron sulfosulfuron thifensulfuron	Accurate=Ally=Cimarron=Escort=Metgard = Metsulfuron=Plotter=Romet=Valuron. Accent/Q, Nic-It, Nico Beacon Peak Matrix = Resolve DF. Resolve SG. Oust Certainty (turf), Maverick Harass = Harmony DF = Treaty = Unity = Volta.	Accurate Extra, Agility, Ally Extra, Chisum, Cimarron Max, Cimarron X-tra, Finesse, Report Extra. Clarion, Steadfast/Q. Exceed, NorthStar, Spirit. Exceed, Spirit. Basis, Clarion, Require Q, Resolve Q, Steadfast/Q. -	
	triasulfuron tribenuron	Amber Express = Nuance = Victory	Accurate Extra, Agility, Affinity BroadSpec/Tankmix, Ally Extra, Canopy EX, Edition B-spec/T-mix, Harmony Extra, Nimble, Rapport B-spec/T-mix, TNT. Fuego, Rave	
	triflurosulfuron	UpBeet	Accurate Extra, Agility, Affinity BroadSpec/Tankmix, Ally Extra, Canopy EX, Edition B-spec/T-mix, Harmony Extra, Nimble, Rapport B-spec/T-mix, TNT. -	
	Triazolopyrimidine "TPS"	cloransulam florasulam flumetsulam pyroxulam	FirstRate - Python PowerFlex	Authority First, FrontRow, Gangster GoldSky, Orion FrontRow, Hornet, SureStart GoldSky
	Sulfonylamino- carbonyltriazolinone "SACT"	flucarbazone propoxycarbazone thiencarbazone	Everest = Pre-Pare Olympus -	Finesse Grass and Broadleaf Olympus Flex, Rimfire Corvus
	Mitotic Inhibitor (3) Dinitroaniline (DNA)	ethalfuralin pendimethalin trifluralin	Sonalan Prowl/H20 = Acumen = Pendimax=Pendant. Trifluralin = Treflan = Triflurex = Trust/others.	- Pursuit Plus Buckle, Freedom
Growth Regulators (4) Phenoxy	2,4-D	2,4-D, others	See bromoxynil, Crossbow, Curtail = Commando, ForeFront, Grazzone P+D = Gun Slinger, Landmaster BW = Campaign = Credit Master, Rage D-Tech, Recoil, Shotgun, Starane+Salvo, Weedmaster = see dicamba.	
	2,4-DB MCPA amine MCPA ester	Butyrac MCPA Amine, Rhomene, others Daggar, MCPA E, Rhonox, Sword, Wildcard	- - See bromoxynil, ClearMax, Curtail M=Commando M, Orion, Starane+Sword.	
Benzoic acids	dicamba-dma salt dicamba-dga salt dicamba-Na salt dicamba acid dicamba-ipa salt dicamba-dea salt	Banvel = Dicamba = Oracle = Rifle. Clarity = Sterling Blue. Banvel SGF Vision. - -	- - Agility, Distinct=Overdrive, Require Q, Status, Yukon. Latigo. Fallow Master = Fallow Star = GlyKamba. Weedmaster = Banvel + 2,4-D = Brash = Kamba Master = Outlaw = Range Star = Rifle D.	
	Pyridine	aminopyralid clopyralid	Milestone Clopyr Ag = Garrison = Spur = Stinger = Reclaim = Transline.	CleanWave, ForeFront Commando/M = Curtail/M, = Cutback/M = Redeem, WideMatch = Colt, Hornet, SureStart.
fluroxypyr		Starane = Vista. Starane Ultra = Obtain = Vista XRT	CleanWave, GoldSky, PastureGard, Surmount, Starane + Salvo, Starane NXT, Starane + Sword, WideMatch = Colt. Grazzone P+D = Gun Slinger, Surmount.	
picloram triclopyr		Tordon 22K = Triumph 22K. Garlon = Remedy. Pathfinder II.	PastureGard, Redeem, Vengeance Plus	
Quinoline	quinclorac (dicots)	Drive = Facet = Paramount.	-	

Mode of Action	Common Name	Herbicide Tradename	Premix or Co-pack Tradenames
Photosystem II Inhibitor (5) - Site A Triazine Triazinone Phenyl-carbamate	atrazine	Atrazine, others	See 2,4-D, dicamba, bentazon, bromoxynil, glyphosate, acetochlor, dimethenamid-P, s-metolachlor + or - safener. Derby
	simazine	Princep	
	metribuzin	Metribuzin = Sencor = Tri-Cor.	Authority MTZ, Canopy, Domain
	desmedipham phenmedipham	Alphanex = Betanex. -	Des + Phen = Betamix = BNB Plus. Phen-Des 8+8 = Progress.
Photosystem II Inhibitor (6) - Site B	bentazon	Basagran	Galaxy, Laddok S-12, Rezult, Storm
	bromoxynil	BroClean = Bromox = Brox = Bucril = Moxy.	Bronate = Bison = Bromac = Bromox MCPA = Maestro MA = Wild Card Xtra, Brox M, Huskie, Wolverine. Bronate Advanced = B-5 = Bison Advanced = Bromac Advanced = Brox M Ultra = Wolfpack Advanced. Bromoxynil + 2,4-D(2 lb+2 lb), B-4, Double Up, Maestro D. Bromoxynil + 2,4-D (2 lb+2.5 lb) = WECO Max.
Photosystem II Inhibitor (7) - Site A - different than 5	diuron	Diuron = Direx = Karmex.	Krovar, Sahara, WeedBlast
	linuron	Lorox = Linex = Linuron.	-
	tebuthiuron	Spike	-
Lipid Synthesis Inhibition (8) Thiocarbamate	cycloate	Ro-Neet	-
	EPTC triallate	Eptam = Eptek = Eradicane = Razencane. Far-Go	Powerplay, Imperium. Buckle
EPSP Synthase Inhibitor (9)	glyphosate-ipa	Roundup, several generics - see page 89.	Expert, Extreme, Fallow Master, Landmaster BW, others. See 2,4-D, atrazine, dicamba, s-metolachlor, and page 69.
	glyphosate-K	Roundup PowerMax II, several - see page 89.	Sequence
	gly- (NH4)2	Touchdown iQ - see page 89.	-
Glutamine Synthetase Inhibitor (10)	glufosinate	Liberty = Finale. Ignite 280. Rely 200.	-
Bleaching: Phytoene Desaturase Inhibitor (PDS) (12)	beflubutamid	UBH-820	-
	flurochloridone	Racer	-
	flurtamone	-	Nikyl
Bleaching: DOXP Synthase Inhib. (13)	clomazone	Command = Commit.	Command Xtra, Commence
PPO (Protox) Inhibitor (14) Diphenylether Imine N-phenylphthalimide Oxadiazole Phenylpyrazole Pyrimidinedione Triazolinone	acifluorfen	Ultra Blazer	Galaxy, Storm
	fomesafen	Flexstar, Reflex	Prefix
	lactofen	Cobra, Phoenix	Stellar
	oxyfluorfen	Goal	-
	fluthiacet	Cadet	-
	flumiclorac flumioxazin	Resource Valor = Broadstar = Chateau = Encompass = Payload = Suregard.	Stellar Gangster
	oxadiargyl	Raft, Topstar	-
	pyraflufen	ET	-
	saflufenacil	Sharpen	-
	carfentrazone sulfentrazone	Aim = Avalanche = Quicksilver = Teamwork. Spartan=Blanket=Crossing=Portfolio	Priority, Rage, Rage D-Tech, Spartan Charge Authority Assist/First=Sonic/MTZ, Spartan Advance/Charge
Very Long Chain Fatty Acid Inhibitor (15) Acetamide Oxyacetamide	acetochlor	Harness = Confidence. Surpass = Breakfree = Volley. Degree, TopNotch.	Harness Xtra/5.6L=Confidence Xtra/5.6L. Imperium. Breakfree ATZ Lite=Keystn LA=Volley ATZ Lite. SureStart. Powerplay.
	alachlor	Alachlor, Intro, Lasso, others.	-
	dimethenamid-P metolachlor meto + safener s-metolachlor s-meto + safener	Establish, Outlook, Propel. Dual 8E, Parallel PCS, Stalwart. Dual II, Me-Too-Lachlor, Parallel, Stalwart C. Dual Magnum, Brawl, Charger Max. Dual II Magnum, Brawl II, Cinch.	Establish Lite = G-Max Lite = Propel ATZ Lite. GuardmanMax = Stalwart Xtra = Parallel Plus. Parallel Plus, Stalwart Extra. Prefix, Sequence. Bicep Lite II Magnum, Brawl II ATZ, Camix, Charger Max ATZ Lite, Cinch ATZ Lite, Halex GT, Lumax.
	flufenacet	Define	Domain, Epic, Radius
	ethofumesate	Nortron	BNB Plus = Progress.
Auxin Inhibitor (19)	diflufenzopyr	-	Celebrity Plus, Distinct, Status
Photosystem I Inhibitor (22)	diquat	Reglone	-
	paraquat	Firestorm, Gramoxone Inteon, Parazone, Rely	-
Unknown (26)	difenzoquat	Avenge	-
	quinclorac(grass)	Drive = Facet = Paramount.	-
Bleaching: HPPD Inhibition (27)	isoxaflutole	Balance Pro, Balance Flexx	Corvus, Epic, Radius
	mesotrione	Callisto = Tenacity	Camix, Halex GT, Lumax
	pyrasulfatole	-	Huskie, Wolverine
	tembotrione	Laudis	-
	topramezone	Impact	-

Cold, Hard STEEL (28): Plow, cultivator, rotary-hoe, etc.

Adapted from WSSA Herbicide Classification System For Resistant Weed Management. Weed Technol. 17:606-608.

Restrictions on Grazing/Feeding/Haying of Crops Treated with Herbicides

Herbicide	Crop	Time interval
DAA = days after application WAA = Weeks after appl.		
Accent	Corn	30 DAA
acetochlor	Corn	No restriction
Achieve	Small grain	30 DAA
Aim	Corn, small grain	No restriction
Amber	CRP, small grain	No restriction
Assert	Sunflower, small grain	Not allowed
Assure II / Targa	Canola/mustards, chickpea, dry bean, dry pea, lentil, soybean, sugarbeet	Not allowed
atrazine	Corn	21 DAA
Authority Assist	Soybean	Not allowed
Authority First	Soybean	Not allowed
Authority MTZ	Soybean	Not allowed
Axial XL	Barley, Wheat - Graze/Straw	30 / 60 DAA
Balance Flexx	Corn	No restriction
Basagran	Corn Dry edible bean, dry pea Soybean	12 DAA No restriction 30 DAA
Basis	Corn	30 DAA
Beyond	Clearfield canola, CF wheat Clearfield sunflower	No restriction Not allowed
bromoxynil	Alfalfa Corn, small grain CRP, Grass establishment Flax	30 DAA 45 DAA Not allowed No restriction
bromox&MCPA	Small grain	45 DAA
Cadet	Corn Soybean	30 DAA Not allowed
Callisto	Corn Oat	45 DAA 30 DAA
Camix	Corn	45 DAA
chlorsulfuron	Small grain	No restriction
chlor & metsulf	Small grain	No restriction
ClearMax	Clearfield wheat	7 DAA
clethodim	Alfalfa Canola, chickpea, dry bean, flax, potato, soybean, sunflower, sugarbeet	15 DAA Not allowed
clopyralid	Canola/mustards, sugarbeet	7 DAA
clopyralid & 2,4-D / MCPA	CRP, small grain - graze/feed - hay	7 DAA Not allowed
dicamba	Corn CRP - non-lactating animals - lactating - see label Small grain - non-lactating - lactating - see label - haying forage	> milk stage No restriction < 70 DAA No restriction 7 DAA 37 DAA
dimethenamid	Corn Soybean	45 DAA Not allowed
Discover NG	Small grain	30 DAA
Distinct	Corn	32 DAA
Eptam	Alfalfa, sunflower	No restriction
Everest	Small grain	No restriction
Extreme	RUR soybean	Not allowed

Far-Go	Chickpea, small grain Field pea Lentil	Not allowed 120 DAA No restriction
Finesse	Small grain	No restriction
FirstRate	Soybean	14 DAA
Flexstar	Soybean	Not allowed
fluroxypyr	Corn Small grain - graze/feed - hay	47 DAA 7 DAA 14 DAA
Fusilade DX	Soybean	Not allowed
Gangster	Soybean	Not allowed
Glyphosate labels indicate that for all registered crops and applications unless otherwise noted there is an 8 week after application (WAA) restriction for grazing, feeding and haying.		
glyphosate	Alfalfa - Preharvest Spot - Monsanto - Generics Renovate - < 1.5 lb ae/A - > 1.5 lb ae/A Renovation - Generics Alfalfa - Roundup Ready Barley - Preharvest Postharvest - Monsanto - Generics Canola Canola - RR Chickpea - Preharvest Corn - Preharvest Postharvest - Monsanto - Generics Corn RUR - Preharvest Postharvest Dry bean - Preharvest Dry pea - Preharvest Flax Lentil Potato - Preharvest Soybean - Preharvest Monsanto - < 22 fl oz/A - > 22 fl oz/A Generics - < 6 qt/A Postharvest Soybean - RR - Preharvest Monsanto - Generics - Postharvest Sugarbeet Sunflower Wheat - preharvest Postharvest - Monsanto - Generics	1.5 DAA 3 DAA 14 DAA 3 DAA Not allowed 8 WAA 5 DAA After harvest 7 DAA 8 WAA Not allowed 8 WAA 8 WAA 8 WAA 7 DAA 8 WAA 7 DAA 7 DAA Not allowed 8 WAA 8 WAA 8 WAA 8 WAA 8 WAA 14 DAA 25 DAA 25 DAA 8 WAA 14 DAA Not allowed 8 WAA 8 WAA Not allowed After harvest 7 DAA 8 WAA
GoldSky	Small grains - Graze / Hay	7 / 28 DAA
Halex GT	Corn	45 DAA
Hornet	Corn	No restriction
Huskie	Wheat, barley	25 DAA
Ignite 280	Liberty Link canola or corn	Not allowed
Impact	Corn	45 DAA
Laudis	Corn	45 DAA
Liberty	Liberty Link canola or corn	Not allowed
Lightning	Clearfield corn	45 DAA
Lumax	Corn	45 DAA

Maverick	Small grain - Feed, graze - Hay	No restriction 30 DAA
MCPA	CRP, small grain - hay - graze dairy animal - graze meat animal Flax, grass establishment	30 DAA 7 DAA 7 DAA 7 DAA
metolachlor	Chickpea, soybean Corn Dry bean, field pea Potato, safflower, sunflower	No restriction 30 DAA 120 DAA Not allowed
metribuzin	Field pea, lentil, soybean	40 DAA
metsulfuron	CRP Small grain	No restriction No restriction
met & chlorsfrn	Small grain	Not allowed
Olympus	Small grain	No restriction
Option	Corn	45 DAA
Orion	Small grains	7 DAA
Paramount	CRP Small grain	309 DAA Not allowed
paraquat (PRE)	Corn, dry bean, field pea sunflower (desiccant), small grain	7 DAA
Peak	Small grain	30 DAA
Permit	Corn	30 DAA
Plateau	CRP Grass establishment	No restriction Not allowed
Poast	Alfalfa Canola, dry bean, dry pea, flax, lentil, flax, potato, sunflower sugarbeet Soybean	7 DAA No restriction Not allowed
PowerFlex	Small grains - Graze / Hay	7 / 28 DAA
Prowl	Wheat Corn Soybean Chickpea, dry bean, dry pea, lentil, potato, sunflower	28 DAA 21 DAA No restriction Not allowed
Puma	Small grain	No restriction
Pursuit	Alfalfa Chickpea, soybean Dry edible bean Field pea Lentil	30 DAA Not allowed 7 DAA 120 DAA No restriction
Pursuit Plus	Soybean	Not allowed
Python	Corn Soybean	No restriction Not allowed
Rage D-Tech	Corn and grass forage Small grains	7 DAA 14 DAA
Raptor	Alfalfa, dry bean, field pea, soybean	No restriction
Reflex	Dry edible bean	7 DAA
Rezult	Soybean Dry bean, dry pea	Not allowed No restriction
Rimfire	Wheat	30 DAA
rimsulfuron	Corn Potato	30 DAA Not allowed
Sequence	Pod crops Soybean	120 DAA 30 DAA

Silverado	Wheat/Durum - hay forage grain straw	50 DAA 30 DAA 55 DAA
Sonalan	Canola/mustard, dry bean soybean, sunflower Field pea	Not allowed No restriction
Sonic	Soybean	Not allowed
Spartan/Charg/ Advance	Dry pea, chickpea, soybean sunflower	No restriction
Starane NXT	Small grain	45 DAA
Status	Corn	32 DAA
Steadfast	Corn	30 DAA
Storm	Soybean	Not allowed
Thistrol	Field pea	Not allowed
Sulfonylurea Herbicides - DF and SG DF formulations of thifensulfuron, tribenuron and premixes - small grain, soybean		Not allowed
SG formulations Agility, Affinity BS/TM, Ally Extra - small grain, soybean	Feeding, Forage Hay Straw	7 DAA 30 DAA No restriction
trifluralin	Canola/mustard, dry bean pea, lentil, potato, safflower, sunflower, sugarbeet. Chickpea, flax, soybean, small grain.	Not allowed No restriction
Ultra Blazer	Soybean	Not allowed
Valor	Corn Soybean	No restriction Not allowed
WideMatch / generics	Corn Small grain - graze/forage - hay	47 DAA 7 DAA 14 DAA
Wolverine	Wheat, Barley - Forage/Straw	25 / 60 DAA
2,4-D	CRP, grass - hay - graze/feed dairy animal - graze/feed meat animal Small grain - graze/feed/hay dairy animal - graze/feed/hay meat animal	30 DAA 7 DAA 3 DAA 14 DAA No restriction
2,4-DB	Alfalfa Soybean	30 DAA 60 DAA

Grazing and Haying Restrictions for Herbicides Used in Pasture and Rangeland

Herbicide ¹	Lactating dairy animals		All animals except lactating dairy animals		
	Before grazing	Before hay harvest	Before grazing	Before hay harvest	Removal before slaughter
	days after application		days after application		
Cimarron/Extra	0	0	0	0	0
Cimarron Max	7	-	0	0	30
Amber	0	30	0	30	0
clopyralid	0	0	0	0	0
clopyralid + 2,4-D	14	30	0	30	7 ³
Crossbow	1 year	1 year	0 ²	1 year	3
dicamba ¹					
Up to 1 pt	7	37	0	0	30
Up to 2 pt	21	51	0	0	30
Up to 4 pt	40	70	0	0	30
Up to 16 pt	60	90	0	0	30
FallowMaster	8 weeks	8 weeks	8 weeks	8 weeks	8 weeks
Fuego	7	30	0	30	30
glyphosate ¹					
Pre/Renovation - < 1.5 lb ae/A	No restriction	No restriction	No restriction	No restriction	No restriction
- > 1.5 lb ae/A	8 weeks	8 weeks	8 weeks	8 weeks	8 weeks
Spot Spray - Monsanto ⁶	7	7	7	7	7
- Generics	14	14	14	14	14
Broadcast	8 weeks	8 weeks	8 weeks	8 weeks	8 weeks
glyphosate + 2,4-D premix ⁵	7	30	3	30	3
Grazone P + D	7	30	7	30	3
metsulfuron	0	0	0	0	0
Milestone	0	0	0	0	0
Paramount	No grazing allowed. Do not hay for 309 days after application.				
paraquat ⁴	1 month	1 month	1 month	1 month	0
Plateau	0	7	0	7	0
Rave	7	0	0	0	0
Redeem	1 year	1 year	0	1 year	3
Spike ⁷	0	1 year	0	1 year	0
Telar (<0.3 oz/A)	0	0	0	0	0
Tordon 22K ⁸	14	14	0	14	3
2,4-D/MCPA ¹	7	30	0	30	3