

WEED CONTROL

in CRP Plantings: 2007



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Weed control reduces the risk of failure of new seedings. Controlling weeds in established CRP (Conservation Reserve Program) reduces spread to adjacent fields. Control of noxious weeds is required by South Dakota statute. The information in this publication is for new and established CRP plantings.

Anticipate weed problems based on field history. Annuals that produced seed during the last one or two seasons can be expected to be a significant part of the problem. Perennial weeds persist from year to year. Extra control efforts are required to weaken and reduce stands to reduce competition and prevent spread.

Herbicide product labeling includes specific sites for use. Acceptable tolerance standards and growth expectations may be different for some use sites. Plantings for seed production require additional supporting data to be certain seed production and viability is not affected. See Site Summary for Grass Establishment on page 2.

Perennial Weeds

Perennial weeds should be eliminated before seeding. State law requires control of noxious weeds. Herbicides applied in the fall before spring seeding will reduce stands of field bindweed, Canada thistle and other perennials. Herbicides should be applied to active leaf growth before killing frost. Herbicides applied before planting cool-season grasses in the spring are usually less effective because of insufficient weed growth. Some control can be expected from applications before warm-season species are planted in late spring. If perennials are serious, consider using a temporary cover crop and request a seeding delay. Most perennials can be suppressed or reduced after the grass stand is established.

Annual Weeds

Annual grassy weeds such as foxtail or barnyardgrass compete with spring seeded grass. Selective control of some weedy grasses is difficult. Tillage or herbicide burndown just prior to seeding warm-season grass reduces the foxtail problem. Foxtail is less serious in fall seeding of cool-season grass.

Annual broadleaves can be very competitive. Clipping above seedling grass is an option. Clip before weeds become so large they smother the seeding. Mowing should not remove more than 60% of the leaf area from CRP species. Several herbicides are available for use in new grass seedings or established grass.

No-till planting frequently has less initial annual weed pressure if the program is planned properly. Winter annual bromes ("cheatgrass") are a potential problem in fields with a history for this weed.

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SOUTH DAKOTA STATE UNIVERSITY

College of Agriculture & Biological Sciences • Cooperative Extension Service • U.S. Department of Agriculture

SITE SUMMARY for GRASS ESTABLISHMENT

	Page Number	CRP		New Seeding	
		New Seeding	Well Established	Range/Pasture	Grass Seed
2,4-D amine	5	X	X	X	X
2,4-D ester	5	X	X		X
2,4-D+ dicamba	7	X	X	X	
Amber	10	X	X	X	
Atrazine	3	X	X		
Banvel/Clarity	7	X	X	X	
Bromoxynil	6	X			X
Bromoxynil+ MCPA	6	X			X
Butyrac 200	6	X	X		
Cimarron	9	X	X	X	
Cimarron Max, Plus, X-TRA	9, 10		X		
Crossbow	9		X		
Curtail/Curtail M	8	X	X		
Escort	NA			X (range)	
Forefront R&P	7		X		
Glyphosate	4	X	X		
Gramoxone	3	X			
Grazon P+ D	8	X	X		
Journey	5	X			
MCPA amine	6	X	X	X	X
MCPA ester	6	X	X		X
Milestone	7		X		
Overdrive	6		X		
Paramount	3				X
Prowl	4	X			
Pursuit	4	X	X		
Plateau	5	X	X	X	
Redeem R&P	9		X		
Remedy	9		X		
Starane	6		X		
Stinger	8	X	X		
Telar XP	10		X		
Tordon 22K	7		X		
Widematch	8		X		

ABBREVIATIONS

pt = pint
gal = gallon
qt = quart
L = liquid

act = active ingredient
a.e. = acid equivalent
gpa = gallon per acre
lb = pound
oz = ounce
in = inch

NIS = non-ionic surfactant
COC = crop oil concentrate
MSO = methylated seed oil
AMS = ammonium sulfate

HERBICIDES for NEW or ESTABLISHED SWITCHGRASS PLANTINGS

There is increasing interest in the use of switchgrass as a possible biomass fuel crop in the Midwest. Many of the herbicide and weed control methods would apply to the establishment and production of switchgrass. In addition to herbicides found in this guide, the following herbicides are labeled for weed control in switchgrass.

PARAMOUNT (*quinclorac*)

Controls several broadleaf weed species. Controls field bindweed, also suppresses leafy spurge and perennial thistles. Controls annual grass but does not cause permanent damage to established grass. Labeled for use in the following grasses grown for seed: bromegrass, tall fescue, Kentucky bluegrass, needlegrass, orchardgrass, wheatgrasses, wild rye, bluestems, grama grasses, sandreed and switchgrass. Apply Paramount at 5.3 oz per acre. Add 2 pt COC or MSO plus .5 to 1 gal 28% N or 2.5 lb AMS per acre.

ATRAZINE 4L (*atrazine*)

Controls certain annual broadleaf and grassy weeds (cheatgrass) in established perennial grasses along roadsides in the states of Colorado, Kansas, Montana, North Dakota, Nebraska, South Dakota, and Wyoming. Broadcast 2 pt per acre atrazine 4L. Use minimum of 10 gpa carrier by ground application in the fall prior to ground freezeup or after thawing in the spring before established grasses greenup and weed emergence. Do not graze or cut and feed hay to livestock.

CRP: For seedling establishment and established stands in the states of Nebraska, Oklahoma, Oregon and Texas only.

Seedling Establishment: Pure stands of newly seeded big bluestem, switchgrass, and eastern gamagrass. Use only on loam, silt loam, silty clay loam, clay loam, and silty clay soils with at least 1% organic matter. Broadcast 2.2 lbs per acre of atrazine 90DF preplant incorporated or preemergence at time of seeding and prior to emergence of weeds. Prepare a good firm seedbed. Plant ½ inch deep with a grassland drill (preferred method) or a conventional drill. If a conventional drill is used on prepared seedbeds, remove all tension from the disk openers. For best results, cultipack or roll after planting.

Established Stands: Renovation of existing stands of big bluestem and switchgrass planted on CRP acres. Broadcast 1.1-2.2 lbs per acre to existing stands of big bluestem and switchgrass prior to the emergence of weeds, use the low rate on soils containing from 1%-2% organic matter. Use the high rate on soils with 2% or more organic matter.

HERBICIDES for NEW or ESTABLISHED CRP PLANTINGS

Herbicides can be used to control weeds before seeding, in new seedings and established CRP plantings. Herbicides included have labeling or supplemental labeling for use in CRP grass/legume seedings. Application to planting intervals for herbicides used to control volunteer crops and weeds are suggested. Some are based on label interval; others are not specified but suggested based on other label restrictions and experience.

Herbicides are listed by tradename except where ingredient is available in several products. Premixes include an example of tradename product (*).

GRAMOXONE INTEON (*paraquat*)

Paraquat may be used prior to seeding grass or legumes. It controls existing cover crop or emerged weed growth. It functions as a tillage replacement to maintain surface residue. Paraquat has contact activity; perennials are not eliminated. Good coverage is important. Control of volunteer small grain, cheatgrass, and annuals has been satisfactory for early spring and late fall treatments. Application after grasses reach boot or head formation are usually not effective. Gramoxone Inteon contains 2 lb/gal active ingredient. RESTRICTED USE PESTICIDE.

Before Seeding: Apply 2.5-4 pt Gramoxone Inteon per acre. Add 1 pt NIS per 100 gal. Minimum carrier is 10 gpa for ground or 5 gpa for air.

GLYPHOSATE PRODUCTS (*glyphosate*)

Glyphosate is available in several formulations and is marketed as several brands. Application rates are based on acid equivalent per acre. Refer to the table below to determine the amount of product required for the rate of acid equivalent required. For example, Roundup UltraMax II contains 5.5 lb active ingredient (glyphosate acid + salt) and 4.5 lb acid equivalent (ae) per gal.

		<i>Amount of Product for lb ae</i>			
		<i>.38 ae</i>	<i>.75 ae</i>	<i>1.5 ae</i>	<i>3 ae</i>
3 lb ae (4 lb ai)	L	16 oz	32 oz	64 oz	128 oz
3.75 lb ae (5 lb ai)	L	13 oz	26 oz	51 oz	102 oz
4 lb ae (5.4 lb ai)	L	12 oz	24 oz	48 oz	96 oz
4.17 lb ae (-----)	L	12 oz	23 oz	46 oz	92 oz
4.5 lb ae (5.5 lb ai)	L	11 oz	21 oz	43 oz	85 oz

Glyphosate is labeled for use prior to planting forage grass or alfalfa to control annual or perennial grasses or broadleaves or as a dormant application in CRP to control or suppress undesirable species when other species are dormant. It controls emerged weeds and volunteer crops prior to no-till planting or acts as tillage replacement to maintain residue prior to seeding. It is a translocated, non-selective herbicide. There is no soil residual activity. Low rates control most annual grasses and some annual broadleaves; higher rates control perennials. Weeds should be growing actively; volunteer winter grain or winter annual grasses should have some new, extended growth before treating in the spring. Minimum carrier is 3 gpa; use higher rates to reduce drift and improve coverage in dense growth. Add ammonium sulfate at 17 lb/100 gal of solution to overcome hard water reactions; especially with higher carrier volume.

Before Seeding - Perennial Weeds: Glyphosate is useful to reduce perennial weeds before seeding. Weeds should be actively growing and be at bud or boot stage. Fall application is more effective than spring. Rate for quackgrass is .75 to 1.5 lb ae per acre; use the lower rate for fall application. Use minimum of 1.5 lb ae for Canada thistle or 2.25 to 3 lb ae per acre for field bindweed. Labeling for application during the year before planting includes tank-mixes with 2,4-D or dicamba; follow planting interval specified.

Before Seeding - Annual Weeds: Control weeds and volunteer crops before seeding. Rate for most weeds is .38 lb ae; rates to .57 lb ae per acre are used for heavy weed growth or varying stages and mixed species. Rate of .2 lb ae is adequate for green foxtail, .25 to .38 lb ae per acre for downy brome, mustard, wild oat, volunteer cereals, lambsquarter and witchgrass. Barnyardgrass frequently requires .57 lb ae per acre.

Dormant Application: Apply with a wiper or as a broadcast or spot treatment to suppress certain vegetation. Broadcast .2 lb ae per acre in early spring before desirable grasses such as crested or tall wheatgrass break dormancy or in late fall after CRP grasses have become dormant. Some stunting may occur if the stand is not completely dormant.

PROWL 3.3EC or PENDANT or PENDIMAX (*pendimethalin*)

Forage legume crop cover. Labeling is limited to legumes planted as cover crop or set-aside or Conservation Reserve Program (CRP) acres. Do not feed or graze legume covercrop. Not for grass/legume mixtures. Provides very good control of several annual grasses. Higher rates are for heavy clay soil. Not for use on crops intended for hay or forage for livestock.

Preplant Incorporated or Preemergence: Preplant application provides more consistent control. Immediate incorporation is preferred, but may be delayed in some situations. Apply at 1.2-3 pt per acre. Minimum carrier is 10 gpa for ground or 5 gpa for air. Some stand reduction of the legume cover crop may occur.

PURSUIT 70DG (*imazethapyr*)

For use in grass and alfalfa. Labeling for CRP includes new seedings and established stands of grasses and legumes. Pursuit controls non-ALS kochia, mustards, nightshade, pigweed, foxtails and will control or suppress several other annual weed species. It provides some extended residual control. Labeled grasses include big and little bluestem, switchgrass, Russian wildrye; intermediate, tall, crested and western wheatgrass; smooth brome, orchardgrass and canarygrass. Legumes include alfalfa, clover, crown vetch and birdsfoot trefoil. Add a NIS at 1 qt per 100 gal. Minimum carrier is 10 gpa for ground equipment. Do not harvest forage or seed for livestock feed.

New Seeding and Established Stands: Apply 4 oz Pursuit 2L or 1.44 oz 70DG (1 ECO-PAK/2 acres) per acre postemergence when seedling legumes have at least 3 fully expanded trifoliolate leaves and grass seedlings have 4 leaves. Apply in fall or spring before weeds exceed maximum size to be controlled.

JOURNEY (imazapic + glyphosate)

Journey is a premix herbicide containing .75 lb imazapic (Plateau*) and 1.5 lb glyphosate ae per gal. Controls annual and perennial grasses and broadleaf weeds and vine species. Apply preemergence or postemergence to the existing vegetation during active growth at a rate of 10.7-32 oz per acre. May be used prior to planting CRP at rates up to 10.7 oz per acre per year. The 10.7 oz rate provides equivalent of 4 oz Plateau 2L plus 5 oz glyphosate product 3L ae per acre. Tolerant species for application prior to seeding includes big and little bluestem, Indiangrass, side-oats grama, blue grama, and buffalograss. Purple prairie clover and limited other legumes (not alfalfa) are also considered tolerant on the label list. Do not apply after newly seeded desirable species are emerging as significant stand loss can occur. Special South Dakota supplemental labeling restricts application if there is no wind, if wind is gusty, or if wind is in excess of 10 mph or conditions that would allow the product to drift from the target site. Use MSO at 1 qt/acre.

Before Seeding: Burndown and short residual. Do not apply after desirable grasses have emerged. Additional glyphosate may be required for large weeds or perennials.

PLATEAU 2L (imazapic)

Labeling includes CRP seedings. Plateau is an imidazolinone herbicide. It is absorbed through the leaves and roots and is translocated through the plant. It controls several annual weeds such as lambsquarters, crabgrass, mustard, ragweed, foxtail, cocklebur, buffalo bur, smartweed, velvetleaf, curly dock, and non-ALS kochia. Rates are 2 to 12 oz product per acre. The low rate (4 oz 2L) postemergence controls lambsquarters, buffalo bur, mustard, smartweed, downy brome, kochia, purslane, and common ragweed. Some weeds require 8 to 12 oz 2L per acre. Plateau is promising for leafy spurge control and to suppress cool-season grasses and release native warm-season species.

Switchgrass may be treated at establishment in mixtures with more tolerant species; however injury can be serious. Reduced rate is suggested. Blue grama and sideoats grama are less tolerant to preemergence treatment in new seedings. Several legume and wildflower species have tolerance to Plateau. Legumes should have 3 leaves. Several established trees and shrubs are tolerant to applications directed around the plant. Add MSO at 1.5 to 2 pt plus 28% N at 1 qt per acre. Apply by ground or air. Haying or grazing allowed.

Plateau is being marketed only through public agencies and organizations. However, it is labeled and may be applied to private as well as public lands.

New Seeding: Apply preemergence or early postemergence when weeds are less than 6 inches tall. Tolerant species and rates are big and little bluestem (2 to 12 oz); side-oats and blue grama (2 to 8 oz); Russian wildrye (2 to 6 oz) and buffalograss (2 to 4 oz per acre).

Established Stand: Apply in spring or fall. Labeling includes species listed for new seeding and several additional grasses and legumes including wheatgrasses, creeping foxtail, green needlegrass, prairie sandreed, prairie threeawn, perennial ryegrass, alfalfa and others.

2,4-D AMINE or ESTER

For use in grass only. Labels on most products include new and established grass seedings. Postemergence 2,4-D controls annual and perennial broadleaved weeds. Wild buckwheat or kochia control is less consistent than for mustard, sunflower, or lambsquarters. Field bindweed and Canada thistle are suppressed. Do not use if legumes are included in the seeding.

Before Seeding: The soil residual effect for 2,4-D varies according to rate, rainfall, and soil. Generally allow 3 to 4 weeks between application and seeding to reduce the risk.

New Seeding: Apply .25 to .5 lb a.e. per acre after grass seedlings have reached the 5-leaf stage. Earlier application or higher rates increase risk of seedling damage. Cool-season grasses are more tolerant than warm-season species. Retreat in late fall if necessary. Amine formulation affects small seedlings less than esters; however ester formulations are more effective, especially for winter annual mustards treated in early spring.

Established Stand: Rates up to 2 lb a.e. per acre may be used in the year after seeding when the stand is established. Use 1 to 1.5 lb a.e. per acre for perennial weeds. Seedhead suppression on some grass species may be noted with rates over 1 lb per acre.

There are several formulations of 2,4-D. Rates are based on acid equivalent (ae). Use the table below to determine the amount of product required for different formulations.

<u>Lb/A ae Required</u>	<u>2,4-D RATE - Product Per Acre</u>		<u>FORMULATION</u>	
	<u>3.8L</u>	<u>5.7L</u>	<u>80% WSP</u>	<u>90% WSP</u>
.5	1 pt	.66 pt	.66 lb	.6 lb
1	2 pt	1.33 pt	1.25 lb	1.1 lb
1.5	3 pt	2 pt	1.9 lb	1.7 lb
2	4 pt	2.66 pt	2.5 lb	2.2 lb

BUTYRAC 200 2L (2,4-DB)

Labeling includes use for annual and perennial broadleaf control in CRP seedings that include alfalfa in the mixture. It controls annuals such as mustard, lambsquarters, and cocklebur; it is frequently used to reduce competition and prevent seeding of Canada thistle. Annual weeds should be 2 to 4 inches for best results. Seedling grasses should be well established.

New Seeding and **Established Stand**: Apply 1 to 3 qt per acre; use the low rate for small, susceptible annual weeds. Canada thistle requires 1 to 2 qt per acre. Grass seedlings should have six leaves; alfalfa should be actively growing.

BROMOXYNIL PRODUCTS 2L

Labeling for several bromoxynil products includes CRP plantings.

Bromoxynil controls sunflower, cocklebur, Russian thistle, kochia, wild buckwheat, and other annual broadleaf weeds. Grasses have excellent tolerance at seedling stages. Bromoxynil has primarily contact action, good coverage is important. Apply in minimum of 10 gpa for ground or 5 gpa for air.

New Seeding: Apply bromoxynil 2L at 1 to 2 pt per acre after grasses have reached the 2- to 3-leaf stage. Use higher rate for larger weeds. Alfalfa may be included in the seeding mixtures. Treat after alfalfa has reached the third trifoliate leaf stage. Some temporary leaf burn may be noted; especially if temperature exceeds 80 degrees F. Additional labeling for grasses includes tank-mixes with MCPA. The combination is preferred to bromoxynil alone for most situations where no legumes are seeded.

BRONATE ADVANCED or BUCTRIL + MCPA (bromoxynil + MCPA)

Labeling includes CRP plantings. Legumes will be damaged.

Use Bronate premix or a tank-mix of Buctril + MCPA ester. Bromoxynil + MCPA controls sunflower, cocklebur, pennycress, Russian thistle, kochia, wild buckwheat, and several other annual broadleaf weeds. Grass seedlings have good tolerance. Weeds should be small for best results. Good coverage is important. Minimum carrier is 10 gpa for ground or 5 gpa for air. Bronate Advanced contains 2.5 lb bromoxynil + 2.5 lb MCPA ester a.e. per gallon.

New Seeding: Apply 1.2 to 1.6 pt Bronate Advanced or tank-mix 1.5 to 2 pt Buctril 2L + .5 to 1 pt MCPA ester per acre after grasses reach the 3-leaf stage.

MCPA AMINE or ESTER

For use in grass only. Labels on most products include new and established grass seedings. The herbicide controls broadleaved weeds; it is considered most effective on mustard, lambsquarters, and Canada thistle. MCPA is less effective on kochia or field bindweed. Seedling grass tolerance at early stages may be somewhat greater than for 2,4-D. It also is used at low rates with bromoxynil. Most MCPA products contain 3.8 lb/gal a.e.

New Seeding: Apply .5 lb ae per acre after grasses have reached the 5-leaf stage. Earlier application increases risk of injury. Ester forms are more effective on some weeds; especially when spraying winter annual mustards early. Soil residual is short; avoid application within 2 to 3 weeks of seeding.

Established Stand: Rates up to 2 lb a.e. per acre may be used in the year after seeding when the grass stand is fully established. Seed suppression on some grasses may be noted with high rates.

STARANE (fluroxypyr)

For use in grass only. Labeling includes CRP grass seedings. Provides alternative mode of action to control ALS resistant kochia biotypes. Other susceptible broadleaf weeds include cocklebur, sunflower, and common ragweed. Apply at 2/3-1 1/3 pt per acre when weeds are small and actively growing. Grazing or haying treated CRP acres is prohibited. Do not use on CRP acres underseeded with legumes, clovers, or other desirable broadleaf plants.

OVERDRIVE (diflufenzopyr + dicamba)

For use in grass only. Supplemental labeling allows use on CRP seedings. Overdrive contains 50% dicamba (.5 lb ae) + 20% diflufenzopyr (.2 lb ae). Overdrive is a selective postemergence herbicide used to control annual and broadleaf weeds and to control or suppress perennial weeds. Overdrive controls weeds by auxin transport inhibition. Do not apply to legumes or newly seeded grasses.

Established Stands: Apply at the rate of 4-8 oz per acre based on weed species. May tankmix with other CRP labeled herbicides to enhance weed control. Do not use over 8 oz per acre per year. Avoid drift situations. Use a minimum of 2 gpa carrier for aerial applications and 5 gpa for ground. Grasses growing under stress situations can exhibit injury. May injure buffalograss.

DICAMBA PRODUCTS (*dicamba*)

For use in grass only. Dicamba alone or as a tank-mix is labeled for new grass seedings and established forage grasses. Special guidelines on CRP acres have been developed. Most annual and perennial broadleaved weeds are controlled, including kochia, wild buckwheat, and suppression of Canada thistle and field bindweed. Minimum carrier is 10 gpa for ground or 3 gpa for air. Banvel or Clarity 4L contain 4 lb/gal a.e.

Before Seeding: Dicamba residue persists in the soil, depending on rate and rainfall. The interval between application and seeding grass is not specified; however, a 90 day interval for rates up to 1 pt per acre is suggested. Legumes should not be planted until residue dissipates; usually the following season after normal spring application in crops.

New Seeding: Apply dicamba at up to 16 oz per acre after grasses exceed the 3- to 5-leaf stage. If emergence is uneven, delay until late emerging seedlings reach recommended growth stage. Rates of 16 oz per acre may severely injure newly seeded grasses.

Established Stand: Established grasses (year after seeding) may be treated with 4 to 64 oz per acre of dicamba. This is useful to reduce stands of perennial weeds when used in succeeding years. Good grass tolerance. Certain species, smooth brome grass and buffalograss, may be injured when treated with more than 16 oz per acre. It is especially effective for fall treating thistles. Grass must be fully established; usually at least a year after seeding. Do not exceed 64 oz per acre of dicamba per season.

DICAMBA + 2,4-D or WEEDMASTER (*dicamba + 2,4-D*)

For use in grass only. Dicamba + 2,4-D as a tankmix or premix product is labeled for CRP acres. Most annual and perennial broadleaf weeds are controlled. The combination of dicamba + 2,4-D increases weed spectrum, especially on mustards.

New Seedings: For new seedings, after grasses exceed the 3 to 5 leaf stage, apply .25-.5 pt per acre of dicamba 2L + .5-1 pt per acre 2,4-D 3.8L per acre.

Established Stand: Established stands may be treated with .5 -1 pt per acre dicamba 2L + .5-2 pt 2,4-D 3.8L per acre. Grass must be fully established. Premix products such as Weedmaster can be applied to CRP acres at the rate of .5-4 pt per acre based on weed species. Rates above 4 pt per acre are for spot treatment only. Do not exceed 8 pt per acre during the growing season.

MILESTONE 2L (*aminopyralid*)

Use in grass only. Labeling includes CRP grass seedings. Milestone controls many annual, biennial, and perennial broadleaf weeds such as biennial thistles, Canada thistle, and absinth wormwood. Apply 3-7 oz per acre of Milestone plus NIS at 0.25-0.5% v/v or 1-2 qt per 100 gallons of spray. Use at least 10 gpa by ground or 2 gpa by air. Do not use if loss of legume species or other desirable broadleaf plants cannot be tolerated.

Established Grass: Do not apply to new seedings until seedlings have a well developed secondary root system and show good vigor. May suppress certain established grasses, such as smooth brome grass, especially under stress from adverse environmental conditions. May be applied as a broadcast or spot treatment.

FOREFRONT R&P (*aminopyralid + 2,4-D*)

For use in grass only. Labeling includes CRP grass seedings. ForeFront R & P is a premix of 0.33 lb ae aminopyralid (Milestone*) + 2.67 lb ae 2,4-D per gallon. Apply at the rate of 1.5-2.6 pt per acre. Use 10 gpa carrier for ground application and 2 gpa for air. The addition of NIS at 0.25-0.5% v/v or 1-2 qt per 100 gal of spray will enhance herbicide activity under adverse environmental conditions or with weeds that are heavily pubescent or more mature. Do not apply more than 2.6 pt per acre per growing season.

Established Grass: Do not apply to new seedings until seedling grasses have a well developed secondary root system and show good vigor. May suppress certain established grasses, such as smooth brome grass, especially under stress from adverse environmental conditions.

TORDON 22K (*picloram*)

For use in grass only. Labeling includes CRP grass seedings. Tordon controls annual broadleaf and perennial weeds such as Canada thistle, field bindweed, leafy spurge, and biennial thistles. It is especially useful for leafy spurge control. Do not use where legumes are part of the mixture. Soil residual persists for one or more years. Tordon 22K contains 2 lb/gal a.e. Use a spray volume of 10 gpa by ground or 2 gpa by air. RESTRICTED USE PESTICIDE.

Before Seeding: Tordon 22K may be applied in early spring or summer and seed grass in the fall when conditions are favorable for establishment, or apply Tordon 22K in the fall prior to a spring grass seeding. Apply up to 1 qt per acre. Refer to label weed chart for specific weeds. Rates at 1 qt per acre can cause temporary injury to new plantings of perennial grasses. To optimize weed control, the site should be left undisturbed for a minimum of 14 days prior to seedbed preparation. Potential for injury to sensitive grass species can be decreased by increasing the interval between the herbicide application and grass seeding.

Established Grass: Do not apply to new seedings until the stand is full and seedlings have a well developed secondary root system (45-60 days after planting). Apply Tordon 22K at 0.25 to 0.75 pt per acre for small annual broadleaved weeds. Use 0.5 pt per acre for biennial thistle (musk or plumeless) or 1 qt per acre to suppress perennials. Grasses vary in tolerance to picloram; rates over 1 qt per acre may suppress certain established grasses such as brome grass and blue grama.

TORDON + 2,4-D or GRAZON P+ D (picloram + 2,4-D)

For use in grass only. Tordon 22K can be tankmixed with 0.5-1 lb per acre of 2,4-D. Mix Tordon 22K at rates of 0.5-1 pt per acre. Grazon P+ D is a premix of 0.56 lb ae picloram (Tordon*) + 2 lb ae 2,4-D amine per gallon. Minimum carrier is 10 gpa for ground and 2 gpa for aerial application. Do not use if legumes are desired in grass mix. RESTRICTED USE PESTICIDE.

Before Seeding: Grazon P+ D may be applied prior to planting cool season grasses. Apply Grazon P+ D at 2-4 pt per acre. May be tankmixed with glyphosate to control grasses prior to seeding. To optimize weed control, the site should be undisturbed for at least 21 days prior to seedbed preparation or seeding. To reduce potential for injury to seeded grasses increase interval between herbicide application and seeding. Do not plant smooth bromegrass for 60 days after treatment.

Established Grass: Do not apply to new seedings until the stand is full and seedlings have a well developed secondary root system. Tankmix 1-1.5 pt per acre Tordon 22K + 1 qt 2,4-D 3.8L per acre or use 2-4 pt per acre Grazon P+ D. Grasses vary in tolerance to picloram. Use high rates only on fully established stands.

STINGER 3L (clopyralid)

For use in grass only. Labeling includes use in CRP grass seedings to control annual and perennial broadleaf weeds. It does not control grasses. Stinger is especially useful for Canada thistle and perennial sow thistle. There is no required interval between application and planting grass; legumes should not be planted for 10.5 months. Apply in a minimum of 10 gpa. Do not use if legumes are part of the CRP cover.

New Seeding: Seedings should not be treated until grasses are well established and have developed a secondary root system and have vigorous growth.

Established Stand: Use .66 to 1.33 pt per acre for biennial or perennial thistle and knapweed. Apply after basal leaves have emerged but before bud stage. Biennial thistle rosettes and annuals such as sunflower and wild buckwheat can be treated with the lower rate. Stinger can be tank-mixed with .5 to 1 lb a.e. 2,4-D to control additional weeds.

CURTAIL (clopyralid + 2,4-D amine)

For use in grass only. Labeling includes CRP grass seedings. There are no species limitations. Curtail premix contains .38 lb ae clopyralid (Stinger*) + 2 lb ae 2,4-D amine per gallon. Curtail controls several 2,4-D susceptible annual broadleaved weeds and improves control of Canada thistle and musk thistle. Thistles should be treated before bud stage. Grasses may be planted into treated areas 30 days after application; alfalfa should not be planted for 12 months (> 18 in precip) or 18 months (< 18 in precip) depending on rainfall. Do not use where legumes are a desired component of the CRP cover. Rates range from 2 to 4 qt per acre. Apply in a minimum of 10 gpa for ground or 2 gpa for air.

New Seeding: Grasses should be tillered and have at least 1.5 inches of secondary root system. The lower rates are suggested until grasses have considerable growth.

Established Stand: Apply 2 to 4 qt per acre for annual weeds and biennial thistles. The lower rates are for small susceptible weeds. Use 2 to 4 qt per acre for bolted musk thistle, Canada thistle, and knapweed. Expect some grass seedhead suppression with the higher rates.

CURTAIL M (clopyralid + MCPA)

For use in grass only. Labeling includes CRP grass seedings. Curtail M is a premix containing .42 lb ae clopyralid (Stinger*) + 2.35 lb ae MCPA per gal. Do not use if legumes are desired.

Before Seeding: A pre-seeding application of Curtail M may be made the fall ahead of a spring grass seeding or in the spring ahead of a fall grass seeding. A pre-seeding application may cause visible grass injury. Do not exceed 1.75 qt per acre for pre-seeding treatment.

Established Stand: Apply 1.75-4.75 qt per acre for control of annual weeds and biennial thistle.

WIDEMATCH (clopyralid + fluoxypyr)

For use in grass only. Supplemental labeling allows for use on CRP in South Dakota and several other states. WideMatch is a premix containing 0.75 lb gal ae clopyralid (Stinger*) + 0.75 lb/gal ae fluoxypyr (Starane*). For postemergence applications to established perennial grasses for control of broadleaf weeds. Apply 1.33 to 2.66 pt per acre when weeds are 8 inches tall or vining. To obtain season long control of perennial weeds such as Canada thistle, apply after the majority of the weed's basal leaves have emerged up to bud stage. Later applications may result in less consistent control. Do not apply to newly seeded areas until grass seedlings are well established showing tillers, secondary roots, and growing vigorously. Conditions of plant stress such as drought will increase potential for grass injury at all stages of growth.

Established Stand: Do not use on CRP acres that are underseeded with legumes, or other desirable sensitive broadleaf plants. Do not apply more than 5.33 pt per acre per season. WideMatch can be tankmixed with 0.5-1 lb/A 2,4-D to expand weed spectrum.

REDEEM R&P (*triclopyr + clopyralid*)

For use in grass only. Labeling includes CRP acres. Redeem R&P premix contains 2.25 lb ae triclopyr amine (Garlon*) + 0.75 lb ae clopyralid (Stinger*) per gal. It controls several broadleaf weeds including burdock, cocklebur, dandelion, several biennial and perennial knapweeds and thistles. Difficult weeds such as skeletonweed, chicory, and tansy ragwort can be controlled. Apply at 1.5-2 pt per acre to control annuals and up to 4 pt per acre for control of deep rooted perennial broadleaf weeds. Do not apply more than 4 pt per acre per year. To optimize weed control, site should be left undisturbed for 14 days prior to seedbed preparation for grass seeding. Apply in at least 10 gpa by ground or 3 gpa by air. Add NIS.

Established Stands: Established grasses are tolerant. Newly seeded grasses may be injured until well established as indicated by tillering, development of a secondary root system, and vigorous growth. Do not apply to legumes or desirable broadleaf plants if damage cannot be tolerated.

REMEDY or REMEDY ULTRA (*triclopyr*)

For use in grass only. Labeling includes CRP acres.

Established Stands: Apply 1-2 pt per acre for small broadleaf weeds or up to 1.5 qt per acre for deep-rooted perennial or susceptible woody species. Use 10 gpa for ground or 2 gpa total spray volume for applications by air. Do not apply more than 1.5 qt per acre over the growing season. Use only after perennial grasses are well established. Do not use if legumes are a desired cover crop during CRP.

CROSSBOW (*triclopyr + 2,4-D ester*)

For use in grass. Crossbow is a premix containing 1 lb triclopyr ester (Garlon*) + 2 lb a.e. 2,4-D ester per gallon. Crossbow controls broadleaved annuals and perennials and is especially effective for woody plant and brush control, including buckbrush and willow. Apply in a minimum of 10 gpa.

Established Stand: Use 1 to 2 qt per acre for small, susceptible weeds or 1 to 2 gal for tolerant perennials and woody plants. Mix 1 to 1.5 gal in 100 gal for high volume handgun foliar brush application. Use in established perennial grass stands. Conditions that stress grass such as drought will increase injury potential. Do not use if legumes are part of the desired CRP mix. Do not use on newly seeded grass.

CIMARRON 60 DF (*metsulfuron*)

For use in pasture/range or CRP grass. Cimarron provides postemergence and short-term residual control of several annual broadleaf weeds such as pennycress, tansy mustard, sunflower, purslane, lambsquarters, marehail, pigweed, prickly lettuce, Russian thistle, and non-ALS kochia. Residual foxtail control is limited. Labeled grasses include blue grama, bluestem, buffalograss, Indiangrass, side-oats grama; crested, bluebunch, intermediate, pubescent, Siberian, slender, tall, western, and streambanks wheatgrass, Russian wildrye, and other species. Minimum carrier is 2 gpa for air or 10 gpa for ground. Do not use where legumes are a component in the CRP cover. Do not use on soils with pH exceeding 7.9.

New Seeding: Apply to labeled species preplant, preemergence or early postemergence after most grasses are in the 3 to 4-leaf stage. Rate is .1 oz per acre. Add NIS at 2 to 4 pt per acre.

Established Stand: Treat stands planted the previous year that are fully established. Rates range from .1 to 1 oz per acre. Add COC or MSO at 1 gal per 100 gal or 1 qt NIS per 100 gal. May be mixed with .25 lb a.e. 2,4-D or .12 to .25 lb a.e. for new seedings or up to .5 lb ae 2,4-D per acre on fully tillered, established stands.

CIMARRON MAX (*metsulfuron + dicamba + 2,4-D*)

For grass. Dicamba and 2,4-D improve postemergence activity on several broadleaf weeds, especially perennials and ALS resistant species. Refer to Cimarron section for tolerant grass species. Cimarron Max is a twin pak combination. Part A contains 60% metsulfuron (Cimarron*, Ally*); Part B contains 1 lb dicamba (Banvel*) plus 2.87 lb ae 2,4-D amine per gal. Minimum carrier is 3 gpa for air or 10 gpa for ground. Add COC or MSO at 1 gal per 100 gal or NIS at 1 qt per 100 gal.

The use ratio is .5 oz Part A with 2.5 gal Part B to treat 10 to 20 acres. Higher rates are not suggested for CRP. The 10 acre rate provides the equivalent of .5 oz Cimarron + .5 pt Banvel + .75 lb ae 2,4-D per acre.

Established Stand: Treat labeled grasses that were planted the previous season and are fully established. The suggested rate for CRP is Rate I or Rate II depending on the grass species chart on the label.

CIMARRON PLUS (*metsulfuron + chlorsulfuron*)

For grass. Cimarron Plus contains 48% metsulfuron (Cimarron*) + 15% chlorsulfuron (Telar*) by weight. Minimum carrier is 10 gpa for ground or 3 gpa for air. Add COC or MSO at 1 gal/100 gal or NIS at 1 qt/100 gal. Do not use where legumes are desired.

Established Stand: Apply at 0.125 to 0.25 oz per acre according to weed species list on label. Treat grasses that were planted the previous season and are fully tillered. Refer to tolerant grass species list on label.

CIMARRON X-TRA or CIMARRON X-TRA (mp) (metsulfuron + chlorsulfuron)

For grass. Cimarron X-Tra contains 30% metsulfuron (Cimarron*) + 37.5% chlorsulfuron (Telar*) by weight. The additional chlorsulfuron picks up control of biennial thistles and Canada thistle. Minimum carrier is 10 gpa for ground or 3 gpa for air. Add COC or MSO at 1 gal/100 or NIS at 1 qt/100 gal. Do not use where legumes are desired.

Established Stand: Apply at 0.5-1.0 oz per acre according to weed species list on label. Treat grasses that were planted the previous season and are fully tillered. Refer to tolerant grass species list on label.

TELAR XP (chlorsulfuron)

For grass. Use 20-40 gpa when applying as a broadcast application or 100-300 gpa when using a hand-gun application. May use a high quality spray adjuvant as recommended. Do not use any acidifying spray adjuvant. Do not use if legumes are part of the CRP mix.

Established Stand: Apply Telar XP at rates from 0.25-1 oz per acre based on weed species list on label. For best results apply when perennial weeds are in bud to bloom stage or the fall rosette. Annual weeds are controlled best when treated early in the growth cycle. Do not apply a total of more than 1.33 oz per acre per year.

AMBER (triasulfuron)

For use in grass only. Labeling includes use in grass seedings in CRP. Amber controls pennycress, lansy mustard, prickly lettuce, ragweed, sunflower, non-ALS kochia and other annual broadleaves. It provides some residual activity. Labeled grass species include big and little bluestem, smooth brome, buffalograss, blue grama, side-oats grama, bluebunch, crested, intermediate and pubescent wheatgrass. Not for use where legumes are part of the CRP cover. Add NIS at 1 qt per 100 gal.

New Seeding and Established Stand: Apply .28 to .56 oz per acre. New seedings should not be treated until 60 days after emergence. Amber may be tank-mixed with other approved herbicides such as 2,4-D, Banvel, or Stinger.

CULTURAL, MECHANICAL or BIOLOGICAL CONTROL

One of the more difficult periods of weed control in CRP is during the establishment period. Grasses, especially warm season grasses may take a season or two to get established. Grasses with a prolific growth pattern can suppress weeds. The establishment and maintenance of a healthy grass cover is essential to minimize weed problems.

Some non-chemical weed control options available for conservation reserve programs would include hand-pulling or roguing, clipping or mowing, controlled burns or biological control. In the case of clipping, mowing or controlled burns, the land owner must get permission and work closely with their local FSA (Farm Service Agency) county committee and FSA personnel, and get technical assistance from the NRCS (Natural Resources Conservation Service).

Hand-Pulling or Roguing

Handpulling or roguing weeds is very labor intensive and costly, however very effective if the plants are removed before pollination and seed production. This also works better with annual or biennial weeds compared to perennials where removal of all the root is important.

Clipping or Mowing

Mowing is often used to control annual weeds during the establishment year. This allows the new grass seedling a competitive edge for moisture, nutrients, and sunlight. Timing of the mowing operation is critical to the success of the weed control. The primary objective is to keep the weeds from producing seed and competing with the grass seedlings. Sometimes it may take several mowings to maintain weed control in ideal conditions. It is important to use a rotary mower because of the shredding action. Sickle type mowers could smother the new grass seedling with vegetation. Land owners must get permission from the local FSA county committee and FSA personnel prior to the operation.

Burning

Prescribed burning can be a low-cost way of controlling some brush and weed species. It is generally most effective in late spring when there is adequate fuel (old grass) to generate a hot fire. Weed seedlings and sprouts can be effectively controlled by a spring burn. Some brush or tree species like red cedar, elm and buckbrush can also be controlled. Some weeds and brush can be enhanced and be more of a problem by a late spring burn. Landowners also must check on local burning laws and receive permission to do a prescribed burn from the local FSA office and county FSA committee.

Biological Control

There are several approved biological control agents available for noxious weed control in South Dakota. Biological control uses the weed's natural enemies to keep weed populations in balance. Refer to SDSU Extension Fact Sheet 525N, Noxious Weed Control, for specific biological control programs.

Herbicides *WITH* Label Restrictions for CRP Planting the Following Year

Rotation restrictions for forage grass or alfalfa used in CRP plantings are listed for several herbicides. Restrictions are based on label guidelines as stated or an interpretation from other uses and experience. Rotation intervals are based on data collected for specific crops, or for some herbicides an extended safe interval for "other crops" is given and is used until a more specific interval for that crop is set.

Herbicides listed usually have a rotation restriction concerning planting the season following application. It assumes normal application timing and label rates for in-crop use. Late season, high rates or application error may produce greater risk of carryover.

Individual herbicides are listed; some premix products are listed where ingredients are available only in the premix. For other premixes, refer to the restrictions for the herbicide product containing the component ingredient.

The rotation intervals listed are intended to provide safe guidelines under many conditions. The intervals suggested are influenced by the rate used and soil and weather factors. Plantings made at shorter intervals may be successful under some conditions; however the responsibility for performance is assumed by those recommending and making such applications.

ACCENT	Do not plant alfalfa for 12 months or grasses for 10 months at pH < 6.5 or for 18 months at pH > 6.5. High pH increases risk of carryover. Carryover the following season is not expected to cause widespread injury under normal conditions.
ACCENT GOLD	Do not plant alfalfa for 10.5 months at pH < 8 or for 12 months at pH > 8. Do not plant forage grasses for 26 months and a successful bioassay. Accent Gold contains Stinger* plus Hornet* plus Accent* plus rimsulfuron.
ALLY	Do not plant grass or alfalfa for 34 months (> 28 in. precip); bioassay required for lower precipitation. Label restriction for small grain uses. Grasses such as little and big bluestem; buffalograss, Indiangrass, switchgrass, side-oats grama, and crested, intermediate and tall wheatgrass and other species included on the seedling postemergence label for CRP are expected to have some level of tolerance to low carryover levels. Risk of carryover increases with high pH.
ALLY EXTRA	Do not plant grass or alfalfa for 34 months (> 28 in. precip); bioassay required for lower precipitation. Label restriction based on small grain uses. Grasses such as little and big bluestem; buffalograss, Indiangrass, switchgrass, side-oats grama, and crested, intermediate and tall wheatgrass and other species included on the seedling postemergence label for CRP are expected to have some tolerance to low carryover levels. Risk of carryover increases with high pH. Ally Extra contains Harmony Extra* plus Ally* .
AMBER	Successful bioassay of CRP crops to be planted is required. Risk of carryover is greater with high soil pH. Grass/legume seedings not suggested for at least one year following application.
ASSERT	Do not plant grass or legumes for 15 months.
ATRAZINE	Do not plant forage grasses or legumes in fields where atrazine was used the previous year. Labeling does not include rotating to CRP plantings; however some grasses have limited tolerance to atrazine. Labeling has included use on switchgrass and big bluestem; however this use has been deleted from current labeling. These grasses have some tolerance to low level carryover rates (< .5 lb the previous year) of atrazine, however most grasses and legumes are sensitive to atrazine and are not recommended for planting where atrazine was used the previous year. Risk of carryover is greatest on high pH (> 7.0) soil.
ATRAZINE PREMIXES	Refer to atrazine section. Several commercial premix products contain atrazine. Normal use rates provide at least .5 to 1 lb active atrazine per acre. Most grasses and legumes are sensitive to low carryover rates of atrazine. Premix products include: Lariat, Bullet, Bicep products, Degree Extra, Harness Extra, Axiom AT, Basis Gold, Marksman, Shotgun, Buctril/atrazine, and Liberty ATZ.
AUTHORITY	Do not plant grasses for 30 months or alfalfa for 12 months.
AUTUMN	Do not plant alfalfa or red clover for 18 months.
AXIOM	Do not plant alfalfa, clover or grasses for 12 months. Axiom contains Define* plus Sencor* .
BASIS	Do not plant alfalfa for 10 months or grasses for 18 months. Carryover the following season is not expected to cause widespread injury under normal conditions.

BASIS GOLD	Do not plant forage grasses or alfalfa for 18 months. Refer to the atrazine section. Basis Gold contains Basis* plus Accent* plus atrazine.
BEACON	Do not plant alfalfa for 8 months or forage grasses for 18 months.
BOUNDARY	Alfalfa may be planted after 4.5 months; forage grasses after 12 months. Boundary contains Dual* plus Sencor* .
CALLISTO	Alfalfa may be planted the following season (10 mo); grasses (unlabeled other crops) may be planted after 18 months. Dry conditions and low soil pH increases residual effects.
CELEBRITY PLUS	Do not plant alfalfa or red clover for 12 months.
CIMARRON, CIMARRON MAX	Labeled grass species may be planted after 2 or 3 months, according to rate and soil pH guidelines. Alfalfa requires a field bioassay. High soil pH, low temperature and low precipitation reduce the rate of degradation. Do not use on soil with a pH above 7.9. Under some conditions, residue could remain for 34 months. Cimarron Max contains Ally* plus Banvel* plus 2,4-D.
COMMAND 4EC	Do not plant forage grasses or alfalfa for 16 months. Dry conditions, high rates and very low soil pH are factors that increase residual effects.
CROSSBOW	Carryover risk for legumes; delay planting CRP for one year. Refer to Redeem section. Product intended for established grass sites; no label guidelines for seeding interval.
CURTAIL	Do not plant alfalfa for 12 months (> 18 in. precip) or 18 months (< 18 in. precip). Do not plant forage grasses for 30 days after application. High rate, low precipitation and heavy residue in treated fields increase risk of carryover to alfalfa and sensitive crops. Curtail contains Stinger* plus 2,4-D.
DEFINE	Do not plant alfalfa, bluegrass, bromegrass, fescue or clovers for 12 months.
DISCOVER	Do not plant forage legumes or grasses (unlabeled other crops) for 12 months.
DOMAIN	Alfalfa and several grasses may be planted after 12 months. Domain contains flufenacet plus metribuzin. Domain contains Define* plus Sencor* .
DUAL II	Do not plant forage grasses or alfalfa for 12 months. Restriction based on maximum of 3 lb a.e. metolachlor per acre. Carryover to alfalfa or most grasses not expected to cause widespread injury the following season as used in normal cropping systems with average precipitation.
EPIC	Do not plant alfalfa, clover, or grasses for 12 months. Epic contains Define* plus Balance* .
ET	30 day interval after application.
EXCEED	Do not plant alfalfa for 18 months. Forage grasses are labeled as a rotation crop after 10 months where soil pH is less than 7.8. Exceed contains Peak* plus Beacon* .
EXTREME	Alfalfa may be planted 4 months after application, other crops not listed on the label (forage grasses) should not be planted for 40 months. Refer to Pursuit section for more information for CRP planting. Extreme contains Pursuit* plus glyphosate.
FINESSE	Do not plant perennial grasses for 4 months in pH of > 7.5 and 0.2-0.3 oz/A use rate or wheatgrasses for 4 months in pH of 7.6-7.9. The planting of a grass and legume mixture is not recommended as injury to the legume may occur.
FLEXSTAR, REFLEX	Do not plant alfalfa for 10 months or forage grasses for 18 months.
FALLOWMASTER	Do not plant forage grasses or legumes for 3 months or until soil residue is dissipated. Contains dicamba.
FIRSTRATE	Do not plant alfalfa for 9 months or forage grasses for 30 months and successful bioassay.
FOREFRONT	Do not plant broadleaf crops into treated areas until a bioassay shows adequate safety.
GANGSTER	Do not plant alfalfa or other crops not listed on the label (forage grasses) the following season. Complete a field bioassay before planting. Marketed as a co-pack of Valor* and FirstRate* .

GARLON	Carryover risk for legumes; delay planting CRP for one year. Refer to Redeem section. Product intended for established grass sites; no label guidelines for seeding interval.
GAUNTLET	Do not plant alfalfa for 12 months, forage grasses not specified. Contains sulfentrazone (Authority*) plus chloramsulam (FirstRate*).
GRAZON P+ D	Seeding legumes may not be successful if made within one year of application. Grazon contains Tordon* plus 2,4-D.
HORNET	Do not plant CRP grass and legumes for 9 months. Supplemental bulletin provides that alfalfa, clover, crown vetch, birdsfoot trefoil, lespedeza, and grasses including big bluestem, little bluestem, switchgrass, Russian wildrye, green needlegrass, smooth brome, Garrison creeping foxtail, canarygrass, orchardgrass, intermediate wheatgrass, tall wheatgrass, crested wheatgrass, western wheatgrass, and Indiangrass may be planted after 9 months if Hornet rates did not exceed 3.2 oz product per acre. Tolerance is anticipated to be adequate, however liability for any crop injury is assumed by the user.
IMPACT	Do not plant alfalfa for 9 months. All other crops not listed on the label is 18 months.
JOURNEY	Do not plant alfalfa following burndown application prior to seeding. Grasses including big and little bluestem, Indiangrass, side-oats grama, blue grama, and buffalograss have tolerance to Journey rates used. Journey contains Plateau* plus glyphosate.
LIBERTY	120 day interval after application.
LIGHTNING	Do not plant alfalfa for 9.5 months after application or forage grasses for 40 months and successful bioassay. Lightning contains Pursuit* plus Arsenal*.
LUMAX	Do not rotate to forage legumes or grasses (unlabeled other crops) the next season after use. If applied after June 10 or if rainfall is sparse, delay planting for two years. Lumax contains Dual* plus Callisto* plus atrazine.
MAVERICK	Field bioassay recommended before seeding crops other than wheat. Legumes very sensitive to carryover. High soil pH increases risk.
MILESTONE	Do not plant broadleaf crops into treated areas until a bioassay shows adequate safety.
NORTHSTAR	Do not plant grasses for 18 months. Alfalfa may be planted after 18 months. Contains Banvel* + Beacon*.
OLYMPUS	Conduct field bioassay to evaluate response of forage legume on grass crops (unlabeled crops) to be planted the season after bioassay.
OVERDRIVE	Do not plant crops within 30 days after application. Contains dicamba.
PARAMOUNT	Do not plant alfalfa or clover for 24 months. Grasses may be planted after 10 months.
PEAK	Do not plant alfalfa for 22 months or forage grasses for 10 months. Label restrictions include pH restrictions and application date limitations.
PROWL	Labeling restricts planting highly sensitive crops for 12 months. Alfalfa and legumes have tolerance. Grass is sensitive. Carryover may be noted following very dry conditions.
PURSUIT	Other species not listed below may be planted after 40 months. Grasses and legumes listed below may be planted the following season. Forage grasses including big and little bluestem; tall, intermediate, crested and western wheatgrass; switchgrass, smooth bromegrass, Russian wildrye, canarygrass and orchardgrass may be seeded into soybean fields treated with Pursuit the previous year. Legumes that may be planted include alfalfa, clovers, crown vetch, birdsfoot trefoil, and lespedeza. Dry conditions increase the risk of carryover.
PYTHON	Do not plant alfalfa for 4 months or forage grass for 26 months and successful bioassay.
RADIUS	Do not plant alfalfa for 12 months.
RAPTOR	Grasses and forbs listed below may be planted after 9 months if up to 5 oz product per acre was applied. Alfalfa may be planted after 4 months and other legumes and grasses may be planted after 18 months. Precipitation is an important factor. High soil pH does not increase carryover risk. The following grasses and forbs may be planted 9 months after application: big bluestem, smooth bromegrass, purple prairieclover, side-oats grama, crested wheatgrass, western wheatgrass, little bluestem, green needlegrass, prairie sandreed, sweetclover, intermediate wheatgrass, other native forbs and legumes, sand bluestem, Indiangrass, reed canarygrass, switchgrass, and tall wheatgrass.

RAVE	Do not plant alfalfa or clover for 24 months and a bioassay. Grasses may be planted after 4 months. Contains Banvel* + Amber*.
REDEEM	Do not plant alfalfa or other sensitive broadleaves for one year. Complete a successful bioassay. Redeem contains Stinger* plus Garlon*.
RESOLVE	Do not plant alfalfa or clovers for 10 months. All other crops not listed on label is 18 months.
SCEPTER	Do not plant forage grasses or alfalfa for 18 months. Label use area east of Hwy. 81 in South Dakota.
SENCOR, LEXONE	Do not plant alfalfa for 4 months or forage grasses for 12 months. Carryover from low rates used in spring row crops is expected to provide less risk of carryover the next year. Low rainfall, higher soil pH over 7.5, and extended low temperature increases risk of carryover.
SILVERADO	Do not plant forage legumes or grasses (unlabeled crops) for 10 mo.
SPARTAN	Rotation interval for grass or legume not specified. Based on other labeling, alfalfa could be planted after 12 months; grasses may be tolerant the next season, how ever there are no guidelines for less than 30 months.
STEADFAST	Do not plant grasses, alfalfa, or red clover for 10 months at pH < 6.5 or 18 months at pH > 6.5.
STOUT	Do not plant grasses, alfalfa, or red clover for 10 months at pH < 6.5 or 18 months at pH > 6.5.
SYNCHRONY	Pasture grasses (fescue and ryegrass) may be planted after 3 months, alfalfa and clover after 12 months. Grass species not specified in labeling. Synchrony contains Classic* plus Harmony*.
TORDON	Do not plant legumes for 36 months after application of rates up to 1 pt/A; labeling allows rotating to grasses. Higher rates and dry conditions will extend carryover beyond the guidelines stated. Some risk of damage to new grass seedings may be experienced; especially with late-season applications of rates less than 1 pt/A.
TRANSLINE	Do not plant broadleaved crops into treated areas until a bioassay shows adequate safety.
TREFLAN	Do not plant grasses for 18 months. Treflan may be used for alfalfa seeding. Dry conditions increase carryover.
VALOR SX	Based on rate for all other crops not listed for planting restrictions. 8 months - 2 oz per acre and tillage; 10 months - 3 oz and tillage; 12 months - 2-3 oz per acre and no-till, and 4 oz per acre; 18 months for 6-12 oz per acre.
YUKON	Alfalfa may be planted after 9 months; forage grasses after 2 months. Contains Peak* plus Banvel*.

Herbicides *WITH LIMITED* Rotation Statements for CRP Plantings

ASSURE II	Do not plant grass or alfalfa for 120 days. Carryover the following season is not anticipated.
BANVEL CLARITY	No label interval specified. A 90-day interval after application is suggested for legumes for rates up to 1 pt/A. Grasses or legumes may be planted the following year after normal use rates in the previous crop. No crop rotation restrictions exist following normal crop harvest.
CLASSIC	Do not plant alfalfa for 9 months. Pasture grasses may be planted after 3 months. Grass species listed include fescue and ryegrass. Risk of carryover greater with high soil pH.
DISTINCT	Do not plant grasses and legumes for 120 days. Contains dicamba plus an auxin transport inhibitor.
STINGER	Do not plant alfalfa for 10.5 months. Grasses may be planted anytime. Dry conditions and heavy residue from treated fields increase risk of carryover to alfalfa and sensitive crops.

**SURPASS, HARNESS,
TOPNOTCH**

Labeling does not include CRP grasses and alfalfa as rotational crops. However, additional information from the labelers indicates carryover from normal crop use is unlikely to cause injury to CRP grass or alfalfa. There has been no indication of carryover problems based on past experience and product data.

2,4-D

No label interval specified. A 30-day interval after application is suggested. Low rates and adequate rainfall reduce the risk.

Herbicides *WITHOUT* Label Restrictions for CRP Planting the Following Year

Herbicides listed below do not have soil residues that affect grasses or legumes in CRP seedings the season following normal use in the previous crop. However, some herbicides listed have short residual activity and may have restrictions that would limit planting the same season the herbicide was used. Check label precautions when planning fall seeding. Labeling may include restrictions concerning additional risk as the result of special weather, soil conditions or application errors. High rates or late fall application may require restrictions for herbicides having residual properties.

Herbicides in this list may be useful when planning the weed control program in crops where the field is to be seeded to CRP the next season.

Achieve	Eptam	Permit
Aim	Eradicane	Poast
Assure II	Express	Poast Plus
Balance	Frontier/Outlook	Puma
Banvel	Fusilade	Ramrod
Basagran	Fusion	Resource
Bladex	Glyphosate Products	Select
Blazer	Gramoxone Extra	Sonalan
Bronate	Harmony Extra	Status
Clarity	Lasso/Intro/MicroTech	2,4-D
Cobra	MCPA	

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