

1984

## EC841-130 A 1984 guide for Herbicide Use in Nebraska

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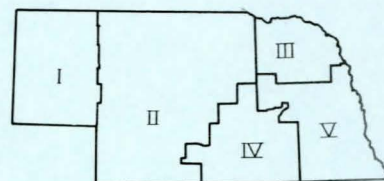
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# A 1984 GUIDE FOR - - - HERBICIDE USE IN NEBRASKA . . .



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This circular deals principally with herbicides as an aid for crop production. The suggestions for use are based on results at Nebraska research stations and elsewhere. Reference to commercial products or trade names is made with the understanding that no discrimination is intended and no endorsement by the Cooperative Extension Service is implied.

DO NOT USE 2,4-D ESTER, BANVEL (DICAMBA), AND SIMILAR HERBICIDES NEAR VEGETABLES, ORNAMENTALS, TREES, SHRUBS, AND BROADLEAF CROPS.

Genetic strains, varieties, and hybrids vary in their response to herbicides. Check with your seed dealer for information on the crop you plan to treat.



Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture. Leo E. Lucas, Director of Cooperative Extension Service, University of Nebraska, Institute of Agriculture and Natural Resources.



**RESTRICTED USE HERBICIDES . . .**  
Tordon & Paraquat have been classified as restricted use herbicides by EPA. Other herbicides or some of their uses may be classified as restricted use at some future date. The label will indicate if a product is restricted use. **Only certified private or commercial applicators should apply or supervise the application of restricted use herbicides.** See your County Extension Agent if you need to be certified.



*"Use Crop Production  
Chemicals Wisely"*

● **READ THE LABEL BEFORE EACH USE.** Follow instructions; heed all cautions and warnings.

● **APPLY ONLY AS DIRECTED.** Federal law authorizes seizure of any raw agricultural commodity moving in interstate commerce which carries a pesticide residue in excess of the established tolerance.

● **STORE IN ORIGINAL, LABELED CONTAINERS.** Keep out of reach of children, pets, livestock and irresponsible people.

● **ELIMINATE HAZARDS FROM CONTAINER.** Rinse empties that contained liquids three times. Burn paper bags and fiber drums. Stay out of the smoke. Bury unused materials and crushed containers.



# WEED RESPONSE TO SELECTED SOIL APPLIED HERBICIDES

Plant response may be altered by growing conditions, genetic variation in crops and weeds, soil type, pH, organic matter and rates of application. Ratings may vary from season to season and geographical areas within the state.

## Response ratings:

Ratings are for light to moderate weed populations and favorable conditions. High weed populations or adverse conditions will reduce control.

E = Excellent (90-100%)

G = Good (75-90%)

F = Fair (50-75%)

P = Poor (0-50%)

## Herbicide

	annual morningglory	barnyardgrass	b. nightshade	cocklebur	crabgrass	fall panicum	foxtail	jimsonweed	kochia	Lambsquarters	pigweed	ragweed	R. thistle	sandbur	shattercane/sorghum	smartweed	sunflower	velvetleaf	w. buckwheat	crop safety <sup>1</sup>	soil carry over potential in months <sup>2</sup>
<b>Field Corn &amp; Popcorn*</b>																					
*Aatrex/Atrazine	E	G	E	G	F	P	G	E	E	E	E	E	E	F	P	E	E	E	E	E	6-24
Bicep or Dual + Aatrex	G	E	E	F	G	G	E	F	E	E	E	E	G	F	P	G	G	G	G	E	6-18
Bladex	E	G	E	G	G	F	G	E	E	E	F	E	E	F	P	E	G	F	E	G	2-4
Bladex + Atrazine	E	G	E	G	G	F	G	E	E	E	E	E	E	F	P	E	G	G	E	G	6-18
Dual	P	E	G	P	E	E	E	P	P	G	G	F	P	F	P	P	P	P	P	E	2-5
Dual + Atrazine + Sencor	G	E	E	F	G	G	E	F	G	E	E	E	G	F	P	G	G	G	G	G	6-12
Dual + Bladex	G	E	E	F	E	E	E	F	E	G	G	E	G	F	P	G	F	F	G	G	2-5
Dual + Bladex + Sencor	G	E	E	F	E	E	E	F	G	G	E	G	G	F	P	G	F	F	G	G	2-5
*Eradicane/Eradicane Extra	G	E	E	P	E	E	E	P	F	G	G	F	P	G	G	P	P	P	F	G	1-2
*Eradicane/Eradicane Extra + Atrazine	G	E	E	F	E	E	E	G	E	E	G	G	G	G	G	G	G	G	E	E	6-18
*Eradicane/Eradicane Extra + Bladex	G	E	E	F	E	E	E	G	E	E	E	G	G	G	G	G	F	P	G	G	2-4
*Lasso	P	E	G	P	E	E	E	P	P	G	G	F	P	F	P	P	P	P	P	E	2-4
*Lasso + Atrazine	G	E	E	F	G	G	E	F	E	E	E	E	G	F	P	G	G	G	E	E	6-18
Lasso or Dual + Atrazine + Bladex	G	E	E	F	E	E	E	F	E	E	E	E	G	F	P	G	G	G	G	E	6-12
Lasso + Atrazine + Sencor	G	E	E	F	G	G	E	F	G	E	E	E	G	F	P	G	G	G	G	G	6-12
*Lasso + Bladex	G	E	E	F	E	E	E	F	E	G	G	E	G	F	P	G	F	F	G	G	2-4
Lasso + Bladex + Sencor	G	E	E	F	E	E	E	F	G	G	E	G	G	F	P	G	F	G	G	G	2-5
Prowl + Atrazine	G	E	G	F	E	E	E	F	E	E	E	G	G	F	P	G	G	G	G	G	6-18
Prowl + Bladex	G	E	G	F	E	E	E	F	E	E	G	G	G	F	P	G	F	F	F	G	6-18
*Sutan+	F	E	G	P	E	E	E	P	P	G	F	F	P	G	G	P	P	P	F	E	1-2
*Sutan+ + Atrazine	G	E	E	F	E	E	E	G	E	E	E	G	G	G	G	G	G	G	E	E	6-18
*Sutan+ + Atrazine + Bladex	G	E	G	P	E	E	E	G	E	E	E	G	G	G	G	G	G	F	G	E	6-18
*Sutan+ + Bladex	F	E	G	P	E	E	E	G	E	E	G	G	G	G	G	G	F	F	G	G	2-4
*Sutazine+	G	E	E	F	E	E	E	G	E	E	E	G	G	G	G	G	G	G	E	E	6-18

## Sorghum-Grain & Forage\*\*

**Aatrex/Atrazine	E	G	E	G	F	P	G	G	E	E	E	E	F	P	E	E	G	E	F	6-24
Bicep + Concep	G	E	E	F	G	G	E	F	E	E	E	E	G	F	P	G	G	F	G	6-18
Dual or Lasso + Seed Safener	P	E	G	P	E	E	E	P	P	G	G	F	P	F	P	P	P	P	G	2-5
Dual or Lasso + Atrazine + Seed Safener	G	E	E	F	G	G	E	F	E	E	E	E	G	F	P	G	G	F	G	6-18
Igran + Aatrex	E	G	E	G	F	P	G	G	E	E	E	E	F	P	E	E	G	E	F	6-18
Modown + Ramrod	G	G	F	P	G	G	E	G	G	E	P	P	P	P	P	E	P	F	G	1-2
Ramrod	P	G	P	P	G	G	E	P	P	F	G	P	P	P	P	F	P	F	E	1-2
Ramrod + Atrazine	G	G	G	F	G	F	E	F	E	E	E	G	G	P	P	G	G	F	G	6-18
Ramrod + Bladex	G	G	E	F	G	G	E	F	E	G	F	G	G	F	P	G	F	F	G	2-4

## Soybeans

Basalin	P	E	P	P	E	E	E	P	F	G	G	P	G	G	G	P	P	P	P	G	6-12
Basalin + Sencor/Lexone	P	E	P	F	E	E	E	G	G	E	E	E	E	G	G	F	G	E	F	6-12	
Basalin + Sencor/Lexone + Amiben	P	E	G	F	E	E	E	G	G	E	E	E	G	G	F	G	P	G	E	G	6-12
Dual	P	E	G	P	E	E	E	P	P	G	G	F	P	F	P	P	P	P	P	E	2-5
Dual + Amiben + Sencor/Lexone	P	E	G	F	E	E	E	G	F	E	E	E	G	F	P	G	F	G	E	F	2-4
Dual + Sencor/Lexone	P	E	G	F	E	E	E	G	F	E	E	E	G	F	P	G	F	G	E	F	2-5
Lasso	P	E	G	P	E	E	E	P	P	G	G	G	P	F	P	P	P	P	P	E	2-4
Lasso + Amiben + Sencor/Lexone	P	E	G	F	E	E	E	G	F	E	E	E	G	F	P	G	F	G	E	F	2-4
Lasso + Modown	G	G	F	P	G	G	E	G	G	E	P	P	F	P	E	P	F	G	F	2-4	
Lasso + Sencor/Lexone	P	E	G	F	E	E	E	G	F	E	E	E	G	F	P	G	F	G	E	F	2-4
Lorox + Lasso or Dual	P	E	G	F	E	E	E	F	F	G	E	G	F	F	P	G	F	F	G	G	2-4
Prowl	P	E	P	P	E	E	E	P	F	G	G	P	G	G	P	P	F	P	G	6-12	
Prowl + Sencor/Lexone	P	E	P	F	E	E	E	G	G	E	E	E	E	G	G	G	F	G	E	F	6-12
Treflan	P	E	P	P	E	E	E	P	F	G	G	P	G	G	G	P	P	P	P	G	6-12
Treflan + Sencor/Lexone	P	E	P	F	E	E	E	G	G	E	E	E	E	G	G	G	F	G	E	F	6-12
Treflan + Sencor/Lexone + Amiben	P	E	G	F	E	E	E	G	G	E	E	E	G	G	F	G	P	G	E	G	6-12
Split-Appl.-Treflan + Sencor/Lexone	P	E	P	F	E	E	E	G	G	E	E	E	E	G	G	E	F	E	E	G	6-12
Vernam	F	E	F	P	E	G	E	P	P	G	G	F	G	G	F	P	P	F	F	F	1-2

<sup>1</sup>Crop varieties vary in their response to herbicides.

<sup>2</sup>The lower number applies to eastern Nebraska, the large number to western Nebraska. Values will vary with soil and rainfall or irrigation. For more information see "Herbicide Carryover", G74-180.

\*Registered for popcorn.

\*\*Registered for forage sorghum.



## FIELD CROPS-SOIL APPLIED HERBICIDES

*Preplant incorporated* (PPI) treatments are made before planting the crop. Thoroughly incorporate with rototiller or two passes of a tandem disc, field cultivator or similar equipment. *Preemergence* (PRE) treatments are applied during planting time to just before plant emergence. *Surface blend* is the shallow mixing of a preemergence herbicide into the top 1 to 2" of soil using a rototiller, mulch treader, field cultivator or similar implement. *Early post* refers to preemergence herbicide applications made soon after the crop has emerged; control of emerged weeds may be reduced. *Postemergence* (POST) treatments are applied after emergence of weeds or crop. Weed control with preemergence treatments may be poor if there is no rain to leach the herbicide into the top inch. To overcome dependence on rainfall and to increase dependability some preemergence herbicides may be incorporated into the surface soil with a rotary hoe. Excessive rain-

fall may leach some of the more soluble herbicides into the subsoil, especially on sandy soils. Weed control with preplant herbicides is more satisfactory on surface-planted crops.

Some weed species are resistant to particular herbicides. Herbicides should be rotated to control a wider spectrum of weeds and to reduce the build-up of any particular herbicide in the soil. *Atrazine may carry over and injure alfalfa, beans, potatoes, sugar beets and small grains the following year.* Herbicide carry over in soils increase as one goes westward in Nebraska. Carry over problems also increase on low organic matter and high pH soils.

Sprayers should provide good agitation of spray solution and be equipped with 50-mesh or coarser screens to avoid clogging with wettable powders.

Herbicide (See Weed Response Chart before selecting herbicides)	Apply this amount of commercial product per acre			Application Time, Remarks and Approximate Cost/A Broadcast
	Sandy Loam	Silt Loam	Silty-Clay Loam	
	<1½% OM	1½-2½% OM	>2½% OM	

### Field Corn & Popcorn\*

SEE TROUBLESOME WEED SECTION ON PAGE 21 FOR SPECIFIC WEEDS

*AATREX/ATRAZINE 4L <sup>3</sup>	2 qt	2.4 qt	3 qt	PPI, PRE, SURFACE BLEND or EARLY POST...May be applied through sprinkler systems. May affect sensitive crops the following year especially on high pH soils. Can be used at lay-by. Approx. cost \$4.80-\$7.20.
*BICEP 4.5L	2 qt	2.4 qt	3.2 qt	PRE, SURFACE BLEND or EARLY POST...May be applied through sprinkler systems. Bicep is a combination of 2 1/2 parts Dual to 2 parts atrazine. Approx. cost \$10.80-\$17.25.
BLADEX 4L <sup>3</sup> or BLADEX 15G	Do not use	2.5 qt or 16 lb	3.25 qt or 21 lb	PRE, SURFACE BLEND or 80W EARLY POST... Bladex 4L may be applied through sprinkler systems. Do not use on light or variable textured soils. Injury may occur on soils that are calcareous, sandy or below 1% organic matter. Approx. cost \$11.50-\$14.95.
BLADEX 4L <sup>3</sup> + ATRAZINE 4L <sup>3</sup>	1.25 qt + 0.5 qt	1.67 qt + 0.83 qt	2.5 qt + 1.25 qt	PRE, SURFACE BLEND or 80W EARLY POST... May be applied through a sprinkler systems. Injury may occur on soils that are calcareous, sandy or below 1% organic matter. Carry over could affect some crops the following year. Approx. cost \$6.95-\$14.50.
Dual 8E (Primarily grass control) or Dual 25G	0.75 qt or 6 lb	1.25 qt or 10 lb	1.5 qt or 12 lb	PRE or SURFACE BLEND...Dual and Dual + AAtrex may be applied through sprinkler systems or early post. Injury may occur with Dual + Bladex on soils that are calcareous, sandy or below 1% organic matter. Postemergence broadleaf weed control usually required when Dual is used alone. Approx. cost: Dual \$9.40-\$18.75; Dual + AAtrex \$10.55-\$16.45; Dual + Bladex \$12.75-\$21.70.
DUAL 8E with AATREX 4L <sup>3</sup> or with BLADEX 4L <sup>3</sup>	0.67 qt + 1 qt or 1 qt	0.75 qt + 1.25 qt or 1.75 qt	1 qt + 1.67 qt or 2 qt	

(Continued next page)



## FIELD CROPS-SOIL APPLIED HERBICIDES (continued)

Herbicide (See Weed Response Chart before selecting herbicides)	Apply this amount of commercial product per acre			Application Time, Remarks and Approximate Cost/A Broadcast
	Sandy Loam <1½% OM	Silt Loam 1½-2½% OM	Silty-Clay Loam >2½% OM	
Field Corn & Popcorn* (continued)				
SEE TROUBLESOME WEED SECTION ON PAGE 21 FOR SPECIFIC WEEDS				
DUAL 8E + ATRAZINE 4L <sup>3</sup> + BLADEX 4L <sup>3</sup>	1.3 pt + 1 pt + 1 pt	1.5 pt + 1 pt + 2 pt	2 pt + 1.25 pt + 2.5 pt	PRE...3-way mix. Injury may occur on soils that are calcareous, sandy or below 1% organic matter. Approx. cost \$11.65-\$19.75.
DUAL 8E + SENCOR 4L <sup>3</sup> with ATRAZINE 4L <sup>3</sup> or with BLADEX 4L <sup>3</sup>	Do not use	1.5 pt + 0.5 pt + 1.5-3 pt or 2.5 pt	2 pt + 0.5 pt + 1.5-3 pt or 3 pt	PRE...3-way mix. Do not use on sandy soils or soils containing less than 2% organic matter. Do not use on calcareous soils or soils with a pH of 7.0 or greater. Approx. cost: Dual + Sencor + Atrazine \$17.20-\$23.10; Dual + Sencor + Bladex \$21.15-\$26.40.
*ERADICANE 6.7E	4.75 pt	5 pt	5 pt	PPI...May be applied through sprinkler systems. Apply to dry surface soil. Immediately incorporate by cross tandem discing or similar soil mixing. Some hybrids may be injured. Injury may occur with Eradicane + Bladex on soils that are calcareous, sandy or below 1% organic matter. Postemergence broadleaf control usually required when Eradicane is used alone. Repeated use of Eradicane or Eradicane Extra will lead to reduced weed control. Consider herbicide and/or crop rotations. Approx. cost: Eradicane \$15.45-\$16.25; Eradicane Extra \$19.70-\$20.65; Eradicane Extra + Atrazine \$17.85-\$24.50; Eradicane Extra + Bladex \$20.05-\$29.85.
*ERADICANE EXTRA	5.25 pt	5.3 pt	5.5 pt	
*ERADICANE 6.7E or *ERADICANE EXTRA +	4.75 pt or 5.25 pt +	4.75 pt or 5.3 pt +	4.75 pt or 5.5 pt +	
*ATRAZINE 4L <sup>3</sup> or *BLADEX	2 pt or 2 pt	2.4 pt or 3.2 pt	3.2 pt or 4 pt	
*LASSO 4EC <sup>4</sup> or *LASSO II 15G	3 qt or 20 lb	2.5 qt or 17 lb	3 qt or 20 lb	
*LASSO 4EC <sup>4</sup> + *AATREX/ATRAZINE 4L <sup>3</sup>	2 qt + 1 qt	2 qt + 1.2 qt	2 qt + 1.6 qt	
*LASSO & ATRAZINE FLOWABLE <sup>4</sup> (Package blend)	3.2 qt	3.5 qt	4 qt	PRE, SURFACE BLEND or EARLY POST...Also registered for application through sprinkler systems. Tank mix. Also registered for lay-by application. See page 12. Approx cost: Lasso + AATrex/Atrazine \$13.20-\$14.65; Lasso + Atrazine Flowable \$16.00-\$20.00.
*LASSO 4EC + *BLADEX 4L <sup>3</sup>	2 qt + 1 qt	2 qt + 1.7 qt	2 qt + 2 qt	PRE...May be applied through sprinkler systems. Injury may occur on soils that are calcareous, sandy or below 1% organic matter. Approx. cost \$15.40-\$20.00.
LASSO + SENCOR 4L <sup>3</sup> with ATRAZINE 4L <sup>3</sup> or with BLADEX 4L <sup>3</sup>	Do not use	2 qt + 0.5 pt + 0.75-1.5 qt or 1.25 qt	2 qt + 0.5 pt + 0.75-1.5 qt or 1.5 qt	PRE...3-way mix. Do not use on sandy soils or soils containing less than 2% organic matter. Do not use on calcareous soils or soils with a pH of 7.0 or greater. Approx. cost: Lasso + Sencor + Atrazine \$18.60-\$20.40; Lasso + Sencor + Bladex \$22.55-\$23.70.

(Continued next page)



## FIELD CROPS-SOIL APPLIED HERBICIDES (continued)

Herbicide (See Weed Response Chart before selecting herbicides)	Apply this amount of commercial product per acre			Application Time, Remarks and Approximate Cost/A Broadcast
	Sandy	Silt	Silty-Clay	
	Loam	Loam	Loam	
	<1½% OM	1½-2½% OM	>2½% OM	

### Field Corn & Popcorn\* (continued)

SEE TROUBLESOME WEED SECTION ON PAGE 21 FOR SPECIFIC WEEDS

LASSO + ATRAZINE 4L <sup>3</sup> + BLADEX 4L <sup>3</sup>	2 qt + 1 pt + 1 pt	2 qt + 1 pt + 2 pt	2 qt + 1.25 pt + 2.5 pt	PRE...3-way mix. Injury may occur on soils that are calcareous, sandy or below 1% organic matter. Approx. cost \$14.30-\$18.05.
PROWL 4EC with ATRAZINE 4L <sup>3</sup> or with BLADEX 4L <sup>3</sup>	Do not use	1.5 qt + 1.2 qt or 1.7 qt	1.5 qt + 1.6 qt or 2 qt	PRE or EARLY POST...Corn injury may occur if replanting is necessary. Also registered for lay-by application. See page 12. Approx. cost: Prowl + Atrazine \$10.40-\$11.35; Prowl + Bladex \$15.30-\$16.70.
*SUTAN+ 6.7E/Genate Plus (Primarily grass control)	5 pt	5 pt	5 pt	PPI...May be applied through sprinkler systems. Apply to dry surface soil. Incorporate immediately by cross tandem discing or equivalent soil mixing. Some hybrids may be injured. Postemergence broadleaf weed control usually required. Repeated use may lead to reduced weed control. Approx. cost \$13.00.
*SUTAN+ 6.7E/Genate Plus with *ATRAZINE 4L <sup>3</sup> or with *BLADEX 4L <sup>3</sup>	3.75 pt + 2 pt or 2 pt	3.75 pt + 2.4 pt or 3.5 pt	3.75 pt + 3.2 pt or 4 pt	PPI...Sutan/Genate + Atrazine and Sutan+ may be applied through sprinkler systems. Apply to dry surface soil. Incorporate immediately by cross tandem discing or equivalent soil mixing. Sutan+ is a combination of 4.8 parts Sutan+ + 1.2 parts Atrazine. Increase Sutan/Genate rates for sandbur and shattercane control. Some hybrids may be injured. Injury may occur with Sutan/Genate + Bladex on soils that are calcareous, sandy or below 1% organic matter. Repeated use of Sutan or Genate may lead to reduced weed control. Approx. cost: Sutan+/Genate + Atrazine \$11.80-\$13.25; Sutan+/Genate + Bladex \$14.00-\$18.60; Sutan+ \$15.00-\$17.50.
*SUTAZINE+	6 pt	7 pt	7 pt	
*SUTAN+ 6.7E/Genate Plus + *ATRAZINE 4L <sup>3</sup> + *BLADEX 4L <sup>3</sup>	3.75 pt + 1 pt + 1 pt	3.75 pt + 1 pt + 2 pt	3.75 pt + 1.25 pt + 2.5 pt	PPI...Tank mix. Apply to dry surface soil. Incorporate immediately by cross tandem discing or equivalent soil mixing. Increase Sutan/Genate rates for sandbur and shattercane control. Some hybrids may be injured. Injury may occur on soils that are calcareous, sandy or below 1% organic matter. Repeated use of Sutan or Genate may lead to reduced weed control. Approx. cost \$12.90-\$16.65.

OTHER REGISTERED TREATMENTS FOR CORN: AAtrex + Princep (PPI or PRE), Amiben (PRE), Amiben + AAtrex (PRE), Banvel + Lasso (PRE), Knoxweed (PRE), Lorox + AAtrex (PRE), Lorox + Lasso (PRE), Premerge (PRE), Princep (PPI or PRE), Prowl (PRE), Prowl + Banvel (PRE), Ramrod (PRE), Ramrod + Atrazine (PRE), 2,4-D (PRE). See Herbicide Dictionary for additional information.

<sup>3</sup>Additional formulations are available. Use rates that give comparable amounts of active ingredient:  
1 qt AAtrex or Atrazine 4L = 1.25 lb AAtrex or Atrazine 80W or 1.1 lb AAtrex Nine-0

1 qt Bladex 4L = 1.25 lb Bladex 80W

0.5 pt Sencor 4L = 0.5 lb Sencor 50W or 0.33 lb Sencor DF

<sup>4</sup>Increase rate 20% when surface blending.

\*Registered for use on popcorn.



## FIELD CROPS-SOIL APPLIED HERBICIDES (continued)

Herbicide (See Weed Response Chart before selecting herbicides)	Apply this amount of commercial product per acre			Application Time, Remarks and Approximate Cost/A Broadcast
	Sandy Loam <1½% OM	Silt Loam 1½-2½% OM	Silty-Clay Loam >2½% OM	
Grain Sorghum (Milo)				
SEE TROUBLESOME WEED SECTION ON PAGE 21 FOR SPECIFIC WEEDS				
AATREX 4L/ATRAZINE 4L <sup>3</sup>	Do not use	2 qt	2.4 qt	PPI, PRE, or SURFACE BLEND...Preplant applications should be made only on fine textured soils. Heavy rains may leach AATrex/Atrazine and cause injury to sorghum. Approx. cost \$4.80-\$5.75.
BICEP 4.5L	Do not use	2.4 qt	3.2 qt	PRE or SURFACE BLEND...Seed must be Concep treated to protect from Dual or Bicep injury. Do not use on sandy, high pH or calcareous soils. Bicep is a combination of 2 parts Atrazine and 2.5 parts Dual. Post broadleaf weed control may be needed if Dual is used alone. Approx. cost: Bicep \$12.95-\$17.30; Dual \$9.40-\$15.65; Dual + AATrex/Atrazine \$11.80-\$17.10.
DUAL 8E or DUAL 25G	1.5 pt or 6 lb	2 pt or 10 lb	2.5 pt or 12 lb	
DUAL 8E + AATREX/ATRAZINE 4L <sup>3</sup>	Do not use	1.5 pt + 2 pt	2 pt + 3 pt	
IGRAN 80W + AATREX 80W	Do not use	2 lb + 1 lb	2 lb + 1 lb	PPI, PRE or SURFACE BLEND...Apply within 2 weeks of planting. Use rolling cultivator, rotary hoe, spike tooth harrow or similar implements for shallow incorporation. Do not feed or graze treated forage. Approx. cost \$10.90.
LASSO 4EC <sup>4</sup>	2.5 qt	2.5 qt	2.5 qt	PRE or SURFACE BLEND...Seed must be Screen treated to protect from Lasso injury. Do not use on sandy, high pH or calcareous soils. Lasso Flowable is a combination of 2.5 lbs Alachlor and 1.5 lbs Atrazine. Post broadleaf weed control may be necessary if Lasso is used alone. Approx. cost: Lasso \$13.50; Lasso + Atrazine \$13.20-\$13.80; Lasso & Atrazine Flowable \$15.00-\$17.50.
LASSO 4EC <sup>4</sup> + ATRAZINE 4L	Do not use	2 qt + 1 qt	2 qt + 1.25 qt	
LASSO & ATRAZINE FLOWABLE <sup>4</sup>	Do not use	3 qt	3.5 qt	
RAMROD FLOWABLE <sup>3</sup> or RAMROD 20G	4 qt or 20 lb	4 qt or 20 lb	4 qt or 20 lb	PRE...May cause skin irritation to applicator. Do not feed treated forage to dairy animals. Leaches on sandy soil. Approx. cost \$16.00.
RAMROD FLOWABLE <sup>3</sup> + AATREX 4L/ATRAZINE 4L <sup>3</sup>	Do not use	3 qt + 1 qt	3 qt + 1.25 qt	PRE...Tank mix, SW Nebraska reduce Atrazine rate to 1.5 pts. Rains may leach herbicides and cause sorghum injury or poor weed control. Do not feed treated forage to dairy animals. Approx. cost \$14.40-\$15.00.
RAMROD FLOWABLE <sup>3</sup> + BLADEX 4L <sup>3</sup>	Do not use	5 pt + 2.5 pt	5 pt + 2.75 pt	PRE...Heavy rains may leach Ramrod, Atrazine and Bladex and cause injury to sorghum or poor weed control. Do not feed treated forage to lactating dairy animals. Approx. cost: Ramrod + Bladex \$15.75-\$16.35; Ramrod & Atrazine Flowable \$16.00.
RAMROD & ATRAZINE FLOWABLE (Package blend)	Do not use	4 qt	4 qt	
LASSO 4EC <sup>4</sup> or RAMROD FLOWABLE <sup>3</sup> + MODOWN 4F <sup>3</sup>	2 qt or 3 qt + 1.25 qt	2 qt or 3 qt + 1.5 qt		PRE...Tank mix. Do not feed Ramrod treated forage to lactating dairy animals. Modown not influenced by soil texture, organic matter or pH. Rain within 10 days may "splash" Modown onto sorghum and cause injury. Approx. cost: Lasso + Modown \$18.95-\$20.55; Ramrod + Modown \$20.15-\$21.75.

OTHER REGISTERED TREATMENTS FOR SORGHUM: Bladex + Propazine [Milogard] (PRE), Dual 8E + Igran 80W (PRE), Dual 8E + Milogard (PRE), Igran 80W (PRE), Lasso + Propazine or Milogard (PRE or SURFACE BLEND), Milocep (PRE), Miloard 80W (PRE), Milogard + Igran (PPI, PRE, or SURFACE BLEND), Propazine (PRE), Ramrod + Propazine or Milogard (PRE). See Herbicide Dictionary for additional information.

<sup>3</sup> Additional formulations are available. Use rates that give comparable amounts of active ingredient:

1 qt AATrex or Atrazine 4L = 1.25 lb AATrex or Atrazine 80W or 1.1 lb AATrex Nine-0

1 qt Bladex 4L = 1.25 lb Bladex 80W

1 qt Modown 4F = 1.25 lb 80W

<sup>4</sup> 1 qt Bexton 4L or Ramrod Flowable = 1.5 lb Ramrod 65W

Increase rate 20% when surface blending.



## FIELD CROPS-SOIL APPLIED HERBICIDES (continued)

Herbicide (See Weed Response Chart before selecting herbicides)	Apply this amount of commercial product per acre			Application Time, Remarks and Approximate Cost/A Broadcast
	Sandy Loam	Silt Loam	Silty-Clay Loam	
	<1½% OM	1½-2½% OM	>2½% OM	
Soybeans				
SEE TROUBLESOME WEED SECTION ON PAGE 21 FOR SPECIFIC WEEDS				
BASALIN 4EC (Primarily grass control)	1 pt	1.5 pt	2.5 pt	PPI...For best results immediately incor- porate. To reduce injury on calcareous soil reduce Sencor/Lexone rate by 1/3.
BASALIN 4EC + SENCOR/LEXONE 4L <sup>3</sup>	1 pt + 0.5 pt	1.5 pt + 0.6 pt	2 pt + 0.8 pt	Approx. cost: Basalin \$2.50-\$6.25; Basalin + Sencor/Lexone \$8.50-\$14.60.
DUAL 8E	2 pt	2.5 pt	2.5 pt	PRE, SURFACE BLEND or CENTER PIVOT...To reduce injury on calcareous soil decrease
DUAL 8E + SENCOR/LEXONE 4L <sup>3</sup>	Do not use	1.5 pt + 0.6 pt	2 pt + 0.8 pt	Sencor/Lexone rate by 1/3. Approx. cost: Dual \$13.50-\$16.60; Dual + Sencor \$15.40- \$23.10.
LAISO 4EC <sup>4</sup> or LAISO II 15G	2.5 qt or 17 lb	2.5 qt or 17 lb	2.5 qt or 17 lb	PRE, SURFACE BLEND or CENTER PIVOT...To reduce injury on calcareous soil decrease
LAISO 4EC <sup>4</sup> + SENCOR/LEXONE 4L <sup>3</sup>	Do not use	2 qt + 0.6 pt	2 qt + 0.8 pt	Sencor/Lexone rate by 1/3. Approx. cost: Lasso \$13.50; Lasso + Sencor/Lexone \$16.80-\$20.40.
LAISO 4EC + MODOWN 4F <sup>3</sup>	2.5 qt + 1.25 qt			PRE or SURFACE MIX WITH ROTARY HOE...Modown not greatly influenced by soil texture, organic matter or pH. Increase Modown rate to 1 1/2 to 2 qt if surface mixed. Approx. cost \$21.65.
LOROX L <sup>3</sup> with DUAL 8E or with LAISO 4EC	0.67-1 pt + 2 pt or 4 pt	1.5 pt + 2 pt or 4 pt	2 pt + 2 pt or 4 pt	PRE...If rain does not occur within 7 days, surface mix only with rotary hoe. Lorox not greatly influenced by soil pH. Do not use on soils with less than 0.5% OM. Approx. cost: Lasso + Lorox \$14.80-\$16.80; Dual + Lorox \$17.50-\$19.50.
PROWL 4EC	1.5 pt	2 pt	2.5 pt	PPI or SURFACE BLEND...To reduce injury on calcareous soil decrease Sencor/Lexone
PROWL 4EC + SENCOR/LEXONE 4L <sup>3</sup>	1.5 pt + 0.5 pt	2 pt + 0.6 pt	2 pt + 0.8 pt	rate by 1/3. Approx. cost: Prowl \$3.75- \$6.25; Prowl + Sencor \$9.75-\$14.60.
TREFLAN 4EC (Primarily grass control)	1 pt	1.5 pt	1.75 pt	PPI...For best results immediately incor- porate. To reduce injury on calcareous soil decrease Sencor/Lexone rate by 1/3.
TREFLAN 4EC + SENCOR/LEXONE 4L <sup>3</sup>	1 pt + 0.5 pt	1.25 pt + 0.6 pt	1.5 pt + 0.8 pt	Approx. cost: Treflan \$2.50-\$4.40; Treflan + Sencor/Lexone \$8.50-\$13.35.
TREFLAN 4EC PPI with SENCOR/LEXONE 4L <sup>3</sup> PPI followed by SENCOR/LEXONE 4L <sup>3</sup> PRE (Split application)	1 pt + 0.25 pt + 0.25 pt	1.25 pt + 0.4 pt + 0.4 pt	1.5 pt + 0.5 pt + 0.5 pt	SPLIT SHOT, PPI and PRE...Improves broad- leaf control. For best results immediately incorporate first application of Treflan and Sencor/Lexone. On Calcareous soil re- duce Sencor/Lexone rate by 1/3. Approx. cost \$8.50-\$15.75.
VERNAM 7E	2.3 pt	3 pt	3 pt	PPI...For best results immediately incor- porate. Do not plant soybeans deeper than 2 inches. On calcareous soil reduce
VERNAM 7E + TREFLAN 4EC + SENCOR/LEXONE 4L <sup>3</sup>	Do not use	2.5 pt + 1 pt + 0.5 pt	3 pt + 1 pt + 0.5 pt	Sencor/Lexone rate by 1/3. Approx. cost: Vernam \$7.50-\$9.75; Vernam + Treflan + Sencor/Lexone \$16.65 + \$18.25.

(Continued next page)



## FIELD CROPS-SOIL APPLIED HERBICIDES (continued)

Herbicide (See Weed Response Chart before selecting herbicides)	Apply this amount of commercial product per acre			Application Time, Remarks and Approximate Cost/A Broadcast
	Sandy	Silt	Silty-Clay	
	Loam	Loam	Loam	
	<1½% OM	1½-2½% OM	>2½% OM	

### Soybeans (continued)

SEE TROUBLESOME WEED SECTION ON PAGE 21 FOR SPECIFIC WEEDS

DUAL 8E	1.5 pt	2 pt	2 pt	PRE or SURFACE BLEND...3-way mix. To reduce injury on calcareous soil reduce Sencor/Lexone rate by 1/3. Approx. cost: Dual + Amiben + Sencor/Lexone \$31.80-\$34.90; Lasso + Amiben + Sencor/Lexone \$30.50-\$32.20.
or	or	or	or	
LAASSO 4EC	1.5 qt	2 qt	2 qt	
with	+	+	+	
AMIBEN 2S	4 qt	4 qt	4 qt	PPI...3-way mix. For best results immediately incorporate. To reduce injury on calcareous soil reduce Sencor/Lexone rate by 1/3. Approx. cost: Prowl + Amiben + Sencor/Lexone \$26.15-\$27.40; Basalin + Amiben + Sencor/Lexone \$26.15-\$27.40; Treflan + Amiben + Sencor/Lexone \$25.15-\$26.55.
and	+	+	+	
SENCOR/LEXONE 4L	0.5 pt	0.5 pt	0.5 pt	
BASALIN 4EC	1 pt	1.5 pt	2 pt	
or	or	or	or	
PROWL 4EC	1.5 pt	2 pt	2 pt	
or	or	or	or	
TREFLAN 4EC	1 pt	1.25 pt	1.5 pt	
with	+	+	+	
AMIBEN 2S	4 qt	4 qt	4 qt	
and	+	+	+	
SENCOR/LEXONE 4L	0.5 pt	0.5 pt	0.5 pt	

OTHER REGISTERED TREATMENTS FOR SOYBEANS: Alanap (PRE), Amiben (PRE), Amiben + Sencor/Lexone (PRE), Amiben + Treflan (PPI), Ancrack (PRE), Dacthal (PRE), Dual + Lorox (PRE), Dual + Dyanap (PRE), Dual + Amiben (PRE or PPI), Dyanap (PRE and POST), Enide (PRE), Enide + Dinitro (PRE), Furloe (PRE), Goal (PRE), Goal + Lasso (PRE), Klean-Krop (PRE), Lasso + Amiben (PRE), Lasso + Dyanap (PRE, up to cracking), Lasso + Furloe (PRE), Lasso + Premerge (PRE), Lexone (PRE), Lorox (PRE), Lorox + Amiben (PRE), Modown (PRE), Premerge (PRE), Premerge + Amiben (PRE), Propachlor (PRE, seed beans only), Prowl + Amiben (PRE), Prowl + Lorox (PRE), Ramrod (PRE, seed beans only), Sencor (PRE), Surflan (PRE), Surflan + Dyanap (PRE), Surflan + Lorox (PRE), Surflan + Sencor/Lexone (PRE), Treflan (PPI) + Modown (PRE), Vernam (PPI) + Amiben (PRE), Vernam (PPI) + Dyanap (PRE), Vernam (PPI) + Lorox (PRE), Vernam + Treflan (PPI). See Herbicide Dictionary for additional information.

Herbicide (See Weed Response Chart before selecting herbicides)	Apply this amount of commercial product per acre			Application Time, Remarks and Approximate Cost/A Broadcast
	Sandy	Silt	Silty-Clay	
	Loam	Loam	Loam	
	<1½% OM	1½-2½% OM	>2½% OM	

### Proso Millet

AATREX/ATRAZINE 4L <sup>3</sup>	1-1.5 pt	1-1.5 pt		PRE...Do not use on foxtail millets. Do not plant wheat on treated fields during year of use. Injury and carry over can be a problem on calcareous outcroppings, eroded areas and on terraced fields. Approx. cost \$1.20-\$1.80.
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### Forage Sorghums

UNDER MOST CONDITIONS HERBICIDES ARE NOT NECESSARY

ATRAZINE 4L <sup>3</sup>	Do not use	2 qt	2.25 qt	PPI, PRE or SURFACE BLEND...Make preplant applications only on fine textured soils. Heavy rains may leach and cause crop injury. Approx. cost \$4.80-\$5.40.
DUAL 8E	1.5 pt	2 pt	2.5 pt	PPI or SURFACE BLEND...Seed must be Concep treated to protect from Dual injury. Approx. cost \$9.40-\$15.65.

<sup>3</sup>Additional formulations are available. Use rates that give comparable amounts of active ingredient:

1 pt Lorox L - 1.0 lb 50W

1 qt Modown 4F + 1.25 lb 80W

1 pt Sencor or Lexone 4L = 1 lb 50W or 0.67 lb Lexone DF or Sencor DF

<sup>4</sup>Increase rate 20% when surface blending.



## WEED RESPONSE TO SELECTED SOIL APPLIED HERBICIDES

Plant response may be altered by growing conditions, genetic variation in crops and weeds, soil type, pH, organic matter and rates of application. Ratings may vary from season to season and geographical areas within the state.

### Response ratings:

Ratings are for light to moderate weed populations and favorable conditions. High weed populations or adverse conditions will reduce control.

E = Excellent

G = Good

F = Fair

P = Poor

Herbicide	annual morningglory	barnyardgrass	cocklebur	crabgrass	fall panicum	foxtail	jimsonweed	kochia	lambsquarters	nightshade	pigweed	ragweed	R. thistle	sandbur	shattercane/sorghum	smartweed	sunflower	velvetleaf	w. buckwheat	crop safety <sup>1</sup>	soil carry over potential in months <sup>2</sup>
<b>Sugar Beets</b>																					
Eptam	G	E	P	E	E	E	P	F	G	E	G	F	P	E	E	P	P	P	F	G	1-2
Nortron	-	G	F	G	G	G	-	G	G	F	E	-	F	F	-	G	P	P	G	G	5+
Ro-Neet	P	E	P	E	E	E	P	P	G	G	E	F	P	G	G	P	P	P	P	G	1-2
Antor	P	E	P	E	G	E	P	P	F	G	G	P	P	G	F	P	P	P	P	G	2-3
<b>Fieldbeans</b>																					
Dual + Treflan	F	E	P	E	E	E	P	F	G	G	G	P	F	E	G	P	P	P	F	E	6-12
Eptam	G	E	P	E	E	E	P	F	G	E	G	F	P	E	E	P	P	P	F	G	1-2
Eptam + Basalin	F	E	P	E	E	E	P	G	G	G	G	P	F	E	E	P	P	P	F	E	6-12
Eptam + Basalin or Treflan	F	E	P	E	E	E	P	E	G	G	G	P	F	E	E	P	P	P	F	E	6-12
Eptam + Dual	F	E	P	E	E	E	P	F	G	G	G	P	F	E	G	P	P	P	F	E	2-5
Eptam + Lasso	F	E	P	E	E	E	P	G	G	E	E	P	F	E	G	P	P	P	F	E	2-4
Lasso	P	E	P	E	E	E	P	P	G	G	G	G	P	F	P	P	P	P	P	G	2-4
Lasso + Treflan	F	E	P	E	E	E	P	G	G	G	G	P	F	E	G	P	P	P	F	E	6-12
<b>Potatoes</b>																					
Eptam	G	E	P	E	E	E	P	F	G	E	G	F	P	E	E	P	P	P	F	G	1-2
Eptam + Treflan or Prowl	F	E	P	E	E	E	P	E	G	F	G	P	F	E	E	P	P	P	F	E	6-12
Sencor/Lexone	P	G	F	G	G	G	G	F	E	G	E	E	G	P	P	G	F	G	E	G	2-6
Sencor/Lexone + Lasso	P	E	F	F	E	E	G	F	E	G	E	E	G	F	P	G	F	G	E	F	2-6

## FIELD CROPS-SOIL APPLIED HERBICIDES (continued)

Herbicide (See Weed Response Chart before selecting herbicides)	Apply this amount of commercial product per acre			Application Time, Remarks and Approximate Cost/A Broadcast
	Sandy Loam	Silt Loam	Silty-Clay Loam	
	<1½% OM	1½-2½% OM	>2½% OM	

### Potatoes

EPTAM 7E	3.5 pt	3.5 pt	PPI, DRAG-OFF or LAY-BY...Apply and incorporate before planting or after potato plants have emerged. The superior variety is sensitive to Eptam; under stress injury will occur. Approx. cost \$12.25.
EPTAM 7E + TREFLAN 4EC	2.5 pt + 1 pt	2.5 pt + 1 pt	PRE UP TO and JUST BEFORE DRAG-OFF... Incorporate chemical immediately after application. Set incorporation equipment so that herbicide is not concentrated over the row. The superior variety is sensitive to Eptam and injury may occur. Approx. cost: Eptam + Treflan \$11.50; Eptam + Prowl \$13.00-\$14.25.
EPTAM 7E + PROWL 4EC	3 pt + 1 pt	3 pt + 1.5 pt	PRE BEFORE CROP EMERGENCE or AFTER DRAG-OFF ...Do not plant treated area to sensitive crops such as onions or sugar beets during next growing season. The superior variety is sensitive to Lasso and injury may occur. Approx. cost: Lasso + Sencor/Lexone \$10.80-\$13.50; Dual + Sencor/Lexone \$18.50-\$21.60; Sencor/Lexone \$6.00-\$9.00.
SENCOR/LEXONE 4L <sup>3</sup>	1 pt	1.5 pt	
SENCOR/LEXONE 4L <sup>3</sup> with LASSO 4EC or DUAL 8E	1 pt + 4 pt or 2 pt	1 pt + 5 pt or 2.5 pt	

OTHER REGISTERED TREATMENTS FOR POTATOES: Dacthal (PRE), Dowpon M (PRE), Dymid (PRE), Enide (PRE), Lasso (PRE), Lasso + Lorox (PRE), Lorox (PRE), Premerge (PRE), Telone (PPI), Treflan (PRE). See Herbicide Dictionary for additional information.



# FIELD CROPS-SOIL APPLIED HERBICIDES (continued)

Herbicide (See Weed Response Chart before selecting herbicides)	Apply this amount of commercial product per acre			Application Time, Remarks and Approximate Cost/A Broadcast
	Sandy	Silt	Silty-Clay	
	Loam	Loam	Loam	
	<1½% OM	1½-2½% OM	>2½% OM	
<b>Sugar Beets</b>				
ANTOR 4ES	3 qt	5 qt		PPI or PRE...Furrow irrigation apply preplant and incorporate 1 to 2"; for sprinkler irrigation apply preemergence at planting or shortly after and immediately irrigate with 0.5" water. Approx. cost Antor \$29.75-\$49.55; Nortron \$50.50-\$63.15.
or	or	or		
NORTRON 1.5EC	4 qt	5 qt		
or	or	or		
NORTRON 4FL	1.5 qt	2.25 qt		
EPTAM 7E	3 pt	3.5 pt		LAY-BY...Apply Eptam after thinning and clean cultivation; incorporate immediately 2" deep with a rolling cultivator. Approx. cost \$10.50-\$12.25.
or	or	or		
EPTAM 10G	25 lb	30 lb		
RO-NEET 6E	2.75 pt	3.3-4.5 pt		PPI...Immediately mix into dry soil with power incorporator 2 to 3". Crop injury may occur on sandy soils below 1% organic matter or with highly saline or alkaline soil conditions. Use lower rate on coarse textured soils or if postemergence treatments are planned. Primarily annual grass control. Approx. cost \$15.80-\$25.90.
or	or	or		
RO-NEET 10G	20 lb	25-35 lb		

OTHER REGISTERED TREATMENTS FOR SUGAR BEETS: Chem-Hoe (PPI), Endothall (PRE), Eptam (PPI), Pre-Beta (PPI), Pyramin W (PRE), Pyramin W + Endothall (PRE), Pyramin W + TCA (PRE), TCA (PRE), Tillam (PPI). See Herbicide Dictionary for additional information.

## Fieldbeans

EPTAM 10G	30 lb	30 lb	PPI...Apply to dry surface soil; immediately incorporate with disc or field cultivator. Apply layby at time of last cultivation as a directed spray or direct granules to the base of the plants before bean pods start to form. Do not feed or pasture vines within 45 days after application. Approx. cost \$12.25.
or	or	or	
EPTAM 7E	3.5 pt	3.5 pt	
EPTAM 7E	2.5 pt	2.5 pt	PPI...Apply to dry surface soil, immediately incorporate with a disc or field cultivator. Approx. cost: Eptam + Dual \$18.15; Eptam + Lasso \$19.55.
+	+	+	
DUAL 8E	1.5 pt	1.5 pt	
or	or	or	
LASO 4EC	4 pt	4 pt	
EPTAM 7E	2.25 pt	2.25 pt	PPI...Do not follow with fall seeded small grain. Sugar beets and sorghum may be injured the next year. Approx. cost: Eptam + Basalin \$10.40-\$11.65; Lasso + Treflan \$13.55; Dual + Treflan \$12.10; Eptam + Treflan \$10.65.
+	+	+	
BASALIN 4EC	1 pt	1.5 pt	
or	or	or	
TREFLAN 4EC	1 pt	1 pt	
TREFLAN 4EC	1 pt	1 pt	
+	+	+	
DUAL 8E	1.5 pt	1.5 pt	
or	or	or	
LASO 4EC	4 pt	4 pt	
LASO 4EC	3 qt	2.5 qt	PPI or SURFACE BLEND...Surface blending will improve weed control and reduce crop injury. Approx. cost \$13.50-\$16.20.

OTHER REGISTERED TREATMENTS FOR FIELDBEANS: Amiben (PRE), Cobex (PPI), Cobex + Eptam (PRE), Dacthal (PRE), Furloe (PRE), Premerge (PRE), Treflan (PPI). See Herbicide Dictionary for additional information.



# WEED RESPONSE TO POSTEMERGENCE HERBICIDES

See pages 21-27 for additional problem weeds and their control.

## Response ratings:

Ratings are for light to moderate weed populations and favorable conditions. High weed populations or adverse conditions will reduce control.

E = Excellent  
G = Good  
F = Fair  
P = Poor

	alfalfa	annual morningglory	barnyardgrass	buffalobur	cocklebur	crabgrass	fall panicum	foxtail	jimsonweed	kochia	lambsquarters	nightshade	pigweed	ragweed	R. thistle	sandbur	shattercane/vol. corn	smartweed	sunflower	velvetleaf	w. buckwheat	crop safety <sup>1</sup>	soil carry over potential in months <sup>2</sup>
<b>Corn</b>																							
AAtrex/Atrazine + crop oil	F	E	F	-	E	F	P	G	E	E	E	E	E	E	F	F	P	E	E	E	E	G	6-18
Banvel	E	E	P	-	E	P	P	P	F	G	G	P	G	G	E	P	P	E	G	F	E	G	1-2
Basagran + Atrazine or Laddok	P	G	P	-	E	P	P	P	E	G	G	G	G	E	P	P	P	E	E	E	E	E	2-6
Bladex	F	G	F	-	G	G	F	G	E	E	E	E	G	E	F	F	P	E	G	G	G	F	2
Buctril/Brominal	P	E	P	E	G	P	P	P	E	F	G	E	G	E	G	P	P	E	E	G	E	F	0
2,4-D	F	E	P	-	E	P	P	P	G	G	G	F	G	G	E	P	P	F	G	G	P	F	1
2,4-D + Banvel	G	E	P	-	E	P	P	P	F	G	G	P	G	G	E	P	P	E	G	G	E	G	1-2

<b>Sorghum</b>																							
AAtrex/Atrazine + crop oil	F	E	P	-	E	F	P	F	E	E	E	E	E	E	F	P	P	E	E	E	E	F	6-18
Roundup-ropewicks, wipers, etc. <sup>5</sup>	-	-	-	-	G	-	-	-	G	F	G	-	G	G	F	-	E	G	F	F	-	G	0
2,4-D	F	E	P	-	E	P	P	P	G	G	G	F	G	G	E	P	P	P	G	F	P	F	1

Soybeans & Fieldbeans																							
Basagran	P	F	P	-	E	P	P	P	E	P	P	P*	P	G	P	P	P	E	E	G	G	E	0
Basagran + Blazer (soybeans only)	P	G	P	-	E	P	P	P	E	P	F	G	G	E	P	P	P	E	E	G	G	E	0
Blazer (soybeans only)	P	E	P	-	F	F	G	F	E	F	F	G	E	E	P	F	F	E	P	F	-	G	0
Fusilade	P	P	E	P	P	E	E	G	P	P	P	P	P	P	P	E	E	P	P	P	P	E	1
Poast	P	P	E	P	P	E	E	G	P	P	P	P	P	P	P	E	E	P	P	P	P	E	0
Rescue (soybeans only)	P	P	P	-	G	P	P	P	P	P	P	P	P	G	P	P	P	P	G	P	P	G	0
Roundup-ropewicks, wipers, etc. <sup>5</sup> (soybeans only)	-	-	-	-	G	-	-	-	G	F	G	-	G	G	F	F	E	G	F	F	-	E	0

<b>Sugar Beets</b>																							
Betanal + Betanex or Betamix	-	F	P	-	F	P	P	P	F	F	G	F	G	F	P	P	P	F	F	P	G	G	<1
Betanex	-	F	P	-	F	P	P	P	P	F	G	F	G	F	P	P	P	F	F	P	F	G	<1
Herbicide 273	-	P	F	-	F	P	P	F	P	F	F	F	F	P	P	P	P	G	G	P	G	G	<1

<b>Potatoes</b>																							
Sencor/Lexone	F	P	P	P	G	F	P	F	P	G	E	P	E	G	E	F	P	G	G	F	P	G	2-6

## Response ratings:

Weeds less than 4" tall except less than 2" for Brominal/Buctril treatments.

E = Excellent (90-100%)  
G = Good (75-90%)  
F = Fair (50-75%)  
P = Poor (0-50%)

	blue mustard	erect knotweed	field pennycress	kochia	lambsquarters	prostrate pigweed	redroot pigweed	R. thistle	shepherdspurse	sunflower	tansy mustard	wild buckwheat	wild lettuce	wild vetch	soil persistence in months <sup>2</sup>
<b>Winter Wheat</b>															
Glean	E	F	E	F	E	E	E	F	E	G	E	F	E	-	6-18
MCPA + Brominal/Buctril (Brominal 3+3)	F	E	E	E	E	E	E	E	E	E	G	E	-	E	1
2,4-D	E	E	E	G	E	E	E	G	E	E	E	P	E	E	1
2,4-D + Banvel	F	E	E	E	E	E	E	E	E	E	G	E	E	E	1-2
2,4-D + Brominal/Buctril	F	E	E	E	E	E	E	E	E	E	E	E	E	E	1

<sup>1</sup> Crop varieties vary in their response to herbicides.

<sup>2</sup> The lower number applies to eastern Nebraska, the large number to western Nebraska. Values will vary with soil and rainfall or irrigation. For more information see "Herbicide Carryover", 674-180.

<sup>5</sup> Ratings for weeds likely to be enough taller than crop for selective treatment.

\* Good control of hairy nightshade.



## FIELD CROPS POSTEMERGENCE & LAY-BY TREATMENTS

Excellent growing conditions make weeds more susceptible to postemergence herbicides. Likewise, crops may be more subject to herbicide damage when growing rapidly. *Adjust herbicide dosages downward* when excellent conditions for growth are present the week before application and *upward* when ideal growth is limited by one or more factors. Rate of carrier should be in accordance with label recommendations.

Crop	Herbicide	Rate Per Acre <sup>6</sup>	Application Time	Remarks and Approximate Cost/A Broadcast
BARLEY AND SPRING WHEAT	2,4-D amine	1-1.5 pt	Spring 5-leaf thru tillering	Do not treat winter barley in the fall. Spray broadleaf weeds as soon as good growing conditions occur in spring. For wild buckwheat use Brominal/Buctril as listed for winter wheat. Approx. cost \$.65-\$1.50.
	or 2,4-D LV ester	or 0.5-1 pt		
CORN (Field and popcorn*)	*Aatrex/Atrazine 4L <sup>3</sup>	2 qt	Grass weeds 1" or less; also at lay-by	Use with water-oil mixtures. Lower rates control broadleaf weeds. Make lay-by applications when corn is 20-30" tall and weeds less than 1 1/2" tall. Approx. cost \$4.80.
	*Basagran + *Atrazine or Laddok	0.5 qt + 0.5 qt or 2.5 pt	Broadleaf weeds 2-4" high	Use with crop oil concentrate, 20 gal water and 40 psi. Increase rate 50% on weeds 3-8" tall. Approx. cost: Basagran + Atrazine \$13.20; Laddok \$9.00.
	Bladex 80W	2.5 lb	Grass weeds 1" or less; corn before 4-leaf stage	Use Bladex 80W with water or vegetable oils or surfactants. Reduce rates by 1/3 on sandy soils. Do not use Bladex 4L. Approx. cost \$8.75.
	*Buctril 2EC or Brominal ME4	1-1.5 pt or 0.5-0.75 pt	Broadleaf weeds 2-6" tall; corn 3-leaf stage or later	Contact herbicide. Thorough coverage important. Correct nozzles, pressure, spray volume, rate and weed size important for control. Approx. cost \$5.25-\$7.90.
	*2,4-D amine or *2,4-D LV ester	1-2 pt or 0.5-1 pt	Before corn is 8" high; over 8" use drop nozzles	Later applications may cause brittleness and stalk breakage. Use lower rate when good growing conditions exist to reduce corn injury. Do not use Banvel within 1/2 mile of sugar beets, fieldbeans, alfalfa, soybeans, gardens and ornamentals unless drop nozzles are used on corn over 8". Do not treat corn over 24". Do not apply between June 20 and Sept. 1 if sensitive crops are nearby. Approx. cost: 2,4-D \$.65-\$2.00; 2,4-D + Banvel \$2.00; Banvel \$3.05
	2,4-D amine + Banvel 4WS	0.5 pt +		
	Banvel 4WS	0.25 pt		
	Banvel 4WS	0.5 pt	Before corn is 24" high	
	Banvel 4WS	1 pt	Corn spike to 5"	Use only on silty clay loam soil containing more than 2 1/2% organic matter. Observe use precautions regarding Banvel use near sensitive crops specified above. Approx. cost \$6.10.
	Lasso 4EC alone or with Atrazine	2-3 qt 1-1.6 qt	Lay-by before corn is 40" tall	Apply after furrowing or final cultivation. Weeds less than 1 1/2" tall may be controlled with Lasso/Atrazine combination. Approx. cost: Lasso \$10.80-\$13.20; Lasso + Atrazine \$13.20-\$17.05.
	Prowl 4EC alone or with Atrazine 4L <sup>3</sup>	0.75-1.5 qt 1-1.2 qt	From 4-11" to lay-by	Cover brace roots by cultivation before application. Incorporate by tillage, irrigation or rain within a week. Approx. cost: Prowl \$3.75-\$7.50; Prowl + Atrazine \$6.15-\$10.40.
	Basagran 4WS	0.75-1 qt	At least one trifoliate leaf fully expanded. Broadleaf weeds 2-4" tall	Good spray coverage essential. Weeds showing moisture stress or over 6" tall are poorly controlled. Controls hairy nightshade but not eastern black nightshade. Oil concentrate may improve performance on some species. Approx. cost \$17.25-\$22.50.

(Continued next page)



# FIELD CROPS POSTEMERGENCE & LAY-BY TREATMENTS (continued)

Crop	Herbicide	Rate Per Acre <sup>6</sup>	Application Time	Remarks and Approximate Cost/A Broadcast
OATS (Not under-seeded with legume)	Brominal ME4 or Buctril 2EC + 2,4-D amine	0.5-0.75 pt or 1-1.5 pt + 0.5 pt	Weeds and oats in 3-4 leaf stage	Controls annual broadleaf weeds including wild buckwheat. Thorough coverage required. Approx. cost \$5.75-\$8.40.
	2,4-D amine	1 pt	3-4 leaf stage of oats	Some injury from 2,4-D may be expected at any stage. Approx. cost \$1.00.
POTATOES	Sencor 4L <sup>3</sup> or Lexone 4L <sup>3</sup>	0.5-1 pt or 0.5-1 pt	Before weeds are 1" tall	Use higher rate for sunflowers and kochia. <i>Do not use on red skinned or early maturing white varieties nor within 60 days of harvest.</i> Approx. cost \$6.00-\$12.00.
SORGHUM (Grain or forage)	AAtrex/ Atrazine 4L <sup>3</sup>	1.2 qt	Broadleaf weeds less than 6"	Use with water-oil mixtures. Read product label. May give partial control of grass weeds under 1". Approx. cost \$2.90.
	2,4-D amine or 2,4-D LV ester	1 pt or 0.5 pt	When sorghum is 4-12" high. Over 12" use drop nozzles	Spraying before 4" stage may inhibit root development. Spraying without drop nozzle after 12" through early boot may inhibit head development. Approx. cost \$.65.
SOYBEANS	Basagran 4WS	0.75-1 qt	Most susceptible weeds less than 4" tall except 12-18" for corn and shattercane	New Blazer 2L; Basagran and Poast require use of crop oil concentrate. Good spray coverage essential. See label for rates and specific weed size. The additions of Blazer to Basagran controls pigweed, nightshade, morningglory and ragweed. Approx. cost: Basagran \$17.25-\$22.50; Blazer \$18.50; Basagran + Blazer \$26.50-\$41.00; Basagran + Poast \$37.50-\$42.75.
	Blazer 2L	1 qt		
	Basagran 4WS + Blazer 2L	1.5-2 pt + 1-2 pt		
	Basagran 4WS + Poast	1.5-2 pt + 1.5 pt	Shattercane and corn 12-18"; other annual grasses less than 4"	Crop oil concentrate or surfactant and good coverage essential for effective control. Approx. cost: Fusilade \$18.90-\$20.30; Poast \$15.00.
	Fusilade 4E	0.25-0.5 pt		
	Poast	1 pt	After first bloom appears on soybeans	Effective on large sunflower, cocklebur and giant ragweed. Add surfactant 1/2% v/v. Approx. cost \$9.00.
	Rescue	3 qt		
WINTER WHEAT	2,4-D amine or 2,4-D LV ester	1-1.5 pt or 0.5-1 pt	Early spring before joint stage or late fall after tillering	Do not spray winter wheat until well tillered. Spray broadleaf weeds as soon as good growing conditions occur. Refer to page 21 for blue mustard control. Approx. cost \$.65-\$1.25.
	Brominal 3+3	0.7-1 pt	Wheat well tillered	Thorough coverage required. Most broadleaf weeds should be in 2-4 leaf stage or mustards in early rosette stage. Approx. cost \$5.75-\$8.40.
	Brominal ME4 or Buctril 2EC + 2,4-D amine	0.5-0.75 pt or 1-1.5 pt + 0.5 pt		
	Banvel 4WS + 2,4-D amine	4 oz + 0.75 pt	Before wheat joints	Controls most troublesome broadleaf weeds. Approx. cost \$2.25.
	Glean	0.17-0.33 oz	After wheat is in 2-3 leaf stage and broadleaf weeds less than 2" tall	Controls most troublesome broadleaf weeds. Do not use on soils with pH of 7.5 or higher due to carryover risk. Use only in continuous wheat or wheat-fallow. May be combined with other postemergence herbicides. Approx. cost \$2.55-\$5.00.
	(All treatments except Glean and 2,4-D control wild buckwheat)			

(Continued next page)



## FIELD CROPS POSTEMERGENCE & LAY-BY TREATMENTS (continued)

Crop	Herbicide	Rate Per Acre <sup>6</sup>			Application Time	Remarks and Approximate Cost/A Broadcast
		pts Brdcst	oz Per 22" Row	7" Band 30" Row		
SUGAR BEETS	Betamix 1.3EC	4.5-6	23-31	17-22	Beets past 2-leaf stage and weeds in cotyledon to 4-leaf stage	Use lower rates on small beets or when using a split-application. Works best on Norton or Ro-Neet treated fields but wait till 4-leaf stage if beets show signs of injury. Treat in late afternoon to reduce injury. Betamix gives more effective kochia control. Approx. cost: Betamix Brdcst \$34.65-\$46.20, 22" row \$11.10-\$14.80, 30" row \$7.95-\$10.65; Betanex Brdcst \$34.65-\$57.75, 22" row \$11.10-\$18.50; 30" row \$7.95-\$13.30.
	Betanex 1.3EC	4.5-7.5	23-39	17-28		
	Herbicide 273	2-4	10-21	8-15	Beets 4-6 true leaves weeds less than 5" tall	Use higher rates on large weeds. Apply when temperatures are above 60°F. Do not apply when sugar beets are past the 8-leaf stage of growth. Primarily for wild buckwheat and sunflower control. Approx. cost: Brdcst \$9.90-\$19.80; 22" row \$3.15-\$6.35, 30" row \$2.30-\$4.55.

### ADDITIONAL REGISTERED POSTEMERGENCE TREATMENTS:

- Barley-Oats: MCPA, 2,4-D + Banvel.  
 Corn: Banvel + Atrazine, Basagran, Dowpon M + 2,4-D directed, Evik directed, Lorox directed, Premerge in spike stage.  
 Sorghum: Banvel when sorghum is in 3-5 leaf stage.  
 Soybeans: Butoxone/Butyrac, Dyanap/Klean Krop, Lasso + Premerge, Lorox directed, Lorox + Butyrac directed, Premerge, Premerge + Amiben.  
 Sugar Beets: Betanal, Endothall, Pyramin + Dowpon M.  
 Winter Wheat: Banvel, MCPA, Tordon 22K + 2,4-D. Glean with 2,4-D or Banvel or Karmex.

## HORTICULTURAL CROPS

Crop	Herbicide	Commercial Product Rate Per Acre	Application Time	Remarks and Approximate Cost/A Broadcast
VINE CROPS (Cantaloupe, cucumber, muskmelon, watermelon)	Prefar 4E + Alanap-L	4-6 qt + 4-8 qt	Preplant	Immediately incorporate to a depth of 1". Use lower rate on sandy soil. Controls many annual grass and broadleaf weeds. Approx. cost \$45.50-\$75.50.
	Dacthal 75W	6-12 lb	Crop 4-5 true leaves	Crop should be weeded prior to application. Controls annual grasses. Use lower rate on sandy soil. Approx. cost \$27.00-\$54.00.
	Treflan	1-1.5 pt	Crop 3-4 true leaves	Direct material to soil between the rows and mechanically incorporate. Controls germinating annual grasses and some broad-leaves. Use the lower rate on sandy soils. Approx. cost \$2.75-\$4.15.
ONIONS	Dacthal 75W	8-14 lb	At seeding or transplanting and/or at lay-by	Preplant incorporation not recommended. Use lower rate on soils with less than 1% organic matter. Approx. cost \$36.00-\$63.00.
	Brominal ME4	0.5-0.75 pt	Postemergence onions should have 2-5 true leaves	Water volume is important. Use 50-70 gal. of water per acre. Do not add surfactants. Approx. cost \$5.65-\$8.45.

<sup>3</sup>Additional formulations are available. Use rates that give comparable amounts of active ingredient:

1 qt AAtrex or Atrazine 4L = 1.25 lb AAtrex or Atrazine 80W or 1.1 lb AAtrex Nine-O  
 1 pt Sencor or Lexone 4L = 1 lb 50W or 0.67 lb Lexone DF or Sencor DF

<sup>6</sup>Low volatile ester and salt formulations preferred over volatile esters such as butyl and isopropyl because of fume hazards. 2,4-D, silvex, 2,4,5-T and MCPA calculated on the basis of 4 lb/gal of acid equivalent (the chemicals responsible for herbicidal effects). For other formulations see Conversion Table page 35.

\*Registered for popcorn.



## FIELD CROPS DESICCANTS & HARVEST AID TREATMENTS

Crop	Herbicide	Rate Per Acre <sup>6</sup>	Application Time	Remarks and Approximate Cost/A Broadcast
ALFALFA	Diquat	1.5-2 pt	3-10 days prior to seed harvest	Do not graze or feed treated forage. Approx. cost \$11.25-\$15.00.
	Endothall	1.25-1.5 gal	5-10 days prior to seed harvest	Do not graze or feed treated forage. Toxic to fish and wildlife. Approx. cost \$44.40-\$53.25.
	(Dinoseb also on sweet clover) Dinoseb (Dinitro compounds)	Varies	3-6 days prior to seed harvest	Do not feed treated forage nor graze treated areas. Approx. cost \$3.50-\$5.20.
CORN	2,4-D LV ester	1 qt	After silks brown	Rescue operation for late control of sunflowers, cocklebur, velvetleaf and other late broadleaf weeds. Only certain brands labeled for this use. Brittleness and kernel fill not affected if silks are dry and pollination is complete. Approx. cost \$2.50.
OATS AND BARLEY	2,4-D LV ester	1 qt	After hard dough	Rescue operation for control of sunflowers, bindweed and pigweed. Only certain brands labeled for this use. Approx. cost \$2.50.
POTATOES	Dinitro Dow General	1-2 qt	10-20 days before harvest	Highly toxic products. Apply with diesel, crop oil or surfactant mixed with water. Approx. cost \$6.40-\$9.60.
	Dinitro 5	1-2 qt		
	Premerge 3	2-3 qt		
	Dinitro 3	2-3 qt		
	Diquat	1 pt	7 or more days before harvest	Follow label on water volume and surfactant use. Approx. cost \$7.50.
	Paraquat	1-2 pt	3 or more days before harvest	Do not use on seed potatoes nor potatoes to be stored. Follow label on water volume and surfactant use. Approx. cost \$6.20-\$11.70.
SORGHUM (Grain)	2,4-D LV ester	1 qt	After soft dough	Rescue operation for late control of sunflowers, cocklebur, velvetleaf and pigweed. Only certain brands labeled for this use. Grain quality not affected if milo is in soft dough or later stage of growth. Approx. cost \$2.50.
	Chlorate 3 or Leafex 3	1.5-2 gal or 1.5-2 gal	7-10 days before harvest	Products are sodium chlorate with fire retardant. Use in enough water to give good coverage. Do not graze or feed forage for 14 days. Approx. cost \$4.80-\$6.40.
SOYBEANS	Paraquat	0.5-1 pt	65% brown pods	Follow label directions on water volume and X-77 additive. Approx. cost \$5.45-\$6.20.
WINTER WHEAT AND SPRING WHEAT	2,4-D LV ester	1 qt	Hard dough stage 7 or more days before harvest	Rescue operation for late weeds such as sunflowers, kochia, pigweed and lambsquarters. To reduce breakage all green color should be gone from the joints. Approx. cost \$2.50.

<sup>6</sup>Low volatile ester and salt formulations preferred over volatile esters such as butyl and isopropyl because of fume hazards. 2,4-D, silvex, 2,4,5-T and MCPA calculated on the basis of 4 lb/gal of acid equivalent (the chemicals responsible for herbicidal effects). For other formulations see Conversion Table page 35.



## FORAGE CROPS, PASTURES & RANGES

Area or Use	Herbicide	Commercial Product Rate Per Acre <sup>b</sup>	Application Time	Remarks and Approximate Cost/A Broadcast
ALFALFA (establish- ment)	Balan 1.5EC	3-4 qt	Preplant	Immediately incorporate by cross tan- dem discing or equivalent soil mixing. Use lower rate on sandy soil. Early legume injury may occur. Controls primarily annual grasses. Approx. cost: Balan \$15.00-\$20.00; Eptam \$8.75-\$12.25.
	Eptam 7E	2.5-3.5 pt		
ALFALFA (seedling or established)	Butyrac or Butoxone (2,4-DB)	1-3 qt	Postemergence. Weeds less than 3" tall; alfalfa 2-4 trifoliate leaves	For broadleaf weeds. Rate varies with formulation and weed size. Do not use treated forage for 30 days. <i>DO</i> <i>NOT confuse with 2,4-D.</i> Use when temperature is above 50°F. Approx. cost \$10.50-\$14.00.
	Chem-Hoe 4FL	3-4 qt	Pre- or post- emergence to winter annual grasses late October thru mid-March	Controls downy brome and other annual weeds in established alfalfa or seed- lings with 3 or more trifoliate leaves. Use Chem-Hoe when soil tem- perature is below 55°F. Moisture necessary for chemical activity. Kerb helps control sandbur. Approx. cost: Chem-Hoe \$12.00-\$16.00; Kerb \$14.00- \$21.00.
	Kerb 50W	1-1.5 lb		
ALFALFA (established one year or more)	Princep 80W	0.5-2 lb	Late fall be- fore soil freezes	Primarily for winter annual weeds in- cluding downy brome, pennycress and other mustards. Use lowest rates on soils with less than 1% organic matter to reduce crop injury. Approx. cost: Princep \$1.60-\$7.70; Sinbar \$13.50- \$18.00; Sencor/Lexone \$16.00-\$21.45.
	Sinbar 80W	0.5-1 lb	Late fall or early spring	
	Sencor/Lexone 50W or	0.75-1 lb or		
	Lexone DF	0.5-0.67 lb		
BIG BLUESTEM & SWITCHGRASS (established & new seedlings)	AAtrex 80W or AAtrex 4L	2.5 lb or 2 qt	Preemergence	Controls many annual grasses and broadleaf weeds. Do not use on sandy soils or soils below 1% organic matter. Approx. cost \$4.75.
	COOL-SEASON GRASS SEEDLINGS	2,4-D	1-1.5 pt	2- to 4-leaf stage of grass
WARM-SEASON GRASS SEEDLINGS	2,4-D	0.5-1 pt		
WARM-SEASON GRASSES FOR SEED	AAtrex 4L or AAtrex 80W	1.5-3 qt or 1.9-3.75 lb	Spring or fall before weed emergence	Do not use until second year after seeding. Less effective in heavy plant residues. Use lower rate on sandy soils. Non-labeled treatment. Approx. cost \$7.20.
	ANNUAL OR BIENNIAL BROAD- LEAF WEEDS IN PASTURES AND RANGES	2,4-D	1 qt	Rosette stage in fall or when weeds are small in spring
2,4-D +		1 qt +		
Banvel 4WS		0.5 pt		

(Continued next page)



## FORAGE CROPS, PASTURES & RANGES (continued)

Area or Use	Herbicide	Commercial Product Rate Per Acre <sup>6</sup>	Application Time	Remarks and Approximate Cost/A Broadcast
PERENNIAL BROAD- LEAF WEEDS IN PASTURES AND RANGES (includes vervains, broom snakeweed, western ironweed and woolly loco)	2,4-D + Banvel 4WS	1.5 qt 1 qt 1 pt	At bud stage of predominant weeds. <sup>7</sup> April for dandelions	Annual treatment for 2-3 years may be necessary. Withhold milk cows from grazing treated areas for 7 days after 2,4-D application. With Banvel mixture do not harvest hay for dairy animals within 37 days or graze within 6 weeks of application. Do not use within 1/2 mile of sensitive crops. Approx. cost: 2,4-D \$3.00; 2,4-D + Banvel \$8.10.
RANGELAND	AAtrex 80W or AAtrex 4L	1-1.25 lb or 1.6-2 pt	Fall	Controls winter annual bromes. Severely injures cool-season grasses. Do not graze for 7 months after application. Reduce grazing pressure to improve grass stands. Approx. cost \$1.90-\$2.40.
RENOVATION (native pas- ture, Eastern Nebraska)	AAtrex 80W or AAtrex 4L	2.5 lb or 2 qt	Fall or early spring	To renovate native pastures containing big bluestem and switchgrass. If remnants are sparse, sod seed. Controls bluegrass, most annual grasses and broadleaf weeds, suppresses smooth brome grass. Approx. cost \$4.75.
SOD SEEDING (legumes into grass)	Paraquat	1-2 pt <sup>12</sup>	Immediately be- fore or after legume seeding	Suppresses established sod. Seed legumes with a sod seeder. If grass is less than 3" use lower rate. During year of establishment, graze intensively for only short periods. Approx. cost \$6.20-\$11.70.
SOD SEEDING (native grass into short grass range)	Roundup 3WS	1 qt	August the season prior to seeding	Use 10 gallons or less water per acre. Suppresses established sod. Seed grasses with a sod seeder. Do not graze seeded area until dormancy after second growing season. Approx. cost \$20.50.

## Ropewick, Roller & Recirculating Sprayer Treatments Soybeans & Grain Sorghum

Type of Applicator	Corn and Shattercane Control		Broadleaf Weed Control	
	Roundup:Water Ratio	% Conc.	Roundup:Water Ratio	% Conc.
Recirculating sprayer (on soybeans only)	1:39	2.5	1:19	5
Ropewick applicators-- Pipewick, Wedgewick, Bobar	1:4	20	1:3	25
Roller applicator	1:19	5	1:9	10

REMARKS: Corn, shattercane and other weeds should be 8-12 inches taller than soybeans. When clumps of corn, shattercane and weeds are present, retreatment in the opposite direction is advisable with ropewick and roller applicators. Retreatment with all units will be necessary to control late emerging weeds. Treatments also can be used where no crop is present. Velvetleaf is difficult to control with Roundup. Chemical costs per acre vary from \$.50 with light weed infestations to \$12.00-\$15.00 in heavy infestations.

<sup>6</sup>Low volatile ester and salt formulations preferred over volatile esters such as butyl and isopropyl because of fume hazards. 2,4-D, silvex, 2,4,5-T and MCPA calculated on the basis of 4 lb/gal of acid equivalent (the chemicals responsible for herbicidal effects). For other formulations see Conversion Table page 35.

<sup>7</sup>Retreatment may be necessary.

<sup>12</sup>Add X-77 spreader 2 pt per 100 gal spray solution.



## WINDBREAKS &amp; TREE PLANTINGS

Area or Use	Herbicide	Commercial Product Rate Per Acre	Application Time	Remarks and Approximate Cost/A Broadcast
TREES & SHRUBS (check each label for species re- sponse)	Casoron 50W	8 lb	Preemergence on trees at least 2 years old	Apply 20" band on each side of tree row after trees are planted. Some injury to trees may result on low organic matter soil. Approx. cost \$122.00.
	or	or		
	Casoron 4G	100 lb		
	or	or	Directed post- emergence	Nonselective contact herbicide. Use sufficient water and wetting agent to cover weed foliage. <i>Keep spray off tree foliage.</i> Add 0.125% X-77 wetting agent to spray solutions. Approx. cost \$6.20-\$11.70.
	Norosac 4G	100 lb		
	Paraquat	1-2 qt		
	Fusilade	0.67-1 pt	Postemergence before grasses tiller	Add 0.5 pt nonionic surfactant per acre. Thorough coverage required. Use directed applications on broadleaf species and juniper. Approx. cost \$26.65-\$39.00.
	Poast	2 pt	Postemergence before grasses tiller	Add 1 qt crop oil concentrate per acre. Thorough coverage required. Approx. cost \$28.50.
	Princep 80W	1.5-5 lb	Preemergence on trees at least 2 years old	Use 1.5 lb on sandy or high pH soils. Apply 20" band on each side of tree row after trees are planted. Some injury to trees may result on low organic matter soils. Gives poor con- trol of Russian thistle. Approx. cost \$5.00-\$16.75.
	Treflan 4EC	1-1.5 pt	Preplant	Incorporate 2-3" deep prior to plant- ing. After planting adjust machine to throw treated soil towards trees in the row. Approx. cost \$2.75-\$4.15.
	Roundup 3WS	1-4 qt	Directed post- emergence	<i>Do not spray green bark or foliage.</i> Spray may contact brown bark. Use lower rate on annuals. Approx. cost \$20.50-\$82.00.
	Karmex 80W	2.5-5 lb	Preemergence on trees at least 2 years old	Karmex use limited to conifers, honey locust and green ash. Approx. cost \$11.25-\$22.50.
	2,4-D amine	1 qt	Postemergence to weeds	Do not spray the new growth of spruce and pine trees. Controls broadleaf weeds. Approx. cost \$2.00.
	Goal 2E	2-4 qt	Pre- or post- emergence to weeds. Before conifer bud break or after new growth hardens	Grasses should be treated before they are beyond 2-leaf stage. Approx. cost \$36.00-\$72.00.
CONIFERS				
CHRISTMAS TREES-- (Scotch, Austrian, Pondorosa Pine only)	Velpar	1-2 lb	Pre- or post- emergence to weeds at least 2 months after transplanting	Use lower rates on sandy soils, soils low in organic matter, and on first year plantings. May be applied directly over the trees before bud break. Approx. cost \$25.20-\$50.40.
	Velpar L	1.8-3.6 qt		



## AQUATIC WEED CONTROL

### Slow Moving and Still Water

**Important:** Before treating any body of water containing fish, contact the Game and Parks Commission local representative. Whenever possible treat before water weed growth becomes dense to avoid fish suffocation due to oxygen depletion from decaying vegetation. When heavy growth is present in fish containing waters, treat no more than one-half of the area. After vegetation in the treated area disappears treat the remainder of the water.

Herbicide	Rate Per AF (Acre Foot) or SA (Surface Acre)	Weeds Controlled	Application Time	Remarks and Approximate Cost
COPPER SULFATE CRYSTALS or COPPER CHELATES (Cutrine plus, Algetol or Algecide)	5.4 lb/SA or 0.67-1.25 gal/AF	Algae Chara	When growth first becomes visible	No restrictions on water usage at recommended rates. Copper compounds can be corrosive to equipment. Use Chelated Copper in high pH water. Approx. cost/ SA: Copper Sulfate \$3.65.
AQUATHOL G or AQUATHOL K	13-135 lb/AF or 0.3-3.2 gal/AF	Burreed Coontail Milfoil Pondweed Naiad	Water has warmed and growth is visible	Handle with caution, extremely irritating to skin. Overdose can be harmful to fish. Do not use water within 14 days for irrigation or domestic uses. Approx. cost/AF \$13.00-\$135.00.
AQUAZINE (Simazine)	1.7-6.8 lb/AF	Algae Chara Coontail Duckweed Naiad Pondweed Milfoil	Spring before heavy weed growth appears	Treat total water volume. Best suited for still water. Do not use water for irrigation or livestock use. Approx. cost \$8.85-\$35.35.
DIQUAT	1-2 gal/SA	Arrowhead Cattail Bulrush Elodea Pondweed Coontail Duckweed Naiad Milfoil	Post on foliage or on surface for submerged species	Do not use water for 10 days for swimming, livestock or irriga- tion. Not effective in water with suspended silt. Approx. cost \$60.00.
NOROSAC 10G	100-150 lb/SA		Before weed growth occurs	Do not use water for irrigation, livestock or humans. Do not use fish for 90 days. Approx. cost \$300.00-\$450.00.
2,4-D amine or ester 20G	1.50-4 qt/AF 7.50-20 lb/AF	Water Hyacinth Water Lily Water Primrose Duckweed Arrowhead Pondweed Milfoil	Use sprays on emerged weeds when in full leaf stage. Apply granules when first growth appears	Do not use water for 14 days for livestock or irrigation. Approx. cost \$3.00-\$8.00.
RODEO + ORTHO X-77	1 gal/SA + 2 qt	Most annual and perennial weeds	Apply to well emerged vegetation	Can be applied to most water situations. No restrictions on use of water for irrigation, recreation and domestic pur- poses. Approx. cost \$92.35.

## STOCK & NURSE TANKS

Dissolve 1 oz copper sulfate in 1 pt of water using a glass jar. Add 2 tablespoons of the prepared solution to each 1,000 gallons of water. Mix the water thoroughly. Water can be used for crop spraying and livestock watering.



## NON-CROP AREAS

Area or Use	Herbicide	Apply This Amount Commercial Product Per Acre <sup>6</sup> or Per 100 Gallons*	Application Time	Remarks and Approximate Cost/A Broadcast
ROADSIDES (Broadleaf weed control)	2,4-D	1 qt/A	Broadleaf weeds 2-6"	Repeat treatments may be necessary. For woody species replace 0.5 qt/A 2,4-D with 0.5 qt/A 2,4,5-T. Do not use Banvel or Tordon near susceptible plants. Approx. cost: 2,4-D \$2.00; 2,4-D + Banvel \$5.05; Tordon \$46.00
	2,4-D + Banvel 4WS	1 qt/A + 1 pt/A		
	Tordon 212	2 qt/A		
			Postemergence	
IRRIGATION DITCHBANKS	Karmex 80W	5-10 lb/A	Soon after ditches are open. Treat before weeds appear or soon thereafter	Use enough water to insure good coverage. Use 50 mesh to coarser screens. May injure nearby trees and shrubs. Approx. cost: Karmex \$22.50-\$45.00; AAtrex/Atrazine \$14.70; Princep \$24.00.
	AAtrex/ Atrazine 4L <sup>3</sup> or Princep 4L <sup>3</sup>	1.5 gal/A or 1.5 gal/A		
	2,4-D	1 qt/A	Broadleaf weeds 2-6"	Approx. cost \$2.00.
	Roundup 3WS	1-4 qt	Full foliage	Nonselective. No residual control. Use the lower rate on annual weeds and perennial grasses the higher rates on perennial broadleaf weeds. Approx. cost \$20.50-\$82.00.
LONG TERM VEGETATION CONTROL	Pramitrol 25E or Pramitrol 5PS	4 pt/1000 sq ft or 10-20 lb/1000 sq ft	Treat before weeds appear or soon there- after	Some weeds will require higher rates. Consult label for specific instruc- tions on problem weeds and conditions. Lower rates adequate for retreatment in following years. Do not use near the root zone of trees or other desirable plants. Do not use on land subject to wind or water erosion unless erosion is controlled. Approx. cost/ 1000 sq ft: Pramitrol \$8.00; Hyvar \$3.00; Krovar \$4.00; Atrazine \$.30-\$.60; Karmex \$1.15-\$2.25; Princep \$.50-\$1.00; Spike \$.70- \$1.40.
	Hyvar X 80W or Hyvar XL 2WS	0.5 lb/1000 sq ft or 0.75 pt/1000 sq ft		
	Krovar I 80W	0.5 lb/1000 sq ft		
	Atrazine 4L <sup>3</sup>	0.25-0.5 pt/1000 sq ft		
	Karmex 80W	0.25-0.5 lb/1000 sq ft		
	Princep 4L <sup>3</sup>	0.25-0.5 pt/1000 sq ft		
	Spike 80W or Spike 5G	0.25-0.5 lb/1000 sq ft or 2-4 lb/1000 sq ft		
PERENNIAL GRASSES (includ- ing brome- grass and quackgrass)	Roundup 3WS	2 qt/A	Full foliage	Nonselective. Perennial grasses should have good top growth. Kills all annuals. Approx. cost: Roundup \$41.00; Amitrol-T \$42.00.
	Amitrol-T/ Cytrol-T 2WS	2 gal/A		

<sup>3</sup>Additional formulations are available. Use rates that give comparable amounts of active ingredient:

1 qt AAtrex or Atrazine 4L = 1.25 lb AAtrex or Atrazine 80W or 1.1 lb AAtrex Nine-0

1 qt Princep 4L = 1.25 Princep 80W

<sup>6</sup>Low volatile ester and salt formulations preferred over volatile esters such as butyl and isopropyl because of fume hazards. 2,4-D, silvex, 2,4,5-T and MCPA calculated on the basis of 4 lb/gal of acid equivalent (the chemicals responsible for herbicidal effects). For other formulations see Conversion Table page 35.

\*Rates per 100 gallons pertain to handgun on a power sprayer.



## TROUBLESOME WEEDS & WOODY PLANTS

Best control will be obtained if treatments are made when plants are actively growing. Plan to make more than one treatment. An application just before flowering and a second application on fall regrowth will give best results on most perennials. Dust on leaves may interfere with herbicide activity.

Weed	Herbicide <sup>6</sup>	Apply This Amount		Application Time	Remarks and Approximate Cost/A Broadcast
		Commercial Product	Per Acre <sup>6</sup> or Per 100 Gallons (Handgun)		
ALFALFA (for use in corn)	2,4-D amine		0.5 pt	Postemergence	Use drop nozzles on corn taller than 8". To kill established alfalfa prior to corn planting see "No-Till Corn in Alfalfa Sod" page 16. Approx. cost \$3.55.
	+ Banvel 4WS		+ 0.5 pt		
ARTICHOKE, JERUSALEM <sup>8</sup>	2,4-D amine		0.5 pt	12-18" tall <sup>7</sup>	For use in corn. Use drop nozzles on corn taller than 8". Approx. cost \$3.55.
	+ Banvel 4WS		+ 0.5 pt		
	2,4-D LV ester		1 qt	18-24" tall	For use where no crop is present. Approx. cost \$2.50.
BLUE MUSTARD	2,4-D LV ester		0.5 pt	Nov. 15-March 15 before blue mustard stem elongation	Use only on fully tillered wheat. Approx. cost \$.65-\$1.00.
	2,4-D amine		1 pt		
		Glean		0.17-0.33 oz	After wheat is in 2-3 leaf stage & broad-leaf weeds less than 2" tall
BUCKBRUSH <sup>8</sup> (snowberry)	2,4-D LV ester		1-2 qt	Full foliage (May 10-25) <sup>7</sup>	Use sufficient water to insure good coverage. Approx. cost \$1.25-\$2.50.
BUFFALOBUR	Atrazine 4L		3 qt	PPI or PRE in corn	Reduced rates less effective. Approx. cost \$7.20.
	Buctril 2EC or Brominal 4ME		1.5 pt or 0.75 pt	Weeds 3-5 leaf stage in corn	Plants taller than 4" uncontrolled. Approx. cost \$5.25-\$7.90.
	Blazer 2S		1 qt	Weeds 3-4 leaf stage in soybeans	Weeds must be small. Follow-up treatments necessary. Approx. cost \$20.00.
	Eradicane 6.7E or Eradicane Extra		5 pt or 5.5 pt	Preplant to corn	Immediately incorporate by cross tandem discing or similar mixing. Approx. cost \$16.25-\$20.65.
	2,4-D + Banvel 4WS		1 pt + 0.5 pt	Postemergence on corn	Plants must be small. Approx. cost \$4.05.
BURCUCUMBER	Buctril 2EC or Brominal 4ME		1.5 pt or 0.75 pt	Weeds 3-5 leaf stage in corn	Thorough coverage required. Approx. cost \$5.25-\$7.90.
	Atrazine 4L		3 qt	Preemergence in corn	Can also be used post. Approx. cost \$7.20.
	Sencor/Lexone 4L (split-application)		0.5 pt + 0.5 pt	Preplant plus preemergence	Split-shot in soybeans. Approx. cost \$12.00.
BURSAGE, SKELETON- LEAF AND WOOLLYLEAF <sup>8</sup>	Tordon 22K		2 qt	Bud stage or when growing actively <sup>7</sup>	Non-crop areas. Tordon may remain in soil for three or more years. Carefully observe all precautions. Approx. cost \$46.00.
	2,4-D + Banvel 4WS		1 qt + 1 pt	Early June or when growing actively <sup>7</sup>	See remarks for field bindweed. If soil moisture conditions are poor, use oil-water emulsions as a carrier. Approx. cost \$8.10.

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## TROUBLESOME WEEDS &amp; WOODY PLANTS (continued)

Weed	Herbicide <sup>6</sup>	Apply This Amount Commercial Product Per Acre <sup>6</sup> or Per 100 Gallons (Handgun)	Application Time	Remarks and Approximate Cost/A Broadcast
CANADA THISTLE <sup>8</sup>	Tordon 22K	2 qt	Fall-actively growing or spring-early bud <sup>7</sup>	For non-crop areas and spot treatment in pasture and range. Tordon may remain in the soil for three or more years. Approx. cost \$46.00.
	2,4-D + Banvel 4WS	1 qt + 1 pt	Fall-actively growing or spring-early bud <sup>7</sup>	Do not plant small grains for 45 days or sugar beets the following year. See remarks for field bindweed. Approx. cost \$8.10.
	Roundup 3WS	2-3 qt	Prebud to bud stage or in fall when grow- ing actively <sup>7</sup>	Idle ground or spot treat- ment in crop before head or pod fill. Avoid tillage for three days. Approx. cost \$41.00-\$61.50.
	Banvel 4WS	1-2 qt	Fall-actively growing or spring-early bud <sup>7</sup>	Idle ground or grassland. Avoid tillage for 5 days Injury to forage grasses may occur. Broadleaf crops may be injured for 2 years after treatment. Approx. cost \$12.20-\$24.40.
	Glean + Surfactant	0.3-0.5 oz	Rosette to 4-6" stage <sup>7</sup>	Use only in wheat, barley or fallow. One application suppresses Canada thistle. Approx. cost \$5.00-\$7.50.
CATTAILS	2,4-D LV ester	1.5 gal + 5% diesel oil + 0.5% emulsifier	Boot to early flowering	Use the equivalent of 150 gal of water per acre. Re- treat regrowth as necessary. Approx. cost: 2,4-D \$15.00; Dowpon \$40.00.
	Dowpon M 74SP or Dowpon C 74SP	20 lb + 0.5% emulsifier or 30 lb + 0.5% emulsifier	After flowering to fruiting	
	Roundup 3WS	3 qt	At flowering	Avoid water contamination. Approx. cost \$61.50.
COTTONWOOD, WILLOWS & SIBERIAN ELM	2,4-D LV ester	2-3 qt	Full foliage (early June) or basal treat- ment anytime	Aerial equipment: at least 5 gal carrier/A. Annual treatment for 2-3 years may be necessary. Basal treat- ment: 2 qt of herbicide/10 gal of diesel. Spray tree trunk to point of runoff. Approx. cost \$5.00-\$7.50.
	Krenite S	2-3 gal in 100 gal water + surfactant	Late July, August and September	Apply 2 months before leaves start to color. Has little effect on grasses. Results show the following spring. Approx. cost \$80.00-\$120.00.
	Spike 5G	2 oz/tree	Spring or fall	Apply under drip line. Approx. cost \$2.80/lb.
DOCK; CURLED & PALE	2,4-D + Banvel 4WS	1 qt + 0.5 pt	Before flower- ing in spring or fall	For use on idle ground or grassland. Approx. cost \$5.05.
DOGWOOD	2,4-D + 2,4,5-T <sup>9</sup> LV esters	2 qt of most "Brushkillers"	Full foliage during June	See remarks for cottonwood. Approx. cost \$11.50.
	Spike 5G	2 oz/tree	Spring or fall	Apply under drip line. Approx. cost \$2.80/lb.

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## TROUBLESOME WEEDS &amp; WOODY PLANTS (continued)

Weed	Herbicide <sup>6</sup>	Apply This Amount Commercial Product Per Acre <sup>6</sup> or Per 100 Gallons (Handgun)	Application Time	Remarks and Approximate Cost/A Broadcast
DOWNY BROME	AAtrex or Atrazine 80W <sup>3</sup> or AAtrex or Atrazine 4L	2.5 lb or 2 qt	Preemergence (fall or spring prior to April 1)	Use in waste areas such as fence rows and ditchbanks. See page 16 for control in alfalfa and page 17 for con- trol in rangeland. Approx. cost: AAtrex/Atrazine \$4.75; Princep \$8.40.
	Princep 80W	2.5 lb		
FIELD BINDWEED <sup>8</sup> (use herbi- cide rates on page 12 when treat- ing in crops)	2,4-D	1 qt		Avoid tillage 5 weeks before and 1 week after applica- tion. Do not plant small grains for 15 days after treatment. Plan to treat for several consecutive years. Approx. cost: 2,4-D \$2.00; 2,4-D + Banvel \$8.10.
	2,4-D + Banvel 4WS	1 qt + 1 pt	Vigorous fall growth or bud stage in spring <sup>7</sup>	
	Tordon 22K	2 qt	Vigorous fall growth or bud stage in spring <sup>7</sup>	Tordon for non-crop areas and spot treatment in pas- ture and rangeland. Avoid tillage 5 weeks before and 1 week after application. Carefully observe all label precautions. Approx. cost \$46.00.
	Roundup 3WS	4-5 qt		Idle ground or grassland. Avoid tillage for 5 days. Injury to forage grasses may occur. Broadleaf crops may be injured 2 years after Banvel treatment. Approx. cost: Roundup \$82.00-102.50; Banvel \$12.20-\$24.40.
	Banvel 4WS	1-2 qt	Late summer or fall when actively grow- ing <sup>7</sup>	
GROUNDSEL, RIDDELL	2,4-D LV ester	1 qt	May 15-June 15	Approx. cost \$2.50.
HEMP	2,4-D	1 pt- 1 qt	2-12" tall	On later growth use higher rate. Approx. cost \$1.00- \$2.00.
HEMP DOGBANE <sup>8</sup>	2,4-D	1 qt	Spring bud stage	Use lower rates in crops. Approx. cost \$2.00.
	2,4-D	1-1.5 qt		Use lower 2,4-D rate in milo. Do not plant small grains for 15 days after treatment. Do not apply Banvel within 30 days of harvest. Dogbane roots should have pink swollen buds. Do not use Banvel within 1/2 mile of sensitive crops before Sept. 1. Approx. cost: 2,4-D \$2.00- \$3.00; 2,4-D + Banvel \$5.05.
	2,4-D amine + Banvel 4WS	1 qt + 0.5 pt	After corn silks turn brown or milo is in the soft dough stage <sup>7</sup> . Apply to dog- bane before leaves start to turn yellow	
	Roundup 3WS	4 qt	Late summer or fall <sup>7</sup>	Idle ground or spot treat- ment before head or pod fill. Avoid tillage for at least 7 days after treat- ment. Approx. cost \$82.00.
HOARY CRESS	2,4-D LV ester	2 qt	Rosette stage in the fall or early bud in spring <sup>7</sup>	Suppression only. Growth starts in early spring. Treat twice a year for 2 to 3 years. Approx. cost \$5.00.

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## TROUBLESOME WEEDS &amp; WOODY PLANTS (continued)

Weed	Herbicide <sup>6</sup>	Apply This Amount Commercial Product Per Acre <sup>6</sup> or Per 100 Gallons (Handgun)	Application Time	Remarks and Approximate Cost/A Broadcast
JOHNSONGRASS (see shatter- cane for seedling control)	Dowpon M 74SP	6.7 lb	8 to 12" new growth, or re- growth <sup>7</sup>	Repeat treatment 3 times, 10 to 20 days apart. Treat when 70°F or above. Approx. cost \$13.40.
	Fusilade 4E	0.5 pt	12-18" new growth	For use in soybeans. Add 1 qt/A crop oil concentrate. Approx. cost: Fusilade \$20.25; Poast \$21.75.
	Poast	1.5 pt		
	Roundup 3WS	2-3 qt	12" through boot stage	Idle ground or spot treat- ment before head or pod fill. Avoid tillage for 7 days. Approx. cost \$41.00- \$61.50.
LEAFY SPURGE <sup>8</sup>	2,4-D LV ester	2 qt	Bud stage spring or late fall <sup>7</sup>	Retreatment necessary. Annual applications gradu- ally reduce infestation. Approx. cost: 2,4-D \$5.00; 2,4-D + Banvel \$7.10.
	2,4-D + Banvel 4WS	1 qt + 1 pt		
	Tordon 22K	2-4 qt		
			Fall or spring	Tordon for non-crop areas and spot treatment in pas- ture and range. Carefully observe all label warnings and precautions. Approx. cost \$46.00-\$92.00.
LOCUST, HONEY AND BLACK	2,4,5-T or Silvex LV ester <sup>9</sup>	2 qt	Full foliage during June or basal treat- ment anytime	Do not use on pastures or rights-of-way. See remarks for cottonwood. Approx. cost \$18.00.
	Spike 5G	2 oz/tree	Spring or fall	Apply under drip line. Approx. cost \$2.80/lb.
MILKWEED, COMMON <sup>8</sup>	Amino Triazole 90SP or Amitrol-T/Cytrol-T 2WS	4.4 lb or 2 gal	Bud to bloom stage <sup>7</sup>	Use Amino Triazole and Amitrol-T/Cytrol-T only on non-cropland. Do not plant small grains for 15 days after 2,4-D + Banvel treat- ment. 2,4-D + Banvel sup- presses growth for 1 year. Approx. cost: Amitrol-T \$42.00; 2,4-D + Banvel \$5.05.
	2,4-D + Banvel 4WS	1 qt + 0.5 pt		
	Roundup 3WS	3 qt		
			Flowering thru maturity <sup>7</sup>	Idle ground or spot treat- ment before head or pod fill. Avoid tillage for 7 days. Approx. cost \$61.50.
MILKWEED, HONEYVINE <sup>8</sup> (climbing)	2,4-D amine	1-2 pt	Before vines reach 3' in length <sup>7</sup>	For use in corn or sorghum. Use lower rates in sorghum. Gives suppression only. Approx. cost \$.65-\$2.00.
	2,4-D LV ester	0.5-1 pt		
MULLEIN, COMMON	2,4,5-T or Silvex <sup>9</sup>	1-1.5 qt	Late fall on rosettes or spring before flowering stalks lengthen	Essential to apply in rosette stage. Approx. cost \$9.00-\$13.50.

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## TROUBLESOME WEEDS &amp; WOODY PLANTS (continued)

Weed	Herbicide <sup>6</sup>	Apply This Amount Commerical Product Per Acre <sup>6</sup> or Per 100 Gallons (Handgun)	Application Time	Remarks and Approximate Cost/A Broadcast
MUSK AND PLUMELESS THISTLE <sup>8</sup>	2,4-D	1.5-2 qt	Late fall treat- ment of rosettes or spring before flowering stalks lengthen	Make sure products are labeled for rates applied. Annual treatments necessary for control of new seed- lings. Fall applications after trees drop leaves and before leafing out in the spring reduces damage. Tordon: do not apply after "soil freeze-up" in the fall. For use on ranges and permanent pastures only. Carefully heed label pre- cautions and warnings. Approx. cost: 2,4-D \$3.00- \$4.00; 2,4-D + Banvel \$5.05; Tordon \$4.30-\$5.75.
	2,4-D + Banvel 4WS	1 qt + 0.5 pt		
	Tordon 22K (musk only)	6-8 oz	Oct. 1-Dec. 1 or spring be- fore flowering stalks lengthen	
OAKS	2,4,5-T or Silvex LV ester <sup>9</sup>	2-3 qt	Full foliage June to July or basal treat- ment anytime	Non-cropland only. Approx. cost: 2,4,5-T or Silvex \$18.00-\$27.00; Spike \$2.80/ lb.
	Spike 5G	2 oz/tree	Spring or fall	
OSAGEORANGE	2,4,5-T LV ester <sup>9</sup>	2 qt	Full foliage June to July or basal treat- ment anytime	See remarks for cottonwood. Approx. cost \$18.00.
PERENNIAL SOWTHISTLE	2,4-D LV ester	1.5 qt	Fall rosette or spring bud stage	See remarks for field bind- weed. Approx. cost \$3.75.
POISON IVY	Amino Triazole/ Weedazol 90SP or Amitrol-T/ Cytrol-T 2WS	2 tbs/gal of water  0.5 cup/gal of water	Full foliage (June) <sup>7</sup>	Thoroughly wet all vegeta- tion. Do not apply to crop- land. Approx. cost \$42.00.
PRICKLYPEAR	Silvex <sup>9</sup>	1-2 qt	Bud to bloom stage	Rotary hoe pads just prior to spraying. Add 1 gal/A diesel + 0.5% emulsifier in water carrier. Approx. cost \$9.00-\$18.00.
	Tordon 22K	1-2 qt	Early summer	Spot treatment in grazing and non-cropland. Approx. cost \$23.00-\$46.00.
PUNCTUREVINE	2,4-D LV ester	1 qt	Pre-bud stage most effective	Mature burs not affected by 2,4-D. Retreatment neces- sary on new plants. Approx. cost \$2.50.
PURSLANE	2,4-D LV ester	1 qt	When growing actively	Till 5-7 days after treat- ment. Do not plant small grains for 15 days. Approx. cost \$2.50.
	Glean	0.33-0.5 oz	Preemergence or early post	Use only in continuous wheat or wheat fallow. Approx. cost \$5.00-\$7.50.
RAGWEED, WESTERN (perennial)	2,4-D LV ester	1 qt	Early summer <sup>7</sup>	Follow-up treatments may be necessary. Approx. cost \$2.50.

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## TROUBLESOME WEEDS &amp; WOODY PLANTS (continued)

Weed	Herbicide <sup>6</sup>	Apply This Amount Commerical Product Per Acre <sup>6</sup> or Per 100 Gallons (Handgun)	Application Time	Remarks and Approximate Cost/A Broadcast	
RED CEDAR	Ammate X-NI	60 lb/100 gal	Full foliage	Spike and Velpar for use in non-crop areas only. Ammate and Tordon can be used or grazing land. Approx. cost: Ammate \$52.80/A; Spike \$2.80/lb; Velpar \$9.00/lb (240 pellets); Tordon \$92.00/A.	
	Spike 5G	4 oz/tree	Spring or fall		
	Velpar Gridball 1 cc	2-3 pellets/tree/inch of diameter	Spring		
	Tordon 22K	4 qt/100 gal	Spring or fall		
RUSSIAN KNAPWEED <sup>8</sup>	Banvel 4WS	1-2 qt	Early <sup>7</sup> bud stage	Idle ground or grassland. Avoid tillage for 5 days. Injury to forage grasses may occur. Broadleaf crops may be injured for 2 years after treatment. Approx. cost \$12.20-\$24.40.	
RUSSIAN OLIVE	2,4-D + 2,4,5-T LV ester <sup>9</sup>	2 qt of most "Brushkillers"	Full foliage (early June) <sup>7</sup>	See remarks for cottonwood. Approx. cost \$11.50.	
	Spike 5G	4 oz/tree	Spring or fall	Use on non-cropland only. Approx. cost \$2.80/lb.	
SAGEBRUSH (sand and fringed and green sagewort)	2,4-D LV ester	1.5-2 qt	4-8" new growth (June) <sup>7</sup>	1.5 qt/A 2,4-D adequate on sand sagebrush. Approx. cost \$3.75-\$5.00.	
SHATTERCANE (wild cane) AND SEEDLING JOHNSONGRASS  (Ridge or till-plant, band apply preemergence herbicide and culti- vate)	Eradicane 6.7E	5 pt <sup>10</sup>	Preplant to corn	Incorporate immediately by cross tandem discing or equivalent soil mixing. Do not use Princep or Bladex treatment on sand. Plant corn the year following Princep treatment. Repeated use of Eradicane or Eradicane Extra will lead to reduced weed control. Under high shattercane population herbicides may not give acceptable control. Rotate to small grain or alfalfa. Lasso provides suppression of light infestations. Cultivation improves control. Approx. cost: Eradicane/Extra \$16.25-\$19.90; Sutan \$19.00; Eradicane or Extra + Bladex \$25.45-\$29.10; Eradicane or Extra + Princep \$24.25-\$27.90; Sutan + Bladex \$28.20; Sutan + Princep \$27.00; Treflan \$5.50-\$6.90; Basalin \$7.50; Lasso \$21.60; Prowl \$7.50; Vernam + Treflan \$12.50.	
	Eradicane Extra 6E	5.3 pt			
	Sutan+ 6.7E	7.3 pt			
	Princep or Bladex 4L + Eradicane or Extra or Sutan+	2 qt + 5 <sup>10</sup> -5.3 pt or 7.3 pt	Preplant to soybeans		
	Treflan 4EC	2-2.5 pt			
	Basalin 4EC	3 pt			
	Prowl 4EC	3 pt			
	Vernam 7E + Treflan 4EC	3 pt + 1 pt	Preplant to corn and soybeans		
	Lasso 4EC	4 qt			
	Fusilade 4E	0.25 pt			
	Poast	1 pt	Postemergence in soybeans. Cane 6-12"		Add 1 qt crop oil concen- trate per acre. Approx. cost: Fusilade \$10.90; Poast \$15.00.
	SOAPWEED <sup>8</sup> (Yucca)	Silvex <sup>9</sup>	2 qt		June <sup>7</sup>
SUMAC	2,4-D LV ester	1-2 qt	Full foliage	Use sufficient water for good coverage. Approx. cost \$2.50-\$5.00.	

(Continued next page)



## TROUBLESOME WEEDS &amp; WOODY PLANTS (continued)

Weed	Herbicide <sup>6</sup>	Apply This Amount Commercial Product Per Acre <sup>6</sup> or Per 100 Gallons (Handgun)	Application Time	Remarks and Approximate Cost/A Broadcast
SWAMP SMARTWEED <sup>8</sup> (tanweed)	2,4-D LV ester	1 qt	When growing vigorously <sup>7</sup>	On crops use lower rates and amine formulations. Approx. cost \$8.60.
	+ Banvel 4WS	1 pt		
	Roundup 3WS	3-4 qt	Full foliage mid to late summer <sup>7</sup>	Idle ground or spot treat- ment before head or pod fill. Avoid tillage for 7 days. Approx. cost \$61.50- \$82.00.
VELVETLEAF	AAtrex/ Atrazine 4L <sup>3</sup>	1.2 qt	Velvetleaf less than 4"	AAtrex/Atrazine and 2,4-D for corn and milo; Basagran for soybeans and corn; Basagran + Atrazine and Laddok for corn. Use crop oil concentrate with AAtrex/ Atrazine, Basagran, and Basagran + Atrazine and Laddok. Use 0.75 qt Basagran on velvetleaf 2" in height or less, 1 qt if 2-4". Approx. cost: AAtrex/ Atrazine \$2.90; Basagran + Atrazine \$13.20; Laddok \$9.00; 2,4-D \$.65-\$1.25; Basagran \$17.00-\$22.50.
	Basagran 4WS	0.75-1 qt		
	Basagran 4WS +	0.5 qt		
	Atrazine 4L	0.5 qt		
	Laddok	2.5 pt	Velvetleaf less than 12"	
	2,4-D LV ester	0.5-1 pt		
OTHER HELPFUL TREATMENTS FOR VELVETLEAF: Corn and milo--full rates of atrazine applied PPI; Soybeans-- Vernam + Amiben (PPI), Amiben + Sencor (PRE), Vernam (PPI) + Sencor/Lexone (PRE), Treflan + Sencor/Lexone Split-Application. Also consider appropriate preemergence herbicides.				
WILD PROSO MILLET	Eradicane or Extra or Sutan+ 6.7E	5-5.3 pt or 5 pt	Preplant to corn	Incorporate immediately with disc or field cultivator. Approx. cost: Eradicane/ Extra \$16.25-\$19.90; Sutan \$13.00.
	Lasso 4EC +	2.5 qt +	Preplant to corn	Incorporate with a field cultivator or roller harrow. Approx. cost \$18.10.
	Bladex 4L	1 qt		
	Prowl 4EC	1.5 qt	Lay-by to corn	Direct weed spray to cover the base of the corn plant and in between corn rows. Incorporate with irrigation water or with cultivation. Approx. cost \$7.50.
	Fusilade 4E	0.25 pt	Postemergence in soybeans. 4-8" wild proso millet	Add 1 qt crop oil concen- trate per acre. Approx. cost: Fusilade \$10.90; Poast \$8.25.
	Poast	0.5 pt		
	Eptam	3.5 pt	Preplant to fieldbeans	Incorporate immediately with a disc or field cultivator. Approx. cost: Eptam \$12.25; Ro-Neet \$19.00-\$23.00.
	Ro-Neet	3.3-4 pt	Preplant to sugar beets	

<sup>3</sup>Additional formulations are available. Use rates that give comparable amounts of active ingredient:  
1 qt AAtrex or Atrazine 4L = 1.25 lb AAtrex or Atrazine 80W or 1.1 lb AAtrex Nine-0

<sup>6</sup>Low volatile ester and salt formulations preferred over volatile esters such as butyl and isopropyl.  
2,4-D, silvex, 2,4,5-T and MCPA calculated on the basis of 4 lb/gal of acid equivalent (the chemicals re-  
sponsible for herbicidal effects). For other formulations see Conversion Table page 35.

<sup>7</sup>Retreatment may be necessary.

<sup>8</sup>For spot treatment add 1 1/2 tablespoons of herbicide per gallon of water for each 1 qt per acre required  
broadcast, and apply to 1000 sq ft.

<sup>9</sup>Permitted uses of 2,4,5-T and silvex include applications to (1) rangeland and (2) fence rows, hedge rows  
and waste areas not part of a pasture, forest or right-of-way.

<sup>10</sup>Labeled rate of Eradicane is 7.3 pt/A.



## REDUCED TILLAGE SYSTEMS-ECOFARMING

Try new farming techniques on a small scale before using on large acreages.

Try new farming techniques on a small scale before using on large acreages.			
Situation	Herbicide and Rate Per Acre	Application Time	Remarks and Approximate Cost/A Broadcast
CORN (no-till in cool season grass sod <sup>11</sup> )	AAtrex 4L <sup>3</sup> + Paraquat <sup>12</sup> 2-3 qt + 1-2 pt	Apply to new growth in May before corn emergence	Weak on tall warm-season perennial grasses. Approx. cost \$12.00-\$18.90.
CORN (no-till in alfalfa sod <sup>11</sup> )	2,4-D + Banvel 1 qt + 0.5 pt	Apply in Sept or April-May to alfalfa with 4" new growth. Avoid tillage for 5 days	Will control alfalfa. For annual weed control select herbicide from the continuous row crop section of this page. See NebGuide G74-131 for more information. On sandy soils don't plant corn for 10 days. Approx. cost \$5.05.
CORN (no-till in rye or winter wheat <sup>11</sup> )	AAtrex 4L <sup>3</sup> + Paraquat <sup>12</sup> 2-3 qt + 1-2 pt	Apply when rye and wheat are more than 4" tall	Apply before corn emerges. Approx. cost \$12.00-\$18.90.
CORN (no-till continuous row crop)	AAtrex/Atrazine 4L <sup>3,13</sup> 2-3 qt	0-20 days pre-plant	Control broadleaf weeds, especially kochia, with 2,4-D LV ester prior to planting. If volunteer corn is a problem use Roundup <sup>12</sup> at 0.75-1 pt/A in 5 gpa before crop emergence. Tank mix 1-2 pt Paraquat <sup>12</sup> to control weeds present at planting. Do not use Bladex on soils below 1.5% OM. Approx. cost w/o Paraquat: AAtrex/Atrazine \$4.80-\$7.20; Bicep \$10-80-\$16.20; Dual + Atrazine \$13.25-\$17.35; Lasso + Atrazine \$14.65-\$17.35; Bladex + Atrazine \$11.15-\$13.50.
	Bicep 4.5L 2-3 qt <sup>13</sup>		
	Dual + Atrazine 4L <sup>3,13</sup> 1.5-2 pt + 1.6 qt	0-5 days pre-plant	
	Lasso + Atrazine 4L <sup>3,13</sup> 2-2.5 qt + 1.6 qt		
	Bladex 80W + Atrazine 4L <sup>3,13</sup> 2.5-3 lb + 1-1.25 qt	0-10 days pre-plant	
SORGHUM (no-till continuous row crop)	Atrazine 4L <sup>3,13</sup> 1.6-3 qt	April 1-15	Avoid sandy soils, eroded soils and soils with pH greater than 7.2. Approx. cost: Atrazine \$3.85-\$7.20; Atrazine + Paraquat \$10.05-\$17.45.
	Atrazine 4L <sup>3</sup> + Paraquat <sup>12,13</sup> 1.6-2.4 qt + 1-2 pt	0-20 days pre-plant	
	Bladex 80W 2-2.5 lb <sup>13,14</sup>	30-45 days pre-plant	
	Bladex 80W 3-3.5 lb <sup>13,14</sup>	45 days or more preplant	Add Paraquat <sup>12</sup> at 1-2 pt if emerged weeds are present. If only broadleaf weeds are present add 2,4-D LV ester at 1 pt/A. For volunteer corn or sorghum control use Roundup <sup>12</sup> at 0.75 to 1 pt/A in 5 gpa prior to planting. If weed population was high last year use preemergence herbicide also. Approx. cost w/o Paraquat: Bladex 30-45 days \$7.00-\$8.75, 45 days \$10.50-\$12.25; Bladex + Atrazine 30 days \$8.90, 45 days \$12.40.
	Bladex 80W + Atrazine 4L <sup>3,13</sup> 3 lb + 0.8 qt		
	Bladex 80W + Atrazine 4L <sup>3,13</sup> 2 lb + 0.8 qt		
	Dual + Atrazine 4L <sup>3</sup> + Paraquat <sup>12,13</sup> 1.5-2 pt + 1-2 qt + 1-2 pt	0-20 days pre-plant	Seed must be treated with Concep to protect from Dual and Bicep injury or Screen to protect from Lasso injury. Atrazine and Bicep will damage sorghum on sandy and low organic matter soils. Approx. cost: Dual + Atrazine + Paraquat \$18.00-\$29.00; Bicep + Paraquat \$19.15-\$29.00; Lasso + Atrazine + Paraquat \$19.40-\$30.00.
	Bicep 4.5L + Paraquat <sup>12,13</sup> 2.4-3.2 qt + 1-2 pt		
	Lasso + Atrazine + Paraquat <sup>12,13</sup> 2-2.5 qt + 1-2 qt + 1-2 pt	0-5 days pre-plant	
	Igran 80W + AAtrex 4L <sup>3,13</sup> 2-2.5 lb + 1.5-2 pt	1-7 days pre-plant	If grasses are in 3-5 leaf stage add 1-2 pt Paraquat <sup>12</sup> . Approx. cost \$10.80-\$13.65.

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## REDUCED TILLAGE SYSTEMS-ECOFARMING (continued)

Try new farming techniques on a small scale before using on large acreages.

Situation	Herbicide and Rate Per Acre	Application Time	Remarks and Approximate Cost/A Broadcast
SOYBEANS (no-till continuous row crop)	Paraquat <sup>12,13,15,16</sup> 1-2 pt + Sencor/Lexone 4L <sup>3</sup> 0.75 pt with Lasso 4-5 pt	0-5 days pre- plant	Atrazine residue from previous crop could cause soybean injury. Approx. cost: Paraquat + Sencor/ Lexone with Lasso \$26.00-\$34.20 or with Dual \$28.70-\$34.20 or with Prowl \$22.70-\$28.20 or with Surflan \$29.20-\$34.70; Bronco + Sencor/Lexone \$39.00.
	or with Dual 2 pt	0-20 days pre- plant	
	or with Prowl 3 pt	0-20 days pre- plant	
	or with Surflan AS 2 pt	10-20 days pre- plant	
	Bronco + Sencor/Lexone 4L <sup>3</sup> 4 qt + 0.75 pt	0-5 days pre- plant	
	WINTER WHEAT (no-till continuous)	Bladex 80W 3 lb	
Bladex 80W 2 lb		45 days prior to planting	
Paraquat <sup>12</sup> 1-2 pt		Postemergence two or more applications	
Roundup <sup>12</sup> 0.75-1 pt			
Wheat-ECOFALLOW- Wheat <sup>18</sup> --Wheat seeded 10-14 months later Use where stubble is weed free after harvest	Atrazine 4L <sup>3</sup> 1-2 pt	July-Sept 1	Add 1 qt/A 2,4-D ester to improve grass and broadleaf weed control. If grasses or volunteer wheat re- cover use sweep plow. Use lower rate on soils below 1% OM or on calcareous soils. Avoid terraced fields, Canyon and Rosebud soils, and caliche out-croppings. Approx. cost: Atrazine \$1.20-\$2.40; Bladex + Atrazine \$8.45-\$9.65.
	Bladex 80W + Atrazine 4L <sup>3</sup> 2-2.5 lb + 1.2-1.6 pt	July-Nov 15	
For use where weeds are present in stubble after harvest	Atrazine 4L <sup>3</sup> + Paraquat <sup>12,19</sup> 1-2 pt + 1-2 pt	July-Sept 1	Spray before weeds produce seed. If grasses or volunteer wheat re- cover use sweep plow. Add 1 qt 2,4-D ester to Igran + Atrazine to improve control of emerged grass and broadleaf weeds. Avoid ter- raced fields, Canyon and Rosebud soils, and caliche outcroppings. Approx. cost: Atrazine + Paraquat \$7.90-\$13.60; Igran + Atrazine \$10.20-\$13.65.
	Igran 80W + AAtrex 4L <sup>3,12</sup> 2-2.5 lb + 1-2 pt		

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## REDUCED TILLAGE SYSTEMS-ECOFARMING (continued)

Try new farming techniques on a small scale before using on large acreages.

Situation	Herbicide and Rate Per Acre	Application Time	Remarks and Approximate Cost/A Broadcast
Wheat-ECOFALLOW-- Wheat <sup>18</sup> --Wheat seeded 4-5 months later	Bladex 80W + Paraquat <sup>12,19</sup> 2.5-3.5 lb + 1-2 pt	March-April 15 or before boot stage of weeds	Do not use on undercut stubble. Use higher rates on fine textured soils. Controls volunteer wheat, downy brome, jointed goatgrass and broadleaf weeds. Approx. cost \$14.95-\$23.95.
	Roundup <sup>12</sup> 0.75-1 pt	Postemergence- April	Apply to vigorously growing vol- unteer wheat and downy brome. Apply in 5 gal of water per acre. Use the lower rate on downy brome. Do not mix with other herbicides. Approx. cost \$8.10-\$10.65.
	2,4-D LV ester + Banvel 1 qt + 0.5 pt	May-July	Do not plant small grains for 15 days after treatment. Approx. cost \$5.55.
	Glean 0.33-0.5 oz	May	Use only in continuous wheat rota- tions. Approx. cost \$5.00-\$7.50.
Wheat-ECOFALLOW-- Corn--Sorghum or millet Spray small grain stubble after harvest. Plant corn, sorghum or millet follow- ing spring. <i>WARNING--High atrazine rates may carry over and destroy wheat on eroded areas and ter- races.</i>	Atrazine 4L <sup>3</sup> 1-3 qt Use higher rates on fine textured soils in July and August and on soils below 6.5 pH.	July-Nov	1.5 qt/A 2,4-D ester improves perennial broadleaf weed and annual grass control. Spray be- fore weeds produce seed. Use sweep plow if grass weeds are pre- sent. Use 1-1.2 qt Atrazine 4L in Panhandle. Approx. cost \$2.40- \$7.20.
	Atrazine 4L <sup>3</sup> + Paraquat <sup>12,19</sup> 1-3 qt + 1-2 pt	July-Nov	Spray before weeds produce seeds. If grasses such as barnyardgrass recover use sweep plow before weed develop seeds. Use 1-1.2 qt Atrazine 4L in Panhandle. Approx. cost: Atrazine + Paraquat \$8.60- \$18.90; Igran + AAtrex \$11.40- \$18.45; Igran + AAtrex + Paraquat \$13.10-\$22.40.
	Igran 80W + AAtrex 4L <sup>3</sup> 2-2.5 lb + 1-3 qt		
	Igran 80W + AAtrex + Paraquat <sup>12,19</sup> 1-2 lb + 1-3 qt + 1 pt		
Wheat-Ecofallow-- CORN--Corn planted in wheat stubble treated with AAtrex/ atrazine after harvest	Bladex 80W 3 lb <sup>12,13,15,16,17</sup>	45 days preplant	Do not use on sands and loamy sands with less than 1% OM. Approx. cost: Bladex \$5.25-\$10.50; Bladex + Atrazine \$7.65-\$9.40; Bladex + Dual \$18.70-\$20.50.
	Bladex 80W 1.5-2 lb <sup>12,13,15,16,17</sup>	0-20 days pre- plant	
	Bladex 80W + Atrazine 4L <sup>3</sup> 1.5-2 lb + 2 pt <sup>12,13,15,16,17</sup>		
	Bladex 80W + Dual <sup>12,13,15,16,17</sup> 1.5-2 lb + 2 pt <sup>12,13,15,16,17</sup>	0-20 days pre- plant	If annual grasses produced seed in the grain stubble or if areas of field have history of high grass population use higher rates of Dual or Lasso. Omit AAtrex in the combination treatments if the maximum AAtrex rate was used pre- vious year and use higher Dual rate. Approx. cost: Dual \$15.65- \$18.75; Dual + AAtrex \$15.90; Lasso \$13.50-\$16.20; Lasso + AAtrex \$13.20.
	Dual 2.5-3 pt <sup>12,13,15,16,17</sup>		
	Dual + AAtrex 4L <sup>3</sup> 2 pt + 1 qt <sup>12,13,15,16,17</sup>		
	Lasso 2.5-3 qt <sup>12,13,15,16,17</sup>	0-5 days pre- plant	
	Lasso + AAtrex 4L <sup>3</sup> 2 qt + 1 qt <sup>12,13,15,16,17</sup>	0-10 days pre- plant	

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## REDUCED TILLAGE SYSTEMS-ECOFARMING (continued)

Try new farming techniques on a small scale before using on large acreages.

Situation	Herbicide and Rate Per Acre	Application Time	Remarks and Approximate Cost/A Broadcast
Wheat-Ecofallow- SORGHUM Sorghum planted in wheat stubble treated with AAtrex/Atrazine after harvest	Bladex 80W 2-2.5 lb <sup>12,13,15,16</sup>	30-45 days pre- plant	Add Paraquat <sup>12,19</sup> at 1-2 pt or 2,4-D ester at 1 pt if there are emerged weeds. <i>Seed must be treated with Concep if Dual is used.</i> Omit AAtrex in the combina- tion treatments if the maximum AAtrex rate was used previous year and increase Bladex rate. Approx. cost w/o Paraquat or 2,4-D: Bladex 30-45 days \$7.00-\$8.75, 45 days \$10.50-\$12.75; Bladex + Atrazine \$6.65-\$9.40; Bladex + Dual \$18.75- \$20.50.
	Bladex 80W 3-3.5 lb <sup>12,13,15,16</sup>	45 or more days preplant	
	Bladex 80W + Atrazine 4L <sup>3</sup> 1.5-2 lb + 2 pt <sup>12,13,15,16</sup>	30 days pre- plant	
	Bladex 80W + Dual <sup>1</sup> 1.5-2 lb + 2 pt <sup>12,13,15,16</sup>		
	Dual 8E 1.5-2 pt <sup>12,13,15,16</sup>		
	Dual 8E + AAtrex 4L <sup>12,13,15,16</sup> 1.5-2 pt + 2 pt	0-20 days pre- plant	
	Lasso <sup>12,13,15,16</sup> 2.5-3 qt	0-5 days pre- plant	
	Lasso + Atrazine <sup>12,13,15,16</sup> 2-2.5 qt + 2 pt		
	Igran 80W + AAtrex 80W <sup>12,13,15,16</sup> 2 + 1 lb	0-7 days pre- plant	
	Igran 80W 2-2.5 lb <sup>12,13,15,16</sup>		
Winter Wheat- ECOFALLOW- Soybeans Spray wheat stubble after harvest. Plant soybeans follow- ing spring	Lexone/Sencor 4L + 2,4-D 2 pt + 1 qt	July	Add Paraquat <sup>12,19</sup> to Lexone/Sencor if weeds are large than 6". Volun- teer wheat may emerge in fall or spring. Control volunteer wheat in spring or fall with Roundup. Approx. cost w/o Paraquat \$26.00.
Winter Wheat- Ecofallow- SOYBEANS Planted into wheat stubble treated with Lexone/Sencor 10 months previously	Dual + Sencor/Lexone <sup>13</sup> 2 pt + 0.75 pt	0-20 days pre- plant	Add Paraquat <sup>12,19</sup> at 1-2 pt if there are emerged weeds. Russian thistle, sunflower, lambsquarters and velvetleaf may be difficult to control. Follow Sencor/Lexone label for soil type. Substitute Lorox for Sencor/Lexone if there is atrazine carry over. Approx. cost: Dual + Sencor/Lexone \$22.50; Lasso + Sencor/Lexone \$19.80; Prowl + Sencor/Lexone \$16.50; Surflan + Sencor/Lexone \$23.00.
	Prowl + Sencor/Lexone <sup>13</sup> 3 pt + 0.75 pt		
	Surflan + Sencor/Lexone <sup>13</sup> 2 pt + 0.75 pt	10-20 days pre- plant	
	Lasso + Sencor/Lexone <sup>13</sup> 2 qt + 0.75 pt	0-5 days pre- plant	

<sup>3</sup>Additional formulations are available. Use rates that give comparable amounts of active ingredient:

1 qt AAtrex or Atrazine 4L = 1.25 lb AAtrex or Atrazine 80W or 1.1 lb AAtrex Nine-0

1 pt Sencor or Lexone 4L = 1 lb 50W or 0.67 lb Lexone DF or Sencor DF

<sup>11</sup>Irrigated conditions or eastern Nebraska.

<sup>12</sup>Add X-77 spreader 2 pt per 100 gal spray solution for paraquat. Add 4 pt/100 gal spray solution for Roundup and paraquat in 10 gpa or less.

<sup>13</sup>Soil disturbance by planter may allow weed growth in row if herbicide is applied preplant.

<sup>14</sup>May not control kochia.

<sup>15</sup>If seedling (3-leaf) grass or volunteer wheat are present at planting, add Paraquat at 1 pt/A + X-77 to mixtures or prepare a shallow seedbed with tillage. Paraquat may not kill grasses more than 4" tall. Crop oil at 1 gpa may be substituted for Paraquat but control is not as good on large weeds. If weeds are beyond the seedling stage and volunteer wheat is growing vigorously, apply Roundup<sup>12</sup> at 1 pt/A one week before planting or immediately after planting but before crop emergence. Do not mix Roundup with other herbicides.

<sup>16</sup>If Russian thistle is present the addition of 0.5 to 1 pt 2,4-D LV ester improves control. Do not apply 2,4-D after planting sorghum.

<sup>17</sup>AAtrex/Atrazine carry over may occur on eroded areas or on soils with less than 1.2% OM. Total AAtrex/Atrazine applied last year plus this treatment should not exceed 3.75 lb 80W or 3 qt 4L.

<sup>18</sup>For use west of highway 83. Consider herbicides used in a wheat-fallow rotation as fallow aids and resume stubble mulch tillage practices in May-August to control grasses and prepare a seedbed.

<sup>19</sup>Increase Paraquat rate, gallonage and pressure (minimum of 30 lb pressure at nozzle) on heavy infestations of grass or Russian thistle where it is difficult to penetrate the foliage.



## HERBICIDE DICTIONARY

AAtrex--A trade name for atrazine. Ciba-Geigy.

Alanap (naptalam)--A pre- and postemergence broadleaf and grass herbicide for soybeans and vine crops. Uniroyal.

Ally (DPX-T6376)--Exp. compound for use in wheat and fallow for broadleaf and certain grass weed control. EUP 1984. DuPont.

Amiben (chloramben)--A pre- and early postemergence herbicide for grass and broadleaf weeds in soybeans. Union Carbide.

Amino Triazole--Trade name for amitrole. American Cyanamid.

amitrole--A translocated herbicide that inhibits chlorophyll formation and regrowth from root buds. Trade names are Amino Triazole, Cytrol and Weedazol.

Amitrol-T--Amitrole + ammonium thiocyanate. Union Carbide.

Amizine (amitrole + simazine)--A combination of amitrole and simazine for use in tree plantings and non-crop areas. Union Carbide.

Ammate (ammonium sulfamate)--A nonselective postemergence herbicide especially effective on woody plants. DuPont.

Antor--A selective soil applied herbicide for weed control in sugar beets. NOR-AM.

Aquathol (endothall)--An aquatic herbicide for use in still water. Pennwalt.

Aquazine (simazine)--An aquatic herbicide for use in still water. Ciba-Geigy

Assure (DPX-Y6202)--A postemergence grass herbicide for use in soybeans. EUP 1984. DuPont.

atrazine--A preplant, preemergence and postemergence s-triazine for broadleaf and certain grass weeds in corn, sorghum and rangeland. Available under several private labels.

Avenge (difenzoquat)--Selectively controls wild oats postemergence in spring small grain. American Cyanamid.

Balan (benefin)--A preplant incorporated herbicide for annual grass control in alfalfa. Elanco.

Banvel (dicamba)--A post- and preemergence herbicide for selective broadleaf weed control in corn, small grains and grasses. Velsicol.

Banvel II (dicamba)--Na salt of dicamba with reduced volatility. Contains 2 lb dicamba per gallon rather than 4 lb per gallon in regular Banvel. Velsicol.

Basafon (dalapon)--Trade name for dalapon. BASF-Wyandotte.

Basagran (bentazon)--A postemergence fieldbean, corn and soybean herbicide for velvetleaf, cocklebur and other broadleaf weeds under 6". BASF-Wyandotte.

Basalin (fluchloralin)--A preplant soil incorporated herbicide primarily for annual grass weed control in soybeans. BASF-Wyandotte.

Betamix (phenmedipham + desmedipham)--A prepackaged combination of Betanal + Betanex for postemergence broadleaf weed control in sugar beets. NOR-AM

Betanal (phenmedipham)--Postemergence broadleaf weed control in sugar beets. NOR-AM

Betanex (desmedipham)--Used postemergence for red-root pigweed control in sugar beets. NOR-AM.

Bicep (metolachlor + atrazine)--A combination of Dual + AAtrex for preemergence use in corn and sorghum planted with Concep treated seed. Ciba-Geigy.

Bladex (cyanazine)--A short residual triazine for grass and broadleaf weed control in corn and sorghum. Shell.

Blazer (acifluorfen)--A postemergence herbicide for broadleaf weed control in soybeans. Rohm & Haas.

Brominal ME4 (bromoxynil)--A contact herbicide for broadleaf weeds in small grain, corn and sorghum. Union Carbide.

Brominal 3+3--A combination of bromoxynil and MCPA for use in small grain. Union Carbide.

Bronate--A combination of bromoxynil and MCPA for use in small grains. Rhone-Poulenc.

Bronco (alachlor + glyphosate)--A prepackaged combination of Lasso + Roundup for use in no-till corn and soybeans. Monsanto.

Buctril (bromoxynil)--Similar to Brominal. Rhone-Poulenc.

Butoxone (2,4-DB)--For selective control of cocklebur in soybeans and some small broadleaf weeds in seedling alfalfa. Vertac.

Butyrac (2,4-DB)--Similar to Butoxone. Union Carbide.

Carbyne (barban)--Used for wild oat control in spring small grain. Velsicol.

Casoron (dichlobenil)--Used for preemergence weed control in woody plants and certain herbaceous perennials. Uniroyal.

Chem-Hoe (propham)--Used pre- and postemergence for winter annual grass control in alfalfa. PPG Industries.

Chlorate-3 (sodium chlorate)--Used as a sorghum desiccant. Midwest Companies.

Chloro IPC (chlorpropham)--Similar to Chem-Hoe. PPG Industries.

Cobex (dinitramine)--A preplant incorporated bean herbicide for grass weed control. Shorter soil life than other DNA herbicides. Velsicol.

Concep (cyoxmetrinil)--A protectant applied to sorghum seed to prevent Dual injury. Ciba-Geigy.

Copper Sulphate--Available as crystals or in chelated form for algae control in moving and still water. Several brand names.

Cytrol--Trade name for amitrole. American Cyanamid.

Dacamine--An oil soluble amine salt formulation of 2,4-D. SDS Biotech Corp.



## HERBICIDE DICTIONARY (continued)

Dacthal (DCPA)--Used preemergence for annual grass and certain broadleaf weeds in turf, ornamentals and horticultural crops. SDS Biotech Corp.

Dalapon--Used for grass control in many broadleaf crops and for perennial grass control.

Dinitro Weed Killer (dinoseb)--A contact weed killer for use in alfalfa, corn and soybeans. Can be used preemergence or early post on soybeans. Highly toxic to warm blooded animals. Also sold as Selective Weed Killer and Premerge. Vertac.

Diquat (diquat)--Used for aquatic weed control and desiccation of legume, soybean and grain sorghum seed crops. Chevron-Ortho.

Dowco 356--A postemergence herbicide for grass control in corn. Experimental use permit expected in 1985. Dow

Dowpon (dalapon)--Trade name for dalapon. Vertac.

Dual (metolachlor)--Used preplant or preemergence for annual grass and some broadleaf weed control in corn, sorghum and soybeans. Ciba-Geigy.

Dyanap (naptalam + dinitro)--A combination of Alanap and Dinitro. Used preemergence or post-emergence on soybeans. Uniroyal.

Embark (mefluidide)--Controls and suppresses growth of grasses. 3M Company.

Endothall (endothall)--Used preemergence and post-emergence for annual grass and broadleaf weeds in sugar beets. Pennwalt.

Enide (diphenamid)--Used preemergence for annual grasses and some broadleaf weeds in potatoes. Upjohn.

Eptam (EPTC)--A preplant soil incorporated herbicide for grass and certain broadleaf weed control in corn, legumes, sugar beets and many horticultural crops. Stauffer.

Eradicane (EPTC + R-25788 antidote)--Used similar to Eptam. The antidote provides greater crop safety for corn. Stauffer.

Eradicane Extra (EPTC + R-25788 antidote + R-33865 extender)--The extender restores performance on soils where Eradicane has ceased to perform. Stauffer.

Evik (ametryn)--Used as a directed postemergence contact spray for weed control in corn. Ciba-Geigy.

Furloe (chlorpropham)--Used preplant incorporated and preemergence for smartweed control in soybeans. PPG Industries.

Fusilade (fluazifop)--A selective postemergence grass herbicide that controls shattercane, volunteer corn and other grasses in soybeans. ICI Americas.

Garlon (Dowco 233)--Postemergence herbicide for woody plant control on rights-of-way. Dow.

Genate Plus (butylate)--Similar to Sutan+. PPG.

Genep (EPTC)--Similar to Eptam. PPG.

Glean (chlorsulfuron)--A pre- and postemergence broadleaf herbicide for small grains. DuPont.

Goal (oxyfluorfen)--A preemergence herbicide for soybeans and nursery stock. Rohm & Haas.

Gramoxone--Trade name for paraquat. ICI Americas.

Graslan (tebuthiuron)--Used for brush control in rangeland. Elanco.

Harness (097)--A preemergence grass herbicide similar to Lasso but longer lasting. Monsanto.

Herbicide 273 (endothall)--A postemergence sugar beet herbicide especially effective against broadleaf weeds. Pennwalt.

Hoelon (dichlofop)--A postemergence herbicide for grass control in soybeans. American Hoechst.

Hyvar (bromacil)--Used as a soil sterilant and for woody plant control. DuPont.

Igran (terbutryn)--A short residual s-triazine used for weed control in sorghum. Generally combined with AAtrex or Milogard for broader spectrum control and reduced carry over. Ciba-Geigy.

Karmex (diuron)--A substituted urea for selective annual weed control at low rates and as a soil sterilant at higher rates. DuPont.

Kerb (pronamide)--Used preemergence and early post-emergence in alfalfa. Rohm & Haas.

Knoxweed--A combination of Eptam and 2,4-D for pre-emergence annual weed control in corn. Do not use on sandy soils. Stauffer.

Krenite (fosamine)--A water soluble brush control agent that can be used on non cropland areas adjacent to water. DuPont.

Krovar--A combination of Hyvar and Karmex. DuPont.

Kuron--Trade name for silvex.

Laddok (bentazon + atrazine)--A combination of Basagran + atrazine used for postemergence broadleaf weed control in corn. Various Distributors.

Lasso (alachlor)--Used preplant and preemergence for annual grass and some broadleaf weed control in corn, sorghum, soybeans and fieldbeans. Monsanto.

Lasso-Atrazine Flowable--(alachlor + atrazine)--A prepackaged combination of Lasso and atrazine. Monsanto.

Leafex-3 (sodium chlorate)--Used as a sorghum desiccant. Occidental.

Lexone--Trade name for metribuzin. DuPont.

Lorox (linuron)--Used primarily preemergence for broadleaf weed control in corn, sorghum and soybeans. DuPont.

MCPA--A phenoxy similar to 2,4-D but safer on oats and legumes. Often used in combination. Many trade names. Union Carbide, Rhone-Poulenc.

Metribuzin--Used for annual broadleaf weeds in soybeans, alfalfa, potatoes and winter wheat, often used in combinations. Trade names - Lexone and Sencor. DuPont, Mobay.

Milocep (metolachlor + propazine)--A combination of Dual + Milogard for use on sorghum planted with Concep treated seed. Ciba-Geigy.

Milogard (propazine)--Used preemergence in sorghum. Performs best on soils low in organic matter. Often combined with AAtrex and Igran for improved annual grass control. Ciba-Geigy.



## HERBICIDE DICTIONARY (continued)

Modown (bifenox)--Used preemergence for broadleaf and certain grass weeds in soybeans, corn and sorghum. Rhone-Poulenc.

Mondak--A combination of Banvel and MCPA for broadleaf weed control in small grain. Velsicol.

Monobor-chlorate (sodium metaborate tetrahydrate)--A nonselective herbicide for general vegetation control on noncropland. Occidental.

MSMA (monosodium methanearsonate)--Used for selective crabgrass control in turf and johnsongrass in noncrop areas. Union Carbide, Vineland.

Norosac--Same as Casoron. Gordon-PBI.

Nortron (ethofumesate)--A preemergence or preplant incorporated herbicide for sugar beets. NOR-AM.

Ortho Paraquat CL--Trade name for paraquat. Chevron.

Oust--A noncropland herbicide. DuPont.

paraquat--A nonselective contact herbicide used for no-till and ecofarming, soybean and sunflower desiccation, and for noncropland. Trade names Gramoxone and Ortho Paraquat CL. Chevron, ICI Americas.

Phytar (cacodylic acid)--Nonselective contact herbicide used for weed control on noncropland.

Poast (sethoxydim)--A postemergence herbicide for shattercane, volunteer corn and other grass weeds in soybeans and other broadleaf crops. BASF-Wyandotte.

Pramitrol (prometon)--Used primarily for season long control of annual and perennial weeds in non-cropped areas. Ciba-Geigy.

Pre Beta 1 (pebulate + diallate)--Used preplant incorporated for annual grass and certain broadleaf weeds in sugar beets. Great Western.

Pre Beta 2 (cycloate + diallate)--Used preplant incorporated for annual grass and certain broadleaf weeds in sugar beets. Great Western.

Prefar (bensulide)--Used preplant for grass and broadleaf weeds in cantaloupe, cucumbers and watermelons. Stauffer.

Premerge (dinoseb)--See Dinitro Weed Killer. Vertac.

Princep (simazine)--A long lasting preemergence or preplant herbicide for corn, shelterbelts and for dormant season weed control in alfalfa. Ciba-Geigy.

propachlor--Active ingredient in Ramrod. Used for grass weed control in corn and sorghum. Monsanto, Farmland.

propazine--See Milogard.

Prowl (pendimethalin)--Used preemergence on corn and preemergence or preplant on soybeans grown on soils with more than 1.5% organic matter. American Cyanamid.

Pyramin (pyrazon)--Used for preemergence broadleaf weed control in sugar beets. BASF-Wyandotte.

Ramrod--Trade name for propachlor. Monsanto.

Ramrod-atrazine flowable--A combination of Ramrod and atrazine for broad-spectrum weed control in corn and sorghum. Monsanto.

Randex (CDAA)--A preemergence grass herbicide for corn, sorghum and soybeans grown for seed. Randex T for use on corn only, combines Randex with TCBC for improved broadleaf weed control. Monsanto.

Rescue (Alanap + 2,4-DB)--Used midseason for post-emergence control of broadleaf weeds in soybeans. Uniroyal.

Rodeo (glyphosate)--Surfactant must be added for desirable performance. Similar to Roundup. Monsanto.

Ro-Neet (cycloate)--Used preplant incorporated in sugar beets for annual grass and some broadleaf weeds. Stauffer.

Ronstar (oxadiazon)--Used preemergence for annual grass and broadleaf weeds in nursery stock and turf. Rhone-Poulenc.

Roundup (glyphosate)--A postemergence nonselective translocated herbicide for annual and perennial grasses and broadleaf weeds. No soil residual. Monsanto.

Salvo--A low volatile ester of 2,4-D. Olin.

Screen--A protectant for application to sorghum seed to prevent Lasso injury. Monsanto.

Sencor--Trade name for metribuzin. Mobay.

Silvex (2,4,5-TP)--A phenoxy herbicide for post-emergence control of broadleaf weeds and woody plants. Used on rangeland. Controls some plants resistant to 2,4-D. Union Carbide.

Sinbar (terbacil)--A herbicide for dormant season control of annual grass and broadleaf weeds in established alfalfa. DuPont.

Spike (tebuthiuron)--Used for total vegetation and selective brush control in grassland. Elanco.

SULV (2,4-D amine)--A 4 lb per gallon 2,4-D amine for aerial application undiluted or by ground equipment in 3 to 5 gallons of water. Registered for grazing land. Uniroyal, Gordon.

Surflan (oryzalin)--Used preemergence for annual grasses in soybeans. Often used in combinations. Elanco.

Surpass (vernolate + R-25788 antitode)--Vernam plus a safener registered for preplant incorporated grass control in corn. Stauffer.

Sutan+ (butylate + R-25788)--A preplant incorporated herbicide for annual grasses in corn. Stauffer.

Sutazine+ (Sutan+ + atrazine)--A combination of 4 parts Sutan+ and one part atrazine for preplant incorporated weed control in corn. Stauffer.

2,4-D--A growth regulating phenoxy herbicide for broadleaf weed control in grass crops. Many trade names.

2,4,5-T--A phenoxy herbicide used for the control of brush and woody plants on rangeland and in noncrop areas. Many trade names. Union Carbide, Vertac.

Tackle (acifluorfen)--A postemergence herbicide for broadleaf weed control in soybeans. Under development. Rhone-Poulenc.



## HERBICIDE DICTIONARY (continued)

TCA--Used postemergence for annual and perennial grasses on noncropland; also preemergence in sugar beets. Dow.

Telone (dichloropene)--A fumigant used preplant for quackgrass in potatoes. Dow.

Telvar (monuron)--Used for long term vegetation control in noncropland. Discontinued. DuPont.

Tillam (pebulate)--Registered preplant incorporated for annual grass control in sugar beets. Stauffer.

Tolban (profluralin)--Used preplant incorporated for annual grass control in soybeans and alfalfa. Discontinued 1982. Ciba-Geigy.

Tordon (picloram)--A postemergence herbicide for annual and perennial broadleaf weeds. Residues may last for several years in the soil. Dow.

Treflan (trifluralin)--Used preplant incorporated in soybeans and nursery stock for annual grass control. Elanco.

Velpar (hexazinone)--Used for nonselective postemergence weed control on noncropland and Christmas tree plantings. DuPont.

Vernam (vernolate)--Used preplant incorporated in soybeans for annual grass and some broadleaf weeds. Stauffer.

Vistar (mefluidide)--A growth regulator for grass control and suppression. 3M Company.

Weedazol--Trade name for amitrole. Union Carbide.

## CONVERSION TABLES

### Acre To 1000 Square Feet

#### 1. Known Facts and Assumptions:

1 acre = 43,560 sq ft  
1 pt = 16 oz; 1 qt = 32 oz  
1 oz = 2 tablespoons = 6 teaspoons  
Herbicide rate per acre from bulletin or label  
Hand sprayers apply about 1 gal per 1000 sq ft

#### 2. Convert Herbicide Rate Per Acre to Ounces:

For example, 2 qt per acre = 64 oz

#### 3. Convert 64 oz per acre to oz per 1000 sq ft

64 43 = 1.50 oz or 3 tablespoons per 1000 sq ft

#### 4. Add 3 tablespoons of the product to 1 gal of water and apply uniformly to 1000 sq ft

NOTE: Wettable powder herbicide rates would be determined by the same procedure; however, since volume or density of wettable powder herbicides varies, the calculated rate per 1000 sq ft should be carefully measured by weighing on a precision scale.

### Active Ingredient Per Gallon Conversions

Pounds of active material per gal of commercial product	Pints of commercial product needed per acre to give the following pounds of herbicide per acre		
	1/4 lb	1/2 lb	1 lb
2.00	1	2	4
2.64	3/4	1 1/2	3
3.00	2/3	1 1/3	2 2/3
3.34	3/5	1 1/5	2 2/5
4.00	1/2	1	2
6.00	1/3	2/3	1 1/3

### Metric Conversions

Symbol	When You Know	Multiply		To Find	Symbol
		By			
lb	pounds	0.45		kilograms	kg
pt	pints	0.47		liters	l
qt	quarts	0.95		liters	l
oz	ounces	30.00		milliliters	ml
A	acres	0.40		hectares	ha
ha	hectares	2.50		acres	A

## NOTES



## WEED SCIENCE PUBLICATIONS

Lawn Weeds - NC Regional Pub. No. 26  
 Weed Control in Trees - G73-33  
 Hay Fever Plants - EC77-199  
 Weed Control in Gardens - G79-444  
 Vine Weeds - NC Regional Pub. No. 33  
 Musk Thistle - EC76-160  
 Common Milkweed - G77-384  
 Field Sandbur Control in Corn - G74-121  
 Jointed Goatgrass - G75-210  
 Shattercane--What To Do About It - G74-122  
 Know and Control Downy Brome - G78-422  
 Sagebrush Control- G80-510  
 Canada Thistle Control - G80-509  
 Blue Mustard Control - G74-92  
 Hemp Dogbane - G83-665  
 Velvetleaf - G83-681  
 Soybean Weed Control - G83-647  
 Weed Control in Alfalfa - G75-220  
 Broadleaf Weed Control in Wheat - G74-120  
 Weed Control in Grain Sorghum - G74-137  
 Weed Control in Reduced Tillage Corn - G74-123  
 No-Till Corn in Alfalfa Sod - G74-131  
 Right Crop Stage for Herbicide Use--Alfalfa,  
 Sugarbeets, Soybeans and Fieldbeans - G78-390  
 Downy Brome Control in Alfalfa - G79-436  
 Right Crop Stage for Herbicide Use--Corn, Sorghum,  
 Small Grains - G77-382

Factors That Make Herbicides Work - G76-272  
 Herbicide Carryover - G74-180  
 Close Drilled Soybeans - G77-329  
 Applying Herbicides in Irrigation Water - G77-356  
 Test for Atrazine Carryover - G74-113  
 Broadcast or Band Herbicides - G76-294  
 Calibrating a Sprayer - G82-566  
 Herbicides and Soils - G83-653  
 Herbicide-Fertilizer Combinations - G74-164  
 Surfactants and Herbicides - G76-295  
 Weed Control Along Irrigation Pipe and Ditchbanks  
 - G78-420  
 Constructing a Pipewick Applicator - G81-555  
 Using Pipewick and Other Selective Applicators -  
 G81-562  
 Ecofarming-Management of Atrazine Carry Over in  
 Ecofallow - G81-570  
 Ecofarming-Fallow Aids in Winter Wheat Fallow  
 Rotations - G81-546  
 Ecofarming-Spring Row Crop Planting and Weed Con-  
 trol in Winter Wheat Stubble - G81-551  
 Ecofarming-Selection of Sprayers - G80-500  
 Ecofarming-Floaters for Herbicide Application -  
 G81-550  
 Disposal of Excess Pesticides - G79-473

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## CLEANING THE SPRAYER

First rinse the sprayer with a material which acts as a solvent for the herbicide. Kerosene and fuel oils carry away oil-soluble herbicides such as 2,4-D ester. Chemicals which form emulsions when mixed with water are oil-soluble. After the oil rinse, a rinse with water containing detergent will help remove the oil. Oil-soluble herbicides are the most difficult to remove. 2,4-D amine salts are water-soluble.

For most water-soluble herbicides repeated rinsing with water is usually enough. Hormone type require extra precautions. If 2,4,5-T, silvex, Banvel or 2,4-D were used, fill the tank with water and ammonia. Add 1 quart of household ammonia to 25 gallons of water. Pump enough solution through the hose and nozzles to fill these parts completely. Then fill the tank, close and leave for 24 hours before rinsing thoroughly with water.

Activated charcoal can be used after the preliminary rinsing to decontaminate the sprayer. A 3% suspension absorbs the 2,4-D. Agitate the suspension for 2 to 3 minutes and drain, then rinse thoroughly with clear water.

For wettable powder herbicides, see that none of the powder remains in the tank. A thorough rinsing with water is usually sufficient. Thoroughly clean all equipment immediately after use.

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