

1985

## EC85-130 A 1985 Guide for Herbicide Use in Nebraska

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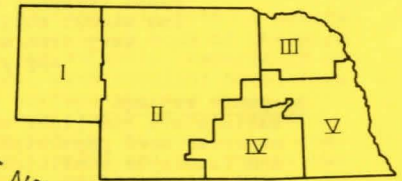
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# A 1985 GUIDE FOR . . . HERBICIDE USE IN NEBRASKA . . .



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**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"*

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.


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**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.

 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.





## 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 from planting time to just before crop emergence or weed seed germination. Rainfall or sprinkler irrigation prior to weed germination required. *Surface mix* 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 rainfall 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 carryover in soils increase as one goes westward in Nebraska. Carryover problems also increase on low organic matter and high pH soils.

Sprayers should provide good agitation of spray solution and be equipped with appropriate screens to avoid nozzle clogging.

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 MIX, SPRINKLER or EARLY POST...May affect sensitive crops the following year especially on high pH soils. Can be used at layby. Approx. cost \$4.60-\$6.90.
*BICEP 4.5L	2 qt	2.4 qt	3.2 qt	PRE, SURFACE MIX, SPRINKLER or EARLY POST...Bicep is a combination of 2 1/2 parts Dual to 2 parts atrazine. Approx. cost \$10.80-\$17.30.
BLADEX 4L <sup>3</sup>	Do not use	2.5 qt	3.25 qt	PRE, SURFACE MIX, 4L SPRINKLER or 80W EARLY POST...Injury may occur on soils that are calcareous, sandy or below 1% organic matter. Approx. cost \$11.75-\$15.30.
BLADEX 4L <sup>3</sup> + ATRAZINE 4L <sup>3</sup> or EXTRAZINE 4L	1.25 qt + 0.5 qt 1.6 qt	1.67 qt + 0.83 qt 2.4 qt	2.5 qt + 1.25 qt 3 qt	PRE, SURFACE MIX, SPRINKLER, or 80W EARLY POST...Injury may occur on soils that are calcareous, sandy or below 1% organic matter. Carryover could affect some crops the following year. Approx. cost \$6.40-\$12.00.
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 MIX...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 \$10.60-\$16.35; Dual + Bladex \$13.00-\$21.90.
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	PRE...3-way mix. Injury may occur on soils that are calcareous, sandy or below 1% organic matter. Approx. cost \$11.95-\$19.85.
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 \$11.95-\$19.85.

(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	
<b>Field Corn &amp; Popcorn* (continued)</b>				
<i>SEE TROUBLESOME WEED SECTION ON PAGE 21 FOR SPECIFIC WEEDS</i>				
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 \$17.45-\$22.25; Dual + Sencor + Bladex \$21.60-\$25.85.
*ERADICANE 6.7E	4.75 pt	5 pt	5 pt	PPI or SPRINKLER BEFORE WEED SEED GERMINATION...Apply PPI treatments to dry surface soil and immediately incorporate by cross tandem discing or similar soil mixing. 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 \$13.80; Eradicane Extra \$17.60-\$18.45; Eradicane Extra + Atrazine \$16.10-\$22.15; Eradicane Extra + Bladex \$18.50-\$27.85.
*ERADICANE EXTRA	5.25 pt	5.3 pt	5.5 pt	
*ERADICANE 6.7E or	4.75 pt or	4.75 pt or	4.75 pt or	
*ERADICANE EXTRA +	5.25 pt +	5.3 pt +	5.5 pt +	
*ATRAZINE 4L <sup>3</sup> or	2 pt or	2.4 pt or	3.2 pt or	
*BLADEX	2 pt	3.2 pt	4 pt	
EXTRAZINE 4L	1.6 qt	2.4 qt	3 qt	PRE...Injury may occur on soils that are calcareous, sandy or below 1% organic matter. Extrazine is a combination of 2.7 parts Bladex + 1.3 parts Atrazine. Approx. cost: Extrazine \$6.40-\$12.00; Extrazine + Dual \$13.15-\$20.15; Extrazine + Lasso \$15.80-\$18.80.
EXTRAZINE 4L +	1.25 qt +	1.75 qt +	2 qt +	
DUAL 8E or	1.3 pt or	1.5 pt or	2 pt or	
LASSO 4EC	2 qt	2 qt	2 qt	
*LASSO 4EC <sup>4</sup> or	3 qt or	2.5 qt or	3 qt or	PRE, SURFACE MIX or LIQUID THROUGH SPRINKLER...Postemergence broadleaf weed control usually required. Also registered for layby application. See page 12. Approx. cost \$13.50-\$16.20.
*LASSO II 15G	20 lb	17 lb	20 lb	
*LASSO 4EC <sup>4</sup> +	2 qt +	2 qt +	2 qt +	PRE, SURFACE MIX, SPRINKLER or EARLY POST...Tank mix. Also registered for layby application. See page 12. Approx. cost: Lasso + Aatrex/Atrazine \$13.10-\$14.50; Lasso + Atrazine Flowable \$16.00-\$20.00.
*AATREX/ATRAZINE 4L <sup>3</sup>	1 qt	1.2 qt	1.6 qt	
*LASSO & ATRAZINE FLOWABLE <sup>4</sup> (Package blend)	3.2 qt	3.5 qt	4 qt	
*LASSO 4EC +	2 qt +	2 qt +	2 qt +	PRE or SPRINKLER...Injury may occur on soils that are calcareous, sandy or below 1% organic matter. Approx. cost \$15.80-\$20.20.
*BLADEX 4L <sup>3</sup>	1 qt	1.7 qt	2 qt	
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 \$18.85-\$20.55; Lasso + Sencor + Bladex \$23.00-\$24.15.

(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

LASSO +	2 qt	2 qt	2 qt	PRE...3-way mix. Injury may occur on soils that are calcareous, sandy or below 1% organic matter. Approx. cost \$14.30-\$18.15.
ATRAZINE 4L <sup>3</sup>	1 pt	1 pt	1.25 pt	
BLADEX 4L <sup>3</sup>	1 pt	2 pt	2.5 pt	
PROWL 4EC with	Do not use	1.5 qt +	1.5 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 \$9.60-\$10.60; Prowl + Bladex \$14.90-\$16.30.
ATRAZINE 4L <sup>3</sup>		1.2 qt or	1.6 qt or	
BLADEX 4L <sup>3</sup>		1.7 qt	2 qt	
*SUTAN+ 6.7E/Genate Plus (Primarily grass control)	5 pt	5 pt	5 pt	PPI or SPRINKLER BEFORE WEED SEED GERMINATION...Apply PPI treatments to dry surface soil and immediately incorporate by cross tandem discing or similar soil mixing. Postemergence broadleaf weed control usually required. Repeated use may lead to reduced weed control. Approx. cost \$12.00.
*SUTAN+ 6.7E/Genate Plus with	3.75 pt +	3.75 pt +	3.75 pt +	
*ATRAZINE 4L <sup>3</sup> or with	2 pt or	2.4 pt or	3.2 pt or	
*BLADEX 4L <sup>3</sup>	2 pt	3.5 pt	4 pt	PPI or SUTAN/GENATE + ATRAZINE AND SUTAZINE+ SPRINKLER...Apply PPI treatments to dry surface soil and immediately incorporate by cross tandem discing or similar soil mixing. Sutazine+ is a combination of 4.8 parts Sutan+ + 1.2 parts Atrazine. Increase Sutan/Genate rates for sandbur and shattercane control. 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 \$11.30-\$12.70; Sutan+/Genate + Bladex \$13.70-\$18.40; Sutazine+ \$13.80-\$16.10.
*SUTAZINE+	6 pt	7 pt	7 pt	
*SUTAN+ 6.7E/Genate Plus with	3.75 pt with	3.75 pt with	3.75 pt with	
*ATRAZINE 4L <sup>3</sup>	1 pt	1 pt	1.25 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. 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. Extrazine is a combination of 2.7 parts Bladex + 1.3 parts Atrazine. Approx. cost: Sutan+/Genate + Atrazine + Bladex \$12.50-\$14.35; Sutan+/Genate + Extrazine \$14.00-\$17.00.
+	+	+	+	
*BLADEX 4L <sup>3</sup>	1 pt	2 pt	2.5 pt	
*SUTAN+ 6.7E/Genate Plus +	3.75 pt +	3.75 pt +	3.75 pt +	Extrazine is a combination of 2.7 parts Bladex + 1.3 parts Atrazine. Approx. cost: Sutan+/Genate + Atrazine + Bladex \$12.50-\$14.35; Sutan+/Genate + Extrazine \$14.00-\$17.00.
EXTRAZINE 4L	1.25 qt	1.75 qt	2 qt	

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	Silt Loam	Silty-Clay Loam	
	<1½% OM	1½-2½% OM	>2½% OM	
<b>Grain Sorghum (Milo)</b>				
<i>SEE TROUBLESOME WEED SECTION ON PAGE 21 FOR SPECIFIC WEEDS</i>				
AATREX 4L/ATRAZINE 4L <sup>3</sup>	Do not use	2 qt	2.4 qt	PPI, PRE, or SURFACE MIX...Preplant applications should be made only on fine textured soils. Heavy rains may leach AAtrex/Atrazine and cause injury to sorghum. Approx. cost \$4.60-\$5.50.
BICEP 4.5L	2.4 qt on 1-1.5% OM	2.8 qt	3.2 qt	PRE or SURFACE MIX...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-\$17.25; Dual \$9.40-\$15.65; Dual + AAtrex/Atrazine \$11.70-\$15.95.
DUAL 8E or DUAL 25G	1.5 pt or 6 lb	2 pt or 8 lb	2.5 pt or 10 lb	
DUAL 8E + AATREX/ATRAZINE 4L <sup>3</sup>	1.5 pt + 0.5-0.75 qt	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 MIX...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 \$11.10.
LASSO 4EC <sup>4</sup>	2.5 qt	2.5 qt	3.0 qt	PRE or SURFACE MIX...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 Lasso and 1.5 lbs Atrazine. Post broadleaf weed control may be necessary if Lasso is used alone. Approx. cost: Lasso \$13.50-\$16.20; Lasso + Atrazine \$11.95-\$13.65; Lasso & Atrazine Flowable \$15.00-\$17.50.
LASSO 4EC <sup>4</sup> + ATRAZINE 4L	2 qt + 0.5-0.75 qt	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 \$16.80.
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 \$14.90-\$15.50.
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 \$16.40-\$17.00; Ramrod & Atrazine Flowable \$16.80.
RAMROD & ATRAZINE FLOWABLE (Package blend)	Do not use	4 qt	4 qt	
LASSO 4EC or DUAL 8E + MODOWN 4F	2 qt or 0.75 qt + 1.25 qt	2 qt or 1 qt + 1.5 qt		PRE...Tank mix. 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 \$19.95-\$20.55; Dual + Modown \$17.55-\$22.25.

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), Milogard 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 Ramrod Flowable = 1.5 lb Ramrod 65W

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

## 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	
<b>Soybeans</b>				
SEE TROUBLESOME WEED SECTION ON PAGE 21 FOR SPECIFIC WEEDS				
DUAL 8E or DUAL 25G	2 pt or 8 lb	2.5 pt or 8 lb	2.5 pt or 10 lb	PRE, SURFACE MIX or CENTER PIVOT...To reduce injury on calcareous soil decrease Sencor/Lexone rates by 1/3. Approx. cost: Dual \$12.50-\$15.65; Dual + Sencor \$18.20-\$22.60.
DUAL 8E + SENCOR/LEXONE 4L <sup>3,5</sup>	Do not use	1.5 pt + 0.7 pt	2 pt + 0.8 pt	
DUAL 8E or LASSO 4EC + MODOWN 4F <sup>3</sup>	1 qt or 2.5 qt + 1.25 qt	1 qt or 2.5 qt + 1.5 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 \$20.65-\$23.25.
LASSO 4EC <sup>4</sup> or LASSO II 15G	2.5 qt or 17 lb	2.5 qt or 17 lb	2.5 qt or 17 lb	PRE, SURFACE MIX or CENTER PIVOT...To reduce injury on calcareous soil decrease Sencor/Lexone rates by 1/3. Approx. cost: Lasso \$13.50; Lasso + Sencor/Lexone \$19.60-\$20.90.
LASSO 4EC <sup>4</sup> + SENCOR/LEXONE 4L <sup>3,5</sup>	Do not use	2 qt + 0.7 pt	2 qt + 0.8 pt	
LOROX L <sup>3</sup> with DUAL 8E or with LASSO 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 \$15.05-\$23.40; Dual + Lorox \$16.75-\$25.10.
PROWL 4EC	1.5 pt	2 pt	2.5 pt	PPI or SURFACE MIX...To reduce injury on calcareous soil decrease Sencor/Lexone rates by 1/3. Approx. cost: Prowl \$3.45-\$5.75; Prowl + Sencor \$9.75-\$14.70.
PROWL 4EC + SENCOR/LEXONE 4L <sup>3,5</sup>	1.5 pt + 0.5 pt	2 pt + 0.7 pt	2 pt + 0.8 pt	
SONALAN 3EC	1.7 pt	2.3 pt	2.7 pt	PPI...Incorporate within 48 hours. To reduce injury on calcareous soil reduce Sencor/Lexone rate by 1/3. Increase Sonalan rate by 1/2-1 pt for black nightshade control. Approx. cost: Sonalan \$7.30-\$11.60; Sonalan + Sencor/Lexone \$12.75-\$20.85.
SONALAN 3EC + SENCOR/LEXONE 4L <sup>3,5</sup>	1.5 pt + 0.5 pt	2 pt + 0.7 pt	2.5 pt + 0.8 pt	
TREFLAN 4EC (Primarily grass control)	1 pt	1.5 pt	1.75 pt	PPI...For best results immediately incorporate. To reduce injury on calcareous soil decrease Sencor/Lexone rate by 1/3. Approx. cost: Treflan \$2.55-\$4.45; Treflan + Sencor/Lexone \$8.85-\$13.95.
TREFLAN 4EC + SENCOR/LEXONE 4L <sup>3,5</sup>	1 pt + 0.5 pt	1.25 pt + 0.7 pt	1.5 pt + 0.8 pt	
TREFLAN 4EC PPI with SENCOR/LEXONE 4L <sup>3,5</sup> PPI followed by SENCOR/LEXONE 4L <sup>3,5</sup> PRE (Split application)	1 pt + 0.3 pt + 0.2 pt	1.25 pt + 0.6 pt + 0.2 pt	1.5 pt + 0.7 pt + 0.3 pt	SPLIT SHOT, PPI and PRE...Improves broad-leaf control. For best results immediately incorporate first application of Treflan and Sencor/Lexone. On calcareous soils reduce Sencor/Lexone rates by 1/3. Approx. cost \$8.85-\$16.45.
VERNAM 7E or REWARD 6E	2.3 pt or 2.6 pt	3 pt or 3.3 pt	3 pt or 4 pt	PPI...For best results immediately incorporate. Do not plant soybeans deeper than 2 inches. On calcareous soils reduce Sencor/Lexone rates by 1/3. Approx. cost: Vernam \$8.15-\$9.75; Vernam + Treflan + Sencor/Lexone \$17.00-\$18.60; Reward \$5.70-\$8.80.
VERNAM 7E + TREFLAN 4EC + SENCOR/LEXONE 4L <sup>3,5</sup>	Do not use	2.5 pt + 1 pt + 0.5 pt	3 pt + 1 pt + 0.5 pt	

(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	Silt Loam	Silty-Clay Loam	
	<1½% OM	1½-2½% OM	>2½% OM	

### Soybeans (continued)

SEE TROUBLESOME WEED SECTION ON PAGE 21 FOR SPECIFIC WEEDS

DUAL 8E or LASSO 4EC <sup>4</sup> with	1.5 pt or 1.5 qt +	1.5 pt or 2 qt +	2 pt or 2 qt +	PRE or SURFACE MIX...3-way mix. To reduce injury on calcareous soil reduce Sencor/Lexone rate by 1/3. Approx. cost: Dual + Amiben + Sencor/Lexone \$32.10-\$35.20; Lasso + Amiben + Sencor/Lexone \$30.80-\$33.50.
AMIBEN 2S and	4 qt +	4 qt +	4 qt +	
SENCOR/LEXONE 4L <sup>3,5</sup>	0.5 pt	0.5 pt	0.5 pt	
PROWL 4EC or TREFLAN 4EC with	1.5 pt or 1 pt +	2 pt or 1.25 pt +	2 pt or 1.5 pt +	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-\$27.30; Treflan + Amiben + Sencor/Lexone \$25.25-\$26.55.
AMIBEN 2S and	4 qt +	4 qt +	4 qt +	
SENCOR/LEXONE 4L <sup>3,5</sup>	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), Dual + Lorox (PRE), Dual + Dyanap (PRE), Dual + Amiben (PRE or PPI), Dual + Sencor/Lexone + Modown (PRE), Dyanap (PRE and POST), Goal (PRE), Goal + Lasso (PRE), Lasso + Amiben (PRE), Lasso + Dyanap (PRE, up to cracking), Lasso + Premerge (PRE), Lasso + Sencor/Lexone + Modown (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.

### Proso Millet

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	

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 \$1.15-\$1.75.
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### Forage Sorghum

UNDER MOST CONDITIONS HERBICIDES ARE NOT NECESSARY

ATRAZINE 4L <sup>3</sup>	Do not use	2 qt	2.25 qt	PPI, PRE or SURFACE MIX...Make preplant applications only on fine textured soils. Heavy rains may leach and cause crop injury. Approx. cost \$4.60-\$5.20.
DUAL 8E	1.5 pt	2 pt	2.5 pt	PPI or SURFACE MIX...Seed must be Concep treated to protect from Dual injury.
BICEP 4.5L	2.4 qt on 1-1.5% OM	2.8 qt	3.2 qt	Approx. cost: Dual \$9.40-\$15.65; Bicep \$12.95-\$17.25.

<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 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.

<sup>5</sup>Do not use on soils with less than 1% organic matter. Increased injury risk on soils where triazine carry-over exists.

## 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. Ratings apply when herbicides are used at rates suggested.

**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  
sandbar  
shattercane/sorghum  
smartweed  
sunflower  
velvetleaf  
w. buckwheat  
crop safety<sup>1</sup>  
soil carryover potential in months<sup>2</sup>

### Potatoes

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	F	E	E	G	P	P	G	F	G	E	G	2-6
Sencor/Lexone + Dual	P	E	F	F	E	E	G	F	E	G	E	E	G	F	P	G	F	G	E	F	2-6

### Sugar Beets

Antor	P	E	P	E	G	E	P	P	F	G	G	P	P	G	F	P	P	P	P	G	2-3
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	-	G	G	5+
Nortron + Antor	P	E	P	E	G	E	P	G	E	F	E	P	F	G	F	G	P	P	G	G	4
Ro-Neet	P	E	P	E	E	E	P	P	G	E	F	P	G	G	P	P	P	P	P	G	1-2

### Fieldbeans

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 or Eptam + Sonalan	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	G	P	F	E	E	P	P	P	P	F	E	6-12
Eptam + Dual	F	E	P	E	E	E	P	F	G	E	G	P	F	E	G	P	P	P	F	E	2-5
Eptam + Lasso	F	E	P	E	E	E	P	G	E	E	P	F	E	G	P	P	P	P	F	E	2-4
Lasso or Dual	P	E	P	E	E	E	P	P	G	G	G	P	F	P	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

## 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	
<b>EPTAM 7E</b>	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 \$11.20.
<b>EPTAM 7E + TREFLAN 4EC</b>	2.5 pt + 1 pt	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 \$13.55; Eptam + Prowl \$11.90-\$13.05.
<b>EPTAM 7E + PROWL 4EC</b>	3 pt + 1 pt	3 pt + 1.5 pt	3 pt + 1.5 pt	
<b>SENCOR/LEXONE 4L<sup>3</sup></b>	1 pt	1.5 pt	2 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. Superior and Atlantic varieties are sensitive to herbicides and injury may occur. Approx. cost: Dual + Sencor/Lexone \$12.55-\$15.70; Sencor/Lexone \$12.60-\$25.20.
<b>SENCOR/LEXONE 4L<sup>3</sup> with DUAL 8E</b>	1 pt + 2 pt	1 pt + 2.5 pt	1 pt + 2.5 pt	

OTHER REGISTERED TREATMENTS FOR POTATOES: Dacthal (PRE), Dowpon M (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 Loam <1½% OM	Silt Loam 1½-2½% OM	Silty-Clay Loam >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 \$32.10-\$53.50; Nortron \$39.60-\$66.00; Nortron + Antor \$23.90-\$29.90.
NORTRON 1.5EC or NORTRON 4FL	3 qt or 1 qt	5 qt or 2.25 qt		
NORTRON 4FL +	1 qt +	1.25 qt +		
ANTOR 4ES	1 qt	1.25 qt		
EPTAM 7E or EPTAM 10G	2.25 pt or 20 lb	3.5 pt or 30 lb		
RO-NEET 6E or RO-NEET 10G	2.75 pt or 20 lb	3.3-4.5 pt or 25-35 lb		
LAY-BY...Apply Eptam after thinning and clean cultivation; incorporate immediately 2" deep with a rolling cultivator. Approx. cost \$7.20-\$11.20.				
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.				

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 or EPTAM 7E	30 lb or 3.5 pt	30 lb or 3.5 pt		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 \$11.20.
EPTAM 7E with SONALAN 3EC or with PROWL 4EC	2.5 pt + 2 pt or 2 pt	2.5 pt + 2 pt or 2 pt		
EPTAM 7E or SONALAN 3EC with DUAL 8E or with LASSO 4EC	2.5 pt or 2 pt + 1.5 pt or 4 pt	2.5 pt or 2 pt + 1.5 pt or 4 pt		
EPTAM 7E +	2.25 pt +	2.25 pt +		
TREFLAN 4EC	1 pt	1 pt		
TREFLAN 4EC with DUAL 8E or with LASSO 4EC	1 pt + 1.5 pt or 4 pt	1 pt + 1.5 pt or 4 pt		
LASSO 4EC or DUAL 8E	3 qt or 2.5 pt	3 qt or 2.5 pt		
PPI...Do not follow with fall seeded small grain. Sugar beets and sorghum may be injured the next year. Approx. cost: Lasso + Treflan \$12.35; Dual + Treflan \$11.95; Eptam + Treflan \$9.75.				
PPI or SURFACE MIX...Surface blending will improve weed control and reduce crop injury. Approx. cost: Dual \$15.65; Lasso \$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	lambquarters	nightshade	pigweed	ragweed	R. thistle	sandbur	shattercane/vol. corn	smartweed	sunflower	velvetleaf	w. buckwheat	crop safety <sup>1</sup>	soil carryover potential in months <sup>2</sup>
<b>Corn</b>																							
AAtrex/Atrazine + crop oil	F	F	F	G	F	F	P	G	F	F	F	F	F	F	F	F	F	F	F	F	F	F	6-18
Banvel	F	F	F	F	F	F	P	P	F	F	F	F	F	F	F	F	F	F	F	F	F	F	1-2
Basagran + Atrazine	F	G	F	F	F	F	P	P	F	F	F	F	F	F	F	F	F	F	F	F	F	F	2-6
Bladex	F	G	F	G	G	G	F	F	G	F	F	F	F	F	F	F	F	F	F	F	F	F	2
Buctril/Brominal	F	F	F	F	F	F	P	P	F	F	F	F	F	F	F	F	F	F	F	F	F	F	0
2,4-D	F	F	F	F	F	F	P	P	F	F	F	F	F	F	F	F	F	F	F	F	F	F	1
2,4-D + Banvel	G	F	F	F	F	F	P	P	F	F	F	F	F	F	F	F	F	F	F	F	F	F	1-2
<b>Sorghum</b>																							
AAtrex/Atrazine + crop oil	F	F	P	G	F	F	P	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	6-18
Basagran + Atrazine	F	G	F	F	F	F	P	P	F	F	F	F	F	F	F	F	F	F	F	F	F	F	2-6
Brominal	F	F	F	F	G	F	P	P	F	F	F	F	F	F	F	F	F	F	F	F	F	F	0
Roundup-ropewicks, wipers, etc. <sup>6</sup>	-	-	-	-	G	-	-	-	G	F	G	-	G	G	F	-	F	G	F	F	-	G	0
2,4-D	F	F	F	F	F	F	P	F	G	G	G	F	G	G	F	F	F	G	F	F	F	F	1
<b>Soybeans &amp; Fieldbeans</b>																							
Basagran	P	F	P	P	F	P	P	P	F	F	P	P	P	G	P	P	P	F	F	F	G	G	0
Basagran + Blazer (soybeans only)	P	G	P	F	F	P	P	P	F	F	F	G	G	F	P	P	F	F	F	F	F	G	0
Blazer (soybeans only)	P	F	P	G	F	F	G	F	F	F	F	F	G	F	F	F	F	F	F	F	F	G	0
Fusilade	P	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	1
Poast	P	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	0
Poast + Basagran (soybeans only)	P	F	F	F	F	G	F	F	F	F	F	F	P	G	F	F	G	F	F	G	G	F	0
Rescue (soybeans only)	P	F	F	F	G	F	P	P	F	F	F	F	P	G	F	F	F	G	F	F	F	F	0
Roundup-ropewicks, wipers, etc. <sup>6</sup> (soybeans only)	-	-	-	-	G	-	-	-	G	F	G	-	G	G	F	F	F	G	F	F	-	F	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	F	F	F	F	F	F	P	P	P	F	F	P	F	G	<1
Herbicide 273	-	F	F	-	F	P	P	P	F	F	F	F	F	F	P	P	P	G	G	F	G	G	<1
Poast	P	P	F	P	F	F	F	G	P	P	P	P	P	P	P	F	F	F	P	P	P	F	0
<b>Potatoes</b>																							
Sencor/Lexone	F	P	P	P	G	F	P	F	P	G	F	P	F	G	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	lambquarters	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>															
Brominal/Buctril	E	F	E	F	G	F	G	G	E	E	G	E	-	-	1
Glean	F	F	F	F	F	F	F	F	F	G	F	F	F	-	6-18
MCPA + Brominal/Buctril (Brominal 3+3)	F	F	F	F	F	F	F	F	F	F	G	F	F	-	1
2,4-D	F	F	F	F	F	F	F	F	F	F	F	F	F	F	1
2,4-D + Banvel	F	F	F	F	F	F	F	F	F	F	G	F	F	F	1-2
2,4-D + Brominal/Buctril	F	F	F	F	F	F	F	F	F	F	F	F	F	F	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", G74-180.  
<sup>6</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>7</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 tiller- ing	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	0.5-1 pt			
CORN (Field and popcorn*)	*AAtrex/Atrazine 4L <sup>3</sup> or Bicep 4.5L	2 qt or 3.2 qt	Broadleaf weeds 2-6"; grass weeds 1" or less; also at lay-by with Atrazine	Use Atrazine with water-oil mixtures. Lower Atrazine rates control broadleaf weeds. Make lay-by applications when corn is 20-30" tall and weeds less than 1 1/2" tall. Approx. cost: Atrazine \$4.60; Bicep \$17.30.	
	*Basagran + *Atrazine	0.5 qt + 0.5 qt	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 \$13.05.	
	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 \$9.00.	
	*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. <i>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 apply between June 20 and Sept. 1 if sensitive crops are nearby.</i> Approx. cost: 2,4-D \$.65-\$2.00; 2,4-D + Banvel \$2.10; Banvel \$3.15.	
	2,4-D amine + Banvel 4WS	0.5 pt + 0.25 pt			
	Banvel 4WS	0.5 pt			
	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 \$6.35.	
	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-\$16.20; Lasso + Atrazine \$13.10-\$19.90.	
	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 \$3.45-\$6.90; Prowl + Atrazine \$5.75-\$9.65.	
	FIELDBEANS	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 \$17.85-\$23.30.

(Continued next page)

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

Crop	Herbicide	Rate Per Acre <sup>7</sup>	Application Time	Remarks and Approximate Cost/A Broadcast		
OATS (Not under-seeded with legume)	Brominal ME4 or Buctril 2EC +	0.5-0.75 pt or 1-1.5 pt +	Weeds and oats in 3-4 leaf stage	Controls annual broadleaf weeds including wild buckwheat. Thorough coverage required. Approx. cost \$6.10-\$8.95.		
	2,4-D amine	0.5 pt				
	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.		
	Glean	0.17 oz	Broadleaf weeds less than 2"	Follow with winter wheat. Approx. cost \$2.55.		
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 highest rate for sunflower and kochia. Do not use on red skinned or early maturing white varieties nor within 60 days of harvest. Approx. cost \$6.30-\$12.60.		
PROSO MILLET	2,4-D amine + Banvel 4WS	0.67 pt + 0.25 pt	Proso in 2-5 leaf stage	Broadleaf weeds should be small and actively growing. Observe all Banvel precautions when susceptible crops are within 1/2 mile of application site. Approx. cost \$2.25.		
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: Atrazine \$4.25; Basagran + Atrazine \$13.55.		
	Basagran 4WS + Atrazine 4L <sup>3</sup>	0.5 qt + 0.5 qt				
	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: 2,4-D \$.65-\$1.00; Brominal \$5.25-\$7.90.	
	Brominal ME4	0.5-0.75 pt	Broadleaf weeds 2-6"; sorghum up to 14"			
SOYBEANS	Basagran 4WS	0.75-1 qt	Most suscep- tible weeds less than 4" tall except 12-18" for corn and shattercane	Combining Basagran with Poast reduces effectiveness on volunteer corn and shattercane. All treatments require use of crop oil concentrate or surfac- tant. Good spray coverage essential. See label for rates and specific weed size. The addition of 2 oz of 2,4-DB improves effectiveness of Basagran and Blazer on larger weeds. Approx. cost: Basagran \$17.80-\$23.30; Blazer \$20.00; Basagran + Blazer \$27.40-\$42.50; Basagran + Poast \$39.20-\$44.70.		
	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				
	Fusilade 4E	0.25-0.5 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 \$11.40-\$21.30; Poast \$15.75.
	Poast	1 pt				
	Rescue (Alanap + 2,4-DB)	3-4 qt	Weeds under 30"; soybeans after first bloom		Effective on large sunflower, cockle- bur and giant ragweed. Add surfactant 1/2% v/v. Approx. cost \$10.50-\$13.70.	
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-\$1.50.		
	Brominal 3+3	0.7-1 pt		Thorough coverage required. Most broadleaf weeds should be in 2-4 leaf stage or mustards in early rosette stage. Approx. cost \$6.15-\$9.00.		
	Brominal ME4 or Buctril 2EC + 2,4-D amine	0.5-0.75 pt or 1-1.5 pt + 0.5 pt	Wheat well tillered			
	(All treat- ments except 2,4-D control wild buckwheat)	Banvel 4WS + 2,4-D amine	4 oz + 0.75 pt	Before wheat joints	Controls most troublesome broadleaf weeds. Approx. cost \$2.35.	
		Glean	0.17-0.5 oz	After wheat is in 2-3 leaf stage and broadleaf weeds less than 2" tall; before May 1	Controls most troublesome broadleaf weeds. Add 0.25% surfactant if weeds are present. 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-\$7.50.	

(Continued next page)

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

Crop	Herbicide	Rate Per Acre <sup>1</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.
	Poast	1-2 pt	5-10	3-7	Grass 1-3"	Use higher rate for larger grass or grass under drought stress. Requires 1 qt crop oil concentrate per acre. See label. Approx. cost \$15.75-\$30.00.

### 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, Basagran.

Soybeans: Butoxone/Butyrac, Dyanap/Klean Krop, Lasso + Premerge, Lorox directed, Lorox + Butyrac directed, Premerge, Premerge + Amiben, Poast + Basagran + Blazer.

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 <sup>1</sup>	Application Time	Remarks and Approximate Cost/A Broadcast
VINE CROPS (Cantaloupe, cucumber, muskmelon,	Prefar 4E	4-6 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.
	Alanap-L	4-8 qt		
		Dacthal 75W	6-12 lb	Crop 4-5 true leaves
	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 broadleaves. Use the lower rate on sandy soils. Approx. cost \$2.55-\$3.85.
ONIONS	Dacthal 75W	8-14 lb	Preemergence at seeding or transplanting and/or at layby	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-\$8.50.
	Goal 1.6E	0.6-1.25 pt	Onions 2 fully developed true leaves; weeds 2-4 leaves	Do not apply to onions under drought stress. Do not mix goal with oil, surfactant or fertilizer. Approx. cost \$4.30-\$9.00.

<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>7</sup>Low volatile ester and salt formulations preferred over volatile esters such as butyl and isopropyl because of fume hazards. 2,4-D, 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>7</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 \$11.85-\$15.80.
(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 sunflower, 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 sunflower, bindweed and pigweed. Only certain brands labeled for this use. Approx. cost \$2.50.
POTATOES	Dinitro Dow General Dinitro 5 Premerge 3 Dinitro 3	1-2 qt 1-2 qt 2-3 qt 2-3 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.
	Diquat	1 pt	7 or more days before harvest	Follow label on water volume and surfactant use. Approx. cost \$7.90.
	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 \$6.50-\$12.20.
SORGHUM (Grain)	2,4-D LV ester	1 qt	After soft dough	Rescue operation for late control of sunflower, 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	1 pt	65% brown pods	Follow label directions on water volume and X-77 additive. Do not graze for 15 days. Approx. cost \$6.50.
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 sunflower, kochia, pigweed and lambsquarters. To reduce breakage all green color should be gone from the joints. Only certain brands labeled for this use. Approx. cost \$2.50.

<sup>7</sup>Low volatile ester and salt formulations preferred over volatile esters such as butyl and isopropyl because of fume hazards. 2,4-D, 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	Application Time	Remarks and Approximate Cost/A Broadcast																																															
ALFALFA (establish- ing new stands)	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 \$11.10-\$14.80; Eptam \$8.00-\$11.20.																																															
	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 trifoliolate leaves	For broadleaf weeds. Rate varies with formulation and weed size. Do not use treated forage for 30 days. <i>DO NOT confuse with 2,4-D.</i> Use when temperature is above 50°F. Approx. cost \$3.50-\$10.50.	Kerb 50W	1-1.5 lb	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 trifoliolate leaves. Moisture necessary for chemical activity. Kerb helps control sandbur. Approx cost \$14.70-\$22.05.	ALFALFA (established one year or more)	Princep 80W	0.5-2 lb	Late fall be- fore freeze up	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-\$7.50; Sinbar \$9.00- \$18.00; Lexone/Sencor \$9.50-\$12.75.	Sinbar 80W	0.5-1 lb	Late fall or early spring	Lexone/Sencor DF	0.5-0.67 lb		Paraquat	1-2 pt	Immediately after cutting	BIG BLUESTEM & SWITCHGRASS (established & new seedings)	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 \$4.60.	COOL-SEASON GRASS SEEDLINGS	2,4-D	1-1.5 pt	2- to 4-leaf stage of grass	For broadleaf weeds. If larger weeds have formed canopy, increase rate to 1 qt. Approx. cost \$.65-\$1.50.	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 \$3.45-\$6.90.	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	Withhold milk cows from grazing treat- ed areas for 7 days. With Banvel mixture do not harvest hay for dairy animals within 37 days. Do not use Banvel within 1/2 mile of sensitive crops. Combination controls greater variety of weed species. Approx. cost: 2,4-D \$2.00; 2,4-D + Banvel \$5.15.	2,4-D +
ALFALFA (seedling or established)	Butyrac or Butoxone (2,4-DB)	1-3 qt	Postemergence. Weeds less than 3" tall; alfalfa 2-4 trifoliolate leaves	For broadleaf weeds. Rate varies with formulation and weed size. Do not use treated forage for 30 days. <i>DO NOT confuse with 2,4-D.</i> Use when temperature is above 50°F. Approx. cost \$3.50-\$10.50.																																															
	Kerb 50W	1-1.5 lb	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 trifoliolate leaves. Moisture necessary for chemical activity. Kerb helps control sandbur. Approx cost \$14.70-\$22.05.																																															
ALFALFA (established one year or more)	Princep 80W	0.5-2 lb	Late fall be- fore freeze up	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-\$7.50; Sinbar \$9.00- \$18.00; Lexone/Sencor \$9.50-\$12.75.																																															
	Sinbar 80W	0.5-1 lb	Late fall or early spring																																																
	Lexone/Sencor DF	0.5-0.67 lb																																																	
	Paraquat	1-2 pt	Immediately after cutting																																																
BIG BLUESTEM & SWITCHGRASS (established & new seedings)	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 \$4.60.																																															
COOL-SEASON GRASS SEEDLINGS	2,4-D	1-1.5 pt	2- to 4-leaf stage of grass	For broadleaf weeds. If larger weeds have formed canopy, increase rate to 1 qt. Approx. cost \$.65-\$1.50.																																															
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 \$3.45-\$6.90.																																															
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	Withhold milk cows from grazing treat- ed areas for 7 days. With Banvel mixture do not harvest hay for dairy animals within 37 days. Do not use Banvel within 1/2 mile of sensitive crops. Combination controls greater variety of weed species. Approx. cost: 2,4-D \$2.00; 2,4-D + Banvel \$5.15.																																															
	2,4-D +	1 qt +																																																	
	Banvel 4WS	0.5 pt																																																	

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## FORAGE CROPS, PASTURES & RANGES (continued)

Area or Use	Herbicide	Commercial Product Rate Per Acre <sup>7</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	1.5 qt	At bud stage of predominant weeds. <sup>8</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 mix- ture 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 \$8.35.
	2,4-D	1 qt		
	+ Banvel 4WS	+ 1 pt		
RANGELAND	AAtrex 80W or AAtrex 4L	0.6-1.25 lb or 1-2 pt	Fall	Controls winter annual bromes. In- jures cool-season grasses. Do not graze for 7 months after application. Reduce grazing pressure to improve grass stands. Do not apply to alkali- line soils. Approx. cost \$1.15-\$2.30.
NATIVE GRASS RENOVATION (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. Con- trols bluegrass, most annual grasses and broadleaf weeds, suppresses smooth brome grass. Approx. cost \$4.60.
SOD SEEDING (legumes into grass)	Paraquat	1-2 pt <sup>9</sup>	Immediately be- fore or after legume seeding	Suppresses established sod. Seed le- gumes with a sod seeder. If grass is less than 3" use lower rate. During year of establishment, graze inten- sively for only short periods. Approx. cost \$6.50-\$12.20.
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.

## SPECIAL APPLICATION EQUIPMENT 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
Bean Bar-- Straight-Stream Nozzle	1:19	5	1:19	5
Spreading Nozzle	1:99	1	1:49	2

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>7</sup>Low volatile ester and salt formulations preferred over volatile esters such as butyl and isopropyl because of fume hazards. 2,4-D, 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>8</sup>Retreatment may be necessary.

<sup>9</sup>Add X-77 spreader 2 pt per 100 gal spray solution.

## TREE PLANTINGS & FRUIT TREES\*

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 or Casoron 4G or *Norosac 4G	8 lb or 100 lb or 100 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.
	*Paraquat	1-2 qt	Directed post- emergence	Nonselective contact herbicide. <i>Keep spray off tree foliage.</i> Add X-77 sur- factant. Approx. cost \$6.50-\$12.20.
	*Fusilade or *Poast	0.67-1 pt or 2 pt	Postemergence before grasses tiller	Use on fruit trees limited to nonbear- ing trees. Add 1 qt crop oil concen- trate per acre. Thorough coverage required. On ornamentals use nonionic surfactant with Fusilade. Approx. cost: Fusilade \$28.00-\$41.00; Poast \$30.00.
	*Princep 80W	1.5-5 lb	Preemergence on trees at least 2 years old; use only on fruit trees planted 1 year or longer	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 \$4.90-\$16.25.
	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 \$2.55-\$3.85.
	*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, green ash, apples and peaches. Approx. cost \$11.50-\$23.00.
	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.
	*Surflan A.S.	2-4 qt	Preemergence	Fruit trees only. Approx. cost \$28.00- \$56.00.
	CONIFERS	Goal 2E	2-4 qt	Pre- or post- emergence to weeds
CHRISTMAS TREES-- (Scotch, Austrian, Ponderosa 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 \$26.45-\$52.90.
	Velpar L	1.8-3.6 qt		

\*Also registered on fruit trees.

## 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	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 \$63.20-\$126.40.
NOROSAC 10G	100-150 lb/1000 sq ft	Naiad Milfoil	Before weed growth occurs	Do not use water for irrigation, livestock or humans. Do not use fish for 90 days. Approx. cost \$8.00-\$12.00/1000 sq ft.
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 \$3.75-\$10.00.
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 \$102.00.

## 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>7</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. <i>Do not use Banvel or Tordon near sus- ceptible plants.</i> Approx. cost: 2,4-D \$2.00; 2,4-D + Banvel \$8.35; Tordon \$46.00.	
	2,4-D +	1 qt/A +			
	Banvel 4WS	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 \$23.00-\$46.00; AAtrex/Atrazine \$13.80; Princep \$23.40.	
	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"
	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
	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	0.12-0.25 lb/1000 sq ft or 2-4 lb/1000 sq ft			
PERENNIAL GRASSES (includ- ing brome- grass and quackgrass)	Roundup 3WS Amitrol-T/ Cytrol-T 2WS	2 qt/A 2 gal/A	Full foliage	Nonselective. Perennial grasses should have good top growth. Kills all annuals. Approx. cost: Roundup \$41.00; Amitrol-T \$40.00.	

<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>7</sup>Low volatile ester and salt formulations preferred over volatile esters such as butyl and isopropyl because of fume hazards. 2,4-D, 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>7</sup>	Apply This Amount Commercial Product Per Acre <sup>7</sup> or Per 100 Gallons (Handgun)	Application Time	Remarks and Approximate Cost/A Broadcast
ALFALFA	2,4-D amine + Banvel 4WS	0.5-2 pt + 0.5 pt	Postemergence when alfalfa has 4-6" growth	Use lowest rates in corn. Use drop nozzles on corn taller than 8". To kill established alfalfa prior to planting use higher rates; apply in late fall or spring. Approx. cost \$3.65.
ARTICHOKE, JERUSALEM <sup>9</sup>	2,4-D amine + Banvel 4WS	0.5 pt + 0.5 pt	12-18" tall <sup>8</sup>	For use in corn. Use drop nozzles on corn taller than 8". Approx. cost \$3.65.
	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.
	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	Controls most troublesome broadleaf weeds. Do not use on soils with pH of 7.5 or higher. Use only in contin- uous wheat or wheat fallow. Approx. cost \$2.55-\$5.00.
BUCKBRUSH <sup>9</sup> (snowberry)	2,4-D LV ester	1-2 qt	Full foliage (May 10-25) <sup>8</sup>	Use sufficient water to in- sure good coverage. Approx. cost \$1.25-\$2.50.
BUFFALOBUR	Atrazine 4L	3 qt	PPI or PRE in corn	Reduced rates less effec- tive. Approx. cost \$6.90.
	Buctril 2EC or Brominal 4ME	1.5 pt or 0.75 pt	Weeds 3-5 leaf stage in corn	Plants taller than 4" uncon- trolled. Approx. cost \$8.45.
	Blazer 2S	1 qt	Weeds 3-4 leaf stage in soy- beans	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 \$14.50-\$18.45.
	2,4-D + Banvel 4WS	1 pt + 0.5 pt	Postemergence on corn	Plants must be small. Approx. cost \$4.15.
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 \$8.45.
	Atrazine 4L	3 qt	Preemergence in corn	Can also be used post. Approx. cost \$6.90.
	Sencor/Lexone 4L (split-application)	0.5 pt + 0.5 pt	Preplant plus preemergence	Split-shot in soybeans. Approx. cost \$12.60.
BURSAGE, SKELETON- LEAF AND WOOLLYLEAF <sup>9</sup>	Tordon 22K	2 qt	Bud stage or when growing actively <sup>8</sup>	Non-crop areas. Tordon may remain in soil for three or more years. Carefully ob- serve all precautions. Approx. cost \$46.00.
	2,4-D + Banvel 4WS	1 qt + 1 pt	Early June or when growing actively <sup>8</sup>	See remarks for field bind- weed. If soil moisture con- ditions are poor, use oil- water emulsions as a carrier. Approx. cost \$8.35.

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

Weed	Herbicide <sup>7</sup>	Apply This Amount Commercial Product Per Acre <sup>7</sup> or Per 100 Gallons (Handgun)	Application Time	Remarks and Approximate Cost/A Broadcast
CANADA THISTLE <sup>9</sup>	Tordon 22K	2 qt	Fall-actively growing or spring-early bud <sup>8</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 qt	Fall-actively growing or spring-early bud <sup>8</sup>	Do not plant small grains for 45 days or sugar beets the following year. See remarks for field bindweed. Approx. cost \$14.70.
	Roundup 3WS	2-3 qt	Prebud to bud stage or in fall when grow- ing actively <sup>8</sup>	Idle ground or spot treat- ment in cropland before head or pod fill of crop. Avoid tillage for three days. Approx. cost \$41.00-\$61.50.
	Banvel 4WS	1-2 qt	Fall-actively growing or spring-early bud <sup>8</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 \$12.70-\$25.40.
	Glean + Surfactant	0.3-0.5 oz	Rosette to 4-6" stage <sup>8</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 \$27.00.
	Dowpon M 74SP	13.5 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 \$81.00-\$121.00.
	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 \$5.15.
DOGWOOD	Banvel 4WS	1-2 qt	Full foliage during June	Ground application only. Observe all drift pre- cautions when using within 1/2 mile of sensitive crops. Approx. cost \$12.70-\$25.40.
	Spike 5G	2 oz/tree	Spring or Fall	Apply under drip line. Approx. cost \$2.80/lb.

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## TROUBLESOME WEEDS & WOODY PLANTS (continued)

Weed	Herbicide <sup>7</sup>	Apply This Amount Commercial Product Per Acre <sup>7</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 \$4.60; Princep \$8.15.																																															
	Princep 80W	2.5 lb			FIELD BINDWEED <sup>9</sup> (use herbi- cide rates on page 12 & 13 when treating crops)	2,4-D	1 qt	Vigorous fall growth or bud stage in spring <sup>8</sup>	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 \$8.35.	2,4-D + Banvel 4WS	1 qt + 1 pt	Tordon 22K	2 qt	Vigorous fall growth or bud stage in spring <sup>8</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 + 2,4-D Amine or Banvel 4WS	1 pt + 1 pt or 0.5 pt	Late summer or fall when actively grow- ing <sup>8</sup>	Idle ground or grassland. Avoid tillage for 5 days. Injury to forage grasses may occur. Broadleaf crops may be injured 2 years after high rates of Banvel. Approx. cost: Roundup + 2,4-D \$11.25; Roundup + Banvel \$13.40; Banvel \$12.75-\$25.40.	Banvel 4WS	1-2 qt				GROUNDSEL, RIDDELL	2,4-D LV ester	1 qt	May 15-June 15	Approx. cost \$2.50.	HEMP (Marijuana)	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>9</sup>	2,4-D	1 qt	Spring bud stage <sup>8</sup>	Use lower rates in crops. Approx. cost \$2.00.	2,4-D	1-1.5 qt	After corn silks turn brown or milo is in the soft dough stage <sup>8</sup> . Apply to dog- bane before leaves start to turn yellow	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 \$5.15.	2,4-D amine + Banvel 4WS	1 qt + 0.5 pt	Roundup 3WS	4 qt	Late summer or fall <sup>8</sup>	Idle ground or spot treat- ment in cropland before head or pod fill of crop. Avoid tillage for at least 7 days after treatment. Approx. cost \$82.00.	HOARY CRESS	2,4-D LV ester
FIELD BINDWEED <sup>9</sup> (use herbi- cide rates on page 12 & 13 when treating crops)	2,4-D	1 qt	Vigorous fall growth or bud stage in spring <sup>8</sup>	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 \$8.35.																																															
	2,4-D + Banvel 4WS	1 qt + 1 pt																																																	
	Tordon 22K	2 qt				Vigorous fall growth or bud stage in spring <sup>8</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 + 2,4-D Amine or Banvel 4WS	1 pt + 1 pt or 0.5 pt			Late summer or fall when actively grow- ing <sup>8</sup>	Idle ground or grassland. Avoid tillage for 5 days. Injury to forage grasses may occur. Broadleaf crops may be injured 2 years after high rates of Banvel. Approx. cost: Roundup + 2,4-D \$11.25; Roundup + Banvel \$13.40; Banvel \$12.75-\$25.40.																																													
Banvel 4WS	1-2 qt																																																		
GROUNDSEL, RIDDELL	2,4-D LV ester	1 qt	May 15-June 15	Approx. cost \$2.50.																																															
HEMP (Marijuana)	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>9</sup>	2,4-D	1 qt	Spring bud stage <sup>8</sup>	Use lower rates in crops. Approx. cost \$2.00.																																															
	2,4-D	1-1.5 qt	After corn silks turn brown or milo is in the soft dough stage <sup>8</sup> . Apply to dog- bane before leaves start to turn yellow	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 \$5.15.																																															
	2,4-D amine + Banvel 4WS	1 qt + 0.5 pt																																																	
	Roundup 3WS	4 qt			Late summer or fall <sup>8</sup>	Idle ground or spot treat- ment in cropland before head or pod fill of crop. Avoid tillage for at least 7 days after treatment. Approx. cost \$82.00.																																													
HOARY CRESS	2,4-D LV ester	2 qt	Rosette stage in the fall or early bud in spring <sup>8</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 & WOODY PLANTS (continued)

Weed	Herbicide <sup>7</sup>	Apply This Amount		Application Time	Remarks and Approximate Cost/A Broadcast
		Commercial Product Per Acre <sup>7</sup>	or Per 100 Gallons (Handgun)		
JOHNSONGRASS (see shatter- cane for seedling control)	Fusilade 4E	0.5 pt		12-18" new growth	For use in soybeans. Add 1 qt/A crop oil concentrate. Approx. cost: Fusilade \$21.30; Poast \$22.90.
	Poast	1.5 pt			
	Roundup 3WS	2-3 qt		12" through boot stage	Idle ground or spot treat- ment in cropland before head or pod fill of crop. Avoid tillage for 7 days. Approx. cost \$41.00-\$61.50.
LEAFY SPURGE <sup>9</sup>	2,4-D LV ester	2 qt		Bud stage spring or late fall <sup>8</sup>	Retreatment necessary. Annual applications gradu- ally reduce infestation. Approx. cost: 2,4-D \$5.00; 2,4-D + Banvel \$8.35.
	2,4-D +	1 qt +			
	Banvel 4WS	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	Banvel 4WS	2 qt		Full foliage during June or cut stump treat- ment anytime	Ground application only. Observe all drift pre- cautions when using within 1/2 mile of sensitive crops. Approx. cost \$25.40.
	Spike 5G	2 oz/tree		Spring or Fall	Apply under drip line. Approx. cost \$2.80/lb.
MILKWEED, COMMON <sup>9</sup>	2,4-D +	1 qt +		Bud to bloom stage <sup>8</sup>	Do not plant small grains for 15 days after 2,4-D + Banvel treatment. 2,4-D + Banvel suppresses growth for 1 year. Approx. cost \$5.15.
	Banvel 4WS	0.5 pt			
	Roundup 3WS	3 qt		Flowering thru maturity <sup>8</sup>	Idle ground or spot treat- ment on cropland before head or pod fill of crop. Avoid tillage for 7 days. Approx. cost \$61.50.
MILKWEED, HONEYVINE <sup>9</sup> (climbing)	2,4-D amine	1-2 pt		Before vines reach 3' in length <sup>8</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 LV ester <sup>10</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 & WOODY PLANTS (continued)

Weed	Herbicide <sup>7</sup>	Apply This Amount Commercial Product Per Acre <sup>7</sup> or Per 100 Gallons (Handgun)	Application Time	Remarks and Approximate Cost/A Broadcast
MUSK AND PLUMELESS THISTLE <sup>9</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 \$5.15; 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 LV ester <sup>10</sup> or Banvel 4WS	2-3 qt or 2 qt	Full foliage June to July or cut stump basal treat- ment anytime	Only certain brands of 2,4,5-T labeled for this use. Non-cropland only. Approx. cost: 2,4,5-T \$18.00-\$27.00; Banvel \$25.40; Spike \$2.80/lb.
	Spike 5G	2 oz/tree	Spring or fall	
OSAGEORANGE	2,4,5-T LV ester <sup>10</sup>	2 qt	Full foliage June to July or basal treat- ment anytime	Only certain brands of 2,4,5-T labeled for this use. See remarks for cotton- wood. 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>8</sup>	Thoroughly wet all vegeta- tion. Do not apply to crop- land. Approx. cost \$1.00/ 1000 sq ft.
	PRICKLYPEAR	Tordon 22K	1-2 pt	Early summer
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>8</sup>	Follow-up treatments may be necessary. Approx. cost \$2.50.

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

Weed	Herbicide <sup>7</sup>	Apply This Amount Commercial Product Per Acre <sup>7</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 on grazingland. Approx. cost: Ammate \$52.80; Spike \$2.80/lb; Tordon \$92.00; Velpar \$117.00-\$235.00.
	Spike 5G	4 oz/tree	Spring or fall	
	Tordon 22K	4 qt/100 gal	Spring or fall	
	Velpar L	2-4 gal/100 gal	Spring to early summer	
RUSSIAN KNAPWEED <sup>9</sup>	Banvel 4WS	1-2 qt	Early bud stage <sup>8</sup>	Idle ground or grassland. Avoid tillage for 7 days. Injury to forage grasses may occur. Broadleaf crops may be injured for 2 years after treatment. Approx. cost: Banvel \$12.70-\$25.40; Tordon \$46.00.
	Tordon 22K	2 qt		
RUSSIAN OLIVE	2,4-D + Banvel 4WS	2 qt + 1 qt	Full foliage (early June) <sup>8</sup>	See remarks for cottonwood. Approx. cost \$16.70.
	Spike 5G	4 oz/tree	Spring or fall	Use on non-cropland only. Approx. cost \$2.80/lb.
SAGEBRUSH (sand and fringed and green sageswort)	2,4-D LV ester	1.5-2 qt	4-8" new growth (June) <sup>8</sup>	1.5 qt/A 2,4-D adequate on sand sagebrush. Approx. cost \$3.75-\$5.00.
SHATTERCANE (wild cane) AND SEEDLING JOHNSONGRASS	Eradicane 6.7E	5 pt <sup>10</sup>	Preplant to corn  PPI to corn. Repeat Lasso at 1/2 rate at planting  Preplant to soybeans  Postemergence in soybeans. Cane 6-18"	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 or Sutan+ will lead to reduced weed control. Under high shattercane population herbicides may not give acceptable control. Rotate to small grain or alfalfa. Lasso and Dual provides suppression of light infestations. Cultivation improves control. Approx. cost: Eradicane/Extra \$14.50-\$17.75; Sutan \$17.50; Eradicane or Extra + Bladex \$23.90-\$27.15; Eradicane or Extra + Princep \$22.30-\$25.55; Sutan + Bladex \$26.90; Sutan + Princep \$25.30; Treflan \$5.10-\$6.40; Lasso \$21.60; Prowl \$6.90; Vernam + Treflan \$12.30; Dual \$15.65; Fusilade \$11.40; Poast \$15.75.
	Eradicane Extra 6E	5.3 pt		
	Sutan+ 6.7E	7.3 pt		
	Princep or Bladex 4L	2 qt		
	+ Eradicane or Extra or Sutan+	5-5.3 <sup>11</sup> pt or 7.3 pt		
	Lasso 4EC	4 qt		
	Dual 8E	2.5 pt		
	Treflan 4EC	2-2.5 pt		
	Prowl 4EC	3 pt		
	Vernam 7E + Treflan 4EC	3 pt + 1 pt		
	Fusilade 4E	0.25 pt		
Poast	1 pt			
<i>An alternate system</i>	Ridge or till-plant and apply Dual or Lasso in a band and cultivate			
SOAPWEED <sup>9</sup> (Yucca)	Silvex <sup>10</sup>	2 qt	June <sup>8</sup> -July	Use diesel as carrier. Approx. cost \$18.00.
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 & WOODY PLANTS (continued)

Weed	Herbicide <sup>7</sup>	Apply This Amount		Application Time	Remarks and Approximate Cost/A Broadcast
		Commercial Product Per Acre <sup>7</sup>	or Per 100 Gallons (Handgun)		
SWAMP SMARTWEED <sup>9</sup> (tanweed)	2,4-D LV ester	1 qt		When growing vigorously <sup>8</sup>	On crops use lower rates and amine formulations. Approx. cost \$8.85.
	+ Banvel 4WS	1 pt			
	Roundup 3WS	3-4 qt		Full foliage mid to late summer <sup>8</sup>	Idle ground or spot treatment in cropland before head or pod fill of crop. 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 for corn. Use crop oil concentrate with AAtrex/Atrazine, Basagran, and Basagran + Atrazine. Use 0.75 qt Basagran on velvetleaf 2" in height or less, 1 qt if 2-4". Approx. cost: AAtrex/Atrazine \$4.25; Basagran + Atrazine \$13.55; 2,4-D \$.65-\$1.25; Basagran \$17.85-\$23.30.
	Basagran 4WS	0.75-1 qt			
	Basagran 4WS +	0.5 qt			
	Atrazine 4L	0.5 qt			
	2,4-D LV ester	0.5-1 pt		Velvetleaf less than 12"	
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, Vernam or Reward + Prowl + Sencor (PPI). 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 \$14.50-\$17.75; Sutan \$12.00.
	Lasso 4EC +	2.5 qt		Preplant to corn	Incorporate with a field cultivator or roller harrow. Approx. cost \$18.20.
	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 \$6.90.
	Fusilade 4E	0.25 pt		Postemergence in soybeans. 4-8" wild proso millet	Add 1 qt crop oil concentrate per acre. Approx. cost: Fusilade \$11.40; Poast \$8.65.
	Poast	0.5 pt			
	Eptam	3.5 pt		Preplant to fieldbeans	Incorporate immediately with a disc or field cultivator. Approx. cost: Eptam \$11.20; Ro-Neet \$20.00-\$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>7</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>8</sup>Retreatment may be necessary.

<sup>9</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>10</sup>Permitted uses of silvex and 2,4,5-T include applications of certain formulations to (1) rangeland and (2) fence rows, hedge rows and waste areas not part of a pasture, forest or right-of-way.

<sup>11</sup>Labeled rate of Eradicane is 7.3 pt/A.

## REDUCED TILLAGE SYSTEMS-ECOFARMING

Try new farming techniques on a small scale and fields with low weed pressure. Read labels to adjust rates.

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 \$11.20-\$19.20.
CORN (no-till in alfalfa sod <sup>11</sup> )	2,4-D + Banvel 4WS 1 qt + 0.5 pt	Apply in Sept or April-May to alfalfa with 4" new growth	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 \$5.15.
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 Atrazine 4L <sup>3</sup> + Bronco 1.2-1.6 qt + 3-4 qt	Apply when rye and wheat are more than 4"	Apply before corn emerges. Approx. cost: AAtrex + Paraquat \$11.20-\$19.20; AAtrex + Bronco \$26.75-\$35.70.
CORN (no-till continuous row crop)	AAtrex/Atrazine 4L <sup>3,13</sup> 2-3 qt Bicep 4.5L <sup>13</sup> 2-3 qt Dual + AAtrex 4L <sup>3,13</sup> 1.5-2 pt + 1.6 qt Bladex 80W + Atrazine 4L <sup>3,13</sup> 1-3 lb + 1.25 qt Lasso/Atrazine flowable pre-mix <sup>3,13</sup> 3-4 qt Lasso + Atrazine 4L <sup>3,13</sup> 2-2.5 qt + 1.6 qt	0-30 days pre-plant 0-10 days pre-plant 0-5 days pre-plant	Add 0.5-1 pt of 2,4-D LV ester to control broadleaf weeds, especially Kochia. Tank mix 1-2 pt Paraquat <sup>12</sup> to control emerged grass. If volunteer corn is a problem use Roundup <sup>12</sup> at 0.75-1 pt/A in 5 gpa water before crop emergence. Do not use Bladex on soils below 1.0% OM. Approx. cost w/o Paraquat: AAtrex/Atrazine \$4.60-\$6.90; Bicep \$10.80-\$16.20; Dual + Atrazine \$13.10-\$16.20; Bladex + Atrazine \$6.50-\$13.70; Lasso/Atrazine \$15.00-\$20.00; Lasso + Atrazine \$14.50-\$17.20.
SORGHUM (no-till continuous row crop)	AAtrex 4L <sup>3,13</sup> 1.6-3 qt Bladex 80W <sup>13,15</sup> 3-3.5 lb Bladex 80W + Atrazine 4L <sup>3,13</sup> 3 lb + 0.8 qt Bladex 80W <sup>13,15</sup> 2-2.5 lb Bladex 80W + Atrazine 4L <sup>3,13</sup> 2 lb + 0.8 qt	April 1-15 45 days or more 30-45 days pre-plant 30 days pre-plant	Avoid atrazine over 0.8 lb/A on sandy soils, eroded soils and soils with pH greater than 7.2. Add Paraquat <sup>12</sup> at 1-2 pt if emerged grass weeds are present. If only broadleaf weeds are present add 2,4-D LV ester at 0.5-1 pt/A. For volunteer corn or sorghum control use Roundup <sup>12</sup> at 0.75-1 pt/A in 5 gpa of water prior to planting. If weed population was high last year use a preemergence herbicide at planting. Approx. cost w/o Paraquat: Atrazine \$3.70-\$6.90; Bladex 45 days \$10.80-\$12.60; Bladex 30-45 days \$7.20-\$9.00; Bladex + Atrazine 30 days \$9.10; Bladex + Atrazine 45 days \$12.65.
	Dual + AAtrex 4L <sup>3</sup> + Paraquat <sup>12,13</sup> 1.5-2 pt + 1-2 qt + 1-2 pt Bicep 4.5L + Paraquat <sup>12,13</sup> 2.4-3.2 qt + 1-2 pt Lasso + AAtrex 4L <sup>3</sup> + Paraquat <sup>12,13</sup> 2-2.5 qt + 1-2 qt + 1-2 pt	0-20 days pre-plant 0-5 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 \$17.15-\$27.10; Bicep + Paraquat \$19.55-\$29.55; Lasso + Atrazine + Paraquat \$19.70-\$30.40.
	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 \$11.05-\$13.95.

(Continued next page)

## REDUCED TILLAGE SYSTEMS-ECOFARMING (continued)

Try new farming techniques on a small scale and fields with low weed pressure. Read labels to adjust rates.

Situation	Herbicide and Rate Per Acre	Application Time	Remarks and Approximate Cost/A Broadcast
SOYBEANS (no-till continuous row crop)	Paraquat <sup>12,13,14,15</sup> 1-2 pt + Sencor/Lexone 4L <sup>3</sup> 0.75 pt with Lasso 4EC 4-5 pt	0-5 days pre- plant	Atrazine residue from previous crop could cause soybean injury. Do not use on sandy soil. Approx. cost: Paraquat + Sencor/Lexone with Lasso \$26.15-\$28.85 or with Dual \$28.55-\$34.25 or with Prowl \$22.95-\$28.65 or with Surflan \$30.05-\$35.75; Bronco + Sencor/Lexone \$41.45.
	or with Dual 8E 2 pt	0-20 days pre- plant	
	or with Prowl 4EC 3 pt	0-20 days pre- plant	
	or with Surflan AS 2 pt	0-5 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		
Roundup <sup>12</sup> 1-2 pt	Postemergence; two or more applications required		
ECOFALLOW in a Wheat- Ecofallow- Wheat <sup>17</sup> rotation... Wheat seeded 10-14 months later. Use where stubble is weed free after harvest	AAtrex 4L <sup>3</sup> 1-2 pt	July-Sept 1	Add 1 qt/A 2,4-D LV ester to improve grass and broadleaf weed control. If grasses or volunteer wheat recover 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: AAtrex \$1.15-\$2.30; Bladex + Atrazine \$9.95-\$12.70.
	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	AAtrex 4L <sup>3</sup> + Paraquat <sup>12,18</sup> 1-2 pt + 1-2 pt	July-Sept 1	Spray before weeds produce seed. If grasses or volunteer wheat recover use sweep plow. Add 1 qt 2,4-D LV ester to Igran + AAtrex to improve control of emerged grass and broadleaf weeds. Avoid terraced fields, Canyon and Rosebud soils, and caliche out-croppings. Approx. cost: AAtrex + Paraquat \$7.75-\$14.60; Igran + AAtrex \$10.45-\$13.95; Bladex + Atrazine + Paraquat + 2,4-D \$13.35.
	Igran 80W + AAtrex 4L <sup>3,12</sup> 2-2.5 lb + 1-2 pt		
	Bladex 80W + Atrazine 4L <sup>3</sup> + Paraquat <sup>12</sup> + 2,4-D LV ester 1.25 lb + 1.5 pt + 1 pt + 1 pt		
ECOFALLOW in a Wheat-Ecofallow- Wheat <sup>17</sup> rotation...  Wheat seeded 4-5 months later	Bladex 80W + Paraquat <sup>12,18</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 \$15.60-\$24.90.
	Roundup <sup>12</sup> 0.75-1 pt	Postemergence- April	Apply in 5 gal of water per acre to vigorously growing volunteer wheat and downy brome. Use Glean only where wheat will be planted in fall. Approx. cost: Roundup \$8.80-\$11.40; Roundup + Glean \$11.35-\$16.40.
	Roundup <sup>12</sup> + Glean 0.75 pt + 0.33-0.5 oz	April	
	2,4-D LV ester + Banvel 1 qt + 0.5 pt	May-Aug	Do not plant small grain for 15 days after treatment. Approx. cost \$5.65.
	Glean 0.33-0.5 oz	April	Use only in continuous wheat rotations. Will not control downy brome and volunteer wheat. Approx. cost \$5.00-\$7.50.

(Continued next page)

## REDUCED TILLAGE SYSTEMS-ECOFARMING (continued)

Situation	Herbicide and Rate Per Acre	Application Time	Remarks and Approximate Cost/A Broadcast
ECOFALLOW in a Wheat-Ecofallow- Corn-Sorghum or Millet-Fallow rotation...  Plant corn, sorghum or millet follow- ing spring. <i>WARNING--High atrazine rates may carry over and destroy wheat on eroded areas, terraces and calcareous soils</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; after wheat harvest	1 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 \$2.30- \$6.90.
	Atrazine 4L <sup>3</sup> + Paraquat <sup>12,18</sup> 1-3 qt + 1-2 pt		Spray before weeds produce seed. If grasses such as barnyardgrass recover use sweep plow before weeds develop seed. Use 1-1.2 qt Atrazine 4L in Panhandle. Approx. cost: Atrazine + Paraquat \$8.90- \$19.20; Igran + Aatrex \$18.20- \$25.15; Igran + Aatrex + Paraquat \$13.25-\$22.80.
	Igran 80W + Aatrex 4L <sup>3</sup> 2-2.5 lb + 1-3 qt	July-Nov	
	Igran 80W + Aatrex + Paraquat <sup>12,18</sup> 1-2 lb + 1-3 qt + 1 pt		
CORN in a Wheat-Ecofallow- Corn-Fallow rotation...  Corn planted in wheat stubble treated with Aatrex/ Atrazine after harvest	Bladex 80W <sup>12,13,14,15,16</sup> 3 lb	45 days preplant	Do not use on sands and loamy sands with less than 1% OM. Omit Atrazine in the combination treat- ment if the maximum Atrazine rate was used previous year. Approx. cost: Bladex \$5.40-\$10.80; Bladex + Atrazine \$7.10-\$9.50; Bladex + Dual \$17.30-\$19.70.  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 and Lasso rates. Approx. cost: Dual \$15.65-\$18.75; Dual + Aatrex \$15.80; Lasso \$13.50-\$16.20; Lasso + Aatrex \$13.10; Bronco \$24.00- \$32.00; Bronco + Atrazine \$26.30- \$34.30.
	Bladex 80W <sup>12,13,14,15,16</sup> 1.5-2 lb		
	Bladex 80W + Atrazine 4L <sup>3</sup> 1.5-2 lb + 2 pt <sup>12,13,14,15,16</sup>	0-20 days pre- plant	
	Bladex 80W + Dual <sup>12,13,14,15,16</sup> 1.5-2 lb + 2 pt		
	Dual 8E 2.5-3 pt <sup>13,15</sup> Do not use if grasses present	0-20 days pre- plant	
	Dual 8E + Aatrex 4L <sup>3</sup> 2 pt + 1 qt <sup>12,13,14,15,16</sup>		
	Lasso 4EC 2.5-3 qt <sup>13,15</sup> Do not use if grasses present		
	Lasso 4EC + Aatrex 4L <sup>3</sup> 2 qt + 1 qt <sup>12,13,14,15,16</sup>	0-5 days pre- plant	
	Bronco 3-4 qt		
	Bronco + Atrazine 4L <sup>3</sup> 3-4 qt + 1 qt		
SORGHUM in a Wheat-Ecofallow- Sorghum-Fallow rotation...  Sorghum planted in wheat stubble treated with Aatrex/Atrazine after harvest	Bladex 80W 3-3.5 lb <sup>12,13,14,15</sup>	45 or more days preplant	<i>Seed must be treated with Concep if Dual is used. Omit Atrazine in the combination treatments if the maximum Atrazine rate was used previous year and increase Bladex rate. Approx. cost w/o Paraquat or 2,4-D: Bladex 30-45 days \$7.20-\$9.00, 45 days \$10.80- \$12.60; Bladex + Atrazine \$7.10- \$9.50; Bladex + Dual \$17.30- \$19.70.</i>
	Bladex 80W 2-2.5 lb <sup>12,13,14,15</sup>	30-45 days pre- plant	
	Bladex 80W + Atrazine 4L <sup>3</sup> 1.5-2 lb + 2 pt <sup>12,13,14,15</sup>	30 days pre- plant	
	Bladex 80W + Dual 8E <sup>12,13,14,15</sup> 1.5-2 lb + 2 pt		
	Dual 8E <sup>13,15</sup> 1.5-2 pt Do not use if grasses present	0-20 days pre- plant	
	Dual 8E + Aatrex 4L <sup>12,13,14,15</sup> 1.5-2 pt + 1-2 qt		
	Lasso 4EC <sup>13,15</sup> 2.5-3 qt Do not use if grasses present	0-5 days pre- plant	
	Lasso 4EC + Atrazine 4L <sup>12,13,14,15</sup> 2-2.5 qt + 2 pt		
	Bronco 3-4 qt		
	Bronco + Atrazine 4L <sup>3</sup> 3-4 qt + 1-2 pt		
	Igran 80W + Aatrex 80W <sup>12,13,14,15</sup> 2 + 1 lb	0-7 days pre- plant	
	Igran 80W <sup>12,13,14,15</sup> 2-2.5 lb		

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## REDUCED TILLAGE SYSTEMS-ECOFARMING (continued)

Try new farming techniques on a small scale and fields with low weed pressure. Read labels to adjust rates.

Situation	Herbicide and Rate Per Acre	Application Time	Remarks and Approximate Cost/A Broadcast
ECOFALLOW in a Wheat-Ecofallow- Soybean-Fallow rotation...  Spray wheat stubble after harvest. Plant soybeans follow- ing spring	Lexone/Sencor 4L + 2,4-D 2 pt + 1 qt	July	Add Paraquat <sup>12,18</sup> to Lexone/Sencor if weeds are larger than 6". Volunteer wheat may emerge in fall or spring. Control volunteer wheat in spring or fall with Roundup. Approx. cost w/o Paraquat \$27.20.
SOYBEANS in a Wheat-Ecofallow- Soybean-Fallow rotation...  Planted into wheat stubble treated with Lexone/Sencor 10 months previously. For areas with over 20" rain- fall	Dual 8E + Sencor/Lexone 4L <sup>13,15</sup> 2 pt + 0.75 pt <hr/> Prowl 4EC + Sencor/Lexone 4L <sup>13,15</sup> 3 pt + 0.75 pt <hr/> Surflan AS + Sencor/Lexone 4L <sup>13,15</sup> 2 pt + 0.75 pt <hr/> Lasso 4EC + Sencor/Lexone 4L <sup>13,15</sup> 2 qt + 0.75 pt <hr/> Bronco + Sencor/Lexone 4L <sup>13,15</sup> 3-4 qt + 0.75 pt	0-20 days pre- plant  10-20 days pre- plant  0-5 days pre- plant	Add Paraquat <sup>12,18</sup> at 1-2 pt if there are emerged weeds. Russian thistle, kochia, 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 carryover. Check fields within 30 days after planting to determine if post-emergence herbicides are needed. Approx. cost: Dual + Sencor/Lexone \$21.95; Lasso + Sencor/Lexone \$20.25; Prowl + Sencor/Lexone \$16.35; Surflan + Sencor/Lexone \$23.45; Bronco + Sencor/Lexone \$33.45-\$41.45.
FALLOW in a Wheat-Ecofallow- Corn or Sorghum- Fallow rotation...  Winter wheat to be planted in less than 6 months	Bladex 80W + 2,4-D LV ester 3.5 lb + 1.5 pt <hr/> Bladex 80W + Paraquat <sup>12,18</sup> 2.5-3.5 lb + 1-2 pt <hr/> Roundup <sup>12</sup> 0.75-1 pt <hr/> 2,4-D LV ester + Banvel 4WS 1 qt + 0.5 pt	March-April 10  April 15-May 10  April 20-May 5  Broadleaf weeds less than 4"	Control volunteer corn and sorghum with Roundup or tillage. Roundup for control of downy brome, volunteer corn or sorghum. Do not plant wheat for 15 days after treatment. Follow-up weed control may be necessary. Approx. cost: Bladex + 2,4-D \$14.45; Bladex + Paraquat \$15.60-\$24.90; Roundup \$8.80-\$11.40; 2,4-D + Banvel \$5.65.

<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 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, 4 pt/100 gal if Paraquat is used at less than 10 gal water per acre. For Roundup application apply 10 gal or less water per acre and add 2 qts X-77 or similar surfactant plus 17 lbs ammonium sulfate (fluid or feed grade) per 100 gal spray solution.

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

<sup>14</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>15</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>16</sup>AAtrex/Atrazine carryover may occur on eroded areas, on soils with less than 1.2% OM, and/or soils with more than 7.0 pH. Total AAtrex/Atrazine applied last year plus this treatment should not exceed 3.75 lb 80W or 3 qt 4L.

<sup>17</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>18</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

Arsenal--Provides total vegetation control for non-crop areas. American Cyanamid.

Assure (DPX-Y6202)--A postemergence grass herbicide for use in soybeans. 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 for annual grass control in soybeans. Discontinued. 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.

Classic (DPX-F6025)--A preplant incorporated, preemergence and postemergence herbicide for broadleaf weed control in soybeans. Experimental Use Permit in 1984. DuPont.

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

Cobra (PPG-844)--An experimental postemergence herbicide for broadleaf weed control in soybeans. PPG.

Command (FMC 57020)--An experimental preplant incorporated and preemergence herbicide for broadleaf weed control in soybeans. FMC.

## HERBICIDE DICTIONARY (continued)

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.

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.

Downon (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.

Extrazine (cyanazine + atrazine)--A combination of 2 parts Bladex + 1 part atrazine for preplant incorporated or preemergence use in corn. Shell.

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

Fusilade (fluzafop)--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.

Linex--Trade name for linuron. Griffin.

Linuron--Used primarily preemergence for broadleaf weed control in corn, sorghum and soybeans. Trade names - Linex and Lorox. Griffin, DuPont.

Lorox--Trade name for linuron. DuPont.

## HERBICIDE DICTIONARY (continued)

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.

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 that also provides suppression of perennial grasses at lower rates. 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.

Pramitol (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.

Racer (R-40244)--An experimental for broadleaf weed control in wheat and sunflower. Stauffer.

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.

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

Reflex (PP021)--An experimental for broadleaf weed control in soybeans. ICI Americas.

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

Reward (vernolate + R-33865 extender)--The extender lengthens the control span of Vernam. Stauffer.

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.

Scepter (AC 252,214)--An experimental preplant incorporated, preemergence and postemergence grass and broadleaf weed control in soybeans. American Cyanamid.

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

Selectone--An experimental for grass weeds in broadleaf crops. Chevron.

Sencor--Trade name for metribuzin. Mobay.

Silvex (2,4,5-TP)--A phenoxy herbicide for which all uses have been canceled.

## HERBICIDE DICTIONARY (continued)

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

**Sonalan** (ethalfluralin)--Used preplant incorporated for control of annual grasses and certain broadleaf weeds in soybeans. Elanco.

**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.

**Tandem** (tridiphane)--A postemergence herbicide for grass control in corn. Registration expected in 1985. Dow.

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

**Telar** (chlorsulfuron)--An industrial formulation of the active ingredient in Glean. DuPont.

**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.

**Verdict** (haloxyfop-methyl)--A selective postemergence herbicide that controls shattercane, volunteer corn and other grasses in soybeans. Experimental Use Permit expected in 1985. Dow.

**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

### Rate Per 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 By		To Find	Symbol
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

## WEED SCIENCE PUBLICATIONS

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| <p>Brush and Woody Plant Control - G84-704<br/>         Lawn Weeds - NC Regional Pub. No. 26<br/>         Weed Control in Trees - G73-33<br/>         Hay Fever Plants - EC77-199<br/>         Weed Control in Gardens - G79-444<br/>         Vine Weeds - NC Regional Pub. No. 33<br/>         Musk Thistle - EC76-160<br/>         Common Milkweed - G77-384<br/>         Field Sandbur Control in Corn - G74-121<br/>         Jointed Goatgrass - G75-210<br/>         Shattercane--What To Do About It - G74-122<br/>         Know and Control Downy Brome - G78-422<br/>         Sagebrush Control- G80-510<br/>         Canada Thistle Control - G80-509<br/>         Blue Mustard Control - G74-92<br/>         Hemp Dogbane - G83-665<br/>         Velvetleaf - G83-681<br/>         Weed Control in Soybeans - G83-647<br/>         Weed Control in Alfalfa - G75-220<br/>         Broadleaf Weed Control in Wheat - G74-120<br/>         Weed Control in Grain Sorghum - G74-137<br/>         Weed Control in Reduced Tillage Corn - G74-123<br/>         No-Till Corn in Alfalfa Sod - G74-131<br/>         Right Crop Stage for Herbicide Use--Alfalfa,<br/>         Sugarbeets, Soybeans and Fieldbeans - G78-390<br/>         Downy Brome Control in Alfalfa - G79-436</p> | <p>Right Crop Stage for Herbicide Use--Corn, Sorghum,<br/>         Small Grains - G77-382<br/>         Factors That Make Herbicides Work - G76-272<br/>         Herbicide Carryover - G83-637<br/>         Close Drilled Soybeans - G77-329<br/>         Applying Herbicides in Irrigation Water - G77-356<br/>         Test for Atrazine Carryover - G74-113<br/>         Broadcast or Band Herbicides - G76-294<br/>         Calibrating a Sprayer - G82-566<br/>         Herbicides and Soils - G83-653<br/>         Herbicide-Fertilizer Combinations - G74-164<br/>         Surfactants and Herbicides - G76-295<br/>         Weed Control Along Irrigation Pipe and Ditchbanks<br/>         - G78-420<br/>         Constructing a Pipewick Applicator - G81-555<br/>         Using Pipewick and Other Selective Applicators -<br/>         G81-562<br/>         Ecofarming--Management of Atrazine Carry Over in<br/>         Ecofallow - G81-570<br/>         Ecofarming-Fallow Aids in Winter Wheat Fallow<br/>         Rotations - G81-546<br/>         Ecofarming-Spring Row Crop Planting and Weed Con-<br/>         trol in Winter Wheat Stubble - G81-551<br/>         Ecofarming-Selection of Sprayers - G80-500<br/>         Ecofarming-Floaters for Herbicide Application -<br/>         G81-550<br/>         Disposal of Excess Pesticides - G79-473</p> |
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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 wetttable 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.

## NOTES