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EC86-130 A 1986 Guide for Herbicide Use in Nebraska

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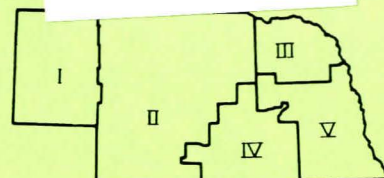
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EXTENSION DISTRICTS

A 1986 GUIDE FOR - - - HERBICIDE USE IN NEBRASKA . . .

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RESTRICTED USE HERBICIDES...
Tordon, Paraquat, and Gramoxone are restricted use herbicides. 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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STACKS

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

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

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

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

WEED RESPONSE TO SELECTED SOIL APPLIED HERBICIDES

Plant response may be altered by growing conditions, genetic variation in crops and weeds, soil type, pH, organic matter and rates of application. Ratings may vary from season to season and geographical areas within the state. Ratings apply when herbicides are used at rates suggested on page 3-8.

Response Ratings:

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

E = Excellent (90-100%)

G = Good (75-90%)

F = Fair (50-75%)

P = Poor (0-50%)

Herbicide

annual
morningglory
barnyardgrass
b. nightshade
cocklebur
crabgrass
fall panicum
foxtail
jimsonweed
kochia***
lambsquarters
pigweed
ragweed
R. thistle
sandbur
shattercane/sorghum
smartweed
sunflower
velvetleaf
w. buckwheat
crop safety¹
soil carryover
potential in months²

Field Corn & Popcorn*

AAtrex/Atrazine*	E	G	E	G	F	P	G	E	E	E	E	E	F	P	E	E	E	E	E	E	6-24
Bicep or Dual + AAtrex	E	G	E	F	G	G	G	E	E	E	E	E	G	F	P	G	G	G	G	E	6-18
Bladex	E	G	E	G	G	F	G	E	E	E	E	E	E	F	P	E	G	G	E	G	2-4
Bladex + Atrazine or Extrazine	E	G	E	G	G	F	G	E	E	E	E	E	E	F	P	E	G	G	E	G	6-18
Dual	P	E	G	P	E	E	E	P	P	G	E	E	F	P	P	P	P	P	E	E	2-5
Dual + Atrazine + Sencor	G	E	E	F	G	G	E	F	G	E	E	E	G	F	P	G	G	G	G	G	6-12
Dual + Bladex	G	E	E	F	F	E	E	F	E	G	G	E	G	F	P	G	F	F	G	G	2-5
Dual + Bladex + Sencor	G	E	E	F	E	E	E	F	G	G	E	E	G	F	P	G	F	F	G	G	2-5
Eradicane/Eradicane Extra*	G	E	E	P	E	E	E	P	F	G	G	F	P	G	G	P	P	P	F	G	1-2
Eradicane/Eradicane Extra + Atrazine*	G	E	E	F	E	E	E	G	E	E	E	G	G	G	G	G	G	G	E	G	6-18
Eradicane/Eradicane Extra + Bladex*	G	E	E	F	E	E	E	G	E	E	E	G	G	G	G	G	F	F	G	G	2-4
Lasso*	P	E	G	P	E	E	E	P	P	G	G	F	P	F	P	P	P	P	F	G	2-4
Lasso + Atrazine*	G	E	E	F	G	E	E	F	E	E	E	E	G	F	P	G	G	G	E	G	6-18
Lasso or Dual + Atrazine + Bladex/Extrazine	G	E	E	F	E	E	E	F	E	E	E	E	G	F	P	G	G	G	G	G	6-12
Lasso + Atrazine + Sencor	G	E	E	F	G	G	E	F	G	E	E	E	G	F	P	G	G	G	G	G	6-12
Lasso + Bladex*	G	E	E	F	E	E	E	F	E	G	G	E	G	F	P	G	F	F	G	G	2-4
Lasso + Bladex + Sencor	G	E	E	F	E	E	E	F	G	G	E	E	G	F	P	G	F	G	G	G	2-5
Prowl + Atrazine	G	E	G	F	E	E	E	F	E	E	E	E	G	G	F	P	G	G	F	G	6-18
Prowl + Bladex	G	E	G	F	E	E	E	F	E	E	E	E	G	G	F	P	G	F	F	G	4-12
Sutan*	F	E	G	P	E	E	E	P	P	G	F	F	P	G	G	P	P	P	F	E	1-2
Sutan+ Atrazine*	G	E	E	F	E	E	E	G	E	E	E	G	G	G	G	G	G	G	E	E	6-18
Sutan+ Atrazine + Bladex/Extrazine*	G	E	G	P	E	E	E	G	E	E	E	G	G	G	G	G	G	F	G	E	6-18
Sutan+ Bladex*	F	E	G	P	E	E	E	G	E	E	E	G	G	G	G	G	F	F	G	G	2-4
Sutazine*	G	E	E	F	E	E	E	G	E	E	E	G	G	G	G	G	G	G	E	E	6-18

Sorghum-Grain & Forage**

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

Soybeans

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

¹Crop varieties vary in their response to herbicides.

²The 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", G83-637.

*Registered for popcorn.

**Registered for forage sorghum.

***Kochia in some areas has developed resistance to Atrazine, Bladex and other triazines.

SOIL APPLIED HERBICIDES

Early preplant (EPP) treatments are made 10-30 days before planting. **Preplant surface applied (PPSA)** treatments are made 0-10 days before planting. Soil disturbance by some planters may allow weed growth in row where herbicides are applied PPSA or EPP. **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 increases 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/A			Application Time, Remarks and Approximate Cost/A Broadcast
	Sandy Loam <1% OM	Silt Loam 1½-2% OM	Silty-Clay Loam >2% OM	
Field Corn & Popcorn*				
*AATREX/ATRAZINE 4L ³	2 qt	2.4 qt	3 qt	EPP, PPSA, 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 \$4.80- \$7.20.
*BICEP 4.5L (2.5 lbs Dual plus 2 lbs AAtrex/gal)	2 qt	2.4 qt	3.2 qt	EPP, PPSA, PRE, SURFACE MIX, SPRINKLER or EARLY POST...Approx. cost \$10.80-\$17.30.
BLADEX 4L ³	Do not use	2.5 qt	3.25 qt	PPSA, 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 ³ + ATRAZINE 4L ³	0.75-1.25 qt + 0.5 qt	2 qt + 1 qt	2.5 qt + 1.25 qt	PPSA, 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. Approx. cost \$6.40-\$12.00.
DUAL 8E or DUAL 25G	0.75 qt or 6 lb	1.25 qt or 10 lb	1.5 qt or 12 lb	EPP, PPSA, 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. Approx. cost: Dual \$9.40-\$18.75; Dual + AAtrex \$10.50-\$16.25; Dual + Bladex \$13.00-\$21.90.
DUAL 8E with AATREX 4L ³ or with BLADEX 4L ³	0.67 qt + 1 qt or 0.75-1 qt	0.75 qt + 1.25 qt or 1.75 qt	1 qt + 1.67 qt or 2-2.3 qt	PPSA or 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 ³ + BLADEX 4L ³	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. 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.
DUAL 8E + SENCOR/LEXONE DF ³ with ATRAZINE 4L ³ or with BLADEX 4L ³	Do not use	1.5 pt + 0.33 lb + 1.5-3 pt or 2.5 pt	2 pt + 0.33 lb + 1.5-3 pt or 3 pt	

(Continued next page)

SOIL APPLIED HERBICIDES (continued)

Herbicide (See Weed Response Chart before selecting herbicides)	Apply this amount of commercial product/A			Application Time, Remarks and Approximate Cost/A Broadcast
	Sandy Loam <1% OM	Silt Loam 1%-2% OM	Silty-Clay Loam >2% OM	
Field Corn & Popcorn* (continued)				
*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. Repeated use of Eradicane or Eradicane Extra will lead to reduced weed control. Consider herbicide and/or crop rota- tions. Approx. cost: Eradicane \$13.75; 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 *ERADICANE EXTRA	4.75 pt or 5.25 pt	4.75 pt or 5.3 pt	4.75 pt or 5.5 pt	
+ *ATRAZINE 4L ³ or *BLADEX 4L ³	+ 2 pt or 2 pt	+ 2.4 pt or 3.2 pt	+ 3.2 pt or 4 pt	
EXTRAZINE 4L (2.7 lb Bladex + 1.3 lb Atrazine/gal)	1.6 qt	2.75 qt	3.75 qt	
EXTRAZINE 4L + DUAL 8E or LASSO 4EC	1.25 qt + 1.3 pt or 2 qt	1.75 qt + 1.75 pt or 2 qt	2.25 qt + 2 pt or 2 qt	PPSA or PRE...Injury may occur on soils that are calcareous, sandy or below 1% organic matter. Approx. cost: Extrazine \$6.40-\$15.00; Extrazine + Dual \$13.15-\$21.50; Extrazine + Lasso \$15.80-\$18.80.
*LASSO 4EC ⁴ or *LASSO II 15G	3 qt	2.5 qt or 17 lb	3 qt or 20 lb	
*LASSO 4EC ⁴ + *AATREX/ATRAZINE 4L ³	2 qt + 1 qt	2 qt + 1.2 qt	2.25 qt + 1.6 qt	PPSA, PRE, SURFACE MIX or LIQUID THROUGH SPRINKLER...Also registered for layby application. See page 10. Approx. cost \$13.50-\$16.20.
*LASSO & ATRAZINE FLOWABLE ⁴ (2.5 lb Lasso + 1.5 lb Atrazine/gal)	3.2 qt	3.5 qt	4 qt	
*LASSO 4EC + *BLADEX 4L ³	2 qt + 1 qt	2 qt + 1.7 qt	2 qt + 2 qt	PPSA, PRE or SPRINKLER...Injury may occur on soils that are calcareous, sandy or below 1% organic matter. Approx. cost \$15.80-\$20.20.
LASSO + SENCOR DF ³ with ATRAZINE 4L ³ or with BLADEX 4L ³	Do not use	2 qt + 0.33 lb + 0.75-1.5 qt or 1.25 qt	2 qt + 0.33 lb + 0.75-1.5 qt or 1.5 qt	
LASSO + ATRAZINE 4L ³ + BLADEX 4L ³	2 qt + 1 pt +	2 qt + 1 pt +	2 qt + 1.25 pt +	PPSA or 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.
PROWL 4EC with ATRAZINE 4L ³ or with BLADEX 4L ³	Do not use	1.5 qt + 1.2 qt or 1.7 qt	1.5 qt + 1.6 qt or 2 qt	

(Continued next page)

SOIL APPLIED HERBICIDES (continued)

Herbicide (See Weed Response Chart before selecting herbicides)	Apply this amount of commercial product/A			Application Time, Remarks and Approximate Cost/A Broadcast
	Sandy Loam <1½% OM	Silt Loam 1½-2 %OM	Silty-Clay Loam >2½% OM	
Field Corn & Popcorn* (continued)				
*SUTAN+ 6.7E/GENATE PLUS	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. Repeated use may lead to reduced weed control. Approx. cost \$11.50.
*SUTAN+ 6.7E/GENATE PLUS with *ATRAZINE 4L ³ or with *BLADEX 4L ³	3.75 pt + 2 pt or 2 pt	3.75 pt + 2.4 pt or 3.5 pt	3.75 pt + 3.2 pt or 4 pt	PPI 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. 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 \$10.80-\$12.20; Sutan/Genate + Bladex \$13.30-\$18.00; Sutazine \$13.20-\$15.40.
*SUTAZINE+ (4.8 lbs Sutan + 1.2 lbs Atrazine/gal)	6 pt	7 pt	7 pt	
*SUTAN+ 6.7E/GENATE PLUS with *ATRAZINE 4L ³ + *BLADEX 4L ³	3.75 pt with 1 pt + 1 pt	3.75 pt with 1 pt + 2 pt	3.75 pt with 1.25 pt + 2.5 pt	PPI...Tank mix. Apply to dry surface soil. Incorporate immediately by cross tandem discing or equivalent soil mixing. Increase Sutan/Genate rates for sandbur and shattercane control. Injury may occur on soils that are calcareous, sandy or below 1% organic matter. Repeated use of Sutan or Genate may lead to reduced weed control. Approx. cost: Sutan + Atrazine + Bladex \$12.10-\$14.00; Sutan/Genate + Extrazine \$13.60-\$16.60.
*SUTAN+ 6.7E/GENATE PLUS + EXTRAZINE 4L (2.7 lbs Bladex + 1.3 lbs Atrazine/gal)	3.75 pt + 1.25 qt	3.75 pt + 1.75 qt	3.75 pt + 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.				

- ³Additional 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 = 1.1 lb AAtrex Nine-O
 1 qt Bladex 4L = 1.25 lb Bladex 80W = 1.1 lb Bladex 90 DF
 0.5 pt Sencor L = 0.5 lb Sencor 50W = 0.33 lb Sencor DF
⁴Consult label for surface blend rates.
 *Registered for use on popcorn.

On field corn, 1 pt 2,4-D ester (4 lb/gal) or 0.5 pint Banvel may be added to EPP, PPSA and PRE treatments to control emerged broadleaf weeds. Do not add Banvel on sandy soil.

SEE TROUBLESOME WEED SECTION ON PAGE 22 FOR CONTROL OF SPECIFIC WEEDS

SOIL APPLIED HERBICIDES (continued)

Herbicide (See Weed Response Chart before selecting herbicides)	Apply this amount of commercial product/A			Application Time, Remarks and Approximate Cost/A Broadcast
	Sandy Loam <1½% OM	Silt Loam 1½-2½% OM	Silty-Clay Loam >2½% OM	
Grain Sorghum (Milo)				
AATREX 4L/ATRAZINE 4L ³	Do not use	2 qt	2.4 qt	EPP, PPSA, PPI, PRE or SURFACE MIX... Preplant applications should be made only on fine textured soils. Approx cost \$4.80-\$5.75.
BICEP 4.5L (2.5 lbs Dual + 2 lbs Atrazine/gal)	2 qt on 1-1.5% OM	2.4 qt	3.2 qt	EPP, PPSA, PRE or SURFACE MIX... Seed must be Concep treated. Do not use Atrazine on sandy, high pH or calcar- eous soils. Approx. cost: Bicep \$10.80-\$17.25; Dual \$9.40-\$15.65; Dual + AAtrex/Atrazine \$11.00-\$15.80.
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 ³	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	PPSA, 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 ⁴	2.5 qt	2.5 qt	3 qt	PPSA, PRE or SURFACE MIX... Seed must be Screen treated. Do not use Atrazine on sandy, high pH or calcar- eous soils. Approx. cost: Lasso \$13.50-\$16.20; Lasso + Atrazine \$11.80-\$13.50; Lasso & Atrazine Flow- able \$12.00-\$14.00.
LASSO 4EC ⁴ + ATRAZINE 4L	2 qt + 0.5-0.75 qt	2 qt + 1 qt	2 qt + 1.25 qt	
LASSO & ATRAZINE FLOWABLE ⁴ (2.5 lbs Lasso + 1.5 lbs Atrazine/gal)	Do not use	3 qt	3.5 qt	
RAMROD FLOWABLE ³ 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 ³ + AATREX 4L/ATRAZINE 4L ³	Do not use	3 qt + 0.75-1 qt	3 qt + 1.25 qt	PRE...In southwest Nebraska hold Atrazine rate to 0.75 qt. Rain may leach herbicides and cause sorghum injury or poor weed control. Do not feed treated forage to lactating dairy animals. Approx. cost: Ramrod + Bladex \$16.40-\$17.00; Ramrod + Atrazine \$14.80-\$15.40; Ramrod & Atrazine Flowable \$16.80.
RAMROD FLOWABLE ³ + BLADEX 4L ³	Do not use	5 pt + 2.5 pt	5 pt + 2.75 pt	
RAMROD & ATRAZINE FLOWABLE (3 lbs Ramrod + 1 lb Atrazine/gal)	Do not use	4 qt	4 qt	
LASSO 4EC or DUAL 8E + MODOWN 4F	2 qt or 0.75 qt + 1.5 qt	2 qt or 1 qt + 1.5 qt		PRE...Tank mix. Seed must be Concep or Screen treated. Modown not influ- enced by soil texture, organic matter or pH. Rain 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), Lorox + Ramrod (PRE), Milogard 80W (PRE), Milogard + Igran (PPI, PRE or SURFACE MIX), Propazine (PRE), Ramrod + Propazine or Milogard (PRE). See Herbicide Dictionary for additional information.

³Additional 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 = 1.1 lb AAtrex Nine-O

1 qt Bladex 4L = 1.25 lb Bladex 80W = 1.1 lb Bladex 90 DF

1 qt Ramrod Flowable = 1.5 lb Ramrod 65W

⁴Consult label for surface blend rates.

SOIL APPLIED HERBICIDES (continued)

Herbicide (See Weed Response Chart before selecting herbicides)	Apply this amount of commercial product/A			Application Time, Remarks and Approximate Cost/A Broadcast
	Sandy Loam <1% OM	Silt Loam 1½-2% OM	Silty-Clay Loam >2% OM	
Soybeans				
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 DF ^{3,5}	Do not use	1.5 pt + 0.5 lb	2 pt + 0.6 lb	
DUAL 8E or LASSO 4EC + MODOWN 4F ³	1 qt or 2.5 qt + 1.5 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. Approx. cost \$23.25.
LASSO 4EC ⁴ 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 ⁴ + SENCOR/LEXONE DF ^{3,5}	Do not use	2 qt + 0.5 lb	2 qt + 0.6 lb	
LOROX L ³ with DUAL 8E or with LASSO 4EC	1-1.3 pt + 2 pt or 4 pt	1.5 pt + 2 pt or 4 pt	2 pt + 2 pt or 4 pt	PRE...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. Lexone not labeled on sandy soil. Approx. cost: Prowl \$3.45-\$5.75; Prowl + Sencor \$9.75-\$14.70.
PROWL 4EC + SENCOR/LEXONE DF ^{3,5}	1.5 pt + 0.33 lb	2 pt + 0.5 lb	2 pt + 0.6 lb	
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 DF ^{3,5}	1.5 pt + 0.33 lb	2 pt + 0.5 lb	2.5 pt + 0.6 lb	
TREFLAN 4EC	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 DF ^{3,5}	1 pt + 0.33 lb	1.25 pt + 0.5 lb	1.5 pt + 0.6 lb	
PROWL 4EC or TREFLAN 4EC PPI with SENCOR/LEXONE DF ^{3,5} PPI followed by SENCOR/LEXONE DF ^{3,5} PRE (Split application)	1.5 pt or 1 pt + 0.2 lb + 0.1 lb	2 pt or 1.25 pt + 0.4 lb + 0.2 lb	2 pt or 1.5 pt + 0.5 lb + 0.2 lb	SPLIT SHOT, PPI and PRE...Improves broadleaf control. For best results immediately incorporate first ap- plication. On calcareous soils reduce Sencor/Lexone rates by 1/3. Lexone not labeled on sandy soil. Approx. cost: Prowl + Sencor/Lexone + Sencor/ Lexone \$9.75-\$18.35; Treflan + Sencor/ Lexone + Sencor/Lexone \$8.85-\$16.40; Prowl + Sencor/Lexone + Prowl + Sencor/ Lexone \$10.90-\$19.50.
PROWL 4EC + SENCOR/LEXONE DF ^{3,5} PPI followed by PROWL 4EC + SENCOR/LEXONE DF ^{3,5} PRE (Split application)	1 pt + 0.2 lb + 1 pt + 0.1 lb	1.5 pt + 0.4 lb + 1.5 pt + 0.2 lb	1.5 pt + 0.5 lb + 1.5 pt + 0.2 lb	
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 DF ^{3,5}	Do not use	2.5 pt + 1 pt + 0.33 lb	3 pt + 1 pt + 0.33 lb	

(Continued next page)

SOIL APPLIED HERBICIDES (continued)

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

Soybeans (continued)

DUAL 8E or LASSO 4EC ⁴ with AMIBEN DS and SENCOR/LEXONE DF ^{3,5}	1.5 pt or 1.5 qt + 2.4 lb + 0.33 lb	1.5 pt or 2 qt + 2.4 lb + 0.33 lb	2 pt or 2 qt + 2.4 lb + 0.33 lb	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.
PROWL 4EC or TREFLAN 4EC with AMIBEN DS and SENCOR/LEXONE DF ^{3,5}	1.5 pt or 1 pt + 2.4 lb + 0.33 lb	2 pt or 1.25 pt + 2.4 lb + 0.33 lb	2 pt or 1.5 pt + 2.4 lb + 0.33 lb	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.
OTHER REGISTERED TREATMENTS FOR SOYBEANS: Alanap (PRE), Amiben (PRE), Amiben + Sencor/Lexone (PRE), Amiben + Treflan (PPI), Dual + Dyanap (PRE), Dual + Amiben (PRE or PPI), Dual or Lasso + Lorox and Lexone (PRE), 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.				

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

Proso Millet

AATREX/ATRAZINE 4L ³	1-2 pt	1-2 pt	2 pt	EPP, PPSA, PPI or PRE...Do not use on foxtail millets. Do not plant wheat on treated fields during year of use. Injury and carryover can be a problem on calcareous outcroppings, eroded areas and on terraced fields. Approx. cost \$1.20-\$2.40.
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Herbicide (See Weed Response Chart before selecting herbicides)	Apply this amount of commercial product/A			Application Time, Remarks and Approximate Cost/A Broadcast
	Sandy Loam <1½% OM	Silt Loam 1½-2½% OM	Silty-Clay Loam >2½% OM	

Forage Sorghum

UNDER MOST CONDITIONS HERBICIDES ARE NOT NECESSARY

ATRAZINE 4L ³	Do not use	2 qt	2.4 qt	EPP, PPSA, PPI, PRE or SURFACE MIX... Make preplant applications only on fine textured soils. Heavy rains may leach and cause crop injury. Approx. cost \$4.80-\$5.75.
DUAL 8E	1.5 pt	2 pt	2.5 pt	EPP, PPSA, PPI, PRE or SURFACE MIX... Seed must be Concep treated.
BICEP 4.5L	2 qt on 1-1.5% OM	2.4 qt	3.2 qt	Approx. cost: Dual \$9.40-\$15.65; Bicep \$12.95-\$17.25.

³Additional formulations are available. Use rates that give comparable amounts of active ingredient:
1 pt Lorox L = 1.0 lb 50W
1 pt Sencor L or Lexone 4L = 1 lb 50W = 0.67 lb Lexone DF or Sencor DF

⁴Consult label for surface blend rates.

⁵Do not use on soils with less than 1% organic matter. Increased injury risk on soils where triazine carryover exists.

WEED RESPONSE TO POSTEMERGENCE HERBICIDES

See pages 22-28 for additional problem weeds and their control.

Response ratings:

Ratings are for annual weeds less than 4" tall, moderate populations, and favorable conditions. High populations or adverse conditions may reduce control.

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

	alfalfa	annual morningglory	barnyardgrass	buffalobur	cocklebur	crabgrass	fall panicum	foxtail	jimsonweed	kochia**	lambsquarters	nightshade	pigweed	ragweed	R. thistle	sandbur	shattercane/vol. corn	smartweed	sunflower	velvetleaf	w. buckwheat	crop safety ¹	soil carryover potential in months ²
Corn																							
AAtrex/Atrazine + crop oil	F	E	F	G	E	F	P	G	E	E	E	E	E	E	F	F	F	F	E	E	E	G	6-18
Banvel	E	E	F	F	E	F	P	G	E	E	G	G	G	G	E	F	F	F	E	E	E	G	1-2
Basagran + Atrazine	P	G	F	F	E	P	P	P	E	E	G	G	G	G	E	F	F	F	E	E	E	E	2-6
Bladex	F	G	F	G	G	G	F	G	E	E	E	E	E	E	E	F	F	F	E	E	E	F	2
Buctril/Brominal	P	E	F	E	E	P	P	P	E	G	G	G	E	G	E	F	F	F	E	E	E	E	0
2,4-D	F	E	F	F	E	F	P	P	G	G	G	G	G	E	G	F	F	F	G	G	F	F	1
2,4-D + Banvel	G	E	P	F	E	P	P	P	F	G	G	E	G	G	E	P	P	E	G	G	E	G	1-2
Sorghum																							
AAtrex/Atrazine + crop oil	F	E	F	G	E	F	P	F	E	E	E	E	E	E	F	F	F	E	E	E	E	F	6-18
Banvel	E	E	F	F	E	P	P	P	F	E	G	G	G	G	E	F	F	F	E	E	E	F	1-2
Basagran + Atrazine	P	G	F	F	E	P	P	P	E	E	G	G	G	E	E	F	F	F	E	E	E	E	2-6
Brominal/Buctril	P	E	F	E	E	P	P	P	E	G	G	G	G	E	G	F	F	F	E	E	E	E	0
Roundup-ropewicks, wipers, etc. ⁶	-	-	-	-	G	-	-	-	G	F	G	G	G	E	F	-	E	G	F	F	-	G	0
2,4-D	F	E	P	P	E	P	P	P	G	G	G	G	G	E	P	P	P	G	F	P	F	F	1
Soybeans																							
Basagran	P	F	P	P	E	P	P	P	E	P	P	P	P*	P	G	P	P	P	E	E	G	E	0
Basagran + Blazer	P	G	F	F	E	P	P	P	E	E	P	P	G	E	E	P	P	F	E	E	G	E	0
Blazer	P	E	F	G	F	F	G	F	E	E	P	P	G	E	E	F	F	F	E	E	-	G	0
Fusilade	P	P	E	P	P	E	E	G	G	P	P	P	P	P	P	P	P	P	P	P	P	E	1
Poast	P	P	E	P	P	E	E	E	E	P	P	P	P	P	P	P	P	P	P	P	P	E	0
Poast + Basagran	P	F	E	P	E	G	E	G	E	P	P	P	P	P	P	P	P	G	E	G	G	E	0
Rescue	P	P	P	P	G	P	P	P	P	P	P	P	P	G	P	P	P	P	G	P	G	E	0
Roundup-ropewicks, wipers, etc. ⁶	-	-	-	-	G	-	-	-	G	F	G	-	G	E	F	-	E	G	F	-	-	E	0

Response ratings:

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

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

	blue mustard	erect knotweed	field pennycress	kochia	lambsquarters	prostrate pigweed	redroot pigweed	R. thistle	shepherdspurse	sunflower	tansy mustard	wild buckwheat	wild lettuce	wild vetch	soil persistence in months ²
Small Grains															
Brominal/Buctril (Bromoxynil)	E	E	E	F	G	F	G	G	E	E	G	E	-	-	1
Glean	E	F	E	F	E	E	E	F	E	E	E	F	E	-	6-48
MCPA	G	P	G	F	G	F	F	F	G	F	G	F	F	F	1
MCPA + Bromoxynil (Brominal 3+3 or Bronate)	F	E	E	F	E	E	G	G	E	E	G	E	E	G	1
2,4-D	E	F	E	E	E	E	E	E	E	E	E	E	E	E	1
2,4-D + Banvel	F	E	E	E	E	E	E	E	E	E	E	E	E	E	1-2
2,4-D + Brominal/Buctril	E	E	E	G	E	E	E	E	E	E	E	E	E	G	1

¹Crop varieties vary in their response to herbicides.

²The 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.

⁶Ratings for weeds likely to be enough taller than crop for selective treatment.

* Good control of hairy nightshade.

**Not triazine resistant.

FIELD CROPS POSTEMERGENCE & LAYBY 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 ⁷	Application Time	Remarks and Approximate Cost/A Broadcast
BARLEY AND SPRING WHEAT	2,4-D amine or 2,4-D LV ester	1-1.5 pt or 0.5-1 pt	Spring 5-leaf thru tillering	Do not treat winter barley with 2,4-D in the fall. Follow with small grain on Glean treated fields. For wild buckwheat use Brominal/Buctril as listed for winter wheat. Approx. cost: 2,4-D \$.65-\$1.50; Glean \$2.85.
	Glean	0.17 oz	Broadleaf weeds less than 2"	
CORN (Field and popcorn)	*Aatrex/ Atrazine 4L ³ or Bicep 4.5L	2 qt or 3.2 qt	Broadleaf weeds 2-6"; grass weeds 1" or less; also at layby with Atrazine	Use Atrazine with water-oil mixture. Lower Atrazine rates control broadleaf weeds. Make layby applications when corn is 20-30" tall and weeds less than 1 1/2" tall. Approx. cost: \$4.80-\$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. Labeled for tank mix with 2,4-D or Atrazine. Approx. cost \$5.25-\$7.90.
	*2,4-D amine or *2,4-D LV ester	1-2 pt or 0.5-1 pt	Before corn is 8" high, over 8" use drop nozzles	Later applications may cause brittleness and stalk breakage. Use lower rate when good growing conditions exist to reduce corn injury. Do not use Banvel within 1/2 mile of sugar beets, fieldbeans, alfalfa, soybeans, gardens and ornamentals unless drop nozzles are used on corn over 8". Do not apply between June 20 and Sept. 1 if sensitive crops are nearby. Approx cost: 2,4-D \$.65-\$2.00; 2,4-D + Banvel \$2.10; Banvel \$3.15.
	2,4-D amine + Banvel 4WS	0.5 pt + 0.25-0.5 pt		
	Banvel 4WS	0.5 pt	Before corn is 24" high	
	Banvel 4WS	1 pt	Corn spike to 5"	
	Lasso 4EC alone or with Atrazine 4L ³	2-3 qt 1-1.6 qt	Layby before corn is 40" tall	
	Prowl 4EC alone or with Atrazine 4L ³	0.75-1.5 qt 1-1.2 qt	From 4-11" to layby	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.
	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.
	MCPA	0.5-1 pt	Weeds and oats in 3-4 leaf stage	Thorough coverage required with Brominal and Buctril. Approx. cost: MCPA \$.75-\$1.50; Brominal/Buctril + 2,4-D \$6.15-\$9.00.
	Brominal ME4 or Buctril 2EC + 2,4-D amine or MCPA	0.5-0.75 pt or 1-1.5 pt + 0.5 pt		
	2,4-D amine	0.5-1 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	Fall or early spring; broadleaf weeds less than 2"	Follow with small grain. Approx. cost \$2.85.
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.
OATS (Not underseeded with legume)	MCPA	0.5-1 pt	Weeds and oats in 3-4 leaf stage	Thorough coverage required with Brominal and Buctril. Approx. cost: MCPA \$.75-\$1.50; Brominal/Buctril + 2,4-D \$6.15-\$9.00.
	Brominal ME4 or Buctril 2EC + 2,4-D amine or MCPA	0.5-0.75 pt or 1-1.5 pt + 0.5 pt		
	2,4-D amine	0.5-1 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	Fall or early spring; broadleaf weeds less than 2"	Follow with small grain. Approx. cost \$2.85.

(Continued next page)

FIELD CROPS POSTEMERGENCE & LAYBY TREATMENTS (continued)

Crop	Herbicide	Rate Per Acre ⁷	Application Time	Remarks and Approximate Cost/A Broadcast
POTATOES	Sencor 4L ³ or Lexone 4L ³	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 ³	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 \$2.90; Basagran + Atrazine \$13.55.
	Basagran 4WS + Atrazine 4L ³	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; do not use 2,4-D from early boot through soft dough stage. Approx. cost: 2,4-D \$.65-\$1.00; Brominal/Buctril \$5.25-\$7.90.
	Brominal ME4 or Buctril 2EC	0.5-0.75 pt or 1-1.5 pt	Broadleaf weeds 2-6"; sorghum up to 14"	
SOYBEANS	Amiben DS	2.7 lb	Within 33 days after planting; weeds less than 8"	Combining Basagran with Poast reduces effectiveness on volunteer corn and shattercane. All treatments require use of crop oil concentrate or surfactant. 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: Amiben \$18.50; Basagran \$17.80-\$23.30; Blazer \$20.00; Basagran + Blazer \$27.40-\$42.50; Basagran + Poast \$39.20-\$44.70.
	Basagran 4WS	0.75-1 qt	Most susceptible weeds less than 4" tall	
	Blazer 2L	1 qt		
	Blazer 2L + Basagran 4WS	1-2 pt + 1.5-2 pt		
	+ 10-34-0 Fert.	+ 1 qt		
	Basagran 4WS + Poast	1.5-2 pt + 1.5 pt	Use Basagran and Poast guidelines	Crop oil concentrate or surfactant and good coverage essential for effective control. Approx. cost: Fusilade \$11.50-\$16.50; Poast \$11.50.
	Fusilade 2000	1-1.5 pt	Shattercane and corn 12-18"; other annual grasses less than 4"	
	Poast	1 pt		
	Rescue (Alanap + 2,4-DB)	3-4 qt	Weeds under 30"; soybeans after first bloom	
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.
	Bronate 4EC or Brominal 3+3	1-1.5 pt or 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	0.5-0.75 pt or 1-1.5 pt	Wheat well tillered	
	+ 2,4-D amine	+ 0.5 pt		
	Banvel 4WS + 2,4-D amine	4 oz + 0.75 pt	Before wheat joints	Controls most troublesome broadleaf weeds. Approx. cost \$2.35.
	Glean	0.17-0.5 oz	Fall after wheat is in 2-3 leaf stage and broadleaf weeds less than 2" tall; before April 1 in spring	Controls most troublesome broadleaf weeds. Add 0.25% surfactant if weeds are present. Do not use on soils with pH above 7.9. Use in wheat, wheat-fallow or wheat-spring small grain rotations. May be combined with other postemergence herbicides. Approx. cost \$2.85-\$7.50.

(All treatments except 2,4-D control wild buckwheat)

(Continued next page)

(Continued from page 11)

ADDITIONAL REGISTERED POSTEMERGENCE TREATMENTS:

Barley-Oats: 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.
 Winter Wheat: Banvel, MCPA, Tordon 22K + 2,4-D, Glean with 2,4-D or Banvel or Karmex.

³Additional 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 = 1.1 lb AATrex Nine-O
 1 pt Sencor L or Lexone 4L = 1 lb 50W = 0.67 lb Lexone DF or Sencor DF

⁷Low volatile ester and salt formulations preferred over volatile esters such as butyl and isopropyl because of fume hazards. 2,4-D 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 39.

*Registered for popcorn.

WEED RESPONSE TO HERBICIDES IN SELECTED CROPS

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 (90-100%)

G = Good (75-90%)

F = Fair (50-75%)

P = Poor (0-50%)

Herbicide and Application Site
(pre on soil or post on foliage)

Moderate weed populations and favorable conditions. High weed populations or adverse conditions will reduce control. E = Excellent (90-100%) G = Good (75-90%) F = Fair (50-75%) P = Poor (0-50%)	annual morningglory	barnyardgrass	cocklebur	crabgrass	fall panicum	foxtail	jimsonweed	kochia	lambsquarters	nightshade	pigweed	ragweed	R. thistle	sandbur	shattercane/sorghum	smartweed	sunflower	velvetleaf	w. buckwheat	crop safety ¹	soil carryover potential in months ²
Herbicide and Application Site (pre on soil or post on foliage)																					
Potatoes																					
Eptam/Genep-pre	G	E	P	E	E	E	P	F	G	E	G	F	P	E	E	P	P	P	F	G	1-2
Eptam/Genep + Treflan or Prowl-pre	F	E	P	E	E	E	P	E	G	F	G	P	F	E	E	P	P	P	F	E	6-12
Sencor/Lexone-pre	P	G	F	G	G	G	G	F	E	F	E	E	G	F	P	P	F	G	E	G	2-6
Sencor/Lexone + Dual-pre	P	E	F	F	E	E	G	F	E	G	E	E	G	F	P	G	F	G	E	F	2-6
Sencor/Lexone-post	P	P	G	F	P	F	P	G	E	P	E	G	E	F	P	G	G	F	P	G	2-6
Fieldbeans																					
Basagran-post	F	P	E	P	P	P	E	P	P	P**P	G	P	P	P	E	E	G	G	E		0
Dual + Treflan-pre	F	E	P	E	E	E	P	F	G	E	G	P	F	E	E	P	P	P	F	E	6-12
Eptam/Genep or Eptam + Sonalan-pre	G	E	P	E	E	E	P	F	G	E	G	P	F	E	E	P	P	P	F	G	1-2
Eptam/Genep + Treflan or Prowl-pre	F	E	P	E	E	E	P	E	G	E	G	P	F	E	E	P	P	P	F	E	6-12
Eptam/Genep + Dual-pre	F	E	P	E	E	E	P	F	G	E	G	P	F	E	G	P	P	P	F	E	2-5
Eptam/Genep + Lasso-pre	F	E	P	E	E	E	P	G	G	E	E	P	F	E	G	P	P	P	F	E	2-4
Lasso or Dual-pre	P	E	P	E	E	E	P	P	G	G	E	G	P	F	P	P	P	P	P	G	2-4
Lasso + Treflan-pre	F	E	P	E	E	E	P	G	G	G	G	P	F	E	G	P	P	P	F	E	6-12
Sugar Beets																					
Antor-pre	P	E	P	E	G	E	P	P	F	G	G	P	P	G	F	P	P	P	P	G	2-3
Eptam/Genep layby	G	E	P	E	E	E	P	F	G	E	G	F	P	E	E	P	P	P	F	G	1-2
Nortron-pre	-	G	F	G	G	G	-	G	G	F	E	-	F	F	-	G	P	-	G	P	5+
Nortron + Antor-pre	P	E	P	E	G	E	P	G	E	F	E	P	F	G	F	G	P	P	G	G	4
Ro-Neet-pre	P	E	P	E	E	E	P	P	G	G	E	F	P	G	G	P	P	P	P	G	1-2
Betanal + Betanex or Betamix-post	F	P	-	P	P	P	F	F	G	F	G	F	P	P	P	F	F	P	G	G	<1
Betanex-post	F	P	-	P	P	P	P	F	G	F	G	F	P	P	P	F	F	P	F	G	<1
Herbicide 273-post	P	F	-	P	P	F	P	F	F	F	F	P	P	P	P	G	G	P	G	G	<1
Poast-post	P	E	P	E	E	G	P	P	P	P	P	P	P	E	E	P	P	P	P	E	0
Onions																					
Dacthal 75W-pre	P	G	P	E	P	E	P	P	E	F	E	P	P	G	P	P	P	P	P	G	3-8
Brominal ME4-post	E	P	G	P	P	P	E	F	G	E	G	E	G	P	P	E	E	E	E	G	0
Goal-post	P	P	G	P	P	P	F	G	G	F	G		F	P	P				G	1-2	
Vine Crops																					
Dacthal 75W-pre	P	G	P	E	P	E	P	P	E	F	E	P	P	G	P	P	P	P	P	G	3-8
Treflan-pre	P	E	P	E	E	E	P	G	G	P	G	P	G	G	P	P	P	P	P	G	6-12
Prefar 4E + Alanap-pre	P	E	G	E	F	E			G		G	G		F	F		G		G	4-6	

¹Crop varieties vary in their response to herbicides.

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

**Good control of hairy nightshade.

SOIL APPLIED HERBICIDES

Herbicide (See Weed Response Chart before selecting herbicides)	Apply this amount of commercial product/A			Application Time, Remarks and Approximate Cost/A Broadcast
	Sandy Loam <1½% OM	Silt Loam 1½-2½% OM	Silty-Clay Loam >2½% OM	
Potatoes				
EPTAM 7E/GENEP	3.5 pt	3.5 pt		PPI, DRAG-OFF or LAYBY...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 \$10.70.
EPTAM 7E/GENEP + TREFLAN 4EC	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/Genep + Treflan \$13.15; Eptam/Genep + Prowl \$11.40-\$12.55.
EPTAM 7E/GENEP + PROWL 4EC	3 pt + 1 pt	3 pt + 1.5 pt	3 pt + 1.5 pt	
SENCOR/LEXONE 4L ³	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 Sencor/Lexone. Approx. cost: Dual + Sencor/Lexone \$12.55-\$15.70; Sencor/Lexone \$12.60-\$25.20.
SENCOR/LEXONE 4L ³ with DUAL 8E	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.

Herbicide (See Weed Response Chart before selecting herbicides)	Apply this amount of commercial product/A			Application Time, Remarks and Approximate Cost/A Broadcast
	Sandy Loam <1% OM	Silt Loam 1½-2% OM	Silty-Clay Loam >2% OM	
Fieldbeans				
EPTAM 10G or EPTAM 7E/GENEP	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 direct- ed 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 \$10.70.	
EPTAM 7E/GENEP with SONALAN 3EC or with PROWL 4EC	2.5 pt + 2 pt or 2 pt	2.5 pt + 2 pt or 2 pt	PPI...Apply to dry surface soil, immediately incorporate with a disc or field cultivator. Sonalan may in- jure sugar beets and sorghum the following year. Plowing reduces in- jury. Approx. cost: Eptam/Genep + Dual \$17.00; Eptam/Genep + Lasso \$18.40; Eptam/Genep + Sonalan \$14.20; Sonalan + Dual \$17.60; Sonalan + Lasso \$19.00; Eptam/Genep + Prowl \$12.60.	
EPTAM 7E/GENEP 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/GENEP + TREFLAN 4EC	2.25 pt + 1 pt	2.25 pt + 1 pt	PPI...Do not follow with fall seeded small grain. Sugar beets and sorghum may be injured the next year. Plowing reduces injury. Approx. cost: Lasso + Treflan \$12.35; Dual + Treflan \$11.95; Eptam/Genep + Treflan \$9.40.	
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	PRE, PPI or SURFACE MIX...Surface mixing will improve weed control and reduce crop injury. Approx. cost: Dual \$15.65; Lasso \$16.20.	

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

SOIL APPLIED HERBICIDES (continued)

Herbicide (See Weed Response Chart before selecting herbicides)	Apply this amount of commercial product/A			Application Time, Remarks and Approximate Cost/A Broadcast
	Sandy Loam <1% OM	Silt Loam 1½-2% OM	Silty-Clay Loam >2% OM	
Sugar beets				
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 \$28.00-\$46.60; Nortron \$35.45-\$59.00; Nortron + Antor \$21.10-\$26.40.	
NORTRON 1.5EC	3 qt	5 qt		
or	or	or		
NORTRON 4FL	1 qt	2.25 qt		
NORTON 4FL	1 qt	1.25 qt		
+	+	+	LAYBY...Apply Eptam after thinning and clean cultivation; incorporate immediately 2" deep with a rolling cultivator. Approx. cost \$6.85-\$10.70.	
ANTOR 4ES	1 qt	1.25 qt		
EPTAM 7E/GENEP	2.25 pt	3.5 pt	PPI...Immediately mix into dry soil with power incorporator 2 to 3". Crop injury may occur on sandy soils below 1% organic matter or with highly saline or alkaline soil conditions. Use lower rate on coarse textured soils or if postemergence treatments are planned. Primarily annual grass control. Approx. cost \$15.80-\$25.90.	
or	or	or		
EPTAM 10G	20 lb	30 lb		
RO-NEET 6E	2.75 pt	3.3-4.5 pt		
or	or	or		
RO-NEET 10G	20 lb	25-35 lb		

SUGAR BEETS POSTEMERGENCE

Herbicide	Rate Per Acre			Application Time	Remarks and Approximate Cost/A Broadcast
	Pints Brdcst	Ounces Per 7" Band 22" Row 30" Row			
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 Nortron or Ro-Meet 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: Brdcst \$37.10-\$48.20; 22" row \$11.60-\$15.30; 30" row \$8.25-\$11.00.
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	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 \$11.50-\$21.50.

OTHER REGISTERED TREATMENTS FOR SUGAR BEETS: Betanal (POST), Chem-Hoe (PPI), Endothall (POST), Endothall (PRE), Eptam (PPI), Pre-Beta (PPI), Pyramin W (PRE), Pyramin W + Dowpon M (POST), Pyramin W + Endothall (PRE), Pyramin W + TCA (PRE), TCA (PRE), Tillam (PPI).

³Additional formulations are available. Use rates that give comparable amounts of active ingredient:
1 pt Sencor L or Lexone 4L = 1 lb 50W = 0.67 lb Lexone DF or Sencor DF

VINE CROP AND ONION HERBICIDES

Herbicide	Commercial Product Rate Per Acre	Application Time	Remarks and Approximate Cost/A Broadcast
Melons and Cucurbits			
Prefar 4E + Alanap-L	4-6 qt + 4-8 qt	Preplant	Immediately incorporate to a depth of 1". Use lower rate on sandy soil. Controls many annual grasses and broadleaf weeds. Approx. cost \$45.50-\$75.50.
Dacthal 75W	6-12 lb	Crop 4-5 true leaves	Crop should be weeded prior to application. Controls annual grasses. Use lower rate on sandy soil. Approx. cost \$27.00-\$45.00.
Treflan	1-1.5 pt	Crop 3-4 true leaves	Direct material to soil between the rows and mechanically incorporate. Controls germinating annual grasses and some 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.

WEED RESPONSE TO SELECTED ALFALFA HERBICIDES

<div>Response Ratings: E = Excellent (90-100%) G = Good (75-90%) F = Fair (50-75%) P = Poor (0-50%)</div>													
	barnyardgrass	dandelion	downy brome	field pennycress	foxtail	kochia	lambsquarters	pigweed	R. thistle	sandbur	shepherdspurse	tansy mustard	crop tolerance
Preplant													
Balan	E	P	E	P	E	G	E	G	G	G	P	P	G
Eptam/Genep	E	P	E	P	E	G	G	G	P	G	P	P	G
Seedling or established													
Butyrac/Butoxone	P	P	P	P	P	P	F	G	F	P	P	P	G
Kerb	G	P	P	P	G	G	F	P	G	G	P	P	G
Established													
Karmex	E	F	F	G	E	E	G	E	F	F	E	E	G
Lexone/Sencor	G	G	E	E	F	E	E	E	G	P	E	E	G
Paraquat	F	P	F	P	F	P	P	P	P	P	P	P	G
Princep	G	F	E	E	F	E	E	E	G	F	E	E	G
Sinbar	F	G	E	E	F	G	E	E	G	F	E	E	G
Velpar	F	G	E	G	F	G	G	G	G	F	E	E	G

FIELD CROP DESICCANTS & HARVEST AID TREATMENTS

Crop	Herbicide	Rate Per Acre ⁷	Application Time	Remarks and Approximate Cost/A Broadcast
ALFALFA	Diquat	1.5-2 pt	3-10 days prior to seed harvest	Desiccant. 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	Desiccant. Do not feed treated forage nor graze treated areas. Approx. cost \$2.50-\$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	1-2 qt	10-20 days before harvest	Desiccant. Highly toxic products. Apply with diesel, crop oil or surfactant mixed with water. Approx. cost \$6.40-\$9.60.
	Dinitro 5	1-2 qt		
	Premerge 3	2-3 qt		
	Dinitro 3	2-3 qt		
	Diquat	1 pt	7 or more days before harvest	Desiccant. Follow label on water volume and surfactant use. May require second application 5 days later. Approx. cost \$7.90.
	Paraquat/Gramoxone	1-2 pt	3 or more days before harvest	Desiccant. Do not use on seed potatoes nor potatoes to be stored. Add drift retardant to reduce injury to nearby crops. 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	Desiccant. 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	Desiccant. Add drift retardant to reduce injury to nearby crops. 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 wheat joints. Only certain brands labeled for this use. Approx. cost \$2.50.

⁷Low volatile ester and salt formulations preferred over volatile esters such as butyl and isopropyl because of fume hazards. 2,4-D 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 39.

FORAGE CROPS, PASTURES & RANGES

Area or Use	Herbicide	Commercial Product Rate Per Acre	Application Time	Remarks and Approximate Cost/A Broadcast
ALFALFA (Establishing new stands)	Balan 1.5EC	3-4 qt	Preplant	Apply to dry surface soil and immediately incorporate by cross tandem 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/Genep \$7.65-10.70.
	Eptam 7E/Genep	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 60 days. Do NOT confuse with 2,4-D. 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 in established or seedling alfalfa 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 such as pennycress and other mustards. Do not use on sand; use lowest rates on soils with less than 1% organic matter. Karmex works best on high pH soils. Spring application of Karmex controls annual warm season grasses such as foxtail and barnyard-grass. Approx. cost: Princep \$1.60-\$7.50; Karmex \$6.75-\$13.50; Sinbar \$9.00-\$18.00; Lexone/Sencor \$9.50-\$19.00.
	Karmex 80W	1.5-3 lb	Late fall to early spring to dormant alfalfa	
	Sinbar 80W	0.5-1 lb	Late fall or early spring	
	Lexone/Sencor DF	0.5-1 lb		
	Paraquat/Gramoxone	1-2 pt	Immediately after cutting	Controls emerged annual weeds. Add X-77 surfactant. Approx. cost \$6.50-\$12.20.
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	1.5-3 qt	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. Approx. cost \$3.60-\$7.20.
BIG BLUESTEM AND SWITCHGRASS (Established & new seedlings)	AAtrex 4L	2 qt	Preemergence within 1 week after planting	Controls many annual grasses and broadleaf weeds. Do not use on sandy soils or soils below 1% organic matter. Do not cut for hay or graze for 3 months. Approx. cost \$4.80.
RANGELAND	AAtrex 4L	1-2 pt	Fall only	Controls winter annual bromes. Injures cool-season grasses. Do not hay or graze for 7 months. Reduce grazing pressure to improve grass stands. Apply only on neutral to acid soils. Approx. cost \$1.20-\$2.40.
NATIVE GRASS RENOVATION (Eastern Nebraska on non-sandy soil with 1% or more organic matter)	AAtrex 4L	2 qt	Fall or early spring	To renovate native pastures containing big bluestem and switchgrass. If remnants are sparse, sod seed. Controls bluegrass, most annual grasses and broadleaf weeds, suppresses smooth brome. Do not cut for hay. Approx. cost \$4.80.

(Continued next page)

FORAGE CROPS, PASTURES & RANGES (continued)

Area or Use	Herbicide	Commercial Product Rate Per Acre ⁷	Application Time	Remarks and Approximate Cost/A Broadcast
SOD SEEDING (Legumes into grass)	Paraquat/Gramoxone	1-2 pt	Immediately before or after legume seeding	Suppresses established sod. Seed legumes with a sod seeder. If grass is less than 3" use lower rate. During year of establishment, graze intensively for only short periods. Add X-77 surfactant. Approx. cost \$6.50-\$12.20.
SOD SEEDING (Native grass into short grass range)	Roundup 3WS	1 qt in 10 gal or less water/A	August the season prior to seeding	Suppresses established sod. Seed grasses with a sod seeder. Do not graze seeded area until dormancy after second growing season. Approx. cost \$20.50.
ANNUAL OR BIENNIAL BROAD- LEAF WEEDS IN PASTURES AND RANGES	2,4-D + Banvel 4WS	1 qt 1 qt + 0.5 pt	Rosette stage in fall or when weeds are small in spring	Withhold milk cows from grazing treated 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.
PERENNIAL BROADLEAF WEEDS IN PASTURES AND RANGES (In- cludes vervains, broom snakeweed, western ironweed and woolly loco, Flodman thistle, wavy leaf thistle)	2,4-D + Banvel 4WS	1.5 qt 1 qt + 1 pt	At bud stage of predominant weed. ⁸ April for dandelions	Annual treatment for 2-3 years may be necessary. Withhold lactating dairy cows from treated areas for 7 days. With Banvel mixture do not harvest hay for dairy animals for 37 days. Do not use within 1/2 mile of sensitive crops. Approx. cost: 2,4-D \$3.00; 2,4-D + Banvel \$8.35.

⁷Low volatile ester and salt formulations preferred over volatile esters such as butyl and isopropyl because of fume hazards. 2,4-D 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 39.

⁸Retreatment may be necessary.

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, Widgewick, 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 \$1.00 with light weed infestations to \$15.00 in heavy infestations.

TREES AND SHRUBS INCLUDING CHRISTMAS & FRUIT TREES*

Herbicide	Rate Per Acre	Application Time	Remarks and Approximate Cost/A Broadcast
*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.
Dacthal 75W	14-16 lb	Preemergence	Application must be made before weed seed germination. Two applications may be necessary for season long weed control. Approx. cost \$63.00-\$72.00.
2,4-D amine	1 qt	Postemergence to weeds	Keep off new bark and foliage. Controls broadleaf weeds. Approx. cost \$2.00.
*Fusilade 2000 or *Poast	2 pt or 2 pt	Postemergence before grasses tiller	Use on fruit trees limited to nonbearing trees. Add 1 qt crop oil concentrate per acre. Thorough coverage required. On ornamentals use nonionic surfactant with Fusilade. Approx. cost: Fusilade \$21.50; Poast \$21.50.
Goal 2E	2-4 qt	Pre- or post- emergence to weeds	Conifers only. Grasses should be treated before they are beyond 2-leaf stage. Use before bud break or after new growth hardens. Approx. cost \$36.00-\$72.00.
*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.
*Paraquat/Gramoxone	1-2 qt	Directed post- emergence	Nonselective contact herbicide. Keep spray off tree foliage. Add X-77 surfactant. Approx. cost \$6.50-\$12.20.
*Princep 80W	1-5 lb	Preemergence on trees at least 2 years old; use only on fruit trees planted 1 year or longer	Kochia may become resistant with repeated use. 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 control of Russian thistle. Approx. cost \$4.90-\$16.25.
*Roundup 3WS	1-4 qt in 10 gal water/A	Directed post- emergence	Do not spray green bark or foliage. Spray may contact brown bark. Use lower rate on annuals. Approx. cost \$20.50-\$82.00.
*Surflan A.S.	2-4 qt	Preemergence	Fruit trees only. Approx. cost \$28.00-\$56.00.
Treflan 4EC	1-2 pt	Preplant	Incorporate 2-3" deep prior to planting. After planting adjust machine to throw treated soil towards trees in the row. Approx. cost \$2.55-\$3.85.
Velpar	1-2 lb	Pre- or post- emergence to weeds at least 2 months after transplanting	Use on Scotch, Austrian and Ponderosa Pine only. 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.

*Denotes products registered for use 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 Algicide)	5.4 lb/SA or 0.67-1.25 gal/AF	Algae (Moss) 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. 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 (Moss) 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	Post on foliage or on surface for submerged species	Do not use water for 10 days for swimming, livestock or irrigation. Not effective in water with suspended silt. Approx. cost \$63.20-\$126.40.
NOROSAC 10G	100-150 lb/1000 sq ft	Duckweed Naiad Milfoil	Before weed growth occurs	Do not use water for irriga- tion, 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 vegeta- tion	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 in a glass jar. Add 3 tablespoons of the prepared solution to each 1,000 gallons of water. Mix thoroughly. Water can be used for crop spraying and livestock watering.

NON-CROP AREAS

Area or Use	Herbicide ⁷	Apply This Amount Commercial Product Per Acre or Per 100 Gallons ^{9,10}	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. Do not use Banvel or Tordon near susceptible plants/trees. Approx. cost: 2,4-D \$2.00; 2,4-D + Banvel \$8.35; Tordon \$46.00.
	2,4-D + Banvel 4WS	1 qt/A + 1 pt/A		
	Tordon 212	2 qt/A	Postemergence	
IRRIGATION DITCHBANKS	Karmex 80W	5-10 lb/A	Soon after ditches are open. Treat before weeds appear or soon thereafter	Use enough water to in- sure good coverage. Use 50 mesh to coarser screens. May injure nearby trees and shrubs. Approx. cost: Karmex \$23.00-\$46.00; AAtrex/ Atrazine \$14.40; Princep \$23.40.
	AAtrex/ Atrazine 4L ³ or Princep 4L ³	1.5 gal/A or 1.5 gal/A		
	2,4-D	1 qt/A	Broadleaf weeds 2-6"	Approx. cost \$2.00.
	Roundup 3WS	1-4 qt in 10 gal or less water/A	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	Pramitol 25E or Pramitol 5PS	4 pt/1000 sq ft or 10-20 lb/1000 sq ft	Treat before weeds appear or soon there- after	Kochia has become resis- tant to triazines in some areas. Consult label for specific instructions on problem weeds and condi- tions. Do not use near root zones of trees or other desirable plants. Do not use on land sub- ject to wind or water erosion unless erosion is controlled. Approx. cost/1000 sq ft: Pramitol \$8.40; Hyvar \$3.25; Krovar \$4.30; Atrazine \$.30-\$.60; Karmex \$1.15-\$2.30; Princep \$.50-\$1.00; Spike \$2.50-\$5.00.
	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 ³	0.25-0.5 pt/1000 sq ft		
	Karmex 80W	0.25-0.5 lb/1000 sq ft		
	Princep 4L ³	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 (including bromegrass and quack- grass)	Roundup 3WS	2 qt/A in 10 gal or less water/A	Full foliage	Nonselective. Perennial grasses should have good top growth. Kills all annuals. Approx. cost: Roundup \$41.00; Amitrol-T \$40.00.
	Amitrol-T/ Cytrol-T 2WS	2 gal/A		
GRASS SUPPRESSION	Oust	1 to 2 oz/A	Preemergence or early post	Suppresses height and heading of bromegrass and other cool season grasses. Controls most annual weeds including sandbur. Trace amounts can harm crops and gar- dens. Imperative that label directions are read and followed. Approx. cost \$7.50-\$15.00.

³Additional 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 = 1.1 lb AAtrex Nine-O

1 qt Princep 4L = 1.25 Princep 80W

⁷Low volatile ester and salt formulations preferred over volatile esters such as butyl and isopropyl because of fume hazards. 2,4-D 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 39.

⁹For 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.

¹⁰Rates 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 ⁷	Commercial Product Per Acre or Per 100 Gallons ^{9,10}	Application Time	Remarks and Approximate Cost/A Broadcast
ALFALFA (for control of volunteer in corn or sorghum)	2,4-D amine + Banvel 4WS (corn only) or Banvel 4WS	0.5 pt + 0.5 pt or 0.5 pt	Alfalfa with 4-6" growth	Use drop nozzles on crop taller than 8". See no- till section on page 29 to kill alfalfa sod. Sor- ghum 3-5 leaf stage. Approx. cost: 2,4-D + Banvel \$4.20; Banvel \$3.20.
ARTICHOKE JERUSALEM	2,4-D amine + Banvel 4WS	0.5 pt + 0.5 pt	12-18" tall ⁸	For use in corn. Use drop nozzles on corn taller than 8". Approx. cost \$4.20.
	2,4-D LV ester	1 qt	18-24" tall	For use where no crop is present. Approx. cost \$2.50.
BLUE MUSTARD	2,4-D LV ester	0.5 pt	Nov. 15-March 15 before blue mustard stem elongation	Use only on fully tillered wheat. Approx. cost \$.65- \$1.00.
	2,4-D amine	1 pt		
	Glean	0.17-0.50 oz	Wheat in 2-3 leaf stage; broadleaf weeds less than 2"	Do not use on soils with pH of 7.9 or higher. Use only in continuous wheat or wheat fallow. Approx. cost \$2.85-\$5.70.
BUCKBRUSH (snowberry)	2,4-D LV ester	1-2 qt	Full foliage (May 10-25) ⁸	Use sufficient water to insure good coverage. Approx. cost \$2.50-\$5.00.
BUFFALOBUR	Atrazine 4L	3 qt	Preplant or preemergence in corn	Reduced rates less effec- tive. Approx. cost \$7.20.
	Buctril 2EC or Brominal ME4	1.5 pt or 0.75 pt	Weeds 3-5 leaf stage in corn or sorghum	Plants taller than 4" not controlled. 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	Apply to dry surface soil and immediately incorpor- ate by cross tandem disc- ing or similar mixing. Approx. cost \$13.75- \$17.90.
	2,4-D + Banvel 4WS	1 pt + 0.5 pt	Postemergence on corn	Plants must be small. Approx. cost \$4.20.
BURCUCUMBER	Buctril 2EC or Brominal ME4	1.5 pt or 0.75 pt	Weeds 3-5 leaf stage in corn	Thorough coverage requir- ed. Approx. cost \$8.45.
	Atrazine 4L	3 qt	Preemergence in corn	Can also be used postemer- gence. Approx. cost \$7.20.
	Sencor/Lexone 4L (split-application)	0.5 pt + 0.5 pt	Preplant plus preemergence	Split-shot in soybeans. Approx. cost \$12.60.
BURSAGE, SKELETON- LEAF AND WOOLLYLEAF	Tordon 22K	2 qt	Flower bud stage or when growing actively ⁸	Non-crop areas. Tordon may remain in soil for three or more years. Approx. cost \$46.00.
	2,4-D + Banvel 4WS	1 qt + 1 pt	June or when growing actively ⁸	See remarks for field bindweed. If soil mois- ture conditions are poor, use oil-water emulsions as a carrier. Approx. cost \$5.20.

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TROUBLESOME WEEDS & WOODY PLANTS (continued)

Weed	Herbicide ⁷	Commercial Product Pgr. & Acre or Per 100 Gallons ^{9,10}	Application Time	Remarks and Approximate Cost/A Broadcast
CANADA THISTLE	Tordon 22K	2 qt	Fall-actively growing or spring-early flower bud ⁸	For non-crop areas and spot treatment in pasture and range. Tordon may remain in the soil for 3 or more years. Approx. cost \$46.00.
	2,4-D + Banvel 4WS	1 qt + 1 qt	Fall-activity growing or spring-early flower bud ⁸	Do not plant small grains for 45 days or sugar beets the following year. See remarks for field bind- weed. Approx. cost \$14.70.
	Roundup 3WS	2-3 qt in 10 gal or less water	Flower bud stage or in fall when growing ac- tively ⁸	Idle ground or spot treat- ment in cropland before head or pod fill of crop. Avoid tillage for 3 days. Approx. cost \$41.00- \$61.50.
	Banvel 4WS	1-2 qt	Fall-actively growing or spring-early flower bud ⁸	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	0.5 oz	Rosette to 4-6" stage ⁸	Use only in wheat, barley or fallow. To be planted to winter wheat. One application suppresses Canada thistle. Approx. cost \$2.85-\$5.70.
	Telar + Surfactant (Non-Cropland)	0.5 oz		
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. Retreat regrowth as nec- essary. 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 in 10 gal or less water	At flowering	Avoid water contamination. Approx. cost \$61.50.
COTTONWOOD, WILLOWS & SIBERIAN ELM	2,4-D LV ester	2-3 qt	Full foliage (June-July); basal treat- ment anytime	2,4-D with aerial equip- ment at least 5 gal carrier/A; annual treat- ment for 2-3 years may be necessary. Basal or stump treatment: 2 qt of herbi- cide/10 gal of diesel; apply to point or runoff Approx. cost: 2,4-D \$5.00-\$7.50; Crossbow \$40.00.
	Crossbow	1 gal		
	Krenite S	2-3 gal in 100 gal water + surfactant	Late July, August and September	Has little effect on grasses. Results show the following spring. Approx. cost \$81.00-\$121.00.
	Spike 20P	0.25 oz/1" dia	Spring or fall	Apply under drip line. Approx. cost \$8.00/lb.
	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 \$5.20.
DOGWOOD	Banvel 4WS	1-2 qt	Full foliage during June	Ground application only. Observe all drift precau- tions when using within 1/2 mile of sensitive crops. Approx. cost: Banvel \$12.70-\$25.40; Crossbow \$60.00; Garlon \$18.00-\$54.00.
	Crossbow	1.5 gal		
	Garlon 4	1-3 qt		
	Spike 20P	0.25 oz/1" dia	Spring or fall	Apply under drip line. Approx. cost \$8.00/lb.

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TROUBLESOME WEEDS & WOODY PLANTS (continued)

Weed	Herbicide ⁷	Commercial Product Per Acre or Per 100 Gallons ^{9,10}	Application Time	Remarks and Approximate Cost/A Broadcast
DOWNY BROME	AAtrex or Atrazine 4L	2 qt	Preemergence (fall or spring prior to April 1)	Use in waste areas such as fence rows and ditch- banks. See pages 16 and 17 for control in alfalfa and rangeland. Approx. cost: AAtrex/Atrazine \$4.80; Princep \$7.80.
	Princep 4L	2 qt		
Crop Rotation -- Include a spring seeded crop in the rotation.				
FIELD BINDWEED (use herbi- cide rates on page 12 & 13 when treating crops)	2,4-D	1 qt	Vigorous fall growth or flower bud stage in spring ⁸	Avoid tillage 5 weeks be- fore and 1 week after application. Do not plant small grains for 15 days after treatment. Plan to treat for several consecu- tive years. Approx. cost: 2,4-D \$2.00; 2,4-D + Banvel \$8.35.
	2,4-D	1 qt		
	+ Banvel 4WS	1 pt		
	Tordon 22K	2 qt	Vigorous fall growth or flower bud stage in spring ⁸	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 ⁸	Use 10 gal or less water per acre with Roundup. Avoid tillage for 5 days. Broadleaf crops may be injured 2 years after high rates of Banvel in western Nebraska. Approx. cost: Roundup + 2,4-D \$11.45; 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 qt	2-12" tall	Approx. cost \$1.00-\$2.00.
HEMP DOGBANE	2,4-D	1 qt	Flower bud stage ⁸ -spring	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 ⁸ . 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 sensi- tive 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		
	HOARY CRESS	2,4-D LV ester	2 qt	Rosette stage in the fall or early bud in spring ⁸

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TROUBLESOME WEEDS & WOODY PLANTS (continued)

Weed	Herbicide ⁷	Commercial Product Per Acre or Per 100 Gallons ^{9,10}	Application Time	Remarks and Approximate Cost/A Broadcast
JOHNSONGRASS (see shatter- cane for seedling control)	Fusilade 2000	1.5 pt	12-18" new growth	For use in soybeans. Add 1 qt/A crop oil concen- trate. Approx. cost: Fusilade \$16.50 ; Poast \$16.50.
	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.
JOINTED GOATGRASS	AAtrex or Atrazine 4L	2 qt	Preemergence (fall or spring prior to April 1)	Use on waste areas such as fence rows and ditch- banks. See pages 16 and 17 for control in alfalfa and rangeland. Approx. cost: AAtrex/Atrazine \$4.80; Princep \$7.80.
	Princep 4L	2 qt		
Crop Rotation -- Include a spring seeded crop in the rotation.				
KOCHIA (Triazine resistant)	Banvel 4WS	0.5 pt	Before kochia reaches 3"; retreatment may be neces- sary	Triazine resistant plants are not controlled by any of the triazine herbicides including Atrazine, Bladex, Igran and Sencor/ Lexone. Approx. cost: Banvel \$3.20; Brominal or Buctril \$8.45-\$11.25; 2,4-D + Banvel \$3.70.
	Brominal ME4 or Buctril 2EC	0.5-0.75 pt or 1-1.5 pt		
	2,4-D amine +	0.5 pt +		
	Banvel 4WS	0.5 pt		
LEAFY SPURGE	2,4-D LV ester	2 qt	Bud stage spring or late fall ⁸	Retreatment necessary. Annual applications grad- ually reduce infestation. Approx. cost: 2,4-D \$5.00; 2,4-D + Banvel \$8.35.
	2,4-D +	1 qt +		
	Banvel 4WS	1 pt	Fall or spring	Tordon for non-crop areas and spot treatment in pas- ture and range. Approx. cost \$46.00-\$92.00.
	Tordon 22K	2-4 qt		
LOCUST, HONEY AND BLACK	Banvel 4WS	2 qt	Full foliage during June; cut stump or basal treat- ment anytime	Ground application only. Observe all drift pre- cautions. See cottonwood for basal and cut stump treatment. Approx. cost: Banvel \$25.40; Garlon \$18.00-\$54.00.
	Garlon 4	1-3 qt		
	Spike 20P	0.25 oz/1" dia	Spring or fall	Apply under drip line. Approx. cost \$8.00/lb.
MILKWEED, COMMON	2,4-D +	1 qt +	Flower bud to bloom stage ⁸	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 in 10 gal or less water/A	Flowering thru maturity ⁸ ; ropewick appli- cation in soy- beans	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 (climbing)	2,4-D amine	1-2 pt	Before vines reach 3' in length ⁸	For use in corn or sor- ghum. Use lower rates in sorghum. Gives suppres- sion only. Approx. cost \$.65-\$1.30.
	2,4-D LV ester	0.5-1 pt		
MULLEIN, COMMON	Tordon 22K	0.5 pt	Late fall on rosettes or spring before flowering stalks lengthen	Essential to apply in rosette stage. Approx. cost \$5.75.

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TROUBLESOME WEEDS & WOODY PLANTS (continued)

Weed	Herbicide ⁷	Commercial Product Per Acre or Per 100 Gallons ^{9,10}	Application Time	Remarks and Approximate Cost/A Broadcast
MUSK AND PLUMELESS THISTLE	2,4-D	1.5-2 qt	Late fall	Annual treatments necessary for control of new seedlings. 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. 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	treatment of rosettes or spring before flowering stalks lengthen	
	Tordon 22K (musk only)	6-8 oz	Oct. 1-Dec. 1 or spring before flowering stalks lengthen	
OAKS	Banvel 4WS	2 qt	Full foliage June to July;	Non-cropland only. Approx. cost: Banvel \$25.40; Crossbow \$60.00; Spike \$8.00/lb.
	Crossbow	1.5 gal	cut stump or basal treatment anytime	
	Spike 20P	0.25 oz/1" dia	Spring or fall	
OSAGE ORANGE	Garlon 4	1.5 gal	Full foliage June to July; basal treatment anytime	Non-crop areas only. See remarks for cottonwood. Approx. cost: Garlon \$108.00; Spike \$8.00/lb.
	Spike 20P	0.5 oz/1" dia	Spring or fall	
PERENNIAL SOW THISTLE	2,4-D LV ester	1.5 qt	Fall rosette or spring bud stage	See remarks for field bindweed. Approx. cost \$3.75.
POISON IVY	Amino Triazole/ Weedazol 90SP or Amitrol-T/ Cytrol-T 2WS	2 tbs/gal of water or 0.5 cup/gal of water	Full foliage (June) ⁸	Thoroughly wet all vegetation. Do not apply to cropland. Approx. cost \$1.00/1000 sq ft.
PRICKLYPEAR	Tordon 22K	1-2 pt	Early summer	Spot treatment in grazing and non-cropland. Approx. cost \$11.50-\$23.00.
PUNCTUREVINE	2,4-D LV ester	1 qt	Pre-bud stage most effective	Mature burs not affected by 2,4-D. Retreatment necessary on new plants. Approx. cost \$2.50.
PURSLANE	2,4-D LV ester	1 qt	When growing actively	Till 5-7 days after treatment. Do not plant small grains for 15 days. Approx. cost \$2.50.
	Glean	0.33-0.5 oz	Preemergence or early post-emergence	Use only in continuous wheat or wheat fallow. Add surfactant when used postemergence. Approx. cost \$2.85-\$8.50.
RAGWEED, WESTERN (perennial)	2,4-D LV ester	1 qt	Early summer ⁸	Follow-up treatments may be necessary. Approx. cost \$2.50.
RED CEDAR	Spike 20P	0.5 oz/1" dia	Spring or fall	Spike and Velpar for use in non-crop areas only. Tordon can be used on grazingland. Approx. cost: Spike \$8.00/lb; Tordon \$92.00; Velpar \$117.00-\$235.00.
	Tordon 22K	4 qt/100 gal	Spring or fall	
	Velpar L	2-4 gal/100 gal	Spring to early summer	

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TROUBLESOME WEEDS & WOODY PLANTS (continued)

Weed	Herbicide ⁷	Commercial Product Per Acre or Per 100 Gallons ^{9,10}	Application Time	Remarks and Approximate Cost/A Broadcast
RUSSIAN KNAPWEED	Banvel 4WS	1-2 qt	Early flower bud stage ⁸	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	2 qt	Full foliage (early June) ⁸	See remarks for cotton- wood. Approx. cost \$16.70.
	+ Banvel 4WS	1 qt		
	Spike 20P	0.5 oz/1" dia	Spring or fall	Use on non-cropland only. Approx. cost \$8.00/lb.
SAGEBRUSH (sand and fringed and green sagewort)	2,4-D LV ester	1.5-2 qt	4-8" new growth (June) ⁸	1.5 qt/A 2,4-D adequate on sand sagebrush. Approx. cost \$3.75-\$5.00.
SANDBUR Treatments listed for shattercane also control or suppress sandbur.				
SHATTERCANE (wild cane) AND SEEDLING JOHNSONGRASS	Eradicane 6.7E	5 pt ¹¹	Preplant to corn	Incorporate immediately by cross tandem discing or equivalent soil mixing. Do not use Princep or Bladex treatment on sand. Plant corn the year following Princep treat- ment. Repeated use of Eradicane or Eradicane Extra or Sutan+ will lead to reduced weed con- trol. Under high shatter- cane population, herbi- cides may not give acceptable control. Ro- tate to small grain or alfalfa. Lasso and Dual provides suppression of light infestations. Cultivation improves control. Approx. cost: Eradicane/Extra \$13.75- \$17.75; Sutan/Genate \$16.80; Eradicane or Extra + Bladex \$23.15- \$26.60; Eradicane or Extra + Princep \$21.50- \$24.80; Sutan + Bladex \$26.15; Sutan + Princep \$24.60; Treflan \$5.10- \$6.40; Lasso \$21.60; Prowl \$6.90; Vernam + Treflan \$12.30; Dual \$15.65; Fusilade \$9.00; Poast \$11.50.
	Eradicane Extra 6E	5.3 pt		
	Sutan+/Genate Plus	7.3 pt		
	Princep or Bladex 4L	2 qt		
	+ Eradicane or Extra	5-5.3 pt ¹¹	Preplant to corn. Repeat at 1/2 rate at planting	
	or Sutan+/Genate Plus	7.3 pt		
	Lasso 4EC	4 qt		
	Dual 8E	2.5 pt		
	Treflan 4EC	2-2.5 pt	Preplant to soybeans	
	Prowl 4EC	3 pt		
	Vernam 7E	3 pt		
	+ Treflan 4EC	1 pt		
	Fusilade 2000	0.75 pt	Postemergence in soybeans. Cane 6-18"	
	Poast	1 pt		
An alternate system -- Ridge or till-plant and apply Dual or Lasso in a band and cultivate.				
SOAPWEED (Yucca)				No labeled herbicide.
SUMAC	2,4-D LV ester	1-2 qt	Full foliage	Use sufficient water for good coverage. Approx. cost \$2.50-\$5.00.

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TROUBLESOME WEEDS & WOODY PLANTS (continued)

Weed	Herbicide ⁷	Commercial Product Per Acre or Per 100 Gallons ^{9,10}	Application Time	Remarks and Approximate Cost/A Broadcast
SWAMP SMARTWEED (tanweed, shoestring)	2,4-D LV ester	1 qt	When growing vigorously ⁸	On crops use lower rates and amine formulations. Approx. cost \$8.85.
	+ Banvel 4WS	1 pt		
	Roundup 3WS	3-4 qt in 10 gal or less water/A	Full foliage mid to late summer ⁸	Idle ground or spot treat- ment in cropland before head or pod fill of crop. Avoid tillage for 7 days. Approx. cost \$61.50- \$82.00.
VELVETLEAF	AAtrex/ Atrazine 4L ³	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 \$4.40; Basagran \$17.85-\$23.30; Basagran + Atrazine \$13.50; Brominal/ Buctril \$5.25-\$7.90; 2,4-D \$.65-\$1.25.
	Basagran 4WS	0.75-1 qt		
	Basagran 4WS + Atrazine 4L	0.5 qt +		
	Brominal ME4 or Buctril 2EC	0.5-0.75 pt or 1-1.5 pt	Velvetleaf less than 4"	
	2,4-D LV ester	0.5-1 pt	Velvetleaf less than 12"	
WILD PROSO MILLET	Eradicane/Eradicane Extra or Sutan+ 6.7E/Genate Plus	5-5.3 pt or 5 pt	Preplant to corn	Apply to dry surface soil and incorporate immedi- ately with disc or field cultivator. Approx. cost: Eradicane/Extra \$13.75- \$17.25; Sutan/Genate \$11.50.
	Lasso 4EC + Bladex 4L	2.5 qt +	Preplant to corn	Incorporate with a field cultivator or roller harrow. Approx. cost \$18.20.
	Prowl 4EC	1.5 qt	Layby to corn	Direct weed spray to cover the base of the corn plant and in between corn rows. Incorporate with irriga- tion water or with cultivation. Approx. cost \$6.90.
	Fusilade 2000	0.5 pt	Postemergence on 4-8" wild proso millet	Fusilade and Poast on soy- beans; only Poast on sugar beets. Add 1 qt crop oil concentrate per acre. Approx. cost: Fusilade \$6.50; Poast \$6.50.
	Poast	0.5 pt		
	Eptam/Genep	3.5 pt	Preplant to fieldbeans	Apply to dry surface soil and incorporate immedi- ately with a disc or field cultivator. Approx. cost: Eptam/Genep \$11.20; Ro-Neet \$20.00-\$23.00.
	Ro-Neet	3.3-4 pt	Preplant to sugar beets	

³Additional 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

⁷Low volatile ester and salt formulations preferred over volatile esters such as butyl and isopropyl because of fume hazards. 2,4-D 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 39.

⁸Retreatment may be necessary.

⁹For 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.

¹⁰Rates per 100 gallons pertain to handgun on a power sprayer.

¹¹Labeled rate of Eradicane is 7.3 pt/A.

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REDUCED TILLAGE SYSTEMS AND ECOFARMING

Try new farming techniques on a small scale and fields with low weed pressure.
Early preplant treatments generally provide most satisfactory weed control.
Read labels to adjust rates.

Herbicide (See Weed Response Chart before selecting herbicides)	Apply this amount of commercial product/A			Application Time	Remarks and Approximate Cost/A Broadcast
	Sandy Loam <1% OM	Silt Loam 1½-2% OM	Silty-Clay Loam >2% OM		
Corn No-Till in Cool-Season Grass Sod¹¹					
AAtrex/Atrazine 4L ^{3,13} + Paraquat ¹²	2 qt + 1-2 pt	2.4 qt + 1-2 pt	3 qt + 1-2 pt	Apply to new growth in May before corn emergence	Weak on warm-season pe- rennial grasses. Approx. cost \$11.25-\$19.35.
Corn No-Till in Alfalfa Sod¹¹					
2,4-D + Banvel 4WS	1 qt + 0.5 pt	1 qt + 0.5 pt	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 \$8.35.
Corn No-Till in Rye or Winter Wheat¹¹					
AAtrex 4L ^{3,13} + Paraquat ¹²	2 qt + 1-2 pt	2.4 qt + 1-2 pt	3 qt + 1-2 pt	Apply when rye and wheat are more than 4"	Apply before corn emerges. Do not use Bladex on soil below 1% OM. Approx. cost: AAtrex + Paraquat \$11.25-\$19.35; AAtrex + Bronco \$26.90-\$35.85; Atrazine + Bladex + Paraquat \$13.55-\$28.10.
AAtrex 4L ^{3,13} + Bronco	1.2 qt + 3 qt	1.4 qt + 3.5 qt	1.6 qt + 4 qt		
Atrazine 4L ³ + Bladex 4L ¹⁷ + Paraquat ¹²	0.5 qt + 1.25 qt + 1-2 pt	0.75 qt + 1.75 qt + 1-2 pt	1-1.25 qt + 2.5-2.75 qt + 1-2 pt		
Corn No-Till Continuous Row Crop					
AAtrex/Atrazine 4L ^{3,13} Bicep 4.5L ¹³	2 qt 2.4 qt	2.4 qt 2.8 qt	3 qt 3.2 qt	0-15 days preplant; for 16-30 days preplant in- crease rates 20%	Add 0.5-1 pt of 2,4-D LV ester or 0.5 pt Banvel to control broadleaf weeds. Use 1-2 pt Para- quat ¹² to control emer- ged grass; for volun- teer corn use Roundup ¹² at 0.75-1 pt/A in 5 gpa water before crop emer- gence. Do not use Bladex on soils below 1% OM. Approx. cost w/o Paraquat: AAtrex/ Atrazine \$4.80-\$7.20; Bicep \$12.95-\$17.30; Dual + Atrazine \$13.00- \$17.80; Bladex + Atra- zine \$6.75-\$14.30; Lasso/Atrazine \$12.00- \$16.00; Lasso + Atra- zine \$15.75-\$19.65.
AAtrex/Atrazine 4L ^{3,13} + Dual 8E	1.4 qt + 1.5 pt	1.6 qt + 1.75 pt	1.8 qt + 2 pt		
AAtrex/Atrazine 4L ^{3,13} + Bladex 4L ¹⁷	1.25 qt + 0.8 qt	1.5 qt + 1.6 qt	1.75 qt + 2.4 qt	0-10 days preplant	
AAtrex/Atrazine 4L ^{3,13} + Lasso 4EC	1.5 qt + 2.25 qt	1.75 qt + 2.5 qt	2 qt + 2.75 qt	0-5 days preplant	
Lasso-Atrazine Flowable Premix ¹³	3 qt	3.5 qt	4 qt		

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REDUCED TILLAGE SYSTEMS AND ECOFARMING (continued)

Herbicide (See Weed Response Chart before selecting herbicides)	Apply this amount of commercial product/A			Application Time	Remarks and Approximate Cost/A Broadcast	
	Sandy Loam <1½% OM	Silt Loam 1½-2½% OM	Silty-Clay Loam >2½% OM			
Grain Sorghum No-Till Continuous Row Crop						
AAtrex 4L ^{3,13,15}	1.6 qt	2.4 qt	3 qt	April 1-15	Avoid over 0.8 lb/A Atrazine on sandy soils, eroded soils and soils with pH greater than 7.2. Add Paraquat ¹² at 1-2 pt if emerged grass weeds are over 2". If only broadleaf weeds are present add 2,4-D LV ester at 1 pt/A. For volunteer corn or sorghum use Roundup ¹² 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: AAtrex \$3.85-\$7.20; Bladex 28 days \$9.40-\$14.10; Bladex 35 days \$11.75-\$16.45; Bladex + Atrazine 14 days \$7.10-\$11.80; Bladex + Atrazine 28 days \$9.40-\$14.15; Bladex + Atrazine 35 days \$11.80-\$16.50.	
Bladex 4L ^{13,15,17}	2 qt	2.5 qt	3 qt	28 days or more preplant		
Bladex 4L ^{13,15,17}	2.5 qt	3 qt	3.5 qt	35 days or more preplant		
Bladex 4L ^{13,15,17} + Atrazine 4L ³	1.2 qt* + 0.6 qt	1.5 qt + 0.8 qt	2 qt + 1 qt	14 days or more preplant*		
Bladex 4L ^{13,15,17} + Atrazine 4L ³	1.6 qt + 0.8 qt	2 qt + 1 qt	2.5 qt + 1 qt	28 days or more preplant		
Bladex 4L ^{13,15,17} + Atrazine 4L ³	2 qt + 1 qt	2.5 qt + 1 qt	3 qt + 1 qt	35 days or more preplant		
Dual 8E + AAtrex 4L ³ + Paraquat ^{12,13} (if weedy)	1.5 pt + 0.5-0.75 qt + 1-2 pt	1.75 pt + 1 qt + 1-2 pt	2 pt + 1.5 qt + 1-2 pt	1-20 days preplant; increase rate 20% for 20-30 days preplant		
Bicep 4.5 L + Paraquat ^{12,13} (if weedy)	2.4 qt on 1-1.5% OM + 1-2 pt	2.8 qt + 1-2 pt	3.2 qt + 1-2 pt			
Lasso 4EC + AAtrex 4L ³ + Paraquat ^{12,13} (if weedy)	2 qt + 0.5-0.75 qt + 1-2 pt	2.5 qt + 1 qt + 1-2 pt	3 qt + 1.5 qt + 1-2 pt	1-5 days preplant		
Igran 80W + AAtrex 4L ^{3,13}	2 lb + 0.67 qt	2.25 lb + 1 qt	2.5 lb + 1 qt	1-7 days preplant		
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 \$17.00-\$28.00; Bicep + Paraquat \$19.40-\$29.45; Lasso + Atrazine + Paraquat \$18.45-\$31.95.						
If grasses are in 3-5 leaf stage add 1-2 pt Paraquat ¹² . Approx. cost \$10.80-\$14.05.						
Soybeans No-Till Continuous Row Crops						
Paraquat ^{12,13,14,15} + Sencor/Lexone 4L ³ with Lasso 4EC	Do not use	1-2 pt + 0.7 pt 2.5 qt	1-2 pt + 0.8 pt 3 qt	1-5 days preplant	Atrazine residue from previous crop could kill soybeans. Do not use on sandy soil with less than 1% OM. Approx. cost Paraquat + Sencor/Lexone with Lasso \$28.75-\$34.35; or with Dual \$27.75-\$34.25 or with Prowl \$21.00-\$28.65; Surflan \$29.25-\$35.75; Bronco + Sencor/Lexone \$41.45; Bronco + Lorox \$41.45-\$44.55; Paraquat + Lorox with Dual \$23.75-\$40.40; Paraquat + Lorox with Lasso \$25.15-\$40.95.	
or with Dual 8E	Do not use	2 pt	2.5 pt	10-20 days preplant		
or with Prowl EC or with Surflan AS	Do not use	2.5 pt	3 pt			
	2 pt	2 pt	2 pt			20 days preplant
Paraquat ^{12,13,14,15} + Lorox with Lasso 4EC or with Dual 8E	1-2 pt + 1.25 pt 2 qt 1.5 pt	1-2 pt + 1.5 pt 2.5 qt 2 pt	1-2 pt + 2 pt 3 qt 2.5 pt	1-5 days preplant		
Bronco + Sencor/Lexone 4L ³	Do not use	4 qt + 0.7 pt	4 qt + 0.8 pt	1-5 days preplant		
Bronco + Lorox	3.25 qt + 1.25 pt	4 qt + 1.5 pt	4 qt + 2 pt			

REDUCED TILLAGE SYSTEMS AND ECOFARMING (continued)

Herbicide (See Weed Response Chart before selecting herbicides)	Apply this amount of commercial product/A			Application Time	Remarks and Approximate Cost/A Broadcast
	Sandy Loam <1% OM	Silt Loam 1-2% OM	Silty-Clay Loam >2% OM		
Winter Wheat--No-Till Continuous Wheat					
Bladex 90DF	2.2 lb	3.1 lb	3.1 lb	70 days prior to planting	If grasses >2" are present add 1-2 pt Paraquat ¹² /A for Bladex treatment. If only broad- leaf weeds are present add 1 qt/A 2,4-D LV ester. If volunteer wheat develops later, treat with Roundup ¹² , Paraquat ¹² or Land- master ¹² . To facilitate drilling stubble should be no taller than 12" with good straw and chaff distribution. Approx. cost: Bladex 60 days \$11.55-\$17.50; 45 days \$10.15-\$12.25; Roundup \$11.30-\$21.80; Landmaster \$6.25-\$8.50.
Bladex 90DF	1.8 lb	2.7 lb	2.7 lb	45 days prior to planting	
Roundup ¹²	1-2 pt	1-2 pt	1-2 pt	Postemergence; two or more applications required	
Landmaster ¹²	40-54 oz	40-54 oz	40-54 oz		
Wheat-ECOFALLOW-Wheat--Wheat Seeded 12-14 Months Later					
Weed Free Stubble					
AAtrex 4L ³	1 pt	2 pt	2 pt	July-Sept 1	Add 1 qt/A 2,4-D LV ester to improve grass and broadleaf weed con- trol. If grasses or volunteer wheat recover use sweep plow. Use low- er rate on soils below 1% OM or on calcareous soils. Avoid terraced fields, Canyon and Rose- bud soils, and caliche out-croppings. Use Glean only where wheat will be planted in fall. Approx. cost: AAtrex \$1.20- \$2.40; Bladex + Atrazine \$9.75-\$12.75; Glean + AAtrex \$6.85-\$10.90.
Bladex 90DF	1.8 lb	2.2 lb	2.2 lb		
+ Atrazine 4L ³	1 pt	1.5 pt	1.5 pt		
Glean	0.33 oz	0.5 oz	0.5 oz		
+ AAtrex 4L ³	1 pt	2 pt	2 pt		
Weedy Stubble					
AAtrex 4L ³	1 pt	2 pt	2 pt	July-Sept. 1	Spray before weeds pro- duce seed. If grasses or volunteer wheat recover use sweep plow. Add 1 qt 2,4-D LV ester to Igran + AAtrex to improve con- trol of emerged grass and broadleaf weeds. Avoid terraced fields, Canyon and Rosebud soils, and caliche out- croppings. Use Glean only where wheat will be planted 12 mo. later. Approx. cost: AAtrex + Paraquat \$7.65-\$14.55; Igran + AAtrex \$10.55- \$14.15; Bladex + Atrazine + Paraquat + 2,4-D \$13.00-\$19.20; AAtrex + Paraquat + Glean \$13.30-\$23.05; AAtrex + Roundup + Glean \$17.10-\$31.40.
+ Paraquat ^{12,18}	1-2 pt	1-2 pt	1-2 pt		
Igran 80W	2-3 lb	2-3 lb	2-3 lb		
+ AAtrex 4L ³	1 pt	2 pt	2 pt		
Bladex 90DF	1.1 lb	1.1 lb	1.1 lb		
+ Atrazine 4L ³	1 pt	1.5 pt	1.5 pt		
+ Paraquat ^{12,18}	1-2 pt	1-2 pt	1-2 pt		
+ 2,4-D LV ester	1 pt	1 pt	1 pt		
AAtrex 4L ³	1 pt	2 pt	2 pt		
+ Paraquat ^{12,18}	1-2 pt	1-2 pt	1-2 pt		
+ Glean	0.33 oz	0.5 oz	0.5 oz		
AAtrex 4L ³	1 pt	2 pt	2 pt		
+ Roundup ^{12,18}	1 pt	1 pt	1 pt		
+ Glean	0.33 oz	0.5 oz	0.5 oz		

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REDUCED TILLAGE SYSTEMS AND ECOFARMING (continued)

Herbicide (See Weed Response Chart before selecting herbicides)	Apply this amount of commercial product/A			Application Time	Remarks and Approximate Cost/A Broadcast
	Sandy Loam <1% OM	Silt Loam 1½-2% OM	Silty-Clay Loam >2% OM		
Wheat-ECOFALLOW-Wheat--Wheat Seeded 4-5 Months Later					
Bladex 90DF + Paraquat ^{12,18}	2.7 lb + 1-2 pt	2.9 lb + 1-2 pt	3.1 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 volun- teer wheat, downy brome, jointed goatgrass and broadleaf weeds. Approx. cost \$15.60-\$24.90.
Roundup ¹²	1 pt	1 pt	1 pt	Postemergence- April or be- fore boot stage or weeds	Use Glean only where wheat will be planted in fall. Approx. cost: Roundup \$11.40; Roundup + Glean \$13.85-\$16.40.
Roundup ¹² + Glean	1 pt + 0.33 oz	1 pt + 0.5 oz	1 pt + 0.5 oz		
2,4-D LV ester + Banvel	1 qt + 0.5 pt	1 qt + 0.5 pt	1 qt + 0.5 pt		
Glean	0.33 oz	0.5 oz	0.5 oz	Feb.-April	Use only in continuous wheat rotations. Will not control downy brome and volunteer wheat. Approx. cost \$5.65-\$8.50.
Wheat-ECOFALLOW-Corn/Sorghum/Millet--Corn, Sorghum, or Proso Millet Planted Next Spring					
Weed Free Stubble					
AAtrex/Atrazine 4L ³	2 qt 1.5 qt	2.5 qt 2 qt	3 qt 2.5 qt	July-Aug. Sept.-Nov. after wheat harvest for corn and sorghum	1 qt/A 2,4-D ester im- proves perennial broad- leaf weed and annual grass control. Spray before weeds produce seed. Use sweep plow if grass weeds are present. Use 1-1.2 qt Atrazine 4L in Pan- handle. WARNING --High Atrazine rates may carry over. Approx. cost \$2.40-\$7.20.
AAtrex/Atrazine 4L ³	1.25 qt 1 qt	1.5 qt 1.3 qt	2 qt 1.6 qt	July-Aug. Sept.-Nov. after wheat harvest for proso millet	
Weedy Stubble					
AAtrex/Atrazine 4L ³ + Paraquat ^{12,18}	2 qt + 1-2 pt	2.5 qt + 1-2 pt	3 qt + 1-2 pt	July-Aug. for corn and sorghum	Spray after wheat harvest and 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 Pan- handle. Approx. cost: Atrazine + Paraquat \$10.00-\$19.35; Igran + AAtrex \$12.30-\$18.85; Igran + AAtrex + Paraquat \$14.10-\$23.00.
AAtrex/Atrazine 4L ³ + Paraquat ^{12,18}	1.5 qt + 1-2 pt	2 qt + 1-2 pt	2.5 qt + 1-2 pt	Sept.-Nov. for corn and sorghum	
AAtrex/Atrazine 4L ³ + Paraquat ^{12,18}	1.25 qt + 1-2 pt	1.5 qt + 1-2 pt	2 qt + 1-2 pt	July-Aug. for millet	
AAtrex/Atrazine 4L ³ + Igran 80W	2 qt + 2-2.5 lb	2.5 qt + 2-2.5 lb	3 qt + 2-2.5 lb	July-Aug. for corn and sorghum	Proso millet--Sept.-Nov. applications reduce AAtrex/Atrazine rate by 20%.
AAtrex/Atrazine 4L ³ + Igran 80W	1.5 qt + 2-2.5 lb	2 qt + 2-2.5 lb	2.5 qt + 2-2.5 lb	Sept.-Nov. for corn and sorghum	
AAtrex/Atrazine 4L ³ + Igran 80W	1.25 qt + 2-2.5 lb	1.5 qt + 2-2.5 lb	2 qt + 2-2.5 lb	July-Aug. for millet	
AAtrex/Atrazine 4L ³ + Igran 80W + Paraquat ^{12,18}	2 qt + 1-2 lb + 1 pt	2.5 qt + 1-2 lb + 1 pt	3 qt + 1-2 lb + 1 pt	July-Aug. for corn and sorghum	WARNING --High Atrazine rates may carry over and destroy wheat on eroded areas, terraces and cal- careous soils.
AAtrex/Atrazine 4L ³ + Igran 80W + Paraquat ^{12,18}	1.5 qt + 1-2 lb + 1 pt	2 qt + 1-2 lb + 1 pt	2.5 qt + 1-2 lb + 1 pt	Sept.-Nov. for corn and sorghum	
AAtrex/Atrazine 4L ³ + Igran 80W + Paraquat ^{12,18}	1.25 qt + 1-2 lb + 1-2 pt	1.5 qt + 1-2 lb + 1-2 pt	2 qt + 1-2 lb + 1-2 pt	July-Aug. for millet	

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REDUCED TILLAGE SYSTEMS AND ECOFARMING (continued)

Herbicide (See Weed Response Chart before selecting herbicides)	Apply this amount of commercial product/A			Application Time	Remarks and Approximate Cost/A Broadcast
	Sandy Loam <1% OM	Silt Loam 1%-2% OM	Silty-Clay Loam >2% OM		
Wheat-Ecofallow-CORN--Corn Planted in Wheat Stubble Treated With AAtrex/Atrazine After Harvest¹⁹					
Bladex 4L ^{12,13,14,15,16,17}	2 qt	2 qt	2.5 qt	0-30 days preplant	Do not use on sands and loamy sands with less than 1% OM. Omit Atrazine in the combination treatment if the maximum Atrazine rate was used previous year. Approx. cost: Bladex \$9.40-\$11.75; Bladex + Atrazine \$7.40-\$10.65; Bladex + Dual \$16.45-\$21.90.
Bladex 4L ^{12,13,14,15,16,17} + AAtrex/Atrazine 4L ³	1.25 qt + 0.75 qt	1.5 qt + 1 qt	1.75 qt + 1 qt	0-15 days preplant	
Bladex 4L ^{12,13,14,15,16,17} + Dual 8E	1.5 qt + 0.75 qt	1.75 qt + 1 qt	2 qt + 1 qt		
Dual ^{13,15} (Do not use alone if grasses are present)	2 pt	2.5 pt	3 pt	0-20 days preplant	
Dual 8E ^{12,13,14,15,16} + AAtrex 4L ³	1.5 pt + 0.75 qt	2 pt + 1 qt	2 pt + 1 qt		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 soil pH is above 7.2; use higher Dual and Lasso rates. Approx. cost: Dual \$15.65-\$18.75; Dual + AAtrex \$10.30-\$14.90; Lasso \$13.50-\$16.20; Lasso + AAtrex \$11.70-\$15.90; Lasso + Bladex \$17.85-\$22.90; Bronco \$28.00-\$32.00; Bronco + Atrazine \$29.80-\$34.40.
Lasso 4EC ^{13,15} (Do not use alone if grasses are present)	2.5 qt	3 qt	3 qt		
Lasso 4EC ^{12,13,14,15,16} + AAtrex 4L ³ or Bladex 4L ²⁰	2 qt + 0.75 qt or 1.5 qt	2.5 qt + 1 qt or 1.75 qt	2.5 qt + 1 qt or 2 qt	0-5 days preplant	
Bronco	3.5 qt	4 qt	4 qt		
Bronco + AAtrex 4L ³	3.5 qt + 0.75 qt	4 qt + 1 qt	4 qt + 1 qt		
Wheat-Ecofallow-MILLET-Fallow--Proso Millet Planted in Stubble Treated With Atrazine After Harvest¹⁹					
AAtrex 4L ³	0.25 qt	0.5 qt	0.5 qt	0-20 days preplant	Add Paraquat ^{12,18} at 1-2 pt if emerged weeds are present. Do not use AAtrex if soil pH is above 7.5. Approx. cost \$1.60-\$1.20.
Wheat-ECOFALLOW-Soybean-Fallow--Plant Soybeans Following Spring					
Sencor 4L/Lexone + 2,4-D	2 pt + 1 qt	2 pt + 1 qt	2 pt + 1 qt	July--spray wheat stubble after harvest	Add Paraquat ^{12,18} to Lexone/Sencor if weeds are larger than 6". Volunteer wheat may emerge in fall or spring; control with Roundup. Approx. cost w/o Paraquat \$27.20.
Wheat-Ecofallow-SOYBEANS--For Areas With Over 20" Rainfall Soybeans Planted into Wheat Stubble Treated With Sencor/Lexone After Harvest					
Dual 8E + Sencor/Lexone 4L ^{13,15}	Do not use	2 pt + 0.75 pt	2.15 pt + 0.9 pt	1-20 days preplant	Add Paraquat ^{12,18} 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 postemergence herbicides are needed. Approx. cost: Dual + Sencor/Lexone \$22.00-\$27.00; Lasso + Sencor/Lexone \$22.95-\$27.55; Prowl + Sencor/Lexone \$16.35-\$18.25; Surflan + Sencor/Lexone \$25.20-\$28.85; Bronco + Sencor/Lexone \$41.45-\$43.35.
Prowl 4EC + Sencor/Lexone 4L ^{13,15}	Do not use	3 pt + 0.75 pt	3 pt + 0.9 pt		
Surflan AS + Sencor/Lexone 4L ^{13,15}	2 pt + 0.6 pt	2.25 pt + 0.75 pt	2.5 pt + 0.9 pt	20 or more days preplant	
Lasso 4EC + Sencor/Lexone 4L ^{13,15}	Do not use	2.5 qt + 0.75 pt	3 qt + 0.9 pt	0-5 days preplant	
Bronco + Sencor/Lexone 4L ^{13,15}	Do not use	4 qt + 0.75 pt	4 qt + 0.9 pt		

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REDUCED TILLAGE SYSTEMS AND ECOFARMING (continued)

Herbicide (See Weed Response Chart before selecting herbicides)	Apply this amount of commercial product/A			Application Time	Remarks and Approximate Cost/A Broadcast
	Sandy Loam <1% OM	Silt Loam 1½-2% OM	Silty-Clay Loam >2% OM		
Wheat-Ecofallow-GRAIN SORGHUM--Sorghum Planted in Wheat Stubble Treated With AAtrex/Atrazine After Harvest¹⁹					
Bladex 4L ^{12,13,14,15,17}	2 qt	2.5 qt	3 qt	28 or more days preplant	Add Paraquat ^{12,18} at 1-2 pt if emerged weeds are present if Bronco is not used. Seed must be treated with Concep for Dual or Screen for Lasso or Bronco treatments. Omit AAtrex in the com- bination treatments if soil pH is above 7.2; use higher rate of Dual or Lasso. Use lower rate of Atrazine west of High- way 83. Approx. cost: Dual \$9.40-\$12.50; Dual + AAtrex \$10.65-\$14.90; Lasso \$13.50-\$16.20; Lasso + Atrazine \$12.00- \$15.90; Bronco \$28.00- \$32.00; Bronco + Atrazine \$29.20-\$34.40; Lasso + Bladex \$17.85-\$22.90; Bladex \$9.40-\$14.10; Bladex + Atrazine \$6.40- \$15.30; Bladex + Dual \$20.00-\$24.25.
Bladex 4L ^{12,13,14,15,17}	2.5 qt	3 qt	3.5 qt	35 or more days preplant	
Bladex 4L ^{12,13,14,15,17} + Atrazine 4L ³	1.2 qt* + 0.3 qt*	1.5 qt + 0.4 qt	2 qt + 0.5 qt	14 or more days preplant	
Bladex 4L ^{12,13,14,15,17} + Atrazine 4L ³	1.6 qt + 0.4 qt	2 qt + 0.5 qt	2.5 qt + 0.5 qt	28 or more days preplant	
Bladex 4L ^{12,13,14,15,17} + Atrazine 4L ³	2 qt + 0.5 qt	2.5 qt + 0.5 qt	3 qt + 0.5 qt	35 or more days preplant	
Bladex 4L ^{12,13,14,15,17} + Dual 8E	1.25 qt + 1.5 pt	1.6 qt + 1.5 pt	2 qt + 1.75 pt	14 or more days preplant	
Bladex 4L ^{12,13,14,15,17} + Dual 8E	1.6 qt + 2 pt	2 qt + 2 pt	2.5 qt + 2 pt	28 or more days preplant	
Dual 8E ^{13,15} (Do not use alone if grasses are present)	1.5 pt	2 pt	2 pt	0-20 days preplant	
Dual 8E ^{12,13,14,15} + AAtrex 4L ³	1.5 pt + 0.5 qt	2 pt + 1 qt	2 pt + 1 qt		
Lasso 4EC ^{13,15} (Do not use alone if grasses are present)	2.5 qt	3 qt	3 qt	0-5 days preplant	
Lasso 4EC ^{12,13,14,15} + AAtrex 4L ³ or Bladex 4L ²⁰	2 qt + 0.5 qt	2.5 qt + 1 qt or 1.2 qt	2.5 qt + 1 qt or 1.6 qt		
Bronco	3.5 qt	4 qt	4 qt		
Bronco + AAtrex 4L ³	3.5 qt + 0.5 qt	4 qt + 1 qt	4 qt + 1 qt	1-7 days preplant	Use on loam or finer textured soils. Do not use on soils with less than 1% OM and pH greater than 7.4. Omit AAtrex in the combina- tion treatments if the maximum AAtrex rate was used previous year and increase Igran rate. Approx. cost: Igran \$9.30-\$11.70; Igran + AAtrex \$11.25.
Igran 80W ^{12,13,14,15}	2 lb	2.25 lb	2.5 lb		
Igran 80W ^{12,13,14,15} + AAtrex 80W (Primarily for broadleaf weeds)	1.5 lb + 0.5 lb	2 lb + 0.75 lb	2 lb + 1 lb		

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*21 days or more preplant when used on sandy soil.

REDUCED TILLAGE SYSTEMS AND ECOFARMING (continued)

Herbicide (See Weed Response Chart before selecting herbicides)	Apply this amount of commercial product/A			Application Time	Remarks and Approximate Cost/A Broadcast
	Sandy Loam <1% OM	Silt Loam 1½-2% OM	Silty-Clay Loam >2% OM		
Wheat-Ecofallow-Corn/Sorghum-FALLOW--Winter Wheat to be Planted in Less Than Six Months					
Bladex 4L + 2,4-D LV ester	3 qt + 1.5 pt	3 qt + 1.5 pt	3.5 qt + 1.5 pt	March- April 10	Early application nec- essary to control winter annuals. Use Roundup for control of downy brome before heading, volun- teer corn or sorghum. Do not plant wheat for 15 days after using 2,4-D and Banvel. Follow-up weed control may be nec- essary. Approx. cost: Bladex + 2,4-D \$16.00- \$18.35; Bladex + Paraquat \$18.20-\$26.25; Roundup + Glean \$15.90-\$18.75; Landmaster \$6.25-\$8.40; 2,4-D + Banvel \$5.65.
Bladex 4L + Paraquat ^{12,18}	2.5 qt + 1-2 pt	2.5 qt + 1-2 pt	3 qt + 1-2 pt	April 15- May 1	
Roundup ¹² + Glean	1 pt + 0.33 oz	1 pt + 0.5 oz	1 pt + 0.5 oz	April 15- May 1	
Landmaster ¹²	40-54 oz	40-54 oz	40-54 oz	April 15- May 1	
2,4-D LV ester + Banvel 4WS	1 qt + 0.5 pt	1 qt + 0.5 pt	1 qt + 0.5 pt	Broadleaf weeds less than 4"	

³Additional 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 = 1.1 lb AATrex Nine-O

1 qt Bladex 4L = 1.25 lb Bladex 80W = 1.1 lb Bladex 90DF

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

¹¹Irrigated conditions or eastern Nebraska.

¹²Add X-77 spreader 2 pt per 100 gal spray solution for Paraquat, 4 pt per 100 gal if Paraquat is used at less than 10 gal water per acre. For Roundup and Landmaster application, apply 10 gal or less water per acre; add 2 qts X-77 or similar surfactant plus 17 lbs ammonium sulfate (fluid or feed grade) per 100 gal spray solution to enhance Roundup performance. (Landmaster contains sufficient surfactant.)

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

¹⁴If 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 Roundup¹² at 1 pt/A one week before planting or immediately after planting but before crop emergence. Do not mix Roundup with other herbicides.

¹⁵If Russian thistle or kochia 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.

¹⁶AATrex/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.

¹⁷Fertilizer solutions containing only nitrogen may have advantages over water as a carrier. For Bladex treatments without Paraquat or nitrogen solution, add crop oil at recommended rate. Use a minimum of 25 gal carrier. Complete spray coverage of weeds is essential and Bladex 4L has better burn-down than Bladex 80W or 90DF.

¹⁸Increase 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.

¹⁹Fields not treated after harvest with AATrex/Atrazine are not true ecofallow. Therefore, herbicides might not be as effective and grain yields may be poorer than fields treated in fall. If moisture was present after harvest and weeds produced seed, weed pressure may be great enough that weed control with herbicides at rates that do not cause crop injury may be difficult. Also the moisture lost after harvest may be critical to the crop if the moisture during the winter and spring is limited. With these considerations and if one wishes to try the spring only treatment, the following is suggested:

Add or increase the AATrex/Atrazine to the maximum rate the crop can tolerate and still not cause damage to the succeeding crop. Be sure to add a grass herbicide. Add Paraquat + X-77 if grass weeds and/or volunteer wheat are present at spraying. Increase Paraquat rate after April 15 to 1.5 to 2 pt depending upon size of weeds. Rates suggested depending on soil type, pH, OM, and time of application--
For corn 1.5 to 2.5 qt AATrex/Atrazine
For grain sorghum 1.25 to 2.25 qt AATrex/Atrazine
For proso millet 0.75 to 1 qt AATrex

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 (metasulfuron methyl)--Used in wheat and fallow for broadleaf and certain grass weed control. EUP. 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. Discontinued in 1985. 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.

Atrabute+--Atrazine + Sutan combination. Griffin.

atrazine--A preplant, preemergence and postemergence 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.

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. Clean Crop label, Midwest.

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.

Canopy--Combination of Classic and metribuzin. DuPont.

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.

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

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

Command (fenoxan)--A new preplant incorporated and preemergence herbicide for grass and broadleaf weed control in soybeans. FMC.

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.

Crossbow (2,4-D + trichlopyr)--Ester formulation of 2,4-D and Garlon for broadleaf weeds and woody plants on non-cropland. Dow.

Cytrol--Trade name for amitrole. American Cyanamid.

HERBICIDE DICTIONARY (continued)

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.

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

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

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

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

Endothall (endothall)--Used preemergence and postemergence 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 2000 (fluazifop)--A selective postemergence grass herbicide that controls shattercane, volunteer corn and other grasses in soybeans. ICI Americas.

Garlon (trichlopyr)--Postemergence herbicide for woody plant and broadleaf weed 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, onions and nursery stock. Rohm & Haas.

Gramoxone--Trade name for paraquat. ICI Americas.

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

Harmony--Chemistry and uses similar to Glean and Ally with reduced residual activity. DuPont.

Harness (acetochlor)--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 carryover. 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 postemergence in alfalfa. Rohm & Haas.

Knoxweed--A combination of Eptam and 2,4-D for preemergence 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.

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

Landmaster--A combination of Roundup and 2,4-D primarily for no-till. Monsanto.

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.

Marathon--A formulation of Ro-Neet with antidote for preplant use in corn. Weed spectrum control similar to Sutan+. Stauffer.

Marksman--A combination of 1.1 lbs dicamba and 2.1 lbs atrazine for postemergence weed control in corn. Velsicol.

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.

HERBICIDE DICTIONARY (continued)

metribuzin--Used for annual broadleaf weeds in soybeans, alfalfa, and potatoes; 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.

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

Norosac--Same as Casoron. Gordon-PBI.

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

Oust--A non-cropland 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 non-cropland. Trade names Gramoxone and Paraquat+Plus. Chevron, ICI Americas.

Paraquat+Plus--Trade name for paraquat. Includes emetic and odor enhancer. Ortho.

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

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.

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.

Probe (methazole)--For many annual broadleaf weeds and grasses pre- and postemergence in soybeans, onions, potatoes and ornamentals. Experimental. Velsicol.

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

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 (fluorochloridone)--Used 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.

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

Reflex (fomesafen)--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)--Special formulation of glyphosate for aquatic weed control. 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. Vertac.

Scepter (imazaquin)--A preplant incorporated, pre-emergence and postemergence grass and broadleaf weed control herbicide for soybeans. American Cyanamid.

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

Sencor--Trade name for metribuzin. Mobay.

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

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 and non-crop areas. 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 grazingland. Uniroyal, Gordon.

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

Surge--Sister compound to Lexone for control of annual brome and other weed species in winter wheat. EUP 1986. DuPont.

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

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

HERBICIDE DICTIONARY (continued)

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. All uses have been canceled.

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 1986. Dow.

TCA--Used postemergence for annual and perennial grasses on non-cropland; 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 non-cropland. 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.

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.

Trophy (poppenate methyl)--A selective postemergence herbicide for grass control in soybeans and other broadleaf crops. Stauffer.

Tycor--Sister compound to sencor for control of annual brome and other weed species in winter wheat. EUP 1986. Mobay.

Velpar (hexazinone)--Used for nonselective postemergence weed control on non-cropland, Christmas tree plantings, and alfalfa. DuPont.

Verdict (haloxyfop-methyl)--A selective postemergence herbicide that controls shattercane, volunteer corn and other grasses in soybeans. EUP. 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

APPROXIMATE RETAIL PRICE OF SELECTED HERBICIDES

Herbicide	Price	Herbicide	Price	Herbicide	Price
AAtrex 4L	\$ 9.60/gal	Dacthal 75W	\$ 4.50/lb	Modown 4EC	\$26.00/gal
AAtrex 80W	\$ 1.90/lb	Dinitro	\$12.80/gal	Nortron	\$47.30/gal
Alanap L	\$12.40/gal	Diquat	\$63.20/gal	Oust	\$ 7.50/oz
Amiben DS	\$ 6.30/lb	Dowpon M	\$ 2.00/lb	Paraquat	\$45.60/gal
Amitrol-T	\$20.00/gal	Dual 8E	\$50.00/gal	Poast	\$80.00/gal
Antor	\$37.30/gal	Embark 2E	\$80.00/gal	Pramitol 5P	\$ 1.10/lb
Aquaclean	\$ 1.00/lb	Eptam 7E	\$24.30/gal	Pramitol 25E	\$96.80/gal
Aquathal	\$ 1.00/lb	Eptam 10G	\$.40/lb	Prefar	\$32.80/gal
Aquathal 1.6E	\$57.60/gal	Eradicane	\$22.00/gal	Princep 80W	\$ 3.30/lb
Aquazine	\$ 5.20/lb	Eradicane Extra	\$26.80/gal	Princep 4L	\$15.60/gal
Balan	\$14.80/gal	Extrazine	\$16.00/gal	Prowl	\$18.40/gal
Banvel	\$50.80/gal	Fusilade 2000	\$80.00/gal	Ramrod-atrazine	\$16.80/gal
Basagran	\$87.20/gal	Garlon 4	\$71.50/gal	Ramrod Flowable	\$16.80/gal
Betanex	\$65.00/gal	Genate Plus	\$18.20/gal	Rescue	\$12.80/gal
Betamix	\$65.00/gal	Genep	\$24.30/gal	Reward	\$17.60/gal
Bicep	\$21.60/gal	Glean	\$17.00/oz	Ro-Neet 7E	\$47.90/gal
Bladex 4L	\$18.80/gal	Goal 2E	\$72.00/gal	Ro-Neet 10G	\$ 1.50/lb
Bladex 80W	\$ 3.60/lb	Herbicide 273	\$35.60/gal	Roundup	\$82.00/gal
Blazer 2L	\$76.80/gal	Hyvar X	\$10.80/lb	Sencor/Lexone 4L	\$100.80/gal
Brominal ME4	\$90.00/gal	Hyvar XL	\$34.40/gal	Sencor/Lexone DF	\$19.00/lb
Brominal 3+3	\$72.00/gal	Igran 80W	\$ 4.70/lb	Sinbar	\$18.00/lb
Bronate	\$72.00/gal	Karmex 80W	\$ 4.60/lb	Sonalan	\$34.40/gal
Bronco	\$32.00/gal	Kerb 50W	\$14.70/lb	Spike 5G	\$ 2.80/lb
Buctril	\$42.00/gal	Krenite	\$40.40/gal	Spike 80W	\$20.00/lb
Butoxone	\$14.00/gal	Krovar I	\$ 8.60/lb	Spike 20P	\$ 8.00/lb
Butyrac	\$14.00/gal	Landmaster	\$20.00/gal	Surflan	\$56.00/gal
Casoron 10G	\$ 3.20/lb	Lasso	\$21.60/gal	Sutan+	\$18.20/gal
Casoron 50W	\$14.00/lb	Lasso II	\$ 1.00/lb	Sutazine	\$17.60/gal
Casoron 4G	\$ 1.20/lb	Lasso-atrazine	\$16.00/gal	Treflan	\$20.40/gal
Chem-Hoe 4L	\$16.00/gal	Leafex 3	\$ 3.20/gal	Tordon 22K	\$92.00/gal
Crop Oil Conc.	\$ 6.00/gal	Lorox 4L	\$50.40/gal	Velpar L	\$58.80/gal
Crossbow	\$40.00/gal	MCPA	\$12.00/gal	Vernam	\$26.00/gal
2,4-D amine	\$ 8.00/gal			X-77	\$14.80/gal
2,4-D ester	\$10.00/gal				

CLEANING THE SPRAYER

First rinse the sprayer with a material which acts as a solvent for the herbicide. Kerosene and fuel oils carry away oil-soluble herbicides such as 2,4-D ester. Chemicals which form emulsions when mixed with water are oil-soluble. After the oil rinse, a rinse with water containing detergent will help remove the oil. Oil-soluble herbicides are the most difficult to remove. 2,4-D amine salts are water-soluble. For most water-soluble herbicides repeated rinsing with water is usually enough. Hormone type require extra precautions. If 2,4,5-T, silvex, Banvel or 2,4-D were used, fill the tank with water and ammonia. Add 1 quart of household ammonia to 25 gallons of water. Pump enough solution through the hose and nozzles to fill these parts completely. Then fill the tank, close and leave for 24 hours before rinsing thoroughly with water.

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

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