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EC91-130 A 1991 Guide for Herbicide Use in Nebraska

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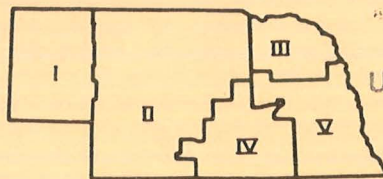
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A 1991 Guide for--- HERBICIDE USE IN NEBRASKA

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

RESTRICTED USE HERBICIDES. Amitrole, Atrazine, AAtrex, Bicep, Bladex, Bronate, Bucril, Bullet, Cannon, Cycle, Cyclone, Extrazine II, Freedom, Gramoxone, Hoelon, Kerb, Laddok, Lasso, Lariat, Marksman, Tordon are restricted use herbicides. Other herbicides may be classified as restricted use at some future date. The label will indicate if a product is restricted use. Only certified applicators should apply or supervise the application of restricted use herbicides. See your Extension Agent if you need to be certified.



*"Use Crop Production
Chemicals Wisely"*

- READ THE LABEL BEFORE EACH USE
- APPLY ONLY AS DIRECTED
- STORE IN ORIGINAL LABELED CONTAINERS
- ELIMINATE HAZARDS FROM CONTAINERS BY RINSING AND PROPER DISPOSAL.
- DO NOT USE 2,4-D ESTER, BANVEL (DICAMBA), COMMAND, AND SIMILAR HERBICIDES NEAR VEGETABLES, ORNAMENTALS, TREES, SHRUBS, AND BROADLEAF CROPS.

UNIVERSITY OF NEBRASKA-LINCOLN



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NOTES

HERBICIDE APPLICATIONS

Soil Applied

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. **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. Weed control

with preemergence treatments may be poor if there is no rain to move 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 and crops should be rotated to control a wider spectrum of weeds and to reduce the build-up of any particular herbicide in the soil.

Postemergence

Early post refers to 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. **Directed** postemergence treatments are made to the lower portion of the crop plant.

Layby treatments are applied at last cultivation to provide an extended period of weed control.

Harvest aid treatments are applied late in the growing season to reduce weed seed production and make harvest easier.

Desiccants are applied after crop maturity to hasten drying and permit earlier harvest.

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.

Application Pointers

One of the components of good herbicide performance is proper application of the correct amount. Equipment must be calibrated properly before spraying.

The amount of solution applied per acre depends on the forward speed, the spacing of the nozzles, and the output of the nozzle which is dependent upon the size of the nozzle and the pressure. A change in any one of these will change the rate of application. To calibrate a sprayer refer to NebGuide G88-865, Fine Tuning a Sprayer With the Ounce Calibration Method. Also, remember if spraying with any material other than water as carrier, the output will be affected. This NebGuide also contains information on using fertilizers as carriers.

The selection of nozzles is an important criteria in herbicide application. The nozzle type, pressure, ground or air speed, and wind all greatly affect drift potential and damage to nearby crops. This same criteria affects the coverage of the herbicide on the plants or soil surface. In general, flat fan nozzles have given the most satisfactory results. Nozzles placed on 30 inch spacing with the height and angle adjusted for 100% overlap gives uniform coverage. Do not angle any nozzle greater than 30° from vertical as the drift potential greatly increases.

For floaters and sprayers with booms greater than 36 inches in height, 80° flat fan nozzles are recommended. For lower boom heights, 110° nozzles usually are recommended. The 110° nozzles are needed with the lower boom height to maintain 100% overlap. Also the 110° nozzles yield smaller particle size allowing lower pressures while maintaining good plant coverage and reducing the drift prone fines that occur with higher pressures. For farmer application with the lower boom heights and 110° nozzles, the low pressure (LP) or extended range (XR) nozzles are recommended. The XR and LP nozzles give good patterns at pressures from 15 to 40 psi, and allow for reduced pressures without the pattern distortion that may occur with other nozzles. These nozzles, which to maintain patterns over a wide range of pressure, work well with monitors with rate controllers. On the higher booms the 80°

nozzles are recommended because of the difficulty in maintaining a good pattern with the 110° nozzles on the higher boom heights. To get the particle sizes needed for good coverage with postemergence herbicides the pressure needs to be 35 to 40 psi with the 80° nozzles and, therefore, the extended range or low pressure nozzles are probably not as useful.

For banding preemergence herbicides evenflow flat fan nozzles are recommended.

For banding postemergence herbicides a three nozzle setup over the row with cone nozzles gives the best pattern. The next best selection probably would be the even flat fan nozzle. Again set up with two or three nozzles for good coverage. Higher pressures are normally needed for the postemergence nozzles, especially where good coverage is important. For additional information on nozzles see NebGuide G89-995, Nozzle Selection and Sizing.

A few pointers on herbicide application are listed below:

1. It is not recommended to use any nozzle that requires smaller than a 50 mesh screen in order to reduce nozzle plugging.
2. Buy quality nozzles. Stainless steel, stainless steel inserts in nylon nozzles, and ceramic nozzles in the long run are the most economical.
3. Get a special nozzle cleaning brush. Keep pocket knives, paper clips, and wire away from the nozzles as they will distort the pattern and also change the flow rate of the nozzle. Also check the sprayer with water to make sure that the nozzles are not plugged and fittings and hose do not leak before adding any herbicide.
4. Use a number of strainers. Strainers before the pump, and before the flow control system are important along with nozzle screens.
5. Use diaphragm check valve or other sprayer items to give instant on and instant off control to eliminate drip and delay when the boom is turned on.

CONSERVATION TILLAGE SYSTEMS

No-Till

Early preplant treatments generally provide the most satisfactory weed control. This involves applying residual herbicides 10 to 30 days prior to planting. The objective is to apply the herbicide prior to the germination of summer annual weeds, especially grasses. This may eliminate the need for a nonselective herbicide like Gramoxone or Roundup. It is important to use treatments with adequate residual control. A split herbicide application with a portion applied early preplant and a second increment at planting can be used. This could be helpful with short residual materials or where heavy rains or delayed planting occurs following the first treatment. Early preplant treatments, properly designed, can often provide consistent weed control at lower cost than planting time treatments. Soil disturbance by planter following a preplant treatment may allow weed growth in the row.

Planting time treatments of a preemergence herbicide are made at or immediately after planting. When established weeds are present a postemergence herbicide is combined with the preemergence herbicide. Atrazine, Bladex, Extrazine II, Gramoxone Extra, Roundup or Bronco will control established broadleaf weeds, grasses or volunteer wheat depending on plant height. If grasses are less than 2" tall, atrazine, Bladex, and Extrazine II will provide acceptable control. Control is improved when crop oil concentrate or 28% nitrogen are added. In corn, 2,4-D ester may also be added for improved weed control. Gramoxone should be applied with X-77 to grasses less than 4" tall. If grasses are taller than 4" and are growing vigorously, apply Roundup¹ at 1 pt/A. Kill volunteer wheat and annual bromes in April to prevent soil moisture loss.

Ridge Planting

With the ridge plant system the row has fewer weeds because the weed seed produced the preceding year is not worked into the soil when the seedbed is prepared. During planting, sweeps or discs move soil containing kernels and ears, sorghum seed and/or heads, and most weed seed from the ridge. A banded herbicide treatment should be used at planting time in the row. If timely cultivation is not possible, weed pressure is heavy, or the field contains many hard to control weeds like velvetleaf, a broadcast herbicide treatment at planting time may be necessary.

Select the herbicide treatment from the preemergence treatments of soil applied herbicides. Early preplant treatments can be applied in early April prior to planting to keep early summer annual weeds under control. The rate of atrazine to use depends on future crops that will be planted.

The early herbicide treatment should eliminate planting

through 4-inch or taller weed growth. Weeds like kochia and Russian thistle are troublesome if not killed. The trouble arises along the cutting edge of the planter sweep, where larger broadleaf weeds may not be uprooted or covered. Most early germinating broadleaf weeds can be controlled effectively and economically with 2,4-D. It is better to apply the 2,4-D at planting time from a spray boom on the front end or underbelly of the tractor rather than after planting. If considerable grass weed growth is present before planting, Gramoxone or Roundup should be used. Another option would be to preplant cultivate for row-middle tillage, leaving ridge top weed removal to the planter sweep. This works extremely well on fields where corn was ensiled. Preplant cultivation also allows for rebuilding ridges, which may be desirable if they have been damaged by harvest equipment or livestock tramping.

Ecofarming

Ecofarming is a system which controls weeds after wheat harvest and throughout the fallow period by using herbicides

and/or tillage with minimum disturbance of crop residues and soils. For a more detailed discussion see page 23.

HERBICIDE CARRYOVER

Certain herbicides can persist in the soil to the extent that rotational crops may be injured. The potential for herbicide carryover increases as one goes westward in Nebraska. Lower rainfall and low soil organic matter increases carryover potential. Herbicide carryover potential is greater on eroded soils and soils with pH greater than 6.8. Carryover is also a function of application accuracy. Carryover will be more apparent in headlands and other areas where sprayer overlap is common. Herbicide applications made late in the season have greater carryover potential compared to earlier applications.

Carryover can restrict crop rotation options as well as limit replant options if a crop is lost due to hail or other disasters. Care should be taken when choosing herbicides to fit your rotation sequence. The following is a partial list of herbicides which have carryover potential in Nebraska.

1. Ally
2. Atrazine, AAtrex

3. Atrazine prepacks: Bicep, Bullet, Extrazine II, Lariat, Marksman, Sutazine
4. Command, Commence
5. Canopy, Classic, Preview, Lorox Plus
6. Glean
7. Princep
8. Pursuit, Pursuit Plus, Passport
9. Reflex
10. Scepter, Squadron, Tri-Scept
11. Tordon
12. Treflan, Sonalan, Prowl

Consult herbicide labels for rotation intervals and restrictions. Conducting a plant bioassay can be helpful in determining whether carryover will be a problem in your fields. Additional information on conducting bioassays can be obtained in the NebGuide entitled "A Quick Test for Atrazine Carryover", G74-113.

HERBICIDE RESISTANCE

Herbicide resistant weeds can develop as a result of repeatedly using the same herbicide. Herbicide resistant plants are naturally present in extremely low numbers. Repeatedly using the same herbicide allows the resistant weeds to multiply while the susceptible weeds are controlled. Over a period of time the weed population shifts to primarily herbicide resistant and weed control failures are observed. Resistant weeds cannot be controlled by increasing the herbicide rate.

Triazine resistant kochia is common across Western Nebraska. Isolated cases of triazine resistant pigweed have also been recorded. Resistance to sulfonylurea herbicides (Glean and Ally are examples) has been confirmed in several states. Additional cases of herbicide resistance are likely to develop unless steps are taken to prevent this. An integrated weed management program is suggested to minimize the development of herbicide resistant weeds.

Suggestions to minimize the development of herbicide resistant weeds include the following:

1. Rotate crops to keep any one weed species from dominating. Rotations including row crops, small grains and perennial forage crops are the most effective.
2. Include tillage as a component of the weed management program. Crop rotation permits a variation in tillage timing.
3. Utilize cultural practices that enhance crop growth thereby maximizing weed competitiveness. Planting sorghum and soybeans in narrow rows improves their weed competitiveness.
4. Utilize herbicides with different modes of action in successive years and, where possible, within a year. This approach will prevent a weed resistant to one herbicide from increasing rapidly. See the discussion on Classification of Herbicides, page 5.
5. Use short residual rather than persistent herbicides. Most cases of resistant weeds involve persistent herbicides. Where long residual herbicides are used, other control measures should also be employed.

CLASSIFICATION OF HERBICIDES

Herbicides can be classified into families based on their chemical similarity. In some cases, herbicides from different families have a similar mode of action, the process by which the herbicide kills the weed. Combinations of herbicides with similar modes of action can lead to problems. Repeated use of herbicides in the carbamothioate family (Sutan, Eradicane, etc.) can lead to reduced control over a period of time by selecting for soil microbes which readily degrade these materials. Repeated use of triazine herbicides (Atrazine, Bladex, etc.) can result in the selection of herbicide resistant weeds. Using sulfonylurea and imidazolinone herbicides (Classic, Pursuit, etc.) in the same growing season can result in increased carryover problems or possible crop injury. By knowing which herbicides have a similar mode of action, these problems can be avoided.

AMINO ACID INHIBITOR

ALS Inhibitors

Imidazolinones

Arsenal - imazapyr
Pursuit - imazethapyr
Scepter - imazaquin

Sulfonylureas

Accent - nicosulfuron
Ally - metsulfuron
Beacon - primisulfuron
Classic - chlorimuron
Glean - chlorsulfuron
Oust - sulfometuron
Pinnacle - thifensulfuron methyl

EPSP Inhibitor

Roundup - glyphosate

PIGMENT INHIBITORS

Unclassified

Amitrole - amitrole
Command - clomazone
Zorial - norflurazol

GROWTH REGULATORS

Benzoics

Banvel - dicamba

Phenoxy

2,4-D - many
2,4-DB - butyrac
MCPA - MCPA
MCPP - mecroprop

Unclassified

Garlon - triclopyr
Stinger - clopyralid
Tordon - picloram

LIPID INHIBITORS

Carbamothioates

Avadex - diallate
Eptam - EPTC
Eradicane - EPTC
Far-go - triallate
Ro-neet - cycloate
Sutan - butylate
Vernam - vernolate

Diphenyl ethers

Blazer - acifluorfen
Goal - oxyfluorfen
Reflex - fomesafen

Unclassified

Assure - quizalopop
Fusilade 2000 - fluazifop
Hoelon - diclofop-methyl
Option - fenoxaprop
Poast - sethoxydim

PHOTOSYNTHETIC INHIBITORS

Bipyridiliums

Cyclone - paraquat
Diquat - diquat
Gramoxone - paraquat

Triazines

AAtrex - atrazine
Bladex - cyanazine
Evik - ametryn
Igran - terbutryn
Lexone/Sencor - metribuzin
Milogard - propazine

Pramitol - prometon
Princep - simazine
Velpar - hexazinone
Uracils
Hyvar - bromacil
Sinbar - terbacil
Ureas
Karmex - diuron
Lorox - linuron
Spike - tebuthiuron
Unclassified
Basagran - bentazon
Tough - pyridate

PROTEIN INHIBITORS

Amides
Dual - metolachlor
Lasso - alachlor
Ramrod - propachlor
Phenylcarbamates
Betanal - phenmedipham

Chem-Hoe - propham
Furloe - chlorpropham
Dinitroanilines
Balan - benefin
Prowl - pendimethalin
Sonalan - ethalfluralin
Surflan - oryzalin
Treflan - trifluralin
Unclassified
Dacthal - DCPA
Kerb - pronamide

RESPIRATORY INHIBITORS

Hydroxybenzonnitriles
Buctril - bromoxynil

UNKNOWN

Endothall - endothall
Krenite - fosamine
MSMA - many

MINIMIZING GROUNDWATER CONTAMINATION

Pesticide contamination of ground water is a public concern. Contamination results from two types of sources — point and non-point.

Point Source Contamination

Point source contamination results from localized spills or accidents, which is to say, the contamination can be traced back to an identifiable area. Point source contamination accounts for large doses being introduced into groundwater and as a result poses the greatest risk of rendering the water unfit for drinking.

Spills and other mishaps which occur during the handling and mixing of pesticides are a major contributing factor. There are several steps we can take to minimize contamination.

Wells are a direct conduit to the groundwater and extra care should be taken at these sites when handling pesticides. In addition, many wells are not adequately sealed which increases the risk of contamination in the event of a spill. Mix pesticides at least 200 ft. from a well. Using a nurse-tank as a water source helps avoid these problems. Prevent back-siphoning in-

to the well. Keep the end of the filler hose above the water level of the tank at all times. Anti-backflow devices for hoses can be purchased from irrigation and spray equipment suppliers. Clean up spills, especially near wells and other water supplies.

Because of the risk of a major mishap and groundwater contamination from chemigation we do not suggest herbigation. If you need information contact the specific chemical company or you can consult NEBGUIDE G89-923: Anti-Pollution Protection When Applying Chemicals with Irrigation Systems.

Additional practices which help prevent point source contamination include triple-rinsing and the proper disposal of pesticide containers and excess pesticides.

For help in any emergency involving spills, leaks, fires, or exposure, phone 800-424-9300.

Non-point Source Contamination

Contamination which occurs from non-point sources cannot be traced back to a specific location or event. Examples of non-point source contamination would include the leaching of pesticides through the normal course of pesticide use, or pesticides carried in surface runoff as a result of soil erosion. The extent of non-point source contamination is dependent upon herbicide, soil, geological, production management, and weather factors.

There are several practices which minimize non-point source contamination. Apply the proper amount of herbicide for the crop, weed and site. Read the label to determine what the minimum use rate is. Proper sprayer calibration assures application uniformity and more effective control. The amount of product can also be reduced by using band applications instead of broadcast treatments. These practices not only reduce the

potential for groundwater contamination but also decrease the chance of crop injury, carryover problems, and make weed control more economical.

In choosing a herbicide, less mobile, short residual products are less likely to leach to the water table. Crop and herbicide rotation also reduces risk as a result of using different herbicides each year.

It is also helpful to identify high risk areas. The greatest risk for contamination exists where the groundwater table is close to the soil surface. In addition, herbicides are more likely to contaminate groundwater when applications are made to coarse textured soils low in organic matter. High pH soils also present concerns because some herbicides leach more readily under these conditions. Extra care should be taken when any of these situations exist.

MIXING HERBICIDES

Most herbicide labels give mixing sequences for tank mix combinations. If directions are not given, follow these steps:

- (1) Add approximately one-half of the needed water to the tank with agitation on.
- (2) If called for, add wetting agents, fertilizer, or other additives except crop oil.
- (3) Add flowables, dry flowables, or wettable powders and agitate.

- (4) If needed, add emulsifiable concentrates, crop oils or surfactants and agitate. Don't over agitate.
- (5) Finish filling tank with water and continue agitation.
- (6) Apply as soon as possible after mixing. Avoid holding overnight whenever possible.

Sprayers should provide good agitation of spray solution and be equipped with appropriate strainers and screens to avoid nozzle clogging. **Do not mix herbicides near water sources.**

CLEANING THE SPRAYER

First rinse the sprayer with a material which acts as a solvent for the herbicide. Kerosene and fuel oils dissolve 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. For more water-soluble herbicides repeated rinsing with water is usually enough. Hormone type require extra precautions. 2,4-D amine salts are water-soluble.

Banvel, 2,4-D — Cleanup Procedure

If 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 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

2,4D. Agitate the suspension for 2 to 3 minutes and drain, then rinse thoroughly with clear water.

Atrazine, Bladex, Lexone, Sencor — Cleanup

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.

Accent, Ally, Beacon, Classic, Glean, Pinnacle, Canopy, Preview — Cleanup

- 1) Drain tank, then flush tank, boom and hoses with clean water for a minimum of 10 minutes.
- 2) Fill the tank with clean water, then add 1 liquid ammonia per 100 gallons of water. Flush through boom and hoses, allow to sit for 15 minutes with agitation, then drain.
- 3) Repeat Step 2.
- 4) Nozzles and screens should be removed and cleaned separately. To remove traces of ammonia, rinse the tank thoroughly with clean water and flush through hoses and boom.

WEED RESPONSE TO SELECTED HERBICIDES

Field Corn, Popcorn * and Sweetcorn **

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 as suggested in this publication.

See pages 37 - 44 for additional problem weeds and their control.

Response Ratings:

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

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

| Herbicide | annual morning glory | barnyardgrass | b. nightshade | cocklebur | crabgrass | fall panicum | foxtail | jimsonweed | kochia | kochia-triazine resistant | lambsquarters | pigweed | ragweed | R. thistle | sandbur | shattercane/sorghum | smartweed | sunflower | velvetleaf | w. buckwheat | crop safety ^a | soil carryover potential in months ^b |
|-----------|----------------------|---------------|---------------|-----------|-----------|--------------|---------|------------|--------|---------------------------|---------------|---------|---------|------------|---------|---------------------|-----------|-----------|------------|--------------|--------------------------|---|
|-----------|----------------------|---------------|---------------|-----------|-----------|--------------|---------|------------|--------|---------------------------|---------------|---------|---------|------------|---------|---------------------|-----------|-----------|------------|--------------|--------------------------|---|

Herbicide

Soil Applied Herbicides

| | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|------|
| AAtrex/Atrazine*,** | E | G | E | G | F | P | G | E | E | P | E | E | E | E | F | P | E | E | E | E | E | E | 6-24 |
| Bicep or Dual + AAtrex*,** | G | E | E | F | G | G | E | G | E | P | E | E | E | G | F | P | G | G | G | G | G | G | 6-18 |
| Bladex | E | G | E | G | G | F | G | E | E | P | E | F | E | E | F | P | E | G | F | E | E | G | 2-4 |
| Bladex + Atrazine or Extrazine II*,** | E | G | E | G | G | F | G | E | E | P | E | G | E | E | F | P | E | G | G | E | E | G | 6-18 |
| Cycle | G | E | E | F | E | E | E | F | E | P | G | G | E | G | F | P | G | F | F | G | G | G | 2-5 |
| Dual*,** | P | E | G | P | E | E | E | P | P | P | G | G | F | P | F | P | P | P | P | P | P | P | 2-5 |
| Dual + Atrazine + Sencor | G | E | E | F | G | E | F | G | F | P | E | E | G | F | P | P | G | G | G | G | G | G | 6-12 |
| Dual + Bladex | G | E | E | F | E | E | E | F | E | P | G | G | E | G | F | P | G | F | F | G | G | G | 2-5 |
| Dual + Bladex + Sencor | G | E | E | F | E | E | E | F | G | P | G | G | E | G | F | P | G | F | F | G | G | G | 2-5 |
| Eradicane/Eradicane Extra*,** | G | E | E | P | E | E | E | P | F | F | G | G | F | P | G | G | P | P | P | F | G | G | 1-2 |
| Eradicane/Eradicane Extra + Atrazine*,** | G | E | E | F | E | E | E | G | E | F | E | E | G | G | G | G | G | G | G | G | G | G | 6-18 |
| Eradicane/Eradicane Extra + Bladex* | G | E | E | F | E | E | E | G | E | F | E | G | G | G | G | G | G | F | F | G | G | G | 2-4 |
| Lasso*,** | P | E | G | P | E | E | E | P | P | P | G | G | F | P | F | P | P | P | P | P | P | G | 2-4 |
| Lariat/Bullet or Lasso + Atrazine*,** | G | E | E | F | G | G | E | F | E | P | E | E | E | G | F | P | G | G | G | G | G | G | 6-18 |
| Lasso or Dual + (Atrazine + Bladex) or Extrazine II | G | E | E | F | E | E | E | F | E | P | E | E | E | G | F | P | G | G | G | G | G | G | 6-12 |
| Lasso + Atrazine + Sencor | G | E | E | F | G | G | E | F | G | P | E | E | E | G | F | P | G | G | G | G | G | G | 6-12 |
| Lasso + Bladex* | G | E | E | F | E | E | E | F | E | P | G | G | E | G | F | P | G | F | F | G | G | G | 2-4 |
| Lasso + Bladex + Sencor | G | E | E | F | E | E | E | F | G | P | G | G | E | G | F | P | G | F | G | G | G | G | 2-5 |
| Prowl + Atrazine | G | E | G | F | E | E | E | F | E | F | E | E | G | G | F | P | G | G | G | G | G | G | 6-18 |
| Prowl + Bladex | G | E | G | F | E | E | E | F | E | F | E | G | G | G | F | P | G | F | F | F | G | G | 4-12 |
| Sutan + *,** | F | E | G | P | E | E | E | P | P | P | G | F | F | P | G | G | P | P | P | F | G | G | 1-2 |
| Sutan + + Atrazine* | G | E | E | F | E | E | E | G | E | P | E | E | G | G | G | G | G | G | G | G | G | G | 6-18 |
| Sutan + + (Atrazine + Bladex) or Extrazine II* | G | E | G | P | E | E | E | G | E | P | E | E | G | G | G | G | G | G | F | G | G | G | 6-18 |
| Sutan + + Bladex* | F | E | G | P | E | E | E | G | E | P | E | G | G | G | G | G | G | F | F | G | G | G | 2-4 |
| Sutazine + *,** | G | E | E | F | E | E | E | G | E | P | E | E | G | G | G | G | G | G | G | G | G | G | 6-18 |

Postemergence Herbicides

Weed size influences performance — See label

| | | | | | | | | | | | | | | | | | | | | | | | |
|--------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|------|------|
| AAtrex/Atrazine + crop oil*,** | E | F | E | E | F | P | G | E | E | P | E | E | E | F | F | P | E | E | E | E | E | G | 6-18 |
| Accent | G | G | - | - | P | G | G | G | - | - | - | G | - | - | G | E | G | - | - | - | - | G | 1-18 |
| Banvel | E | P | G | E | P | P | P | F | G | G | G | G | E | P | P | E | G | F | E | G | G | 1-2 | |
| Beacon | P | P | G | E | P | G | F | G | F | F | F | G | E | F | F | E | G | E | F | - | G | 1-18 | |
| Laddok*,** | G | P | G | E | P | P | P | E | G | G | G | G | E | P | P | P | E | E | E | E | E | G | 2-6 |
| Bladex | G | F | E | G | G | F | G | E | E | P | E | G | E | F | F | P | E | G | G | G | F | 2 | |
| Buctril* | E | P | E | E | P | P | P | E | G | G | G | G | E | G | P | P | E | E | E | E | E | 0 | |
| Buctril + Atrazine | E | P | E | E | P | P | P | E | G | G | E | E | E | G | P | P | E | E | E | E | E | 2-6 | |
| Extrazine II*,** | G | F | E | E | G | F | G | E | E | P | E | G | E | F | F | P | E | G | G | E | E | 6-12 | |
| Marksman | E | P | E | E | P | P | G | G | E | E | E | G | P | P | E | E | E | E | E | E | G | 2-6 | |
| Tandem + Atrazine + COC | E | G | E | E | F | F | G | E | E | P | E | E | E | F | G | P | E | E | E | E | E | G | 6-18 |
| 2,4-D** | E | P | G | E | P | P | P | G | F | F | G | G | G | F | P | P | F | G | G | P | F | 1 | |
| 2,4-D + Banvel | E | P | E | E | P | P | P | F | G | G | G | G | G | P | P | E | G | G | E | G | G | 1-2 | |
| Buctril + Banvel | E | P | E | E | P | P | P | G | E | E | G | E | G | E | P | P | E | E | E | E | E | G | 1-2 |

^aCrop varieties vary in their response to herbicides.

^bThe lower number applied 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 sweet corn.

CORN No-Till

| Herbicide | Commercial product per Acre | | | Application Time | Remarks and Approximate Cost/A Broadcast |
|--|-----------------------------|---------------------|--------------------------|---|---|
| | Sandy Loam < 1 % OM | Silt Loam 1 -2 % OM | Silty-Clay Loam > 2 % OM | | |
| Corn, No-Till in Cool-Season Grass Sod (including bromegrass and bluegrass) | | | | | |
| AATREX/ATRAZINE 4L | Do not use ^a | 2.4 qt | 3 qt | Apply in early spring | Weak on warm-season perennial grasses. Add Gramoxone Extra if bromegrass exceeds 4" tall. Cost: \$6.25-\$7.80 |
| ROUNDUP ¹ | 1-1.5 qt | 1-1.5 qt | 1-1.5 qt | Fall | Use appropriate herbicide at planting. Cost: \$13.00-\$17.25 |
| Corn, No-Till in Alfalfa Sod | | | | | |
| 2,4-D | 1 qt | 1 qt | 1 qt | Apply in fall or Apr-May to alfalfa with 4" new growth | On dryland moisture not adequate most years. 2,4-D + Banvel used to kill alfalfa. Don't apply with 28% UAN or a triazine herbicide. If bromegrass or bluegrass is present apply the 2,4-D + Banvel at least 7 days before planting. On sandy soils don't plant corn for 10 days. Cost: \$6.20. |
| + BANVEL followed by: appropriate herbicide at planting or early preplant | 0.5 pt | 0.5 pt | 0.5 pt | | |
| Corn, No-Till in Rye or Winter Wheat | | | | | |
| AATREX 4L | 1.2 qt | 1.4 qt | 1.6 qt | Apply when rye and wheat are 4"-10" and before corn emerges | On dryland moisture may be inadequate for corn. Cost: AAtrex + Gramoxone \$13.30-\$21.30; AAtrex + Bronco \$28.30-\$41.95; Atrazine + Bladex + Gramoxone \$15.40-\$28.75. |
| + BRONCO | 3 qt | 4 qt | 4.5 qt | | |
| ATRAZINE 4L | 0.5 qt | 0.75 qt | 1-1.25 qt | | |
| + BLADEx 4L | 1.25 qt | 1.75 qt | 2.5-2.75 qt | | |
| AATREX 4L | Do not use ^a | 2.4 qt | 3 qt | | |
| + GRAMOXONE EXTRA ¹ | | 1.5-2.5 qt | 1.5-2.5 qt | | |
| Corn, No-Till Continuous Row Crop² | | | | | |
| AATREX/ATRAZINE 4L | Do not use ^a | 2.4 qt | 3 qt | 0-15 days preplant; for 16-30 days pre-plant increase rates 20% | Add 0.5-1 pt of 2,4-D LV ester or 0.5 pt Banvel to control broadleaf weeds. For triazine resistant kochia add Banvel or Fallow Master. Emerged grass weeds under 1.5 inches are normally controlled with full rates of atrazine or Bladex. Add 1.5-2.5 pt Gramoxone Extra to control larger emerged grass. For volunteer corn use Roundup ¹ at 0.75-1 pt/A in 5 gpa water before crop emergence. Cost w/o Gramoxone Extra: \$5.20-\$7.80; Bicep \$12.00-\$18.00; Dual + Atrazine \$13.75-\$20.05; Bladex + Atrazine \$5.55-\$14.80; Bullet \$14.00-\$17.00; Extrazine II + Dual \$15.85-\$28.70; Atrazine + Bladex + Dual \$16.25-\$25.70. |
| AATREX/ATRAZINE 4L | 1.4 qt | 1.6 qt | 1.8 qt | | |
| + DUAL | 1.5 pt | 1.75 pt | 2 pt | | |
| AATREX/ATRAZINE 4L | 1.2 qt | 1.6 qt | 2 qt | | |
| + LASSO MT | 2.25 qt | 2.25 qt | 2.75 qt | | |
| BICEP | 2.0 qt | 2.4 qt | 3 qt | | |
| BULLET | 3.5 qt | 3.75 qt | 4.25 qt | | |
| AATREX/ATRAZINE 4L | 0.75 qt | 1.4 qt | 2 qt | | |
| + BLADEx 4L | 0.75 qt | 1.4 qt | 2 qt | | |
| AATREX 4L | 0.5 qt | 0.75 qt | 1 qt | | |
| + BLADEx 4L | 1.0 qt | 1.5 qt | 2 qt | 0-30 days preplant. On sand use at least 14 days preplant. | |
| + DUAL | 1.5 pt | 1.75 pt | 2 pt | | |
| EXTRAZINE II with or without DUAL | 1.5 qt | 2.75 qt | 4.0 qt | | |
| DUAL | 1.5 pt | 1.75 pt | 2 pt | | |

FIELD CORN, POPCORN*, SWEETCORN** Tilled Seedbed

| Herbicide (See Weed Response Chart before selecting herbicides) | Commercial product per Acre | | | Application Time, Remarks and Approximate Cost/A Broadcast |
|--|-----------------------------|-------------------|-------------------------|---|
| | Sandy Loam < 1% OM | Silt Loam 1-2% OM | Silty-Clay Loam > 2% OM | |
| AATREX/ATRAZINE DF*, ** | Do not use ^a | 2.6 lb | 3.3 lb | EPP, PPSA, PPI, PRE, SURFACE MIX or EARLY POST... May affect sensitive crops the following year especially on high pH soils. Can be used at layby. Cost: \$5.15-\$7.70. |
| BICEP*, ** | 1.5 qt | 1.8 qt | 2.4 qt | EPP, PPSA, PRE, SURFACE MIX, EARLY POST or LAYBY... Cost: \$9.00-\$14.40. |
| BLADEx DF | Do not use | 2.7 lb | 3.6 lb | PPSA, PRE, SURFACE MIX or 80W EARLY POST... Injury may occur on soils that are calcareous, sandy or below 1% organic matter. Cost: \$12.60-\$16.40. |

^aRisk of contaminating groundwater.

FIELD CORN, POPCORN*, SWEETCORN**

Tilled Seedbed, cont.

| Herbicide (See Weed Response Chart before selecting herbicides) | Commercial product per Acre | | | Application Time, Remarks and Approximate Cost/A Broadcast |
|--|-----------------------------|----------------------------|--------------------------------|---|
| | Sandy Loam < 1 % OM | Silt Loam 1 - 2 % OM | Silty-Clay Loam > 2 % OM | |
| BLADEX DF | 1.30 lb | 2.20 lb | 3.10 lb | PPSA, PRE, SURFACE MIX or EARLY POST...Injury may occur on soils that are calcareous, sandy or below 1% organic matter. Carryover could affect some crops. Cost: \$6.85-\$12.85. |
| + ATRAZINE DF | 0.40 lb | 0.90 lb | 1.30 lb | |
| BULLET*,** | 3.0 qt | 3.2 qt | 3.5 qt | PPSA, PRE, or SURFACE MIX. Cost: \$12.00-\$14.00. |
| DUAL 8E*,** | 1.5 pt | 2.0 pt | 3.0 pt | EPP, PPSA, PRE, SURFACE MIX, or LAYBY...Dual and Dual + AAtrex may be applied early post. Injury may occur with Dual + Bladex on soils that are calcareous, sandy or below 1% organic matter. Cost: Dual \$10.00-\$20.00; Dual + AAtrex \$11.25-\$17.40; Dual + Bladex \$13.90-\$23.45. |
| or DUAL 25G*,** | 6 lb | 10 lb | 12 lb | |
| DUAL 8E*,** | 1.3 pt | 1.5 pt | 2.0 pt | |
| + AATREX DF*,** | 1.10 lb | 1.38 lb | 1.85 lb | |
| or BLADEX DF | 0.83-1.1 lb | 1.94 lb | 2.2-2.4 lb | |
| DUAL | 1.3 pt | 1.5 pt | 2 pt | PPSA or PRE...3-way mix. Injury may occur on soils that are calcareous, sandy or below 1% organic matter. Cost: \$12.75-\$21.25. |
| + ATRAZINE DF | 0.55 lb | 0.55 lb | 0.69 lb | |
| + BLADEX DF | 0.55 lb | 1.1 lb | 1.38 lb | |
| ERADICANE 6.7E*,** | 4.75 pt | 5 pt | 5 pt | PPI...Apply treatments to dry surface soil and immediately incorporate by cross tandem discing or similar soil mixing. Injury may occur with Bladex on soils that are calcareous, sandy or below 1% organic matter. See page 43 for shattercane control. Repeated use of Eradicane or Eradicane Extra will lead to reduced weed control. Consider crop rotations. Cost: Eradicane \$12.35; Eradicane Extra + Atrazine \$15.15-\$18.30; Eradicane Extra + Bladex \$18.75-\$23.00. Eradicane + Atrazine \$16.70; Eradicane + Bladex \$21.75; Eradicane Extra \$17.15. |
| ERADICANE EXTRA*,** | 5.25 pt | 5.3 pt | 5.5 pt | |
| ERADICANE 6.7E*,** | 4.75 pt | 4.75 pt | 4.75 pt | |
| or ERADICANE EXTRA*,** | 5.25 pt | 5.3 pt | 5.5 pt | |
| + ATRAZINE DF*,** | 1.1 lb | 1.33 lb | 1.77 lb | |
| or BLADEX DF | 1.1 lb | 1.77 lb | 2.2 lb | |
| EXTRAZINE II DF*,** | 1.66 lb | 3.05 lb | 4.16 lb | PPSA, PRE, or EARLY POST...Injury may occur on soils that are calcareous, sandy or below 1% organic matter. Cost: Extrazine \$6.85-\$12.85; Extrazine + Dual or Lasso \$15.40-\$19.40. |
| EXTRAZINE II DF | 1.38 lb | 1.94 lb | 2.50 lb | |
| + DUAL | 1.3 pt | 1.75 pt | 2 pt | |
| or LASSO 4EC | 2 qt | 2 qt | 2 qt | |
| LASSO 4EC*,** | Do not use ^a | 2.5 qt | 3 qt | PPSA, PRE, or SURFACE MIX Cost: \$16.20-\$22.00. |
| or LASSO II 15G*,** | | 17 lb | 20 lb | |
| LASSO 4EC*,** | 2 qt | 2 qt | 2.25 qt | PPSA, PRE, or SURFACE MIX, Cost: \$12.00-\$13.00. |
| + AATREX/ATRAZINE DF*,** | 1.1 lb | 1.33 lb | 1.77 lb | |
| LARIAT*,** | 3.0 qt | 3.2 qt | 3.5 qt | |
| LASSO 4EC | 2 qt | 2 qt | 2 qt | PPSA, or PRE...Injury may occur on soils that are calcareous, sandy or below 1% organic matter. Cost: \$15.40-\$20.00. |
| + BLADEX DF | 1.1 lb | 1.88 lb | 2.2 lb | |
| LASSO 4EC | 2 qt | 2 qt | 2 qt | PPSA or PRE...3-way mix. Injury may occur on soils that are calcareous, sandy or below 1% organic matter. Cost: \$14.45-\$18.60. |
| + ATRAZINE DF | 0.55 lb | 0.55 lb | 0.69 lb | |
| + BLADEX DF | 0.55 lb | 1.1 lb | 1.38 lb | |
| PROWL 4EC | Do not use | 1.5 qt | 1.5 qt | PRE...Corn injury may occur if replanting is necessary. Rainfall shortly after planting required for performance. See page 44 for wild proso millet. Cost: Prowl + Bladex \$17.65-\$19.00; Prowl + Atrazine \$12.80. |
| + ATRAZINE DF | | 1.33 lb | 1.77 lb | |
| or BLADEX DF | | 1.88 lb | 2.2 lb | |
| SUTAN + 6.7E | 5 pt | 5 pt | 5 pt | PPI...Apply treatments to dry surface soil and immediately incorporate by cross tandem discing or similar soil mixing. Repeated use will lead to reduced weed control. Cost: \$11.25. |

^aRisk of contaminating groundwater.

FIELD CORN, POPCORN*, SWEETCORN**

Tilled Seedbed, cont.

| Herbicide (See Weed Response Chart before selecting herbicides) | Commercial product per Acre | | | Application Time, Remarks and Approximate Cost/A Broadcast |
|--|--|---|---|--|
| | Sandy Loam < 1 % OM | Silt Loam 1 - 2 % OM | Silty-Clay Loam > 2 % OM | |
| SUTAN + 6.7E* + ATRAZINE DF* or BLADEX DF** | 3.75 pt 1.1 lb 1.1 lb | 3.75 pt 1.33 lb 1.94 lb | 3.75 pt 1.77 lb 2.2 lb | PPI...Apply treatments to dry surface soil and immediately incorporate by cross tandem discing or similar soil mixing. Increase rates for sandbur and shattercane control. Injury may occur with Bladex on soils that are calcareous, sandy or below 1% organic matter. Repeated use of Sutan will lead to reduced weed control. Cost: Sutan + Atrazine \$10.50-\$12.00; Sutan + Bladex \$13.15-\$18.20; Sutazine \$12.60-\$14.70. |
| SUTAZINE + * | 6 pt | 7 pt | 7 pt | |
| SUTAN + 6.7E* + ATRAZINE DF* + BLADEX DF* or EXTRAZINE II DF | 3.75 pt 0.55 lb 0.55 lb 1.38 lb | 3.75 pt 0.55 lb 1.1 lb 1.94 lb | 3.75 pt 0.69 lb 1.38 lb 2.2 lb | |

Postemergence

| Herbicide | Rate Per Acre | Application Time | Remarks and Approximate Cost/A Broadcast |
|---|------------------------------|--|---|
| AATREX/*,** ATRAZINE DF or BICEP*,** | 1.4-2.2 lb 2.4 qt | Broadleaf weeds 2-6"; grass weeds 1" or less; also at layby with Atrazine | Add 1 qt/A COC with Atrazine. Lower Atrazine rate controls broadleaf weeds. Make layby applications when corn is less than 12" tall and weeds less than 1 1/2" tall. Cost: \$5.15-\$18.50. |
| ACCENT | 0.67 oz | Corn 2-6 leaf Shattercane < 6" | Use with oil concentrate or surfactant. Do not use if Counter was applied to the crop. Do not use Beacon within 20 days of an at planting or cultivation application of any organophosphate insecticide. |
| BEACON | 0.75 oz | Corn 4"-20" Shattercane < 6" | Do not apply Accent 3 days before or 7 days after a foliar postemergence organophosphate treatment. Do not apply Beacon within 10 days of a foliar postemergence organophosphate treatment. Beacon may be applied at 0.38 oz followed by a second 0.38 oz treatment if required. Corn hybrids vary in tolerance to Beacon. Cost: \$19.50. |
| BANVEL | 1 pt | Corn spike to 5" | Use higher rate only on silty clay loam soil containing more than 2 1/2% organic matter. Observe precautions regarding Banvel use near sensitive crops. Cost: \$6.80. |
| BANVEL | 0.5 pt | Corn 8"-24" | |
| BLADEX 80W or BLADEX 90DF | 2.5 lb 2.2 lb | Grass weeds 1" or less; corn before 5-leaf stage | Use with water or vegetable oils or surfactants. Do not use on sand or loamy sand. Do not use Bladex 4L. Decrease rate if Bladex was used earlier. Cost: \$9.30. |
| BUCTRIL* + ATRAZINE | 1-1.5 pt 1 pt | Broadleaf weeds 2-6" tall; corn 3-leaf-12". | Contact herbicide. Thorough coverage, correct nozzles, pressure, spray volume, rate and weed size important. Cost alone: \$5.60-\$8.40; with Atrazine \$6.90-\$9.70. |
| BUCTRIL + BANVEL | 1.0 pt 0.5 pt | After corn is 8" and before 24" high; weeds 2-6 leaf | 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. Cost: 2,4-D \$.70-\$2.20; 2,4-D + Banvel \$3.75; Banvel \$3.40; Banvel + Buctril \$9.00. |
| 2,4-D AMINE** or 2,4-D LV ESTER** | 1-2 pt 0.5-1 pt | When corn is small, over 8" use drop nozzles | |
| 2,4-D AMINE or ESTER + BANVEL | 0.25 pt 0.25 pt 0.5 pt | | |
| EXTRAZINE II 4L | 1.25-2 qt | Grass weeds 1" or less, corn before 5-leaf stage | Use with water only. Do not use on sand or loamy sand. Decrease rate if Bladex was used earlier. Cost: \$4.55-\$7.50. |
| LADDOK*,** | 2.5 pt | Broadleaf weeds 2-4" high; corn less than 12". | Use with 1 qt crop oil concentrate or 1 gal 28% UAN, 20 gal water and 40 psi. Increase rate according to the label on weeds 3-8" tall. Cost: \$6.00. |
| MARKSMAN | 2-3 pt | Before corn exceeds 5-leaf stage | Observe precautions regarding Banvel use near sensitive crops specified above. Use only on silty clay loam soil containing more than 2 1/2% organic matter. Cost: \$5.00-\$7.50. |

FIELD CORN, POPCORN*, SWEETCORN**

Postemergence, cont.

| Herbicide | Rate Per Acre | Application Time | Remarks and Approximate Cost/A Broadcast |
|--------------------------------|----------------------|---|--|
| DUAL*,** | 1.5-3 pt | Layby | Apply after furrowing or final cultivation. Weeds less than 1 1/2" tall may be controlled with Bicep. Cost: Dual \$10.15-20.25. |
| PROWL 4EC | 0.75-1.5 qt | Corn 4" to Layby | Cover brace roots by cultivation before application. Incorporate by tillage, irrigation or rain within a week. Cost: Prowl \$4.90-\$9.75. |
| TREFLAN | 1.5-2.0 qt | Corn 2-leaf to layby | Incorporate with rainfall, sprinkler irrigation water or cultivate within 24 hours. Cost: \$5.35-\$8.00. |
| TREFLAN EC + ATRAZINE 4L | 1.5-2 pt 1-1.5 qt | Corn 2-leaf through 12" weeds unemerged | Incorporate with 1/2" rainfall, sprinkler irrigation water or cultivate within 24 hours of application. Cost: Treflan + Atrazine \$7.95-\$11.00. |

Harvest Aid

| | | | |
|----------------|------|---------------------|---|
| 2,4-D LV ESTER | 1 qt | After silk is brown | Rescue for 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. Cost: \$2.80. |
|----------------|------|---------------------|---|

WEED RESPONSE TO SELECTED HERBICIDES

Sorghum-Grain and Forage*

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 as suggested in this publication.

See pages 37-44 for additional problem weeds and their control.

Response Ratings:

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

E = Excellent (90-100%)

G = Good (75-90%)

F = Fair (50-75%)

P = Poor (0-50%)

Herbicide

| Herbicide | Soil Applied Herbicides | | | | | | | | | | | | | | | | | | 6-24 | | | |
|-----------------------------------|-------------------------|---------------|---------------|-----------|-----------|--------------|---------|------------|--------|---------------------------|---------------|---------|---------|------------|---------|---------------------|-----------|-----------|------|------------|--------------|--------------------------|
| | annual morning glory | barnyardgrass | b. nightshade | cocklebur | crabgrass | fall panicum | foxtail | jimsonweed | kochia | kochia-triazine resistant | lambsquarters | pigweed | ragweed | R. thistle | sandbur | shattercane/sorghum | smartweed | sunflower | | velvetleaf | w. buckwheat | crop safety ^a |
| AAtrex*/Atrazine | E | G | E | G | F | P | G | G | E | P | E | E | E | E | F | P | E | E | G | E | F | 6-24 |
| Bicep* + Concep | G | E | E | F | G | G | E | G | E | P | E | E | E | G | F | P | G | G | F | G | F | 6-18 |
| Dual* or Lasso + Seed Safener | P | E | G | P | E | E | E | P | P | P | G | G | F | P | F | P | P | P | P | P | G | 2-5 |
| Dual or Lasso + Atrazine | G | E | E | F | G | G | E | F | E | E | P | E | E | G | F | P | G | G | F | G | G | 6-18 |
| + Seed Safener | G | E | E | F | G | G | E | F | E | P | E | E | E | G | F | P | G | G | F | G | G | 6-18 |
| Lariat + Seed Safener | G | E | E | F | G | G | E | F | E | P | E | E | E | G | F | P | G | G | F | G | G | 6-18 |
| Ramrod | P | G | P | P | G | G | E | P | P | P | F | G | P | P | P | P | F | P | P | F | E | 1-2 |
| Ramrod + Atrazine | G | G | G | F | G | F | E | F | E | P | E | E | G | G | P | P | G | G | F | G | G | 6-18 |
| Ramrod + Bladex | G | G | E | F | G | G | E | F | E | P | G | F | G | G | F | P | G | F | F | G | F | 2-4 |
| Dual or Lasso + Atrazine + Bladex | G | G | E | F | G | G | E | F | E | P | G | G | G | G | F | P | G | F | F | G | F | 2-4 |
| + Seed Safener | G | G | E | F | G | G | E | F | E | P | G | G | G | G | F | P | G | F | F | G | F | 2-4 |

Postemergence Herbicides

Weed size influences performance - See label

| | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|------|-----|
| AAtrex/Atrazine + COC | E | P | E | E | F | P | F | E | E | P | E | E | E | F | P | P | E | E | E | E | G | 6-18 | |
| Banvel | E | P | G | E | P | P | P | F | G | G | G | G | E | E | P | P | E | G | F | E | F | 1-2 | |
| Buctril + Atrazine | E | P | E | E | P | P | P | E | G | G | E | E | E | E | G | P | P | E | E | E | E | G | 2-6 |
| Laddok | G | P | G | E | P | P | P | E | G | G | G | G | E | P | P | P | E | E | E | E | G | 2-6 | |
| Roundup-ropewicks, wipers, etc. ^c | - | - | - | G | - | - | - | G | F | G | F | G | G | F | - | E | G | F | F | G | 0 | | |
| Buctril | E | P | E | E | P | P | P | E | G | G | G | G | E | G | P | P | E | E | G | E | G | 0 | |
| 2,4-D | E | P | F | E | P | P | P | G | F | F | G | G | G | E | P | P | P | G | F | P | F | 1 | |

^aCrop varieties vary in their response to herbicides.

^bThe 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.

^cRatings for weeds tall enough for selective treatment.

*Registered for forage sorghum.

SORGHUM

No-Till

GENERAL REMARKS

EPP treatments which include Bladex or Extrazine II may injure sorghum if the soil stays dry between application and planting. Delay planting until at least 10 days after a soaking rain after treatment. When the interval between herbicide application and planting is expected to be 28 days or more, split applications will generally give better control. If a split application was not made and planting is delayed a preemergence treatment may be needed. If treatments are not applied until 14 days or less before planting, weeds will likely be emerged. Grasses should be 2 inches or less for control with atrazine, Bladex or Extrazine II. The addition of crop oil concentrate, nitrogen fertilizer or nonionic surfactant will increase control. If grasses are more than 2 inches tall; use Gramoxone Extra at 1.5 to 2.5 pt/A or Roundup at 1.0 to 1.5 pt/A plus X-77 at 1 qt/100 gal for Gramoxone Extra and 2 qt/100 gal for Roundup. Add 1.0 pt/A 2,4-D LV ester (4 lb/gal) if broadleaf weeds are present and apply 7 days before planting.

| Herbicide | Commercial product per Acre | | | Application Time | Remarks and Approximate Cost/A Broadcast |
|--|-----------------------------|---------------------|--------------------------|---|--|
| | Sandy Loam < 1 % OM | Silt Loam 1 -2 % OM | Silty-Clay Loam > 2 % OM | | |
| Corn, No-Till in Cool-Season Grass Sod (Including bromegrass and bluegrass) | | | | | |
| ROUNDUP ¹ | 1-1.5 qt | 1-1.5 qt | 1-1.5 qt | Fall | Use appropriate herbicide at planting. Cost: \$13.00-\$17.25. |
| Grain Sorghum, No-Till in Alfalfa Sod | | | | | |
| 2,4-D | 1 qt | 1 qt | 1 qt | Apply in fall or Apr-May to alfalfa with 4" new growth | On dryland moisture often not adequate for sorghum. 2,4-D + Banvel used to kill alfalfa. Don't plant sorghum for 30 days. If bromegrass or bluegrass is present apply 2,4-D + Banvel at least 3 days before planting time herbicide. Don't apply with UAN or triazine herbicides. Cost: \$8.95. |
| + BANVEL followed by: appropriate herbicide at planting or early preplant | 0.5 pt | 0.5 pt | 0.5 pt | | |
| Grain Sorghum, No-Till in Rye or Winter Wheat | | | | | |
| ATRAZINE 4L | Do not use | 2.0 qt | 2.4 qt | Apply when rye and wheat are 4"-10" tall and before sorghum emerges | On dryland moisture often not adequate for sorghum. Use safened seed with Bronco. Cost: Atrazine + Gramoxone \$13.30-\$19.75; AAtrex + Bronco \$28.30-\$41.95. |
| + GRAMOXONE EXTRA ¹ | | 1.5-2.5 pt | 1.5-2.5 pt | | |
| AATREX 4L | 1.2 qt | 1.4 qt | 1.6 qt | | |
| + BRONCO | 3 qt | 4 qt | 4.5 qt | | |
| Grain Sorghum, No-Till Continuous Row Crop² | | | | | |
| AATREX 4L | Do not use | 2.4 qt | 3 qt | Apr 1-15 | Use Bladex and Extrazine II treatments west of Hwy. 281. Avoid over 0.8 lb/A Atrazine on sandy soils, eroded soils and soils with pH greater than 7.2. Add 1.5-2.5 pt Gramoxone ¹ or 54 oz Landmaster 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 ¹ 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. With Bladex delay planting until at least 10 days after a soaking rain after treatment. Cost: AAtrex \$6.25-\$7.80; Bladex + Atrazine \$7.00-\$15.85. |
| BLADEX 90DF | 1.3 lb ^c | 1.7 lb | 2.2 lb | 14 days EPP | |
| + ATRAZINE 4L | 0.6 qt | 0.8 qt | 1 qt | 28 days EPP | |
| | 1.8 lb | 2.2 lb | 2.6 lb | | |
| | 0.8 qt | 1 qt | 1.2 qt | 35 days EPP | |
| | 2.2 lb | 2.6 lb | 2.9 lb | | |
| | 1 qt | 1.2 qt | 1.4 qt | | |
| DUAL 8E | | 1.75 pt | 2 pt | 1-20 days preplant | Use Extrazine II west of Highway 281. Seed must be treated with Concep to protect from Dual and Bicep injury or Screen to protect from Lasso. Atrazine and Bicep will damage sorghum on sandy and low organic matter soils. If weedy, add Gramoxone at 1.5-2.0 pt. Cost: Dual + Atrazine \$11.45-\$17.40; Bicep \$20.75-\$31.50; Lasso + Atrazine \$12.50-\$22.15. |
| + AATREX 4L | | 1 qt | 1.5 qt | Increase rate 20% for 20+ days preplant | |
| BICEP | | 2.1 qt | 2.4 qt | | |
| LASSO MT | 2 qt | 2.5 qt | 3 qt | 1-20 days preplant | |
| + ATRAZINE 4L | 0.5-0.75 qt | 1 qt | 1.5 qt | | |

^c21 days preplant on sandy loam

Ridge Plant

In crops planted after mid-May, weeds can be expected to grow vigorously before planting. In a ridge plant system these weeds may become too large to uproot and smother unless control efforts are applied in late April or early May. Two approaches can be used to control these weeds. The first would be to select an early preplant treatment from the no-till section and apply by mid to late April. Since the planting operation will destroy this herbicide barrier, a second herbicide application over the row is required at planting. A split application of 2/3 rate applied preplant + 1/3 banded over the row at planting should be effective. Another strategy is to apply a postemergence herbicide such as Roundup or Gramoxone Super to destroy weeds before growth exceeds 3 to 4 inches in height. Application is needed in late April to early May. Apply a preemergence herbicide at planting. In most cases the time interval from application of the preplant knockdown herbicide to planting should not exceed three to four weeks. Weeds such as kochia, marehail, smartweed, and winter annuals will warrant early treatment. Lambsquarter, velvetleaf, and grasses will emerge early in some years. The key to successful weed control is timely application of the herbicides. Appropriate herbicides can be selected from the no-till and tilled seedbed sections for this crop.

SORGHUM, FORAGE SORGHUM*

Tilled Seedbed

| Herbicide | Commercial product per Acre | | | Remarks and Approximate Cost/A Broadcast |
|---|-----------------------------|-------------------------------------|-----------------------------------|---|
| | Sandy Loam < 1 % OM | Silt Loam 1 -2 % OM | Silty-Clay Loam >2 % OM | |
| AATREX/ATRAZINE 4L* | 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. Cost: \$5.20-\$6.24. |
| BICEP* | | 1.8 qt | 2.4 qt | EPP, PPSA, PRE or SURFACE MIX... Seed must be Concep treated. Do not use atrazine on sandy, high pH or calcareous soils. Rain may leach herbicides, especially Bladex and cause sorghum injury. Cost: atrazine \$5.20-\$6.24; Bicep \$10.35-\$13.80; Dual \$10.15-\$16.90; Dual + Atrazine + Bladex \$16.30-\$23.75. |
| DUAL 8E* or DUAL 25G | 1.5 pt 6 lb | 2 pt 8 lb | 2.5 pt 10 lb | |
| DUAL 8E* with AATREX/ATRAZINE 4L or with ATRAZINE 4L + BLADEX 4L | 1.5 pt | 1.5 pt 1 qt | 1.75-2 qt 1.5 qt | |
| LASSO MT | 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 calcareous soils. Rain may leach herbicides, especially Bladex, and cause sorghum injury. Cost: Lasso + Atrazine + Bladex \$17.00-\$21.76; Lasso + Atrazine/Lariat \$12.05-\$14.25. |
| LASSO MT with ATRAZINE 4L or with ATRAZINE 4L + BLADEX 4L | | 2 qt 1 qt 0.4+0.7 qt | 2.25 qt 1.25 qt 0.5+0.9 qt | |
| LARIAT | Do not use | 3 qt | 3.5 qt | |
| RAMROD FLOWABLE or RAMROD 20G | 4 qt 20 lb | 4 qt 20 lb | 4 qt 20 lb | PRE...May cause skin irritation to applicator. Do not feed treated forage to dairy animals. Leaches on sandy soil. Cost: \$18.00. |
| RAMROD FLOWABLE + AATREX 4L/ RAMROD FLOWABLE + BLADEX 4L | Do not use | 3 qt 0.75-1 qt 5 pt 2.4 pt | 3 qt 1.25 qt 5 pt 2.7 pt | 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. Cost: Ramrod + Bladex \$16.60; Ramrod + Atrazine \$15.25; Ramrod & Atrazine Flowable \$14.50. |
| RAMROD & ATRAZINE FC | Do not use | 4 qt | 4 qt | |

SORGHUM, FORAGE SORGHUM*

Postemergence

| Herbicide | Rate Per Acre | Application Time | Remarks and Approximate Cost/A Broadcast |
|---|----------------------------|--|--|
| AATREX/ATRAZINE 4L* | 1.2 qt | Broadleaf weeds < 6'' Sorghum < 12'' | Use Atrazine with 1 qt crop oil concentrate. Atrazine may give partial control of grass weeds under 1''. Do not use Atrazine on sand or loamy sand. Increase Laddok rate according to label on weeds 3-8'' tall and apply with 1 qt crop oil concentrate or 1 gal UAN. Cost: Atrazine \$3.15; Laddok \$6.00. |
| LADDOK | 2.5 pt | Broadleaf weeds 2-4'' | |
| BANVEL* | 0.5 pt | Sorghum 3-5 leaves | Observe label precautions when sensitive crops are nearby. Cost: \$3.40. |
| 2,4-D AMINE* | 1 pt | After sorghum is 5'' tall. If over 10'' use drop nozzles | Spraying 2,4-D before 5'' stage may inhibit root development. Spraying 2,4-D without drop nozzles after 8'' through early boot may inhibit head development; do not use 2,4-D from early boot through soft dough stage. Cost: 2,4-D \$.70-\$1.10; Buctril alone \$5.60-\$8.40; with Atrazine \$6.90-\$9.70. |
| 2,4-D LV ESTER* BUCTRIL alone or with ATRAZINE | 0.5 pt 1-1.5 pt 1 pt | Broadleaf weeds 2-6''; sorghum 3-leaf to 12'' | |

Harvest Aid

| | | | |
|----------------------------|------------------------|-----------------------------|--|
| CHLORATE 3 or LEAFEX | 1.5-2 gal 1.5-2 gal | 7-10 days before harvest | Desiccant. Products are sodium chlorate with a fire retardant. Good coverage required. Do not graze or harvest forage for 14 days after treatment. Cost: \$2.80. |
|----------------------------|------------------------|-----------------------------|--|

WEED RESPONSE TO SELECTED HERBICIDES

Soybeans

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 as suggested in this publication.

See pages 37 - 44 for additional problem weeds and their control.

Response Ratings:

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

E = Excellent (90-100%)

G = Good (75-90%)

F = Fair (50-75%)

P = Poor (0-50%)

| Herbicide | annual morning glory | barnyardgrass | b. nightshade | cocklebur | crabgrass | fall panicum | foxtail | jimsonweed | kochia | kochia-triazine resistant | lambsquarters | pigweed | ragweed | R. thistle | sandbur | shattercane/sorghum | smartweed | sunflower | velvetleaf | w. buckwheat | crop safety ^a | soil carryover potential in months ^b |
|--|----------------------|---------------|---------------|-----------|-----------|--------------|---------|------------|--------|---------------------------|---------------|---------|---------|------------|---------|---------------------|-----------|-----------|------------|--------------|--------------------------|---|
| Soil Applied Herbicides | | | | | | | | | | | | | | | | | | | | | | |
| Commence | P | E | G | F | E | E | E | G | G | G | E | G | G | - | G | G | E | F | E | - | E | 6-15 |
| Command + Treflan or Sonalan or Prowl | P | E | G | F | E | E | E | G | G | G | E | G | G | - | G | G | E | F | E | - | E | 6-15 |
| Dual | P | E | G | P | E | E | E | P | P | P | G | G | F | P | F | P | P | P | P | P | P | 2-5 |
| Dual + Sencor/Lexone or Turbo | P | E | G | F | E | E | E | G | F | P | E | E | E | G | F | P | G | F | G | E | F | 2-5 |
| Freedom | P | E | G | P | E | E | E | P | F | F | G | G | G | P | F | F | P | P | P | P | E | 3-6 |
| Lasso | P | E | G | P | E | E | E | P | P | P | G | G | G | P | F | P | P | P | P | P | E | 2-4 |
| Lasso + Sencor/Lexone | P | E | G | F | E | E | E | G | F | P | E | E | E | G | F | P | G | F | G | E | F | 2-4 |
| Lorox + Lasso or Dual | P | E | G | F | E | E | E | F | F | F | G | E | G | F | F | P | G | F | F | G | G | 2-4 |
| Preview + Lasso or Dual | F | E | G | G | E | E | E | G | G | F | E | E | E | G | F | P | G | G | G | E | G | 6-12 |
| Preview + Treflan or Sonalan or Prowl | F | E | F | G | E | E | E | G | G | G | E | E | E | G | G | G | G | G | G | E | G | 6-12 |
| Prowl | P | E | P | P | E | E | E | P | G | G | G | G | P | G | G | F | P | P | F | P | G | 4-12 |
| Prowl + Sencor/Lexone | P | E | P | F | E | E | E | G | G | G | E | E | E | E | G | F | G | F | G | E | F | 4-12 |
| Pursuit Plus | P | E | F | F | E | E | E | G | G | G | E | E | E | - | G | G | E | E | E | - | E | 6-15 |
| Salute | P | E | P | F | E | E | E | G | G | F | E | E | E | E | G | G | G | F | G | E | F | 6-12 |
| Scepter + Dual or Lasso | P | E | G | G | E | E | E | G | F | F | E | E | E | - | F | F | E | E | G | - | E | 6-15 |
| Scepter + Prowl, Sonalan or Treflan | P | E | F | G | E | E | E | G | G | G | E | E | E | - | G | G | E | E | G | - | E | 6-15 |
| Sonalan | P | E | F | P | E | E | E | P | G | G | G | G | P | G | G | G | P | P | P | P | G | 4 |
| Sonalan + Sencor/Lexone | P | E | F | F | E | E | E | G | G | G | E | E | E | E | G | F | G | F | G | E | F | 4 |
| Squadron | P | E | F | G | E | E | E | G | G | G | E | E | E | - | G | G | E | E | G | - | E | 6-15 |
| Split-Appl.-Treflan/Trifluralin or Prowl + Sencor/Lexone | P | E | P | F | E | E | E | G | G | F | E | E | E | E | G | G | E | F | E | E | G | 6-12 |
| Treflan | P | E | P | P | E | E | E | P | G | G | G | G | P | G | G | G | P | P | P | P | G | 6-12 |
| Treflan/Trifluralin + Sencor/Lexone | P | E | P | F | E | E | E | G | G | F | E | E | E | E | G | G | G | F | G | E | F | 6-12 |
| Treflan + Sencor/Lexone + Command | P | E | G | F | E | E | E | G | G | G | E | E | E | G | G | G | G | F | E | E | G | 6-15 |

Postemergence Herbicides

Weed Size Influences Performance — See Label

| | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|------|
| Assure | P | E | P | P | E | E | G | P | P | P | P | P | P | P | E | E | P | P | P | P | E | 1 |
| Basagran + Blazer or Galaxy | G | P | G | E | P | P | P | E | P | P | F | G | E | P | P | P | E | E | G | G | E | 0 |
| Basagran + Cobra | G | P | G | E | F | G | F | E | F | F | F | E | E | P | F | F | E | E | G | G | G | 0 |
| Basagran + Scepter | F | P | P | E | P | P | P | E | P | P | P | E | G | P | P | P | E | E | E | G | E | 2-6 |
| Basagran with Fertilizer | F | P | P* | E | P | P | P | E | P | P | P | P | G | P | P | P | E | E | G | G | E | 0 |
| Blazer | E | P | G | F | F | F | F | E | F | F | F | E | E | P | F | F | E | P | F | - | G | 0 |
| Classic | G | P | - | E | P | P | P | E | F | F | F | G | E | - | P | P | E | E | G | - | G | 6-12 |
| Cobra | G | P | G | G | F | G | F | E | F | F | F | E | E | P | F | F | E | G | G | - | F | 0 |
| Fusilade | P | E | P | P | E | E | G | P | P | P | P | P | P | P | E | E | P | P | P | P | E | 1 |
| Option | P | E | P | P | E | E | G | P | P | P | P | P | P | P | E | E | P | P | P | P | E | 0 |
| Pinnacle + Classic | G | P | P | E | P | P | P | E | F | F | E | E | E | G | P | P | E | E | G | E | F | 6-12 |
| Poast | P | E | P | P | E | E | G | P | P | F | P | P | P | P | E | E | P | P | P | P | E | 0 |
| Poast + Basagran | F | E | P | E | G | E | G | E | P | P | P | G | P | E | E | E | G | E | G | E | 0 | 0 |
| Pursuit | G | G | G | E | G | - | G | G | F | F | G | E | G | - | - | E | G | G | G | - | G | 6-15 |
| Rescue | P | P | P | G | P | P | P | P | P | P | P | P | G | P | P | P | P | G | P | P | G | 0 |
| Roundup-ropewicks, wipers, etc. ^c | - | - | - | G | - | - | - | G | F | F | G | G | G | F | F | E | G | F | F | - | E | 0 |

^aCrop varieties vary in their response to herbicides.

^bThe 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.

^cRatings for weeds tall enough for selective treatment.

*Good control of hairy nightshade.

SOYBEANS

No-Till

GENERAL REMARKS

EPP treatments provide excellent early weed control. However, when the interval between herbicide application and planting is 28 days or more, split applications will generally give better control. If planting is delayed longer than planned after an EPP treatment, a preemergence treatment may be needed.

| Herbicide (See Weed Response Chart before selecting herbicides) | Commercial product per Acre | | | Application Time | Remarks and Approximate Cost/A Broadcast |
|--|---|---|---|---|--|
| | Sandy Loam < 1 % OM | Silt Loam 1 -2 % OM | Silty-Clay Loam > 2 % OM | | |
| Soybeans, No-Till in Alfalfa Sod | | | | | |
| 2,4-D + BANVEL | 1 qt 0.5 pt | 1 qt 0.5 pt | 1 qt 0.5 pt | Apply in fall to alfalfa with 4" new growth | 2,4-D + Banvel used to kill alfalfa. Cost: \$6.20. |
| Soybeans, No-Till in Cool-Season Grass Sod | | | | | |
| ROUNDUP | 1-1.5 qt | 1-1.5 qt | 1-1.5 qt | Apply in fall | Cost: \$13.00-\$17.50. |
| Soybeans, No-Till in Rye or Winter Wheat | | | | | |
| ROUNDUP | 0.75-1 pt | 0.75-1 pt | 0.75-1 pt | Apply when rye and and wheat are 4"-10" and before soybeans emerge | Follow with appropriate EPP treatment. Cost without EPP treatment: \$6.55-\$8.75. |
| Soybeans, No-Till Continuous Row Crops | | | | | |
| LEXONE/SENCOR 75DF + DUAL or LASSO MT or PROWL TURBO | 0.5-0.67 lb 2 pt 2 qt 2 pt 2.25 pt | 0.83-1 lb 2.5 pt 2.5 qt 2.5 pt 2.75 pt | 1-1.2 lb 3 pt 3 qt 3 pt 3.25 pt | 15-30 days EPP | Do not use on soils with less than 1% OM. Use the lower rate for calcareous soils. Use a split ap- plication of 2/3 EPP, the remaining 1/3 at plant- ing, especially if applied very early. Use higher rate for split application. Split applications cover soil disturbance by planter. 2,4-D ester at 0.5-1.0 qt/A (4/lb/gal product) can be applied with the first amount for emerged broadleaf weeds, if applied 30 days before soybean plant- ing. If grasses are present add Gramoxone Extra or Roundup. Prowl in EPP treatments may be less effective if rainfall does not come within 7 days of application. Cost: with Dual \$23.50-\$43.90; with Lasso \$20.30-\$38.90; with Prowl \$16.25-\$32.65; Turbo: \$22.84-\$33.00 |
| PURSUIT + DUAL or LASSO MT PURSUIT PLUS | 4 oz 2 pt 2 qt 2.5 pt | 4 oz 2.5 pt 2.5 qt 2.5 pt | 4 oz 3 pt 3 qt 2.5 pt | 15-30 days EPP | If emerged weeds are present add Roundup. Do not plant sorghum the following year. Cost: Pursuit + Dual \$30.70-\$37.45; Pursuit + Lasso MT \$28.00-\$33.40; Pursuit Plus \$20.00. |
| LEXONE/SENCOR 75DF or LOROX 50DF or PREVIEW or CANOPY + DUAL or LASSO TURBO | 0.5 lb 1.3 lb 6 oz 6 oz 1 pt 1.5 qt 1.75 pt | 0.67 lb 1.6 lb 7 oz 8 oz 2 pt 2 qt 2.5 pt | 0.83 lb 2.0 lb 8 oz 10 oz 2.5 pt 3 qt 2.75 pt | 0-14 days EPP | Lorox should not be applied more than 5-7 days before planting. Add 0.25% surfactant or 1 qt/A crop oil concentrate for better burndown of small weeds up to 1.5"-2". If emerged weeds are more than 2", add Gramoxone Extra or Roundup as discussed in the preemergence section. Split application is not necessary except if planter causes excessive soil disturbance. Do not apply on soils with less than 0.5% OM. Reduce Sen- cor/Lexone rate by 1/3 on calcareous soils. Do not apply Preview on soils with pH greater than 7.0; corn or grain sorghum should not be planted within 10 months of application. Cost: Lex- one/Sencor with Dual \$23.75-\$33.90; Lex- one/Sencor with Lasso \$18.35-\$33.20; Lorox with Lasso \$26.50-\$44.60; Preview with Dual \$24.00-\$30.90; Preview with Lasso \$18.60- \$30.20; Turbo: \$17.76-\$27.90. |

SOYBEANS

No-Till, cont.

| Herbicide (See Weed Response Chart before selecting herbicides) | Commercial product per Acre | | | Application Time | Remarks and Approximate Cost/A Broadcast |
|---|---|---|---|-----------------------------|--|
| | Sandy Loam < 1 % OM | Silt Loam 1 - 2 % OM | Silty-Clay Loam > 2 % OM | | |
| Soybeans, No-Till Continuous Row Crops | | | | | |
| BRONCO + LOROX 50DF or LEXONE/SENCOR 75DF | 3.25 qt 1.3 lb 0.33 lb | 4.0 qt 1.6 lb 0.5 lb | 4.0 qt 2 lb 0.67 lb | Preemergence at planting | Apply after planting, but before crop emergence. Apply in 10-30 gal/A spray solution. Add X-77 surfacant to 2 qt/100 gal spray solution. The addition of dry ammonium sulfate at 17 lb/100 gal solution may improve weed control under adverse growing conditions. Cost: Bronco + Lorox \$45.75-62.00; Bronco + Lexone/Sencor \$34.00-\$47.35. |
| LEXONE/SENCOR 75DF or LOROX 50DF or PREVIEW + DUAL or LASSO MT TURBO | 0.33 lb 1.3 lb 6 oz 1.5 pt 1.5 qt 1.5 pt | 0.5 lb 1.6 lb 7 oz 2 pt 2 qt 2.25 pt | 0.67 lb 2 lb 8 oz 2.5 pt 2 qt 2.5 pt | Preemergence at planting | Add Gramoxone Extra at 1.5-2.5 pt/A or Roundup at 1-1.5 qt/A. Add X-77 at 1 qt/100 gal spray solution. If using Roundup in the tank-mix, the addition of 17 lb dry ammonium sulfate per 100 gal spray solution may increase the performance of Roundup. For tank-mixes with either Gramoxone Extra or Roundup use the lower rate for 4''-6'' weeds. Control of weeds over 6'' will be erratic. Apply in at least 20 gal/A to get thorough coverage. Rainfall within 3 to 5 days of herbicide application will improve weed control, especially with Prowl. When using tank-mixes with Lexone/Sencor, do not use on sand or loamy sand soils. Do not apply Preview on soils with pH greater than 7.0 Cost: without Gramoxone or Roundup: Lexone/Sencor with Dual \$16.90-\$30.65; Lexone/Sencor with Lasso \$14.85-\$24.55; Lorox with Dual \$28.60-\$45.30; Lorox with Lasso \$26.55-\$39.20; Preview with Dual \$20.65-\$30.90; Preview with Lasso \$18.60-\$24.80; Turbo: \$15.25-\$25.40. |

RIDGE PLANT

In crops planted after mid-May, weeds can be expected to grow vigorously before planting. In a ridge plant system these weeds may become too large to uproot and smother unless control efforts are applied in late April or early May. Two approaches can be used to control these weeds. The first would be to select an early preplant treatment from the no-till section and apply by mid to late April. Since the planting operation will destroy this herbicide barrier, a second herbicide application over the row is required at planting. A split application of 2/3 rate applied preplant + 1/3 banded over the row at planting should be effective. Another strategy is to apply a postemergence herbicide such as Roundup or Gramoxone Super to destroy weeds before growth exceeds 3 to 4 inches in height. Application is needed in late April to early May. Apply a preemergence herbicide at planting. In most cases the time interval from application of the preplant knockdown herbicide to planting should not exceed three to four weeks. Weeds such as kochia, marehail, smartweed, and winter annuals will warrant early treatment. Lambsquarter, velvetleaf, and grasses will emerge early in some years. The key to successful weed control is timely application of the herbicides. Appropriate herbicides can be selected from the no-till and tilled seedbed sections for this crop.

Tilled Seedbed

For cocklebur, sunflower and velvetleaf, see Troublesome Weed Section.

| | | | | |
|--|--|--|---|--|
| COMMAND and SENCOR with TREFLAN or SONALAN or PROWL or DUAL or LASSO | 0.75 pt 0.33 lb 1 pt 2 pt 1.5 pt 1.5 pt 2 qt | 0.75 pt 0.40 lb 1.5 pt 2.5 pt 2 pt 2 pt 2.5 qt | 0.75 pt 0.5 lb 2 pt 3 pt 2 pt 2 pt 2.5 qt | PPI with Treflan and Sonalan. PPI or SURFACE MIX with Prowl. SURFACE MIX with Dual or Lasso. 3-way mix. To reduce injury on calcareous soil, reduce Sencor/Lexone rate by 1/3. Command vapor or droplet drit may damage green vegetation. Cost: with Prowl or Treflan \$17.20-\$29.35; with Sonalan \$18.80-\$31.25; with Dual or Lasso \$23.60-\$35.75. |
| COMMAND + TREFLAN or SONALAN COMMAND + LASSO 4EC, MT COMMENCE | 0.75 pt 1 pt 2 pt 1 pt 2 qt 1.75-2 pt | 1.2 pt 1.5 pt 2.5 pt 1 pt 2 qt 2-2.25 pt | 1.5 pt 2 pt 3 pt 1 pt 2 qt 2.66 pt | Immediately incorporate, may be surface mixed with Lasso. Use 2.5 qt rate of Lasso for heavy infestation of pigweed and lambsquarter. Command vapor drift may damage green vegetation. Carryover may damage wheat seeded the same fall or sugar beets and fieldbeans the next year. Cost: Command + Treflan/Commence \$9.55-\$19.10; Command + Sonalan \$12.00-\$21.00; Command + Lasso \$18.80; Commence \$11.80-\$17.95. |

SOYBEANS

Tilled Seedbed, cont.

| Herbicide (See Weed Response Chart before selecting herbicides) | Commercial product per Acre | | | Application Time, Remarks and Approximate Cost/A Broadcast |
|--|--|--|---|---|
| | Sandy Loam < 1 % OM | Silty Loam 1 - 2 % OM | Silty-Clay Loam > 2% OM | |
| DUAL 8E or DUAL 25G | 2 pt 8 lb | 2.5 pt 8 lb | 2.5 pt 10 lb | EPP, PRE, SURFACE MIX...To reduce injury on calcareous soil decrease Sencor/Lexone rates by 1/3. Cost: Dual \$13.50-\$16.90; Dual + Sencor \$20.40-\$25.80. |
| DUAL 8E + SENCOR/LEXON DF ⁴ | Do not use | 1.5 pt 0.5 lb | 2 pt 0.6 lb | |
| FREEDOM FREEDOM + SENCOR/LEXONE | 3.5 qt 2.7 qt 0.33 lb | 3.5 qt 2.7 qt 0.33 lb | 4 qt 2.7 qt 0.5 lb | Shallow incorporate into the upper 2 inches of soil within 24 hours after application. To reduce injury on calcareous soil decrease Sencor/Lexone rates by 1/3. Cost: Freedom \$10.50-\$12.00; Freedom + Sencor/Lexone \$14.90-\$18.35. |
| LASSO 4EC or LASSO II 15G | 2.5 qt 17 lb | 2.5 qt 17 lb | 2.5 qt 17 lb | |
| LASSO + SENCOR/LEXONE DF ⁴ | Do not use | 2 qt 0.5 lb | 2 qt 0.6 lb | PRE, SURFACE MIX...To reduce injury on calcareous soil decrease Sencor/Lexone rates by 1/3. Cost: Lasso \$13.50; Lasso + Sencor/Lexone \$21.00-\$22.40. |
| LOROX 50DF with DUAL 8E or with LASSO 4EC | 1.3 lb 1.5 pt 4 pt | 1.6 lb 2 pt 4 pt | 2 lb 2 pt 4 pt | |
| PREVIEW or CANOPY with TREFLAN or SONALAN or PROWL or DUAL or LASSO or FREEDOM | 6-7 oz 5-6 oz 1 pt 2 pt 1.5 pt 1.5 pt 2 qt 2.7 qt | 7-8 oz 6-7 oz 1.5 pt 2.5 pt 2 pt 2 pt 2 qt 2.7 qt | 8-10 oz 7-8 oz 2 pt 3 pt 2 pt 2 pt 2 qt 3.5 qt | PPI with Treflan and Sonalan. PPI or SURFACE MIX with Prowl. PRE or SURFACE MIX with Dual or Lasso. Rainfall required to activate all treatments. Do not apply to soils with pH greater than 6.8 or organic matter less than 0.5%. Carryover injury may result, see label for recropping restrictions. Cost: Canopy or Preview + Prowl or Treflan or Sonalan \$15.40-\$24.00; Preview + Dual or Lasso or Freedom \$20.65-\$31.00. |
| PROWL 4EC PROWL + SENCOR/LEXONE DF ⁴ | 1.5 pt 1.5 pt 0.33 lb | 2 pt 2 pt 0.5 lb | 2.5 pt 2 pt 0.6 lb | |
| PROWL or TREFLAN/TRIFLURALIN (PPI) with SENCOR/LEXONE DF ⁴ PPI followed by SENCOR/LEXONE DF ⁴ PRE (Split application) | 1.5 pt 1 pt 0.2 lb 0.1 lb | 2 pt 1.5 pt 0.4 lb 0.2 lb | 2 pt 2 pt 0.5 lb 0.2 lb | SPLIT SHOT, PPI and PRE...Improves broadleaf control. For best results immediately incorporate first application. On calcareous soils reduce Sencor/Lexone rates by 1/3. Lexone not labeled on sandy soil. Cost: Prowl + Sencor/Lexone + Sencor/Lexone \$11.05-\$20.60; Treflan/Trifluralin + Sencor/Lexone + Sencor/Lexone \$9.70-\$21.45; Prowl + Sencor/Lexone + Prowl + Sencor/Lexone \$12.65-\$24.15. |
| PROWL + SENCOR/LEXONE DF ⁴ PPI followed by PROWL + SENCOR/LEXONE DF ⁴ 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 | |
| PURSUIT PLUS | 2.5 pt | 2.5 pt | 2.5 pt | SURFACE MIX...Do not plant sorghum the following year. |

SOYBEANS

Tilled Seedbed, cont.

| Herbicide (See Weed Response Chart before selecting herbicides) | Commercial product per Acre | | | Application Time, Remarks and Approximate Cost/A Broadcast |
|---|--|--|--|---|
| | Sandy Loam < 1 % OM | Silty Loam 1 - 2 % OM | Silty-Clay Loam > 2% OM | |
| SCEPTER (with or without SENCOR) with LASSO or DUAL or PROWL or TREFLAN or FREEDOM or SONALAN | 0.67 pt (0.33 lb) 2 qt 1.5 pt 1.5 pt 1.0 pt 2.5 qt 2 pt | 0.67 pt (0.33 lb) 2 qt 2 pt 2 pt 1.5 pt 2.5 qt 2.5 pt | 0.67 pt (0.50 lb) 2 qt 2 pt 2 pt 2 pt 2.5 qt 3 pt | PRE or SURFACE MIX with Lasso or Dual. PPI Prowl or Squadron 7 days, Treflan or Freedom 1 day, or Sonalan 2 days after application. Crop injury and carryover risk may increase on high pH soils or sandy, eroded soils. Carryover from over application may injure corn and sugar beets the following year. Scepter and Squadron labeled east of Highway 81. Do not plant corn the year following a Scepter or Squadron treatment north of Highway 34. Cost: Scepter + Lasso \$25.20; Scepter + Freedom \$21.90-\$22.65; Scepter + Dual \$28.00; Scepter + Prowl or Sonolan or Treflan \$19.30-\$21.00, with Sencor add \$6.00. |
| SONALAN | 2 pt | 2.5 pt | 3 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. Cost: Sonalan \$6.00-\$9.00; Sonalan + Sencor/Lexone \$12.75-\$21.30. |
| SONALAN + | 2 pt | 2.5 pt | 3 pt | |
| SENCOR/LEXONE DF ⁴ | 0.33 lb | 0.5 lb | 0.6 lb | |
| TREFLAN/TRIFLURALIN + | 1 pt | 1.5 pt | 2 pt | PPI...For best results immediately incorporate. To reduce injury on calcareous soil decrease Sencor/Lexone rate by 1/3. Do not use Salute on calcareous soil. Costs: Treflan/Trifluralin \$3.55-\$7.10; Treflan/Trifluralin + Sencor/Lexone/Salute \$10.30-\$19.40. |
| SENCOR/LEXONE DF ⁴ | 0.33 lb | 0.5 lb | 0.6 lb | |
| SALUTE | 1.5 pt | 2.25 pt | 3.0 pt | |
| TURBO 8EC | Do not use | 2.0 pt | 2.5-2.75 pt | Do not use Turbo on calcareous soil. Turbo also labeled split-shot with additional Turbo or Sencor and tank mix with Command or Scepter. Follow label directions. Cost: Turbo \$20.30-\$27.90. |

SOYBEANS Postemergence

| Herbicide | Rate Per Acre | Application Time | Remarks and Approximate Cost/A Broadcast |
|----------------------------------|-------------------------|--|---|
| ASSURE | 14-16 oz | Grasses 4'' Shattercane and corn 12''-18'' | COC or surfactant needed for effective control. Cost: \$12.04-\$13.75. |
| BASAGRAN + | 1-2 pt | | Combining Basagran with Poast reduces effectiveness on volunteer corn and shattercane. Split applications of Basagran at 1 pt/A may improve control of several weeds. See label for rates and specific weed size. Cost: Basagran \$8.20-\$15.70; Basagran + Blazer \$11.25-\$22.50; Basagran + Cobra \$18.25-\$25.75; Basagran + Scepter \$14.60-\$22.10; Basagran + Poast \$23.65-\$31.15. |
| 28% UAN | 1 gal | | |
| BASAGRAN with BLAZER + | 1-2 pt 0.5-1 pt | | |
| 28% UAN or COBRA + | 1 gal 12.5 oz | Most susceptible weeds less than 4'' tall | |
| 28% + | 1 gal | | |
| SURFACTANT or SCEPTER + | 2 pt/100 gal 0.33 pt | | |
| COC | 1 qt | | |
| BASAGRAN + | 1.5-2 pt | | |
| POAST + | 1.5 pt | Use Basagran and Poast guidelines | |
| DASH + | 1 qt | | |
| 28% UAN | 1 gal | | |

SOYBEANS Postemergence

| Herbicide | Rate Per Acre | Application Time | Remarks and Approximate Cost/A Broadcast |
|---|--|--|---|
| BLAZER + 28% UAN | 1-2 pt 1 gal | Most weeds less than 4" tall | See label for rates and specific weed size. Cost: \$4.45-\$15.70. |
| CLASSIC + SURFACTANT or COC | 0.5-0.75 oz 1 qt/100 gal 1 gal/100 gal | Most weeds less than 4" tall | Do not use Classic on soils above pH 7.0. Use COC only during drought conditions. Add 28% UAN for velvetleaf. Cost: \$8.55-\$12.30. Do not use Classic + Pinnacle on soils above pH 7.2. Cost: \$12.70. |
| CLASSIC + PINNACLE + SURFACTANT + 28% UAN | 0.25 oz 0.25 oz 1 pt/100 gal 1 gal | | |
| COBRA + SURFACTANT or COC | 10-12.5 oz 1-1.5 pt/100 gal 0.5-1 pt/A | Most weeds 2-4" tall | Do not use during periods of stress or weed control will be poor. See label for specific weed size. Cost: \$8.80-\$11.55. |
| FUSILADE 2000 | 1-1.5 pt | Grasses 4" Shattercane and corn 12"-18" | COC or Surfactant needed for effective control. Cost: \$10.75-\$16.15. |
| GALAXY + 28% UAN | 2 pt | Most weeds less than 4" tall | See label for specific weeds. Cost: \$14.00. |
| OPTION POAST + DASH + 28% UAN | 0.8-1.2 pt 0.75-1 pt 1 qt 1 gal | Grasses 4" Shattercane and corn 12"-18" | COC or Surfactant needed for effective control. Cost: Option \$9.20-\$13.80; Poast \$8.05-\$10.75. |
| PURSUIT + 28% UAN + SURFACTANT | 4 oz 1-2 qt 2 pt/100 gal | Weeds 1"-3" Shattercane up to 6" | Do not plant sorghum the following year. Cost: \$18.90. |
| RESCUE + SURFACTANT | 3 qt 1/2% v/v | Weeds under 30", Soybeans after first bloom | Suppression of sunflower, cocklebur and giant ragweed. Cost: \$11.35. |

Harvest Aid

| | | | |
|-----------------|---------|----------------------------|--|
| GRAMOXONE EXTRA | 1.25 pt | When 65% of pods are brown | Desiccant. Follow label directions on water volume and X-77 additive. Be careful of drift. Do not graze for 15 days. Cost: \$6.50. |
|-----------------|---------|----------------------------|--|

SPECIAL APPLICATION EQUIPMENT

| Crop | Applicator | Herbicide and Ratio-(product:water) | Remarks |
|----------------------|-------------------------------------|---|---|
| Soybeans and Sorghum | 1. Ropewicks | ROUNDUP 1:2 (33.3% concentration) | Works best on volunteer corn and shattercane. Weeds should be 10-12" taller than soybeans. Travel both directions in heavy stands. In sorghum, too wet or dripping ropes will cause droplet splash and crop injury. |
| Soybeans | 2. Bean Bar—straight stream nozzles | ROUNDUP 1:19 (5% concentration) | A marking dye can be added to the spray solution so it is easier to see treated plants. |
| Soybeans | 3. Bean Bar—spreading nozzles | BASAGRAN 1:100 (1% concentration) POAST, FUSILADE or ASSURE 1:100 (1% concentration) | Complete coverage essential. Add 1 gal nitrogen fertilizer to each 25 gal spray. Add Poast and crop oil for shattercane and volunteer corn. Add 1 qt crop oil conc. or 1/2 pt adjuvant per 25 gal mix. |

Herbicide costs per acre vary from \$1.00 with light weed infestations to \$15.00 in heavy infestations.

WEED RESPONSE TO POST EMERGENCE HERBICIDES

Small grain

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 | horseweed | kochia | lambsquarters | P. smartweed | prostrate pigweed | redroot pigweed | R. thistle | shepherd's purse | sunflower | tansy mustard | velvetleaf | wild buckwheat | prickly lettuce | wild vetch | crop safety ^a | soil carryover potential in months ^b |
|-----------------|--------------|----------------|------------------|-----------|--------|---------------|--------------|-------------------|-----------------|------------|------------------|-----------|---------------|------------|----------------|-----------------|------------|--------------------------|---|
| Ally + 2,4-D | E | F | E | - | E | E | F | E | E | E | E | G | E | G | G | E | F | G | 1-22 |
| Glean + 2,4-D | E | F | E | G | E | E | G | E | E | G | E | E | E | G | F | E | F | G | 6-48 |
| MCPA | F | P | G | P | F | G | F | F | F | F | G | F | G | G | P | F | F | E | 1 |
| Bronate | F | E | E | F | F | E | F | E | G | G | E | E | G | G | E | - | G | E | 1 |
| Buctril | G | E | E | G | F | G | F | G | F | G | E | E | G | E | E | G | F | E | 1 |
| 2,4-D | E | F | E | F | F | E | G | E | E | G | E | E | E | E | P | E | G | G | 1 |
| 2,4-D + Banvel | F | G | E | F | E | E | E | E | E | E | E | E | E | G | E | G | G | F | 1-2 |
| 2,4-D + Buctril | G | E | E | F | G | E | E | E | E | E | E | E | E | E | E | E | G | G | 1 |
| Curtail | E | E | E | E | G | E | E | E | E | G | E | E | E | E | E | E | E | G | 2-4 |
| Tordon + 2,4-D | G | F | E | F | F | E | G | E | E | G | E | E | E | E | E | E | E | G | 6-18 |
| Harmony Extra | E | F | E | - | G | E | G | E | E | G | E | G | E | G | F | E | F | G | 1-2 |

^aCrop varieties vary in their response to herbicides. Applying herbicides with liquid fertilizer may increase crop injury.

^bThe 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.

BARLEY AND SPRING WHEAT

| Herbicide | Rate Per Acre ³ | Application Time | Remarks and Approximate Cost/A Broadcast |
|---|----------------------------|--|---|
| ALLY + 2,4-D LV ESTER CURTAIL | 0.10 oz + 0.5 pt 2 pt | Spring before May 1 Spring during tillering | Follow with small grain on Curtail and Glean treated fields. For wild buckwheat use Buctril as listed for winter wheat. For Glean + 2,4-D and Ally + 2,4-D, add surfactant 1 pt/100 gallons of spray solution. Cost: 2,4-D \$.70-\$1.65; Glean + 2,4-D; Ally + 2,4-D \$3.40-\$3.80; Curtail \$6.00. |
| GLEAN + 2,4-D LV ESTER (Use only east of Hwy. 183) | 0.17 oz + 0.5 pt | Spring with broadleaf weeds less than 2" | |
| 2,4-D AMINE or 2,4-D LV ESTER | 1-1.5 pt 0.5-1 pt | Spring 5-leaf thru tillering | |

Harvest Aid

| | | | |
|----------------|------|--|--|
| 2,4-D LV ESTER | 1 qt | Hard dough 7 or more days before harvest | Helps desiccate large broadleaf weeds. Only certain brands labeled for this use. Cost: \$2.80. |
|----------------|------|--|--|

OATS

| | | | |
|--|-------------------------|---|---|
| MCPA | 0.5-1 pt | Weeds and oats in 3-4 leaf stage | Cost: MCPA \$.80-\$1.60; Buctril + 2,4-D or MCPA \$6.40-\$9.20. |
| BUCTRIL + 2,4-D AMINE or MCPA | 1-1.5 pt + 0.5 pt | | |
| CURTAIL M | 1.75-2.3 pt | Oats 3-leaf to joint, weeds <3" | Cost: \$4.50-\$6.00. |
| GLEAN + 2,4-D AMINE (Use only east of Hwy. 183) | 0.17 oz + 0.5 pt | Broadleaf weeds less than 2" and 3-4 leaf stage of oats | Follow with small grain. Cost: \$3.65. Add surfactant 1 pt/100 gallons of spray solution. Cost: \$3.20. |
| 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. Cost: \$1.10. |

Harvest Aid

| | | | |
|----------------|------|--|--|
| 2,4-D LV ESTER | 1 qt | Hard dough 7 or more days before harvest | Helps desiccate large broadleaf weeds. only certain brands labeled for use. Cost \$2.80. |
|----------------|------|--|--|

WINTER WHEAT

| Herbicide | Rate Per Acre ³ | Application Time | Remarks and Approximate Cost/A Broadcast |
|---|---|---|--|
| 2,4-D AMINE or 2,4-D LV ESTER | 1-1.5 pt 0.5-1 pt | Early spring, before joint stage | Do not spray winter wheat until well tillered. Spray broadleaf weeds as soon as good growing conditions occur. Cost: \$.70-\$1.65. |
| BRONATE 4EC BUCTRIL 4EC or BUCTRIL 2EC + 2,4-D AMINE | 1-1.5 pt 0.5-0.75 pt 1-1.5 pt 0.5 pt | Wheat well tillered before canopy covers weeds | Most broadleaf weeds should be in 2-4 leaf stage or mustards in early rosette stage. Cost: \$6.15-\$9.00. |
| BANVEL + 2,4-D AMINE | 2-4 oz 0.75-1 pt | Spring, before wheat joints | Controls most troublesome broadleaf weeds. Cost: \$1.75-\$2.90. |
| CURTAIL | 2.0 pt | Before boot stage | Do not use Glean on soils with pH above 7.9. Use Glean and Curtail in wheat wheat-fallow or wheat-spring small grain rotations. |
| GLEAN + 2,4-D LV ESTER (Use only east of Hwy. 183) | 0.17-0.33 oz 0.5 pt | Spring, 2-4'' broadleaf weeds | For Glean + 2,4-D and Ally + 2,4-D, add surfactant 1 qt/100 gallons of spray solution. Cost: Curtail \$6.00; Glean + 2,4-D \$3.80-\$6.70; Ally + 2,4-D \$3.40. |
| ALLY + 2,4-D LV ESTER | 0.10 oz + 0.5 pt | | |
| 2,4-D LV ESTER + TORDON 22K | 0.5-0.75 pt 1-1.5 oz | Spring after resumption of active growth to before joint stage | Use only on land to be planted the following year to grass, barley, wheat, oats or fallowed. Costs: \$1.50-\$2.25. |
| HARMONY EXTRA | 0.3-0.4 oz | Wheat 2 leaf thru tillering weeds less than 4'' tall | Add a nonionic surfactant at 1 qt/100 gallons. Any crop can be planted 60 days after application. Cost: \$6.40. |

Harvest Aid

| | | | |
|----------------|------|--|--|
| 2,4-D LV ESTER | 1 qt | Hard dough 7 or more days before harvest | Rescue for control of late broadleaf weeds. To reduce breakage all green color should be gone from joints. Only certain brands labeled for this use. Cost: \$2.80. |
|----------------|------|--|--|

PROSO MILLET Postemergence

| Herbicide | Rate Per Acre ³ | Application Time | Remarks and Approximate Cost/A Broadcast |
|----------------------------|----------------------------|----------------------------|---|
| 2,4-D AMINE + BANVEL | 0.67 pt 0.25 pt | Proso in 2-5 leaf stage | Broadleaf weeds should be small. Observe all Banvel precautions when susceptible crops are within 1/2 mile of application site. Cost: \$2.45. |

Only certain labels list this use.

SUNFLOWER Tilled Seedbed

| Herbicide | Commercial product per Acre | | | Remarks and Approximate Cost/A Broadcast |
|-------------|-----------------------------|------------------------|-----------------------------|---|
| | Sandy Loam < 1 % OM | Silt Loam 1 -2 % OM | Silty-Clay Loam > 2 % OM | |
| LASSO 4EC | 2 qt | 2.75 qt | 3.5 qt | Surface mix within 7 days before planting or apply PRE within 5 days after planting. Cost: \$10.80-\$18.90. |
| PROWL | 1.5 pt | 2 pt | 2.5 pt | PPI...For best results immediately incorporate. Read label for carry-over precautions. Use the lower rates under 20'' rainfall. Sensitive crops may be injured the following year. Cost: \$3.55-\$9.00. |
| SONALAN 3EC | 1.5 pt | 2 pt | 3 pt | |
| TREFLAN | 1 pt | 1.5 pt | 1.5-2 pt | |

SUNFLOWER Postemergence

| Herbicide | Rate Per Acre ³ | Application Time | Remarks and Approximate Cost/A Broadcast |
|------------------------------|----------------------------|---|--|
| POAST + DASH + 28% UAN | 1 pt 1 qt + 1 gal | Shattercane and corn 12-18''; other annual grasses less than 4'' | Good coverage essential. Cost: \$9.25-\$12.30. |

ECOFARMING

Ecofarming (Ecofallow) is a system based on quality winter wheat stubble. Good quality stubble is the result of growing a winter wheat variety competitive with weeds along with good disease and insect resistance. Proper planting date, fertilized according to needs, weed control in the growing wheat, harvested with minimum grain loss and good chaff and long straw distribution all contribute to the success of this program. Also required is excellent herbicide application. If non-selective herbicides are being applied, weather and weed conditions need to be correct for good results. Atrazine, Bladex, Extrazine II, Gramoxone Extra, Cyclone, Roundup, Roundup RT, Landmaster II, Landmaster BW or Fallow Master will control established broadleaf weeds, grasses or volunteer wheat depending on plant height. If grasses are less than 1' tall, atrazine, Bladex, or Extrazine II will provide acceptable control. Control is improved when crop oil concentrate or 28% nitrogen are added. When planting corn, 2,4-D ester may also be added for improved weed control. Cyclone should be applied with X-77 to grasses less than 4' tall. If grasses are taller than 4' and are growing vigorously, apply Roundup¹ or Landmaster¹. Mixing some herbicides can create antagonism and decrease performance. Kill volunteer wheat and annual bromes in April to prevent soil moisture loss. Consider banding over the row in weedy fields at planting to compensate for disturbing the soil with the planter.

Volunteer winter wheat and/or downy brome or jointed goatgrass are not usually controlled with July and early August atrazine treatments. A split after harvest treatment with the early application atrazine rate reduced so 1 lb/A of atrazine can be applied in September can be an effective control measure. If maximum rates of atrazine have been applied the previous fall do not add additional atrazine in the spring. Lower rates of atrazine (or none at all) need to be used on eroded areas, on soils with less than 1.2% OM, on soils with a pH of 6.8 or greater, some terraces, Canyon and Rosebud soils, and caliche outcroppings. High atrazine rates may carryover and destroy wheat on these areas. Total atrazine applied last year after wheat harvest plus this year's treatment should not exceed 3.75 lb 80W or 3 qt 4L/A for land to be planted to corn or sorghum. To receive the maximum benefits from eco-

farming which includes moisture conservation and preventing weed seed production, treatments applied soon after harvest are usually the most successful. This is on the condition the weeds are not under drought stress and the straw has settled. At that time the weeds are smaller and easier to control with the nonselective translocating herbicide (Roundup, Roundup RT, Landmaster II, Landmaster BW, and Fallow Master). The non-selective, non-translocating herbicides (Cyclone, Gramoxone Extra) are usually more effective in controlling small weeds and as they approach maturity.

If grasses recover from initial after harvest herbicide applications use Roundup to kill escapes. Where Cyclone was used, use 12 oz/A of Roundup and where Landmaster or Roundup was used, use 9 or 12 oz/A of Roundup.

Fields 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 density 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 Cyclone at 1.5 to 2 pt after April 15 depending upon size of weeds. Rates suggested depending on soil type, pH, OM, time of application, and weed size. For corn use 1.5 to 2.5 qt/A AAtrex/atrazine, for grain sorghum use 1.25 to 2.25 qt/A AAtrex/atrazine, and for proso millet use 0.75 to 1 qt/A atrazine. An early spring treatment of Roundup or Landmaster with atrazine as soon as good growing conditions exist in the spring is an effective treatment for volunteer wheat and downy brome. Dual or Lasso MT should be applied 20 to 30 days before corn or sorghum planting. For sorghum use the appropriate seed treatment for Dual and Lasso.

PLANTING ROW CROPS NO-TILL INTO LAST YEAR'S SPRING SMALL GRAIN STUBBLE (Oats, Spring Wheat, and Spring Barley)

The spring small grains are not as competitive with weeds as winter wheat. This is because the winter wheat is established in the fall and starts growth early in the spring before most weeds germinate and with good stands of winter wheat, most weeds except for winter annual weeds, are not a problem.

The quality and quantity of winter wheat stubble and straw is also superior and longer lasting than that of the spring grain crops. The winter wheat stubble and straw is more effective in suppressing weeds. Therefore, planting crops no-till into last year's small grain while it can be successful can also be a disaster if the herbicide treatments are not timely, properly selected, applied properly, and results evaluated to determine if retreatment or other weed control measures are necessary.

The most important part of this program is weed control after spring small grain harvest. Keeping the weeds from producing seed and using stored soil moisture is done with a timely herbicide treatment after harvest. The herbicide treatments listed for winter

wheat after harvest can be used in small grain stubble in most situations (check label to be sure and also the recropping intervals for the crops in your rotation). The higher labeled rates of herbicides are usually required. Roundup, Roundup RT, Landmaster II, Landmaster BW, and Fallow Master are usually the choice nonselective herbicides for control of emerged summer annual grass weeds that are growing rapidly. As weeds approach maturity, Gramoxone Extra and Cyclone have given good results if combined with atrazine and/or Bladex. If atrazine is used in the fall treatment, the next crop must be tolerant to it at the rate used (check label).

The spring herbicide treatment is necessary. Again, check the rates, etc. for the crop in the ecofarming section. Check labels and be sure to control volunteer crops. Also, do not disturb the herbicide treatment if a residual herbicide was applied last fall. Read all the general remarks under ecofarming.

SEE FOOTNOTES ON PAGE 44.

WEED RESPONSE TO HERBICIDES APPLIED AFTER WINTER WHEAT HARVEST

Response rating is: Based on 12 inch tall stubble with 400 stems/yd² and weeds not under drought stress and no rain within 24 hours after application.

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

| Herbicides | Broadleaf weeds | | | | | | | | | | | Summer annual grass weeds | | | | | |
|---|-----------------------|-----------|--------------|--------|--------------|-------------|---------|---------------|---------------|-----------|-------------|---------------------------|-------------|-------------|---------|------------|------------|
| | buffalobur | horseweed | knotweed, e. | kochia | lambquarters | lettuce, p. | pigweed | smartweed, P. | spurge, tooth | sunflower | thistle, R. | barnyardgrass | foxtail, gr | foxtail, ye | sandbur | stinkgrass | witchgrass |
| | 6 inches tall or less | | | | | | | | | | | 4 inches tall | | | | | |
| Cyclone + atrazine | E | E | E | E | E | E | E | E | E | E | E | E | E | G | E | E | |
| Landmaster BW | E | E | E | G | E | G | E | E | E | E | E | E | E | E | G | E | |
| Landmaster BW + atrazine | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | |
| Roundup | E | E | G | G | E | G | E | E | F | E | G | E | E | E | E | E | |
| Roundup + atrazine | E | E | E | G | E | E | E | E | E | E | E | E | E | E | E | E | |
| | 12 inches tall | | | | | | | | | | | Tillered to boot | | | | | |
| Cyclone + atrazine + 2,4-D ^b | E | E | E | E | E | E | E | G | E | E | E | F | G | F | F | G | G |
| Landmaster BW | E | G | E | G | E | G | G | E | G | E | G | G | E | G | G | E | G |
| Landmaster BW + atrazine | E | E | E | G | E | G | E | E | G | E | E | G | E | G | G | E | G |
| Roundup | E | G | G | F | G | G | G | E | P | E | G | G | E | G | G | E | G |
| Roundup + atrazine + 2,4-D | E | E | E | G | E | G | E | E | G | E | E | G | E | G | G | E | G |
| | 24 inches tall | | | | | | | | | | | Headed | | | | | |
| Cyclone + atrazine + 2,4-D | E | E | G | E | E | E | E | E | E | E | E | E | E | E | E | E | E |
| Landmaster BW | G | G | G | F | G | G | G | G | F | G | G | G | E | G | E | E | G |
| Landmaster BW + atrazine | E | G | G | G | E | E | E | E | G | E | E | G | E | E | E | E | G |
| Roundup | G | G | F | P | F | F | F | G | P | G | F | G | E | G | E | E | G |
| Roundup + atrazine + 2,4-D | E | G | G | F | E | E | E | E | F | E | G | G | E | E | E | E | G |

^aRate is 1.5 pt/A for Cyclone, 54 oz/A for Landmaster BW, and 16 oz/A for Roundup. Atrazine rate is 2 to 2.5 qt/A. Consult label to improve weed control with some herbicides. Example, barnyardgrass needs 84 oz/A of Landmaster BW.

^bAdd 2,4-D ester at 1.5 pt/A.

ECOFARMING

| Herbicide | Commercial product per Acre | | | Application Time | Remarks and Approximate Cost/A Broadcast |
|---|-----------------------------|---------------------|--------------------------|---|--|
| | Sandy Loam < 1 % OM | Silt Loam 1 -2 % OM | Silty-Clay Loam > 2 % OM | | |
| Winter Wheat Stubble, to be Seeded 2-3 Months Later to Winter Wheat (Continuous Wheat) | | | | | |
| ROUNDUP or ROUNDUP RT ¹ | 12-32 oz | 12-32 oz | 12-32 oz | Postemergence; two or more applications required. Wait 30 days before planting wheat with Landmaster II or BW | If volunteer wheat develops close to planting treat with Roundup or Roundup RT. To facilitate drilling stubble should be no taller than 12" with good straw and chaff distribution. Cost: Roundup \$6.60-\$17.50; Roundup RT \$3.65-\$9.65; Landmaster II, Landmaster BW \$5.20-\$10.25 |
| LANDMASTER II or BW ¹ | 40-64 oz | 40-64 oz | 40-64 oz | | |
| Winter Wheat Stubble to be Seeded 12-14 Months Later to Winter Wheat | | | | | |
| "FALLOW AID" | | | | | |
| Winter Wheat Stubble Free of Grass Weeds | | | | | |
| AATREX 4L | 1 pt | 2 pt | 2 pt | Aug 10-Sept 10 (12 months or more before seeding) | Spray stubble soon after harvest with 2,4-D or Landmaster. Follow with atrazine Aug.-Sep. Add 1 qt/A 2,4-D LV ester for broadleaf weed control. Volunteer wheat and downy brome control are better with late Aug. and early Sept. application. Cost: AAtrex \$1.30-\$2.60; Bladex + Atrazine \$8.85-\$11.20. |
| BLADEX 90DF | 1.8 lb | 2.2 lb | 2.2 lb | | |
| + ATRAZINE 4L | 1 pt | 1.5 pt | 1.5 pt | | |

ECOFARMING

| Herbicide | Commercial product per Acre | | | Application Time | Remarks and Approximate Cost/A Broadcast |
|--|-----------------------------|-------------------------|-----------------------------|--|---|
| | Sandy Loam < 1 % OM | Silt Loam 1 - 2 % OM | Silty-Clay Loam > 2 % OM | | |
| Winter Wheat Stubble with Grass Weeds | | | | | |
| AATREX 4L | 1 pt | 2 pt | 2 pt | | Spray before weeds produce seed and not under drought stress. Volunteer wheat and downy brome control are better with late Aug. and early Sept. application. Add 1 pt 2,4-D LV ester to AAtrex + Cyclone to improve control broadleaf weeds. Cost: AAtrex + Cyclone \$7.65-\$20.55 Bladex + Atrazine + Cyclone + 2,4-D \$14.00-\$20.55; AAtrex + Landmaster II \$6.50-\$13.80; AAtrex + Landmaster BW \$6.90-\$14.60. |
| + CYCLONE ¹ | 1.5-2 pt | 1.5-2 pt | 1.5-2 pt | | |
| BLADEX 90DF | 1.1 lb | 1.1 lb | 1.1 lb | | |
| + ATRAZINE 4L | 1 pt | 1.5 pt | 1.5 pt | | |
| + CYCLONE ¹ | 1.5-2 pt | 1.5-2 pt | 1.5-2 pt | Aug 10-Sept 10 (12 months or more before seeding) | |
| + 2,4-D LV ESTER | 1 pt | 1 pt | 1 pt | | |
| AATREX 4L | 1 pt | 2 pt | 2 pt | | |
| + LANDMASTER II or BW ¹ | 40-86 oz | 40-86 oz | 40-86 oz | | |
| COMMAND 4EC | 1-1.5 pt | 1-1.5 pt | 1-1.5 pt | Aug 15-Oct 31 | |
| + ATRAZINE 4L | 1 pt | 2 pt | 2 pt | | |

Winter Wheat Stubble to be Seeded 4-5 Months Later to Winter Wheat

| "FALLOW AID" | | | | | |
|-------------------------------------|----------|----------|----------|---|---|
| BLADEX 90DF | 2.7 lb | 2.9 lb | 3 lb | Mar-Apr 15 or before boot stage of weeds | Do not use on undercut stubble. Controls volunteer wheat, downy brome, jointed goatgrass and broadleaf weeds Cost: \$16.70-\$26.65. |
| + CYCLONE ¹ | 1.5-2 pt | 1.5-2 pt | 1.5-2 pt | | |
| ROUNDUP or ROUNDUP RT ¹ | 12-16 oz | 12-16 oz | 12-16 oz | Post in Apr or before boot stage of weeds | Roundup \$6.60-\$8.80; Roundup RT \$3.65-\$4.90; Landmaster II \$5.25-\$7.08; Landmaster BW \$5.60-\$7.55; Fallow Master \$6.40-\$8.80. |
| or LANDMASTER II or BW ¹ | 40-54 oz | 40-54 oz | 40-54 oz | | |
| FALLOW MASTER | 32-44 oz | 32-44 oz | 32-44 oz | | |
| 2,4-D LV ESTER | 1 qt | 1 qt | 1 qt | May-Aug for broadleaf weeds | Do not plant small grain for 20 days after treatment. Cost: \$4.80. |
| + BANVEL | 0.5 pt | 0.5 pt | 0.5 pt | | |

Winter Wheat Stubble to be Planted to Corn, Sorghum, or Proso Millet the Next Spring "Check Remarks Under Ecofarming"

| Stubble Free of Grass Weeds | | | | | |
|---|----------|----------|----------|--|--|
| AATREX/ATRAZINE 4L | 2 qt | 2.5 qt | 3 qt | Jul-Aug or Sep-Nov for corn and sorghum. | 1 qt/A 2,4-D ester or 1 pt Banvel improves annual or perennial broadleaf weed and annual grass control. Spray before weeds produce seed. Use 1-1.2 qt Atrazine 4L in Panhandle. Cost: \$2.60-\$7.80. |
| | 1.5 qt | 2 qt | 2.5 qt | | |
| ATRAZINE 4L | 1.25 qt | 1.5 qt | 2 qt | Jul-Aug or Sep-Nov for proso millet | |
| Only certain labels list this use. | 1 qt | 1.3 qt | 1.6 qt | | |
| Stubble with Grass Weeds | | | | | |
| AATREX/ATRAZINE 4L | 2 qt | 2.5 qt | 3 qt | Jul-Aug or Sep-Nov for corn and sorghum | Spray after wheat harvest and before weeds produce seed. If grasses such as barnyardgrass recover, kill weeds before they develop seed. Use 1-1.2 qt Atrazine in Panhandle. Cost: Atrazine + Cyclone \$8.15-\$14.30; AAtrex + Landmaster II \$10.90-\$17.70; AAtrex + Landmaster BW \$14.20-\$23.45. |
| | 1.5 qt | 2 qt | 2.5 qt | | |
| + CYCLONE ¹ | 1.5-2 pt | 1.5-2 pt | 1.5-2 pt | | |
| ATRAZINE 4L | 1.25 qt | 1.5 qt | 2 qt | Jul-Aug for proso millet | |
| + CYCLONE ¹ | 1.5-2 pt | 1.5-2 pt | 1.5-2 pt | | |
| AATREX/ATRAZINE 4L | 2 qt | 2.5 qt | 3 qt | Jul-Aug | Proso millet—Sept-Nov applications reduce Atrazine rate by 20%. Volunteer wheat and downy brome control better with late Aug.-Nov. applications. |
| | 1.5 qt | 2.0 qt | 2.5 qt | Sep-Nov for corn and sorghum | |
| + LANDMASTER II or BW ¹ | 54-86 oz | 54-86 oz | 54-86 oz | | |
| ATRAZINE 4L (only certain brands labeled for this use) | 1.25 qt | 1.5 qt | 2 qt | Jul-Aug for proso millet | Minimum Rates of Landmaster II or BW with Atrazine are: 54 oz/A + 2 lb/A or less atrazine 64 oz/A + 3 lb/A or less atrazine Barnyardgrass control requires 86 oz/A of Landmaster |
| + LANDMASTER II or BW ¹ | 54-86 oz | 54-86 oz | 54-86 oz | | |

ECOFARMING

| Herbicide | Commercial product per Acre | | | Application Time | Remarks and Approximate Cost/A Broadcast |
|-----------|-----------------------------|--------------------------|-----------------------------|------------------|--|
| | Sandy Loam < 1 % OM | Silty Loam 1 - 2 % OM | Silty-Clay Loam > 2 % OM | | |

Winter Wheat Stubble to be planted to Soybeans the following Spring (For Areas With Over 20" Rainfall)

| | | | | | |
|---|----------------------|----------------------|----------------------|----------------|--|
| LANDMASTER II or BW ¹ or ROUNDUP or ROUNDUP RT | 54-86 oz 16-32 oz | 54-86 oz 16-32 oz | 54-86 oz 16-32 oz | 2 applications | Volunteer wheat may emerge in fall or spring control with Roundup. Cost: Landmaster II \$7.00-\$11.20; Landmaster BW \$7.55-\$12.05; Roundup \$8.80-\$17.60; Roundup RT \$4.90-\$9.75. |
|---|----------------------|----------------------|----------------------|----------------|--|

Corn to be Planted in Winter Wheat Stubble Treated with AAtrex/Atrazine After Harvest^{1,2}

If volunteer wheat and/or downy brome were not controlled in the fall, spray in April or control earlier with Roundup, Roundup RT, or Landmaster II. Low rates (less than 2 lbs active) of Atrazine and/or Bladex usually do not give satisfactory volunteer wheat and downy brome control when applied in July or early August of previous summer. If triazine resistant kochia is a problem see Troublesome Weed section.

| | | | | | |
|-----------------------------------|-------------------|-----------------|--------------|--------------------|--|
| BLADEX 4L | 2 qt | 2 qt | 2.5 qt | 0-30 days preplant | Do not use on sands and loamy sands with less than 1% OM. Cost: Bladex \$9.60- |
| BLADEX 4L | 1.25 qt | 1.5 qt | 1.75 qt | 0-15 days preplant | \$12.00; Bladex + Atrazine \$7.95- |
| + AATREX/ATRAZINE 4L | 0.75 qt | 1 qt | 1 qt | | \$11.00; Bladex + Dual \$17.35-\$23.10. |
| BLADEX 4L | 1.5 qt | 1.75 qt | 2 qt | | |
| + DUAL 8E | 0.75 qt | 1 qt | 1 qt | | |
| DUAL | 2 pt | 2.5 pt | 3 pt | | |
| | | | | 0-20 days preplant | 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. Cost: Dual \$13.50- |
| DUAL 8E | 1.5 pt | 2 pt | 2 pt | | \$20.25; Bullet \$15.00-\$16.00; Lasso + |
| + AATREX 4L | 0.75 qt | 1 qt | 1 qt | | AAtrex \$12.75-\$16.00; Lasso + |
| BULLET | 3.75 qt | 4 qt | 4 qt | 0-20 days preplant | Bladex \$18.00-\$23.10; Bronco |
| LASSO MT | 2 qt | 2.5 qt | 2.5 qt | | \$29.40-\$33.60; Bronco + Atrazine |
| + AATREX 4L or BLADEX 4L | 0.75 qt 1.5 qt | 1 qt 1.75 qt | 1 qt 2 qt | 0-7 days preplant | \$31.35-\$36.20. |
| BRONCO | 3.5 qt | 4 qt | 4 qt | | |
| BRONCO | 3.5 qt | 4 qt | 4 qt | | |
| + AATREX 4L | 0.75 qt | 1 qt | 1 qt | | |

Proso Millet to be Planted in Stubble Treated with Atrazine After Harvest²

| | | | | | |
|--|---------|--------|--------|--------------------|--|
| ATRAZINE 4L (Only certain labels list this use) | 0.25 qt | 0.5 qt | 0.5 qt | 0-20 days preplant | Add 1.5-2 pt Cyclone ¹ if emerged weeds are present. Do not use Atrazine if soil pH is above 7.5. Cost: \$.65-\$1.30. |
|--|---------|--------|--------|--------------------|--|

Soybeans to be Planted into Winter Wheat Stubble Treated With Landmaster After Harvest (For Areas With Over 20" Rainfall and Fields With Low Weed Density)

| | | | | | |
|--|----------------------|----------------------------|----------------------|--------------------|--|
| PURSUIT | 4 oz | 4 oz | 4 oz | | Add 1-1.5 pt/A of Roundup ¹ or Roundup RT ¹ if there are emerged weeds. Control weeds when they are small to conserve moisture and improve performance. Check fields within 30 days after planting to determine if postemergence herbicides are needed. Cost without Roundup or Roundup RT: With Dual \$30.70-\$37.45; With Lasso \$28.00-\$33.40; With Prowl \$23.70-26.95. |
| + DUAL or LASSO MT or PROWL | 2 pt 2 qt 2 pt | 2.5 pt 2.5 qt 2.5 pt | 3 pt 3 qt 3 pt | 0-30 days preplant | |

See rotational crop restrictions on the Pursuit label

ECOFARMING

Commercial product per Acre

| Herbicide | Commercial product per Acre | | | Application Time | Remarks and Approximate Cost/A Broadcast |
|---|-----------------------------|--------------------------|-----------------------------|--------------------|--|
| | Sandy Loam < 1 % OM | Silty Loam 1 - 2 % OM | Silty-Clay Loam > 2 % OM | | |
| BLADEX 4L | 2 qt | 2.5 qt | 3 qt | 28 days preplant | Add 1.5-2 pt Cyclone ¹ or 54 oz Landmaster for emerged weeds if Bronco is not used. Seed must be treated with Concep for Dual or Screen for Lasso or Bronco treatments. Cost: Dual \$13.50-\$16.90; Dual + AAtrex \$11.45-\$16.10; Lasso + Atrazine \$12.10-\$16.10; Bronco + Atrazine \$29.40-\$33.60; Bronco + Atrazine \$30.70-\$36.20; Lasso + Bladex \$18.00-\$23.10; Bladex \$9.60-\$16.80; Bladex + Atrazine \$6.55-\$15.70; Bladex + Dual \$21.20-\$25.50. |
| | 2.5 qt | 3 qt | 3.5 qt | 35 days preplant | |
| BLADEX 4L + ATRAZINE 4L | 1.2 qt* | 1.5 qt | 2 qt | 14 days preplant | |
| BLADEX 4L + ATRAZINE 4L | 0.3 qt* | 0.4 qt | 0.5 qt | 35 days preplant | |
| BLADEX 4L + DUAL 8E | 2 qt | 2.5 qt | 3 qt | 14 days preplant | |
| BLADEX 4L + DUAL 8E | 0.5 qt | 0.5 qt | 0.5 qt | 14 days preplant | |
| BLADEX 4L + DUAL 8E | 1.25 qt | 1.6 qt | 2 qt | 28 days preplant | |
| DUAL 8E | 1.5 pt | 1.5 pt | 1.75 pt | 0-20 days preplant | |
| BLADEX 4L + DUAL 8E | 1.6 qt | 2 qt | 2.5 qt | 0-7 days preplant | |
| DUAL 8E | 2.0 pt | 2.25 pt | 2.5 pt | 0-7 days preplant | |
| DUAL 8E + AATREX 4L | 1.5 pt | 2 pt | 2 pt | | |
| LASSO MT + AATREX 4L or BLADEX 4L | 0.5 qt | 1 qt | 1 qt | | |
| BRONCO | 2 qt | 2.5 qt | 2.5 qt | | |
| BRONCO + AATREX 4L | 0.5 qt | 1 qt | 1 qt | | |

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

Winter Wheat to be Planted in Less Than Six Months in Winter Wheat Ecofallow Corn/Sorghum-Fallow Rotation (Treat Ecofallow corn or sorghum stubble)

| | | | | | |
|---|----------|----------|----------|------------------------------|---|
| BLADEX 4L + 2,4-D LV ESTER | 3 qt | 3 qt | 3.5 qt | Mar-Apr 10 | Early application necessary to control winter annuals. Use Roundup for control of downy brome before heading, volunteer corn or sorghum. If weeds are emerged add Landmaster, Roundup or Roundup RT. Do not plant wheat for 20 days after using |
| BLADEX 4L + CYCLONE ¹ | 1.5 pt | 1.5 pt | 1.5 pt | Apr 15-May 1 | |
| GLEAN | 2.5 qt | 2.5 qt | 3 qt | March-May 1 | 2,4-D and Banvel. Follow-up weed control may be necessary. |
| ROUNDUP or ROUNDUP RT ¹ or LANDMASTER II or BW ¹ or FALLOW MASTER | 0.33 oz | 0.33 oz | 0.33 oz | Apr 15-May 1 | |
| 2,4-D LV ESTER + BANVEL | 12-16 oz | 12-16 oz | 12-16 oz | Broadleaf weeds less than 4" | Cost: Bladex + 2,4-D \$16.50-\$19.00; Bladex + Cyclone \$21.70-\$24.20; Landmaster II \$5.20-\$7.00; Landmaster BW \$6.40-\$8.65; Roundup \$6.60-\$8.80; Roundup RT \$5.50-\$7.35; Fallow Master \$6.40-\$8.80; 2,4-D + Banvel \$6.20. |
| | 40-54 oz | 40-54 oz | 40-54 oz | | |
| | 32-44 oz | 32-44 oz | 32-44 oz | | Glean with Landmaster \$11.20-\$13.00 with Roundup \$12.60-\$14.80 with Roundup RT \$11.50-\$13.35 |
| | 1 qt | 1 qt | 1 qt | | |
| | 0.5 pt | 0.5 pt | 0.5 pt | | |

WEED RESPONSE TO SELECTED ALFALFA HERBICIDES

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

barnyardgrass
 dandelion
 downy brome
 field pennycress
 foxtail
 kochia
 kochia-triazine resistant
 lambsquarters
 pigweed
 R. thistle
 sandbur
 shepherd's purse
 tansy mustard
 crop tolerance^a
 soil carryover potential in months^b

Preplant

| | | | | | | | | | | | | | | | |
|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| Balan | E | P | E | P | E | G | G | E | G | G | G | P | P | G | 12 |
| Eptam/Genep | E | P | E | P | E | G | G | G | G | P | G | P | P | G | 2 |

Seedling or Established

| | | | | | | | | | | | | | | | |
|------------------|---|---|---|-----|---|---|---|---|---|---|---|---|-----|---|---|
| Butyrac/Butoxone | P | P | P | P | P | P | P | F | G | F | P | P | P | G | 1 |
| Poast | E | P | G | P | G | P | P | P | P | P | E | P | P | E | 0 |
| Buctril | P | P | P | F-G | P | F | F | G | P | G | P | E | F-G | G | 0 |

Established

| | | | | | | | | | | | | | | | |
|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-------|
| Karmex | E | P | F | G | G | E | E | G | G | F | F | E | E | G | 24 |
| Lexone/Sencor | G | G | E | E | F | E | P | E | E | G | P | E | E | G | 4 |
| Sinbar | F | F | E | E | F | G | G | E | E | G | F | E | E | G | 24 |
| Velpar | F | G | E | G | P | G | P | G | G | G | F | E | E | G | 12-24 |

ALFALFA

See NebGuide G75-220 Weed Control in Alfalfa for more information.

| Area or Use | Herbicide | Commercial Product per Acre | Application Time | Remarks and Approximate Cost/A Broadcast |
|--|------------------------------|-----------------------------|---|--|
| To Control Alfalfa, see Troublesome Weeds, Page 37. | | | | |
| 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. Cost: Balan \$12.00-\$16.00; Eptam/Genep \$8.15-\$11.40; Treflan \$3.55-\$5.35. |
| | EPTAM 7E | 2.5-3.5 pt | | |
| | TREFLAN (set-aside only) | 1-1.5 pt | | |
| | BUCTRIL | 1-1.5 pt | Weeds less than 2" tall. Alfalfa at least 2 trifoliolate leaves | Do not treat when temperature is above 70 F. Cost: \$5.60-\$11.40. |
| | POAST + DASH | 1 pt + 1 qt | Grasses 4" or less | Good coverage necessary. Cost: \$12.30. |
| 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. Cost: \$3.80-\$11.40. |
| ALFALFA (Established one year or more) | KARMEX 80W | 1.5-3 lb | Late fall to early spring to dormant alfalfa | Primarily for winter annual weeds such as pennycress and other mustards. Sinbar, Velpar, and Lexone/Sencor also control downy brome. Do not use on sand; use lowest rates on soils with less than 1% organic matter. Spring application of Karmex controls annual warm season grasses such as foxtail and barnyardgrass. Cost: Karmex \$6.45-\$13.00; Sinbar \$11.25-\$22.50; Lexone/Sencor \$10.25-\$20.50; Velpar \$14.75-\$44.25. |
| | LEXONE/SENCOR DF | 0.5-1 lb | Late fall or early spring | |
| | SINBAR 80W | 0.5-1 lb | | |
| | VELPAR L | 1-1.5 qt | | |

PASTURES AND RANGES

| Area or Use | Herbicide | Commercial Product per Acre | Application Time | Remarks and Approximate Cost/A Broadcast |
|---|-----------------|--------------------------------|---|---|
| See NebGuide G88-871, "Chemical Control of Rangeland Weeds" for more information. | | | | |
| GRASS SEEDLINGS (Cool and Warm season grasses) | 2,4-D | 1 pt | Grass 5-leaf stage or beyond | For broadleaf weeds. After grasses are well established, increase rate to 1 qt. Cost: \$1.40-\$2.80. |
| SOD SEEDING (Legumes into grass) | GRAMOXONE EXTRA | 1.5-3 pt | Before or immediately 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 short periods only. Add X-77 surfactant. Cost: \$8.80-\$16.90. |
| SOD SEEDING (Native grass planted no-till into short grass range) | ROUNDUP | 1 qt in 10 gal or less water/A | Aug 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. Apply in no more than 10 gallons water per acre and add 2 qt X-77 and 17 lb ammonium sulfate per 100 gallons. Cost: \$9.45-\$18.20. |
| | ROUNDUP | 1 pt | Spring on cool season grasses | |
| ANNUAL OR BIENNIAL BROADLEAF WEEDS IN PASTURES AND RANGES (For specific weeds see page 37-44.) | 2,4-D | 1 qt | 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. Cost: 2,4-D \$2.20; 2,4-D + Banvel \$5.60. |
| | 2,4-D + | 1 qt | | |
| | BANVEL | 0.5 pt | | |
| PERENNIAL BROADLEAF WEEDS IN PASTURES AND RANGES (Includes vervains, broom snakeweed, western ironweed, wooly loco, Flodman thistle and wavy leaf thistle. For other weeds see pages 37-44.) | 2,4-D | 1.5 qt | At bud stage of predominant weed. Oct or Apr for dandelion and musk thistle | 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 Banvel within 1/2 mile of sensitive crops. Cost: 2,4-D \$3.30; 2,4-D + Banvel \$9.00. |
| | 2,4-D + | 1 qt | | |
| | BANVEL | 1 pt | | |

CRP ACRES Establishment

PREPLANT OR PREEMERGENCE

See NebGuide G89-905, Weed Control on CRP Acres for more information.

| Herbicide | Commercial ³ product/A | Application time | Remarks and approximate cost/A |
|-------------------------|--------------------------------------|---|--|
| ROUNDUP | 1 pt | Before or at grass seeding | Will control most emerged seedling grass and broadleaf weeds. Apply Roundup in 10 GPA carrier or less and include surfactant at 0.5% v/v. Ammonium sulfate added at 17 lbs per 100 gal solution improve Roundup performance. Cost: Roundup \$9.60. |
| 2,4-D AMINE or ESTER | 1-2 pt | At least 30 days before grass seeding | Controls most broadleaf annual weeds. Both treatments may injure grass seedlings if applied less than 30 days before planting. Cost: 2,4-D \$1.40-\$2.80; Landmaster \$5.20-\$9.35. |
| LANDMASTER II | 40-72 oz | | |
| GLEAN 75 DF* | 0.33 oz | Preemergence to grasses (before or after grass seeding) | Controls most broadleaf weeds. May be tank mixed with Roundup plus surfactant to control emerged grass weeds. Will injure legumes. Cost: \$6.00. |
| PROWL | 1-2 pt | PPI or PRE | For use on legumes only. Incorporate immediately for best results. Cost: Prowl \$3.25-\$6.50; Treflan \$3.55-\$5.35. |
| TREFLAN | 1-1.5 pt | PPI | |

POSTEMERGENCE

For established grass, see Pasture and Range Section, page 29.
For specific weeds, see Troublesome Weeds Section, page 37 - 44.

| | | | |
|----------------------------------|-------------------------|----------------------------------|---|
| ALLY** | 0.1 oz | After 3-4 leaf stage of grass | Controls most broadleaf weeds. Do not use on soils with pH greater than 8.0. Do not use on grass/legume mixtures. Add surfactant at 0.25% v/v. Cost: \$2.70. |
| BANVEL + 2,4-D | 0.25-0.5 pt 0.5-1 pt | After 5-leaf stage of grass | Controls most broadleaf weeds. Use lower rates warm-season grasses. Do not use on grass/legume mixtures. Established grasses may be treated with 0.5-1 pt Banvel + 0.5-2 pt 2,4-D for perennial weed control. Cost: \$2.40-\$9.00. |
| BUCTRIL | 1.5-2 pt | After 3-leaf stage of grass | Controls many broadleaf weeds. Apply in minimum 10 GPA by air. May be used on grass/legume mixtures after third trifoliolate leaf stage of alfalfa. May be tank mixed with 2,4-D or MCPA for improved control. Tank mix may injure or kill legumes. Cost: \$8.40-\$11.20. |
| CURTAIL | 2-4 pt | Established grasses | Use only on grasses established one season or longer. Controls most broadleaf weeds including thistles. Do not use on grass/legume mixtures. Cost: \$6.00-\$12.00. |
| GLEAN* | 0.33-0.5 oz | After 3-4 leaf stage of grass | Controls most broadleaf weeds. Do not use on soils with pH greater than 7.9. Do not use on grass/legume mixtures. Add surfactant at 0.25% v/v when weeds are emerged. Cost: \$6.00-\$8.10. |
| 2,4-D AMINE or 2,4-D ESTER | 1 pt 0.5 pt | After 5-leaf stage of grass | Controls most broadleaf weeds. Reduce rate 25% if used on warm-season grasses. Will injure or kill legumes. Cost: \$.70-\$1.10. |

*Glean may be applied preemergence (at not more than 0.33 oz/acre) or postemergence (at not more than 0.5 oz/acre) to the following grasses: Blue grama, bluestem, buffalograss, galleta, green needlegrass, indian ricegrass, prairie sandreed, sand dropseed, sand lovegrass, side oats grama, switchgrass, wheatgrass, and Russian or beardless wild-rye. Glean may be applied to tillered bentgrass and orchardgrass **postemergence only** and at not more than 0.5 oz/acre.

ALLY can be applied **postemergence only at 0.1 oz/acre to the following grasses: Orchardgrass, Russian wild-rye, and crested, intermediate, western, tall, bluebunch, pubescent, slender Siberian, streambank, and thickspike wheatgrass.

NON-CROP ACRES

| Area or Use | Herbicide ³ | Commercial Product ^{5,6} | 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 near susceptible plants/trees. Cost: 2,4-D \$2.20; 2,4-D + Banvel \$9.00 |
| | 2,4-D + BANVEL | 1 qt/A | | |
| | TELAR | 1 pt/A | Weeds 0-2'' | |
| | | 1/4-1/2 oz/A | | |
| GRASS SUPPRESSION | OUST | 1 oz/A | Grass 6'-12'' | Do not apply to bare soil. May move if soil moves. Suppresses height and heading of brome-grass and other cool season grasses. Do not use year after year in order to avoid development of resistant weeds. Trace amounts can harm crops and gardens. Imperative that label directions are read and followed. Cost: \$8.00-\$16.00. |
| IRRIGATION DITCHBANKS | KARMEX 80W | 5-10 lb/A | Soon after ditches are open. Treat before weeds appear or soon after | Use enough water to insure good coverage. Use 50 mesh or coarser screens. May injure nearby trees and shrubs. Cost: Karmex \$21.50-\$43.00. |
| | 2,4-D | 1 qt/A | Broadleaf weeds 2-6'' | Cost: \$2.20. |
| | ROUNDUP | 1-4 qt in 10 gal or less water/A | Postemergence when good growth is present | Nonselective. No residual control. Use the lower rate on annual weeds and perennial grasses, the higher rates on perennial broadleaf weeds. With the 1 qt rate of Roundup add a nonionic surfactant at 1/2% v/v plus 17 lb spray grade ammonium sulphate/100 gal. Cost: \$17.50-\$70.00. |
| | ROUNDUP in Herbie Applicator | 1 qt in 1 gal water | | |
| LONG TERM VEGETATION CONTROL | ARSENAL | 1 oz/1000 sq ft | Treat before weeds appear or soon thereafter | Kochia has become resistant to triazines in some areas. Consult label for specific instructions on problem weeds and conditions. Do not use near root zones of trees or other desirable plants. Do not use on land subject to erosion unless erosion is controlled. Cost/1000 sq ft: Hyvar \$3.45; Krovar \$4.60; Karmex \$1.25-\$2.45; Princep \$.55-\$1.05; Spike \$6.00-\$12.00; Arsenal \$1.10. |
| | HYVAR X 80W | 0.5 lb/1000 sq ft | | |
| | or HYVAR XL 2WS | 0.75 pt/1000 sq ft | | |
| | KROVAR I 80W | 0.5 lb/1000 sq ft | | |
| | KARMEX 80W | 0.25-0.5 pt/1000 sq ft | | |
| | PRINCEP 4L | 0.25-0.5 pt/1000 sq ft | | |
| | SPIKE 80W | 0.12-0.25 lb/1000 sq ft | | |
| | or SPIKE 5G | 2-4 lb/1000 sq ft | | |
| PERENNIAL GRASSES (including brome-grass and quackgrass) | ROUNDUP | 2 qt/A in 10 gal or less water/A | Full foliage | Nonselective. Perennial grasses should have good top growth. Kills all annuals. Cost: Roundup \$35.00. |

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
(PPI or PRE on soil or POST on foliage)

| | annual morning glory | barnyardgrass | cocklebur | crabgrass | fall panicum | foxtail | jimsonweed | kochia | kochia-triazine resistant | lambsquarters | nightshade | pigweed | ragweed | R. thistle | sandbur | shattercane/sorghum | smartweed | sunflower | velvetleaf | w. buckwheat | crop safety ^a | soil carryover potential in months ^b |
|-----------------------------------|----------------------|---------------|-----------|-----------|--------------|---------|------------|--------|---------------------------|---------------|------------|---------|---------|------------|---------|---------------------|-----------|-----------|------------|--------------|--------------------------|---|
| Potatoes | | | | | | | | | | | | | | | | | | | | | | |
| Eptam | G | E | P | E | E | E | P | F | F | G | E | G | F | P | E | E | P | P | P | F | G | 1-2 |
| Eptam + Treflan or Prowl-ppi | F | E | P | E | E | E | P | E | 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 | P | E | F | E | E | G | P | P | G | F | G | E | G | 2-6 |
| Sencor/Lexone + Dual or Turbo-pre | P | E | F | F | E | E | G | F | P | 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 | P | E | G | E | F | P | G | G | F | P | G | 2-6 |
| Poast-post | P | E | P | E | E | G | P | P | P | P | P | P | P | P | E | E | P | P | P | P | E | 0 |
| Fieldbeans | | | | | | | | | | | | | | | | | | | | | | |
| Basagran-post* | F | P | E | P | P | P | E | P | P | P | P* | P | G | P | P | P | E | E | G | G | E | 0 |
| Dual + Treflan-ppi | F | E | P | E | E | E | P | F | F | G | G | G | P | F | E | G | P | P | P | F | E | 6-12 |
| Eptam-ppi | G | E | P | E | E | E | P | F | F | G | E | G | F | P | E | E | P | P | P | F | G | 1-2 |
| Eptam + Treflan or Prowl-ppi | F | E | P | E | E | E | P | E | E | G | G | G | P | F | E | E | P | P | P | F | E | 6-12 |
| Poast-post | P | E | P | E | E | G | P | P | P | P | P | P | P | P | E | E | P | P | P | P | E | 0 |
| Eptam + Dual-ppi | F | E | P | E | E | E | P | F | F | G | E | G | P | F | E | G | P | P | P | F | E | 2-5 |
| Eptam + Lasso-ppi | F | E | P | E | E | E | P | G | G | G | E | E | P | F | E | G | P | P | P | F | E | 2-4 |
| Lasso or Dual-ppi | P | E | P | E | E | E | P | P | P | G | G | G | G | P | F | P | P | P | P | P | G | 2-4 |
| Lasso + Treflan/Cannon-ppi | F | E | P | E | E | E | P | G | G | G | G | G | P | F | E | G | P | P | P | F | E | 6-12 |
| Eptam + Sonalan | F | E | P | E | E | E | P | E | E | G | G | G | P | F | E | E | P | P | P | F | E | 6-12 |
| Sugar Beets | | | | | | | | | | | | | | | | | | | | | | |
| Antor-ppi | P | E | P | E | G | E | P | P | P | F | G | G | P | P | G | F | P | P | P | P | G | 2-3 |
| Eptam layby | G | E | P | E | E | E | P | F | F | G | E | G | F | P | E | E | P | P | P | F | G | 1-2 |
| Nortron-ppi | - | G | F | G | G | G | - | G | G | G | F | E | - | F | F | - | G | P | - | G | G | 5+ |
| Nortron + Antor-ppi | P | E | P | E | G | E | P | G | G | E | F | E | P | F | G | F | G | P | P | G | G | 4 |
| Ro-Neet-ppi | P | E | P | E | E | E | P | 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 | F | G | F | G | F | P | P | P | F | F | P | G | G | 1 |
| Betanex-post | F | P | - | P | P | P | P | F | 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 | 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 | P | E | E | P | P | P | P | E | 0 |
| Stinger-post | P | P | G | P | P | P | F | P | P | P | P | P | G | P | P | P | F | G | P | G | G | 12 |
| Onions | | | | | | | | | | | | | | | | | | | | | | |
| Dacthal 75W-pre | P | G | P | E | P | E | P | P | P | E | F | E | P | P | G | P | P | P | P | P | G | 3-8 |
| Buctril 2EC-post | E | P | G | P | P | P | E | F | F | G | E | G | E | G | P | P | E | E | E | E | G | 0 |
| Goal-post | P | P | G | P | P | P | - | F | F | G | F | G | - | F | P | P | - | F | - | G | 1-2 | |
| Fusilade-post | P | E | P | E | E | G | P | P | P | P | P | P | P | E | E | P | P | P | P | E | 0 | |
| Poast-post | P | E | P | E | E | E | P | P | P | P | P | P | P | P | E | E | P | P | P | P | E | 0 |
| Vine Crops | | | | | | | | | | | | | | | | | | | | | | |
| Dacthal 75W-pre | P | G | P | E | P | E | P | 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 | G | P | G | P | G | G | G | 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 | |
| Poast-post | P | E | P | E | E | G | P | P | P | P | P | P | P | P | E | E | P | P | P | P | 0 | |

^aCrop varieties vary in their response to herbicides.

^bThe 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.

POTATO AND FIELDBEANS

| Herbicide | Commercial product per Acre | | | Application Time, Remarks and Approximate Cost/A Broadcast |
|---|-----------------------------|---------------------|--------------------------|--|
| | Sandy Loam < 1 % OM | Silt Loam 1 -2 % OM | Silty-Clay Loam > 2 % OM | |
| Potatoes | | | | |
| EPTAM 7E | 3.5 pt | 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 EPTC. Cost: \$11.40. |
| EPTAM 7E | 2.5 pt | 2.5 pt | 2.5 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 EPTC and injury may occur. Cost: Eptam + Treflan \$11.70; Eptam + Prowl \$13.00-\$14.65. |
| + TREFLAN 4EC | 1 pt | 1 pt | 1 pt | |
| EPTAM 7E | 3 pt | 3 pt | 3 pt | POST BEFORE WEEDS ARE 1" TALL...Highest rate of sunflower and kochia. Do not use on red skinned or early maturing white varieties or within 60 days of harvest. Cost: \$6.40-\$12.75. |
| + PROWL 4EC | 1 pt | 1 pt | 1.5 pt | |
| SENCOR/LEXONE 4L | 0.5-1 pt | 0.5-1 pt | 0.5-1 pt | PRE, PPI, or DRAG-OFF AS PER LABEL...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. Cost: Dual + Sencor/Lexone \$26.25-\$29.65; Sencor/Lexone \$12.75-\$25.50; Prowl + Sencor/Lexone \$16.00-\$17.65; Turbo \$20.30-\$35.55. |
| SENCOR/LEXONE 4L | 1 pt | 1.5 pt | 2 pt | |
| SENCOR/LEXONE 4L with DUAL 8E or with PROWL | 1 pt | 1 pt | 1 pt | Most susceptible weeds less than 4" tall. Potatoes tolerant at all growth stages. Add 2 pints of crop oil concentrate. Good coverage essential for effective control. Cost: \$10.75-\$16.15. |
| TURBO | 2-2.5 pt | 3-3.5 pt | 3-3.5 pt | |
| POAST | 1-1.5 pt | 1-1.5 pt | 1-1.5 pt | |

OTHER REGISTERED TREATMENTS FOR POTATOES: Dacthal (PRE), Lorox (PRE), and Treflan (PRE).

Fieldbeans

| | | | | |
|--|----------------------------|----------------------------|----------|--|
| BASAGRAN 4WS + CROP OIL CONC. | 0.75-1 qt | 0.75-1 qt | | POSTEMERGENCE...At least one trifoliolate leaf fully expanded. Broadleaf weeds 2-4" tall. Weeds showing moisture stress or over 6" tall are poorly controlled. Controls hairy but not eastern black nightshade. Cost: \$12.85-\$16.60. |
| EPTAM 10G or EPTAM 7E | 30 lb or 3.5 pt | 30 lb or 3.5 pt | | PPI...Apply to dry surface soil; immediately incorporate with disc or field cultivator. Apply layby at time of last cultivation as a directed spray or direct granules to the base of the plants before bean pods start to form. Do not feed or pasture vines within 45 days after application. Cost: \$12.90. |
| EPTAM 7E with SONALAN 3EC or with PROWL 4EC | 2.5 pt, 2 pt, 2 pt | 2.5 pt, 2 pt, 2 pt | | PPI...Apply to dry surface soil, immediately incorporate with a disc or field cultivator. Sonalan or Prowl may injure fall seeded small grains, sugar beets or sorghum the following year. Plowing reduces injury. Cost: Eptam + Dual \$18.30; Eptam + Dual \$18.30; Eptam + Lasso \$18.95; Eptam + Eptam + Sonalan \$14.15; Sonalan + Dual \$16.15; Sonalan + Lasso \$16.80; Eptam + Prowl \$14.65. |
| EPTAM 7E or SONALAN 3EC with DUAL 8E or with LASSO 4EC | 2.5 pt, 2 pt, 1.5 pt, 4 pt | 2.5 pt, 2 pt, 1.5 pt, 4 pt | | |
| EPTAM 7E + 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. Cost: Lasso + Treflan \$14.35; Dual + Treflan \$13.70; Eptam + Treflan \$10.85; Cannon \$11.30. |
| TREFLAN 4EC with DUAL 8E or with LASSO 4EC | 1 pt, 1.5 pt, 4 pt | 1 pt, 1.5 pt, 4 pt | | |
| CANNON | 4 qt | 4 qt | | PPI or SURFACE MIX...Surface mixing will improve weed control and reduce crop injury. Cost: Dual \$16.90; Lasso \$16.20. |
| LASSO 4EC or DUAL 8E | 3 qt, 2.5 pt | 3 qt, 2.5 pt | | |
| POAST | 1-1.5 pt | 1-1.5 pt | 1-1.5 pt | POSTEMERGENCE...Susceptible weeds less than 4" tall. Fieldbeans tolerant at all growth stages. Add 2 pt COC per acre. Good coverage essential. Cost: \$10.75-\$16.15. |

Harvest Aid

| | | | | |
|-----------------|----------|----------|----------|--|
| GRAMOXONE EXTRA | 1-1.5 pt | 1-1.5 pt | 1-1.5 pt | Desiccant. Apply when at least 80% of pods are yellowing and no more than 30% of leaves still green. Do not harvest within 7 days of application. Add 1 qt nonionic surfactant/100 gal. Cost: \$6.10-\$8.80. |
|-----------------|----------|----------|----------|--|

REGISTERED TREATMENTS FOR FIELDBEANS: Amiben (PRE), Dacthal (PRE), Furloe (PRE), Treflan (PPI).

SUGAR BEETS

Commercial Product per Acre

| Herbicide | Commercial Product per Acre | | | | | | Application Time, Remarks and Approximate Cost/A Broadcast |
|-------------------|-----------------------------|------------------|--------|---------------------|------------------|---------|--|
| | Sandy Loam 1 % OM | | | Silt Loam 1 -2 % OM | | | |
| | Broad-cast | Product/7'' Band | | Broad-cast | Product/7'' Band | | |
| | 22'' Row | 30'' Row | | 22'' Row | 30'' Row | | |
| PPI or PRE | | | | | | | |
| ANTOR 4ES | 3 qt | 30 oz | 22 oz | 4 qt | 41 oz | 30 oz | 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. Cost: Antor \$28.80-\$38.40; Nortron \$37.20-\$62.00; Nortron + Antor \$40.60-\$64.00. |
| NORTRON 1.5EC | 3 qt | 30 oz | 22 oz | 5 qt | 51 oz | 36 oz | |
| NORTRON 1.5EC | 2.5 qt | 25 oz | 18 oz | 4 qt | 40 oz | 29 oz | |
| + ANTOR 4ES | 1 qt | 10 oz | 7 oz | 1.5 qt | 15 oz | 11 oz | |
| RO-NEET 6E | 2.0 pt | 10 oz | 7.5 oz | 3.3 pt | 17 oz | 12 oz | 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 if postemergence treatments are planned. Primarily annual grass control. Cost: \$15.00-\$24.75. |
| or RO-NEET 10G | 15 lb | 4.75 lb | 3.5 lb | 25 lb | 8 lb | 5.75 lb | |

Layby

| | | | | | | | |
|-----------------|---------|---------|--------|---------|--------|--------|---|
| EPTAM 7E | 2.25 pt | 11.5 oz | 8 oz | 3.5 pt | 18 oz | 13 oz | Apply Eptam after thinning and clean cultivation; incorporate immediately 2'' deep with a cultivator, Cost: \$7.30-\$11.40. |
| or EPTAM 10G | 20 lb | 6 lb | 4.5 lb | 30 lb | 9.5 lb | 7 lb | |
| TREFLAN 4EC | 1 pt | 5 oz | 3.5 oz | 1.25 pt | 6 oz | 4.5 oz | Sugar beets 2-6'' tall. Cover exposed beet roots with soil before Treflan application to reduce root girdling. Cost: \$3.55-\$4.45. |

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 | 2-3 | 10-15 | 7.5-11 | Any stage of sugar beet growth Weeds cotyledon stage. Repeat in 5-7 days. | Use lower rates on small beets or when using a split-application. Works best on Nortron or Ro-Neet treated fields but wait till 4-leaf stage if beets show signs of injury. Treat in late afternoon to reduce injury. | |
| BETAMIX 1.3EC | 4.5-6 | 23-31 | 17-22 | Sugar beets past two true leaf stage | Use highest rate as weed size increases. Cost: Brdcst \$40.50-\$54.00; 22'' row \$12.90-\$17.35; 30'' row \$9.50-\$12.30. | |
| 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. Cost: Brdcst \$9.50-\$19.00; 22'' row \$3.00-\$6.30; 30'' row \$2.40-\$4.50. | |
| 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. Cost: \$12.35-\$23.10. | |
| STINGER | 0.25-0.66 | 1.3-3.4 | 1.0-2.5 | Beets 2-8 true leaves; Canada thistle rosette to pre-bud. | Use lower rates for annual weeds and higher rates for Canada thistle. Do not plant or rotate for 1 year after treatment to any crop except small grains or corn. Cost: \$15.65-\$41.25. | |

OTHER REGISTERED TREATMENTS FOR SUGAR BEETS: Betanal (POST), 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).

VINE CROPS AND ONIONS

| Herbicide | Commercial Product per Acre | Application Time | Remarks and Approximate Cost/A Broadcast |
|-----------------------------|-----------------------------|-----------------------------------|--|
| Melons and Cucurbits | | | |
| PREFAR + 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. Cost: \$48.80-\$80.00. |
| DACTHAL 75W | 8-14 lb | Crop 4-5 true leaves | Crop should be weeded prior to application. Controls annual grasses. Use lower rate on sandy soil. Cost: \$38.40-\$67.20. |
| 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. Cost: \$3.55-\$5.35. |
| POAST | 1-1.5 pt | Grasses most susceptible under 4" | Don't apply within 14 days of harvest. Crop oil concentrate and good coverage essential for effective control. Cost: \$10.75-\$16.15. |
| COMMAND (Pumpkins only) | 2.0 pt | Preplant | Immediately incorporate. Use on pumpkins only. Controls many annual grasses and broadleaf weeds. Cost: \$16.00. |

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. Cost: \$38.40-\$67.20. |
| BUCTRIL | 1-1.5 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. Cost: \$5.60-\$8.40. |
| GOAL | 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. Cost: \$5.76-\$12.00. |
| FUSILADE 2000 | 1.5 | Shattercane and corn 12"-18". Other annual grasses less than 4" | Crop oil concentrate and good coverage essential for effective control. Don't tank mix with Buctril. Cost: \$10.75-\$16.15. |
| POAST | 1-1.5 pt | | |

TREES AND SHRUBS INCLUDING CHRISTMAS AND FRUIT TREES*

| Herbicide | Rate Per Acre | Application Time | Remarks and Approximate Cost/A Broadcast |
|---|--------------------------|--|--|
| *CASORON 50W or CASORON 4G or *NOROSAC 4G | 8 lb 100 lb 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. Cost: \$125.00. |
| DACTHAL 75W | 14-16 lb | Preemergence | Application must be made before weed seed germination. Two applications may be necessary for season long weed control. Cost: \$67.20-\$76.80. |
| 2,4-D AMINE | 1 qt | Postemergence to weeds | Keep off new bark and foliage. Controls broadleaf weeds. Cost: \$2.20. |
| *FUSILADE 2000 or *POAST | 2 pt 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. Cost: Fusilade \$23.10; Poast \$23.10. |
| GOAL | 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. Cost: \$38.40-\$76.80. |

TREES AND SHRUBS INCLUDING CHRISTMAS AND FRUIT TREES* con't.

| Herbicide | Rate Per Acre | Application Time | Remarks and Approximate Cost/A Broadcast |
|------------------|--------------------------|--|--|
| *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. Cost: \$10.75-\$21.50. |
| *GRAMOXONE EXTRA | 1.5-3 pt | Directed post-emergence | Nonselective contact herbicide. Keep spray off tree foliage. Add X-77 surfactant. Cost: \$8.10-\$16.20. |
| *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 lb on sandy, low organic matter, 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. Cost: \$5.25-\$17.40. |
| *ROUNDUP | 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. Add surfactant 1/2% v/v with 1 qt rate. Cost: \$17.50-\$70.00. |
| *SOLICAM 80WP | 2.5-5.0 lb | Preemergence, late fall or early spring | Fruit trees only. May be combined with Karmex and Princep for improved broadleaf control. Cost: \$27.00-\$54.00. |
| *SURFLAN A.S. | 2-4 qt | Preemergence | Fruit trees only. May be combined with Karmex and Princep for improved broadleaf control. Cost: \$30.00-\$60.00. |
| TREFLAN | 1-2 pt | Preplant | Incorporate 2-3" deep prior to planting. After planting adjust machine to throw treated soil towards trees in the row. Cost: \$3.55-\$7.10. |
| VELPAR L | 1.8-3.6 qt | 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. Adjacent broadleaf trees may be injured. Cost: \$40.65-\$81.30. |

*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 aquatic weed growth becomes dense to avoid fish suffocation due to oxygen depletion from decaying vegetation. When dense weed growth is present in fish containing waters, treat no more than one-half of the area. After vegetation in the treated area disappears treat the remainder of the water.

| Herbicide | Rate Per AF (Acre Foot) or SA (Surface Acre) | Weeds Controlled | Application Time | Remarks and Approximate Cost |
|---|--|---|---|--|
| COPPER SULFATE CRYSTALS or COPPER CHELATES (Cutrine plus, Algetol or Algecide) | 5.4 lb/SA 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. Cost/SA: Copper Sulfate \$3.90. |
| AQUATHOL G or AQUATHOL K | 13-135 lb/AF 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. Cost/AF: \$14.30-\$148.50. |
| AQUAZINE (Simazine) | 1.7-6.8 lb/AF | Algae (Moss) Chara Coontail 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. Cost: \$9.45-\$37.80. |

AQUATIC WEED CONTROL

Slow Moving and Still Water con't

| Herbicide | Rate Per AF (Acre Foot) or SA (Surface Acre) | Weeds Controlled | Application Time | Remarks and Approximate Cost |
|--|--|--|---|---|
| DIQUAT | 1-2 gal/SA | Arrowhead Cattail Bulrush Elodea Pondweed | 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. Cost: \$68.00-\$136.00. |
| NOROSAC 10G | 100-150 lb/ acre | Coontail Duckweed Naiad Milfoil | Before weed growth occurs | Do not use for irrigation, livestock or humans. Do not use fish for 90 days. Cost: \$125.00- \$187.50/acre. |
| 2,4-D AMINE or ESTER or 2,4-D 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. Cost: \$4.20-\$11.20. |
| RODEO + ORTHO X-77 | 1 gal/SA 2 qt | Most annual and perennial weeds | Apply to well emerged vegetation | Can be applied to most water situations. No restrictions on use of water for irrigation, recreation and domestic purposes. Cost: \$109.15. |

STOCK AND NURSE TANKS

Dissolve 1 oz copper sulfate in 1 pt of water in a glass jar. Add 7.5 tablespoons of the prepared solution to each 1,000 gallons of water. Mix thoroughly. Water can be used for crop spraying and livestock watering. Increase rate if water is extra hard.

TROUBLESOME WEEDS AND WOODY PLANTS

Best control will be obtained if treatments are made when plants are actively growing. Treatment in following years may be required. 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.

CUT STUMP TREATMENTS—TREES and WOODY PLANTS

| Herbicide | Herbicide Concentration | Remarks and Cost |
|----------------|-------------------------|--|
| 2,4-D LV ESTER | 2 qt/10 gal diesel | Use to prevent resprouting of cut stumps. Apply to runoff to freshly cut surface. Delayed applications less effective. See NebGuide G84-704 Brush and Woody Plant Control. Cost/10 gal of solution: 2,4-D ester \$5.50 + disel, Crossbow \$21.60 + diesel. |
| CROSSBOW | 2 qt/10 gal diesel | |
| TORDON RTU | Use undiluted | |

| Weed | Herbicide ³ | Product Per Acre or Per 100 Gallons ^{5,6} | Application Time | Remarks and Approximate Cost/A Broadcast |
|--|-----------------------------|--|---------------------------------|--|
| ALFALFA (for control of alfalfa in corn or sorghum) | 2,4-D AMINE + | 0.25 pt | Alfalfa with 4-6" growth | Use drop nozzles on crop taller than 8". See no-till section of corn, sorghum or soybeans to kill alfalfa prior to planting. Sorghum 3-5 leaf stage. Cost: 2,4-D + Banvel \$3.95; Banvel \$3.40. |
| | Banvel (corn only) or | 0.5 pt | | |
| | Banvel | 0.5 pt | | |
| ALFALFA (for control prior to planting fieldbeans, wheat, and potatoes) | 2,4-D | 1.5-2 qt | Alfalfa with 4-6" new growth | Delay planting wheat 15 days and delay plant- ing fieldbeans and potatoes 30 days after ap- plication. Ester formulations are more persis- tent than amine formulations. Cost: \$4.20-\$5.60. |

TROUBLESOME WEEDS AND WOODY PLANTS

| Weed | Herbicide ³ | Product Per Acre or Per 100 Gallons ^{5,6} | Application Time | Remarks and Approximate Cost/A Broadcast |
|--|---|--|--|--|
| ARTICHOKE JERUSALEM | 2,4-D AMINE + Banvel | 0.5 pt 0.5 pt | 12-18" tall | For use in corn. Use drop nozzles on corn taller than 8". Cost: \$3.95. |
| | Curtail | 2.0 pt | 12-18" tall | |
| | 2,4-D LV ester | 1 qt | 18-24" tall | For use where no crop is present. Cost: 2,4-D \$2.80; Curtail \$6.00. |
| BLUE MUSTARD | 2,4-D LV ester 2,4-D amine | 0.5 pt 1 pt | Nov 15-Mar 15 before blue mustard stem elongation | Use only on fully tillered wheat. Cost: \$.70-\$1.10. See NebGuide G74-92 Blue Mustard Control. |
| | Glean 75DF + 2,4-D LV ester | 0.17-0.33 oz 4.0 oz | Spring, 2"-4" broadleaf weeds | Do not use on soils with pH of 7.9 or higher. Use only on continuous wheat or wheat fallow. Use Glean east of Hwy. 183. Cost: Ally \$2.70; Glean + 2,4-D \$3.45-\$6.35. |
| | Ally 60 DF + 2,4-D LV ester | 0.1 oz 4.0 oz | | |
| | | | | |
| | | | | |
| BUCKBRUSH (snowberry) | 2,4-D LV ester | 1-2 qt | Full foliage (May 10-25) | Use sufficient water to insure good coverage. Cost: \$2.80-\$5.60. |
| BUFFALOBUR | Atrazine 4L | 3 qt | Preplant or preemergence in corn | Reduced rates less effective. Cost: \$7.80. |
| | Buctril 2EC | 1.5 pt | Weeds 3-5 leaf stage in corn or sorghum | Plants taller than 4" not controlled. Cost: \$8.40. |
| | Blazer 2S | 1 qt | Weeds 3-4 leaf stage in soybeans | Weeds must be small. Follow-up treatments necessary. Cost: \$15.00. |
| | Eradicane 6.7E or Eradicane Extra | 5 pt 5.5 pt | Preplant to corn | Apply to dry surface soil and immediately incorporate by cross tandem discing or similar mixing. Cost: \$14.70-\$18.70. |
| | 2,4-D + Banvel | 1 pt 0.5 pt | Postemergence on corn | Plants must be small. Cost: \$4.80. |
| | | | | |
| BURCUCUMBER and WILD CUCUMBER | Buctril | 1.5 pt | Weeds 3-5 leaf stage in corn | Thorough coverage required. Cost: \$9.00. |
| | Atrazine 4L | 3 qt | Preemergence in corn | Atrazine can also be used postemergence. Cost: Atrazine \$7.80; Princep \$12.60. |
| | Princep 4L | 3 qt | Preemergence in trees or corn | |
| | Sencor/Lexone 4L (split-application) | 0.5 pt + 0.5 pt | Preplant plus preemergence | Split-shot in soybeans. Cost: \$12.75. |
| BURSAGE, SKELETONLEAF AND WOOLLYLEAF | Tordon 22K | 2 qt | Flower bud stage or when growing actively | Non-crop areas. Tordon may remain in soil for three or more years. Cost: \$49.60. |
| | 2,4-D + Banvel | 1 qt + 1 qt | June or when growing actively | See remarks for field bindweed. If soil moisture conditions are poor, use oil-water emulsions as a carrier. Cost: \$15.80. |
| | | | | |
| CANADA THISTLE | Tordon 22K | 1 qt | Fall-actively growing or spring-early flower bud | For non-crop areas and spot treatment in pasture and range. Tordon may remain in the soil for 3 or more years. Cost: \$24.80. See NebGuide G80-509 Canada Thistle Control. |
| | 2,4-D + Banvel | 1 qt 1 qt | Fall-actively growing or spring-early flower bud | Do not plant small grains for 45 days or sugar beets the following year. See remarks for field bindweed. Cost: \$15.80. |
| | Roundup | 2-3 qt in 10 gal or less water | Flower bud stage or in fall when growing actively | Idle ground or spot treatment in cropland before head or pod fill of crop. Avoid tillage for 3 days. Cost: \$35.00-\$52.50. |
| | Banvel | 1-2 qt | Fall-actively growing or spring- early flower bud | 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. Cost: \$13.60-\$27.20. |
| | Curtail Stinger | 2-4 pts 0.5-0.67 pt | Rosette to pre-bud or in fall when actively growing | Curtail — use lower rate in wheat and barley, higher rate in fallow or CRP. Stinger for use in sugarbeets. Cost: Curtail \$6.00-\$12.00; Stinger \$31.25-\$41.90. |
| | Ally + Surfactant Telar + Surfactant | 0.1 oz 0.5 oz | 4"-6" stage | Telar for use in non crop land only. Use Ally in wheat, barley, or fallow to be planted to winter wheat. One application suppresses Canada thistle. Cost: \$3.05-\$6.10. |
| | | | | |
| | | | | |
| | | | | |

TROUBLESOME WEEDS AND WOODY PLANTS

| Weed | Herbicide ³ | Product Per Acre or Per 100 Gallons ^{5,6} | Application Time | Remarks and Approximate Cost/A Broadcast |
|---|---|--|--|--|
| CACTUS (Prickly Pear) | Tordon 22K | 1-2 pt | Early summer | Spot treatment in pasture and grazingland. Cost: \$12.40-\$24.80. |
| 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 necessary. Cost: 2,4-D \$16.80; Dowpon \$29.00. |
| | Dowpon M 74SP | 13.5 lb + 0.5% emulsifier | After flowering to fruiting | |
| | Roundup | 3 qt in 10 gal or | At flowering | Avoid water contamination. Cost: \$52.50. |
| CHEATGRASS | See Downy Brome | | | |
| COCKLEBUR | See Velvetleaf | | | |
| COTTONWOOD, WILLOWS & SIBERIAN ELM | 2,4-D LV ester | 2-3 qt | Full foliage (Jun-Jul); basal treatment anytime | 2,4-D with aerial equipment at least 5 gal carrier/A; annual treatment for 2-3 years may be necessary. Basal or stump treatment: 2 qt of herbicide/10 gal of diesel; apply to point or runoff. Cost: 2,4-D \$5.60-\$8.40; Crossbow \$43.00. |
| | Crossbow | 1 gal | | |
| | Krenite S | 2-3 gal in 100 gal water + surfactant | Late Jul, Aug and Sep | Has little effect on grasses. Results show the following spring. Cost: \$87.00-\$130.50. |
| | Spike 20P | 0.25 oz/1" dia | Spring or fall | Apply under drip line. Cost: \$8.60/lb. |
| | Velpar RP | 4 ml/1" dia | Spring with spot gun to tree base | Cost: \$.08/tree inch. |
| DEVILSCLAW | See Velvetleaf for control in corn & milo | | | |
| DOCK; CURLED & PALE | 2,4-D | 1 qt | Before flowering in spring or fall | For use on idle ground or grassland. Cost: \$6.20. |
| | + Banvel | 0.5 pt | | |
| DOGWOOD | Banvel | 1-2 qt | Full foliage during Jun | Ground application only. Observe all drift precautions when using within 1/2 mile of sensitive crops. Cost: Banvel \$13.60- \$27.20; Crossbow \$43.00-\$64.50. |
| | Crossbow | 1.0 to 1.5 gal | | |
| | Spike 20P | 0.25 oz/1" dia | | |
| DOWNY BROME | AAtrex or Atrazine 4L | 2 qt | Preemergence (fall or spring prior to Apr 1) | Use in waste areas such as fence rows and ditchbanks. See pages 24 and 25 for control in alfalfa and rangeland; page 12 for control in fallow. Cost: AAtrex/Atrazine \$5.20; Princep \$8.40; Oust \$8.00. |
| | Princep 4L | 2 qt | | |
| | Oust (non-cropland) | 1-2 oz | Early spring | |
| | Far-Go 10G | 15 lb | Preplant to winter wheat | |
| | Treflan | 1-1.5 pt | | |
| | Alternate system | | | |
| FIELD BINDWEED (when treating crops adjust rates) | 2,4-D | 1 qt | Vigorous fall growth or flower bud stage in spring | Avoid tillage 5 weeks before and 1 week after application. Do not plant small grains for 15 days after 2,4-D and 45 days after Banvel. Plan to treat for several consecutive years. Cost: 2,4-D \$2.20; 2,4-D + Banvel \$5.65- \$9.00. |
| | 2,4-D + Banvel | 0.5-1 pt | | |
| | Banvel | 1-2 pt | | |
| | Landmaster BW | 54 oz | Late summer or fall when actively growing | For Roundup apply in 10 gal or less water per acre, add 2 qt X-77 or similar surfactant plus 17 lb ammonium sulfate per 100 gallons. Avoid tillage for 5 days. Do not plant small grains for 15 days after 2,4-D and 45 days per pint of Banvel. Broadleaf crops may be injured 2 years after high rates of Banvel in western Nebraska. Cost: Roundup + 2,4-D \$10.55; Roundup + Banvel \$12.85; Banvel \$13.65-\$27.20; Landmaster \$8.65. |
| | Roundup 3WS | 1 pt | | |
| | + 2,4-D amine | 0.5 pt | | |
| | or Banvel | 1-2 qt 0.5 pt | | |
| | Tordon 22K | 1 pt | Fall after wheat harvest. | Use in a wheat fallow rotation. Retreat with 2,4-D or Landmaster in spring. Cost: \$15.00- \$27.50. |
| | + 2,4-D | 2 pt | | |
| | Tordon 22K | 1 pt | | |
| + 2,4-D | 2 pt | Fall after harvest | Use in a wheat fallow rotation. Retreat with 2,4-D or Landmaster in spring. Cost: \$15.00-\$27.50. | |

TROUBLESOME WEEDS AND WOODY PLANTS

| Weed | Herbicide ³ | Product Per Acre or Per 100 Gallons ^{5,6} | Application Time | Remarks and Approximate Cost/A Broadcast |
|--|--|--|--|---|
| HEMP (Marijuana) | 2,4-D | 1 qt | 2-12" tall | Cost: \$2.20. |
| HEMP DOGBANE | 2,4-D | 1 qt | Flower bud stage-spring | Use lower rates in crops. Cost: \$2.20. |
| | 2,4-D | 1-1.5 qt | After corn silks turn brown or milo is in the soft dough stage. 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. Dogbane roots should have pink swollen buds. Cost: 2,4-D \$2.20-\$3.30. See NebGuide G84-665 Hemp Dogbane. |
| | Roundup | 4 qt | Late summer or fall | Idle ground or spot treatment in cropland before head or pod fill of crop. Avoid tillage for at least 7 days after treatment. Cost: \$70.00. |
| HOARY CRESS | 2,4-D LV ester | 2 qt | Rosette stage in the fall or early bud in spring | Suppression only. Growth starts in early spring. Treat twice a year for 2 to 3 years. Cost: \$5.60. |
| JOHNSONGRASS (see shattercane for seedling control) | Fusilade 2000 | 1.5 pt | 12-18" new growth | For use in soybeans. Add 1 qt/A crop oil con- centrate. Cost: Fusilade \$17.65; Poast \$17.65. |
| | Poast + Am sulfate | 1.5 pt 2.5 lb | | |
| | Roundup | 2-3 qt | 12" through boot stage | Idle ground or spot treatment in cropland before head or pod fill of crop. Avoid tillage for 7 days. Cost: \$35.00-\$52.50. |
| | AAtrex or Atrazine 4L | 2 qt | Preemergence (fall or spring prior to Apr 1) Preplant to winter wheat | Use atrazine + Princep on waste areas such as fence rows and ditchbanks. See pages 28 and 29 for control in alfalfa and rangeland; page 23 for control in fallow. Fargo and Treflan will give approximately 50%-80% control. With Far-Go wheat must be planted with hoe drill. Will not control emerged weeds. Cost: AAtrex/Atrazine \$5.20; Princep \$8.40; Fargo \$15.00; Treflan \$3.55-\$5.35. See NebGuide G75-210 Jointed Goatgrass. |
| Princep 4L | 2 qt | | | |
| Far-Go 10G | 15 lb | | | |
| | Treflan | 1-1.5 pt | | |
| | Alternate system | | | Crop rotation—Include a spring seeded crop in the rotation. |
| KOCHIA (triazine resistant). May have to spray twice or cultivate for row crops. | | | | |
| | Banvel | 0.5 pt | Preplant to corn or sorghum. Kochia less than 2" tall | Wait 20 days before planting sorghum. Include appropriate preemergence herbicides. Cost: Fallow Master \$9.00; Landmaster \$8.65; Banvel 3.40. |
| | Landmaster BW | 54 oz | Preplant to corn or sorghum. Kochia less than 5" tall | |
| | | | Postemergence to corn or sorghum | Use higher Buctril rate for taller Kochia. |
| | Banvel | 0.5 pt | Kochia less than 2" tall | Sorghum must have 3-5 leaves when using Banvel. Buctril + Banvel on corn only. Cost: Banvel \$3.40; Buctril \$5.60-\$8.40; Buctril Banvel \$9.00. Buctril + Atrazine \$6.90-\$9.70. |
| | Buctril | 1.0-1.5 pt | | |
| | Buctril + Banvel | 1-1.5 pt 0.5 pt | | |
| | Buctril + Atrazine or Buctril + Atrazine | 2 pt 3 pt | Kochia 2" Kochia 4" | |
| | Command 4EC | 1.5 pt | Preplant incorpor- ated in soybeans, before kochia emerges | Do not rotate to small grains. Cost: \$12.00. |
| | Glean or Landmaster | 0.33 oz 54 oz | Spring prior to winter wheat seeding. Kochia less 5" tall | Include appropriate preemergence herbicides. Glean only labeled in certain areas. Cost: Landmaster \$7.00; Glean \$6.00. |

TROUBLESOME WEEDS AND WOODY PLANTS

| Weed | Herbicide ³ | Product Per Acre or Per 100 Gallons ^{5,6} | Application Time | Remarks and Approximate Cost/A Broadcast |
|--------------------------------------|--------------------------------|--|--|---|
| LEAFY SPURGE | 2,4-D LV ester | 2 qt | Bud stage spring or late fall | Retreatment necessary. Annual applications gradually reduce infestation. Cost: 2,4-D LV \$5.60; 2,4-D + Tordon \$14.60. |
| | 2,4-D amine + Tordon 22K | 1 qt 1 pt | | |
| | Tordon 22K | 2-4 qt | Fall or spring | Tordon for non-crop areas and spot treatment in pasture and range. Roundup for use in trees or areas where grass stand is not a factor. Cost: Tordon \$49.60-\$99.20; Roundup + 2,4-D \$19.70. |
| | Roundup + 2,4-D amine | 1 qt 1 qt | Sep to early Oct + spring | |
| LOCUST, HONEY AND BLACK | Banvel | 2 qt | Full foliage during Jun; cut stump or basal treatment anytime | Ground application only. Observe all drift precautions. See cottonwood for basal and cut stump treatment. Cost: Banvel \$27.20; Crossbow \$43.00-\$64.50. |
| | Crossbow | 1.0-1.5 gal | | |
| | Spike 20P | 0.25 oz/1" dia | Spring or fall | Apply under drip line. Cost: \$8.60/lb. |
| | Velpar RP | 4 ml/1" dia | Spot gun-spring | Cost: \$.08/tree inch. |
| MILKWEED, COMMON | 2,4-D + Banvel | 1 qt 0.5 pt | Flower bud to bloom stage | Do not plant small grains for 15 days after 2,4-D + Banvel treatment. 2,4-D + Banvel suppresses growth for 1 year. Cost: \$6.20. |
| | Roundup | 3 qt in 10 gal or less water/A | Flowering thru maturity; ropewick application in soybeans | Idle ground or spot treatment on cropland before head or pod fill of crop. Avoid tillage for 7 days. Cost: \$52.50. |
| MILKWEED, HONEYVINE (climbing) | 2,4-D amine | 1-2 pt | Before vines reach 3' in length | For use in corn or sorghum. Use lower rates in sorghum. Gives suppression only. Cost: \$.70-\$2.20. See NebGuide G77-384 Common Milkweed. |
| | 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. Cost: \$6.20. |
| MUSK AND PLUMELESS THISTLE | Curtail | 2 pt | Late fall or spring before bolting | Use in wheat, grasses for seed, fallow and CRP. Cost: \$6.00. |
| | Escort | 1 oz | Bolted plants in spring prior to flowering | Use in noncropland and roadsides. Add sur- factant 1 pint/100 gal. Cost: \$34.50. |
| | 2,4-D | 1.5-2 qt | Late fall treatment of rosettes or spring before flowering stalks lengthen | Annual treatments necessary for control of new seedlings. Fall applications after trees drop leaves and before leafing out in the spring reduces damage. Do not apply after "soil freeze-up" in the fall. For use on ranges and permanent pastures only. Cost: 2,4-D \$4.20-\$5.60; 2,4-D + Banvel \$6.20; Tor- don \$4.80-\$6.40. See NebGuide G76-160 Musk Thistle. |
| | 2,4-D + Banvel | 1 qt 0.5 pt | | |
| | Tordon 22K (musk only) | 6-8 oz | Oct 1-Dec 1 or spring before flowering stalks lengthen | |
| OAKS | Banvel | 2 qt | Full foliage Jun to Jul; cut stump or basal treatment anytime | Non-cropland only for Spike and Crossbow. Cost: Banvel \$25.40; Crossbow \$64.50; Spike \$8.60/lb; Velpar RP \$.08/tree inch. |
| | Crossbow | 1.5 gal | | |
| | Spike 20P | 0.25 oz/1" dia | Spring or fall | |
| | Velpar RP | 4 ml/1" dia | Spot gun-spring to tree base | |
| OSAGE ORANGE | Crossbow | 1.0 - 1.5 gal | Full foliage Jun to Jul; basal treatment anytime | Non-crop areas only. See remarks for cotton- wood. Cost: Crossbow \$43.00-\$64.50; Spike \$8.60/lb; Velpar RP \$.08/tree inch. |
| | Spike 20P | 0.5 oz/1" dia | Spring or fall | |
| | Velpar RP | 4 ml/1" dia | Spring. Spot gun Apply to tree base | |
| PERENNIAL SOW THISTLE | 2,4-D LV ester | 1.5 qt | Fall rosette or spring bud stage | See remarks for field bindweed. Cost: \$4.20. |

TROUBLESOME WEEDS AND WOODY PLANTS

| Weed | Herbicide ³ | Product Per Acre or Per 100 Gallons ^{5,6} | Application Time | Remarks and Approximate Cost/A Broadcast |
|---|--|--|--|---|
| POISON IVY | Crossbow | 1.0 - 1.5 gal | Full foliage (Jun) | Thoroughly wet all vegetation. Do not apply to cropland. Cost: \$ 1.10/1000 sq ft. |
| | Amino Triazole/ Weedazol 90SP or Amitrol-T/ Cytrol-T 2WS | 2 tbs/gal of water 0.5 cup/ gal of water | | |
| POISON HEMLOCK | 2,4-D + Banvel | 1 qt 0.5 pt | Rosettes-fall or early spring | Cost: \$6.20. |
| 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. Cost: \$2.80. |
| PURSLANE (In fallow) | 2,4-D LV ester | 1 qt | When growing actively | Till 5-7 days after treatment. Do not plant small grains for 15 days. Cost: 2,4-D \$2.80; Banvel \$3.40-\$6.80. |
| | Ally + | 0.1 oz | Early post | Add surfactant when used post-emergence. Cost: Ally + 2,4-D \$3.70. |
| | 2,4-D | 4 oz | | |
| RAGWEED, WESTERN (perennial) | 2,4-D LV ester | 1 qt | Early summer | Follow-up treatments may be necessary. Cost: \$2.80. |
| RED CEDAR | Spike 20P | 0.5 oz/1'' dia | Spring or fall | Spike for use in non-crop areas only. Tordon and Velpar RP can be used on grazingland. Cost: Spike \$8.60/lb; Tordon \$99.00; Velpar RP \$.08/tree inch. |
| | Tordon 22K | 4 qt/100 gal | Spring or fall | |
| | Velpar RP | 4 ml/1'' dia | Spot gun in spring to tree base | |
| | Mechanical shear or prescribed burning also effective. | | | |
| RUSSIAN KNAPWEED | Banvel 4WS | 1-2 qt | Early flower bud stage | 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. Cost: Banvel \$13.60-\$27.20; Tordon \$49.50. |
| | Tordon 22K | 2 qt | | |
| RUSSIAN OLIVE | 2,4-D + | 2 qt | Full foliage (early Jun) | See remarks for cottonwood. Cost: \$19.20. |
| | Banvel 4WS | 1 qt | | |
| | Spike 20P | 0.5 oz/1'' dia | Spring or fall | Use on non-cropland only. Cost: \$8.60/lb. |
| RUSSIAN THISTLE | See Kochia for controls. | | | |
| SAGEBRUSH (sand and fringed and green sagewort) | 2,4-D LV ester | 1.5-2 qt | 4-8'' new growth (Jun) | 1.5 qt/A 2,4-D adequate on sand sagebrush. Cost: \$4.20-\$5.60. See NebGuide G80-510 Sagebrush Control. |
| SANDBUR | Accent + | 0.67 oz | Postemergence in Corn. Sandbur 1-3 leaf Corn ≤ 12'' | Cost: Tandem \$16.00; Accent \$20.00. See NebGuide G74-121 Field Sandbur Control. |
| | COC | 1% | | |
| | Tandem + | 1 pt | | |
| | Atrazine 4L + | 3 pt | | |
| | Oil | 2 pt | | |
| Treatments listed for shattercane also control or suppress sandbur. | | | | |

TROUBLESOME WEEDS AND WOODY PLANTS

| Weed | Herbicide ³ | Product Per Acre or Per 100 Gallon ^{5,6} | Application Time | Remarks and Approximate Cost/A Broadcast |
|---|-------------------------|---|--|--|
| Corn treatments | | | | |
| SHATTERCANE | Accent | 0.67 oz | Corn 2-6 leaf Shattercane 4''-6'' | Use with COC or surfactant. Do not use if Counter was applied to the corn or within 20 days of an at planting or cultivation application of any organophosphate insecticide. Do not apply Accent 3 days before or 7 days after a foliar postemergence organophosphate treatment. Do not apply Beacon within 10 days of a foliar postemergence organophosphate treatment. Beacon may be applied at 0.38 oz followed by a second 0.38 oz treatment if required. Corn hybrids vary in tolerance to Beacon. Cost: \$19.50. |
| | Beacon | 0.75 oz | Corn 4''-20'' Shattercane 4''-6'' | |
| | Eradicane Extra 6E | 6.7 pt | Preplant to corn | |
| | Sutan + | 7.3 pt | | |
| | Princep or Bladex 4L | 2 qt | Preplant to corn. Repeat at 1/2 rate at planting | |
| | + Eradicane Extra | 5-5.3 pt | | |
| | or Sutan + | 7.3 pt | | |
| | Dual 8E | 2.5 pt | | |
| | Lasso 4EC | 4 qt | Corn 2-leaf through 30'' weed unemerged | |
| | Treflan 4EC | 1.5-2 pt | | |
| Soybean treatments | | | | |
| SHATTERCANE | Prowl 4EC | 3 pt | Preplant to soybeans | Incorporate by cross discing or equivalent soil mixing. Cost: Prowl \$9.75; Sonalan \$9.00; Treflan \$3.55-\$8.90. |
| | Sonalan | 3 pt | | |
| | or Treflan 4EC | 1.5-2.5 pt | | |
| | Assure | 0.6 pt | Postemergence in soy- beans. Cane 6-12'' | |
| | Fusilade 2000 | 0.75 pt | | |
| | Option | 0.8 pt | | |
| | Poast | 1 pt | | |
| | Pursuit | 4 oz | | |
| | | Cane 4-8'' | Add nonionic surfactant 1/4% v/v plus 2 qt/A UAN. Cost: \$18.00. | |
| An alternate system — Ridge or till-plant corn and apply Dual or Lasso with Princep or Bladex and cultivate. | | | | |
| SOAPWEED (Yucca) | Velpar RP | 4 ml/plant | | Apply with spot gun at base of plant. |
| SPOTTED KNAPWEED | 2,4-D | 1 qt | Rosette stage | Cost: \$2.50. |
| SUMAC | 2,4-D LV ester | 1-2 qt | Full foliage | Use sufficient water for good coverage. Cost: \$2.50-\$5.00. |
| SUNFLOWER | See Velvetleaf | | | |
| SWAMP SMARTWEED (tanweed, shoestring) | 2,4-D LV ester | 1 qt | When growing vigorously | On crops use lower rates and amine formulations. Cost \$8.85. |
| | + Banvel | 1 pt | | |
| | Roundup | 3-4 qt in 10 gal or less water/A | Full foliage mid to late summer | |

TROUBLESOME WEEDS AND WOODY PLANTS

| Weed | Herbicide ³ | Product Per Acre or Per 100 Gallons ^{5,6} | Application Time | Remarks and Approximate Cost/A Broadcast | | |
|---|---|--|---|--|--|--|
| Corn and Sorghum treatments (also control cocklebur, devils claw & common sunflowers) | | | | | | |
| VELVETLEAF | AAtrex/ Atrazine 4L | 1.2 qt | | Use crop oil concentrate with AAtrex/Atrazine and Laddok. Cost: AAtrex/Atrazine \$4.40; Basagran \$7.60-\$14.60; Brominal/Buctril \$5.25-\$7.90; 2,4-D \$.65-\$1.25; Marksman \$4.80-\$8.40; Laddok \$5.50-\$7.50. | | |
| | Basagran + 28% N | 1-2 pt 1 gal | Velvetleaf less than 4'' | | | |
| | Laddok | 2.4 to 3.6 pt | | | | |
| | Buctril 2EC + Atrazine 4L | 1-1.5 pt 1-2 pt | | | | |
| | 2,4-D LV ester | 0.5-1 pt | Velvetleaf less than 12'' | | | |
| | Marksman | 2-3.5 pt | Before 5-leaf stage of corn | | | |
| | Soybean treatments | | | | | |
| VELVETLEAF | Command 4 EC | 1-1.5 pt | PPI to soybean planting | Command drift may damage green vegetation. Command residue may damage wheat planted the same fall. Cost: Command \$7.50-\$11.75 and additional herbicide costs. Basagran \$7.60; Classic \$8.00-\$11.50; Pursuit \$18.00. See NebGuide G83-681 Velvetleaf. | | |
| | Basagran + 28% N | 1 pt 1 gal | Velvetleaf less than 4'' | | | |
| | Classic + 28% N | 0.5-0.75 oz 1 gal | | | | |
| | Surfactant | 1/8% v/v | | | | |
| | Pursuit + 28% N + Surfactant | 4 oz + 2 qt 1/4% v/v | | | | |
| | WILD OATS | | | | | |
| | In Nebraska probably weedy annual brome. See Downy brome. | | | | | |
| WILD PROSO MILLET | Eradicane Extra or Sutan + 6.7 | 5-5.3 pt 5 pt | Preplant to corn | Apply to dry surface soil and incorporate immediately with disc or field cultivator. Repeated use of Eradicane Extra or Sutan+ will lead to reduce weed control. Cost: Eradicane/Extra \$17.00-\$18.00; Sutan/Genate \$10.75. | | |
| | Prowl 4EC + Bladex 80W | 1 qt 1.25 lb | Spike stage of corn. Wild proso millet less than 1'' | | | |
| | Prowl 4EC | 1.5 qt | Layby to corn | Direct spray to cover the base of the corn plant and in between corn rows. Incorporate with irrigation water or with cultivation. Cost: \$9.75. | | |
| | Tandem 4L + Bladex 80W | 1.5 pt 1.25 lb | Wild proso millet 1-3 leaf stage. Corn 4 true leaves or less | Follow label directions. Cost: \$22.70. | | |
| | Fusilade 2000 | 0.5 pt | Postemergence on 4-8'' wild proso millet | Fusilade and Poast on soybeans; only Poast on sugar beets. Add 1 qt crop oil concentrate per acre. Cost: Fusilade \$7.00; Poast \$7.00. | | |
| | Poast | 0.5 pt | | | | |
| | Eptam | 3.5 pt | Preplant to fieldbeans | Apply to dry surface soil and incorporate immediately with a disc or field cultivator. Cost: Eptam/Genep \$11.40; Ro-Neet \$21.45-\$26.00. | | |
| | Ro-Neet | 3.3-4 pt | Preplant to sugar beets | | | |

¹Add X-77 spreader 2 pt (0.25% v/v) per 100 gal spray solution for Cyclone and Gramoxone, 4 pt (0.5% v/v) per 100 gal if Gramoxone Extra is used at less than 10 gal water per acre. For Roundup, Roundup RT, Landmaster II, Landmaster BW, and Fallow Master application, apply 10 gal or less water per acre, and add 17 lbs ammonium sulfate (spray grade) per 100 gal spray solution. (Landmaster II, Landmaster BW, and Fallow Master contain sufficient surfactant.)

²The addition of 0.5 to 1 pt 2,4-D LV ester improves control of broadleaf weed. Do not apply 2,4-D preemergence after planting sorghum.

³Low volatile ester and salt formulations preferred over volatile esters such as butyl and isopropyl because of vapor 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.

⁴Do not use on soils with less than 1% organic matter. Increased injury risk on soils where triazine carryover exists.

⁵For 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.

⁶Rates per 100 gallons pertain to handgun on a power sprayer.

CONVERSION TABLES

Rate Per Acre To 1000 Square Feet

Active Ingredient Per Gallon Conversions

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

| <i>Pounds of active material per gal of commercial product</i> | <i>Pints of commercial product needed per acre to give the following pounds of herbicide per acre</i> | | |
|--|---|---------------|-------------|
| | <i>1/4 lb</i> | <i>1/2 lb</i> | <i>1 lb</i> |
| 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 |

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

$64 \div 43 = 1.50$ 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.

Metric Conversions

| <i>Symbol</i> | <i>When You Know</i> | <i>Multiply By</i> | <i>To Find</i> | <i>Symbol</i> |
|---------------|----------------------|--------------------|----------------|---------------|
| 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 |

Equivalent Amounts of Different Formulations

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 qt Ramrod Flowable = 1.5 lb Ramrod 65W
 0.5 pt Sencor/Lexone 4L = 0.5 lb Sencor/Lexone 50W = 0.33 lb Sencor/Lexone 75DF

HERBICIDE DICTIONARY

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

Accent (nicosulfuron)—Postemergence grass control in corn. DuPont.

Alachlor—Active ingredient in Lasso, Judge, Confidence, Stall, Saddle and Arena. Monsanto.

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

Ally (metsulfuron methyl)—Used in wheat, barley, and fallow for broadleaf and certain grass weed control. 3-6 week residual. DuPont.

Amber (CGA-131036)—Similar to Glean for broadleaf control in wheat. Registration pending. Ciba-Geigy.

Amiben (chloramben)—A pre- and early postemergence herbicide for grass and broadleaf weeds in soybeans. Rhone-Poulenc.

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. Rhone-Poulenc.

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

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

Arena—Generic alachlor. Monsanto.

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

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

Arsenal (imazapyr)—Provides total vegetation control for noncrop areas. American Cyanamid.

Assert—Control wild oats not annual bromes in wheat. American Cyanamid.

Assure (quizalofop)—A postemergence grass herbicide for use in soybeans. DuPont.

Asulox (asulam)—For postemergence weed control in turf, ornamentals, Christmas trees and non-crop areas. Rhone-Poulenc.

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

Avenge (difenzoquat)—Controls wild oats not annual bromes postemergence in spring small grain. American Cyanamid.

Balan (benefin)—A preplant incorporated herbicide for annual grass control in alfalfa. DowElanco.

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

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

Beacon (primisulfuron)—Postemergence grass control in corn. Ciba-Geigy.

Betamix (phenmedipham + desmedipham)—A prepackaged combination of Betanol + 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 redroot pig weed control in sugar beets. NOR-AM.

Bicep 6E (metolachlor + atrazine)—A combination of 3.33 lbs Dual + 2.67 lbs AAtrex for preemergence use in corn and sorghum safened with Concep II. Ciba-Geigy.

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

Blazer (acifluorfen)—A postemergence herbicide for broadleaf weed control in soybeans. BASF.

Brominal ME4—Name changed to Torch 4EC. Rhone-Poulenc.

Brominal 3 + 3—A combination of bromoxynil and MCPA for use in small grains. Rhone-Poulenc.

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

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

Buctril (bromoxynil)—A contact herbicide for broadleaf control in corn, sorghum and small grains. Rhone-Poulenc.

Bullet (Alachlor MT + Atrazine)—A combination of 2.5 lb Lasso MT plus 1.5 lb Atrazine. Monsanto.

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. Rhone-Poulenc.

Cannon (alachlor + trifluralin)—A 5:1 combination of Lasso + trifluralin. Monsanto.

Canopy—Combinations of 10.7% Classic active ingredient and 64.3% metribuzin, for preemergence use in soybeans. DuPont.

Carbyne (barban)—Used for wild oat control in spring small grain. Sandoz.

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 grasses in alfalfa. Chevron.

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

Chloro IPC (chlorpropham)—Similar to Chem-Hoe, Chevron.

Classic (chlorimuron ethyl)—A postemergence herbicide for broadleaf weed control in soybeans. DuPont.

Cobra (lactofen)—Used postemergence for broadleaf weed control in soybeans. Chevron.

Command (clomazone)—A preplant incorporated herbicide for grass and broadleaf weed control in soybeans. FMC.

Commence—A prepack of 3 lbs Trifluralin + 2.25 lbs Command for use in soybeans. FMC, DowElanco.

Concep II (cyoxmetrinil)—A protectant for sorghum seed to prevent Dual and Bicep injury. Ciba-Geigy.

Confidence—Generic Alachlor.

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. DowElanco.

Curtail—A combination of clopyralid + 2,4-D for postemergence broadleaf control in small grain. DowElanco.

Curtail M—A combination of clopyralid + MCPA for postemergence broadleaf control in small grains. DowElanco.

HERBICIDE DICTIONARY

Cycle (cyanazine + metolachlor)—A prepack of 2 lbs cyanazine and 2 lbs metolachlor for weed control in field corn and sorghum. Ciba-Geigy.

Cyclone (paraquat)—A 2 lb/gal formulation of paraquat for weed control in fallow situations. ICI.

Cytrol—Trade name for amitrole. Am. Cyanamid.

Dacamine—An oil soluble amine salt formulation of 2,4-D. Fermenta.

Dacthal (DCPA)—Used preemergence for annual grass and certain broadleaf weeds in turf, ornamentals and horticultural crops. Fermenta.

Dalapon—Primarily for perennial grass control. Vertac.

Deploy (glyphosate)—Roundup without a surfactant. For use in set-aside. Monsanto.

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

Direx (diuron)—Similar to Karmex. Griffin.

Dowpon—Trade name for dalapon. Vertac.

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

Endothall (endothall)—Used preemergence and postemergence for annual grass and broadleaf weeds in sugar beets and as a desiccant. Pennwalt.

Enide (diphenamid)—Used preemergence for annual grasses and some broadleaf weeds in potatoes and other horticultural crops. Upjohn.

Eptam (EPTC)—Used preplant soil incorporated for grass and certain broadleaf weeds in corn, legumes, sugar beets and many horticultural crops. ICI.

Eradicane (EPTC + R-25788 antidote)—Used preplant incorporated in corn. The antidote provides greater crop safety. ICI.

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

Escort (metsulfuron methyl)—An industrial formulation of Ally. DuPont.

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

Express (tribenuron methyl)—A short residual herbicide for broadleaf weed control in cereal crops. EUP. DuPont.

Extrazine II (cyanazine + atrazine)—A combination of 3.0 lbs Bladex + 1.0 lb atrazine for PPI or preemergence use in corn. DuPont.

Fallow Master (glyphosate + dicamba)—A combination of 1.5 lb Roundup plus 0.6 lb Banvel. Monsanto.

Far-Go (trilallate)—For preplant control of downy brome and other grasses in winter wheat. Monsanto.

Freedom (trifluralin + alachlor)—A combination of 2.67 lbs Lasso + 0.33 lbs Treflan for preplant incorporated use in soybeans. Monsanto.

Furloe (chlorpropham)—Used PPI and preemergence for smartweed in soybeans. Chevron.

Fusilade 2000 (fluazifop)—A selective postemergence herbicide for shattercane, volunteer corn and other grasses in soybeans, nursery stock and ornamentals. ICI.

Galaxy (bentazon + acifluorfen)—A 9:2 ratio of Basagran and Blazer for postemergence broadleaf control in soybeans. BASF.

Gemini—4.6% Classic + 55.4% linuron (Lorox) on an active ingredient basis for preemergence use in soybeans. DuPont.

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 Extra (paraquat)—2.5 lb/gal formulation. ICI.

Graslan (tebuthiuron)—Used for brush control in rangeland. DowElanco.

Harmony (thifensulfuron methyl)—Chemistry and uses similar to Glean and Ally with reduced residual activity. DuPont.

Harmony Extra (thifensulfuron + tribenuron)—2:1 ratio of Harmony plus Express for weed control in small grains. DuPont.

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

Hoelon (diclofop)—Used postemergence for annual grass in soybeans and wheat. American Hoechst.

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

Igran (terbutryn)—A short residual s-triazine for use in sorghum. Generally combined with AAtrex or Milogard for broader spectrum control and reduced carryover. Discontinued. Ciba-Geigy.

Judge—Generic Alachlor.

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. ICI.

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

Krovar—A combination of Hyvar and Karmex. DuPont.

Laddok (bentazon + atrazine)—A combination of Basagran + atrazine for postemergence broadleaf weed control in corn. BASF.

Landmaster BW—A combination of 1.2 lb glyphosate (Roundup) and 1.6 lb 2,4-D primarily for no-till. Monsanto.

Landmaster II (glyphosate + 2,4-D amine)—A combination of 1.2 lb Roundup plus 1.0 lb 2,4-D amine. Monsanto.

Lariat—A prepack of 2.5 lbs Lasso + 1.5 lb atrazine. Monsanto.

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

Lasso-Atrazine Flowable—A prepackaged combination of 2.5 lbs Lasso and 1.5 lb atrazine. Monsanto.

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

Lexone (metribuzin)—Trade name for metribuzin. DuPont.

Linex (linuron)—Trade name for linuron. Griffin.

Linuron—Used primarily preemergence for broadleaf weeds in corn, sorghum and soybeans. Linex and Lorox.

Lorox (linuron)—Trade name for linuron. DuPont.

Lorox Plus—A 18:1 ratio of Lorox + Classic. DuPont.

HERBICIDE DICTIONARY

Marksman—A combination of 1.1 lb dicamba and 2.1 lbs atrazine for postemergence weed control in corn. Sandoz.

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

Metribuzin—Used for annual broadleaf weeds in soybeans, alfalfa and potatoes; often used in combination. Trade names - Lexone and Sencor.

Milocep (metolachlor + propazine)—A combination of Dual + Milogard for use on sorghum planted with Concep II 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. Discontinued. 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 turn and johnsongrass in noncrop areas. Rhone-Poulenc. Norosac—Same as Casoron. PBI-Gordon.

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

Option (fenoxaprop)—Formerly called Whip. A postemergence grass herbicide similar to Fusilade and Poast.

Oust (sulfometuron methyl)—A noncropland herbicide that also provides suppression of perennial grasses at lower rates. DuPont.

Paraquat—A nonselective contact herbicide used for no-till and ecofarming, soybean and sunflower desiccation, and on non-cropland. Gramoxone Extra. ICI.

Passport—Trifluralin + Pursuit. American Cyanamid.

Pendimethalin—Common name for Prowl. Also active ingredient in some preemergence turf herbicides.

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

Picloram—Common name for Tordon.

Pinnacle (thifensulfuron methyl)—Pinnacle is used postemergence for broadleaf control in soybeans. DuPont.

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

Pramitol (prometon)—Used primarily for season long control of annual and perennial weeds in noncropped areas. Ciba-Geigy.

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

Preview—10 parts Lexone + 1 part Classic on an active ingredient basis. For use in soybeans. DuPont.

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

Propachlor—Active ingredient in Ramrod. Used for grass weed control in corn and sorghum.

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.

Pursuit (imazethapyr)—Same family as Scepter under development for use in soybeans. American Cyanamid.

Pursuit Plus (imazethapyr + pendimethalin)—A 6:1 ratio of Prowl and Pursuit for preplant incorporation use in soybeans. American Cyanamid.

Pyramin (pyrazon)—Used for preemergence for broadleaf weeds in sugar beets. BASF.

Ramrod—Trade name for propachlor. Monsanto.

Ramrod-atrazine Flowable—A combination of 3 lbs Ramrod and 1 lb 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)—Used for postemergence broadleaf weed control in soybeans. ICI.

Rescue (Alanap + 2,4-DB)—Used postemergence in mid-season for broadleaf weeds in soybeans. Uniroyal.

Reward (vernolate + 33865 extender)—The extender lengthens the control span of Vernam. ICI.

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. ICI.

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

Roundup RT (glyphosate)—Same as Roundup, but available only in a 100-gallon returnable shuttle. Monsanto.

Saddle—Generic Alachlor

Salute 4EC—Package blend of 1.33 lb metribuzin (Sencor) and 2.66 lbs trifluralin for soybeans. Mobay.

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

Scepter (imazaquin)—A preplant incorporated, preemergence 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.

Simazine—Common name for Princep. Ciba-Geigy.

Sinbar (terbacil)—Used for dormant season control of annual grass and broadleaf weeds in established alfalfa. DuPont.

Solicam (norflurazon)—Used preemergence in fruit trees. Sandoz.

Sonalan (ethalfuralin)—Used preplant incorporated for annual grasses and certain broadleaf weeds in soybeans. DowElanco.

Spike (tebuthiuron)—Used for total vegetation and selective brush control in grassland and noncrop areas. DowElanco.

Squadron—Package mix of Prowl and Scepter. American Cyanamid.

Stall—Generic Alachlor.

Stinger (clopyralid)—New herbicide for postemergence broadleaf control in sugar beets. DowElanco.

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. Uniroyal, Gordon.

Surflan (oryzalin)—Used preemergence for annual grasses in soybeans. Often used in combination. DowElanco.

HERBICIDE DICTIONARY

Surflan (oryzalin)—Used preemergence for annual grasses in soybeans. Often used in combination. DowElanco.

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

Sutazine * (Sutan+ + atrazine)—A combination of 4 parts Sutan+ and 1 part atrazine for preplant incorporated weed control in corn. ICI.

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

Tandem (tridiphane)—A postemergence herbicide for weed control in corn. Use in combination with atrazine or Bladex. DowElanco.

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

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

Telone (dichlorophene)—A fumigant used preplant for quackgrass in potatoes. DowElanco.

Tillam (pebulate)—Registered preplant incorporated for annual grass control in sugar beets. ICI.

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

Touchdown (sulphosate)—A nonselective, nonresidual translocated postemergence herbicide. ICI.

Tough (pyridate)—Used in combination with Bladex or atrazine for postemergence weed control in corn. Label pending. Terra.

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

Tri-Scept—A prepack of trifluralin + Scepter. American Cyanamid.

Trifluralin—The active ingredient in Treflan.

Trimec—A three way combination of 2,4-D, micoprop and dicamba for lawn weed and woody plant control. PBI-Gordon.

Turbo 8EC—A package mix of 6.55 lbs Dual and 1.45 lb Sencor for use in soybeans. Mobay.

Tycor (ethyl metribuzin)—For control of annual brome and other weed species in winter wheat. EUP. Mobay.

Velpar L (hexazinone)—Used for nonselective postemergence weed control on noncropland, Christmas tree plantings and alfalfa. DuPont.

Velpar R.P.—A liquid formulation used undiluted for spot spraying woody plants in range and pasture. DuPont.

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

Weedazole—Trade name for amitrole. Rhone-Poulenc.

Weedone 638—A combination of 2,4-D acid and ester. Rhone-Poulenc.

APPROXIMATE RETAIL PRICES OF SELECTED HERBICIDES

| Herbicide | Price | Herbicide | Price | Herbicide | Price |
|----------------|--------------|-----------------|--------------|------------------|---------------|
| Accent | \$ 27.00/oz | Cycle | \$ 24.75/gal | Option | \$ 92.00/gal |
| Ally | \$ 27.00/oz | Cyclone | \$ 26.00/gal | X-77 | \$ 16.00/gal |
| AAtrex 4L | \$ 10.30/gal | 2,4-D amine | \$ 8.60/gal | Pinnacle | \$ 26.00/oz |
| AAtrex 80W | \$ 1.70/lb | 2,4-D ester | \$ 10.80/gal | Poast | \$ 86.00/gal |
| AAtrex DF | \$ 2.30/lb | Dacthal 75W | \$ 4.80/lb | Pramitol 5P | \$ 1.20/gal |
| Alanap L | \$ 13.30/gal | Diquat | \$ 68.00/gal | Pramitol 25E | \$ 20.50 gal |
| Amiben DS | \$ 6.80/lb | Dowpon M | \$ 2.15/lb | Prefar | \$ 35.40/gal |
| Amitrol-T | \$ 21.50/gal | Dual 8E | \$ 54.00/gal | Preview | \$ 28.00/lb |
| Antor | \$ 38.50/gal | Eptam 7E | \$ 26.00/gal | Princep 80W | \$ 3.55/gal |
| Aquaclean | \$ 1.10/lb | Eptam 10G | \$.43/lb | Princep 4L | \$ 16.80/gal |
| Aquathol | \$ 1.10/lb | Eradicane | \$ 21.00/gal | Prowl | \$ 26.00/lb |
| Aquathol 1.6E | \$ 62.00/gal | Eradicane Extra | \$ 27.00/gal | Pursuit | \$552.00/gal |
| Aquazine | \$ 5.60/gal | Escort | \$ 34.50/oz | Pursuit Plus | \$ 64.00/gal |
| Assure | \$110.00/gal | Extrazine II | \$ 15.00/gal | Ramrod-Atrazine | \$ 14.50/gal |
| Arsenal | \$140.00/gal | Fallow Master | \$ 25.20/gal | Ramrod Flowable | \$ 16.00/gal |
| Balan | \$ 16.00/gal | Far-Go 10G | \$ 1.00/lb | Rescue | \$ 13.80/gal |
| Banvel | \$ 54.50/gal | Freedom | \$ 11.80/gal | Reward | \$ 19.00/gal |
| Basagran | \$ 60.00/gal | Fusilade 2000 | \$ 86.00/gal | Ro-Neet 7E | \$ 52.50/gal |
| Beacon | \$ 25.50/oz | Galaxy | \$ 56.00/gal | Ro-Neet 10G | \$ 1.60/lb |
| Betanex | \$ 70.00/gal | Garlon 4 | \$ 77.00/gal | Roundup | \$ 70.00/gal |
| Betamix | \$ 72.00/gal | Glean | \$ 18.20/oz | Salute | \$ 50.50/gal |
| Bicep | \$ 23.00/gal | Goal 1.6E | \$ 77.00/gal | Sceptor | \$ 172.00/gal |
| Bladex 4L | \$ 19.00/gal | Gramoxone Extra | \$ 43.00/gal | Sencor/Lexone 4L | \$102.00/gal |
| Bladex 90DF | \$ 4.75/lb | Harmony Extra | \$ 11.10/oz | Sencor/Lexone DF | \$ 20.50 lb |
| Blazer 2L | \$ 60.00/gal | Herbicide 273 | \$ 38.00/gal | Sinbar | \$ 22.50/lb |
| Brominal 3 + 3 | \$ 77.00/gal | Hyvar X | \$ 11.60/gal | Solicam | \$ 10.80/lb |
| Bronate | \$ 77.00/gal | Hyvar XL | \$ 36.80/gal | Sonalan | \$ 24.00/gal |
| Bronco | \$ 33.20/gal | Karmex 80W | \$ 4.30/lb | Spike 5G | \$ 3.00/lb |
| Buctril | \$ 45.00/gal | Krenite | \$ 43.50/gal | Spike 80W | \$ 21.50/lb |
| Bullet | \$ 16.00/gal | Krovar I | \$ 9.20/lb | Spike 20P | \$ 8.60/lb |
| Butoxone | \$ 15.00/gal | Laddok | \$ 19.00/gal | Squadron | \$ 48.00/gal |
| Butyrac | \$ 15.00/gal | Landmaster II | \$ 16.80/gal | Stinger | \$500.00/gal |
| Canopy | \$ 33.25/lb | Landmaster BW | \$ 20.20/gal | Surflan | \$ 60.00/gal |
| Casoron 10G | \$ 3.40/lb | Lasso | \$ 21.50/gal | Sutan + | \$ 17.20/gal |
| Casoron 50W | \$ 15.00/lb | Lasso II | \$ 1.10/lb | Sutazine | \$ 16.80/gal |
| Casoron 4G | \$ 1.25/lb | Lariat | \$ 16.00/gal | Tandem | \$ 96.00/gal |
| Classic | \$ 16.00/oz | Leafex 3 | \$ 3.45/gal | Telar | \$ 25.00/oz |
| Cobra | \$110.00/gal | Lorox 4L | \$ 58.00/gal | Treflan | \$ 28.50/gal |
| Commence | \$ 54.00/gal | Lorox Plus | \$ 14.20/lb | Tordon 22K | \$ 99.00/gal |
| Command 4EC | \$ 64.00/gal | Marksman | \$ 20.50/gal | Turbo | \$ 81.00/gal |
| Crop Oil Conc. | \$ 6.40/gal | MCPA | \$ 13.00/gal | Velpar | \$ 29.50/lb |
| Crossbow | \$ 43.00/gal | Norosac 4G | \$ 1.25/lb | Vernam | \$ 28.00/gal |
| Curtail | \$ 23.00/gal | Norton | \$ 49.50/gal | | |

WEED SCIENCE PUBLICATIONS

Banvel and 2,4-D Damage to Fieldbeans and Soybeans - G86-802
 Blue Mustard Control - G74-92
 Broadcast or Band Herbicides - G76-294
 Broadleaf Weed Control in Wheat - G74-137
 Brush and Woody Plant Control - G84-704
 Calibrating a Sprayer - G82-566
 Canada Thistle Control - G80-509
 Chemical Control of Rangeland Weeds - G88-871
 Close Drilled Soybeans - G77-329
 Common Milkweed - G77-384
 Constructing a Pipewick Applicator - G81-555
 Disposal of Excess Pesticides - G79-473
 Downy Brome Control in Alfalfa - G79-436
 Ecofarming-Fallow Aids in Winter Wheat Fallow Rotations - G81-546
 Ecofarming-Floaters for Herbicide Application - G81-550
 Ecofarming-Management of Atrazine Carryover in Ecofallow
 G81-570
 Ecofarming-Selection of Sprayers - G80-500
 Ecofarming-Spring Row Crop Planting and Weed Control in Winter
 Wheat Stubble - G81-551
 Factors Affecting Foliar-Applied Herbicides - G84-700
 Factors That Make Herbicides Work - G76-272
 Field Sandbur Control in Corn - G74-121
 Hay Fever Plants - EC77-199
 Hemp Dogbane - G83-665
 Herbicide Carryover - G83-637
 Herbicide-Fertilizer Combinations - G74-164
 Herbicides and Soils - G83-653

Jointed Goatgrass - G75-210
 Know and Control Downy Brome - G78-422
 Lawn Weeds - NC Regional Pub. No. 26
 Leafy Spurge - G87-834
 Musk Thistle - EC76-160
 No-Till Corn in Alfalfa Sod - G74-131
 Nozzles-Selection and Sizing - G89-955
 Right Crop Stage for Herbicide Use—Alfalfa, Sugarbeets, Soybeans
 and Fieldbeans - G78-390
 Right Crop Stage for Herbicide Use—Corn, Sorghum, Small Grains -
 G77-382
 Sagebrush Control - G80-510
 Shattercane—What To Do About It - G74-122
 Spray Drift of Pesticides - G90-1001
 Surfactants and Herbicides - G88-872
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 Using Pipewick and Other Selective Applicators - G81-555
 Velvetleaf - G83-681
 Vine Weeds - NC Regional Pub. No. 33
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 Weed Control Along Irrigation Pipe and Ditchbanks - G78-420
 Weed Control in Gardens - G79-444
 Weed Control in Grain Sorghum - G74-137
 Weed Control in No-Till Corn, Grain Sorghum and Soybean Production -
 G89-899
 Weed Control in Reduced Tillage Corn - G74-123
 Weed Control in Soybeans - G83-647
 Weed Control on CRP Acres - G89-905

NOTES