Chemical Weed Control in Corn: 1983

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CHEMICAL WEED CONTROL IN CORN: 1983

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Herbicides are an aid to crop rotation, proper seedbed preparation, and cultivation. Perennials are more difficult to control than annual weeds.

Herbicides are usually required for perennials in continuous cropping systems.

HERBICIDE SUGGESTIONS

Information in this publication is based on South Dakota Agricultural Experiment Station research and other research or observations. Herbicides are included only after the chemical is registered by the Environmental Protection Agency (EPA) as to residue tolerances in crops used for food or feed.

This information is a summary of herbicide uses and does not imply a guarantee or responsibility for results. Trade names are used for reader convenience and do not imply product endorsement. Every effort has been made to avoid mechanical error in preparation of this publication. The label should be considered the final guide. Users are responsible for following all label directions and precautions.

WEED PROBLEMS. Weeds are grouped as small-seeded annual broadleaves (kochia, lambquarters, pigweed, etc.), large-seeded annual broadleaves (sunflower, cocklebur, etc.), annual grasses (green or yellow foxtail), or perennial weeds. Control is rated poor, fair, good, very good, or excellent for each category of weeds.

SPECIAL WEED PROBLEMS. A section for "Special Weed Problems" gives the best treatments for each weed.

HERBICIDES. Most herbicides are listed by tradename. The common name is also included in the heading. Only the common name is used when the same active ingredient is available in several products.

RATES. Rates for each treatment are stated as the amount of product per acre. The common name and amount of active ingredient or acid equivalent per acre are used in the text when referring to combinations. All rates are on a broadcast basis; adjust accordingly for band application.

TIME TO APPLY. Herbicides may be applied:
Preplant incorporated - before the crop is planted, incorporated as directed.
Shallow Preplant incorporated - preplant incorporated, but herbicide usually restricted to the top 2 inches of soil with single-pass incorporation.
Preemergence - after planting but before crop or weeds emerge.
Postemergence - after the crop or weeds has emerged.

REDUCED TILLAGE SYSTEMS
FURROW AND TOP-PLANT

Crop residue on the surface may distort the herbicide pattern or intercept some of the herbicide.

Using 10% more herbicide (up to maximum rate for soil) will partially compensate. Heavy corn stalk residue should be worked into the soil before broadcasting soil-applied treatments. Be sure emerged weeds are eliminated with tillage or contact herbicide just ahead of planting. Devices to move residue from the row area will improve results for band application. Special cultivation equipment must be used with reduced tillage systems.

Expect more perennial weed problems. Application of 2,4-D after the silks are brown is helpful in continuous reduced tillage systems for most broad-leaved perennials.

Do not use preplant incorporated herbicides with deep furrow or lister planting, as treated soil is moved from the row area. For these systems, limit band width of preemergence herbicide to the width of the furrow bottom. Check herbicide label for restrictions on furrow planted crops. Top-plant systems offer more herbicide alternatives.

IRRIGATED CORN

Data from SDSU field tests indicate early season weed control is similar under dryland irrigation. Irrigation at planting can improve the level of weed control and consistency of preemergence treatments.

Late season weeds, however, are more critical under irrigation.

Irrigators should:
1. Apply ½ inch of water with overhead irrigation within 5 days of planting if rainfall has not been adequate for preemergence herbicides. This provides maximum control with these treatments.
2. Broadcast rather than band. This helps control late weed problems in row middles.
3. Use maximum rate for soil type, for better and longer control.
4. Use treatments that have maximum residual activity for the rotation for best late season control.
5. Avoid treatments where injury risk is increased from heavy rainfall or irrigation.
6. Use combination soil applied treatments to control small-seeded annual broadleaves and annual grasses. These treatments are usually more effective and have better crop tolerance than post-emergence alternatives. Three-way tank-mixes appear very promising for many situations.
7. Limit the use of 2,4-D or Banvel + 2,4-D to areas infested with perennial weeds or for rescue operations. Corn under high fertility, high populations, and optimum soil moisture conditions is less tolerant to these herbicides.
8. Use preplant incorporated treatments for furrow irrigation. The herbicide treated soil layer is usually disturbed when the irrigation furrows are formed, however preplant incorporated treatments may give slightly better control than preemergence treatments in this situation.
BAND VS. BROADCAST

Banding reduces the cost per acre and usually replaces one or two row cultivations. One cultivation is usually needed with broadcast application.

Adjust broadcast rates for banding. A 12- to 14-inch band is suggested for top planting; a 7-inch band is suggested for most deep furrow or lister-planted crops.

FOLLOW THE LABEL

Federal regulations make it unlawful for any person to use a herbicide in a manner inconsistent with its labeling. This includes the kind of crop and weed; rate carrier, and other application directions; storage, disposal, and protective clothing; or other precautions stated.

Abbreviations Used

- **pt** pint
- **qt** quart
- **lb** pound
- **gpa** gallons per acre
- **lb/A acid equiv.** pound per acre acid equivalent
- **lb/gal** pound per gallon (active ingredient or acid equivalent)
- **wp** wettable powders
- **wdg** water dispersible granule (spray)
- **gran** granule

CORN HERBICIDES

ERADICANE (EPTC + SAFENER) OR ERADICANE EXTRA (EPTC + SAFENER + EXTENDER)

3 3/4-4 3/4 pt Eradicane-6.7 lb/gal or 4-5 1/3 pt Eradicane Extra-6 lb/gal

Excellent control of most annual grasses and fair control of a few small-seeded annual broadleaves. Very good sandbur and wild oat control. Does not control large-seeded annual broadleafs. Quackgrass control has not been consistent. The most consistent preplant incorporated treatment for annual grasses. Some weeds may emerge in extremely cool soil conditions. Safening agent provides adequate crop tolerance. Use lower rate on light, low organic matter soil. The high rate has been most consistent in SDSU tests. Higher rate of 7 1/3 pt/A Eradicane or 8 pt/A Eradicane Extra are suggested for yellow nutsedge, wild cane, wild proso millet control or suppression of quackgrass. Eradicane contains 6.7 lb/gal EPTC plus a safening agent. Eradicane Extra contains 6 lb/gal EPTC plus a safening agent plus an extender to prolong the soil residual activity. Eradicane Extra is intended for use in soils which have the capacity for rapid Eradicane degradation with repeated use, primarily where wild proso and wild cane are serious problems. May be applied in liquid fertilizer. Minimum carrier is 10 gpa. No carryover. Not for corn seed stock.

PREPLANT INCORPORATED. Incorporate immediately to a depth of 2-3 inches. Use a tandem disk set to cut 4-6 inches deep, a field cultivator with sweeps operated at 5-6 mph, or other implements that thoroughly mixes the herbicide into the soil. A second incorporation improves uniformity, especially under trashy or wet soil conditions. A tandem disk with small blades followed by a field cultivator with a harrow or leveling device usually provides good incorporation under most conditions. Treated soil is removed from row area with lister- or furrow-planted corn. Improper incorporation reduces control.

ERADICANE + ATRAZINE (EPTC + SAFENER + ATRAZINE)

ERADICANE EXTRA + ATRAZINE (EPTC + SAFENER + EXTENDER + ATRAZINE)

3 3/4-4 3/4 pt Eradicane-6.7 lb/gal or 4-5 1/3 pt Eradicane Extra-6 lb/gal + 1-1 1/4 qt atrazine-4 lb/gal or 1/4-2 lb atrazine-80% wp or 1.1-1.7 lb Aatrex-90% wdg

Tank-mix. Excellent control of most annual grasses and very good control of several small-seeded annual broadleafs. Fair to good control of certain large-seeded annual broadleafs. Better late season control than with Bladex combinations. Consistent results. Some weeds may emerge in extremely cool soil conditions. Adequate crop tolerance. Use the lower rates on light, low organic matter soil. Rates of 3y (EPTC+safer)+1 (atrazine) lb/A active have been satisfactory in most SDSU tests. Rate of 6 lb/A active Eradicane is suggested for wild proso millet, wild cane, yellow nutsedge control or quackgrass suppression. Higher atrazine rates improve control of some broadleaves, but also increase carryover. Eradicane Extra contains an extender to prolong soil residual with continued use where weeds such as wild proso millet or wild cane are problems. May be applied in liquid fertilizer. Minimum carrier is 10 gpa. Refer to carryover limitations in atrazine section.

PREPLANT INCORPORATED. Incorporate as for Eradicane alone.
ERADICANE + BLADEX (EPTC + SAFENER + CYANAZINE)

ERADICANE EXTRA + BLADEX (EPTC + SAFENER + EXTENDER + CYANAZINE)

3 3/4 - 4 3/4 lb/gal or 4-5 1/3 pt Eradicane Extra-6 lb/gal+1½-2 qt Bladex-4 lb/gal
or 2-2½ lb Bladex-80% wp

Tank-mix. Excellent control of most annual grasses and very good control of several small-seeded annual broadleaves. Fair control of certain large-seeded annual broadleaves. Consistent results. Some weeds may emerge in extremely cool soil conditions. Adequate crop tolerance. Use the lower rates for light, low organic matter soil. Rates of 3½ (EPTC+safer) + 1½ (cyanazine) lb/A active have been satisfactory in most SDSU tests. Rate of 6 lb/A active Eradicane is suggested for wild proso millet, wild cane, yellow nutsedge control or quackgrass suppression. Not for sandy soil with less than 2% organic matter. Eradicane Extra contains an extender to prolong soil residual with continued use where weeds such as wild proso millet or wild cane are problems. May be applied in liquid fertilizer. Minimum carrier is 10 gpa. No carryover.

PREPLANT INCORPORATED. Incorporate as for Eradicane alone.

SUTAN† (BUTYLATE + SAFENER)

4 3/4 pt Sutan-6.7 lb/gal

Very good to excellent control of several annual grasses. Not effective on broadleaves. Consistent performance except for possible reduced control in extremely cool soil conditions. Safening agent provides adequate crop tolerance. Lower rates give less consistent results. Rate of 7 1/3 pt/A is suggested for wild cane or yellow nutsedge control. Should be applied within 2 weeks of planting. Plant corn no more than 2 inches deep. May be applied in liquid fertilizer. Minimum carrier is 10 gpa. No carryover. Do not use on corn seed stock.

PREPLANT INCORPORATED. Incorporate immediately to a depth of 2-3 inches. Use a tandem disk set to cut 4-6 inches deep, a field cultivator with sweeps operated at 5-6 mph, or other implement that thoroughly mixes the herbicides into the soil. A second incorporation improves uniformity, especially under trashy or wet soil conditions. A tandem disk with small blades followed by a field cultivator with a harrow or leveling device usually provides good incorporation under most conditions.

One-hour incorporation delay not recommended; except if surface soil is dry, wind velocity is low, and immediate incorporation was prevented by unexpected problems. Treated soil is removed from row area with lister- or furrow-planted corn. Improper incorporation reduces control.
**SUTAN + ATRAZINE (BUTYLATE + ATRAZINE)**

**SUTAN**

3 3/4-4 3/4 pt Sutan +6.7 lb/gal + 1 1/4 qt atrazine -4 lb/gal or 1 1/2 lb atrazine -80% wp or 1.7-1.1 lb AATrelx -90% wdg

5/4-7 Sutazine +4.8-1.2 lb/gal

Tank mix or use commercial premix (Sutazine +) containing 4.8 lb butylate + 1.2 lb atrazine active per gallon. Very good to excellent control of many annual grasses and several small-seeded annual broadleaves. Better late season broadleaf control than Bladex combination. Good crop tolerance. Consistent performance except for possible reduced control under extremely cool soil conditions. Use lower rates on light, low organic matter soil and higher rates on heavy, clay soil or for certain special weed problems. Rate of 4 (butylate) + 1 (atrazine) lb/A active or 7 pt/A Sutazine have been satisfactory in most SDSU tests. May be applied in liquid fertilizer. Minimum carrier is 10 gpa. Refer to carryover crop limitations in atrazine section. Do not use on corn seed stock.

PREPLANT INCORPORATED. Incorporate as for Sutan + alone.

**SUTAN + BLADEX (BUTYLATE + CYANAZINE)**

3 3/4-4 3/4 pt Sutan +6.7 lb/gal + 1 1/4 qt Bladex -4 lb/gal or 2-2 1/4 lb Bladex -80% wp

Tank mix. Very good to excellent control of many annual grasses and several small-seeded annual broadleaves. Consistent performance except for possible reduced control under extremely cool soil conditions. Good crop tolerance. Use lower rates on light, sandy soil and higher rates on heavy, clay soil. Not for sandy soils with less than 2% organic matter. Rates of 3 1/2 (butylate) + 1 1/2 (cyanazine) lb/A active have been satisfactory in most SDSU tests. Use maximum rates for certain special weed problems. May be applied in liquid fertilizer. Minimum carrier is 10 gpa. No carryover. Do not use on seed corn.

PREPLANT INCORPORATED. Incorporate as for Sutan + alone.

**SUTAN + BLADEX + ATRAZINE (BUTYLATE + CYANAZINE + ATRAZINE)**

3 3/4-4 3/4 pt Sutan +1 1/4 qt Bladex -4 lb/gal or 2 lb Bladex -80% wp + 1-3 pt atrazine -4 lb/gal or 2/3-1 1/4 lb atrazine -80% wp or .6-1.1 lb AATrelx -90% wdg

Three-way tank-mix. Provides better late season annual broadleaf control than Bladex mixture and better control of certain large-seeded annual broadleaves with less carryover risk than atrazine combinations. Has performed very well in SDSU tests. Label rate is 1 lb/A active atrazine; however, the lower rate suggested above has been satisfactory in SDSU tests where carryover must be minimized to allow for additional rotational crops. Crops other than highly sensitive crops such as oats or sunflowers can be planted with minimal risk most years. Refer to atrazine section for carryover information. May be applied in liquid fertilizer. Minimum carrier is 10 gpa.

PREPLANT INCORPORATED. Incorporate as for Sutan + alone. Refer to Sutan + + Bladex or atrazine sections.

**ATRAZINE (ATRAZINE)**

2-3 qt atrazine -4 lb/gal or 2 1/4-3 3/4 lb atrazine -80% wp or 2.2-3.3 lb AATrelx -90% wdg

Excellent control of several small-seeded annual broadleaves. High rates provide good to excellent control of several large-seeded broadleaves. Annual grass control erratic. Very consistent on broadleaves. Good late season control. Excellent crop tolerance. Use lower rate on light, low organic matter soil. The 2 1/4 lb/A active rate of atrazine has been satisfactory in most SDSU tests. Preplant or preemergence applications may be made in liquid nitrogen fertilizer.

Carryover may damage soybeans, sunflowers, small grain, and legume/grass seedlings the following year. Corn and sorghum are tolerant. Risk of carryover is greatest on high pH, low organic matter soils or eroded knolls. Risk is increased in dry seasons and with reduced tillage systems. Carryover is minimized with low rates used in combination with other soil applied herbicides. Soybeans and flax usually tolerate carryover from rates up to 1 lb/A active in conventional tillage. Preplant or preemergence applications may be made by air using 1 qt carrier for each 1 qt of atrazine liquid or 1 gpa carrier for each pound of other formulations. Minimum carrier for ground application is 5 gpa for liquid and 10 gpa for other formulations.
ATRAZINE (ATRAZINE) Continued...

SHALLOW PREPLANT INCORPORATED. Incorporate into the top 2 inches of soil with a field cultivator or shallow disk during final seedbed preparation. Most consistent application method. Provides best large-seeded broadleaf control. Not affected by heavy rainfall.

PREEMERGENCE. Requires 3/4 to 1 inch rain within one week after application. Less consistent. Use a harrow or rotary hoe if weeds emerge before rainfall.

EARLY POSTEMERGENCE. Without oil. Postemergence application with crop oil strongly preferred. Apply before weeds are over 1½ inches tall. Apply by using minimum of 2 gpa by air or 5 gpa for liquid and 10 gpa for other formulations by ground.

LASSO (ALACHLOR)

2-3½ qt Lasso-4 lb/gal or 16-26 lb Lasso-158 gran (broadcast)

Very good to excellent control of several annual grasses. Fair control of pigweed and lambsquarters with very high rates and favorable conditions. Consistent on annual grasses when rainfall or soil moisture requirements are met. Very good crop tolerance. Rates vary according to soil type and application method. Rates of 2½-3 lb/A active alachlor have been satisfactory in most preemergence SDSU tests. Rates of 3-4 lb/A active alachlor are suggested for severe weed infestations or for yellow nutsedge. May be applied in liquid fertilizer. Minimum carrier is 15 gpa for ground and 3 gpa for air. Granule and spray formulations appear to be equally effective. Granules are applied to the soil surface behind the press wheel. Do not exceed the recommended rate for granules. No carryover.

SHALLOW PREPLANT INCORPORATED. Incorporate Lasso spray into top 2 inches of soil with field cultivator, shallow disk, multiweeder, or other suitable implements during final seedbed preparation. Flexine harrow is not satisfactory. Better results than preemergence when rainfall is very limited, but slightly less control than preemergence application with adequate rainfall. May be more consistent in low rainfall areas. Some rainfall improves control; heavy rain reduces results. Proper incorporation may be difficult with trashy, lumpy seedbeds. Use 1 pt/A more Lasso than for preemergence. Rates of 3½ qt/A Lasso have been used in most tests.

PREEMERGENCE. Requires ½ to 3/4 inch rainfall within one week after application. Use a harrow or rotary hoe if weeds emerge before rainfall is received. Travel the same direction as the rows if banded.

EARLY POSTEMERGENCE. Before 2-leaf stage of grassy weeds and before corn has 5 leaves. May be applied after crop emergence before corn exceeds 3 inches. Emerged weeds are not controlled. Not a planned weed program. Do not use liquid fertilizer carrier.

LASSO + ATRAZINE (ALACHLOR + ATRAZINE)

LASSO/ATRAZINE

2-3 qt Lasso+1-1½ qt atrazine-4 lb/gal or 1½-2 lb atrazine-80% wp or 1.1-1.7 lb Atrazine-90% wdg

Tank-mix or use commercial premix (Lasso/Atrazine) containing 2½ lb alachlor + 1½ lb atrazine active per gallon. Very good to excellent control of several annual grasses and small-seeded annual broadleaves. Fair control of certain large-seeded broadleaves. Excellent performance. Better late season control than with Bladex combinations. Excellent crop tolerance. Rates vary according to soil type and application method. Use low rates on light, low organic matter soil. High rates are for heavy, clay soil and to improve control of certain weeds. Higher atrazine rates will improve broadleaf control and are required for large-seeded broadleaves. Rates of 2-2½ (alachlor) + 1 (atrazine) lb/A active have been satisfactory for most preemergence SDSU tests. Tank-mix preferred as it allows flexibility of rates so carryover can be minimized. The premix is best suited to continuous corn rotation because of the high ratio of atrazine to alachlor. Preplant and preemergence applications may be in liquid fertilizer. Minimum carrier is 15 gpa for ground and 3 gpa for air. Refer to carryover crop limitations in atrazine section.

SHALLOW PREPLANT INCORPORATED. Incorporate as for Lasso alone. Use 1 pt/A more Lasso than for preemergence.

PREEMERGENCE. Refer to Lasso section.

EARLY POSTEMERGENCE. May be applied before the 2-leaf stage of grassy weeds and before corn has 5 leaves. Less consistent. Primarily as an alternative if unforeseen conditions prevented earlier application. Harrowing or rotary hoeing to remove emerged weeds will improve results.
LASSO + BLADEX (ALACHLOR + CYANAZINE)

2-3 qt Lasso-4 lb/gal + 1-2 qt Bladex-4 lb/gal or 1¼-2½ lb Bladex-80% wp

Tank-mix. Very good to excellent control of many annual grasses and several small-seeded annual broadleaves. Fair control of certain large-seeded annual broadleaves. Consistent performance when rainfall received. Some late season weeds may emerge. Good crop tolerance. Use low rates on light, low organic matter soil. Rates of 2-2½ (alachlor) + 1½ (cyanazine) lb/A active have been satisfactory in most SDSU tests. May be applied in liquid fertilizer carrier. Minimum carrier is 15 gpa for ground and 4 gpa for air. No carryover.

SHALLOW PREPLANT INCORPORATED. Incorporate as for Lasso alone. Add 1 pt Lasso or 1/3 lb Bladex-80% wp or 1/2 pt Bladex-4 lb/gal additional over the preemergence rate. Deep incorporation reduces control.

PREEMERGENCE. Refer to sections for Lasso or Bladex. Rainfall critical. Do not apply after crop emergence.

LASSO + BLADEX + ATRAZINE (ALACHLOR + CYANAZINE + ATRAZINE)

2-3 qt Lasso-4 lb/gal + 1-2 qt Bladex-4 lb/gal or 1¼-2½ lb Bladex-80% wp + 1-2½ pt atrazine-4 lb/gal or 2/3-1½ lb atrazine-80% wp or 1/3 1/3 lb Aattrax-90% wdg

Three-way tank-mix. Excellent control of most annual grasses and several small-seeded annual broadleaves. Provides better late season annual broadleaf control than Bladex mixture and better control of certain large-seeded annual broadleaves with less carryover risk than lower rate atrazine combinations. Weak on velvetleaf. Very consistent performance. Rates of 2-2½ (alachlor) + 1½ (cyanazine) + 1½ (atrazine) lb/A active are suggested for most situations where atrazine carryover must be minimized. Labeled rates for atrazine are higher and will improve broadleaf control. Carryover risk with the low rate is reduced for most crops except highly sensitive crops such as oats or sunflowers. Refer to atrazine section for carryover information. Labeled rates for atrazine are higher and will improve broadleaf control. Carryover risk with the low rate is reduced for most crops except highly sensitive crops such as oats or sunflowers. Refer to atrazine section for carryover information. Minimum carrier is 15 gpa for ground application. May be applied in liquid fertilizer.

SHALLOW PREPLANT INCORPORATED. Incorporate as for Lasso alone. Use 1 pt/A more Lasso than for preemergence.

PREEMERGENCE. Refer to Lasso section.

DUAL (METHOCHLOR)

2-3 pt Dual-8 lb/gal

Very good to excellent control of several annual grasses. Fair control of pigweed with high rates and favorable conditions. Consistent on annual grasses when rainfall or soil moisture requirements are met. Weed control similar to alachlor when used preemergence in approximately equal rates. Low rates for light, low organic matter soil. Rates of 2½-3 lb/A active metolachlor have been satisfactory in most SDSU tests. Very good crop tolerance. May be applied in liquid fertilizer. Minimum carrier is 10 gpa for ground and 2 gpa for air. No carryover.

SHALLOW PREPLANT INCORPORATED. Incorporate into top 2 inches of soil with field cultivator, shallow disk, multiweeder, or other suitable implement during final seedbed preparation. Better results than preemergence when rainfall is very limited, but gives slightly less control than preemergence application with adequate rainfall. May be more consistent in low rainfall areas. Some rainfall improves control; heavy rain reduces effectiveness. Proper incorporation may be difficult with trashy, lumpy seedbed. Deeper incorporation reduces control. Use maximum rate for soil type.

PREEMERGENCE. Requires 1½-3/4 inch rain within one week after application. Harrow or rotary hoe if weeds emerge before rainfall. Travel same direction as the rows if banded.
DUAL + ATRAZINE (METOLACHLOR + ATRAZINE)

**BICEP**

1½-2 pt Dual-8 lb/gal + 1-2 qt atrazine-4 lb/gal or 1¼-2½ lb atrazine-80% wp or 1½-2 lb AAtrex-90% wdg

2-4 qt Bicep-2½+2 lb/gal

Tank-mix or use commercial premix (Bicep) containing 2½ lb/gal metolachlor + 2 lb/gal atrazine active. Very good to excellent control of several annual grasses and small-seeded annual broadleaves. Field control of certain large seeded broadleaves. Consistent performance when rainfall or soil moisture requirements are met. Better late season control than Bladex combinations. Excellent crop tolerance.

Use lower rates on light, low organic matter soil. Rates of 2-2½ (metolachlor) + 1 (atrazine) lb/A active have been satisfactory in most SDSU tests. Higher atrazine rates improve control of certain large-seeded broadleaves but also increase carryover. Tank-mix preferred as it allows flexibility of rates so carryover can be minimized. Bicep is best suited to continuous corn rotation because of high ratio of atrazine to metolachlor in the premix. Preplant and preemergence application may be made in liquid fertilizer. Minimum carrier is 10 gpa for ground or 2 gpa for air. Bicep is labeled for ground application only. Refer to carryover crop limitations in atrazine section.

SHALLOW PREPLANT INCORPORATED. Incorporate as for Dual alone.

PREEMERGENCE. Refer to Dual section.

EARLY POSTEMERGENCE. May be applied before the 2-leaf stage of weeds, but before corn is 5 inches tall. Less consistent. Primarily as an alternative if unforeseen conditions prevented earlier application. Harrowing or rotary hoeing to remove emerged weeds will improve results.

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DUAL + BLADEX (METOLACHLOR + CYANAZINE)

1½-2 pt Dual-8 lb/gal + 1-2½ qt Bladex-4 lb/gal or 1½-3 lb Bladex-80% wp

Tank-mix. Very good to excellent control of many annual grasses and several small-seeded annual broadleaves. Fair control of certain large-seeded annual broadleaves. Some late season weeds may emerge. Good crop tolerance. Lower rates are for light, low organic matter soil. Rates of 2-2½ (metolachlor) + 1½ (cyanazine) lb/A active have been satisfactory in most SDSU tests. Higher rates of Bladex will improve control of certain large-seeded annual broadleaves on heavy soil. May be applied in liquid fertilizer. Minimum carrier is 20 gpa for ground and 2 gpa for air. No carryover.

SHALLOW PREPLANT INCORPORATED. Incorporate as for Dual alone.

PREEMERGENCE. Refer to Dual section. Rainfall critical. Do not apply postemergence.

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RAMROD (PROPACHLOO)

4-6 qt Ramrod-4 lb/gal or 20-30 lb Ramrod-20% gran [broadcast]

Very good to excellent control of several annual grasses. Does not control broadleaves. Most consistent preemergence treatment for annual grasses in limited rainfall situations. Has 2-3 weeks shorter residual than Lasso or Dual, but requires less rainfall for activation. Late weeds may emerge in wet seasons. Excellent crop tolerance.

Granules or flowable easier to handle and are less irritating than wettable powder. Granules and spray are equally effective. Granules are applied on the soil surface behind the press wheel. Rates of 5-6 lb/A active propachlor have been satisfactory in most SDSU tests. Spray formulations may be applied in liquid fertilizer. Minimum carrier is 20 gpa (15 gpa for Ramrod liquid) for ground equipment. Ramrod liquid may be applied by air using 5 gpa carrier. No carryover.

PREEMERGENCE. Requires 1/3 to 3/4 inch rainfall within one week after application. Preferred application. Use shallow harrowing or rotary hoeing if weeds emerge before rainfall is received. Travel the same direction as the rows if banded. Do not incorporate.
RAMROD + ATRAZINE (PROPACHLOR + ATRAZINE)

2½-4 qt Ramrod-4 lb/gal+1-1½ qt atrazine-4 lb/gal or ½-2 lb atrazine-80% wp

5-8 lb Ramrod/atrazine-48% + 20% wp

Tank-mix or commercial wettable powder premix containing 48% propachlor + 20% atrazine. Very good to excellent control of several annual grasses and several small-seeded annual broadleaves. Fair control of certain large-seeded annual broadleaves. Excellent crop tolerance. Consistent performance if rainfall received. Rates of 4 (propachlor) + 1 (atrazine) lb/A active have been satisfactory in most SDSU tests. Tank-mix preferred because it allows using low atrazine rates to minimize carryover. Liquid formulations easier to handle and are less irritating. Preemergence application may be made in liquid fertilizer. Minimum carrier is 20 gpa (15 gpa for Ramrod liquid). Ramrod liquid is labeled for aerial application using 5 gpa carrier. Refer to carryover crop limitations in atrazine section.

PREEMERGENCE. Preferred method. Refer to propachlor section.

EARLY POSTEMERGENCE. May be applied until weeds have 2 leaves. Less consistent results. Do not use liquid fertilizer carrier. Use harrow or rotary hoe to remove emerged weeds.

BANVEL (DICAMBA)

¼-1 pt Banvel-4 lb/gal or ½-2 pt Banvel II-2 lb/gal

Good to very good control of several small-seeded annual broadleaves and perennial broadleaves. Considered more effective than 2,4-D for Canada thistle, kochia, smartweed, or wild buckwheat. Does not control mustard. Better crop tolerance than 2,4-D, but can cause brittleness resulting in lodging or breakage. Risk of injury greatest during periods of rapid growth. Avoid drift to sensitive crops. Use 20 gpa carrier and not over 20 psi pressure. Banvel II contains 2 lb/gal sodium salt of dicamba. This formulation is reported to provide reduced risk of vapor drift and is intended for use in those situations. However the same precautions are suggested as the potential for droplet drift remains the same.

Do not apply after soybeans in area are over 8 inches tall. Do not apply if wind is toward sensitive crops or if wind is over 5 mph or if expected high temperature is over 80-85°F. June 20th is suggested cut-off date if sensitive crops are nearby. Do not harvest for dairy cattle prior to milk stage of kernel. Rates vary according to time of application.

EARLY POSTEMERGENCE. Apply ¼-½ lb/A active dicamba before corn is over 5 inches tall. Useful for Canada thistle in seasons where weeds emerge early and are ahead of the corn.

POSTEMERGENCE. Apply ½ lb/A active dicamba before corn is 36 inches tall or not later than 15 days before tassel. Drop nozzles after corn is 12-16 inches tall improve weed coverage and reduce drift and risk of crop injury.

ATRAZINE + CROP OIL

1½-2 qt atrazine-4 lb/gal or ½-2 lb atrazine-80% wp or 1.3-2.2 lb Acelex-90% wdg+crop oil

EARLY POSTEMERGENCE. Weeds should be less than ¼ inches high. Very good control of several emerged annual broadleaves and poor to fair control of most annual grasses. Some leaf burn on perennials but little stand reduction. Most consistent on broadleaves. Use high rate for grasses and for longer residual control. Rainfall, high humidity, and dew improve results. Intended to be followed with cultivation.

Regular crop oil or oil concentrate is more effective than wetting agents. Use regular crop oil at the rate of 1 gpa for ground and ½ gpa for aerial application. Use oil concentrate at the rate of 1 qt/A for ground application. Some crop yellowing or leaf tip burn may occur under cool, wet conditions. Do not add 2,4-D or Banvel. Minimum carrier is 10 gpa for ground or 2 gpa for air. Do not use liquid fertilizer carrier. Refer to atrazine section for carryover crop limitations.

BANVEL + 2,4-D AMINE (DICAMBA + 2,4-D)

½ pt Banvel-4 lb/gal+¼ pt 2,4-D amine-3.8 lb/gal

Provides better control of more weeds than either herbicide used alone. High rates are the maximum rate for each herbicide alone and provide optimum broadleaf perennial control. Consider patch treatment to reduce risk of injury on large acreages. The lower 2,4-D rate is suggested for most small, susceptible weeds. Lower Banvel rates (¼ pt/A) may be adequate for small weeds under ideal conditions. Using the ½ pt/A Banvel rate and reducing the 2,4-D rate to less than ½ pt/A may reduce the risk of crop injury. Follow drift and other precautions in Banvel or 2,4-D section. Refer to special weed problem section for hemp dogbane program using higher rates applied after the silks are brown. Banvel II is not labeled for use in a tank-mix with 2,4-D amine.

POSTEMERGENCE. Use drop nozzles after corn is 8 inches tall. Do not apply after corn is 36 inches tall or later than 15 days before tassel.
2,4-D

\[
\frac{1}{4} - 1 \text{ pt} \quad 2,4-D \text{ amine-3.8 lb/gal} \\
\frac{1}{8} - 1.3 \text{ pt} \quad 2,4-D \text{ ester-5.7 lb/gal} 
\]

**POSTEMERGENCE.** Very good control of most emerged annual and perennial broadleaved weeds. Refer to Special Weed Problems section. Use drop nozzles after corn is 8 inches tall (soil to tip of whorl leaf). Do not apply later than 1 week before silking. Risk of brittleness increases in cool and wet or hot and humid conditions. Wind storms may cause lodging or breakage. Hybrids vary in tolerance; however, hybrid susceptibility is also affected by growing conditions. Drop nozzles reduce risk of injury. Avoid cultivation for 7 days after spraying. Do not use wetting agents or other additives. Slightly higher rates will improve perennial weed control, but risk of injury increases. Check product label.

**HARVEST AID.** Apply after silks are brown or after black layer stage in seed fields. Dries weeds to facilitate harvest. Appears to substantially reduce amount and viability of sunflower seed; velvetleaf affected must less. Good retreatment for perennials. Excellent crop tolerance. Use 1 lb/A active of ester or amine forms with high clearance sprayer. Formula 40 and Esteron 99 are labeled for aerial application.

### OTHER CORN HERBICIDES

**BLADEX (CYANAZINE)**

\[
1.5 - 3 \text{ qt Bladex-4 lb/gal or 1.5-3 \frac{1}{4} lb Bladex-80\% wp} 
\]

Good to very good control of several small-seeded annual broadleaves and good control of several annual grasses. Higher rates give very good control of certain large-seeded annual broadleaves. Better grass control than atrazine. Has been less consistent than some other treatments. Used primarily in combination with other herbicides. Do not use on sandy soils. Preplant and preemergence applications may be made in liquid fertilizer. Minimum carrier is 15-20 gpa for ground and 4 gpa for air. No carryover.

**SHALLOW PREPLANT INCORPORATED.** May be incorporated into top 1-2 inches of soil. Gives better performance with very limited rainfall but less control than preemergence application with adequate rainfall. Reduced control in wet seasons.

**PREEMERGENCE.** Must have 3/4 to 1 inch of rain within one week of application. Use a harrow or rotary hoe to remove weeds that emerge before rainfall.

**EARLY POSTEMERGENCE.** Apply before weeds are over 1½ inch tall and before corn has more than 4 leaves. Results variable; however, grass and annual broadleaf control can be very good to excellent under good conditions. Wettable powder only. Use 1½-2% lb/A Bladex-80% wp. Some risk of crop injury. Yellowing and leaf tip burn may be noted with cool, wet conditions. Rainfall, dew, or high humidity improves results. In dry conditions, add a non-petroleum based surfactant. Minimum carrier is 15 gpa for ground or 4 gpa for air.

**PROWL (PENDIMETHALIN)**

\[
1 - 2 \text{ qt Prowl-4 lb/gal} 
\]

Good to very good control of several annual grasses and fair to good control of certain small-seeded annual broadleaves. Early season weed control less consistent than for some other treatments. Very good late season control. Do not incorporate, as crop injury can be severe. The 2 qt/A rate has been used in most SDSU tests. Fair crop tolerance. May be applied in liquid fertilizer. Minimum carrier is 10 gpa for ground or 5 gpa for air. No carryover.

**PREEMERGENCE.** Requires 3/4-1 inch of rainfall within one week after application. Rainfall very critical for good results. Do not harrow before crop emergence.

**POSTEMERGENCE INCORPORATED.** Intended to provide control of late season annual weeds. Apply after corn is 4 inches tall. Incorporate with cultivation. Herbicide does not control emerged weeds. A second incorporation is required. Limited tests.
PROWL + ATRAZINE (PENDIMETHALIN + ATRAZINE)

1-1½ qt Prowl-4 lb/gal+1-1½ qt atrazine-4 lb/gal or 1½-2 lb atrazine-80% wp or 1.1-1.7 lb AAText-90% wdg

Tank-mix. Good to very good control of several annual grasses and good control of several small-seeded annual broadleaves. Slightly better velvetleaf control than other preemergence combinations. Slightly less consistent early season weed control than for other preemergence combinations. Rates of 1½ (pendimethalin) + 1 (atrazine) lb/A active has been used in SDSU tests. Refer to Prowl section for application directions and atrazine section for carryover crop limitations.

PREEMERGENCE. Refer to Prowl section.

EARLY POSTEMERGENCE. Apply before crop has more than 2 leaves. Do not use liquid fertilizer carrier. Has shown promise as an alternative where preemergence treatments have not been applied because of unforeseen delays.

POSTEMERGENCE INCORPORATED. Intended to provide control of late season annual weeds. Apply after corn is 4 inches tall. Incorporate with cultivation. Herbicide does not control emerged weeds. A second incorporation is required. Limited tests.

PROWL + BLADEX (PENDIMETHALIN + CYANAZINE)

1-1½ qt Prowl-4 lb/gal+1½-2 qt BladeX-4 lb/gal or 2-2½ lb BladeX-80% wp

Tank-mix. Good to very good control of several annual grasses and several small-seeded annual broadleaves. Has been less consistent than other treatments in some tests. Rates of 1½ (pendimethalin) + 1¼ (cyanazine) lb/A active have been used in most SDSU tests. Application equipment directions same as for Prowl alone.

EARLY POSTEMERGENCE. Apply before crop has more than 2 leaves. Annual grasses should be less than 1 inch. Do not use BladeX 4L formulation. Do not use fertilizer carrier. Has shown promise as an alternative when preemergence treatments were not applied because of unforeseen delays.

PREEMERGENCE. Refer to Prowl section.

DUAL + BANVEL (METOLACHLOR + DICAMBA)

2-2½ pt Dual-8 lb/gal+1 pt Banvel-4 lb/gal

PREEMERGENCE. Tank-mix. Very good to excellent control of several annual grasses. Good to excellent control of several small-seeded annual broadleaves. Short term control of certain large-seeded annual broadleaves. Performs better than other combinations when rainfall limited; however length of control is less when rainfall adequate. Reduces drift problem potential. Does not control perennials. Post-emergence Banvel following preplant or preemergence treatments usually provides better control and is preferred for perennials. Plant corn at least 1½ inches deep. Risk of corn stunting if heavy rain occurs at emergence. Do not use on light, sandy soil. Not for furrow planted corn. Do not incorporate or harrow before corn emerges. May be applied in liquid fertilizer. Minimum carrier is 10 gpa.

LASSO + BANVEL (ALACHLOR + DICAMBA)

2½ qt Lasso-4 lb/gal+1 pt Banvel-4 lb/gal

PREEMERGENCE. Refer to Dual + Banvel section. Minimum carrier is 15 gpa.

EARLY POSTEMERGENCE. Crop should be no more than 3 inches tall and weeds should have not more than 2 leaves. Apply in minimum of 15 gpa water. Slightly less risk of crop injury from Banvel, but chance of reduced grass control from Lasso.

PROWL + BANVEL (PENDIMETHALIN + DICAMBA)

1¼ qt Prowl-4 lb/gal+3/8 qt Banvel-4 lb/gal

PREEMERGENCE. Refer to Dual + Banvel section.
**ATRAZINE + BANVEL (ATRAZINE + DICAMBA)**

1-2 qt atrazine-4 lb/gal or 1½-2½ lb atrazine-80% wp + ¼ pt Banvel-4 lb/gal

**PREEMERGENCE OR EARLY POSTEMERGENCE.** Tank-mix. Good control of annual broadleaves but poor control of annual grasses. Rainfall required for preemergence. Postemergence applied before grasses are ½ inches tall. Do not use crop oil or surfactant. Other treatments using these herbicides appear to perform better in most situations.

**BASAGran (BENTAZON)**

1½-2 pt Basagran-4 lb/gal

**POSTEMERGENCE.** Excellent control of cocklebur. Very good control of sunflower and velvetleaf. Control is best on actively growing, small weeds. Lower rate is for cocklebur under 6 inches, velvetleaf under 2 inches, and sunflower under 4 inches. Use higher rate for cocklebur up to 10 inches, velvetleaf to 5 inches, and sunflower to 6 inches.

Oil concentrate is suggested for most situations. Use oil at rate of 1 qt/A in minimum of 20 gpa carrier with minimum of 40 psi pressure for ground and 1 pt/A in minimum of 5 gpa at 40 psi for air. Very good crop tolerance. Corn is usually at the 1- to 5-leaf stage when treated. Primarily for special situations where maximum crop safety is important. May be tank-mixed with all formulations of atrazine using 1/2-3/4 (bentazon) + 1/2-3/4 (atrazine) lb/A active. Limited data. Do not mix with other herbicides. Do not treat corn under stress.

**BUCTRIL (BROMOXYNIL)**

1 pt Buctril-2 lb/gal

**POSTEMERGENCE.** Very good to excellent control of annual broadleaves including cocklebur, lambsquarters, and smartweed. Good control of small velvetleaf. Does not control grasses or perennials. Weeds should not be over 6 inches tall or have more than 6 leaves. Not a rescue type treatment. Corn should be 3-20 inches tall (2-8 leaves). Crop tolerance is good. Leaf tip burn may be noted when crop is under stress conditions. Does not cause brittleness and does not produce vapor drift. Contact herbicide. Minimum carrier is 20 gpa carrier. Do not mix with other herbicides or additives. No carryover.

**LASSO OR DUAL + BLADEX OR ATRAZINE + SENCOR (ALACHLOR OR METALACHLOR + CYANAZINE OR ATRAZINE + METRIBUZIN)**

1½-2½ qt Lasso-4 lb/gal or 1½-2½ pt Dual-4 lb/gal + 1½-3 qt Bladex-4 lb/gal or 1½-3 qt atrazine-4 lb/gal + ¼ pt Sencor-4 lb/gal or 1 lb Sencor-50% wp or 2/3 lb Sencor-75% d" 

Three-way tank-mix. Excellent control of most annual grasses and several annual broadleaves. Very consistent control. Intended for improved broadleaved control with minimal atrazine carryover. For very limited, special situations. Will improve velvetleaf control compared to the same rates of atrazine or Bladex in mixture. Marginal crop tolerance. Do not use on soil with pH over 7.0. Not for coarse, sandy soil with less than 2% organic matter. Rates of 2 (alachlor or metalachlor) + ½-1 (atrazine) or 1½ (cyanazine) + ¼ (metribuzin) lb/A active are suggested for most situations. Use equivalent amount of other Bladex or atrazine formulations to those listed above. Slightly greater crop tolerance and higher velvetleaf control with atrazine than with Bladex in the combination. Minimum carrier is 20 gpa for ground and 3 gpa for air.

**PREEMERGENCE.** Apply before crop emerges. Do not incorporate.

**TREFlAN (TRIFLURALIN)**

3/4-2 pt/A Treflan-4 lb/gal

**POSTEMERGENCE INCORPORATED.** Intended to provide control of grasses emerging in late season. Apply after corn is 8 inches tall and incorporate with cultivator. Emerged weeds not controlled by herbicide. Not labeled for preplant or preemergence use as injury can be severe. Appears to have limited potential.

**NO-TILL CORN**

**BRONCO (ALACHLOR + Glyphosate)**

3½-5 qt Bronco-2.6-1.6 lb/gal

Commercial pre-mix containing 2.6 lb alachlor (Lasso) + 1.6 lb glyphosate (Roundup) active per gallon. Intended to control emerged weeds in no-till situations. Excellent control of emerged annual grasses. Perennials may be suppressed. Lasso provides residual annual grass control if rainfall is received before more weeds emerge. Bronco can be tank-mixed with atrazine or Bladex to provide residual annual broadleaf control. Do not apply after crop emergence.
NO-TILL (CONTINUED)

PARAQUAT or GRAMOXONE (PARAQUAT)

1-2 pt Paraquat or Gramoxone-2 lb/gal

Paraquat is a non-selective, non-residual, contact herbicide which may be used at planting in combination with other herbicides in no-till or reduced tillage systems. Paraquat controls emerged grasses and broadleaves and topgrowth of perennials. Rates of 1-1½ pt/A paraquat are adequate for most small weeds; higher rates are for larger weeds or dense stands. Apply in a minimum of 20 gpa carrier. Paraquat is highly toxic; follow handling and safety precautions. Restricted Use pesticide. Several combination treatments for these systems are listed below.

Amount of product per acre, tank-mix.

(Liquid formulations listed; however, an equivalent amount of other formulations may be used. Add X-77 at the rate of 1 pt/100 gallons of solution.)

- 1-2 pt Paraquat + 2-3 qt atrazine
- 1-2 pt Paraquat + 1½-4 qt Bladex
- 1-2 pt Paraquat + 2-2½ qt Lasso + 3/4-2 3/4 qt Bladex
- 1-2 pt Paraquat + 1½-2½ pt Dual + 1-2 qt Bladex
- 1-2 pt Paraquat + 1½-2½ pt Dual + 1½-2 qt atrazine
- 1-2 pt Paraquat + 2.4-4 qt Bicep
- 1-2 pt Paraquat + 2-3 qt Lasso + 1-2 qt atrazine

ROUNDUP (GLYPHOSATE)

1-4 qt Roundup-3 lb/gal

Roundup is a non-selective, translocated, foliage applied herbicide used as a spot treatment for perennials or to control emerged weeds when used at planting in no-till or reduced tillage systems. There is no soil residual. All emerged vegetation will be damaged or killed.

SPOT TREATMENT. Corn will be killed in treated area. Use 2-4 qt/A Roundup. Weeds should be growing actively and have reached boot or bud stage. Primarily for field bindweed, Canada thistle, milkweed, or quackgrass. Consult label for precautions and mixing restrictions for hand equipment. Use extreme caution to prevent drift.

NO-TILL or REDUCED TILLAGE SYSTEMS. Controls emerged annual grasses and broadleaves. Use higher rate for weeds over 6 inches tall. Follow all label precautions. Several combination treatments are listed below.

Amount of product per acre, tank-mix.

(Liquid formulations listed; however, equivalent amounts of other formulations may be used.)

- 1½ qt Roundup + 1½-2½ pt Dual + 1½-2 qt atrazine
- 1½ qt Roundup + 2.4-4 qt Bicep
- 1-1½ qt Roundup + 2-3 qt Lasso + 1-2 qt atrazine
- 1-1½ qt Roundup + 2-3 qt Lasso + 1-2¼ qt Bladex
- 1-1½ qt Roundup + 2½-3½ qt Lasso

SPECIAL WEED PROBLEMS IN CORN

Herbicides listed below are considered the best choice for the weed problem. Results will vary according to local conditions.

ANNUAL GRASS (GREEN, YELLOW, & BRISTLY FOXTAIL; SANDBUR)

ERADICANE Preplant incorporated. Excellent control of foxtail species. Best choice for sandbur. Good control of barnyardgrass. Most consistent of deeply incorporated treatments. Rates used in combination treatments also provide adequate grass control. Refer to Eradicane section.

SUTAN Preplant incorporated. Very good to excellent control of foxtail species. Good sandbur control. May be used in combination with other herbicides without reducing grass control. Refer to Sutan section.

LASSO or DUAL Preemergence or shallow preplant incorporated. Excellent control of most foxtail species. Late emerging yellow or bristly foxtail may escape. If used in combination treatment, use maximum rate of Lasso or Dual for soil type. Best control achieved with preemergence application with adequate rainfall. Variable on sandbur. Refer to section for Lasso or Dual.
SPECIAL WEED PROBLEMS (CONTINUED)

ANNUAL GRASS (CONTINUED)

PROPACHLOR
Preemergence (Ramrod, Buxton, Propachlor). Excellent control of several foxtail species. Late season grasses may emerge, especially in wet seasons. Most consistent preemergence treatment in lower rainfall areas. Full rate for soil type when used alone gives best control. If used in combination treatment, use maximum rate of propachlor for soil type. Refer to propachlor section.

WILD OATS
ERADICANE
Preplant incorporated. Most consistent and highest level of control. Use maximum rate for soil type. May be used in combination with other herbicides without reducing control. Refer to Eradicane section.

ATRAZINE
Postemergence. Primarily a rescue treatment. Considerable variability. Use 2 lb/A active with full rate of crop oil. Note crop rotation limitations. Refer to atrazine section.

WILD CANE, WILD PROSO MILLET
ERADICANE or SUTAN+
Preplant incorporated. Rates higher than for annual grasses. Best control with 7 1/3 pt/A Eradicane or Sutan. Lower rate gives less control. Eradicane gives slightly better control at equivalent rates. May be mixed with atrazine or Bladex if Eradicane or Sutan rate is not reduced. Refer to Eradicane or Sutan section. May be followed by early postemerge Prowl + Bladex 8OW or Prowl + atrazine where wild pros is severe.

SMALL-SEEDED ANNUAL BROADLEAVES (KOCIA, RUSSIAN THISTLE, PIGWEED, LAMBSQUARTERS)

ATRAZINE
Excellent control with preplant or preemergence atrazine alone or with 1 to 1 1/2 lb/A active used in combination with other herbicides. Better late season control than with Bladex, especially in wet seasons. Atrazine plus crop oil early postemergence gives very good control. Note crop rotation limitations. Refer to atrazine section.

BLADEX
Very good to excellent control with full preemergence rate for soil type. Combination rate of 1.5 lb/A active used with other herbicides gives good control. Weak on pigweed. Early postemergence treatments with 1.5 lb/A active with a non-petroleum surfactant gives good to very good control. Some risk of leaf burn. Refer to Bladex section.

BANVEL + 2,4-D AMINE
Postemergence. Better than 2,4-D alone for kochia. Rates of ¼-½ lb/A acid equiv. are satisfactory for small weeds and reduce risk of crop injury when compared to maximum rates. Use drop nozzles after corn is 8 inches tall. Moderate crop tolerance. Refer to Banvel + 2,4-D section.

BASAGRAN
Postemergence. Very good control. Cocklebur more sensitive than sunflower. Most potential where carryover and drift must be avoided and where crop tolerance is a major factor. Refer to Basagran section.

BUCTRIL
Postemergence. Very good control. Refer to Buctril section.
VITWLFVENI CE MALLCW

ATRAZINE Rates of 2-3 lb/A active atrazine applied as a shallow preplant incorporated treatment provide very good control. Use maximum rate for soil type. Preemergence application less consistent. Postemergence applications of 1½-2 lb/A active atrazine give very good control. Lower rates used in combination with other herbicides give 20-40% less control. Atrazine better than Bladex. Note crop rotation limitations in atrazine section.

ERADICANE + ATRAZINE Eradicane at 4 3/4 pt/A applied preplant incorporated + 1½ lb/A active atrazine gives very good control. Rates of Eradicane up to 7 1/3 pt/A improve results. Refer to Eradicane + atrazine section.

2,4-D or BANVEL + 2,4-D AMINE Postemergence. 2,4-D alone or 2,4-D amine in combination with Banvel at recommended rates give better control than Banvel alone. Preharvest application of 2,4-D less effective in reducing seed production than for some other weeds. Marginal crop tolerance. Refer to 2,4-D or Banvel + 2,4-D section.

BASAGRAN Postemergence. Good to very good control. Refer to sunflower/cocklebur section above and Basagran section.

QUACKGRASS

ATRAZINE Split application. Very good control. Apply 2 lb/A active atrazine in fall or spring. Plow 1-3 weeks later. Make a second application of 2 lb/A active in the spring as a preplant, preemergence, or postemergence application. Best annual weed control. Single application. Apply 4 lb/A active in fall or spring. Plow 1-3 weeks later. Corn must be planted for 2 years with either system. Plan to cultivate crop.

ROUNDUP Apply in fall after harvest or in spring before late planted crop. Quackgrass should be actively growing and at least 8 inches tall. Fall treatment gives better control. All emerged weeds are affected. Roundup is translocated throughout the plant. Do not till in the fall or spring prior to spring application. Delay planting as long as possible to allow for maximum growth. Do not till for 3 days after application. Use 2-3 qt/A Roundup. No carryover or residual weed control. Plan to cultivate crop. Spot treatment. Refer to Roundup section.

CANADA THISTLE, FIELD BINDWEED

BANVEL + 2,4-D AMINE Postemergence. Combination gives very good suppression of emerged plants. Better control than either herbicide used alone. Treat patches only. Use maximum rates for best results. Application with drop nozzles after first cultivation will give best fall suppression but may be applied over the top until corn is 8 inches tall. Best treatment for field bindweed. Marginal crop tolerance. Refer to Banvel + 2,4-D section.

BANVEL Early postemergence. Good choice if Canada thistle is emerging and growing rapidly in early season. Apply before corn is over 5 inches tall. Use ½ to 1 pt/A. High rate gives best suppression. If corn is over 5 inches tall, maximum rate is ½ pt/A. Treat patches. Marginal crop tolerance. Refer to Banvel section.

2,4-D Postemergence. Use drop nozzles after corn is over 8 inches tall. Amines are used at slightly higher rate and give slower kill. Some labels allow for higher rates to improve control, but risk of injury increases. Marginal crop tolerance. Refer to 2,4-D section.

ROUNDUP Spot treatment. Refer to Roundup section.

HEMP DOGBANE

BANVEL + 2,4-D AMINE Preharvest. Treat after the silks are brown and the dogbane has enlarged, pink root buds, but before leaves begin to yellow. Weeds must be growing actively. Gives 60-80% control. Use ½ pt Banvel + 1 lb/A acid equiv. 2,4-D amine. Apply with ground or air equipment. Do not apply within 30 days of harvest. Refer to Banvel + 2,4-D amine section.

COMMON MILKWHEED

BANVEL Postemergence. Poor to fair suppression. Does not reduce stands. Better than 2,4-D. Plowing helps weaken weeds. Refer to Banvel section.
SPECIAL WEED PROBLEMS (CONTINUED)

VOLUNTEER ALFALFA

BANVEL + 2,4-D AMINE Postemergence. Use rates of ½ pt Banvel + ¼-½ lb/A acid equiv. 2,4-D amine. Follow precautions and directions in Banvel + 2,4-D section.

YELLOW NUTSEDEE

ERADICANE Preplant incorporated. Use 4 3/4-7 1/3 pt/A. Higher rate improves results. Good control. Eradicane better than Sutan at equal rates. May be used in combination with other herbicides if Eradicane or Sutan rate is not reduced. Soil should be worked thoroughly. Use with cultivation. Refer to Eradicane or Sutan section.

Sutan

DUAL OR LASSO Shallow preplant incorporated. Use maximum rate for soil type. Good to very good control. Dual slightly more effective. May be used in combination with other herbicides if Dual or Lasso rate is not reduced. Use with cultivation. Refer to Dual or Lasso section.

BASAGRAN Postemergence when weed is 6-8 inches tall. Good control. Two applications of 1½-2 pt/A split 7-10 days apart give best control. Useful for spot treatment or as a followup. Refer to Basagran section.

ATRAZINE Shallow preplant incorporated applications of 4 lb/A active atrazine provide fair to good control. Early postemergence application of 2 lb/A active with crop oil applied when weed is 2-3 inches tall gives about equal control. Seedbed should be thoroughly tilled. Use with cultivation. Refer to atrazine section for carryover crop limitations.

Herbicides for Sweet Corn

The following are labeled for sweet corn. Check the product label for special precautions.

Lasso
Lasso + AAtrex/atrazine
Lasso + Bladex
Lasso + Bladex + atrazine
Dual
Dual + atrazine
Ramrod
Ramrod + AAtrex/atrazine
AAtrex/atrazine
Eradicane
Eradicane Extra
Eradicane + AAtrex/atrazine
Eradicane + Bladex
Eradicane + Bladex + atrazine
Sutan
Sutan + AAtrex/atrazine
Sutan + Bladex
Sutan + Bladex + atrazine
2,4-D
Bladex
Bicep
Basagran

Herbicide Cost

The table below gives the cost per acre, based on suggested retail prices for the previous season, for several herbicide treatments. The amounts shown are for the low and high rates. Consult your local dealer for actual cost.

<table>
<thead>
<tr>
<th>TREATMENT</th>
<th>AMT/PRODUCT/A</th>
<th>HERBICIDE COST/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eradicane+Bladex</td>
<td>3 3/4-4 3/4 pt</td>
<td>18.40-23.70</td>
</tr>
<tr>
<td>Eradicane+atrazine+Bladex</td>
<td>3 3/4-4 3/4 pt+1 qt</td>
<td>13.10</td>
</tr>
<tr>
<td>Sutan</td>
<td>4 3/4 pt</td>
<td>13.20-17.40</td>
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<tr>
<td>Sutan+atrazine</td>
<td>3 3/4-4 3/4 pt+1-1½ qt</td>
<td>16.50-21.35</td>
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<tr>
<td>Sutan+Bladex</td>
<td>3 3/4-4 3/4 pt+1½ qt</td>
<td>17.95-20.70</td>
</tr>
<tr>
<td>Sutan+Bladex+atrazine</td>
<td>3 3/4-4 3/4 pt+1½ qt</td>
<td>17.95-20.70</td>
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<td>Atrazine</td>
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<td>Lasso</td>
<td>2-3½ qt</td>
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<td>Lasso+atrazine</td>
<td>2-2½ qt+1-1½ qt</td>
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<td>Lasso+Bladex</td>
<td>2-2½ qt+1-2 qt</td>
<td>13.90-20.50</td>
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<tr>
<td>Lasso+Bladex+atrazine</td>
<td>2-2½ qt+1½ qt</td>
<td>17.40-19.85</td>
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<td>Dual</td>
<td>2-3 pt</td>
<td>11.70-17.55</td>
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<tr>
<td>Dual+atrazine</td>
<td>1½-2½ pt+1-2 qt</td>
<td>11.65-20.40</td>
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<tr>
<td>Dual+Bladex</td>
<td>1½-2½ pt+1-2½ qt</td>
<td>12.90-22.00</td>
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<tr>
<td>Ramrod</td>
<td>4-6 qt</td>
<td>15.00-22.50</td>
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<tr>
<td>Ramrod+atrazine</td>
<td>2½-4 qt+1-1½ qt</td>
<td>16.00-19.30</td>
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<tr>
<td>Banvel</td>
<td>¼-1 pt</td>
<td>1.35-5.50</td>
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<tr>
<td>atrazine+oil</td>
<td>1½-2 qt+1 gal</td>
<td>4.85-7.00</td>
</tr>
<tr>
<td>Banvel+2,4-D amine</td>
<td>¼-½ pt+¼-1 pt</td>
<td>1.95-3.85</td>
</tr>
</tbody>
</table>

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