7 - Weed Control In Corn

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Weeds compete with corn to reduce yields, cause harvesting losses and produce seed that increase the soil seed bank. Even a light infestation of weeds can reduce yields by 10 to 15 percent. Heavy infestations may reduce yields as much as 50 percent if left unchecked during the season. Ideally, weeds should be controlled throughout the season. However, the most critical period is for the first six weeks after planting.

The potential size of the ear is determined over a three-week period starting about six weeks after emergence. It is critical to have the corn growing well without stress from competing weeds at this time. Research has shown that one morningglory or pigweed plant per 4 feet of row that is allowed to remain uncontrolled for four weeks after emergence will reduce yields by 4 percent.

Late season weed infestations have less effect on produced yields, but may interfere with harvesting and reduce harvestable yields. Late season weeds are also very efficient at producing seed to replenish the soil seed bank. Effective and economical weed control in corn requires an integrated program that includes good cultural practices such as crop rotation and water management, judicious mechanical practices, proper herbicide selection and proper weed identification.

Your county Extension agent receives extensive training on weed identification and weed control technology and is available to assist in developing economical and effective control programs. *Recommended Chemicals for Weed and Brush Control,* often referred to as MP-44, is updated annually to reflect the most current information on herbicide label changes and revised recommendations based on research data. This publication is available from county Extension offices throughout the state. The color photographs at the end of this chapter depict some of the more common weeds found in corn in Arkansas.

Farmers have known for many years that **cultivation often prunes corn roots and can reduce yields**. Better available herbicide technology has allowed more reliance on chemical weed control and less on cultivation. It is estimated that near 100 percent of the corn grown in Arkansas receives at least one herbicide application. Approximately 20 percent of this acreage is not cultivated after the crop emerges. A very small percentage receives cultivation after the corn reaches 8 inches in height and roots begin to expand to the sides of the beds.

Possibly no other crop has as many weed control options as corn. There are currently over 130 different herbicide brand names labeled for weed control in this 75 million U.S. acres crop. However, many of these brand names are simply various mixtures of a much smaller number of active ingredients. There are approximately 30 brand names listed in Arkansas' MP-44, *Recommended Chemicals for Weed and Brush Control*.

The ten most troublesome weeds in corn in Arkansas are morningglory, pigweed, johnsongrass, broadleaf signalgrass, barnyardgrass, nutsedge, sicklepod, velvetleaf, prickly sida and crabgrass. Recommended control measures for these weeds are usually quite effective. Adverse weather conditions can cause control failures. The grassy weeds usually compete most heavily with corn during the early season, while morningglory and pigweed are often most troublesome by germinating after layby and causing harvesting problems.

Atrazine is the basis of most chemical weed control programs in Arkansas corn, with over 80 percent of the acres treated receiving at least one application. Atrazine may be applied alone or in combination with other herbicides either pre-emergence or postemergence. Other herbicides are often mixed with atrazine to broaden the weed spectrum or to offer more residual weed control.

Metolachlor (Dual Magnum), alachlor (Lasso) and dimethenamid (Outlook) are acid amide – sometimes called chloroacetamide – herbicides. Although atrazine has some activity on grassy weeds, it is considered a broadleaf product. The acid amide herbicides have much more activity on grassy weeds than on broadleaf weeds. Mixtures of atrazine and one of the acid amides offer broad spectrum weed control with good residual properties. (See Table 7-1.)

Due to concerns about atrazine moving into underground aquifers, there are some label restrictions governing mixing, loading and application in proximity to water wells and reservoirs. EPA is considering additional restrictions that, if implemented, could make atrazine use in Arkansas impractical. University and industry scientists have worked diligently over the past few years to identify a herbicide with similar weed control attributes as atrazine but without the regulatory restrictions. Callisto (mesotrione) has been added to MP-44 as an alternative in atrazine sensitive areas.

Preemergence herbicides are applied after the corn has been planted and prior to emergence. Some herbicides such as Dual Magnum are taken into the weedy plants through the emerging coleoptile and have little or no activity on emerged weeds. These herbicides must be applied before targeted weeds germinate. Dual, Lasso and Outlook primarily control grasses such as crabgrass, barnyardgrass and broadleaf signalgrass, but also suppress yellow nutsedge and offer some control of pigweeds.

Combinations of these products with atrazine as tankmixes or premixes applied preemergence will control most seedling grasses and broadleaf weeds for three weeks. Rainfall or irrigation is required to incorporate the herbicides with the soil for activity. This is often referred to as "activation" of the herbicide. However, large rains immediately after application may move some of the herbicide into contact with the germinating corn seedling and may actually be taken into the germinating seed as it imbibes water. This usually results in delayed emergence and some crop injury. Typical injury symptoms include buggy whipping and slowed growth. Under good growing conditions, the symptoms are usually only cosmetic and the corn resumes normal growth seven to ten days after emergence.

Postemergence herbicides are applied after the corn has emerged and most often after the weeds have emerged. Postemergence herbicides are used to control emerged weeds that have escaped through the preemergence herbicides or to extend the residual weed control beyond what can be achieved with preemergence herbicides alone.

Atrazine, 2,4-D, Clarity (dicamba) and Callisto control broadleaf weeds when applied postemergence. Atrazine may be applied until corn reaches 12 inches tall, Clarity and 2,4-D over the top to 5-leaf corn and Callisto may be applied on corn up to 30 inches tall. Callisto and atrazine have some activity postemergence on grassy weeds, but may provide unacceptable control if used alone on grasses over 1 inch tall. Accent (nicosulfuron) is very effective

Buggy whipping or leaf wrapping is caused when the leaves fail to unfurl. New leaves are trapped in the leaf below, resulting in abnormal growth as shown. Factors other than herbicides can also cause this symptom. Buggy whipping is usually a temporary condition, and plants will likely recover except under the most extreme conditions.

when applied to grassy weeds less than 4 inches tall. Accent is often mixed with a broadleaf herbicide such as Clarity, Basis (rimsulfuron) or atrazine to offer both broadleaf and grass control.

Nutsedge and rhizome johnsongrass are particularly troublesome perennial weeds. Permit herbicide applied at 1.33 ounces per acre when nutsedge is 4 to 12 inches tall is the most effective treatment in conventional corn. However, if nutsedge is allowed to reach 4 to 12 inches tall, severe crop competition has already occurred. Heavy infestations of nutsedge may require sequential applications. An earlier treatment may be required to prevent nutsedge from competing with the crop. No more than 2.66 ounces of Permit may be applied in one growing season. Repeat applications of Accent or Beacon (primisulfuron) may be required for acceptable rhizome johnsongrass control. Accent and Beacon may be applied over the top of corn until the 20- and 24-inch stage of growth, respectively.

Herbicide tolerant corn varieties are available that will allow use of glyphosate (Roundup Ready® varieties) or imazethapyr/imazapyr (Clearfield® varieties). There are several formulations of glyphosate available and labeled for use on Roundup Ready® corn. Rates and use patterns vary by formulations, and labels should be checked prior to using any herbicide. Sequential applications of glyphosate are very effective for control of a broad spectrum of both grass and broadleaf weeds. Because glyphosate has no soil residual properties, multiple applications are usually required to provide a level of weed control that will not allow competition to reduce yields.

A soil residual herbicide should be applied to prevent late season weeds from germinating and causing harvesting problems. Lightning (imazethapyr + imazapyr) used in conjunction with Clearfield® varieties is very effective on a broad spectrum of broadleaf and grass weeds when applied early postemergence at 1.28 ounces per acre. Lightning does have some soil residual activity and may offer season long control of many troublesome weeds. Cotton and rice rotation restrictions following Lightning may reduce the utility of this system for some Arkansas corn farmers.

Herbicide resistant weeds are becoming more of a problem in all crops. Pigweeds with resistance to atrazine are common in other states, but have not been found in Arkansas at this time. Due to the fact that most corn in Arkansas is rotated with other crops, there have been no weeds identified as being resistant to corn herbicides. This does not diminish the importance of resistance management and maintaining a close watch for suspected resistance. If weeds are not controlled by a particular herbicide application and resistance is suspected, they should be treated with an alternative herbicide and the local county agent should be contacted. The University of Arkansas will collect weed specimens and test for resistance. Weeds that are suspected to be herbicide resistant should not be allowed to produce seed in the field.

Table 7-1

WEED RESPONSE RATINGS FOR CORN HERBICIDES

HERBICIDES / WEEDS	Red Rice	Barnyardgrass	Crabgrass	Goosegrass	Broadleaf Signalgrass	Rhizome Johnsongrass	Seedling Johnsongrass	Fall Panicum	Foxtail	Shattercane	Pigweed	Cocklebur	Morningglory	Common Ragweed	Prickly Sida	Smartweed	Purslane	Velvetleaf	Lambsquarters	Sicklepod	Yellow Nutsedge	Burcucumber	Giant Ragweed	Horsenettle
Preemergence																								
Atrazine	8	6	7	6	4	0	2	3	6	0	9	9	8	9	9	9	9	8	9	8	0	4	6	5
Axiom + Atrazine	-	-	9	-	9	-	-	-	-	-	9	8	8	-	9	-	-	8	10	-	9	-	-	-
Callisto	7	7	9	-	7	0	0	-	7	0	9	8	9	7	9	9	-	9	9	5	7	-	9	-
Dual II Magnum + Atrazine	9	8	9	9	8	0	4	9	9	7	9	8	8	9	9	4	9	6	9	8	7	4	6	3
Lasso + Atrazine	9	8	9	9	7	0	3	8	9	7	9	8	8	9	9	8	9	6	9	8	6	3	5	3
Prowl + Atrazine	8	9	9	9	6	0	7	9	9	7	9	8	8	9	9	9	9	6	9	7	4	3	5	2
Harness or Surpass + Atrazine	8	9	9	9	7	0	6	9	9	7	9	8	8	9	9	4	9	6	9	8	7	4	6	3
Outlook + Atrazine	8	9	9	9	8	0	6	9	9	7	9	8	8	9	9	6	9	6	9	8	7	4	6	3
Postemergence																								
Accent	-	8	5	-	8	9**	10	7	8	9	8	5	6	6	-	7	-	6	3	7	3	7	2	2
Exceed	-	0	0	0	0	0	4	3	2	-	8	9	7	9	-	9	-	7	-	6	0	8	-	6
Atrazine + oil	9	6	6	6	6	0	3	5	7	0	9	9	8	8	8	9	9	7	8	8	5	4	6	4
Beacon	-	3	3	-	3	8**	9	6	3	10	8	8	7	9	-	7	-	6	9	7	7	8	-	3
Banvel or Clarity	0	0	0	0	0	0	0	0	0	0	9	8	9	9	-	9	-	8	9	8	0	8	9	6
2,4-D	0	0	0	0	0	0	0	0	0	0	8	9	9	9	8	5	9	8	8	8	0	3	9	4
Basagran	0	0	0	0	0	0	0	0	0	0	0	9	4	8	7	9	7	8	5	0	7	3	5	0
Buctril	0	0	0	0	0	0	0	0	0	0	5	9	7	7	-	9	-	7	8	3	0	7	7	4
Callisto	7	7	9	-	7	0	0	-	7	0	9	8	9	7	9	9	-	9	9	5	7	-	9	-
Basis Gold	-	8	7	8	8	6	9	8	9	9	9	9	9	9	9	9	-	9	9	9	9	8	7	-
Liberty 1.75 pt 1 app	9	8	8	-	9	6	9	9	-	-	4	9	8	9	8	9	-	5	-	9	6	-	-	-
Gramoxone directed or Hood	9	9	9	9	9	0	8	8	8	0	9	4	4	8	3	5	8	7	9	9	3	-	-	-
Permit	-	-	3	3	3	3	3	3	-	-	8	9	5	-	7	-	-	-	5	4	-	-	-	-
Lightning	8	7	7	5	8	7	7	7	8	8	9*	9*	8	5	3	6	-	8	5	2	5	6	8	-
Roundup Ultra (1 qt/A once)	8	9	9	9	9	9	10	9	9	8	9	9.5	7	9	8	-	-	7	9	9	4	-	7	-

*Rating will be O on ALS inhibitor resistant weeds.
**Repeat application may be needed to achieve these ratings.

Rating scale – 0 = No Control 10 = 100% Control.

Table 7-1 (cont.)

Crop Replant and Rotation Guide for Corn and Grain Sorghum Herbicides*

Herbicide	Replant/ Crop Rotation	Time Interval	Precautions
Accent	C W S CT	I 4 months 15 days 10 months	Sweet corn and popcorn - 10 months. All crops not specified - 10 months if pH < 6.5 or 18 months if pH > 6.5. Grain sorghum - 10 months if pH < 7.5 or 18 months if pH > 7.5.
Atrazine	C,GS All	I FY	If applied after June 10, only corn and grain sorghum can be planted the following year.
Axiom	C S W, R, AL O	I I 12 months	
Banvel	C,G, W All	I 45 days/pt† Following normal harvest of C,G,W,GS	† Wheat planting must be delayed 45 days after application per pint of Banvel used.
Basagran	All	I	
Basis Gold	W,S, GS, CT sweetcorn, popcorn All other	10 months 18 mos	If Basis Gold is applied after July 1, do not rotate to crops other than corn or sorghum the next year.
Beacon	W A,CT,P,S,SF All	3 months 8 months 18 months	Sweet corn and popcorn - 8 months. Replanting of field corn - 14 days.
Bicep	C,GS† S,CT SG All	I FY 15 months 18 months	† Use Concep treated seed. If applied after June 10, only corn and grain sorghum can be planted the following year.
Buctril	C,GS SG All	I Fall FY	
Buctril + atrazine	C,GS S CT,FG,FL,R SG All others	I FY Do not plant the year following application.	If applied after June 15, plant only corn or grain sorghum the next year.
Callisto	All SG	12 months 4 months	Do not apply post if soil was treated with Counter or Lorsban.
Dual II Magnum	C,S,GS† SG Rice All	I 4.5 months Next spring 18 months	† Use Concep treated seed.
Exceed	C SG S,CT,GS,R All	4 weeks 3 months 10 months 18 months	IMI or IR corn can be planted immediately.
Guardsman Max	GS,S,CT All	FY Do not plant the year following application.	
Gramoxone			No Restrictions.
Lightning	W,S,P,A Cotton on sands and loamy sands Cotton on heavier soils Rice	4 months 9.5 months 18 months 40 months	
Outlook	C,S SG All	I 4 months Next spring	
Permit	W S	3 months 10 months	
Prowl	CT,S W,B All	II 120 days† FY	† 90 days after post-incorporated application, cannot plant using no-tillage practices.
Roundup			No Restrictions.

*Always refer to product labels before using a pesticide or replanting into treated fields. Refer to Arkansas' MP44, "Recommended Chemicals for Weed and Brush Control" for the most current information.

Key

Crop

All = All crops not specified
A = Alfalfa
B = Barley
C = Corn
CT = Cotton
FG = Forage Grasses
FL = Forage Legumes
GS = Grain Sorghum
P = Peanuts
R = Rice
S = Soybeans
SG = Small Grains
SF = Sunflowers
W = Wheat

Timing

I = Immediately
FY = Following year (usually spring)

Table 7-1 (cont.)

Crop, Situation, and Active Chemical Per Broadcast Acre	Weeds Controlled	Formulated Material Per Broadcast Acre	Time of Application	Method of Application and Precautions
FIELD CORN				
Preemergence				
atrazine @ 2 lb/A	Most small-seeded annuals, annual morningglory, cocklebur, velvetleaf, smartweed, sicklepod.	**AAtrex, Atrazine, Griffex** 2.5 lb/A 80W or 2 qt/A 4L or 2.2 lb/A Nine-0.	At planting.	Do not plant fall cover crops. Do not plant crops other than corn or grain sorghum in treated fields during the same season. Do not apply more than 2.5 lb/A active atrazine per season. All atrazine labels have been revised because of surface and groundwater concerns. Special precautions are required on new labels.
alachlor + atrazine @ 1.5 to 2.25 lb/A + 1 to 1.6 lb/A	Annual grasses, pigweed, annual morningglory, common cocklebur, velvetleaf, smartweed, sicklepod.	**Lasso 4E + AAtrex, Atrazine** 1.5 to 2.25 qt/A Lasso + 1.25 to 2 lb/A 80W or 1 to 1.6 qt/A 4L or 1.1 to 1.75 lb/A Nine-0. or **Lariat/Bullet 4F** 2.5 to 3.75 qt/A.	Preemergence or preplant. **Note** – This treatment can be applied to emerged corn before it exceeds 5" tall. However, weed control will be reduced if weeds exceed 2" tall.	Add additional atrazine where cocklebur and morningglory are severe. Rainfall in 5 to 7 days is necessary for best results. With preplants shallow incorporate 2 to 3 inches within 7 days of planting. All atrazine labels have been revised because of surface and groundwater concerns. Special precautions are required on new labels.
metolachlor + atrazine @ 0.75 to 1.3 lb/A + 1 to 1.6 lb/A	Annual grasses, pigweed, annual morningglory, common cocklebur, velvetleaf, smartweed, sicklepod.	**Dual II Magnum + AAtrex, Atrazine** See label for specific formulations in question. 0.8 to 1.4 pt/A + 1.25 lb/A 80W or 2 pt/A 4L. or **Bicep II Magnum** 1.3 to 2 qt/A.	Preemergence or preplant.	Same as above.
dimethenamid + atrazine @ 0.56 to 0.98 lb/A + 0.75 to 2 lb/A	Annual grasses, pigweed, annual morningglory, common cocklebur, velvetleaf, smartweed.	**Outlook + AAtrex, Atrazine** 12 to 21 + 0.75 to 2 qt/A 4L or **Guardsman Max** 3 to 4.6 pt/A.	From 45 days preplant to preemergence up to 8” tall corn.	Same as above. Rates depend on percent organic matter. See label.
acetochlor/safener + atrazine @ 1 to 2 lb/A + 1.25 to 2 lb/A	Annual grasses, pigweed, morningglory, cocklebur, velvetleaf, smartweed, sickle pod.	**Harness + Atrazine** 1.25 to 2.25 pt/A + 1.25 to 2 qt/A 4L or 1.4 to 2.2 lb/A 90.	Preplant or preemergence.	Add additional atrazine where cocklebur and morningglory are severe. Rainfall in 5 to 7 days is necessary for best results. With preplants shallow incorporate 2 to 3 inches within 7 days of planting. All atrazine labels have been revised because of surface and groundwater concerns. Special precautions are required on new labels.
acetochlor/safener + atrazine @ 1.2 to 2.4 lb/A + 1 to 2 lb/A	Same as above	**Surpass 6.4 EC + Atrazine** 1.5 to 3 pt/A + 1.1 to 2.2 lb/A 90 or 1 to 2 qt/A 4L.	Preplant or preemergence.	See above comments.

Table 7-1 (cont.)

Crop, Situation, and Active Chemical Per Broadcast Acre	Weeds Controlled	Formulated Material Per Broadcast Acre	Time of Application	Method of Application and Precautions
pendimethalin + atrazine @ 0.75 to 1 lb/A + 1 to 1.6 lb/A	Same as above.	**Prowl + Atrazine** 1.8 to 2.4 pt/A Prowl 3.3EC + 1.25 to 2 lb/A 80W or 1 to 1.6 qt/A 4L or 1.1 to 1.75 lb/A Nine-0.	Preemergence. **Do not incorporate.**	Plant corn at least 1 1/2 " deep. All atrazine labels have been revised because of surface and groundwater concerns. Special precautions are required on new labels.
flufenacet/metribuzin + atrazine @ 0.55 to 0.94 lb/A + 1.2 to 2 lb/A	Annual grasses and broadleaf weeds.	**Axiom 68 DF + Atrazine** 13 to 22 oz/A + 1.2 to 2 qt/A Atrazine 4L or equivalent.	At planting.	**Cotton rotation not yet determined. Wheat rotation interval 12 months.**
mesotrione @ 0.188 to 0.24 lb/A	Annual broadleaf weeds.	**Callisto 4L** 6 to 7.7 oz/A.	At planting.	**Do not plant crops other than corn in treated fields during the same season.**
Postemergence				
atrazine @ 2 lb/A	Most small-seeded annuals. More effective on broadleaf weeds, red rice, and sicklepod.	**AAtrex, Atrazine, Griffex** 2.5 lb/A 80W or 2 qt/A of 4L or 2.2 lb/A Nine-0. Select rate according to soil texture. No surfactant recommended on label. Dual, Lasso or Frontier may be added if no soil applied grass herbicide was used. **AAtrex, Atrazine + oil** 2.5 lb/A 80W or 2 qt/A 4L or 2.2 lb/A Nine-0 + 1 qt/A oil concentrate.	After corn emergence, before grass weeds reach 1/2 inch, or broadleaf 1 1/2 inches.	Do not apply if corn is taller than 12 inches. Do not plant crops other than corn or grain sorghum in treated field until following season. After June 10, do not plant any crop other than corn or grain sorghum the following year. Do not apply more than 2.5 lb/A active atrazine per season. All atrazine labels have been revised because of surface and groundwater concerns. Special precautions are required on new labels.
2,4-D amine @ 0.5 lb/A	Morningglory, cocklebur, and most other young broadleaf weeds.	**2,4-D amine** 1 pt/A of 4 lb/gal 2,4-D.	Apply when weeds are small and corn is under 12 inches; however, effective results can be obtained with later application.	After corn is more than 12 inches, apply spray directly on weeds with a drop-type nozzle between the corn row and not on the terminal growth of corn. AVOID DRIFT. **Follow all State Plant Board Regulations.**
dicamba @ 0.25 lb/A	Same as above.	**Banvel or Clarity 4SL** 0.5 pt/A.	From corn emergence up to 36 inches tall. Best results on weeds 36 inches or less. Use drop nozzles if corn leaves canopy weeds.	Ground application only. **Drift is extremely toxic to soybeans.** Do not apply after soybeans begin to emerge in general area. Less toxic than 2,4-D to cotton. **Follow all State Plant Board regulations.**

Table 7-1 (cont.)

Crop, Situation, and Active Chemical Per Broadcast Acre	Weeds Controlled	Formulated Material Per Broadcast Acre	Time of Application	Method of Application and Precautions
FIELD CORN Postemergence [cont.]				
bentazon @ 0.75 to 1 lb/A	Cocklebur, ragweed, jimsonweed, smartweed, prickly sida, velvetleaf, yellow nutsedge.	**Basagran 4SL** 0.75 to 1 qt/A. **Can be tank mixed with 0.5 to 0.75 lb/A active atrazine.**	Postemergence. See label for specific timing for weed desired. Corn tolerant at all stages.	May be tank mixed with atrazine. See label. Best treatment for smartweed.
bromoxynil @ 0.25 to 0.375 lb/A	Cocklebur, smartweed, morningglories, pigweed.	**Buctril 2EC** 1 to 1.5 pt/A. **On larger weeds, tank mix with 0.5 lb/A active Atrazine.**	Postemergence to weeds in seedling (2-4 leaf) stage.	Use high rate on morningglories and pigweed. Weeds **must** be small. Expect some temporary burn.
nicosulfuron @ 0.031 lb/A	Johnsongrass, broadleaf signalgrass, foxtail, and shattercane.	**Accent 75DF** Accent 75 DF + nonionic surfactant (80%) or crop oil concentrate and 28% or 32% UAN liquid fertilizer (optional). 0.66 oz/A + 2 pt/100 gal or 1 gal/100 gal and 4 gal/100 gal. Tank mix with atrazine for broadleaf weeds.	Apply to 4-10-inch seedling and 8-12-inch rhizome johnsongrass. If regrowth occurs, apply a second application when johnsongrass is 8-10 inches tall. May be applied to 2-6 leaf stage of corn. 1 to 2 leaf broadleaf signalgrass.	Repeat application may be required to control regrowth. **Do not apply to corn treated with Counter or Counter 20CR insecticide unless IT (Clearfield) corn is planted. See label for restrictions with other organo-phosphate insecticides, and postemergence herbicides.** **Do not apply during cool cloudy weather.** **In Johnsongrass fields, only virus tolerant hybrids are recommended.**
primisulfuron @ 0.018 (split) to 0.036 (single) lb/A	Johnsongrass and shattercane.	**Beacon 75DF** Beacon 75DF + nonionic surfactant (80%) or crop oil concentrate and 28 to 34% UAN liquid fertilizer (optional). 1 water soluble packet per 2 acres (single application) or 1 packet per 4 acres (split application) + 2 pt/100 gal or 1 to 4 pt/A and 1 to 2 pt/A.	Apply to 4-12 inch tall seedling and 8-16 inch tall rhizome johnsongrass. Apply a second application when regrowth is 8-16 inches tall. May be applied from 4-inch tall corn up to the 6 leaf stage.	Split application will be required for rhizome johnsongrass control. **Do not apply to corn treated with Counter or Counter 20CR insecticide unless IT (Clearfield) corn is planted. See label for restrictions with other organophosphate insecticides and postemergence herbicides. Some corn hybrids may be susceptible to injury. See your dealer for a list of restricted hybrids.** **Do not apply during cool cloudy weather.**
primisulfuron/prosulfuron @ 0.035 lb/A	Cocklebur, pigweed, morningglory, sicklepod and other broadleaf weeds.	**Exceed 57WG** 1 oz/A. Add 0.25% non-ionic surfactant or crop oil concentrate at 1-2 pt/A. May be tank mixed with Accent at 0.33 oz/A for grass control.	Over the top where corn is 4 inches tall up to 6 leaf stage.	**Do not apply to corn previously treated with Counter 15G or 20CR. Ground application only. See label for other precautions/ restrictions.**
halosulfuron @ 0.032 to 0.063 lb/A	Nutsedge, cocklebur. See label for tank mixes to broaden weed spectrum.	**Permit 75WG** 0.67 oz/A for cocklebur. 1 to 1.33 oz/A for nutsedge. Add a non-ionic surfactant or crop oil concentrate. May use two applications not to exceed 2.67 oz/A total rate.	Postemergence from corn spike through layby. 4- to 12-inch nutsedge 1- to 9-inch cocklebur	Ground application only. See label for mixtures and other precautions. Clean tank with ammonia.

Table 7-1 (cont.)

Crop, Situation, and Active Chemical Per Broadcast Acre	Weeds Controlled	Formulated Material Per Broadcast Acre	Time of Application	Method of Application and Precautions
nicosulfuron/rimsulfuron/ atrazine @ 0.79 lb/A	Annual grass and broadleaf weeds.	**Basis Gold 90WG** 14 oz/A. Add a crop oil concentrate.	Apply to small weeds and before corn exceeds 12 inches. Apply to annual grasses less than 2 inches tall.	Do not apply to corn treated with Counter or Counter 20 CR insecticides. See label for other insecticide precautions.
paraquat @ 0.25 lb/A	Emerged annual grasses.	**Gramoxone Max 3SL** 0.67 pt/A + surfactant (p. 3).	Apply when corn is at least 10 inches and weeds are 4 inches or less.	DIRECTED OR HOODED SPRAY ONLY. Avoid fine spray. Corn plants less than 10 inches may be injured and not recover.
paraquat + atrazine @ 0.25 + 0.5 to 1 lb/A	Same as above but better control of broadleaf weeds.	**Gramoxone Max 3SL + AAtrex** 0.67 pt/A + 0.67 to 1.25 lb/A 80W or 1 to 2 pt/A 4L. Add a surfactant (p. 3).	Apply when corn is at least 10 inches and weeds are 4 inches or less.	DIRECTED OR HOODED SPRAY ONLY. Avoid fine spray. Corn plants less than 10 inches may be injured and not recover.
mesotrione @ 0.094 lb/A	Annual broadleaf weeds.	**Callisto 4L** 3 oz/A.	May be applied up to 30 inches or 8 leaf stage of corn.	Do not apply to corn treated with Counter or Lorsban insecticides. See label.
HERBICIDE TOLERANT CORNS – Check suitability of available hybrids with county agent.				
glyphosate @ 0.75 to 1 lb/A	Most annual grass and broadleaf weeds and Johnsongrass.	**Roundup Ultra, Touchdown or equivalent 4SL** 1.5 to 2 pt/A. or **Roundup Ultra Max 5SL** 1.2 to 1.6 pt/A. or **Roundup Weather Max 5.5SL** 1 to 1.33 pt/A.	To emerged weeds from corn emergence to V8 or 30-inch stage.	**Apply only to Roundup Ready corn. Single in-crop applications not to exceed 1 lb/A and multiple in-crop applications not to exceed 2 lb/A total. Best used following Atrazine preemergence. See label for tank mixes.**
glyphosate + atrazine @ 0.75 to 1 lb/A + 1 lb/A	Same as above plus residual control of broadleaf weeds. Improved morningglory control.	**Roundup Ultra, Touchdown or equivalent 4SL + Aatrex** 1.5 to 2 pt/A + 1 qt/A. or **Roundup Ultra Max 5SL + Aatrex** 1.2 to 1.6 pt/A + 1 qt/A. or **Roundup Weather Max 5.5SL** 1 to 1.33 pt/A + 1 qt/A.	Prior to 12-inch corn.	**Apply only to Roundup Ready corn. Single in-crop applications not to exceed 1 lb/A and multiple in-crop applications not to exceed 2 lb/A total. Best used following Atrazine preemergence. See label for tank mixes.**
imazethapyr/imazapyr @ 0.056 lb/A	Small annual grasses and broadleaf weeds.	**Lightning 70DG** 1.28 oz/A or 1 water soluble bag per 2 acres. Add a surfactant. If in atrazine use area, add atrazine at 1.2 to 2 lb ai/A to broaden spectrum.	Early postemergence.	**For use only on (Clearfield) hybrids or death will occur.** Good choice where atrazine cannot be used. **Read crop rotation section of label very carefully.**

Common Weed Seedlings in Corn

smooth pigweed, redroot pigweed

common cocklebur

Palmer amaranth

tall waterhemp

ivyleaf morningglory

common lambsquarters

pitted morningglory

palmleaf morningglory

entireleaf morningglory

purple moonflower

smallflower morningglory

bigroot morningglory

spotted spurge

prickly sida

Pennsylvania smartweed

nutsedge

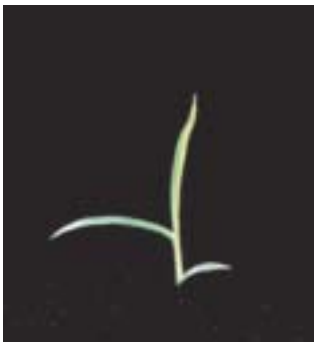
large or southern crabgrass

goosegrass

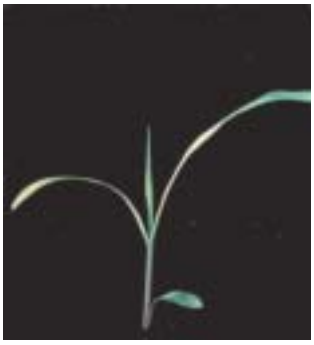
broadleaf signalgrass

barnyardgrass

fall panicum



johnsongrass



red rice