

# CORN WEED CONTROL

## Atrazine and Water Quality

Atrazine label restrictions regarding mixing, loading and application are discussed below. These restrictions are part of the overall ground and surface water contamination risk reduction measures. Atrazine users are strongly encouraged to follow these guidelines to comply with the label, and to share in the responsibility of preserving the future of this extremely valuable corn herbicide. **These restrictions, and the Restricted Use Pesticide designation, apply to all formulations of atrazine, and all package mix products which contain atrazine.**

**Mixing, Loading and Application** - Atrazine may not be mixed/loaded or used within 50 feet of all wells, including abandoned wells, drainage wells and sink holes. Atrazine may not be mixed or loaded within 50 feet of intermittent streams and rivers, natural or impounded lakes and reservoirs. Atrazine may not be applied aerially or by ground within 66 feet of the points where field surface runoff enters perennial or intermittent streams and rivers or within 200 feet around natural or impounded lakes and reservoirs. If atrazine is applied to highly erodible land, the 66-foot buffer or setback from runoff entry points must be planted to corn, seeded with grass, or another suitable crop.

### **Application rates - All soil applications prior to crop emergence -**

\* **Highly Erodible Soils** (as defined by NRCS) - If conservation tillage is practiced (at least 30 percent residue coverage at planting), apply a maximum of 2 lbs. a.i./acre. If residue coverage is less than 30 percent, apply a maximum of 1.6 lbs. a.i./acre.

\* **Soils Not Highly Erodible** - Apply a maximum of 2 lbs. a.i./acre.

### **Postemergence Applications**

If no atrazine was applied prior to corn emergence, apply a maximum of 2 lbs. a.i./acre. If a Postemergence treatment is required following an earlier herbicide application, the total atrazine applied may not exceed 2.5 lbs. a.i./acre/calendar year. Postemergence applications to corn must be made before corn exceeds 12 inches in height.

### **Perennial Broadleaf Control**

Conventional plowing and disking for one year may give the best control of tough perennials such as honeyvine milkweed, trumpetcreeper, horsenettle, pokeweed and wild sweetpotato or bigroot morningglory. The roots should be chopped up by plowing and disking. Follow up with Banvel, Clarity or Distinct overtop when weeds are 4 to 6 inches tall or in early vining stage.

## **BURNDOWN HERBICIDES RECOMMENDED FOR NO-TILL CORN\***

<b>Burndown Herbicide</b>	<b>Rate/Acre Broadcast</b>		<b>Remarks</b>
	<b>Active Ingredient</b>	<b>Formulation</b>	
Gramoxone Inteon (Paraquat) (u)	0.5-0.75 lbs.	32 – 48 ozs.	Use the higher rate to kill sod or where hard-to-kill plants are present. Weeds more than 6" tall may not be adequately controlled. Always add surfactant (0.5 gal./100 gals. of spray mix) and apply in 20-30 gals. of water per acre.
Ignite 280 (Glufosinate)	1.67-2.09 lbs.	22 – 29 ozs.	Thorough spray coverage is essential for optimal performance. Ground application requires a minimum of 15 gallons of water/acre. Dense weed canopies require 20 to 40 gallons per acre. See label for further application instructions and tank-mix partners.
Touchdown/others* (Glyphosate 3ae)	0.75-1.5 lbs. (a.e.)	32-64 ozs.	Better control of smartweed than Gramoxone. Fields infested with glyphosate-resistant horseweed require the addition of dicamba or 2,4-D to glyphosate at burndown. See page (7) for information on glyphosate-resistant horseweed management. Use the low rate on small, easy-to-kill annual weeds. Increase the rate on larger weeds and most perennials. See labels for additional information.
Roundup PowerMax* (Glyphosate 4.5ae)		22-43 ozs.	
Dicamba, 2,4-D			Add if glyphosate resistant horseweed is present. Can be applied prior to, at planting, or immediately after planting.

(u)- *Restricted Use Herbicide*

\* NOTE: *Several brands of glyphosate have become available in recent years. Products differ in terms of concentration, rates, addition of surfactant and registration on Roundup Ready crops. Always read the label before application.*

## **PREEMERGENCE PACKAGE MIX HERBICIDES FOR NO-TILL OR CONVENTIONAL CORN\***

Herbicide	Formulation Rate/Acre Broadcast (Qts.)	Grass Herbicide Equivalent Rate	Atrazine 4L (Qts.) Equivalent Rate	Amount of Atrazine 4L (Qts.) (To add to give 2 qt./A equivalent)**	Remarks
Bicep II Magnum (u) (Dual II Magnum plus Atrazine)	1.3-1.6 <sup>a</sup> 1.6-2.1 <sup>b</sup> 2.1-2.6 <sup>c</sup>	0.8-0.9 pts. 0.9-1.3 pts. 1.3-1.6 pts.	1-1.24 1.24-1.63 1.63-2	1-0.76 0.76-0.37 0.37-none	Use the higher rate for each soil texture in minimum tillage or in no-tillage corn. See label. Also available as a premix with glyphosate (Expert).
Cinch ATZ (u) (Cinch plus Atrazine)	1.3-1.6 <sup>a</sup> 1.6-2.1 <sup>b</sup> 2.1-2.6 <sup>c</sup>	0.8-0.9 pts. 0.9-1.3 pts. 1.3-1.6 pts.	1-1.24 1.24-1.63 1.63-2	1-0.76 0.76-0.37 0.37-none	Use the higher rate for each soil texture in minimum tillage or in no-tillage corn. See label.
Degree Xtra (u) (Degree plus Atrazine)	2.9 <sup>a</sup> 2.9-3.7 <sup>b</sup> 3.2-3.7 <sup>c</sup>	4.1 pts. 4.1-5.3 pts. 4.6-5.3 pts.	0.9 0.9-1.24 1.1-1.24	1.1 1.1-0.76 0.9-0.76	Apply after planting before crop and weed emergence. In areas of heavy weed infestation use up to 4.3 qt./A on medium and fine textured soils. Degree is a micro-encapsulated version of acetochlor.
Expert (u) (Dual II Magnum + Glyphosate + Atrazine)	2.5 <sup>a</sup> 3.0 <sup>b</sup> 3.75 <sup>c</sup>	1.14 pts. 1.37 pts. 1.71 pts.	1.34 1.61 2.01	0.66 0.39 none	Can be used PRE on all corn hybrids. Can be used POST only on glyphosate tolerant corn hybrids. Good resistance management tool.
Guardsman Max (u) (Outlook plus Atrazine)	1.3-1.5 <sup>a</sup> 1.5-2.0 <sup>b</sup> 1.5-2.0 <sup>c</sup>	12-13 ozs. 13-14 ozs. 13-14 ozs.	1.1-1.2 1.2-1.7 1.2-1.7	0.9-0.8 0.8-0.7 0.8-0.7	Use the higher rate for each soil texture in minimum tillage or no tillage corn.
Halex GT (Dual II Magnum plus Glyphosate plus Callisto)	3.6-4 <b>pts/A</b>	0.98-1.09 pts	N/A	N/A	Can be used PRE on all corn hybrids. Can be used POST only on glyphosate tolerant corn hybrids. Good resistance management tool. Can be used in areas where atrazine use is not allowed.
Harness Xtra 5.6 (u) (Harness plus Atrazine)	1.4-1.7 <sup>a</sup> 1.7-2.6 <sup>b</sup> 2.3-3.0 <sup>c</sup>	1.25-1.5 pts. 1.5-2.3 pts. 2-2.6 pts.	0.9-1.1 1.1-1.6 1.4-1.9	1.1-0.9 0.9-0.4 0.6-0.1	Use the higher rate for each soil texture in conservation or minimum tillage systems. In areas of heavy weed infestations, use up to 2.3 qts./A on coarse textured soils, and 2.3-3.0 qts./A on medium and fine textured soils. See label.

<sup>a</sup> Sandy Soils

<sup>b</sup> Medium Textured Soils

<sup>c</sup> Fine Textured Soils

\*Recommended rates are based on soils with less than 3% organic matter. See labels for soils higher in organic matter content.

\*\*Remember that for highly erodible soils with less than 30% residue cover at planting, the maximum pre-atrazine rate is 1.6 lb. a.i./A (1.6 qts./A of 4L formulation).

(u)- **Restricted Use Herbicide**

**NOTE:** For cases where weather or other factors prevent application of preemergence package mix herbicides until after corn emerges, most of the above products may be applied overtop small corn. Rates, corn size restrictions, and directions for addition of adjuvants vary by product. Consult the label for postemergence use directions.

## **PREEMERGENCE HERBICIDE TANK MIXTURES FOR NO-TILL OR CONVENTIONAL CORN**

Herbicide	Rate/Acre Broadcast		Remarks
	Active Ingredient (lbs.)	Formulation	
Atrazine (u)	1.6-2.0	1.6-2.0 qts. 4L or 1.8-2.2 lbs. 90DF	Use to control most broadleaf weeds and a few grasses. Tank mix with a grass herbicide for broader spectrum control. Atrazine is a restricted use herbicide.
Axiom 68DF (Flufenacet + Metribuzin)+ Atrazine (u)	0.55-0.94 + 1.0-2.0	13-22 ozs. 68DF + 1-2 qts. 4L	Apply preemergence to control annual grasses and several broadleaf weeds. Use the higher rates required on fine-textured soils. Note: On overflow ground, if Axiom is applied <b>without</b> atrazine and corn stand is lost to flooding, soybeans can be replanted.
Authority MTZ (Sulfentrazone + Metribuzin)	0.096 + 0.16 lbs. ai/A	12 – 18 ozs.	
Balance Pro 4L (u) (Isoxaflutole)+ Atrazine (u)	0.047-0.094 + 1.0-1.5	1.5-3.0 oz. 4L + 1.0-1.5 qts. 4L	Apply preemergence to control annual grasses and several broadleaf weeds. Excellent control of pigweeds and velvetleaf. <b>Plant corn at least 1.5 inches deep. Corn seed must be completely covered with soil and furrow firmed.</b> Do not apply on coarse soils (sand, loamy sand, sandy loam) containing less than 1.5% organic matter. For other soils with less than 1.5% organic matter, do not exceed 2.76 oz. 4L on medium textured soils; or 3.0 oz. 4L on fine textured soils. See label for specific rates for your soil. <b>Do not exceed 1.5 qt./A of Atrazine 4L with any rate of Balance.</b> Crop injury may be noted on eroded hill sides, clay knolls, or other areas of coarser or low organic matter soils. If the water table is less than 25 ft. below the surface, do not use on loamy sands or sand surface soil and subsoils with less than 2% organic matter in the upper 12 inches.
Cinch (S-metolachlor)+ Atrazine(u)	0.78-1.56 + 1.0-2.0	0.8-1.67 pts. 7.64E + 1.0-2.0 qts. 4L	Apply one of these combinations for broader spectrum weed control than atrazine alone. Use the higher rates on fine-textured soils. All are available as package mixes. Some products offer further reduced rates when the product is used as part of a planned preemergence followed by postemergence program.
Define 60DF (Flufenacet)+ Atrazine (u)	0.45-0.8 + 1.0-2.0	12-21 ozs. 60DF + 1.0-2.0 qts. 4L	
Degree (u) (Acetochlor)+ Atrazine (u)	0.83-2.0 + 1.25-2.0	1.75-4.25 pts. 3.8ME + 1.25-2.0 qts. 4L	
Dual II Magnum (S-metolachlor)+ Atrazine(u)	0.78-1.56 + 1.0-2.0	0.8-1.67 pts. 7.64E + 1.0-2.0 qts. 4L	
Harness (u) (Acetochlor)+ Atrazine (u)	1.5-2.2 + 1.25-2.0	1-2.5 pts. 7E + 1.25-2.0 qts. 4L	
Outlook (Dimethenamid-P)+ Atrazine (u)	0.56-0.99 + 1.0-2.0	12-21 ozs. 6E + 1.0-2.0 qts. 4L	
Simazine (Princep)+ Atrazine (AAtrex) (u)	1.0 + 1.0 lb. <sup>a</sup> 1.2 + 1.2 lbs. <sup>b</sup> 1.5 + 1.5 lbs. <sup>c</sup>	2.0-3.0 pts. each of 4L, or 1.1-1.7 lbs. each of Nine-O	May give better annual grass control than atrazine alone. On setback areas where atrazine cannot be used, a tank mix of Princep + a preemergence grass herbicide may be used. See labels.

Surpass (u) (Acetochlor)+ Atrazine (u)	1.2-2.4 + 1.25-2.0	1.5-3.0 pts. 6.4E + 1.25-2.0 qts. 4L	
TopNotch (u) (Acetochlor)+ Atrazine (u)	1.6-2.4 + 1.5-2.0	2.0-3.0 qts. 3.2ME + 1.5-2.0 qts. 4L	
Prowl or Pendimax 3.3 (Pendimethalin)+ Atrazine (u)	0.74-1.49 + 1.0-2.0	1.8-3.6 pts. 3.3E + 1.0-2.0 qts. 4L	<b>Do not apply preplant incorporated or serious corn injury can result. Plant corn at least 1.5 in. deep. Corn seed must be completely covered with soil.</b> The use of no-till planters under conditions which do not allow good soil coverage of the corn seed can result in reduced crop stand or injury if the herbicide contacts the germinating corn seed. Apply after planting before emergence of weeds. Use the higher rates on fine-textured soils. In case of stand failure, corn seed should be replanted below the herbicide treated zone.
Python 80WDG (Flumetsulam)+ grass herbicide	0.05	1.0 oz.	For use primarily in areas where atrazine cannot be used (set-back zones, refuge fields, etc.) or in fields subject to flooding where soybeans may need to be planted. Plant corn at least 1.5" deep. Mix with a preemergence grass herbicide and apply on the surface. Good control of common lambsquarters, pigweed, spurge and velvetleaf. Do not apply where Counter or Thimet insecticides are to be used. Other corn insecticides should be applied in a T-band to avoid injury. <b>Do not plant cotton within 18 months of application.</b>
Sequence (Glyphosate Acid + S- metolachlor)			

(u)- Restricted Use Herbicide

## **POSTEMERGENCE HERBICIDES RECOMMENDED FOR CORN**

Herbicide	Rate/Acre Broadcast		Remarks <b>Note: To determine corn height, measure to highest leaf surface on free standing plants.</b>
	Active Ingredient	Formulation	
Accent Q (Nicosulfuron)	0.9 oz.	0.67 oz.	Apply overtop or with drop nozzles to control rhizome johnsongrass 8 to 18" tall. Accent may be applied overtop corn up to 20" tall, or up to the <b>6 leaf collar stage</b> , whichever is most restrictive. Accent may cause temporary yellowing of corn plants, but they usually recover quickly. Add nonionic surfactant at 1 qt./100 gal., or crop oil concentrate at 1 gal./100 gal. of spray mix. <b>Avoid application during cool, cloudy weather.</b> Consult the Accent label for directions on split applications, and tank-mixes or sequential applications with foliar herbicides and insecticides. <b>Note: Now labeled on specified varieties of sweet corn refer to label for approved varieties.</b>
Aim (Carfentrazone-ethyl)	0.008 lb.	0.5 oz.	Apply overtop corn up to the 8 leaf collar stage to control velvetleaf, black nightshade, common lambsquarters and small ivyleaf and pitted morningglory. Excellent on large velvetleaf. Temporary leaf burn may occur. Always add nonionic surfactant at 1 qt./100 gal. of spray mix. May be tank-mixed with atrazine, Banvel, Clarity or other herbicides to expand weed spectrum. See label. Do not tank mix with EC formulation pesticides, as excessive crop injury may occur. Do not apply more than a total of 1.9 oz./A per season. Any AIM labeled crop may be planted immediately following application.
Atrazine (u) + Crop Oil Concentrate	2.0 lb + 1 gal./100 gal	2 qts.	If no atrazine was applied prior to corn emergence, apply a maximum of 2 lbs. a.i./acre. If a postemergence treatment is required following an earlier herbicide application, the total atrazine applied may not exceed 2.5 lbs. a.i./acre/calendar year. <b>Postemergence applications to corn must be made before corn exceeds 12 inches in height.</b> Use to control most broadleaf weeds and a few grasses. Always add crop oil concentrate at 1 gal. per 100 gal. of spray mix. Atrazine is a restricted use herbicide.
Banvel or Clarity (Dicamba)	0.25-0.5 lb.	0.5-1.0 pt.	Apply Banvel or Clarity at the 1 pt. rate overtop corn up to 8" tall to give early control of vines and broadleaf weeds. The 0.5 pt. rate may be applied overtop corn up to 36" tall. Do not apply under conditions which favor drift onto nearby, sensitive crops.
Basagran (Bentazon)	0.75-1.0 lb.	1.5-2.0 pts.	Use to control yellow nutsedge and small broadleaf weeds. See label for specific rates for specific weed sizes. Add 1 qt. of crop oil concentrate per acre. May be tank-mixed with atrazine. See labels.
Buctril 4E (Bromoxynil)	0.25-0.38 lb.	0.5-0.75 pts.	Apply overtop corn from 3- to 8-leaf stage to control many broadleaf weeds. Apply when weeds are in the 2- to 4-leaf stage or less than 6" tall. Less danger of volatility drift than 2,4-D or Banvel.
Callisto 4L (Mesotrione) + Atrazine	0.094 + 0.25 lb.	3.0 ozs. 4L + 8.0 ozs. 4L	Apply overtop corn up to 12 inches tall. (Note: Without atrazine, Callisto may be applied to corn up to 30 inches tall). Good control of cocklebur, pigweed, and several other weeds. Always add crop oil concentrate at 1 gal./100 gal. of spray mix and UAN at a rate of 2.5% v/v or AMS at a rate of 8.5 lbs/100 gal. <b>Do not use methylated seed oil (MSO) or MSO blend adjuvants.</b> Do not apply postemergence if corn has been previously treated with Counter or Lorsban insecticides. See label for other insecticide precautions. Do not apply to popcorn, sweet corn, or ornamental corn. Callisto may be tank-mixed with Accent or Steadfast for grass control.

Distinct 70DG (Dicamba+Diflufenzopyr)	0.175-0.26 lb.	4-6 ozs.	Apply overtop to corn between 4" and 24" tall. For corn 4 to 10" tall, use 6 oz./A. For corn 10 to 24" tall, use 4 oz./A. Always add nonionic surfactant at 1 qt./100 gal. of spray mix. <b>Do not use crop oil.</b> Distinct provides excellent control of several broadleaf weeds, including cocklebur, jimsonweed, lambsquarters, morningglory, pigweed and ragweed. Some suppression of annual grasses may be noted, but they are not controlled by Distinct. Temporary corn injury (twisting, leaning) may be noted when applications are made during periods of rapid growth, or crop stress. Do not apply under conditions which favor drift onto nearby, sensitive crops. Do not tank-mix with growth regulator herbicides, such as Banvel, 2,4-D, Hornet, etc. See label. Do not tank mix with Lorsban, Ambush or Warrior insecticides. <b>Do not use on sweet corn.</b>
Halex GT (u) (S-metolachlor plus Glyphosate plus mesotrione)	2.0 – 2.2	3.6-4 pts/A	Can be used POST only on glyphosate tolerant corn hybrids. Good resistance management tool. Can be used in areas where atrazine use is not allowed.
Hornet (Flumetsulam + Clopyralid)	1.9-4.7 ozs.	1.6-4 ozs.	Apply as a postemergence spray from corn emergence (spike stage) up to 24 in. tall. For optimum control, apply when broadleaf weeds are less than 8 in. tall. Use higher end of range for heavy weed infestations. Good control of cocklebur and sicklepod. Always add a nonionic surfactant (1 qt. per 100 gal. of spray mix) or crop oil concentrate (1 gal. per 100 gal. of spray mix)
Impact	0.22 ozs.	0.75 ozs.	Apply postemergence up to 45 days to Corn harvest.
Lexar (atrazine + mesotrione +S-metolachlor)	2.78 – 3.24 lbs.	3 – 3.5 qts.	Atrazine is a restricted use product (see label). Use lower rates on coarse textured soils, higher rate on medium and fine-textured soils.
Liberty 1.67L (Glufosinate) <b><u>Liberty Link or Glufosinate-Resistant Hybrids Only</u></b>	0.21-0.37 lb.	16-28 ozs.	Apply overtop in Liberty Link (glufosinate resistant) corn from emergence up to 24" tall corn, or the 7 collar stage, whichever occurs first. Apply 16 ozs. to control small cocklebur, ragweed and smartweed. Increase rates to 20-28 ozs./A to control foxtails, crabgrass, fall panicum, horseweed, morningglory, sicklepod and other weeds. See label. Will not control rhizome johnsongrass. Always add ammonium sulfate (AMS) at 3 lb./A when applying Liberty. Do not add surfactant or crop oil. Do not exceed 56 ozs. per acre per season. <b>Do not apply within 60 days of silage harvest.</b>
Lightning 70DG (Imazethapyr + Imazapyr) <b><u>Clearfield Hybrids Only</u></b>	0.056 lb.	1.28 ozs.	Apply overtop in Clearfield corn from the spiking stage up to 20" tall corn. Good control of annual grasses, seedling johnsongrass, cocklebur, morningglory, pigweed and sicklepod. Does not provide residual control of cocklebur and other large seeded broadleaf weeds. Always add crop oil concentrate (1 gal./100 gal.) or nonionic surfactant (1 qt./100gal.) of spray mix. Do not make more than one application of Lightning per season. Do not apply within 45 days of silage harvest. <b>Do not use Counter 15G insecticide when Lightning will be applied to IT hybrids. Counter 20 CR (banded) may be used.</b> Lightning can be tank mixed with Atrazine or Distinct to broaden weed control. When tank mixing Lightning with Distinct, do not use crop oil concentrate.
Marksman (u) (Clarity + Atrazine)	0.8-1.4 lbs.	2-3.5 pts.	Apply overtop for broadleaf weed control. A maximum of 3.5 pts./A may be applied during the period from corn emergence through the 5 leaf stage or 8 in. tall, whichever occurs first. Reduce rate to 2 pts./A on coarse textured soils. Nonionic surfactant may be added. See label. Do not add oil. Note: 2 pts. of Marksman=0.56 pt. Clarity + .53 qts. Atrazine 4L. 3.5 pts. Marksman=1 pt. Clarity + 0.9 qt. Atrazine 4L. Do not apply under conditions which favor drift onto nearby sensitive crops.

Option (Foramsulfuron)	0.53-0.61 oz.	1.5-1.75 ozs.	Apply overtop corn when corn is 0-16 inches in height or when corn is in the emergence through <b>V6 growth stage</b> , whichever is more restrictive. Drop nozzles must be used for applications when corn is 16-36 inches in height. Option may cause temporary yellowing or stunting of corn plants, but they usually recover quickly. Methylated or ethylated seed oil (1.5 pts./A), with 10% emulsifier or greater, in combination with nitrogen fertilizer (1.5-2 qts./A of UAN or 1.5-3 lbs./A of AMS), is the recommended adjuvant type to provide optimum weed control (See label).
Permit (Halosulfuron)	0.5-1 oz.	0.67-1.33 ozs.	Apply overtop to control cocklebur, common ragweed, velvetleaf and yellow nutsedge. Weak on sicklepod and morningglory. Add surfactant or crop oil (See label). May be tank-mixed with Accent or Beacon for johnsongrass control. See label. Also available as a premix with dicamba (Yukon).

Resolve Q (Rimsulfuron + thifensulfuron)	0.14 + 0.003 lb.	1.25 ozs.	Apply overtop corn until it reaches a height of 20" or V7. Add 0.25% NIS and 2 qt/A of UAN or 2 lbs/A AMS. Some hybrids are susceptible to injury from rimsulfuron. Check with seed company for information.
Resource (Flumiclorac)	0.03 lb.	4 ozs.	Apply overtop corn from the 2-leaf through 10-leaf stages for control of velvetleaf. Add crop oil concentrate at the rate of 1 pt./A. May be tank-mixed with Accent, Atrazine, Clarity or 2,4-D. Do not add crop oil concentrate or any other adjuvant when tank-mixing with Clarity. With 2,4-D tank-mixes, restrict overtop applications to corn no taller than 8 inches. For 2,4-D ester, do not add any adjuvant. For 2,4-D amine, add nonionic surfactant at 0.25% by volume.
Status (Dicamba+Diflufenzopyr + Isoxadifen)	0.18 to 0.35 lb.	5 to 10 ozs.	Add 0.25% NIS plus 1.25% UAN or 5 to 17 lbs AMS. Apply to corn from 4" tall or V2 to 36" tall or V10.
Touchdown/others (Glyphosate 3ae) <b>Roundup Ready Hybrids Only</b>	0.56-0.75 lb.(a.e.)	24-32 ozs. 3ae	Apply overtop in Roundup Ready corn up to the V8 stage (8 leaves with collars) or until corn height reaches 30", whichever comes first. Sequential applications may be made. Allow a minimum of 10 days between applications. May be tank mixed with Atrazine (up to 12" tall corn) for residual control, can be purchased as premix (Expert). See label for other tank-mixes. Avoid spraying under conditions which favor drift. Tank-mix with Clarity or 2,4-D for control of glyphosate-resistant horseweed.
Roundup PowerMax (Glyphosate 4.5ae) <b>Roundup Ready Hybrids Only</b>		16-22 ozs. 4.5ae	
Steadfast Q (Nicosulfuron + Rimsulfuron)	0.035 lbs.	1.5 oz.	Do not apply to corn taller than 20 inches or exhibiting 7 or more collars, whichever is the more restrictive. Always add crop oil concentrate at 1 gal. per 100 gallons of spray mix or a nonionic surfactant at 1-2 qt. per 100 gallons of spray mix. The label recommends the addition of liquid nitrogen (28% N at 2 qt./A; 10-34-0 at 1 qt./A). <b>Do not apply to corn previously treated with organophosphate insecticide.</b>
Stout (Nicosulfuron+ Thifensulfuron)	0.023 – 0.034 lb.	0.5 – 0.75 ozs.	Apply to corn that is up to 16 inches tall or exhibiting 5 collars.
2,4-D amine or low volatile ester	0.25-0.5 lb.	0.5-1.0 pt. of 4 lb./gal. formulation	Overtop application is satisfactory for corn under 8". On taller corn, use directed application to prevent crop injury and provide better spray coverage of weeds. Do not apply under conditions which favor drift onto nearby, sensitive crops.
Gramoxone Inteon (Paraquat) (u)+ surfactant	0.25-0.5 lb.	16-32 ozs.	<b>Directed, shielded or hooded application only.</b> Use low pressure to reduce drift. For directed applications without shields, corn must be at least 10" tall. Direct spray to contact no more than 3" of the corn stalks. Add surfactant at 1 qt. per 100 gals. of spray mix.

(u)- Restricted Use Herbicide

## CORN HARVEST AIDS

Harvest aid chemicals are sometimes needed to desiccate weeds in order to improve timeliness of harvest. This is most frequently encountered with early maturing hybrids which may be ready for harvest prior to a killing frost. Harvest aid chemicals do not speed-up maturity of the corn plant; they merely reduce moisture in weeds and may improve harvest efficiency, in addition to timeliness. Producers are encouraged to make harvest aid decisions by comparing cost with anticipated benefits. Also, care must be taken to minimize chances of drift to adjacent crops. Be sure to read labels thoroughly and follow required preharvest intervals (PHI).

Harvest Aid	Rate/Acre Broadcast		Remarks
	Active Ingredient	Formulation	
Gramoxone Inteon (u)	0.52 lbs.	33 ozs.	Make one application at least 7 days prior to harvest. Ensure that maximum kernel fill is complete and the corn is physiologically mature (black layer formed). Always add nonionic surfactant at 1 qt./100 gal. of spray mix. Provides good desiccation of cocklebur, burcucumber, and moringglories.
Roundup PowerMax* (Glyphosate 4.5ae)	0.75-1.5 lbs. (a.e.)	22-44 ozs. 4.5ae 32-64 ozs. 3ae	Make applications at 35 percent grain moisture or less. Ensure that maximum kernel fill is complete and the corn is physiologically mature (black layer formed). Allow a minimum of 7 days between application and harvest of corn. Use a spray volume of 10 to 20 gallons of water per acre for ground applications, or 3 -10 gallons of water for aerial applications. Do not apply more than 1 qt./A with aerial applications. Do not apply to corn grown for seed as a reduction in germination or vigor may occur. Avoid spraying during conditions which favor drift. See labels for other glyphosate formulations.
Touchdown/others* (Glyphosate 3ae)		32-64 ozs. 3ae	
Sodium Chlorate, Defol 6, other trade names (Sodium Chlorate)	6.0 lbs.	2 gals. of a 3 lb./gal. formulation or 1 gal. of a 6 lb./gal. formulation	For desiccation of weeds in early maturing corn, make application in 5-7 gallons of water per acre by air at least 14 days before anticipated harvest date. Desiccation of morningglory and other vines may be erratic. Do not graze treated fields or feed fodder, forage or residual grain within 14 days of application. Do not apply under conditions which favor drift.

(u)- *Restricted Use Herbicide*

\* NOTE: Several brands of glyphosate have become available in recent years. Products differ in terms of concentration, rates, addition of surfactant and registration on Roundup Ready crops. Always read the label before application

## **EXPECTED WEED RESPONSE TO SOIL APPLIED CORN HERBICIDES**

	Atrazine (u)	Axiom+ Atrazine (u)	Balance Pro (u)+ Atrazine (u)	Bicep II Magnum (u) or Cinch ATZ (u) + Atrazine (u)	Define + Atrazine (u)	Degree Xtra (u) or FulTime (u)+ Atrazine (u)	Valor	Harness Xtra (u) + Atrazine (u)	Princep+ Atrazine (u)	Prowl+ Atrazine (u)
Barnyardgrass	6	9	9	9	9	9	2	9	7	9
Broadleaf Signalgrass	4	8	8	8	8	8	2	8	5	7
Burcucumber	4	4	4	4	4	4	5	4	5	4
Cocklebur	7	7	6	7	7	7	6	7	7	7
Common Ragweed	9	9	9	9	9	9	-----	9	9	9
Fall Panicum	3	9	9	9	9	9	4	9	4	9
Foxtail	6	9	9	9	9	9	4	9	7	9
Giant Ragweed	6	6	6	6	6	6	7	6	8	6
Goosegrass	6	9	9	9	9	9	4	9	7	9
Horsenettle	3	3	3	3	3	3	-----	3	3	3
Jimsonweed	8	8	8	8	8	8	-----	8	8	8
Lambsquarters	9	9	9	9	9	9	8	9	9	9
Large Crabgrass	7	9	9	9	9	9	4	9	8	9
Morningglory	8	8	7	8	8	8	7	8	8	8
Nutsedge	4	7	-----	7	7	7	-----	7	4	4
Pigweed, Palmer	9	9	9	9	9	9	9	9	9	9
Pigweed, Smooth	9	9	9	9	9	9	9	9	9	9
Rhizome Johnsongrass	0	2	2	2	2	2	0	2	0	0
Seedling Johnsongrass	1	8	8	8	8	8	2	8	1	8
Sicklepod	6	7	5	7	7	7	4	7	6	6
Smartweed	9	9	9	9	9	9	5	9	9	9
Smooth Crabgrass	3	9	9	9	9	9	2	9	5	9
Velvetleaf	6	6	9	6	6	6	6	6	8	7

## EXPECTED WEED RESPONSE TO POSTEMERGENCE CORN HERBICIDES

	Atrazine (u)+Oil	Aim	Clarity	Basagran	Steadfast Q	Stout	Buctril	Callisto + Atrazine (t)	Status	Halex GT***	2,4-D	Accent Q	Liberty*	Lightning*	Impact	Roundup PowerMax/ Touchdown/ others***
Barnyardgrass	4	0	0	0	----	----	0	----	1	9	0	----	6	7	----	9
Broadleaf Signalgrass	6	0	0	0	9	9	0	7	1	9	0	8	6	8	8	9
Burcucumber	4	----	8	3	7	7	7	----	8	----	3	7	----	----	----	----
Cocklebur	7	6	9	9	6	9	9	9	9	10	9	6	8	9	7	10
Common Ragweed	8	----	9	5	----	----	7	----	9	8	8	----	----	----	----	8
Fall Panicum	6	0	0	0	8	8	0	----	1	9	0	----	6	9	6	9
Foxtail	7	0	0	0	9	9	0	----	1	9	0	9	7	9	8	9
Giant Ragweed	6	2	9	5	3	4	7	8	9	7	9	2	9	----	8	6
Goosegrass	7	0	0	0	8	8	0	----	1	9	0	----	6	7	----	9
Horsenettle	4	4	6	0	2	5	4	6	6	----	4	2	----	6	----	----
Horseweed (glyphosate tolerant)	5	0	8	0	2	2	2	8	8	7	8	2	8	--	8	2
Lambsquarters	8	8	9	6	----	----	8	7	9	8	8	2	----	----	8	8
Large Crabgrass	6	0	0	0	6	6	0	7	1	9	0	5	6	7	8	9
Morningglory	7	8	9	4	7	8	9	7	9	8	9	7	9	8	6	7
Nutsedge	6	0	0	8	2	2	0	----	0	----	0	4	3	----	3	7
Pigweed, Palmer <sup>a</sup>	9	7	9	7	4	9 <sup>c</sup>	4	9	8	9	8	3	6	4	9	9
Pigweed, Smooth <sup>b</sup>	9	8	9	9	9	9	4	9	9	9	9	9	9	9	9	9
Rhizome Johnsongrass <sup>t</sup>	0	0	0	0	9	9	0	1	0	9	0	9	2	6	4	9
Ryegrass	5	0	0	0	8	8	0	6	1	7	0	8	2	7	----	7
Seedling Johnsongrass	0	0	0	0	9	9	0	5	1	10	0	9	7	8	6	10
Sicklepod	6	1	8	0	6	8	2	7	8	9	8	6	8	8	----	9
Smartweed	8	7	8	7	----	----	8	----	8	8	6	----	----	----	7	8
Smooth Crabgrass	4	0	0	0	2	2	0	6	1	9	0	5	6	7	7	9
Velvetleaf	7	10	8	8	7	8	8	----	8	9	8	7	6	8	---	7

**KEY TO RESPONSE RATINGS:** 0=No control; 10=100% control; ----=Data not available Ratings are based on application of labeled rates of each herbicide, applied at the optimum timing for each weed.

(U)Restricted Use Pesticide: Refer to label for precautions to be taken during handling and application.

<sup>a</sup> No hairs on leaf.

<sup>b</sup> Many hairs on leaf

<sup>c</sup> Use 2 lbs. of atrazine a.i. to obtain the most consistent early season Palmer amaranth control.

\*Hybrid must be Liberty Link or glufosinate resistant.

\*\*Hybrid must be Clearfield.

\*\*\*Hybrid must be Roundup Ready.