

# CORN

## PRECAUTIONS ON USE OF HERBICIDES CONTAINING ATRAZINE AND SIMAZINE NEAR GROUND OR SURFACE WATER

Herbicide products which contain **atrazine** (i.e. AAtrex, Acuron, Anthem ATZ, Atrazine, Bicep II Magnum, Brawl II ATZ, Breakfree NXT ATZ, Callisto Xtra, Cinch ATZ, Charger Max ATZ, Confidence Xtra, Degree Xtra, Expert, FulTime NXT, Guardsman Max, Harness Xtra, Keystone NXT, Lexar EZ, Lumax EZ, Marksman, Metal II AT, Parallel Plus, Simazat, Sterling Plus, Stratos, Trizmet II, Volley ATZ NXT, etc.) and **simazine** (Princep, Simazine, Simazat) have special label restrictions for use near ground or surface waters. Current label guidelines emphasize the use of low rates, buffer zones, and conservation tillage practices as methods for reducing the risk of contamination of water sources. The maximum rate of these herbicide products for early preplant, preplant incorporated, or preemergence applications depends on soil erodibility, as defined by the Natural Resources Conservation Service, and percent of ground covered with plant residue.

**Rate Restrictions** - For soils that are not highly erodible the maximum use rate for **atrazine** is 2.0 lb ai (active ingredient) per acre and for **simazine** is 2.0 lb ai per acre per season. For highly erodible soils the maximum rate is also 2.0 lb ai per acre for atrazine or simazine if conservation tillage is utilized and at least 30% of the soil is covered with plant residue. If ground cover is less than 30%, the maximum atrazine or simazine rate is 1.6 lb ai/A for highly erodible soils. The total amount of **atrazine** applied to a field should not exceed 2.5 lb ai/A; the total amount for **simazine** should not exceed 2.0 lb ai/A per calendar year. For atrazine the rate for postemergence applications should not exceed 2.0 lb ai/A if no previous atrazine applications were made.

**Setbacks** - Caution is needed when mixing, loading, or applying **atrazine** and **simazine** near sources of water. According to label directions, atrazine containing products should not be **mixed** or **loaded** within 50 feet of wells (including abandoned wells, drainage wells, or sink holes), rivers, intermittent streams, lakes, or reservoirs. This setback does not apply to the use of properly designed impervious pads and properly diked mixing/loading areas.

These products should not be **applied** within 50 feet of wells or sink holes, within 66 feet of points where field surface water enters permanent or intermittent streams or rivers, or within 200 feet around lakes or reservoirs. If applied to highly erodible soils, the 66 feet buffer area must be planted to a crop or seeded with grass. When atrazine or simazine is to be applied near tile riser pipes applicators can choose to: 1) use a 66 feet setback buffer around the tile riser pipes; 2) apply atrazine and simazine products if field is under no-tillage practices and high crop residue management is maintained; or 3) incorporate atrazine and simazine products in the soil to a depth of 2-3 inches.

Some situations will require a high level of management in order to comply with these restrictions. The maximum labeled rate of atrazine or simazine may not be sufficient to provide season-long control of some problem weeds. Therefore, more emphasis may be needed on using postemergence herbicides, tillage, or crop rotation to help manage such problem weeds as burcucumber, cocklebur, morningglory, giant ragweed, and velvetleaf.

## 24 Corn

### Crop Replant Situations or Volunteer Corn

Emerged corn can be a problem in fields where corn must be replanted due to poor stands, flooding and other unforeseen weather conditions, or where volunteer corn plants emerge prior to planting. For conventional corn hybrids Roundup or other glyphosate products are often used to kill emerged corn prior to replanting. With the introduction of herbicide-tolerant crops such as "Roundup Ready" corn and "Liberty Link" corn hybrids, herbicide options are more limited for control of emerged corn prior to replanting. The table below indicates herbicide options depending on the genetic tolerance of the previous corn hybrid grown.

<b>Herbicide options for replanting field corn or control of volunteer corn based on previous corn hybrid grown.</b>			
<b>HERBICIDE</b>	<b>Previous Corn Hybrid</b>		
	<b>Conventional hybrid</b>	<b>Roundup Ready</b>	<b>Liberty Link</b>
Glyphosate (Roundup, etc.)	++	X	++
Paraquat + Atrazine	+	+	+
Paraquat + Linex (linuron)	+	+	+
Select MAX	+	++	+
+ = Recommended; ++ = Highly recommended; X = No control			

#### Herbicide treatments for control of volunteer corn plants or killing existing stands of corn for replant situations.

##### GLYPHOSATE

See page 22 for examples of glyphosate formulations. Consult label for specific rate of product and if a surfactant is needed and the type and rate of surfactant to include. Dry Ammonium Sulfate at 1 to 2% by weight (8.5 to 17 lb/100 gal) or an equivalent amount of AMS in a liquid formulation may improve glyphosate activity under certain conditions such as dry weather, or when mixed in hard water or with certain herbicides. Will not control hybrids with Roundup Ready corn technology.

<b>GLYPHOSATE Product</b>	<b>Volunteer Corn Plant Height</b>		
	<b>6" tall (0.38 lb ae/A)</b>	<b>12" tall (0.56 lb ae/A)</b>	<b>20" tall (0.75 lb ae/A)</b>
Roundup (3 lb ae/gal)	16 oz	24 oz	32 oz
Duramax (4 lb ae/gal)	12 oz	18 oz	24 oz
Roundup PowerMax (4.5 lb ae/gal)	11 oz	16 oz	22 oz

**Gramoxone SL [2.0] (2.5 to 3.5 pt/A) + Linex 4L (0.67 to 1 pt/A) –OR– Atrazine 4L (0.5 to 1 qt/A)**

**+  
Non-ionic Surfactant (0.25% to 0.5% v/v)**

For control of volunteer corn up to 6 inches in height. Apply the higher rate of both herbicides for corn 7 to 12 inches in height. FIRESTORM, HELMQUAT and PARAZONE are similar paraquat products applied at 1.67 to 2.33 pt/A. With Atrazine maximum rate allowed may depend on previous applications. Apply with a non-ionic surfactant (NIS). Corn or grain sorghum may be planted at any time following application provided the combined maximum label rate has not been exceeded (consult label).

**SELECT MAX –OR– INTENSITY ONE (6 fl oz/A) + NIS (0.25% v/v) + AMS (2.5 to 4 lbs/A)**

For control of an existing stand of Roundup Ready field corn or other volunteer corn plants prior to replanting to field corn. Apply on field corn up to 12 inches tall. **Replant no sooner than 6 days after application.** Apply with a non-ionic surfactant (NIS) plus Ammonium Sulfate (AMS). Do not use COC or MSO as a spray additive. Do not apply more than 6 oz/A per season.

**GENERIC PRODUCTS:** For other clethodim products (eg. ARROW, INTENSITY) consult individual product for application rates.

## NO TILLAGE

**NOTE:** *Herbicides used in no tillage corn production can be applied as either an early preplant treatment (15 to 30 days before planting) or at time of planting (prior to or after planting but before crop emerges). Consult the herbicide labels for specific directions.*

*EARLY PREPLANT treatments are soil residual herbicides applied in early spring before weeds emerge, generally 15 to 30 days before planting; thus, the use of a "burndown" herbicide may not be necessary. If vegetation is present, a "burndown" herbicide may be included at time of application to kill the existing weedy vegetation. In addition, use of an early preplant program may require a sequential herbicide treatment applied at or after planting to provide additional length of weed control. Tillage after application may reduce effectiveness of the herbicide treatment.*

*AT PLANTING treatments include foliar "burndown" herbicides to kill existing vegetation plus a soil residual herbicides for preemergence control of annual grasses and broadleaf weeds. Depending on the amount of vegetation present and herbicide used, spray volume per acre may vary between 10 to 40 gallons of liquid per acre.*

### Foliar "Burndown" Herbicides for No-Tillage Corn

	<u>Rate/A</u>	<u>[2,4-D acid equivalent]</u>
<b>2,4-D LV Ester or Amine</b> [3.8 lb ae/gal] (various) or	1 to 2 pt/A	[0.47 to 0.95 lb ae/A]
<b>WEEDONE 638</b> [2.8 lb ae/gal] or	1.5 to 2.5 pt/A	[0.52 to 0.88 lb ae/A]
<b>WEEDONE 650</b> [5.64 lb ae/gal]	0.67 to 1.33 pt/A	[0.47 to 0.94 lb ae/A]

**[NOTE: Rates vary with formulation of 2,4-D product used (consult label)]**

**Weeds Controlled:** For control of annual and certain perennial broadleaf weeds including dandelion, prickly lettuce, marestail, mustard spp., and giant ragweed.

**Additives:** An additive may be used to increase the effectiveness on some weeds. Consult product labels on use of additives in tank mixtures.

**Spray Volume:** Apply in 10 or more gallons per acre of spray solution.

**General Comments:** Product formulations vary from 3 to 6 lb ai/gal. Most 2,4-D ESTER or 2,4-D AMINE products can be applied prior to planting corn (Preplant *7 to 14 days before planting*) or Preemergent from *3 to 5 days after planting* [some product labels indicate any time after planting, but before corn emerges]. Be cautious about applications near sensitive broadleaf crops, such as tobacco, soybean, vegetables or ornamental plantings, and avoid potential injury caused by spray drift.

**Tank Mixtures:** Consult other herbicide product labels for the tank mix partner(s) to be used.

<b>DICAMBA</b>	<u>Rate/A</u>	<u>(dicamba)</u>
[eg. <b>BANVEL, CLARITY, DIFLEXX</b> <b>STERLING BLUE, VISION, etc.</b> ]	0.5 to 1 pt/A (8 to 16 oz/A)	[0.25 to 0.5 lb ai/A]

**Weeds Controlled:** For control of annual and perennial broadleaf weeds including dandelion, annual fleabane, marestail (horseweed), prickly lettuce, musk thistle, and giant ragweed. Consult label for applications to legume sods such as alfalfa or clover.

**Additives:** Although not required, the addition of a surfactant, crop oil concentrate, or sprayable fluid fertilizer may improve control of emerged weeds. Avoid use of a spray additive such as crop oil concentrate after corn has emerged. Use of a sprayable fluid fertilizer as a carrier is not recommended after corn emerges. Consult all product labels on use of additives in tank mixtures.

**Spray Volume:** Apply at 10 to 50 GPA with ground equipment (consult product label)

**General Comments:** Apply before, during, or after corn planting to emerged and actively growing broadleaf weeds. For legume sods (e.g. alfalfa and clover) apply after 4-6" of growth has occurred. Be cautious about applications near sensitive broadleaf crops, such as tobacco, soybean, vegetables or ornamental plantings, and avoid potential injury caused by spray drift.

**Tank Mixtures:** Atrazine, Axiom, Balance Flexx, Bicep II Magnum, Corvus, Define, Degree, Degree Xtra, Dual II Magnum, FieldMaster, FulTime, Glyphosate, Gramoxone, Guardsman, Harness, Harness Xtra, Hornet, Keystone, Liberty, Outlook, Princep, Roundup, TopNotch, Touchdown. Tank mixes with 2,4-D should be applied 7 to 14 days prior to planting corn. *For tank mixtures allowed consult specific product label.*

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### GLYPHOSATE

Below are examples of GLYPHOSATE formulations and their rates for burndown applications in no-till corn. The application rate of product may vary depending on GLYPHOSATE product used. Dry Ammonium Sulfate at 1 to 2% by weight (8.5 to 17 lb/100 gal) may be included with any of the of the following products to improve weed control during dry weather conditions, or when mixed in hard water or with certain other herbicides.

Recommendations for use of surfactants will vary depending on product. ALWAYS CONSULT THE PRODUCT LABEL FOR SPECIFIC DIRECTIONS.

Glyphosate formulation <sup>1</sup>	Annuals <6" tall	Annuals >6" tall
Roundup, Glyphosate, etc. (3 lb ae/gal)	1.5 to 2 pt/A (24 to 32 fl oz/A) (0.56 to 0.75 lb ae/A)	2 to 3 pt/A (32 to 48 fl oz/A) (0.75 to 1.13 lb ae/A)
Buccaneer 5 (3.75 lb ae/gal)	1.2 to 1.75 pt/A (19 to 28 oz/A) (0.56 to 0.82 lb ae/A)	1.75 to 2.5 pt/A (28 to 40 oz/A) (0.82 to 1.17 lb ae/A)
Duramax Durango DMA (4 lb ae/gal)	1.13 to 1.5 pt/A (18 to 24 fl oz/A) (0.56 to 0.75 lb ae/A)	1.5 to 2.25 pt/A (24 to 36 fl oz/A) (0.75 to 1.13 lb ae/A)
Roundup PowerMAX Roundup Weather MAX (4.5 lb ae/gal)	1 to 1.4 pt/A (16 to 22 fl oz/A) (0.56 to 0.77 lb ae/A)	1.4 to 2 pt/A (22 to 32 fl oz/A) (0.77 to 1.13 lb ae/A)
<sup>1</sup> See page 22 for a detailed list of glyphosate products		

**Annual Weeds Controlled:** Annual fleabane, barnyardgrass, brome spp., chickweed, common ragweed, crabgrass, fall panicum, giant foxtail, giant ragweed, henbit, johnsongrass (seedling), lambsquarters, mustards, prickly lettuce, rye, smartweed, wheat.

**Perennial Weeds:** CONSULT LABEL FOR GLYPHOSATE RATE FOR SPECIFIC PERENNIAL WEED SPECIES. Best control of perennial weeds is usually achieved at late growth stages approaching maturity and when soil moisture is adequate for active plant growth. At normal application times for no-till corn, perennial weeds may not be at the proper growth stage. Control may be reduced if plants are mowed or grazed and not allowed to regrow to recommended growth stage. Perennial weeds may require multiple applications for optimum control.

**Spray Volume:** Apply in 10 to 20 gallons of clean water/A when mixing with other herbicides. A spray volume of 3 to 10 gallons of water/A is often recommended when glyphosate is used alone at reduced labeled rates for certain annual weed species.

**General Comments:** Apply before, during, or after planting but before crop emergence. Glyphosate is a translocated herbicide. Rainfall soon after application may reduce effectiveness.

**Tank Mixtures:** Other foliar and soil residual herbicides are labeled for tank mixing with glyphosate products (consult the label of product used).

<b>GRAMOXONE SL 2.0</b>	<u>Rate/A</u>	<u>(paraquat)</u>
Annual weeds 1-3 " tall	2 to 2.5 pt/A	0.5 to 0.625 lb ai/A
Annual weeds 3-6 " tall	2.5 to 3.0 pt/A	0.65 to 0.75 lb ai/A
Annual weeds >6 " tall	3.0 to 4.0 pt/A	0.75 to 1.0 lb ai/A
OR	OR	OR
<b>FIRESTORM or PARAZONE 3S</b>	<u>Rate/A</u>	<u>(paraquat)</u>
Annual weeds 1-3 " tall	1.3 to 1.7 pt/A	0.5 to 0.65 lb ai/A
Annual weeds 3-6 " tall	1.7 to 2.0 pt/A	0.65 to 0.75 lb ai/A
Annual weeds >6 " tall	2.0 to 2.7 pt/A	0.75 to 1.0 lb ai/A

**Weeds Controlled:** Controls small annual grasses and broadleaf weeds including foxtails, common chickweed, and henbit. Regrowth may occur from treated perennial grasses and broadleaf weeds, legume sods, perennial grass sods, or grass cover crops such as wheat treated between tillering and boot stage of growth. Also, emerged annual weeds such as marestail, prickly lettuce, smartweed, and giant ragweed may not be effectively controlled. Split applications 5 to 7 days apart may be more effective on certain hard-to-control weeds.

**Additives:** Non-Ionic Surfactant at 1 to 2 pt/100 gal or Crop Oil Concentrate at 4 qt/100 gal.

**Spray Volume:** Apply with at least 10 to 20 GPA of clean water or in a complete clear liquid fertilizer solution. Do not use suspension type fertilizers. A spray volume of more than 20 GPA may be needed if weeds exceed 6" tall.

**General Comments:** GRAMOXONE, FIRESTORM, and PARAZONE (paraquat) are non-selective contact-type herbicides that are classified as RESTRICTED USE PESTICIDES due to acute toxicity. It is essential to obtain complete coverage to get good control. Apply as a broadcast spray before, during, or after planting, but before crop emergence. Split applications may be more effective on hard-to-control grass species. Rainfall occurring within 15 to 30 minutes after application should not reduce effectiveness. Do not use around home gardens, schools, recreational parks, golf courses or playgrounds.

**Tank Mixtures:** Atrazine, Balance, Banvel, Bicep II Magnum, Callisto, Camix, Cinch, Cinch ATZ, Clarity, 2,4-D, Define, Degree, Degree Xtra, Distinct, Dual II Magnum, Epic, Frontier, FulTime, Guardsman, Harmony Extra, Harness, Harness Xtra, Hornet, Keystone, Lexar, Lorox, Lumax, Outlook, Princep, Prowl, Python, Sharpen, Simazine, Surpass, TopNotch. Tank mixtures with 2,4-D Ester should be applied 7 to 14 days prior to planting corn.

<b>EXPRESS (TotalSol) 50DF</b>	0.25 to 0.5 oz./A	tribenuron-methyl (0.008 to 0.016 lb ai/A)
OR		
<b>HARMONY SG 50DF</b>	0.45 to 0.9 oz/A	thifensulfuron-methyl (0.014 to 0.028 lb ai/A)
OR		
<b>HARMONY EXTRA SG 50DF</b>	0.45 to 0.9 oz/A	[thifensulfuron-methyl:tribenuron-methyl (0.009:0.005) to (0.019:0.009) lb ai/A]

**Weeds Controlled:** EXPRESS controls wild garlic and certain broadleaf weeds such as common chickweed, henbit, curly dock, and suppression of mustard species; HARMONY SG provides control of wild garlic, curly dock and wild mustard species; HARMONY EXTRA is a premix of HARMONY (thifensulfuron) and EXPRESS (tribenuron-methyl) .

**Additives:** Apply with a Non-Ionic Surfactant at 0.25 - 0.5% v/v (1-2 qt/100 gal spray solution), or with a petroleum based Crop Oil Concentrate or vegetable-seed oil-based product at 1% v/v (1 gal/100 gal of spray solution). An ammonium nitrogen fertilizer or a high quality, sprayable grade of ammonium sulfate may be added to enhance control.

**General Comments:** Apply pre-plant for "burndown" control of emerged wild garlic and cool-season broadleaf weeds. Apply to actively growing wild garlic and other broadleaf weeds when temperatures are generally above 60 F or more. For EXPRESS and HARMONY EXTRA allow at least 14 days between application and planting of corn. HARMONY may be applied to corn anytime pre-plant, at-planting (0 days before planting), and/or postemergence. Do not make more than one pre-plant application per growing season.

**Tank Mixtures:** Tank mixtures in corn may include other pre-plant burndown products such as paraquat, glyphosate (eg. Roundup), dicamba (eg. Banvel/Clarity), and/or 2,4-D (consult individual labels).

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**LIBERTY 280 SL** 29 to 36 fl oz/A (glufosinate-ammonium 0.53 to 0.66 lb ai/A)

**Weeds Controlled:** Chickweed, marestail (horseweed), giant foxtail, crabgrass, johnsongrass (seedling), lambsquarters, common ragweed, giant ragweed, smartweed, vetch.

**Additives:** Anti-foams or drift control agents may be added if needed.

**Timing:** Apply preplant or prior to crop emergence of any conventional or transgenic corn hybrid.

**Spray Volume:** A minimum of 15 GPA. For dense weed canopies use 20 to 40 GPA. Do not use nozzles or pressures that result in coarse sprays.

**General Comments:** Weed control may be reduced when applied to weeds stressed from drought or cool temperatures. ***If LIBERTY is applied in a burndown application, no additional application may be made postemergence to the crop during the growing season.***

**Harvest & Forage Restrictions:** Do not apply within 60 days of harvesting corn as a forage or within 70 days of harvesting corn as grain or fodder.

**Tank Mixtures:** LIBERTY may be tank mixed with 2,4-D, acetochlor, atrazine, Callisto, Camix, Guardsman Max, Lexar, Lumax, metolachlor, pendimethalin. Consult label for application rates or other precautions.

**Generic Products:** Other glufosinate-ammonium products include CHEETAH, FORFEIT, INTERLINE, and SURMISE.

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### Preplant Foliar “Burndown” plus Residual Herbicides

#### ATRAZINE

ATRAZINE 4L 3 to 4 pt/A or  
AATREX NINE-O 1.6 to 2.2 lb/A

(atrazine 1.5 to 2 lb ai/A)

**Weeds Controlled:** Black nightshade, burcucumber, cocklebur, jimsonweed, lambsquarters, morningglories, pigweeds, prickly sida, common ragweed, giant ragweed, smartweed, velvetleaf. Can be used to “burndown” emerged small annual weeds (generally less than 3” tall).

**Crop Stage:** Apply to the soil either preplant incorporated or preemergence at or before planting. ATRAZINE can also be applied up to 30 days before planting, either as a single or split application. For treatments after planting apply before corn reaches 12 inches in height.

**General Comments:** AATREX 4L or ATRAZINE 4L contains 4 lb ai atrazine per gal. AATREX NINE-O contains 0.9 lb ai of atrazine per lb product. Foliar “burndown” weed control is improved when applied with crop oil and/or a liquid fertilizer solution. Low soil moisture or soil pH above 7.0 may increase persistence; whereas, ATRAZINE dissipates more rapidly when soil pH is acidic.

**Environmental Statements:** ATRAZINE containing products are RESTRICTED-USE pesticides and contain a GROUND and SURFACE WATER ADVISORY statement on the label. Do not use on very permeable soils or where groundwater is close to the soil surface. [NOTE: See page 23 for PRECAUTIONS on use of ATRAZINE (AATREX) near ground or surface water]

**Rain Delay:** None

**Rotation Restrictions:** Do not plant small grains or small-seeded legumes and grasses in the fall of the same year or the year following application, or injury may occur. Plant only corn, sorghum or soybeans in the spring following use of ATRAZINE. If applied after June 10, plant only corn or sorghum the following season.

**Harvest & Forage Restrictions:** Wait 60 days before grazing or feeding forage from treated areas.

**Tank Mixtures:** Dual, glyphosate, Gramoxone, Partner, Princep, Prowl, simazine, Roundup. Also consult the product label of the tank mix partner(s) to be used. If annual grasses and broadleaf weeds exceed 3 inches in height at time of application, use of 2,4-D, dicamba, glyphosate (eg. Roundup, Touchdown, etc.), or paraquat (eg. Gramoxone) is recommended.

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#### BALANCE FLEXX

BALANCE FLEXX 5 fl.oz/A

(isoxaflutole 0.078 lb ai/A)

NOTE: Apply BALANCE FLEXX up to 6 fl.oz/A for applications 8 to 30 days prior to planting [Use lower rates for coarse soils.]

**Weeds Controlled:** Foxtails, jimsonweed, lambsquarters, black nightshade, fall panicum, pigweed, common ragweed, smartweed, velvetleaf. Can also “burndown” emerged small annual weeds (generally less than 3” tall).

**Crop Stage:** BALANCE FLEXX may be preplant incorporated or preplant surface-applied up to 21 days prior to corn planting (30 days when applied as a planned sequential program). When applied preemergence apply after planting or behind planter after furrow closure, but before weeds and crop emerge. Corn should be planted a minimum of 1.5 inches deep with complete and firm coverage of the seed furrow to avoid direct contact with the seed. BALANCE FLEXX alone or tank mixed with atrazine can also be applied to corn from spiking through the 2 leaf-collar growth stage (V2).

## BALANCE FLEXX (continued)

**Additives:** When BALANCE FLEXX is applied alone Crop Oil Concentrate or Methylated Seed Oil is recommended to enhance “burndown” activity of emerged weeds when applied prior to corn emergence. For weeds not controlled by BALANCE FLEXX or when weeds are greater than 3 inches the addition of another “burndown” herbicide such as Gramoxone, glyphosate, or 2,4-D is recommended.

**General Comments:** BALANCE FLEXX contains 2 lb ai isoxaflutole per gal plus cyprosulfamide (corn safener). For use on field corn; do not use on other types of corn such as popcorn and sweet corn.

**Environmental Statements:** BALANCE FLEXX is a RESTRICTED-USE pesticide and has GROUND and SURFACE water advisory statements on the label. Do not apply BALANCE on certain loamy sand and sandy soil types found in Kentucky if the water table is less than 25 feet below ground and less than 2% organic matter by weight. BALANCE FLEXX should not be mixed or loaded within 50 feet of any wells, sink holes, perennial or intermittent streams and rivers, and natural or impounded lakes and reservoirs, unless an impervious pad is used.

**Rain Delay:** None.

**Rotation Restrictions:** Crops that may be planted include wheat after 4 months; soybeans, barley, popcorn, sweet corn, and grain sorghum after 6 months; and alfalfa after 10 months; Other crops may require an 18 month waiting period with a minimum of 15 inches of cumulative precipitation from time of application to planting of rotational crop.

**Harvest & Forage Restrictions:** Corn forage harvest is permitted at 45 days or more after an early postemergence treatment.

**Tank Mixtures:** Atrazine, Bicep II Magnum, 2,4-D, Degree, Degree Xtra, Dual II Magnum, Frontier, FulTime, Glyphosate, Gramoxone, Guardsman, Harness, Harness Xtra, Ignite 280 SL, Keystone, Outlook, Princep, Prowl, simazine, TopNotch.

## CORVUS

CORVUS 4.5 to 5.6 fl.oz/A [thiencarbozone-methyl:isoxaflutole (0.026:0.07) to (0.033:0.08) lb ai/A]

**Weeds Controlled:** Barnyardgrass, crabgrass, foxtails, lambsquarters, black nightshade, fall panicum, pigweed, common ragweed, smartweed, velvetleaf. Can also “burndown” emerged small annual weeds (generally less than 6” tall).

**Crop Stage:** CORVUS may be preplant incorporated or preplant surface-applied up to 21 days prior to corn planting (30 days when applied as a planned sequential program). When applied preemergence apply after planting or behind planter after furrow closure, but before weeds emerge. Corn should be planted a minimum of 1.5 inches deep with complete and firm coverage of the seed furrow to avoid direct contact with the seed. CORVUS alone or tank mixed with atrazine can also be applied to corn from spiking through the 2 leaf-collar (V2) growth stage.

**Additives:** When applied alone Crop Oil Concentrate or Methylated Seed Oil is recommended to enhance “burndown” activity of labeled weeds when applied prior to corn emergence. For weeds not controlled by CORVUS or when weeds are greater than 6 inches the addition of another “burndown” herbicide such as paraquat, glyphosate, or 2,4-D is recommended.

**General Comments:** CORVUS is a premixture containing thiencarbozone-methyl + isoxaflutole [0.75 + 1.88 lb ai per gal] plus cyprosulfamide (corn safener). For use on field corn and corn grown for silage; do not use on other types of corn such as popcorn and sweet corn. Do not use CORVUS in the same season as Counter, Dyfonate, Lorsban, Thimet, or any other organophosphate or carbamate insecticide. Poncho, Aztec, Regent, and Force insecticides may be used prior to application.

**Environmental Statements:** CORVUS is a RESTRICTED-USE pesticide and has GROUND and SURFACE water advisory statements on the label. Do not apply BALANCE on certain loamy sand and sandy soil types found in Kentucky if the water table is less than 25 feet below ground and less than 2% organic matter by weight. CORVUS should not be mixed or loaded within 50 feet of any wells, sink holes, perennial or intermittent streams and rivers, and natural or impounded lakes and reservoirs, unless an impervious pad is used.

**Rain Delay:** None.

**Rotation Restrictions:** Crops that may be planted include wheat after 4 months; soybeans, barley, popcorn, and sweet corn after 9 months; and alfalfa, canola, oats, and sorghum after 17 months. Rotational interval may be longer for some crops when soil pH is 7.5 or above. Other crops may require a 17 to 24 month waiting period with a minimum of 30 inches of cumulative precipitation from time of application to planting of rotational crop.

**Harvest & Forage Restrictions:** Do not harvest field corn for forage within 45 days of application.

**Tank Mixtures:** Atrazine, Buctril, 2,4-D, Define, Glyphosate, Ignite 280SL, Laudis, paraquat, Princep, simazine.

## 30 Corn

### EXPERT

EXPERT	Rate/A	(S-metolachlor:atrazine:glyphosate)
Annual weeds <6 " tall	3 qt/A	[1.3:1.6:0.75 lb ai/A]
Annual weeds 6-12 " tall	3.75 qt/A	[1.6:2.0:0.94 lb ai/A]

**Weeds Controlled:** Provides "burndown" of existing vegetation and soil residual "preemergence" control of various annual grasses and broadleaf weeds such as barnyardgrass, cocklebur, crabgrass, fall panicum, foxtails, jimsonweed, lambsquarters, morningglory, black nightshade, pigweed, prickly sida, common ragweed, smartweed. Regrowth may occur from treated perennial grasses and broadleaf weeds, legume sods, perennial grass sods, or grass cover crops such as wheat treated between tillering and boot stage of growth.

**Crop Stage:** Apply up to 30 days before, during or after planting for all types of corn grown under no-tillage or reduced tillage practices, **but prior to emergence of corn that is not designated as Roundup Ready.**

**Additives:** Dry Ammonium Sulfate at 2% by weight (17 lb/100 gal) may increase performance if emerged annual weeds are growing under adverse conditions.

**Spray Volume:** Apply with at least 10 to 20 gallons of clean water.

**General Comments:** EXPERT is a premixture containing S-metolachlor + atrazine + glyphosate [1.74 + 2.14 + 1 lb ai per gal]. Apply before or after weed emergence for control of annual grass and broadleaf weeds in corn.

**Environmental Statements:** EXPERT is a RESTRICTED-USE pesticide with a GROUNDWATER ADVISORY statement on the label. Do not apply to sand or loamy sand soils where the water table is close to the surface and where these soils are very permeable. [NOTE: See page 23 for PRECAUTIONS on use of atrazine containing products near ground or surface water].

**Rain Delay:** Rainfall within 2 hours of application may reduce control of emerged weeds.

**Rotation Restrictions:** Corn, sorghum (milo), or soybeans may be planted the spring following application. Do not plant tobacco, vegetables, or small-seeded legumes the year following application, or injury may occur.

**Harvest & Forage Restrictions:** Do not graze or feed forage for 60 days following application.

**Tank Mixtures:** When applied before corn emergence EXPERT may be applied in a tank mixture with the following products: Atrazine, Dual II Magnum, Hornet, Princep, Prowl, Python, Roundup (glyphosate), Touchdown. Banvel or 2,4-D (when applied 7 days before planting) may be added as a tank mix partner to obtain acceptable "burndown" control of emerged vegetation prior to corn planting.

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### INSTIGATE

INSTIGATE 5.25 to 6 oz/A [rimsulfuron:mesotrione (0.014:0.14) to (0.016:0.16) lb ai/A]

**Weeds Controlled:** For "burndown" control of small annual weeds (generally less than 3" tall) and residual control for barnyardgrass, foxtail, lambsquarters, black nightshade, pigweeds, common ragweed.

**Crop Stage:** May be applied either preplant surface (up to 14 days prior to planting), preplant incorporated, preemergence, or at a maximum rate of 5.4 oz/A as an early post emergence treatment (up through 2 leaf collars) to field corn.

**Additives:** Control of emerged weeds will require the addition of Crop Oil Concentrate, Modified Seed Oil, or Non-Ionic Surfactant. In addition, nitrogen based adjuvant (UAN or AMS) must be used unless prohibited by tankmix partner.

**General Comments:** INSTIGATE is a selective herbicide for burndown and residual control of certain annual grass and broadleaf weeds in field corn. INSTIGATE 45.8% WDG is a premixture containing rimsulfuron + mesotrione [4.17% + 41.67% per lb product]. INSTIGATE may be applied at 5.25 to 5.4 oz/A for early postemergence rescue treatment on corn exhibiting up to 2 leaf collars. Do not apply more than 1 oz active ingredient rimsulfuron per acre or 3.85 oz active ingredient mesotrione in a growing season from all product sources that contain rimsulfuron (eg. Prequel, Realm Q, Steadfast Q, or Resolve) or mesotrione (eg. Callisto, etc.). DO NOT apply to corn when certain soil insecticides such as "Counter" will be applied within 60 days of application. Consult label directions before applying with other insecticides such as Lorsdan or Thimet. Crop injury may occur under certain environmental conditions such as cold weather and/or wet soils.

**Rainfall Delay:** Not indicated on the label.

**Rotation Restrictions:** Rotational crops which may be planted include field corn anytime; winter cereals (wheat, etc.) after 9 months; alfalfa, canola, popcorn, sweet corn, sorghum, and soybean after 10 months following INSTIGATE application. Other crops may require an 18 month waiting period.

**Harvest & Forage Restrictions:** Do not graze, feed forage, grain or fodder (stover) from treated areas to livestock within 45 days of application.

**Tank Mixtures:** For improved control of emerged weeds may be tank mixed with glyphosate, glufosinate, 2,4-D, and dicamba products. May also be tank mixed with other soil-residual herbicides for added grass and broadleaf control such as Atrazine, Breakfree brands and Cinch brand herbicides.

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**LEADOFF or CRUSHER**

LEADOFF 1.5 oz/A or (rimsulfuron:thifensulfuron-methyl 0.016:0.016 lb ai/A)  
 CRUSHER 1.0 oz/A

**Weeds Controlled:** For “burndown” control of common chickweed, curly dock, henbit, and certain mustard species; and residual control for barnyardgrass, foxtail, lambsquarters, pigweeds.

**Crop Stage:** Apply preplant after fall harvest through early spring, up to planting; or preemergence anytime after planting but before corn emergence. Do not apply postemergence to corn. Consult label and your seed supplier before applying to corn hybrids potentially sensitive to ALS-type herbicides.

**Additives:** Control of emerged weeds will require the addition of Crop Oil Concentrate, Modified Seed Oil, or Non-Ionic Surfactant. In addition an ammonium nitrogen fertilizer (28% or 32% N) or ammonium sulfate may be needed. If applied with glyphosate (eg. Roundup) or glufosinate (eg. Ignite) that contains a built-in adjuvant no additional surfactant needs to be added to the spray tank.

**General Comments:** LEADOFF 33.4% WDG and CRUSHER 50% WDG are premixtures containing rimsulfuron + thifensulfuron-methyl. Similar products include BASIS and BASIS Blend. These products are selective herbicides for burndown and residual control of certain annual grass and broadleaf weeds. Do not apply more than 1 oz active ingredient rimsulfuron per acre per crop year from all product sources that contain rimsulfuron (eg. Leadoff, Crusher, Prequel, Realm Q, Steadfast Q, Resolve Q, or Solida). DO NOT apply to corn when certain soil insecticides such as “Counter” will be applied within 60 days of application. Consult label directions before applying LEADOFF or CRUSHER with other insecticides such as Lorsdan or Thimet. Crop injury may occur under certain environmental conditions such as cold weather and/or wet soils.

**Rainfall Delay:** Not indicated on the label.

**Rotation Restrictions:** Rotational crops which may be planted include field corn anytime; soybeans after 1 month [when LEADOFF is applied at >1.5 to 2 oz/A wait 2 months]; winter cereals (wheat) after 3 months; or alfalfa, canola, popcorn, sweet corn, red clover, sorghum, and tobacco after 10 months following application. Tobacco can be planted 1.5 months after LEADOFF application. Other crops may require an 18 month waiting period. Consult label for additional crop rotation intervals for certain crops or when higher rates have been applied.

**Harvest & Forage Restrictions:** Do not graze, feed forage, grain or fodder from treated areas to livestock within 30 days of application.

**Tank Mixtures:** For improved control of emerged weeds may be tank mixed with glyphosate, paraquat, glufosinate, 2,4-D LVE, and dicamba products. LEADOFF may also be tank mixed with other soil-residual herbicides for added residual control such as Atrazine, Breakfree brands and Cinch brand herbicides.

**SHARPEN**

SHARPEN 2.5 to 3 fl oz/A (saflufenacil 0.056 to 0.067 lb ai/A)

**Weeds Controlled:** For “burndown” and residual control of selected broadleaf weeds such as cocklebur, marestail (horseweed), morningglory, giant ragweed, and velvetleaf.

**Crop Stage:** May be preplant surface applied up to 14 days before planting field corn (30 days when applied as a planned sequential program with a postemergence herbicide). DO NOT apply after corn emergence or severe crop injury will occur.

**Additives:** For optimum “burndown” activity of labeled weeds Methylated Seed Oil (MSO) plus Ammonium Sulfate (AMS) or Urea Ammonium Nitrate (UAN) is recommended. For control of emerged grasses and/or broadleaf weeds not controlled by SHARPEN a tank mix with another herbicide (such as glyphosate) is recommended. The use of AMS is recommended when mixing SHARPEN with glyphosate-based herbicides.

**General Comments:** SHARPEN contains 2.85 lb ai saflufenacil per gal. Spray volumes of 15 to 20 GPA are recommended to increase spray coverage and optimize burndown activity. If limited or no residual broadleaf weed control is desired, SHARPEN can be applied at 1.0 fl.oz/A with an adjuvant system any time prior to corn emergence. Do not apply SHARPEN when an at-planting application of an organophosphate or carbamate insecticide is planned or has been used (consult label for use of other insecticides).

**Environmental Statements:** SHARPEN has Ground and Surface water advisory statements on the label.

**Rain Delay:** SHARPEN is rainfast 1 hour after application.

**Rotation Restrictions:** Corn (field), sorghum, and small grains may be replanted immediately. For sweet corn wait a minimum of 2 months; soybean 2 to 3 months (consult label) after application; Other crops require a minimal of at least 6 months. Crop rotation interval may be reduced for lower use rates.

**Harvest & Forage Restrictions:** Do not graze or feed forage for 80 days following application.

**Tank Mixtures:** SHARPEN can be tank mixed or applied sequentially with Atrazine, Clarity, Glyphosate (eg. Roundup), Guardsman MAX, Harness, Harness Xtra, Outlook, Prowl H2O, Status, Verdict.

## 32 Corn

### SEQUENCE

SEQUENCE	Rate/A	(S-metolachlor:glyphosate)
	3.5 pt/A	[1.3:1.0lb ai/A]
	4 pt/A	[1.5:1.13 lb ai/A]

**Weeds Controlled:** Provides “burndown” of existing vegetation and soil residual “preemergence” control of the following annual grasses and broadleaf weeds such as barnyardgrass, crabgrass, fall panicum, foxtails, black nightshade.

**Crop Stage:** SEQUENCE may be applied before, during, or after planting. **Do not apply to emerged conventional corn (i.e. hybrids not designated as Glyphosate Tolerant) or severe crop injury will occur.** SEQUENCE may be applied to Glyphosate Tolerant corn hybrids after crop emergence until corn plants reach 30 inches in height.

**General Comments:** SEQUENCE 4.25L contains S-metolachlor + glyphosate [3.0 + 2.25 lb ai/gal].

**Environmental Statements:** SEQUENCE has GROUNDWATER ADVISORY statements on the label. Do not use on very permeable soil or where ground water is close to the soil surface.

**Rain Delay:** Rainfall soon application may reduce control of emerged weeds.

**Rotation Restrictions:** Corn, sorghum (with Concep treated seed), and soybean may be planted immediately; alfalfa after 4 months; wheat, barley, rye, and oats after 4.5 months; clover after 9 months; and tobacco in the spring following application.

**Harvest & Forage Restrictions:** Do not graze or feed forage from treated areas for 30 days following application.

**Tank Mixtures:** When applied before corn emergence SEQUENCE may be applied in a tank mixture with the following products: Atrazine, Aim, Axom, Balance Pro, Bicep II Magnum, Callisto, Camix, Clarity, 2,4-D, Degree, Degree Xtra, Dicamba, Distinct, Dual II Magnum, Guardsman, Harness, Harness Xtra, Hornet, Lexar, Lumax, Marksman, Princep, Prowl, Touchdown.

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### VERDICT

VERDICT	13 to 15 fl oz/A	[saflufenacil:dimethenamid-P (0.058:0.51) to (0.067:0.59) lb ai/A]
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**Weeds Controlled:** Barnyardgrass, crabgrass, fall panicum, foxtails, black nightshade, cocklebur, lambsquarters, morningglory, pigweed, prickly sida, common ragweed, giant ragweed, smartweed, velvetleaf.

**Crop Stage:** Apply as an early preplant surface (15 to 30 days EPP), preplant surface or preplant incorporated treatment (<14 days), preemergence, or as a burndown with residual control of certain broadleaf weeds. Do not apply after corn emergence or severe crop injury will occur.

**Additives:** For optimum “burndown” activity of labeled weeds Methylated Seed Oil (MSO) plus Ammonium Sulfate (AMS) or Urea Ammonium Nitrate (UAN) is recommended. For control of emerged grasses and/or broadleaf weeds not controlled by VERDICT a tank mix with another herbicide (such as glyphosate) is recommended. The use of AMS is recommended when mixing VERDICT with glyphosate-based herbicides.

**General Comments:** VERDICT contains saflufenacil + diethenamid-P [0.57 + 5.0 lb ai per gal]. When used as part of a burndown plus residual weed control program an adjuvant system is required for optimum burndown activity. Do not apply more than 25 fl oz/A of VERDICT per crop season or exceed a maximum amount of 0.134 lb ai/A saflufenacil. Do not apply where an at-planting application of an organophosphate or carbamate insecticide is planned (consult label for use with other soil insecticides).

**Environmental Statements:** VERDICT has GROUND and SURFACE WATER ADVISORY statements on the label.

**Rain Delay:** Rainfast 1 hour after application for burndown activity. For residual control applications must be activated by at least 1/2 inch rainfall.

**Rotation Restrictions:** Field corn, popcorn, and grain sorghum may be replanted immediately after crop failure. Fall-seeded small grains may be planted 4 months or more following treatment; soybean may be planted 2 months after application on medium and fine textured soil or course soil with >2% OM. Other rotational crop may be planted the following spring.

**Harvest & Forage Restrictions:** Corn may be harvested, fed, or grazed 80 or more days after application.

**Tank Mixtures:** VERDICT may be tank mixed or applied sequentially with Atrazine, Clarity, Glyphosate (eg. Roundup), Guardsman Max, Sharpen, Status.

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## Relative Response of Cover Crops and Weeds to Burndown Herbicides

HERBICIDE	COVER CROPS									WEEDS																
	Alfalfa	Clover, Red	Clover, White	Fescue, Tall	Orchardgrass	Rye	Ryegrass, Annual	Vetch, Hairy	Wheat	Brome spp.	Corn, Volunteer	Chickweed, Common	Dandelion	Dock, Curly	Fleabane, Annual	Foxtails	Henbit/Deadnettle	Johnsongrass (seedling)	Johnsongrass (rhizome)	Lettuce, Prickly	Marestail (Horseweed)#	Mustard spp.	Pokeweed	Ragweed, Giant	Thistle, Musk	Wild Garlic
Atrazine + Oil	3	5	4	6	3	6	5	6	6	7	0	9	4	4	-	6	8	0	0	8	7	8	2	8	4	-
Dicamba <sup>1</sup> (Clarity, DiFlexx, etc)	8	9	8	0	0	0	0	8	0	0	0	7	8	7	8	0	6	0	0	9	8	7	6	9	7	6
2,4-D Ester	6	8	5	0	0	0	0	8	0	0	0	5	8	4	6	0	4	0	0	8	8	8	5	8	7	6
Expert / Sequence	4	4	3	5	3	6	6	4	7	9	9*	9	5	2	6	9	8	9	7	7	8*	7	5	9	5	-
Express	-	-	-	-	-	0	0	7	0	0	0	9	-	8	-	-	8	0	0	-	-	7	-	-	-	8
Harmony Extra	-	-	-	-	-	0	0	7	0	0	0	9	-	8	-	-	8	0	0	-	5	8	-	-	-	9
Harmony SG	-	-	-	-	-	0	0	7	0	0	0	6	-	8	-	-	6	0	0	-	-	8	-	-	-	8
Glyphosate <sup>2</sup>	6	6	5	7	5	8	7	6	9	9	9*	9	6	4	8	9	8	9	8	8	8*	8	6	9	6	-
Leadoff / Crusher	-	-	-	-	-	0	0	7	0	0	0	9	8	8	-	0	8	0	0	6	7	8	-	-	-	-
Liberty <sup>3</sup>	-	-	-	-	-	-	3	8	5	-	7*	9	6	7	-	8	7	8	3	8	8	8	-	8	-	-
Paraquat (Gramoxone)	3	7	5	5	3	7	6	7	7	7	6	9	4	2	6	9	8	7	3	5	4	6	4	7	3	8
Paraquat (Gramoxone) + Atrazine	4	7	5	8	6	8	7	8	9	8	7	9	7	5	6	9	9	7	3	9	8	9	4	9	5	8
Sharpen	4	6	5	0	0	2	-	6	2	2	0	7	5	5	7	2	6	0	0	8	8	8	-	8	5	-
Verdict	4	6	5	0	0	2	-	6	2	2	0	7	5	5	7	2	6	0	0	8	8	8	-	8	5	-

**GOOD= 8-9      FAIR = 6-7      POOR = 5 or less      - Insufficient Data**

***This table should be used only as a guide.*** Information presented in this table is the relative burndown response of emerged plants to herbicides applied at normal rates for no-till corn. This information generally does not reflect soil residual effects of the herbicides. The relative response values are based on a numerical scale from 0 to 9 and compare effectiveness of herbicides to control a particular cover crop or weed species. A herbicide may perform better or worse than indicated in the table due to weed size, environmental conditions or when tank mixed with other herbicides. If a farmer is achieving satisfactory results under their conditions, they should not necessarily change products as a result of information in this table.

<sup>1</sup> Examples of DICAMBA products labeled for use as a burndown treatment in corn include Clarity, Banvel, Sterling Blue, and Vision.

<sup>2</sup> Examples of GLYPHOSATE products labeled for use as a burndown treatment in corn include: **Abundit Extra, Buccaneer, Credit, Duramax, DurangoDMA, GlyStar Plus, Honcho, Roundup Original, Roundup PowerMAX, Roundup WeatherMAX.** Consult the label for specific use directions including use of additives, if needed. [See page 22 for list of other GLYPHOSATE products]

<sup>3</sup> Environmental stress conditions such as cool temperatures and cloudy weather may limit burndown activity for weed control with LIBERTY

# Glyphosate will not effectively control biotypes of horseweed (marestail) that are tolerant to this herbicide.

\* Volunteer corn plants containing genetic traits with herbicide tolerance (eg. RR-corn hybrids or LL-corn hybrids) will not be effectively controlled.

## Guide to Weed and Crop Response to Soil Applied Herbicides<sup>1</sup>

	Barnyardgrass	Broadleaf Signalgrass	Crabgrass	Fall Panicum	Foxtail	Johnsongrass (seedling)	Johnsongrass (rhizome)	Shattercane (Wild Cane)	Yellow Nutsedge	Black Nightshade	Burcucumber	Cocklebur	Lambsquarters	Marestail (Horseweed)	Morningglory	Palmer Amaranth	Pigweed, Smooth	Prickly Sida (Teaweed)	Ragweed, Common	Ragweed, Giant (Horseweed)	Sicklepod	Smartweed	Velvetleaf	Waterhemp	Crop Response <sup>2</sup>
Acetochlor <sup>3</sup>	8	7	8	8	9	5	0	5	7	8	0	0	7	0	0	8	8	0	6	0	4	5	0	8	1
Acuron (PRE only)	8	7	8	7	9	5	0	5	7	9	6	7	9	8	7	9	9	7	8	7	-	9	9	9	2
Acuron Flexi (PRE only)	8	7	8	7	9	5	0	5	7	9	5	7	9	8	6	9	9	7	8	7	-	9	9	9	2
Anthem ATZ	8	7	8	8	8	5	0	4	-	9	6	7	9	6	7	9	9	9	8	7	7	9	7	9	1
Atrazine	6	4	5	3	6	0	0	0	5	9	7	8	9	7	8	9	9	9	9	8	7	9	8	9	0
Balance Flexx	7	7	6	8	8	6	0	6	2	9	7	3	9	8	4	7	9	7	8	6	4	8	9	8	2
Bicep II Magnum / Cinch ATZ	8	7	8	8	9	5	0	5	7	9	6	8	9	7	7	9	9	9	9	7	6	9	7	9	1
Corvus	8	7	8	8	8	6	0	6	4	9	7	6	9	8	6	7	9	-	8	6	-	8	9	8	2
Degree Xtra/HarnessXtra/FulTime/ Breakfree ATZ / Keystone	8	7	8	8	9	5	0	5	7	9	5	8	9	7	7	9	9	9	9	7	6	9	7	9	1
Dual II Magnum / Cinch	8	7	8	8	9	5	0	5	7	8	0	0	5	0	0	7	7	0	5	0	4	5	0	8	1
Expert	8	7	8	8	9	5	0	5	7	9	6	8	9	8 <sup>#</sup>	7	-	9	9	9	7	6	9	7	9	1
Fierce <sup>4</sup> (PRE only)	8	7	8	8	8	7	2	-	-	8	-	6	8	7	7	8	9	8	8	6	-	7	7	9	2
Guardzman MAX	8	7	8	8	9	5	0	5	7	9	6	8	9	7	7	9	9	9	9	7	6	9	7	9	1
Instigate	8	6	6	7	9	7	0	-	4	8	6	7	8	-	6	8	9	-	8	6	-	7	7	6	2
LeadOff <sup>4</sup> / Crusher <sup>4</sup>	8	-	6	6	8	-	-	2	-	-	-	6	7	-	6	-	8	-	7	3	-	6	6	-	2
Lexar EZ or Lumax EZ (PRE only)	8	7	8	8	9	5	0	5	7	9	6	7	9	8	7	9	9	7	8	7	5	9	9	9	2
Outlook	8	7	8	8	9	5	0	5	7	8	0	0	6	0	0	8	8	0	5	0	4	5	0	8	1
Princep	8	5	7	6	8	2	0	3	2	9	6	7	9	-	7	9	9	9	9	7	7	9	8	9	0
Prowl (PRE only)	8	7	8	8	9	6	2	6	0	0	0	0	8	0	2	7	8	2	0	0	0	6	6	7	2
Resicore	8	7	8	8	9	5	0	5	6	8	-	7	9	-	7	7	9	6	8	7	7	8	7	7	2
Sharpen	2	2	2	2	2	0	0	2	-	8	-	7	8	8	8	8	8	7	8	8	5	8	8	8	1
SureStart <sup>4</sup>	8	7	8	7	9	5	0	5	6	8	3	8	9	-	7	8	9	8	8	6	6	8	7	8	1
Verdict <sup>4</sup>	8	7	8	8	9	5	0	5	7	8	-	7	8	8	8	9	9	7	9	8	5	9	8	9	1
Zemax (PRE only)	8	7	8	8	9	5	0	5	7	9	6	7	9	7	6	9	9	6	7	6	5	9	9	9	2
Zidua	8	7	8	8	9	5	0	6	5	8	-	5	6	5	0	8	8	6	7	3	-	6	7	8	1

**GOOD = 8-9      FAIR = 6-7      POOR = 5 or less      - Insufficient Data**

<sup>1</sup>This table should be used only as a guide. The relative response value is based on a numerical scale from 0 to 9 comparing the effectiveness of herbicides to a particular weed. Under certain weather or environmental conditions, a herbicide may perform better or worse than indicated in the table. Response may be less in no-tillage than in conventional tillage. If a farmer is getting satisfactory results under their conditions, they should not necessarily change products as a result of the information in the table.

<sup>2</sup>A rating of 3 or less will not result in a crop yield loss under normal conditions. Certain corn hybrids vary in their injury response to a herbicide treatment.

<sup>3</sup>Acetochlor containing products include Breakfree NXT, Confidence, Degree, Harness, Surpass NXT, and Volley.

<sup>4</sup>Crusher, Fierce, Instigate, LeadOff, SureStart, and Verdict are intended for use in a planned preemergence followed by a postemergence program. Ratings indicate early-season effectiveness.

<sup>#</sup> Glyphosate will not effectively control biotypes of horseweed (marestail) that are tolerant to this herbicide.

## SOIL APPLIED

### Preemergence (Surface Applied) or Preplant Incorporated

The following soil-residual herbicide treatments may be applied before or after planting but before crop and weeds emerge using one of the following methods: 1) preemergence surface applied in no-tillage or conventional tillage or 2) shallowly incorporated (surface blended) before planting in conventional tillage usually within the upper 1 to 2 inches of soil. Preemergence surface applied treatments need rainfall to move the herbicide into the soil for preemergence control of weeds.

#### ACETOCHLOR (VARIOUS PRODUCTS)

DEGREE 3.8CS 3.25 to 4.25 pt/A OR (acetochlor 1.5 to 2 lb ai/A)  
 HARNESS 7E or BREAKFREE NXT 1.75 to 2.25 pt/A  
 OR  
 TOPNOTCH 3.2CS 2 to 2.5 qt/A OR (acetochlor 1.6 to 2 lb ai/A)  
 SURPASS 6.4EC or VOLLEY 6.4EC 2 to 2.5 pt/A

**Weeds Controlled:** Barnyardgrass, crabgrass, fall panicum, foxtails, black nightshade, pigweed.

**Crop Stage:** Apply preplant incorporated, preemergence, or early postemergence for control of annual grasses and certain broadleaf weeds. Acetochlor products and certain tank mixtures may be applied up to 30 days before planting. For treatments after planting, apply prior to weed seedling emergence and before corn reaches 11 inches in height.

**General Comments:** DEGREE 3.8CS is an encapsulated herbicide that contains 3.8 lb ai per gal acetochlor plus MON 13900 (corn safener). HARNESS 7E and BREAKFREE NXT contains 7 lb ai per gal acetochlor plus MON 13900 (corn safener). TOPNOTCH 3.2CS is an encapsulated herbicide that contains 3.2 lb ai per gal acetochlor plus dichlormid (corn safener); SURPASS and VOLLEY contain 6.4 lb ai per gal acetochlor plus dichlormid (corn safener). Application rates may vary depending on soil texture, percent organic matter, tillage system, weed species, and tank mixture components. Incorporation and higher use rates will improve control of some weeds.

**Environmental Statements:** These herbicides have a GROUNDWATER ADVISORY statement on the label and some products are classified as RESTRICTED USE pesticides. Do not use in areas where soils are very permeable, particularly where the groundwater is shallow. Consult label for specific guidelines.

**Rain Delay:** None

**Rotation Restrictions:** Consult individual product labels for specific guidelines on rotational crops.

**Harvest & Forage Restrictions:** None.

**Tank Mixtures:** Atrazine, Balance Pro, Banvel, Clarity, 2,4-D, Glyphosate (Roundup, etc.), Gramoxone, Hornet, Princep, Prowl, Python. Consult the product label to apply early postemergence with Accent, Aim, Atrazine, Banvel, Beacon, Buctril, Clarity, Distinct, Liberty, Lightning, Marksman, Permit, Spirit, Steadfast.

#### ACURON

ACURON 2.5 to 3 qt/A [S-metolachlor:atrazine:mesotrione:bicyclopyrone  
 (1.3:0.63:0.15:0.038) to (1.6:0.75:0.18:0.045) lb ai/A]

**Weeds Controlled:** Barnyardgrass, black nightshade, crabgrass, foxtails, lambsquarters, marestalk, Palmer amaranth, smooth pigweed, common ragweed, smartweed, velvetleaf, waterhemp.

**Crop Stage:** Apply preemergence on the soil surface no more than 28 days prior to planting or early postemergence before corn exceeds 12 inches in height. When applied early postemergence apply before small broadleaf weeds exceed 3 inches tall.

**General Comments:** ACURON contains S-metolachlor + atrazine + mesotrione + bicyclopyrone [2.14 + 1.0 + 0.24 + 0.06 lb ai/gal] plus the safener benoxacor. When tank mixing or applying sequentially with other herbicides do not exceed rate limitations for products containing atrazine, mesotrione and S-metolachlor. Applying ACURON postemergence to corn that has received an at-plant application of "Counter" insecticide can result in severe crop injury. Consult label before use with other organophosphate or carbamate insecticides.

**Environmental Statements:** ACURON is a RESTRICTED-USE pesticide with a GROUND and SURFACE WATER ADVISORY statements. Do not use on very permeable soils or where groundwater is close to the soil surface or where the potential exists to enter surface water. [NOTE: See page 23 for PRECAUTIONS on use of atrazine containing products (eg. ACURON) near ground or surface water].

**Rain Delay:** None.

**Rotation Restrictions:** Crops that may be planted include corn (all types) anytime; before planting wheat, barley, or rye wait 4 months; sorghum and soybeans wait 10 months; and for other rotational crops wait 18 months (consult label). If applied after June 1, rotating to crops other than corn may result in crop injury.

**Harvest & Forage Restrictions:** Do not graze or feed forage from treated areas for 45 days following application. Corn can be harvested for grain, seed, or silage when treated before 12 inches tall. Do not harvest for forage within 60 days after application.

**Tank Mixtures:** Atrazine, Glyphosate, Gramoxone, Princep, Roundup, Touchdown, and Warrior insecticide. Tank mixtures with 2,4-D is allowed; however, check compatibility before mixing. Tank mixtures for early postemergence applications include Atrazine, Accent Q, Basis brands, Glyphosate products [apply to glyphosate-tolerant corn hybrids], or Steadfast Q.

## 36 Corn

### ACURON FLEXI

ACURON FLEXI 2 to 2.25 qt/A

[S-metolachlor:mesotrione:bicyclopyrone  
(1.4:0.16:0.04) to (1.6:0.18:0.045) lb ai/A]

**Weeds Controlled:** Barnyardgrass, black nightshade, crabgrass, foxtails, lambsquarters, marehail, Palmer amaranth, smooth pigweed, common ragweed, smartweed, velvetleaf, waterhemp.

**Crop Stage:** Apply early preplant (up to 28 days prior to planting), preemergence, or postemergence on corn up to 30 inches in height or 8-leaf stage of corn growth.

**General Comments:** ACURON FLEXI contains S-metolachlor + mesotrione + bicyclopyrone [2.86 + 0.32 + 0.08 lb ai/gal] plus the safener benoxacor. When tank mixing or applying sequentially with other herbicides do not exceed rate limitations for products containing bicyclopyrone, mesotrione and S-metolachlor. Applying ACURON FLEXI postemergence to corn that has received an at-planting application of "Counter" insecticide can result in severe crop injury. Consult label before use with other organophosphate or carbamate insecticides. Apply postemergence before broadleaf weeds exceed 3 inches tall.

**Environmental Statements:** ACURON FLEXI has ground and surface water advisory statements.

**Rain Delay:** None.

**Rotation Restrictions:** Crops that may be planted include corn (all types) anytime; before planting wheat, barley, or rye wait 4 months; for alfalfa, sorghum and soybeans wait 10 months; and for other rotational crops wait 18 months. If applied after June 1, rotating to crops other than corn may result in crop injury.

**Harvest & Forage Restrictions:** Do not use for feed or harvest forage within 45 days following application.

**Tank Mixtures:** Atrazine, Banvel, Clarity, Glyphosate, Gramoxone, Princep, Roundup, Touchdown, Tricor, and Warrior insecticide. Tank mixtures for early postemergence applications include Atrazine, Accent Q, Basis Blend, Glyphosate products [apply only to glyphosate-tolerant corn hybrids], NorthStar, Peak, Resolve Q, Spirit, Status, or Steadfast Q.

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### ANTHEM ATZ

ANTHEM ATZ 2 to 2.5 pt/A

[pyoxasulfone:fluthiacet-methyl:atrazine  
(0.12:0.003:1.0) to (0.15:0.004:1.25) lb ai/A]

**Weeds Controlled:** Barnyardgrass, crabgrass, fall panicum, foxtails, lambsquarters, Eastern black nightshade, Palmer amaranth, pigweeds, prickly sida, common ragweed, smartweed, waterhemp.

**Crop Stage:** Apply early preplant (up to 45 days prior to planting), preplant incorporated or preemergence. ANTHEM ATZ can also be applied after planting from crop emergence up to V4 corn stage (visible 4<sup>th</sup> leaf collar). A temporary crop response may occur under certain environmental conditions (consult seed supplier on the potential sensitivity to certain hybrids).

**General Comments:** ANTHEM ATZ is a premixture containing pyoxasulfone + fluthiacet-methyl + atrazine [0.485 + 0.014 + 4.006 lb ai/gal]. Application rate depends on a variety of factors such as weeds present, stage of weed growth for early post treatments, environmental conditions, and soil type. Consult label for adjuvants needed with some burndown and postemergence applications.

**Environmental Statements:** ANTHEM ATZ is a RESTRICTED-USE pesticide with a GROUND and SURFACE WATER ADVISORY statements. [NOTE: See page 23 for PRECAUTIONS on use of atrazine containing products (eg. ANTHEM ATZ near ground or surface waters)].

**Rain Delay:** None

**Rotation Restrictions:** Do not rotate to any crop except corn until the following year. Soybean can be planted the following year if applied before June 10. Do not plant tobacco, vegetables, or small seeded legumes and grasses the year following application. For other crops the rotational interval is a minimum of 18 months (consult label for details).

**Harvest & Forage Restrictions:** Do not harvest field corn for forage within 60 days after application; do not harvest or feed corn or stover (fodder) within 70 days after application.

**Tank Mixtures:** For enhanced control of emerged weeds tank mix with Aim, 2,4-D, glufosinate, glyphosate, paraquat, or saflufenacil (Sharpen, Verdict). For additional residual control can be tank mix with atrazine, Balance, or Hornet. ANTHEM ATZ can also be tank-mixed with insecticides such as Hero or Mustang and with fungicides.

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**BICEP II MAGNUM or CINCH ATZ**

BICEP II MAGNUM 1.6 to 2.1 qt/A or	[S-metolachlor:atrazine (1.0:1.2) to (1.3:1.6) lb ai/A]
CINCH ATZ 1.6 to 2.1 qt/A	
OR	OR
DUAL II MAGNUM or CINCH 1.33 pt/A	(S-metolachlor 1.3 lb ai/A)
+	+
AATREX 4L 1.2 to 2 qt/A or	(atrazine 1.2 to 2 lb ai/A)
AATREX NINE-O 1.3 to 2.2 lb/A	

**Weeds Controlled:** Barnyardgrass, cocklebur, crabgrass, fall panicum, foxtails, jimsonweed, lambsquarters, morningglories, black nightshade, pigweeds, prickly sida, common ragweed, smartweed.

**Crop Stage:** Apply preplant incorporated, preplant surface, or preemergence. These products may be applied up to 30 days before planting as a single application. When applying 30 to 45 days before planting, apply 2/3 full rate early, followed by 1/3 full rate at planting. BICEP II MAGNUM or CINCH ATZ can be applied after planting, but as a broadcast treatment before corn exceeds 5 inches in height and weeds pass the 2-leaf stage.

**General Comments:** BICEP II MAGNUM and CINCH ATZ are prepackage mixtures containing S-metolachlor + atrazine [2.4 + 3.1 lb ai/gal] plus benoxacor (corn safener). Other products include BRAWL II ATZ, CHARGER MAX ATZ, MEDAL II AT, PARALLEL PLUS, and TRIZMET II.

**Environmental Statements:** These products are RESTRICTED-USE pesticides with a GROUNDWATER ADVISORY statement. Do not use on very permeable soils or where groundwater is close to the soil surface. [NOTE: See page 23 for PRECAUTIONS on use of atrazine containing products (eg. BICEP II MAGNUM, BRAWL II ATZ, CINCH ATZ, MEDAL II AT, PARALLEL PLUS, TRIZMET II) near ground or surface water].

**Rain Delay:** None

**Rotation Restrictions:** Do not plant small grains or small-seeded legumes in the fall of the same year or the year following application, or injury may occur. Plant only corn, sorghum or soybeans in the spring following application. If applied after June 10, plant only corn or sorghum the following season.

**Harvest & Forage Restrictions:** Do not graze or feed forage from treated areas for 60 days.

**Tank Mixtures:** AAtrex, Atrazine, Balance, Banvel, Cinch, 2,4-D, Dual II Magnum, Gramoxone, Princep, Roundup. Postemergence tank mixtures include Exceed, Spirit alone or plus Accent, and Liberty (LL-corn) or Roundup Ultra (RR-corn). Consult label to apply with other herbicides regarding corn growth stages, weed heights, and other precautions.

**DEGREE XTRA**

DEGREE XTRA 4.04CS 2.9 to 3.7 qt/A	[acetochlor:atrazine (1.95:0.97) to (2.49:1.23) lb ai/A]
OR	OR
DEGREE 3.8CS 3.25 to 4.25 pt/A	(acetochlor 1.5 to 2 lb ai/A)
+	+
ATRAZINE 4L 1.0 to 1.5 qt/A or	(atrazine 1 to 1.5 lb ai/A)
AATREX NINE-O 1.1 to 1.6 lb/A	

**Weeds Controlled:** Barnyardgrass, crabgrass, fall panicum, foxtails, jimsonweed, lambsquarters, black nightshade, pigweed, prickly sida, common ragweed, smartweed.

**Crop Stage:** Apply preplant incorporated, preemergence, or early postemergence before weed seedlings reach the 2-leaf stage and corn is no more than 11 inches in height. DEGREE XTRA may be applied up to 30 days before planting.

**General Comments:** DEGREE XTRA 4.04CS is a pre-package mixture containing encapsulated acetochlor + atrazine [2.7 + 1.34 lb ai/gal] plus MON 13900 (corn safener). Rate may vary depending on soil texture, percent organic matter, tillage system, weed species, and tank mixture components. Incorporation and higher use rates will improve control of some weeds. Consult label for reduced rates when DEGREE XTRA is used as part of a planned program with postemergence herbicides.

**Environmental Statements:** DEGREE XTRA and ATRAZINE are RESTRICTED-USE pesticides with a GROUNDWATER ADVISORY statement on the label. Do not use in areas where soils are very permeable, particularly where the groundwater is shallow. Do not apply to coarse soils where depth of groundwater is within 30 feet of the soil surface. NOTE: See page 23 for PRECAUTIONS on use of atrazine containing products (eg. DEGREE XTRA) near ground or surface water].

**Rain Delay:** None

**Rotation Restrictions:** Do not rotate to crops other than corn, soybeans, sorghum (milo), wheat, or tobacco. The possibility of crop injury can occur to soybeans or other nonlabeled crops planted in the year following application.

**Harvest & Forage Restrictions:** Do not graze or feed forage from treated areas for 60 days.

**Tank Mixtures:** Atrazine, 2,4-D, Gramoxone, Harness, Princep, Roundup. Consult label to apply early postemergence with Accent, Banvel, Clarity, Marksman, or Permit. DEGREE XTRA may also be tank mixed with Hornet, Python, Prowl, or Roundup (RR-corn).

## 38 Corn

### DUAL II MAGNUM [S-metolachlor]

DUAL II MAGNUM 1.33 to 1.67 pt/A or  
CINCH 1.33 to 1.67 pt/A

(S-metolachlor 1.3 to 1.6 lb ai/A)

**Weeds Controlled:** Barnyardgrass, black nightshade, crabgrass, fall panicum, foxtails. Higher use rates and incorporation will improve control of weeds such yellow nutsedge, black nightshade, triazine resistant pigweed.

**Crop Stage:** Apply preplant incorporated or preemergence for control of annual grasses and certain broadleaf weeds. Metolachlor products may be applied up to 30 days before planting as a single or split application and/or when tank mixed with atrazine. May also be applied as a broadcast treatment after planting, but before weed seedlings have emerged and before corn exceeds 5 inches tall.

**General Comments:** Other metolachlor containing products include CHARGER MAX, CINCH, and PARALLEL. DUAL II MAGNUM, CHARGER MAX, CINCH, MEDAL II contain 7.64 lb ai S-metolachlor per gal plus benoxacor (corn seed safener). PARALLEL and STALWART C contain 7.8 lb ai metolachlor per gal plus a corn seed safener (consult label for use rates).

**Environmental Statements:** These products have a GROUNDWATER ADVISORY statement on the label. Do not use on very permeable soils or where groundwater is close to the soil surface.

**Rain Delay:** None

**Rotation Restrictions:** Corn, soybean and grain sorghum (use Concep or Screen treated sorghum seed) may be planted anytime following application. Small grains may be planted 4 1/2 months, alfalfa 4 months, and clover 9 months following application; and tobacco may be planted the next spring following treatment. Other crops may require a 12 month waiting period.

**Harvest & Forage Restrictions:** Do not graze or feed forage for 30 days following application.

**Tank Mixtures:** AAtrex, Atrazine, Balance, Banvel, 2,4-D, Gramoxone, Princep, Prowl, Roundup. Postemergence tank mixtures include Liberty (LL-corn) or Roundup (RR-corn). Consult label to apply with other herbicides regarding corn growth stages, weed heights, and other precautions.

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### FIERCE

FIERCE 76WDG 3 oz/A [7 to 30 days EPP]

[flumioxazin:pyroxasulfone (0.063:0.079) lb ai/A]

**Weeds Controlled:** Crabgrass, fall panicum, foxtail, black nightshade, lambsquarters, smooth pigweed, prickly sida, common ragweed, waterhemp.

**Crop Stage:** Apply FIERCE at 3 oz/A to field corn between 7 and 30 days early pre-plant [EPP] prior to planting. Do not use on popcorn, sweet corn or corn grown for seed.

**General Comments:** *Apply at least 7 days before corn planting. Use only on no-till or minimum tillage fields where last year's crop residue has not been incorporated into the soil.* For control of emerged weeds FIERCE must be applied with a tank mix partner as part of a burndown program for field corn. Apply in a minimum of 15 gal of spray solution per acre to ensure thorough coverage. Spray equipment must be cleaned each day following FIERCE application. Clean out tank, hoses, and nozzles with the product such known as "Valent Tank Cleaner" in place of ammonia.

**Environmental Statements:** FIERCE has ground and surface water advisory statements on the label.

**Rain Delay:** 1 hour

**Rotation Restrictions:** Crops that may be planted include soybeans immediately; field corn 7 days after FIERCE application (for minimum and no-till situations) or 30 days when FIERCE has been applied to conventional tilled areas; wheat 4 months; and other crops 18 months.

**Harvest & Forage Restrictions:** None indicated.

**Tank Mixtures:** Tank mix partners for burndown and/or residual control include 2,4-D LVE, atrazine, Basis, dicamba, Express, glyphosate, Hornet, paraquat, Python, Resolve, simazine, and Weedmaster.

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**GUARDSMAN MAX**

GUARDSMAN MAX 5S 3 to 4.6 pt/A	[dimethenamid-P:atrazine (0.64:1.2) to (0.98:1.9) lb ai/A]
OR	OR
OUTLOOK 6E 14 to 21 oz/A	(dimethenamid-P 0.66 to 0.98 lb ai/A)
+	+
ATRAZINE 4L 1 to 2 qt/A or	(atrazine 1 to 2 lb ai/A)
AATREX NINE-O 1.1 to 2.2 lb/A	

**Weeds Controlled:** Barnyardgrass, cocklebur, crabgrass, fall panicum, foxtails, jimsonweed, lambsquarters, morningglory, black nightshade, pigweed, prickly sida, common ragweed, smartweed.

**Crop Stage:** Apply preplant incorporated or preemergence for control of annual grasses and broadleaf weeds. GUARDSMAN MAX may be applied up to 30 days before planting as a single or split application. For treatments after planting, apply before corn exceeds 12" tall and before weeds are greater than 1.5 inches.

**General Comments:** GUARDSMAN MAX 5S contains dimethenamid-P + atrazine [1.7 + 3.3 lb ai per gal]. Rates vary depending on soil CEC (Cation Exchange Capacity) or soil texture and organic matter. Higher use rates, incorporation, and/or a tank mixture with other herbicides will improve control of some weeds.

**Environmental Statements:** GUARDSMAN MAX and ATRAZINE are RESTRICTED-USE pesticides with GROUNDWATER ADVISORY statements on the label. Do not use on very permeable or coarse soils and where groundwater is close to the soil surface. [NOTE: See page 23 for PRECAUTIONS on use of atrazine containing products (eg. GUARDSMAN MAX) near ground or surface water].

**Rain Delay:** None

**Rotation Restrictions:** Plant only corn, sorghum, or soybeans in the spring following application. Do not plant small grains, small-seeded legumes, grasses, tobacco, or vegetable crops the year following application.

**Harvest & Forage Restrictions:** Do not graze or feed forage from treated areas for 60 days.

**Tank Mixtures:** Atrazine, Balance, Banvel, Clarity, 2,4-D, Gramoxone, Hornet, Outlook, Princep, Prowl, Python, Roundup, Touchdown. Consult product labels to apply early postemergence with Accent, Accent Gold, Atrazine, Banvel, Basis Gold, Beacon, Clarity, Liberty (LL-corn), Lightning (IMI-corn), Marksman, Permit, Prowl, Pursuit (IMI-Corn), ReadyMaster ATZ (RR-corn), Roundup Ultra (RR-corn).

**HARNESS XTRA or BREAKFREE NXT ATZ**

HARNESS XTRA (5.6L) 2.3 to 2.4 qt/A or	[acetochlor:atrazine (1.78:1.4) to (1.86:1.5) lb ai/A]
BREAKFREE NXT ATZ (5.6L) 2.3 to 2.4 qt/A	
OR	OR
HARNESS 7E 1.75 to 2.25 pt/A or	
BREAKFREE NXT (7E) 1.75 to 2.25 pt/A or	(acetochlor 1.5 to 2 lb ai/A)
Surpass NXT (7SE) 1.75 to 2.25 pt/A	
+	+
ATRAZINE 4L 1.25 to 1.5 qt/A or	(atrazine 1.25 to 1.5 lb ai/A)
AATREX NINE-O 1.4 to 1.6 lb/A	

**Weeds Controlled:** Barnyardgrass, cocklebur, crabgrass, fall panicum, foxtails, jimsonweed, lambsquarters, morningglory, black nightshade, pigweed, prickly sida, common ragweed, smartweed.

**Crop Stage:** Apply preplant incorporated, preemergence, or early postemergence before weed seedlings reach the 2-leaf stage and corn is no more than 11 inches in height. HARNESS XTRA and BREAKFREE NXT ATZ may be applied up to 30 days before planting.

**General Comments:** HARNESS XTRA and BREAKFREE NXT ATZ (5.6L) are premixtures containing acetochlor + atrazine [3.1 + 2.5 lb ai/gal] plus MON 13900 (corn safener). Application rate may vary depending on soil texture, percent organic matter, tillage system, weed species, and tank mixture components. Incorporation and higher use rates will improve control of some weeds.

**Environmental Statements:** HARNESS XTRA, BREAKFREE NXT ATZ, and ATRAZINE are RESTRICTED-USE pesticides with a GROUNDWATER ADVISORY statement on the label. Do not use in areas where soils are very permeable, particularly where the groundwater is shallow. Do not apply to coarse soils where depth of groundwater is within 30 feet of the soil surface. NOTE: See page 23 for precautions on use of atrazine containing products (eg. HARNESS XTRA, BREAKFREE NXT ATZ, etc.) near ground or surface water.

**Rain Delay:** None

**Rotation Restrictions:** Corn, sorghum (milo), and soybeans may be planted the year following application. Crop injury can occur to soybeans or other nonlabeled crops planted the year following application (see label).

**Harvest & Forage Restrictions:** Do not graze or feed forage from treated areas for 60 days.

**Tank Mixtures:** Atrazine, 2,4-D, Gramoxone, Harness, Princep, Roundup. Consult HARNESS XTRA label to apply early postemergence with Accent, Banvel, Clarity, Marksman, or Permit.

## 40 Corn

### KEYSTONE NXT or FULTIME NXT

KEYSTONE NXT [5.6SE] 2.3 to 2.6 qt/A or	[acetochlor:atrazine (1.8:1.4) to (2.0:1.6) lb ai/A]
FULTIME NXT [4SE] 2.9 to 3.7 qt/A	[acetochlor:atrazine (1.9:0.97) to (2.5:1.23) lb ai/A]
OR	OR
TOPNOTCH 3.2CS 2 to 2.5 qt/A	(acetochlor 1.6 to 2 lb ai/A)
+	+
ATRAZINE 4L 1 to 1.5 qt/A or	(atrazine 1 to 1.5 lb ai/A)
ATRAZINE NINE-O 1.1 to 1.6 lb/A	

**Weeds Controlled:** Barnyardgrass, cocklebur, crabgrass, fall panicum, foxtails, jimsonweed, lambsquarters, morningglory, black nightshade, pigweed, prickly sida, common ragweed, smartweed.

**Crop Stage:** Apply preplant incorporated, preemergence, early postemergence, or may also be applied up to 30 days prior to planting. For treatments after planting apply before corn reaches 11 inches in height.

**General Comments:** KEYSTONE NXT (5.6SE) is a premixture containing acetochlor + atrazine [3.1 + 2.5 lb ai/gal] plus dichlormid (corn safener). FULTIME NXT (4SE) is a premixture containing an encapsulated combination of acetochlor + atrazine [2.7 + 1.34 lb ai/gal] plus dichlormid (corn safener). Similar products include VOLLEY ATZ NXT. Application rate may vary depending on soil texture, percent organic matter, tillage system, time of application, and tank mixture components.

**Environmental Statements:** KEYSTONE and FULTIME are Restricted-Use pesticides with a GROUND WATER ADVISORY statement on the label. Do not use in areas where soils are very permeable, particularly where the groundwater is shallow or areas with high groundwater tables. [NOTE: See page 23 for precautions on use of atrazine containing products (eg. KEYSTONE, FULTIME) near ground or surface water].

**Rain Delay:** None

**Rotation Restrictions:** Corn may be replanted immediately if crop is lost. Do not apply after June 10, unless only corn will be planted the following year. Otherwise, sorghum or soybean may be planted the spring following application. Alfalfa, barley, millet, oats, rye, tobacco, or wheat may be planted 15 months after application. The potential for injury to tobacco may occur because of atrazine carryover.

**Harvest & Forage Restrictions:** Do not graze or feed forage for 60 days following application.

**Tank Mixtures:** Atrazine, Balance Pro, Banvel, Clarity, 2,4-D, glyphosate (Glyphomax Plus, Roundup, Touchdown), Gramoxone, Hornet WDG, Marksman, Princep, Prowl, Python, Surpass EC. Consult label to apply early postemergence with other tank mix products.

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### LEXAR EZ

LEXAR EZ 3 qt/A	[S-metolachlor:mesotrione:atrazine (1.3:0.17:1.3) lb ai/A]
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**Weeds Controlled:** Barnyardgrass, black nightshade, crabgrass, fall panicum, foxtails, lambsquarters, pigweeds, prickly sida, common ragweed, smartweed, velvetleaf.

**Crop Stage:** Apply preemergence on the soil surface no more than 14 days before planting or early postemergence before corn exceeds 12 inches in height. When applied early postemergence apply before small broadleaf weeds exceed 5 inches tall.

**General Comments:** LEXAR EZ contains S-metolachlor + mesotrione + atrazine [1.74 + 0.224 + 1.74 lb ai/gal] plus benoxacor (corn safener). Do not apply LEXAR early postemergence if corn received an at-plant application of "Counter" insecticide. Consult label before use with other organophosphate or carbamate insecticides. Do not apply mesotrione products (eg. Callisto, Camix, Lumax) in the same season as LEXAR.

**Environmental Statements:** LEXAR EZ is a RESTRICTED-USE pesticide with a GROUND WATER ADVISORY statement. Do not use on very permeable soils or where groundwater is close to the soil surface or where the potential exists to enter surface water. [NOTE: See page 23 for PRECAUTIONS on use of atrazine containing products (eg. LEXAR) near ground or surface water].

**Rain Delay:** None.

**Rotation Restrictions:** Do not plant crops other than corn, soybeans, sorghum, or small grain cereals the spring following application. If applied after June 1, do not rotate to crops other than corn or sorghum. For other crops wait 18 months before planting as a rotational crop.

**Harvest & Forage Restrictions:** Do not graze or feed forage from treated areas for 45 days following application. Do not harvest forage, grain, or stover within 60 days after application.

**Tank Mixtures:** Atrazine, Glyphosate, Gramoxone, Princep, Roundup, Touchdown, and Warrior insecticide. Tank mixtures for early postemergence applications (before corn < 12 inches) include Atrazine, Accent Q, Basis, glyphosate products [eg. Roundup, Touchdown-glyphosate tolerant hybrids], Liberty[LL-corn], Resolve Q, Spirit, Status, Steadfast,. Tank mixtures with 2,4-D is allowed; however, check compatibility before mixing.

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**LUMAX EZ**

LUMAX EZ 2.7 to 3.25 qt/A  
[use higher rate when OM  $\geq$  3%]

[S-metolachlor:mesotrione:atrazine (1.68:0.17:0.65)  
to (2.0:0.2:0.75) lb ai/A]

**Weeds Controlled:** Barnyardgrass, black nightshade, crabgrass, fall panicum, foxtails, lambsquarters, pigweeds, common ragweed, smartweed, velvetleaf.

**Crop Stage:** Apply preemergence on the soil surface no more than 14 days before planting or early postemergence before corn exceeds 12 inches in height. When applied early postemergence apply before small broadleaf weeds exceed 3 inches tall.

**General Comments:** LUMAX EZ contains S-metolachlor + mesotrione + atrazine [2.49 + 0.249 + 0.935 lb ai/gal] plus benoxacor (corn safener). Do not apply LUMAX EZ early postemergence if corn received an at-plant application of "Counter" insecticide. Consult label before use with other organophosphate or carbamate insecticides. Do not apply other mesotrione products (eg. Callisto, Lexar) in the same season as LUMAX EZ.

**Environmental Statements:** LUMAX EZ is a RESTRICTED-USE pesticide with a GROUNDWATER ADVISORY statement. Do not use on very permeable soils or where groundwater is close to the soil surface or where the potential exists to enter surface water. [NOTE: See page 23 for PRECAUTIONS on use of atrazine containing products (eg. LUMAX EZ) near ground or surface water].

**Rain Delay:** None.

**Rotation Restrictions:** Do not plant crops other than corn, soybeans, or sorghum the spring following application. If applied after June 1, do not rotate to crops other than corn or sorghum. Winter wheat, barley, or rye may be planted 4.5 months following application. For other crops wait 18 months before planting as a rotational crop.

**Harvest & Forage Restrictions:** Do not graze or feed forage from treated areas for 45 days following application. Do not harvest forage, grain, or stover within 60 days after application.

**Tank Mixtures:** Atrazine, Glyphosate, Gramoxone, Princep, Roundup, Touchdown and Warriar insecticide. Tank mixtures for early postemergence applications (before corn exceeds 12 inches) include Atrazine, Accent, Basis, Glyphosate products [eg Roundup, Touchdown-glyphosate tolerant hybrids], Liberty [LL-corn], Steadfast, Steadfast ATZ. Tank mixtures with 2,4-D is allowed; however, check compatibility before mixing.

**OUTLOOK**

OUTLOOK 6E 14 to 21 oz/A

(dimethenamid-P 0.66 to 0.98 lb ai/A)

**Weeds Controlled:** Barnyardgrass, crabgrass, fall panicum, foxtails, black nightshade, pigweed. Incorporation and higher rates will improve control of some weeds.

**Crop Stage:** Apply preplant, preemergence or early postemergence for control of annual grasses and certain broadleaf weeds. OUTLOOK may be applied up to 30 days before planting as a single or split application and/or when tank mixed with other herbicides. When used after crop emergence but prior to weed germination, apply OUTLOOK as a broadcast application to corn up to 12 inches tall. As a lay-by treatment, apply to corn that is between 12" to 36" tall (directed applications are recommended for best performance).

**General Comments:** OUTLOOK 6E contains 6 lb ai diethenamid-P per gal. Application rate may vary depending on soil CEC (cation exchange capacity) or soil texture and percent organic matter.

**Environmental Statements:** OUTLOOK has a GROUNDWATER ADVISORY statements on the label. Do not use on very permeable soils or where groundwater is close to the soil surface. OUTLOOK may not be mixed or loaded within 50 feet of wells, sink holes, perennial or intermittent streams and rivers, and natural or impounded lakes and reservoirs. This setback does not apply to properly capped or plugged abandoned wells and to impervious pads or properly diked mixing/loading areas.

**Rain Delay:** None

**Rotation Restrictions:** Fall-seeded small grains may be planted 4 months or more following treatment. Other rotational crop may be planted the following spring.

**Harvest & Forage Restrictions:** Corn may be grazed or fed to livestock 40 days after application.

**Tank Mixtures:** 2,4-D, Acquire, Atrazine, Balance, Banvel, Clarity, Gramoxone, Princep, Prowl, Roundup, Touchdown. Consult product labels to apply early postemergence with Accent, Atrazine, Banvel, Beacon, Clarity, Liberty (LL-corn), Lightning (IMI-corn), Marksman.

## 42 Corn

### PROWL

PROWL 3.3E 2.4 to 3.6 pt/A (pendimethalin 1 to 1.5 lb ai/A)  
OR  
PROWL H2O 3 pt/A (pendimethalin 1.4 lb ai/A)

**Weeds Controlled:** Barnyardgrass, crabgrass, fall panicum, foxtails, lambsquarters, pigweeds.

**Crop Stage:** Corn injury can result when PROWL contacts the germinating corn seed; therefore, apply to the soil surface after corn planting. **Do not incorporate PROWL or severe corn injury can result.** To reduce the risk of corn injury, plant at least 1 1/2 inches deep; corn seed must be completely covered with soil. In minimum or no-tillage situations ensure good seed coverage. PROWL may be applied postemergence until field corn is 30 inches tall or in the V8 growth stage, whichever is more restrictive. Consult label for tank mixing with other herbicides.

**General Comments:** PROWL 3.3E contains 3.3 lb ai/gal pendimethalin. PROWL H20 3.8L contains 3.8 lb ai/gal pendimethalin. Other pendimethalin products include PENDIMAX.

**Environmental Statements:** None

**Rain Delay:** None

**Rotation Restrictions:** Most crops may be planted following normal growth and harvest of corn. For wheat and barley wait 4 months after application of PROWL before planting. Do not feed forage or graze livestock for 75 days after planting wheat or barley as rotational crops. If tank mixed or used with other herbicides consult the labels for additional crop rotation guidelines.

**Harvest & Forage Restrictions:** Livestock can graze or be fed forage 21 days after treatment with PROWL H20.

**Tank Mixtures:** Atrazine, Banvel, Bicep, Dual, Guardsman, Harness, Harness Xtra, Marksman. Early postemergence mixtures include Accent, Atrazine, Banvel, Basis Gold, Beacon, Marksman. Consult label to apply PROWL with other soil-applied or postemergence herbicides regarding maximum corn growth stages, weed heights, and other precautions.

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### PROWL + ATRAZINE

PROWL 3.3E 2.4 to 3.6 pt/A or (pendimethalin 1 to 1.5 lb ai/A)  
PROWL H2O 3 pt/A (pendimethalin 1.4 lb ai/A)  
+  
+  
ATRAZINE 4L 1 to 1.5 qt/A or (atrazine 1 to 1.5 lb ai/A)  
AATREX NINE-O 1.1 to 1.6 lb/A

**Weeds Controlled:** Barnyardgrass, black nightshade, cocklebur, common ragweed, crabgrass, fall panicum, foxtails, jimsonweed, lambsquarters, morningglories, pigweeds, prickly sida, smartweed

**Crop Stage:** Corn injury can result when PROWL contacts the germinating corn seed; therefore, apply to the soil surface after corn planting. **Do not incorporate PROWL or severe corn injury can result.** To reduce the risk of corn injury, plant at least 1 1/2 inches deep; corn seed must be completely covered with soil. In minimum or no-tillage situations ensure good seed coverage. Prowl + Atrazine treatments may be applied postemergence until corn is 12 inches tall. Consult label for tank mixing with other herbicides.

**General Comments:** See comments above for use of PROWL on corn.

**Environmental Statements:** ATRAZINE containing products are RESTRICTED-USE pesticides and contain a GROUND and SURFACE WATER ADVISORY statement on the label. Do not use on very permeable soils or where groundwater is close to the soil surface. [NOTE: See page 23 for PRECAUTIONS on use of ATRAZINE (i.e. AATREX) near ground or surface water]

**Rain Delay:** None

**Rotation Restrictions:** Do not plant small grains or small-seeded legumes and grasses in the fall of the same year or the year following application, or injury may occur. Plant only corn, sorghum or soybeans in the spring following use of ATRAZINE. If applied after June 10, plant only corn or sorghum the following season.

**Harvest & Forage Restrictions:** Do not graze or feed forage from treated areas for 60 days following application.

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**RESICORE**

RESICORE 3.29SE 2.5 to 2.75 qt/A [acetochlor:mesotrione:clopyralid (1.75:0.18:0.12) to (1.9:0.21:0.13 lb ai/A)]

**Weeds Controlled:** Barnyardgrass, crabgrass, foxtails, lambsquarters, morningglory, black nightshade, fall panicum, smooth pigweed, common ragweed, smartweed.

**Crop Stage:** Apply early preplant (EPP), preplant surface, preplant incorporated, preemergence, or early postemergence (before corn reaches 11 inches).

**General Comments:** RESICORE is a premixture containing acetochlor + mesotrione + clopyralid [2.8 + 0.30 + 0.19 lb ai per gallon] plus the crop safener flurofuryl. Apply when broadleaf weeds are less than 3 inches if applied after crop emergence. A non-ionic surfactant may be used with postemergence treatments (consult label for use of crop oil concentrate). Applying RESICORE to emerged corn that has received an at-planting application of phorate or terbufos or other organophosphate insecticide can result in crop injury.

**Environmental Statements:** RESICORE has ground and surface water advisory statements on the label. Do not use on very permeable soils or where groundwater is close to the soil surface.

**Rain Delay:** None indicated on label.

**Rotation Restrictions:** Corn can be replanted anytime; wheat after 4 months; alfalfa, barley, oats, rye, sorghum, or soybean after 10.5 months following application. All other rotational crops require 18 months following application.

**Harvest & Forage Restrictions:** Do not apply RESICORE within 45 days of harvest for ears and forage or within 60 days of harvest for stover.

**Tank Mixtures:** May be used in tank mix combinations with other herbicides to broaden control. For preplant burndown apply with glyphosate, glufosinate, or paraquat, and/or atrazine can be used when applied preemergence. Check label for tank mixture compatibilities with 2,4-D. For control of emerged grass postemergence tank mixtures may include Accent Q, Basis brands, and Steadfast Q. Do not make postemergence applications of RESICORE in a tank mix with organophosphate or carbamate insecticides or crop injury may occur.

**SIMAZAT**

SIMAZAT 4L 4 to 6 pt/A [simazine:atrazine (1.0:1.0) to (1.5:1.5) lb ai/A]

OR

OR

ATRAZINE 4L 2 to 3 pt/A or

AATREX NINE-O 1.1 to 1.6 lb/A

(atrazine 1 to 1.5 lb ai/A)

+

+

PRINCEP 4L 2 to 3 pt/A or

PRINCEP CALIBER 90 1.1 to 1.6 lb/A

(simazine 1 to 1.5 lb ai/A)

**Weeds Controlled:** Black nightshade, cocklebur, foxtails, giant ragweed, jimsonweed, lambsquarters, morningglories, pigweeds, prickly sida, common ragweed, smartweed, velvetleaf.

**Crop Stage:** Apply to the soil either preplant incorporated or preemergence. May be applied early preplant within 2 weeks prior to planting. Do not apply after corn emergence.

**General Comments:** SIMAZAT 4L is a premixture containing simazine + atrazine [2.0 + 2.0 lb ai/gal]. Low soil moisture or soil pH above 7.0 may increase persistence; whereas, simazine and atrazine dissipate more rapidly when soil pH is acidic.

**Environmental Statements:** SIMAZAT is a RESTRICTED-USE pesticide and contains a GROUND and SURFACE WATER ADVISORY statement on the label. Do not use on very permeable soils or where groundwater is close to the soil surface. [NOTE: See page 23 for PRECAUTIONS on use of SIMAZAT near ground or surface water]

**Rain Delay:** None

**Rotation Restrictions:** Land treated with SIMAZAT should not be planted to any crop except corn or sorghum until the following year or injury may occur. Do not plant tobacco, vegetables, small grains or small-seeded legumes and grasses in the fall of the same year or the year following application, or injury may occur. When applied after June 10, plant only corn or sorghum the following season. If SIMAZAT is applied at rates higher than 4 pt/A a crop of untreated corn or sorghum should precede the next rotational crop.

**Harvest & Forage Restrictions:** Do not graze treated areas or feed treated forage to livestock for 60 days after application.

**Tank Mixtures:** Atrazine, Paraquat

## 44 Corn

### SIMAZINE

PRINCEP 4L 2 to 4 pt/A or  
PRINCEP CALIBER 90 1.1 to 2.2 lb/A  
or

(simazine 1 to 2 lb ai/A)

SIMAZINE 4L 2 to 4 pt/A or  
SIMAZINE 90DF 1.1 to 2.2 lb/A

**Weeds Controlled:** Barnyardgrass, black nightshade, foxtails, lambsquarters, pigweeds, prickly sida, common ragweed, smartweed, velvetleaf.

**Crop Stage:** Apply to the soil either preplant incorporated or preemergence. Do not apply after corn emergence. PRINCEP is also labeled for applications the previous fall before corn planting to target weed problems such as Italian ryegrass and other cool-season annual weeds.

**General Comments:** PRINCEP 4L and SIMAZINE 4L contains 4 lb ai simazine per gal. PRINCEP CALIBER 90 and SIMAZINE 90DF contains 0.9 lb ai of simazine per lb product. PRINCEP is more persistent in soil than atrazine. Low soil moisture or soil pH above 7.0 may increase persistence. Whereas, PRINCEP dissipates more rapidly when soil pH is acidic.

**Environmental Statements:** PRINCEP and SIMAZINE have a GROUNDWATER ADVISORY statements. Do not use on very permeable soils or where groundwater is close to the soil surface. [NOTE: See page 23 for PRECAUTIONS on use of Simazine near ground or surface water.]

**Rain Delay:** None

**Rotation Restrictions:** Do not plant small grains or small-seeded legumes in the fall of the same year. Plant only corn or soybeans in the spring following use of PRINCEP (simazine). If rate exceeds 3 lb active ingredient per acre, a crop of untreated corn should precede the next rotational crop.

**Harvest & Forage Restrictions:** Do not graze corn treated with PRINCEP (simazine). No label restrictions which prohibit use of treated corn for silage or haylage.

**Tank Mixtures:** Atrazine, Glyphosate, Gramoxone Extra.

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### SURESTART II or TRIPLEFLEX II

SURESTART II 4.25SE 1.75 to 3 pt/A  
or  
TRIPLEFLEX II 4.25SE 1.75 to 3 pt/A

[acetochlor:flumetsulam:clopyralid (0.82:0.03:0.08) to  
(1.4:0.045:0.14 lb ai/A)]

**Weeds Controlled:** Barnyardgrass, cocklebur, crabgrass, foxtails, lambsquarters, morningglory, black nightshade, pigweed, common ragweed, prickly sida, smartweed.

**Crop Stage:** Apply preplant surface, preplant incorporated, postplant preemergence, or early postemergence (up to 11 inch tall corn). SURESTART may also be applied up to 30 days before planting.

**General Comments:** SURESTART and TRIPLEFLEX are pre-package mixtures containing acetochlor + flumetsulam + clopyralid [3.75 + 0.12 + 0.38 lb ai per lb product] plus MON13900 (furfuralazole) corn safener. Corn planting depth should be at least 1.5 inches. When applied at lower rates it should be part of a planned preemergence followed by a postemergence program. Do not apply in areas where 1) soil pH>7.8, 2) soil pH<5.9 and organic matter exceeds 5%, or 3) soils that average less than 1.5% organic matter, unless the risk of crop injury is acceptable. Do not apply SURESTART or TRIPLEFLEX if Counter or Thimet insecticide has been applied to corn. Soil applied organophosphate insecticide should be applied in a T-band or a band to avoid potential crop injury. The maximum application amount on corn is 3.5 pt/A per crop season.

**Environmental Statements:** SURESTART have ground and surface water advisory statements on the label. Do not use on very permeable soils or where groundwater is close to the soil surface.

**Rain Delay:** None

**Rotation Restrictions:** The following rotational crops may be planted as indicated: wheat after 4 months; alfalfa, barley, clover, oats, rye, soybean the spring following application; sorghum 12 months; and sweet corn and tobacco 18 months following application.

**Harvest & Forage Restrictions:** An interval of at least 85 days is required between application and field corn harvested for grain.

**Tank Mixtures:** Glyphosate products [eg. Durango, Roundup, Touchdown], glufosinate [eg. Liberty], paraquat [eg. Gramoxone], and 2,4-D. Do not tank mix with another pesticide product that contains the same active ingredient as this product.

**Generic Products:** TRISIDUAL

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## ZEMAX

ZEMAX 2 to 2.4 qt/A

[S-metolachlor:mesotrione (1.67:0.17) to (2.0:0.2) lb ai/A]

[use higher rate when OM  $\geq$  3%]

**Weeds Controlled:** Barnyardgrass, black nightshade, crabgrass, fall panicum, foxtails, lambsquarters, pigweeds, smartweed, velvetleaf.

**Crop Stage:** May be applied early preplant (up to 14 days before planting) or preemergence. ZEMAX may also be applied postemergence from corn emergence until the plants reach 30 inches tall (up to 8-leaf stage of corn growth). [Consult label on use of additives when applied postemergence to corn].

**General Comments:** ZEMAX contain S-metolachlor + mesotrione [3.34 + 0.33 lb ai/gal] plus benoxacor (corn safener). Do not apply postemergence if corn received an at-plant application of "Counter" or other organophosphate insecticide. Consult label before use with other organophosphate or carbamate insecticides. Do not apply other mesotrione products (eg. Callisto, Lexar, Lumax, etc.) in the same season .

**Environmental Statements:** ZEMAX contain GROUND and SURFACE WATER advisory statements on the label. Do not use on very permeable soils or where groundwater is close to the soil surface or where the potential exists to enter surface water.

**Rain Delay:** None.

**Rotation Restrictions:** Corn (all types) and sorghum may be replanted anytime; soybeans the spring following application; and winter wheat, barley, oats or rye may be planted 4½ months after application. The rotational interval is 18 months for other crops.

**Harvest & Forage Restrictions:** Do not graze, feed, or harvest corn for forage or grain from treated areas for 45 days following application.

**Tank Mixtures:** Atrazine, Princep, 2,4-D, Gramoxone, Roundup brands, Touchdown brands, and Warrior insecticide. Early postemergence tank mixtures include Atrazine, Accent Q, Basis, Ignite (LL-corn) Liberty (LL-corn), Roundup brands (RR-corn), Spirit, Status, Steadfast Q, Touchdown brands (RR-corn).

## ZIDUA

ZIDUA (85WDG) 2 to 3 oz/A

(pyroxasulfone 0.11 to 0.16 lb ai/A)

**Weeds Controlled:** Barnyardgrass, crabgrass, fall panicum, foxtails, black nightshade, pigweed, waterhemp.

**Crop Stage:** Apply preplant incorporated, preplant surface, or early postemergence for preemergence control of annual grasses and certain broadleaf weeds. ZIDUA may be applied up to 45 days before planting before weeds emerge and/or tank mixed with an appropriate postemergence herbicides for emerged weeds. As an early postemergence treatment broadcast apply to corn at spiking up to V4 leaf stage of growth.

**General Comments:** ZIDUA contains 85% proxasulfone per lb product. Application rate may vary depending on soil texture and weeds present. Always pre-dissolve ZIDUA before adding it into the spray tank. Corn seed must be planted a minimum of 1-inch deep.

**Environmental Statements:** ZIDUA has a GROUND and SURFACE WATER ADVISORY statements on the label.

**Rain Delay:** None

**Rotation Restrictions:** Corn and soybean may be planted at any time following application. Wheat may be planted after 4 months, alfalfa and grain sorghum 10 months (consult label), and other small grains 11 months after application. Other rotational crops may be planted 18 months after treatment (consult label).

**Harvest & Forage Restrictions:** None

**Tank Mixtures:** Atrazine, Glyphosate products, Outlook, Prowl H20, Sharpen, Status, Verdict.

## Guide to Weed and Crop Response to Postemergence Corn Herbicides<sup>1</sup>

	Barnyardgrass	Broadleaf Signalgrass	Crabgrass	Fall Panicum	Foxtail	Johnsongrass (seedling)	Johnsongrass (rhizome)	Ryegrass, Annual (Italian)	Shattercane (Wild Cane)	Yellow Nutsedge	Black Nightshade	Burcucumber	Cocklebur	Lambsquarters	Marestail (Horseweed)	Morningglory	Palmer Amaranth	Pigweed, Smooth	Prickly Sida (Teaweed)	Ragweed, Common	Ragweed, Giant	Sicklepod	Smartweed	Velvetleaf	Waterhemp	Crop Response <sup>2</sup>
Accent Q	8	8	5	7	8	9	8	7	9	5	2	7	6	5	2	6	3	8	2	2	2	4	6	5	7	3*
Acuron Flexi	6	6	7	4	5	-	-	-	-	5	8	7	8	9	7	7	7	8	6	7	8	-	8	9	8	2
Armezon PRO	7	5	8	7	7	6	0	2	6	5	9	7	8	9	6	6	8	9	7	7	7	5	7	9	9	2
Callisto	6	6	6 <sup>5</sup>	2	3	0	0	2	0	5	8	7	8	9	6	7	7	8	5	7	8	5	8	9	8	2
Callisto GT (RR-corn) <sup>4</sup>	9	9	9	9	9	9+	9	-	9	7	9	8	9	9	6 <sup>#</sup>	7	8 <sup>#</sup>	9	7	7	8	8	8	9	8 <sup>#</sup>	1
Callisto Xtra	6	6	6 <sup>5</sup>	2	5	0	0	2	0	5	9	7	9	9	7	8	8	9	7	8	8	6	9	9	9	2
Capreno	8	7	7	8	8	8	6	-	9	5	9	7	8	9	6	6	8	9	6	8	7	6	8	9	9	1
2,4-D	0	0	0	0	0	0	0	0	0	0	7	3	9	9	7	8	8	9	8	9	9	6	7	8	8	3
Dicamba [Clarity, DiFlexx, etc]	0	0	0	0	0	0	0	0	0	0	9	7	9	9	8	9	9	9	8	9	9	7	9	8	8	2
DiFlexx Duo	7	7	7	2	6	7	0	3	7	4	9	8	9	9	8	9	9	9	8	9	9	9	9	9	9	3
Expert (RR-corn) <sup>4</sup>	9	9	9	9	9	9+	9	8	9	6	7	8	9	9	7 <sup>#</sup>	7	7 <sup>#</sup>	9	7	9	8	7	9	8	7 <sup>#</sup>	1
Glyphosate <sup>3</sup> (RR-corn) <sup>4</sup>	9	9	9	9	9	9+	9	8	9	6	8	8	9	8	7 <sup>#</sup>	7	7 <sup>#</sup>	9	7	7	8	8	8	8	7 <sup>#</sup>	0
Halex GT (RR-corn) <sup>4</sup>	9	9	9	9	9	9+	9	8	9	6	8	8	9	9	7 <sup>#</sup>	7	8 <sup>#</sup>	9	7	7	8	8	8	9	9	2
Impact / Armezon	6	3	7	7	7	6	0	0	6	4	9	7	8	9	6	6	8	9	7	7	7	5	7	9	9	1
Laudis	7	7	7	2	6	7	0	3	7	4	8	7	8	8	6	6	8	8	7	7	8	7	8	8	9	1
Liberty (LL-corn) <sup>4</sup> [glufosinate]	7	7	7	8	9 <sup>6</sup>	8	6	7	8	5	8	7	9	8	6	8	7	8	8	9	8	7	9	8	8	0
Permit	2	2	2	3	3	3	0	0	3	8	4	3	9	4	2	4	6	8	7	8	7	2	7	8	6	2
Realm Q	7	7	6	7	8	7	6	6	9	6	8	7	9	8	-	6	8	9	7	7	7	6	9	8	8	2*
Resolve Q	7	7	6	7	8	7	6	5	9	6	3	-	7	7	-	6	-	9	6	6	4	6	7	8	7	2*
Spirit	3	2	3	6	6	8	6	5	9	5	8	8	9	6	6 <sup>#</sup>	6	8	8	7	9	9	6	8	7	8	3
Status	5	1	3	5	5	5	2	0	5	0	8	7	9	9	8	8	9	9	8	9	9	8	8	8	8	2
Steadfast Q	8	8	6	7	8	9	8	7	9	6	2	7	6	5	2	6	4	8	2	2	2	4	6	5	7	3*

**EXCELLENT = 9+    GOOD = 8-9    FAIR = 6-7    POOR = 5 or less    - Insufficient Data**

<sup>1</sup> This table should be used only as a guide. The relative response value is based on a numerical scale from 0 to 9 comparing the effectiveness of herbicides to a particular weed. Under certain weather or environmental conditions, a herbicide may perform better or worse than indicated in the table. If a farmer is getting satisfactory results under their conditions, they should not necessarily change products as a result of the information in the table.

<sup>2</sup> A rating of 3 or less will not result in a crop yield loss under normal conditions. Certain corn hybrids vary in their injury response to a herbicide treatment.

\* NOTE: When applied within label guidelines the potential crop response may be less for herbicide products designated with a "Q" that contain the crop safener (isoxadifen).

<sup>3</sup> Examples of GLYPHOSATE products labeled for use on Roundup Ready corn include: **Abundit Extra, Buccaneer Plus, Credit, Durango, Glyphos X-tra, Glyphomax XRT, Roundup Power MAX, Roundup WeatherMAX.**

<sup>4</sup> Apply only on selected field corn hybrids designated with GENETIC resistance/tolerance to LibertyLink (LL-corn) or to Roundup-Ready (RR-corn). Consult the label for guidelines and specific directions.

<sup>5</sup> Effectiveness rating for large crabgrass; less effective on smooth crabgrass.

<sup>6</sup> Effectiveness of LIBERTY on yellow foxtail may be lower (7)

# Will not effectively control weed biotypes resistant to the class of chemistry associated with this herbicide.



Response of Perennial Broadleaf Weeds to Postemergence Corn Herbicides<sup>1</sup>

	Bindweed, Field	Dandelion	Dogbane, Hemp	Horsenettle	Milkweed, Common	Milkweed, Honeyvine	Pokeweed, Common	Thistle, Canada	Thistle, Musk	Trumpet creeper
Accent Q	3	7	6	3	6	6	4	5	2	2
Callisto	-	7	5	6	-	6	7	6	-	-
Callisto GT (RR-corn) <sup>2</sup>	-	<b>8</b>	7	7	7	6	7	<b>8</b>	-	-
Callisto Xtra	-	7	5	7	-	6	7	6	-	-
Capreno	-	6	3	7	-	-	6	5	-	-
2,4-D	5	7	5	4	4	4	5	5	7	-
Dicamba [Clarity, DiFlexx, etc]	6	7	6	6	6	6	7	6	7	7
DiFlexx Duo	6	<b>8</b>	7	6	6	6	7	6	7	7
Expert (RR-corn) <sup>2</sup>	7	7	7	7	7	6	7	7	5	7
Glyphosate (RR-corn) <sup>2</sup>	7	<b>8</b>	7	7	7	6	7	<b>8</b>	5	7
Halex GT (RR-corn) <sup>2</sup>	7	<b>8</b>	7	7	7	6	7	<b>8</b>	5	7
Liberty (LL-corn) <sup>2</sup>	5	7	6	4	6	6	5	4	-	-
Permit	3	5	3	-	6	7	5	2	-	-
Spirit	6	6	6	7	6	7	6	6	3	3
Status	6	<b>8</b>	6	6	6	7	7	6	7	-
Steadfast Q	3	7	5	3	-	-	3	5	2	2

**GOOD = 8-9    FAIR = 6-7    POOR = 5 or less    - Insufficient Data**

<sup>1</sup> **Effectiveness of in-season herbicide treatments for perennial and biennial broadleaf weeds often provides only partial control or suppression.** The response value indicated is based on a numerical scale from 0 to 9 comparing the relative effectiveness of the herbicides listed to a particular weed. Under certain weather or environmental conditions, a herbicide may perform better or worse than indicated in the table. **Therefore, this table should be used only as a guide for selecting treatments to deal with problem weeds.**

<sup>2</sup> Apply only on selected field corn hybrids designated with GENETIC resistance/tolerance to LibertyLink (LL-corn) or to Roundup-Ready (RR-corn). Consult the label for guidelines and specific directions.

## Maximum Weed Size Labeled for Postemergence Herbicide Applications

HERBICIDE	Rate/A	Barnyardgrass	Broadleaf Signalgrass	Crabgrass, Large	Fall Panicum	Foxtail	Johnsongrass (seedling)	Johnsongrass (rhizome)	Ryegrass, Annual (Italian)	Shattercane (Wild Cane)	Yellow Nutsedge
Accent Q	0.67 oz / 0.9 oz	4"	2"	X	4"	4"	12"	18"	6"	12"	X
Armezon PRO	16 to 24 fl.oz	4"	3" <sup>1</sup>	3"	3" <sup>1</sup>	3" <sup>1</sup>	4" <sup>1</sup>	X	X	4" <sup>1</sup>	X
Callisto GT (RR-corn)	2 pt	4"	4"	4"	4"	4"	X	X	X	4"	4"
Capreno	3 fl.oz	5"	5"	3"	5"	3"	5"	X	X	12"	X
DiFlexx Duo	24 to 40 fl.oz	5"	4"	3"	X	3" <sup>4</sup>	5"	X	X	6"	X
Halex GT (RR-corn)	3.6 to 4 pt	4"	4"	4"	4"	4"	4"	4"	X	4"	4"
Impact or Armezon	0.75 fl.oz	4"	3" <sup>1</sup>	3"	3" <sup>1</sup>	3" <sup>2</sup>	4" <sup>1</sup>	X	X	4" <sup>1</sup>	X
Laudis	3 fl.oz	5"	4"	3"	X	3"	5"	X	X	6"	X
Liberty (LL-corn)	22 oz	3"	3"	3" <sup>3</sup>	3"	6" <sup>3</sup>	3"	X	X	6"	X
Permit	0.67 oz	X	X	X	X	X	X	X	X	X	12" <sup>1</sup>
	1.33 oz	X	X	X	X	X	X	X	X	X	12"
Realm Q	4 oz	1-2"	1-2" <sup>1</sup>	0.5	1-2"	1-2"	1-2" <sup>1</sup>	X	1-2" <sup>1</sup>	4"	1-2" <sup>1</sup>
Resolve Q	1.25 oz	2"	2" <sup>1</sup>	0.5"	2"	2"	2" <sup>1</sup>	X	2" <sup>1</sup>	4"	2" <sup>1</sup>
GLYPHOSATE 4S (RR-corn)	1.5 pt	5"	5"	18"	6"	12"	18"	X	X	18"	X
	2 pt	7"	7"	18"	8"	20"	18"	Boot stage	6"	18"	<6" <sup>1</sup>
Roundup PowerMAX (RR-corn)	16 fl.oz	3"	3"	6"	4"	12"	12"	X	X	12"	X
	22 fl.oz	6"	6"	12"	6"	20"	18"	Boot stage	6"	20"	<6" <sup>1</sup>
Steadfast Q	1.5 oz	4"	2"	1"	4"	4"	12"	12"	4"	6"	4" <sup>1</sup>

X = Not labeled for control. Some weeds may be labeled for suppression or partial control.

<sup>1</sup> Suppression, partial control, or reduced competition.

<sup>2</sup> Maximum size for giant foxtail with ARMEZON or IMPACT is 4 inches; suppression or partial control of green and yellow foxtail.

<sup>3</sup> Maximum size for yellow foxtail with LIBERTY is 3 inches. Crabgrass and yellow foxtail must be treated prior to tiller initiation

<sup>4</sup> Maximum size for green foxtail with DiFlexx Duo is 2 inches.

## Maximum Weed Size Labeled for Postemergence Herbicide Applications

HERBICIDE	Rate/A	Black Nightshade	Burcucumber	Cocklebur	Lambsquarters	Marestail (Horseweed) <sup>#</sup>	Morningglory	Palmer Amaranth #	Pigweed, Smooth	Prickly Sida	Ragweed, Common #	Ragweed, Giant #	Sicklepod	Smartweed	Velvetleaf	Waterhemp #
Accent Q	0.67 oz	X	3"	X	X	X	3"	X	4"	X	X	X	X	4"	X	X
Acuron Flexi	2 to 2.25 qt/A	3"	X	3"	3"	3"	3"	3"	3"	3" <sup>1</sup>	3"	3"	3"	3"	3"	3"
Armezon PRO	16 to 24 fl.oz	4"	4"	5"	4"	4"	4"	4"	4"	2"	4"	5"	X	2"	4"	4"
Callisto	3 oz	5"	5" <sup>1</sup>	5"	5"	5" <sup>1</sup>	5" <sup>1</sup>	3" <sup>1</sup>	5"	X	5" <sup>1</sup>	5"	X	5"	5"	2"
Callisto GT (RR-corn)	2 pt	4"	4"	4"	4"	4"	4"	4"	4"	4"	4"	4"	4"	4"	4"	4"
Callisto Xtra	20 fl.oz	5"	2"	5"	5"	5"	2"	2"	5"	2"	3"	3"	X	5"	5"	3"
	24 fl.oz	10"	10"	10"	10"	5"/10" <sup>1</sup>	5"/10" <sup>1</sup>	3"	10"	2"/10" <sup>1</sup>	10"	10"	X	10"	10"	10"
Capreno	3 fl.oz	<6"	<6" <sup>1</sup>	<6"	<6"	<6" <sup>1</sup>	<6" <sup>1</sup>	<6"	<6"	<6" <sup>1</sup>	<6"	<6"	<6" <sup>1</sup>	<6"	<6"	<6"
DiFlex Duo	24 to 40 fl.oz	<6"	<6"	<6"	<6"	<6"	<6"	<6"	<6"	<6"	<6"	<6"	<6"	<6"	<6"	<6"
Halex GT (RR-corn)	3.6 to 4 pt	4"	4"	4"	4"	4"	4"	4"	4"	4"	4"	4"	4"	4"	4"	4"
Impact or Armezon	0.75 fl.oz	6"	6"	8"	6"	6"	6" <sup>1</sup>	6"	6"	3"	6"	8"	X	3"	8"	6"
Laudis	3 fl.oz	<6"	<6" <sup>1</sup>	<6"	<6"	<6"	<6" <sup>1</sup>	<6"	<6"	X	<6"	<6"	<6" <sup>1</sup>	<6"	<6"	<6"
Liberty (LL-corn)	22 oz	6"	6"	6"	4"	X <sup>1</sup>	6"	X	3"	4"	6"	6"	4"	6"	3"	4"
Permit	0.67 oz	X	3" <sup>1</sup>	9"	2" <sup>1</sup>	X	X	X	3"	X	9"	3"	X	2"	9" <sup>2</sup>	X
	1.33 oz	X	12" <sup>1</sup>	14"	2" <sup>1</sup>	X	3" <sup>1</sup>	X	6" <sup>2</sup>	X	12"	6"	X	2"	12" <sup>2</sup>	X
Realm Q	4 oz	<5"	<5"	<5"	<5"	X	<5" <sup>1</sup>	<5"	<5"	<5"	<5"	<5"	X	<5"	<5"	<5"
Resolve Q	1.25 oz	X	X	3" <sup>1</sup>	3"	X	3" <sup>1</sup>	X	3"	X	3" <sup>1</sup>	X	X	3" <sup>1</sup>	3" <sup>1</sup>	X
GLYPHOSATE 4S (RR-corn)	1.5 pt	12"	6"	18"	8"	6"	2"	12"	18"	2"	6"	4"	2"	6"	3"	X
	2 pt	12"	12"	24"	12"	12"	4"	18"	24"	3"	8"	6"	4"	8"	4"	6"
Roundup PowerMAX	16 oz	4"	6"	18"	6"	6"	X	12"	12"	2"	6"	6"	2"	X	X	X
(RR-corn)	22 oz	6"	12"	24"	12"	12"	3"	18"	18"	4"	12"	12"	4"	6"	6"	6"
Spirit	1 oz	5"	6"	8"	3"	1-6"	4" <sup>1</sup>	4"	4"	3" <sup>1</sup>	9"	9"	3"	6"	6" <sup>2</sup>	4"
Steadfast Q	1.5 oz	X	4"	4" <sup>1</sup>	4" <sup>1</sup>	X	4"	X	4"	X	X	X	X	4" <sup>1</sup>	4" <sup>1</sup>	2"
Zemax	2.0 qt	<3"	X	<3"	<3"	<3"	<3" <sup>1</sup>	<3" <sup>1</sup>	<3"	<3" <sup>1</sup>	<3"	<3"	X	<3"	<3"	<3"

NOTE: 2,4-D, CLARITY, DIFLEXX, STATUS and other dicamba products do not indicate size of weeds. Most seedling broadleaf weeds <3" can be effectively controlled; however, some species may be more difficult to control at the use rates labeled for corn and may depend on timing of the application.

X = Not labeled for control. Some weeds may be labeled for suppression or partial control.

<sup>1</sup> Suppression, partial control, or reduced competition.

<sup>2</sup> Liquid Nitrogen or Ammonium Sulfate may be added to improve control (consult label)

<sup>#</sup>Biotypes of this weed resistant to the class of chemistry associated with certain herbicides will not be effectively controlled.

# 50 Corn

Corn Growth Stages, Adjuvants, and Rain-Free Periods			
Herbicide	Adjuvant <sup>1</sup>	Crop Stage	Rainfast <sup>2</sup>
Accent Q	COC, MSO, or NIS plus UAN or AMS	Broadcast up to 20" tall corn or that exhibits 6 or fewer collars (V6); Use only drop nozzles for corn between 20" to 36" tall. Do not apply to corn that exceeds 36" tall or that has 10 or more collars (V10).	4 hours
Acuron Flexi	NIS. Consult label for use of COC	Apply before corn emergence until plants reach 30 inches or up to 8-leaf stage of corn growth.	**
Armezon PRO	MSO or COC plus UAN or AMS	May be applied preemergence up to 30" tall corn, but 45 days prior to harvest. Use directed applications when corn is 12–30" tall.	1 hour
Atrazine	COC or Crop Oil	Apply before corn reaches 12" tall	**
Callisto	COC plus UAN or AMS	Broadcast on corn up to 30" tall or up to the 8-leaf stage of corn growth.	1 hour
Callisto GT (RR-corn) <sup>3</sup>	NIS (or COC) plus AMS	Apply from emergence up to 30" tall or up to the 8-leaf stage of growth	**
Callisto Xtra	COC or NIS plus UAN or AMS	Apply after crop emergence but before corn exceeds 12" in height	**
Capreno	COC plus UAN or AMS	Broadcast apply from the 1 leaf collar (V10 to 6-leaf (V6) growth stage. Use directed applications when corn is V6 to V7 growth stage	1 hour
2,4-D	generally not recommended	Broadcast apply before corn exceeds 8" tall; Use directed applications when corn is 8" tall till tassel emergence	**
Dicamba [Banvel, Clarity, Sterling Blue, Vision, etc]	NIS, UAN, or AMS may be added. Consult label for use of COC	Apply 8 to 16 oz/A (0.5 to 1 pt/A) from emergence through 5th leaf stage or until corn reaches 8" tall, whichever occurs first; Apply 8 oz/A when corn is from 8" to 36" tall, if 6th true leaf is emerging from whorl, or 15 days before tassel emergence.	4 hours
DiFlexx	NIS, COC, MSO plus UAN or AMS may be added (consult label)	Broadcast from spike through V6 (6 leaf collars) or 36" tall, whichever occurs first. Directed applications may be made from V7-V10 crop growth stage (7 to 10 collars), up to 36" tall, or 15 days before tassel emergence, whichever occurs first.	4 hours
DiFlexx Duo	MSO or COC plus UAN or AMS may be added (consult label)	Broadcast from emergence through V7 (7 leaf collars) or 36" tall, whichever occurs first. Directed applications may be made from V7-V10 crop growth stage (7 to 10 collars), up to 36" tall, or 15 days before tassel emergence, whichever occurs first.	4 hours
Expert (RR-corn) <sup>3</sup>	generally not required (may include AMS)	Apply from emergence until the corn reaches 12 inches tall.	2 hours
Halex GT (GT-corn) <sup>3</sup>	NIS plus AMS	Corn emergence up to 30" height or the 8-leaf (V8) growth stage.	**
Impact / Armezon	MSO or COC plus UAN or AMS	May be applied anytime after corn emergence up to 45 days prior to harvest.	1 hour
Laudis	MSO or COC plus UAN or AMS	Corn emergence up to the V8 growth stage (exhibits 8 collars)	1 hour
Liberty (LL-corn) <sup>3</sup>	Add AMS	Apply from emergence until corn is 24" tall or V-7 stage (exhibits 7 developed collars), whichever comes first. For corn 24" to 36" tall, apply only with drop nozzles.	4 hours
Permit	NIS or COC (may add 28% Liq N)	Apply from the spike through layby stage of field corn.	4 hours
Realm Q	COC or NIS plus UAN (27-32%) or AMS	Apply to corn up to 20" tall. Do not apply to corn taller than 20" or exhibiting 7 or more leaf collars.	**
Resolve Q	NIS plus UAN (28-32%) or AMS	Apply postemergence to corn that is up to 20" tall. Do not apply to corn taller than 20" or exhibiting 7 or more leaf collars.	**
Roundup and other GLYPHOSATE products (RR-corn) <sup>3</sup>	Adjuvant requirements vary with product used	Apply broadcast over-the-top from corn emergence through V8 corn stage or 30 inches, whichever occurs first. For "Roundup Ready 2 Corn" and other hybrids designated as Glyphosate Tolerant drop nozzles can be used to direct applications on corn 30 to 48 inches.	**
Spirit	COC or NIS (may include 28% to 34% Liquid Nitrogen)	Apply to corn between 4" to 24" tall; Drop nozzles recommended when corn is >20" tall or exhibits more than 6 collars (V6), whichever comes first. Applications to popcorn are more restrictive.	4 hours
Status	NIS, COC, or MSO plus UAN (28-34%) or AMS	Apply from 4-inch tall (V2) to 36-inch tall (V10) corn. Do not apply if corn is more than 36", or within 15 days before tassel emergence.	4 hours
Steadfast Q	COC, MSO, or NIS plus UAN or AMS	Apply to corn up to 20" tall. Do not apply to corn >20" tall or exhibiting 6 or more leaf collars (V6), whichever is more restrictive.	4 hours

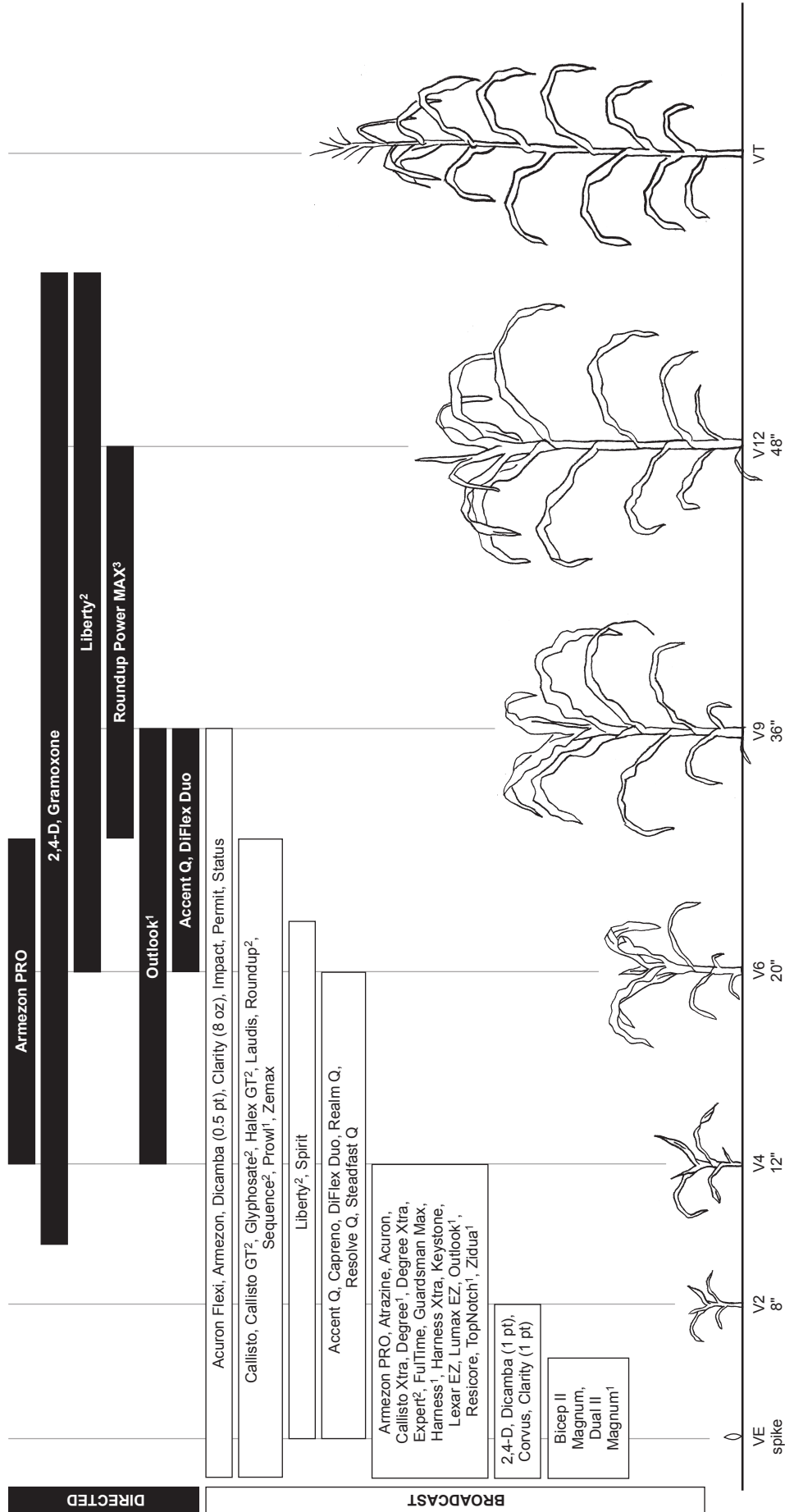
<sup>1</sup>COC - Crop Oil Concentrate; NIS - Non-Ionic Surfactant (at least 80% active ingredient); AMS - Ammonium Sulfate;

UAN - Urea Ammonium Nitrate (28% to 32% nitrogen fertilizer); MSO - Methylated Seed Oil; ESO - Ethylated Seed Oil

<sup>2</sup>A "\*\*" indicates no specific time period on label for rainfastness, 6 to 8 hours of rain-free period is suggested.

<sup>3</sup>Apply only on selected field corn hybrids which have GENETIC resistance/tolerance to Liberty Link (LL-corn); or to Roundup Ready and Glyphosate-Tolerant (RR-corn or GT-corn).

# Timing of Herbicides Relative to Corn Growth Stages



Relative corn growth stages of development (eg. V6 indicates 6 leaf collars are visible).

<sup>1</sup> Soil active herbicides which must be applied before weeds emerge.  
<sup>2</sup> Apply only on selected field corn hybrids which have GENETIC resistance/tolerance to Liberty Link (LL-corn) or to Roundup Ready (RR-corn).  
<sup>3</sup> Use drop nozzles for directed applications on corn designated as "Roundup Ready Corn 2" hybrids.

## 52 Corn

### Tank Mixtures Labeled for Postemergence Corn Herbicides

	Accent Q	Aim	Atrazine	Callisto	Clarity (dicamba)	2,4-D	Glyphosate	Laudis	Liberty	Permit	Spirit	Status	Steadfast Q
Accent Q	-	L	L	L	L	X	NL	L	L	L	L	L	X
Acuron Flexi	L	NL	L	X	NL	NL	L	NL	NL	NL	L	L	L
Armezon	L	L	L	X	L	L	L	X	L	L	X	L	L
Atrazine	L	L	-	L	L	NL	L	L	L	L	L	L	L
Callisto	L	L	L	-	NL	L	L	NL	L	L	NL	L	L
Callisto GT	NL	NL	L	X	L	NL	NL	NL	NL	NL	NL	L	NL
Callisto Xtra	L	NL	L	X	L	NL	L	NL	L	NL	NL	L	L
Capreno	NL	NL	L	NL	NL	NL	L	NL	L	NL	NL	NL	NL
Clarity (dicamba)	L	L	L	NL	-	NL	NL	NL	NL	L	L	X	L
2,4-D	X	L	NL	L	NL	-	NL	NL	L	L	L	X	X
DiFlexx (dicamba)	NL	NL	NL	NL	-	NL	L	L	L	NL	NL	NL	NL
DiFlexx DUO	NL	NL	L	NL	-	NL	L	-	L	NL	NL	-	NL
Glyphosate (eg. Roundup)	NL	L	L	L	NL	NL	-	L	X	L	L	L	NL
Impact	L	L	L	X	L	L	L	NL	---	L	NL	L	L
Laudis	L	NL	L	NL	NL	NL	L	-	L	NL	NL	NL	L
Liberty	L	L	L	L	NL	L	X	L	-	L	NL	L	NL
Permit	L	L	L	L	L	L	L	NL	L	-	NL	L	L
Prowl	L	NL	L	L	NL	NL	NL	NL	---	NL	NL	NL	L
Resolve Q	-	-	L	-	L	-	L	-	---	-	-	NL	-
Spirit	L	L	L	NL	L	L	L	NL	NL	NL	-	L	L
Status	L	L	L	L	X	X	L	NL	L	L	L	-	L
Steadfast Q	X	L	L	L	L	X	NL	L	NL	L	L	L	-
Zemax	L	NL	L	NL	NL	NL	L	NL	-	NL	L	L	L

**L** = Labeled tank mixture. Consult labels for use of additives and precautions.

**NL** = Not a labeled tank mixture. Consult each herbicide label for precautions or restrictions that may limit mixing with chemicals not listed on the label.

**X** = Do not tank mix these products since severe crop injury, maximum herbicide active ingredient use rates per calendar year may be exceeded, herbicide carryover, or herbicide antagonism may occur.

## POSTEMERGENCE

### ACCENT Q (nicosulfuron)

ACCENT Q (54.5 WDG) 0.9 oz/A	(nicosulfuron 0.031 lb ai/A)
+	+
CROP OIL CONCENTRATE [1% v/v] 2 pt/25 gal or	
MODIFIED SEED OIL (MSO) [0.5% v/v] 1 pt/25 gal or	(additive)
SURFACTANT (Non-Ionic 80%) 0.5 pt to 1 pt/25 gal	
+	+
AMMONIUM NITROGEN FERTILIZER (28 to 32% UAN) 2 qt/A	(additive)
Or	
AMMONIUM SULFATE 2 lb/A	

**Weeds Controlled:** Barnyardgrass, broadleaf signalgrass, foxtails, johnsongrass, pigweeds, shattercane.

**Crop Stage:** ACCENT Q is labeled for use on field corn grown for grain or silage. Consult label for specific use directions on field corn grown for seed and use on popcorn and sweet corn. When applied alone ACCENT Q (nicosulfuron) can be broadcast on field corn up to 20 inches tall or that exhibits 6 or fewer collars (V6 growth stage). Use drop nozzles for a post-directed application on corn between 20 to 36 inches tall. DO NOT APPLY to corn that is taller than 36 inches or that has developed 10 or more collars (V10), whichever is the most restrictive. When tank mixed with other herbicides consult the label for maximum crop growth stage.

**General Comments:** ACCENT Q contains 54.5 lb ai of nicosulfuron per lb of product plus isoxadifen (a crop safener); Optimum size for control of johnsongrass and shattercane is when plants are 4 to 12 inches tall. Johnsongrass arising from rhizomes should be 8 to 18 inches tall when treated. For use to control other weeds, apply when weeds are less than 4 inches in height. Sequential applications may be used to control regrowth of perennial grasses such as rhizome johnsongrass. The combined dosage for two applications for ACCENT Q cannot exceed 1.8 oz/A. Before applying ACCENT Q consult the soil insecticide interaction information on the label to ensure that it is compatible with any insecticides previously applied to the corn. Applications to corn previously treated with "Counter", "Lorsban", or "Thimet" may cause unacceptable crop injury. Also, consult label directions before applying ACCENT Q (nicosulfuron) with foliar applied insecticides or other foliar herbicides. The likelihood of corn injury may increase if applied at improper stage of growth or when corn is under stress due to drought, diseases, insect damage, or nutrient deficiency.

**Environmental Statements:** Avoid direct spray drift to nearby crops or vegetation.

**Rain Delay:** Allow 4 hours between application and expected rainfall.

**Rotation Restrictions:** Rotational crops which may be planted include soybean 15 days; wheat, barley or rye 4 months following application; and alfalfa or red clover 10 months following application. Sorghum may be planted after 10 months if soil pH is 7.5 or less. For all other crops, the rotation interval is 10 months where soil pH is 6.5 or less, and 18 months where soil pH is greater than 6.5.

**Harvest & Forage Restrictions:** Wait 30 days after before utilizing treated corn for grain, forage feed or grazing.

**Tank Mixtures:** On field corn the following tank mixtures may be used – Atrazine, Bicep II Magnum, Callisto, Cinch, Cinch ATZ, dicamba (eg. Clarity), Dual II Magnum, Exceed, Impact, Lexar, Lumax, Marksman, Northstar, Outlook, Prowl, Surpass EC [Consult label for any precautions and maximum application rates of all products before tank mixing]. When tank mixed with other herbicides consult the label for crop growth stage, rates, and use of adjuvants. DO NOT tank mix nicosulfuron products with Basagran, Laddok or certain insecticides as severe crop injury may occur. DO NOT tank mix with 2,4-D since poor control of grasses may occur.

### ACURON FLEXI

ACURON FLEXI 2 to 2.25 qt/A	[S-metolachlor:mesotrione:bicyclopyrone (1.4:0.16:0.04) to (1.6:0.18:0.045) lb ai/A]
+	+
SURFACTANT (Non-Ionic 80%) 1 to 2 qt/100 gal	(additive)

**General Comments:** ACURON FLEXI contains S-metolachlor + mesotrione + bicyclopyrone [2.86 + 0.32 + 0.08 lb ai/gal] plus the safener benoxacor. Use of other additives such as COC and UAN may result in crop injury. Do not use Methylated Seed Oil (MSO). Applying ACURON FLEXI postemergence to corn that has received an at-planting application of "Counter" insecticide can result in severe crop injury. Consult label before use with other organophosphate or carbamate insecticides. Apply postemergence before broadleaf weeds exceed 3 inches tall.

**Environmental Statements:** ACURON FLEXI has ground and surface water advisory statements.

**Rain Delay:** None indicated.

**Rotation Restrictions:** Crops that may be planted include corn (all types) anytime; before planting wheat, barley, or rye wait 4 months; for alfalfa, sorghum and soybeans wait 10 months; and for other rotational crops wait 18 months. If applied after June 1, rotating to crops other than corn may result in crop injury.

**Harvest & Forage Restrictions:** Do not use for feed or harvest forage within 45 days following application.

**Tank Mixtures:** Postemergence applications include Atrazine, Accent Q, Basis Blend, Glyphosate products [apply only to glyphosate-tolerant corn hybrids], NorthStar, Peak, Resolve Q, Spirit, Status, or Steadfast Q.

## 54 Corn

### ARMEZON PRO

ARMEZON PRO (6.25L)	16 to 24 fl. oz/A	[topramezone:dimethenamid-P (0.012:0.66 to 0.019:0.98 lb ae/A)]
	+	+
Metylated Seed Oil or COC	0.5 to 1 gal/100 gal	(additive)
	+	+
UAN [28-34%] or 10-34-0	1.25 to 2.5 gal/100 gal	(additive)
	Or	
Ammonium Sulfate	8.5 to 17 lb/100 gal	

**Weeds Controlled:** Black nightshade, cocklebur, crabgrass, lambsquarters, Palmer amaranth, smooth pigweed, velvetleaf, waterhemp.

**Crop Stage:** For field corn and popcorn apply preemergence up to V8 or 30 inches tall corn (apply to sweet corn <12-inches tall). When field corn or popcorn is 12-inches to 30-inches tall apply as a directed application below corn canopy with drop nozzles. Do not apply to field corn within 45 days prior to corn harvest or after V8 growth stage.

**General Comments:** ARMEZON PRO is a pre-package mixture containing topramezone + dimethenamid-P [0.1+5.25 lb ai/gal]. For most applications apply before susceptible weeds exceed 4 inches. Use of herbicide tank mixtures and/or oil-type adjuvants may increase potential for crop necrosis. Consult supplemental labels for preemergence/residual activity on weeds and additional crop rotation information.

**Environmental Statements:** Consult groundwater and surface water protection statements on the label.

**Rain Delay:** 1 hour.

**Rotation Restrictions:** Corn (all types) may be replanted immediately. Cereal grains (wheat, barley, oats, and rye) may be planted 4 months after application; alfalfa, grain sorghum, and soybeans after 9 months. Red clover, tobacco, and most other rotational crops may be planted 18 months after application.

**Harvest & Forage Restrictions:** Do not graze or harvest for forage at least 45 days after application.

**Tank Mixtures:** May be tank mixed or applied sequentially with other herbicides to broaden the spectrum or increase residual weed control. Consult label when tank mixing with atrazine and other photosystem II inhibitor herbicides or when using with isoxaflutole (ie. Balance Flexx).

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### CALLISTO

CALLISTO 4SC	3 fl. oz/A	(mesotrione 0.094 lb ai/A)
	+	+
Crop Oil Concentrate (1% v/v)	1 qt/25 gal	(additive)
	+	+
Urea Ammonium Nitrate [28-0-0] (2.5% v/v)	2.5 qt/25gal or	(additive)
Ammonium Sulfate	8.5 lb/100 gal	

**Weeds Controlled:** Black nightshade, cocklebur, lambsquarters, pigweeds, giant ragweed, smartweed, velvetleaf.

**Crop Stage:** CALLISTO is labeled for use on field corn and corn grown for silage. For applications on yellow popcorn and sweet corn consult label for use of adjuvants. Broadcast on corn up to 30 inches tall or up to the 8-leaf stage of corn growth.

**General Comments:** CALLISTO 4SC contains 4 lb ai mesotrione per gal. Do not use Metylated Seed Oils or MSO blend adjuvants as a spray additive. When applied with other products consult Callisto label or other supplemental labels for permitted uses of adjuvant additives. For postemergence control apply CALLISTO when broadleaf weeds are less than 5 inches tall and actively growing. When applying take necessary precautions to reduce the potential for spray drift. Do not apply CALLISTO if the corn crop was treated with Counter or Lorsban insecticide. Do not make foliar postemergence applications in a tank mixture with any organophosphate or carbamate type insecticides and consult label directions before applying CALLISTO as a sequential with foliar insecticides. Do not make more than two applications of CALLISTO per season and do not exceed 3 oz/A per application. The total amount per season of mesotrione may not exceed 0.24 lb ai/A applied as CALLISTO (7.7 fl.oz./A) or from all other mesotrione containing products, including Lexar, Lumax, and Camix.

**Environmental Statements:** CALLISTO has a SURFACE WATER advisory statement on the label.

**Rain Delay:** 1 hour.

**Rotation Restrictions:** Corn (all types), sorghum, and oats may be replanted immediately. Small grains may be planted 120 days (4 months) after CALLISTO application. Soybeans, canola, tobacco, alfalfa, and sunflowers may be planted back the following season, but not less than 10 months after application. Red clover and most other rotational crops may be planted 18 months after application.

**Harvest & Forage Restrictions:** Do not harvest for forage, grain, or stover within 45 days of application.

**Tank Mixtures:** Accent, Atrazine, Basis, Buctril, Glyphosate, Ignite, Steadfast, Stout. DO NOT apply post-emergence in a tank mixture with an emulsifiable concentrate grass herbicide or injury may occur. Soil-residual herbicides include Axiom, Define, Bicep II Magnum, Degree, Degree Xtra, Dual II Magnum, FulTime, Guardsman Max, Harness, Harness Xtra, Keystone, Outlook, Surpass EC, Prowl, Topnotch. Burndown herbicides include 2,4-D, Expert, Gramoxone, Roundup brands, and Touchdown brands.

**Generic Formulations:** BELLUM, INCINERATE, Willowood Mesotrione

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## CALLISTO GT (Glyphosate Tolerant Corn Hybrids ONLY)

CALLISTO GT 2 pt/A	[glyphosate:mesotrione (1.0:0.95 lb ai/A)]
+	+
SURFACTANT (Non-Ionic 80%) 1 to 2 qt/100 gal	
+	(additive)
Ammonium Sulfate 8.5 - 17 lb/100 gal	

**Weeds Controlled:** Barnyardgrass, black nightshade, broadleaf signalgrass, burcucumber, cocklebur, crabgrass, fall panicum, foxtails, johnsongrass, lambsquarters, pigweed, giant ragweed, shattercane, sicklepod, smartweed, velvetleaf, waterhemp. Consult label for specific weed species.

**Crop Stage:** Use only on selected CORN HYBRIDS which are designated with Glyphosate Tolerance or the Roundup Ready gene. Apply from corn emergence up to 30 inches in height or the 8-leaf growth stage.

**General Comments:** CALLISTO GT is a pre-package mixture containing glyphosate + mesotrione [3.8+0.38 lb ae/gal]. Apply with Non-Ionic Surfactant plus Ammonium Sulfate. Crop Oil Concentrate at 1% v/v may be substituted for NIS; however, use of Ammonium Nitrate (UAN) or other suspension fertilizers is not recommended and will result in crop injury. For control of emerged annual grasses and broadleaf weeds less than 4 inches tall. Do not apply more than 2 pt/A of CALLISTO GT per growing season or apply more than 0.24 lb of mesotrione (eg. Callisto) per year. Severe corn injury could result if CALLISTO GT is applied when corn has been treated with soil-applied organo-phosphate insecticides (eg. Counter, Lorsban) or foliar applied organophosphate or carbamate insecticides or if tank mixed with emulsifiable concentrate grass herbicides.

**Environmental Statements:** Do not apply directly to water or areas where surface water is present.

**Rain Delay:** Rainfall soon after application may reduce effectiveness.

**Rotation Restrictions:** Corn and grain sorghum may be replanted immediately; barley, rye, and winter wheat 4 months after application; or alfalfa, canola, soybeans, and tobacco may be planted 10 months after application. Other crops not listed by the label may be planted 18 months after application.

**Harvest & Forage Restrictions:** To avoid possible illegal residues, do not graze or feed forage from treated areas for 45 days following application or do not harvest forage, grain, or stover within 45 after application.

**Tank Mixtures:** Atrazine, Buctril, Clarity, Status, Northstar.

## CALLISTO XTRA

CALLISTO XTRA (3.7L) 20 to 24 fl. oz/A	[mesotrione:atrazine (0.078:0.5 to 0.094:0.6 lb ai/A)]
+	+
Crop Oil Concentrate (1% v/v) 1 qt/25 gal or Surfactant [Non-Ionic] (0.25% v/v) 0.5 pt/25 gal	(additive)
+	+
Urea Ammonium Nitrate [28-0-0] (2.5% v/v) 2.5 qt/25gal	
Or	(additive)
Ammonium Sulfate 8.5 to 17 lb/100 gal	

**Weeds Controlled:** Black nightshade, cocklebur, lambsquarters, Palmer amaranth, pigweed, common ragweed, giant ragweed, smartweed, velvetleaf, waterhemp.

**Crop Stage:** CALLISTO XTRA is labeled for use on field corn and corn grown for silage. For applications on yellow popcorn and sweet corn consult label for use of adjuvants. Apply to corn after crop emergence but before corn exceeds 12" in height.

**General Comments:** CALLISTO XTRA is a premixture of mesotrione + atrazine [0.5 + 3.2 lb ai per gal]. Do not use Methylated Seed Oils or MSO blend adjuvants as a spray additive. For postemergence weed control apply when weeds are less than 5" in height. Use the higher rate for increased residual control and for susceptible weeds 5-10" tall. When applying take necessary precautions to reduce the potential for spray drift. Do not apply CALLISTO XTRA if the corn crop was treated with Counter or Lorsban insecticide. Do not make foliar postemergence applications in a tank mixture with any organophosphate or carbamate type insecticides and consult label directions before applying as a sequential with foliar insecticides. The total amount per season of mesotrione (i.e. applied as Callisto, Camix, Lexar, or Lumax) may not exceed 0.24 lb ai/A or do not exceed 2.5 lb ai/A of atrazine containing products.

**Environmental Statements:** CALLISTO EXTRA is a RESTRICTED-USE pesticide and contains GROUND and SURFACE WATER ADVISORY statements on the label. [NOTE: See page 23 for PRECAUTIONS on use of atrazine containing products near ground or surface water].

**Rain Delay:** None indicated on the label.

**Rotation Restrictions:** Corn (all types) and sorghum (grain) may be replanted immediately. Alfalfa, barley, canola, soybeans, tobacco, and wheat may be planted back the following spring after application. Other rotational crops may require an 18 month rotational interval.

**Harvest & Forage Restrictions:** Do not graze or harvest for forage or grain within 60 days of application.

**Tank Mixtures:** Accent Q, atrazine, Basis, Buctril, Clarity, Ignite 280SL, glyphosate (Roundup, Touchdown, etc.), Northstar, Require Q, Resolve Q, Status, Steadfast, Steadfast Q, Steadfast ATZ, and Stout. DO NOT apply postemergence in a tank mixture with an emulsifiable concentrate grass herbicide, unless specified by the label, or injury may occur. Soil-residual herbicides include products such as Bicep II Magnum.

## 56 Corn

### CAPRENO

CAPRENO (3.45SC)	3 fl.oz/A	[thiencarbazone:tembotrione (0.013:0.068 lb ai/A)]
+		+
Crop Oil Concentrate (COC)	1 gal/100 gal	(additive)
+		+
Ammonium Nitrate [UAN]	1.5 qt/A OR	(additive)
Ammonium Sulfate [AMS]	8.5 lb/100 gal (1.5 lb/A)	

**Weeds Controlled:** Barnyardgrass, cocklebur, fall panicum, foxtail, johnsongrass (seedling), lambsquarters, black nightshade, Palmer amaranth, pigweeds, common ragweed, shattercane, smartweed, velvetleaf, waterhemp.

**Crop Stage:** CAPRENO is labeled for use on field corn grown for grain or silage, popcorn, and sweet corn. Broadcast apply to corn from 1 leaf collar (V1) through the 6-leaf collar stage (V6) stage of growth. Use directed applications on corn that is from V6 through V7 growth stage.

**General Comments:** CAPRENO is a premixture of thiencarbazone-methyl + tembotrione [0.57 + 2.88 lb ai per gal]. For postemergence control of broadleaf weeds <6" tall and selected grasses. Consult label for maximum height of grasses. When applying take necessary precautions to reduce the potential for spray drift. Do not apply CAPRENO if the corn crop was treated with soil-applied Lorsban, Counter, Dyfonate, Thimet, or any other organophosphate insecticides. Do not make foliar postemergence applications within 7 days of any organophosphate or carbamate type insecticides and consult label directions before applying CAPRENO with other soil-applied or foliar insecticides. Do not apply with liquid fertilizers as the primary spray carrier. Do not exceed a total of 6 fl.oz/A per growing season.

**Environmental Statements:** Do not apply directly to water, or to areas where surface water is present.

**Rain Delay:** 1 hour.

**Rotation Restrictions:** Field corn (yellow dent) may be replanted immediately. Wheat may be planted 4 months after CAPRENO application; barley, soybean, white corn, and sorghum after 10 months; or alfalfa, canola, and oats after 18 months. Most other rotational crops may be planted 18 months after application with completion of a successful field bioassay. Consult label for additional restrictions if precipitation is limited or soil pH is 7.5 or above.

**Harvest & Forage Restrictions:** Do not graze or harvest corn forage for at least 45 days after application.

**Tank Mixtures:** Atrazine, Buctril, Ignite 280SL, and glyphosate products.

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### 2,4-D

2,4-D AMINE	0.5 to 1 pt/A or	(2,4-D Amine 0.25 to 0.5 lb ai/A) or
2,4-D ESTER	0.5 to 0.75 pt/A	(2,4-D Ester 0.25 to 0.375 lb ai/A)
[4 lb ai/gal formulation]		

**Weeds Controlled:** Cocklebur, common ragweed, giant ragweed, lambsquarters, morningglories, Palmer amaranth, pigweed, prickly sida, smartweed, velvetleaf, waterhemp.

**Crop Stage:** Make broadcast applications before corn exceeds 8 inches tall. Use only DIRECTED applications when corn is from 8 inches to tassel emergence.

**Preharvest:** May be used at higher application rates when applied as a preharvest treatment [consult label]. Apply after hard dough or denting stage of growth.

**General Comments:** Several 2,4-D ESTER and 2,4-D AMINE products are available (formulations vary from 3 to 6 lb ai of 2,4-D per gal). Adjust rates accordingly for other product formulations (consult individual product labels for specific rates). Additives are generally not recommended for postemergence applications, except in tank mixtures with other products (consult individual product labels). Crop injury may occur when using higher rates or if applied during periods of rapid growth. Brittleness of corn may result in broken stalks if windstorms or cultivation follow within a week after application.

**Environmental Statements:** Be cautious about applications of 2,4-D near sensitive broadleaf crops such as tobacco, soybean, grapes, vegetables or ornamental plantings to avoid potential injury caused by spray drift. Do not apply when air temperatures are above 85 F.

**Rain Delay:** None indicated on label; 4 to 6 hours suggested.

**Rotation Restrictions:** None indicated on label following normal growth and harvest of corn.

**Harvest & Forage Restrictions:** A 7 day waiting period is generally indicated on most 2,4-D labels before utilizing corn for forage or feed.

**Tank Mixtures:** Consult label.

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**DICAMBA**

Dicamba 4S 8 to 16 oz/A (0.5 to 1 pt/A) (dicamba 0.25 to 0.5 lb ai/A)  
 [eg. BANVEL, CLARITY, DIFLEXX, STERLING BLUE, VISION, etc.]

**Weeds Controlled:** Black nightshade, cocklebur, common ragweed, giant ragweed, jimsonweed, lambsquarters, morningglories, Palmer amaranth, pigweed, prickly sida, sicklepod, smartweed, velvetleaf, waterhemp.

**Crop Stage:** Apply 8 to 16 oz/A (0.5 to 1 pt/A) as a broadcast spray from corn emergence through 5th leaf stage or until corn is 8 inches tall, whichever comes first. Apply at a maximum of 8 oz/A (0.5 pt/A), if 6<sup>th</sup> true leaf is emerging from whorl, when corn size reaches 8 to 36 inches tall, or up to 15 days before tassel emergence, whichever comes first. Consult DIFLEXX label for application rates and crop growth stages. Use DIRECTED spray applications when 1) corn leaves prevent proper weed coverage, 2) sensitive crops are growing nearby, or 3) tank mixing with 2,4-D.

**Additives:** Although not required, the addition of a surfactant or sprayable fluid fertilizer may improve control of emerged weeds. Avoid use of a spray additive such as crop oil concentrate after corn has emerged. Use of fluid fertilizer as a carrier is not recommended after corn emerges. Consult all product labels on use of additives in tank mixtures.

**General Comments:** CLARITY 4S and STERLING BLUE contain 4 lb ae/gal of the diglycolamine salt of dicamba; DIFLEXX 4SC contains 4 lb ae/gal of the diglycolamine salt of dicamba plus a safener (cyprosulfamide). BANVEL contains 4 lb ae/gal of the dimethylamine salt of dicamba; and VISION contains 3.8 lb dicamba acid. Avoid applications to crops under stress due to environmental conditions or other factors.

**Environmental Statements:** Some crops such as tobacco, soybeans, grapes, vegetables, and ornamental plants can be extremely susceptible to DICAMBA spray drift and vapors. Do not apply where sensitive crops are growing nearby, if winds over 5 MPH and are moving in the direction of sensitive crops, or if air temperatures on the day of application will exceed 85 degrees.

**Rain Delay:** None indicated on label for BANVEL; 4 hours for CLARITY, DIFLEXX, STERLING BLUE, and VISION.

**Rotation Restrictions:** Any rotational crop may be planted following normal growth and harvest of corn. However, for between crop or post harvest applications delay planting soybeans a minimum of 30 days per each pint/acre of DICAMBA applied and delay planting wheat 20 days per pint of DICAMBA treated per acre. Any rotational crop may be planted at 120 days or more following application. For barley, oat, wheat, and other grass seedlings, wait at least 15 days per 8 oz/A of the dicamba product applied.

**Harvest & Forage Restrictions:** Do not graze or harvest DICAMBA treated corn for dairy or beef feed until the crop has reached the ensilage (milk) stage or late in maturity, except corn treated with DIFLEXX can be harvested for forage 45 days after application.

**Tank Mixtures:** Accent, Atrazine, Buctril, Glyphosate (RR-corn), Hornet, Liberty (LL-corn), Permit, Spirit. Tank mixtures with other products containing DICAMBA must not exceed a combined rate of 0.5 lb of dicamba per acre. Dicamba plus 2,4-D (0.25 pt/A) may be applied as a DIRECTED treatment using drop nozzles in corn (apply when corn is at least 8 inches tall, but less than 36 inches in height or until 15 days before tassel emergence). Consult label for tank mixes with soil applied herbicides.

**DIFLEXX DUO**

DIFLEXX DUO (2.13SC)	24 to 40 fl.oz/A	[dicamba:tembotrione (0.24:0.05) to (0.39:0.08 lb ae/A)]
	+	+
Methylated Seed Oil (1% v/v) or	1 gal/100 gal	(additive)
Crop Oil Concentrate (1% v/v)		
	+	+
Urea Ammonium Nitrate [UAN]	1.5 qt/A OR	(additive)
Ammonium Sulfate [AMS]	8.5 to 17 lb/100 gal	

**Weeds Controlled:** Black nightshade, burcucumber, cocklebur, lambsquarters, marestail, morningglories, Palmer amaranth, pigweed, prickly sida, common ragweed, giant ragweed, sicklepod, smartweed, velvetleaf, waterhemp.

**Crop Stage:** Apply as a broadcast spray from emergence up to, but not including, the V7 stage of corn growth or 36" tall, whichever occurs first. DIFLEXX DUO should be applied as a directed spray when corn is from V7 thru V10 stages of growth, up to 36", or up to 15 days prior to tassel, whichever occurs first. Directed applications should be used 1) if corn leaves prevent proper spray coverage, 2) sensitive crops are growing nearby, or 3) when tank mixing with 2,4-D.

**General Comments:** DIFLEXX DUO is a premixture of dicamba (diglycolamine salt) + tembotrione [1.86 + 0.27 lb per gal]. For postemergence control of broadleaf weeds <6" tall and selected grasses. Consult label for maximum height of grasses. When applying take necessary precautions to reduce the potential for spray drift. Do not apply to crops that exhibit injury or under stress due to environmental conditions.

**Environmental Statements:** Spray drift may result in injury to non-target crops such as tobacco, soybeans, grapes, vegetables, and ornamental plants. Do not apply when wind speed is greater than 10 MPH. Do not apply when weather conditions, wind speed, or wind direction may cause spray drift to non-target areas.

**Rain Delay:** Rainfast within 4 hours.

**Rotation Restrictions:** Corn may be replanted immediately. Cereal grains (eg. wheat, barley) and sweet corn can be planted 4 months after application; soybean after 8 months; sorghum, canola, and alfalfa after 10 months; tobacco after 12 months; or other crops after 18 months. Following a field bioassay cover crops is allowed as long as these crops are not grazed by livestock nor harvested for food. Consult label for additional rotation crop guidelines.

**Harvest & Forage Restrictions:** Do not graze or harvest corn forage within 45 days of DIFLEXX DUO application. Corn grain and stover may be harvested once the crop has reached the ensilage (milk) stage.

**Tank Mixtures:** Atrazine, Glyphosate (RR-corn), and Liberty (LL-corn). Consult label for tank mixtures for insect and disease control.

## GLYPHOSATE<sup>1</sup>

### (Glyphosate-Tolerant Corn Hybrids ONLY)

The information below provides guidelines for postemergence applications of GLYPHOSATE on corn hybrids designated as "Roundup Ready Corn 2", "Roundup Ready Corn", "Agrisure GT", or GT-corn hybrids. The maximum corn growth stage for postemergence treatments and the labeled application rates for use on Glyphosate-Tolerant (GT) corn hybrids may depend on the genetic event of the corn hybrid planted and the specific glyphosate product used. Consult your seed dealer for specific guidelines for corn tolerance. Dry Ammonium Sulfate at 1 to 2% by weight (8.5 to 17 lb/100 gal) may be included with glyphosate to improve weed control. Some Glyphosate products do not need additional surfactant; but some products require addition of a non-ionic surfactant. **ALWAYS CONSULT THE PRODUCT LABEL FOR SPECIFIC DIRECTIONS.**

<b>Glyphosate, Roundup Original, and similar Glyphosate products<sup>1</sup></b>			
[3 lb ae/gal formulation] (4 lb ai/gal)	1.5 up to 2 pt/A* (24 to 32 fl.oz/A)	[glyphosate 0.56 to 0.75 ae/A] (0.75 to 1.0 lb ai/A)	Roundup Ready Corn and GT-corn hybrids <sup>^*</sup>
* NOTE: For certain glyphosate products up to 3 pt/A may be made with single in-season applications and/or drop nozzles may be used when corn height is 30 to 40 inches (consult specific product label for details).			
<b>Buccaneer 5</b>			
[3.75 lb ae/gal formulation]	1.25 to 1.6 pt/A (20 to 26 fl.oz/A)	[glyphosate 0.58 to 0.75 lb ae/A]	Roundup Ready Corn or other GT-corn hybrids <sup>^</sup>
<b>Duramax / Durango DMA</b>			
[4 lb ae/gal formulation] (5.4 lb ai/gal)	1.12 to 2.25 pt/A (18 to 37.5 fl.oz/A)	[glyphosate 0.56 to 1.15 lb ae/A] (0.75 to 1.5 lb ai/A)	Roundup Ready Corn 2 <sup>#</sup>
	1.12 to 1.5 pt/A (18 to 24 fl.oz/A)	[glyphosate 0.56 to 0.75 lb ae/A] (0.75 to 1.0 lb ai/A)	Roundup Ready Corn <sup>^</sup>
<b>Roundup PowerMAX / Roundup WeatherMAX</b>			
[4.5 lb ae/gal formulation] (5.5 lb ai/gal)	1 to 2 pt/A (16 to 32 fl.oz/A)	[glyphosate 0.56 to 1.12 lb ae/A] (0.69 to 1.375 lb ai/A)	Roundup Ready Corn 2 <sup>#</sup>
<b>CROP GROWTH STAGE: USE ONLY ON SELECTED FIELD CORN HYBRIDS DESIGNATED AS GLYPHOSATE-TOLERANT.</b>			
<sup>^</sup> May be applied on "Roundup Ready Corn" or other designated GT-corn hybrids from emergence through V8 growth stage or until corn reaches 30 inches, whichever comes first.			
<sup>#</sup> Apply as a broadcast treatment over-the-top of Glyphosate-Tolerant corn hybrids from corn emergence through the V8 growth stage or until corn reaches 30 inches, whichever comes first. On corn hybrids designated as "Roundup Ready Corn 2" and/or with certain glyphosate products drop nozzles may be used when corn height is 30 to 48 inches.			

<sup>1</sup> Glyphosate is available in various formulations. **SEE PAGE 22 FOR A DETAILED LIST OF GLYPHOSATE PRODUCTS.** The concentration of glyphosate may be expressed as the **acid equivalent** which is based on the parent acid of glyphosate or expressed as **active ingredient** which is based on the parent acid plus the salt in the formulated product. Comparing glyphosate rates based on acid equivalents is usually the most logical way to evaluate products on equal terms.

**Weeds Controlled:** Barnyardgrass, black nightshade, broadleaf signalgrass, burcucumber, cocklebur, crabgrass, fall panicum, foxtails, jimsonweed, johnsongrass (seed and rhizomes), lambsquarters, pigweed, giant ragweed, shattercane, sicklepod, smartweed, velvetleaf. Consult label for specific troublesome weed species and their recommended growth stages.

**General Comments:** Observe label for recommendations for control of specific troublesome weed species. A sequential application may be needed to control regrowth on new weed flushes. For optimum control of perennials, apply when broadleaf plants are in the early bud to flowering stage and when grasses are in the boot to seedhead stage.

**Environmental Statements:** Take precautions to prevent spray particle drift to desirable plants.

**Rain Delay:** Rainfall soon after application may reduce effectiveness. Some labels indicate 6 hours.

**Rotation Restrictions:** Any crop may be planted following normal growth and harvest of corn. Wait at least 30 days before planting crops not listed on the label.

**Harvest & Forage Restrictions:** Allow a minimum of 50 days between application and harvest of corn forage.

**Tank Mixtures:** Consult label of glyphosate product used for specific tank mixtures with other herbicide or insecticide products.

## GLYPHOSATE (continued)

**Maximum Use Rates:** The following table indicates the maximum rate of product for various glyphosate formulations for a single in-crop application and the total combined rate for sequential applications to Roundup Ready corn or other GT-corn hybrids.

Glyphosate Formulation (acid equivalent)	Maximum Rate Preplant Before Crop Emergence	Maximum Rate for Single In-Crop Application	Combined Total of Multiple In-Crop Applications	Maximum Use Rate for Pre-Harvest Application	Combined Season Total for All Applications
Glyphosate, Roundup, etc. (3 lb ae/gal)	5 qt/A	2 pt/A [GT-hybrid]	2 qt/A [GT-hybrid]	1 qt/A	8 qt/A
		3 pt/A [RR-2 hybrid]	3 qt/A [RR-2 hybrid]		
Buccaneer 5 (3.75 lb ae/gal)	4 qt/A	1.6 pt/A	3.2 pt/A	1.6 pt/A	6.5 qt/A
Duramax Durango DMA (4 lb ae/gal)	3.75 qt	1.5 pt/A [GT-hybrid]	1.5 qt/A [GT-hybrid]	0.75 qt/A (1.5 pt/A)	6 qt/A
		2.25 pt/A [RR-2 hybrid]	2.25 qt/A [RR-2 hybrid]		
Roundup PowerMAX, Roundup WeatherMAX (4.5 lb ae/gal)	3.3 qt/A	32 oz/A (2 pt/A) [RR-2 hybrid]	64 oz/A (2 qt/A) [RR-2 hybrid]	22 oz/A	5.3 qt/A

**PREHARVEST USE:** Apply after maximum kernel fill is complete and the crop is physiologically mature (black layer formation) with 35 percent grain moisture or less. Allow a minimum of 7 days between application and corn grain harvest.

### EXPERT (Glyphosate Tolerant Corn Hybrids ONLY)

EXPERT 3 to 3.75 qt/A [S-metolachlor:atrazine:glyphosate (1.3:1.6:0.75 to 1.6:2.0:0.94 lb ai/A)]

**Weeds Controlled:** Barnyardgrass, broadleaf signalgrass, burcucumber, cocklebur, crabgrass, fall panicum, foxtails, jimsonweed, johnsongrass, lambsquarters, pigweeds, common ragweed, giant ragweed, shattercane, smartweed, velvetleaf.

**Crop Stage:** Use only on selected FIELD CORN HYBRIDS which are designated with Glyphosate Tolerance or the Roundup Ready gene. Apply from seedling emergence of corn until 12 inches in height.

**General Comments:** EXPERT is a pre-package mixture containing S-metolachlor + atrazine + glyphosate (isopropylamine salt) [1.74+2.14+1.0 lb ai/gal]. Additional surfactants are not required with EXPERT; however, Liquid fertilizer as carriers are not recommended for use over-the-top of Roundup Ready corn. Addition of dry Ammonium Sulfate at 1 to 2% by weight (8.5 to 17 lb/100 gallons of water) may increase performance on emerged weeds under adverse growing conditions. For control of annual grasses and broadleaf weeds and for suppression of certain perennial weed species. Make only one in-season application.

**Environmental Statements:** EXPERT is a RESTRICTED-USE pesticide and contains GROUND and SURFACE WATER ADVISORY statements on the label. [NOTE: See page 23 for PRECAUTIONS on use of atrazine containing products near ground or surface water].

**Rain Delay:** Apply a minimum of 2 hours before expected rainfall.

**Rotation Restrictions:** Corn, sorghum (milo), or soybeans may be planted the year following application. If applied after June 10, do not rotate with crops other than corn or sorghum next year. Do not plant tobacco, vegetables, or small-seeded legumes the year following application.

**Harvest & Forage Restrictions:** To avoid possible illegal residues, do not graze or feed forage from treated areas for 60 days following application.

**Tank Mixtures:** If additional weed control is needed apply an appropriate herbicide labeled for control of that species. Do not apply EXPERT in tank mixture with any other products after crop emergence.

## 60 Corn

### HALEX GT (Glyphosate Tolerant Corn Hybrids ONLY)

HALEX GT	3.6 to 4 pt/A	[S-metolachlor:glyphosate:mesotrione (0.9:0.9:0.094 to 1.0:1.0:0.1 lb ai/A)]
	+	+
SURFACTANT (Non-Ionic 80%)	1 to 2 qt/100 gal	(additive)
	+	
Ammonium Sulfate	8.5 - 17 lb/100 gal	

**Weeds Controlled:** Barnyardgrass, black nightshade, broadleaf signalgrass, burcucumber, cocklebur, crabgrass, fall panicum, foxtails, johnsongrass, lambsquarters, pigweed, giant ragweed, annual ryegrass, shattercane, sicklepod, smartweed, velvetleaf. Consult label for specific weed species.

**Crop Stage:** Use only on selected CORN HYBRIDS which are designated with Glyphosate Tolerance or the Roundup Ready gene. Apply from corn emergence up to 30 inches in height or the 8-leaf growth stage.

**General Comments:** HALEX GT is a pre-package mixture containing S-metolachlor + glyphosate + mesotrione [2.09+2.09+0.209 lb ai/gal]. Apply with Non-Ionic Surfactant plus Ammonium Sulfate. The use of Ammonium Nitrate (UAN) or other suspension fertilizers is not recommended and will result in crop injury. For control of emerged annual grasses and broadleaf weeds and for residual control of weeds. Do not apply more than 4 pt/A of HALEX GT per growing season or do not apply with CALLISTO during the same season.

**Environmental Statements:** HALEX GT contains ground and surface water advisory statements on the label.

**Rain Delay:** Rainfall soon after application may reduce effectiveness.

**Rotation Restrictions:** Corn and grain sorghum may be replanted immediately; barley, rye, and winter wheat may be planted 120 days after application; or alfalfa, soybeans, and tobacco may be planted 10 months after application. Red clover and other crops not listed by the label may be planted 18 months after application.

**Harvest & Forage Restrictions:** To avoid possible illegal residues, do not graze or feed forage from treated areas for 60 days following application or do not harvest forage, grain, or stover within 45 after application.

**Tank Mixtures:** Atrazine.

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### IMPACT or ARMEZON

IMPACT or ARMEZON	2.8SC	0.5 to 1.0 fl. oz/A	(topramezone 0.011 to 0.022 lb ae/A)
	+		+
Metylated Seed Oil or COC	1 to 1.5 gal/100 gal		(additive)
	+		+
UAN [28-34%] or 10-34-0	1.25 to 2.5 gal/100 gal		(additive)
	Or		
Ammonium Sulfate	8.5 lb/100 gal		

**Weeds Controlled:** Black nightshade, cocklebur, lambsquarters, Palmer amaranth, pigweed, velvetleaf, waterhemp.

**Crop Stage:** Labeled for use on field corn grown for grain or silage, popcorn, and sweet corn. Apply after corn emergence up to 45 days prior to corn harvest.

**General Comments:** IMPACT or ARMEZON 2.8SC contain 2.8 lb ae topramezone per gal. For most applications apply at 0.75 fl. oz/A when susceptible weeds are 2 to 8 inches and actively growing (consult supplemental label for use of 0.5 fl.oz/A rate or for use of 1.0 fl.oz/A on certain weeds). When applying take necessary precautions to reduce the potential for spray drift. Do not exceed a total of 1.0 fl.oz/A (0.022 topramezone/A) per season.

**Environmental Statements:** Do not apply directly to water, or areas where surface water is present.

**Rain Delay:** 1 hour.

**Rotation Restrictions:** Corn (all types field, sweet, and popcorn) may be replanted immediately. Small grains (wheat, barley, oats, and rye) may be planted 3 months after application; alfalfa, sorghum, and soybeans after 9 months. Red clover, tobacco, and most other rotational crops may be planted 18 months after application.

**Harvest & Forage Restrictions:** Do not graze or harvest for forage at least 45 days after application.

**Tank Mixtures:** Accent, Aim, Atrazine, Buctril, Clarity, 2,4-D, Glyphosate, Hornet, Ignite, Lightning, Marksman, Option, Permit, Require Q, Resolve Q, Status, Steadfast, Stout. May also be tank mixed with soil residual herbicides such as Bicep II Magnum, Degree Xtra, Dual II Magnum, Guardsman Max, Harness Xtra, Keystone, and Prowl. ARMEZON or IMPACT may be tank mixed with products containing isoxaflutole (e.g. Balance Pro) if isoxaflutole rate does not exceed 0.0625 lb ai/A.

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**LAUDIS**

LAUDIS 3 fl.oz/A	(tembotrione 0.082 lb ai/A)
+	+
Metylated Seed Oil (MSO) or COC 1 gal/100 gal	(additive)
+	+
Ammonium Nitrate [UAN] 1.5 qt/A OR	(additive)
Ammonium Sulfate [AMS] 8.5 lb/100 gal (1.5 lb/A)	

**Weeds Controlled:** Cocklebur, lambsquarters, black nightshade, Palmer amaranth, pigweed, giant ragweed, velvetleaf, waterhemp.

**Crop Stage:** LAUDIS is labeled for use on field corn grown for grain or silage, popcorn, and sweet corn. Apply from corn emergence up to the V8 stage of growth (V7 stage for sweet corn)

**General Comments:** LAUDIS contains 3.5 lb ai tembotrione per gal. For postemergence control apply LAUDIS when susceptible broadleaf weeds are <6 inches and actively growing. Consult label for maximum height of grasses. When applying take necessary precautions to reduce the potential for spray drift. LAUDIS may be used with foliar applied insecticides registered for use in corn. Do not apply LAUDIS with liquid fertilizers as the primary spray carrier. Do not exceed a total of 6 fl.oz/A per growing season (3 fl.oz/A for sweet corn).

**Environmental Statements:** Do not apply directly to water, or to areas where surface water is present.

**Rain Delay:** 1 hour.

**Rotation Restrictions:** Corn may be replanted immediately. Small grains may be planted 4 months after LAUDIS application; soybean after 8 months; or alfalfa, canola, and sorghum after 10 months. Most other rotational crops may be planted 18 months after application with completion of a successful field bioassay.

**Harvest & Forage Restrictions:** Do not graze or harvest corn forage for at least 45 days after application.

**Tank Mixtures:** Tank mixing with atrazine can improve performance on some weeds. Other products include Accent, Buctril, Glyphosate, Ignite 280SL, Option, Steadfast, Stout. LAUDIS may be tank mixed with soil residual herbicides such as Define SC. May also be tank mixed with foliar insecticides labeled for corn.

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**LIBERTY  
(Liberty Link Hybrids ONLY)**

LIBERTY 280SL 22 fl.oz/A	(glufosinate-ammonium 0.40 lb ai/A)
+	+
Ammonium Sulfate (AMS) 3 lb/A (17 lb/100 gal)	(additive)

**Weeds Controlled:** Burcucumber, cocklebur, giant foxtail, green foxtail, jimsonweed, johnsongrass (seedling), lambsquarters, morningglory, black nightshade, fall panicum, pigweed, common ragweed, giant ragweed, prickly sida, shattercane, smartweed, velvetleaf.

**Crop Stage:** Use only on selected FIELD CORN HYBRIDS designated as "LibertyLink" or warranted to be resistant to LIBERTY applications (consult label). Apply as a broadcast treatment from emergence until corn is 24" tall or in the V-7 growth stage (exhibits 7 developed collars), whichever comes first. For corn 24" to 36" tall, use drop nozzles to avoid spraying into whorls or leaf axils of corn stalks.

**General Comments:** LIBERTY contains 2.34 lb ai of glufosinate-ammonium per gal. Do not use a nitrogen solution as a spray carrier or add any other surfactants or crop oils. LIBERTY is a non-selective contact herbicides that controls certain grasses and broadleaf weeds. Good spray coverage is important for optimum control. See label for optimum stages of weed growth and rate at time of application. A second application of LIBERTY or a tank mix with a residual herbicide will be needed to control weeds that have not yet emerged at time of application. Do not apply more than two applications or exceed 44 fl oz/A of LIBERTY per growing season. Avoid applications when corn shows injury from prior herbicide applications or environmental stress. **NOTE: If LIBERTY was used in a burndown application, no post application may be applied to the crop.**

**Environmental Statements:** Use precautions to avoid spray particle drift to nearby crops or sensitive vegetation.

**Rain Delay:** 4 hours after application.

**Rotation Restrictions:** Corn and soybeans may be planted anytime. Wheat, barley, rye, oats, or triticale may be planted 70 days after last application. Minimum waiting period for planting other crops is 180 days (6 months).

**Harvest & Forage Restrictions:** Allow 60 days following application before harvesting corn for forage and allow 70 days before harvesting corn grain or corn fodder.

**Tank Mixtures:** Acetochlor (Harness, Degree, Surpass, TopNotch), Aim, Atrazine, Callisto, Camix, 2,4-D, Guardsman Max, Hornet WDG, Impact, Laudis, Lexar, Lumax, metolachlor, S-metolachlor (Dual II Magnum), nicosulfuron (Accent), pendimethalin (Prowl), Permit, Python WDG, Spirit, Status, Yukon. For some products use 1/2 the recommended use rate (consult LIBERTY label for tank mix recommendations).

**Generic Products:** CHEETAH, FORFEIT 280, IGNITE, INTERLINE, SURMISE..

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## 62 Corn

### PERMIT

PERMIT 75DF 0.67 to 1.33 oz/A (halosulfuron 0.032 to 0.063 lb ai/A)  
+  
SURFACTANT (Non-Ionic 80%) 1 to 2 qt/100 gal or (additive)  
CROP OIL CONCENTRATE 1 gal/100 gal

**Weeds Controlled:** Cocklebur, pigweeds, common ragweed, velvetleaf, yellow nutsedge.

**Crop Stage:** Apply from the spike through layby stage of field corn.

**General Comments:** PERMIT 75DG contains 0.75 lb ai halosulfuron per lb product. Apply with Non-Ionic Surfactant or Crop Oil Concentrate. Liquid nitrogen may be included in the spray solution. Apply for postemergence control of yellow nutsedge and certain broadleaf weeds in field corn and grain sorghum (milo). Consult label for optimum stages of weed growth. Two applications of PERMIT are allowed per season with a total amount not to exceed 2.67 oz product per acre. Avoid applications when crop and weeds are under stress due to drought, excessive moisture, diseases, insect damage, or nutrient deficiency.

**Rain Delay:** 4 hours after application.

**Rotation Restrictions:** Crops that may be planted include field corn after 1 month, sorghum, wheat, barley, forage grasses after 2 months, popcorn after 3 months; or soybeans and alfalfa after 9 months following PERMIT application.

**Harvest & Forage Restrictions:** Allow 30 days following PERMIT application before grazing or harvesting for forage or silage.

**Tank Mixtures:** Accent, Atrazine, Banvel, Beacon, Buctril, Callisto, Clarity, 2,4-D, Glyphosate [various products], Impact, Liberty, Option, Marksman, Status, Steadfast. Consult label for maximum corn heights and use of additives with tank mixtures.

**Generic Products:** Sandea

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### REALM Q

REALM Q 4 oz/A [rimsulfuron:mesotrione (0.019:0.08) lb ai/A]  
+  
Crop Oil Concentrate (1%) 1 qt/25 gal (additive)  
+  
Fertilizer Solution [27% or 32% UAN] 2 qt/A (additive)  
or Ammonium Sulfate 2 lb/A

**Weeds Controlled:** Cocklebur, foxtail, lambsquarters, Palmer amaranth, smooth pigweed, giant ragweed, shattercane, velvetleaf, waterhemp.

**Crop Stage:** Apply REALM Q to field corn that is up to 20 inches tall. Do not apply to corn taller than 20 inches or exhibiting 7 or more collars, whichever is more restrictive. Do not apply to seed corn, popcorn, or sweet corn. Consult with your seed supplier before applying to any corn hybrids known to be sensitive to ALS-type herbicides.

**General Comments:** REALM Q contains rimsulfuron + mesotrione [7.5% + 31.25% per lb of product] plus a corn safener (isoxadifen). Nonionic Surfactant or other special adjuvant types can be used in place of Crop Oil Concentrate or if applied with glyphosate additional adjuvant may not be needed (consult label). Apply when weeds are young and actively growing; apply in a minimum spray volume of 15 gal per acre for best performance. Do not apply more than 1 oz/A of rimsulfuron per growing season. DO NOT apply to corn when certain insecticides such as "Counter" or "Lorsban" has been applied. Consult label directions before applying REALM Q with other organophosphate insecticides or foliar herbicides such as "Basagran". The likelihood of corn injury may increase if applied during a prolonged period of cold weather and/or in conjunction with wet soils.

**Rainfall Delay:** Not indicated on the label.

**Rotation Restrictions:** Rotational crops which may be planted include field corn anytime; winter wheat after 4 months; or alfalfa, canola, sorghum, soybean, popcorn, sweet corn, and tobacco after 10 months following a REALM Q application (consult label if interval should be extended). Other crops may require an 18 month waiting period.

**Harvest & Forage Restrictions:** Do not graze, feed forage, grain or fodder (stover) to livestock within 45 days. Do not harvest grain within 70 days.

**Tank Mixtures:** May be tank mixed with other products registered for use in corn unless these mixtures conflict with the REALM Q label. Specific tank mixes listed include glyphosate (Roundup, etc.) and glufosinate. REALM Q may also be tank mixed with soil-residual herbicides such as Atrazine, Breakfree, Breakfree ATZ, Cinch, Cinch ATZ (consult label for adjuvant selection with tank mixtures).

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**RESOLVE Q**

RESOLVE Q	1.25 oz/A	[rimsulfuron:thifensulfuron (0.014:0.003) lb ai/A]
	+	+
Crop Oil Concentrate (1%)	1 gal/100 gal	(additive)
or Modified Seed Oil (0.5%)	0.5 gal/100 gal	
	+	+
Fertilizer Solution [28% or 32% UAN]	2 qt/A	(additive)
or Ammonium Sulfate	2 lb/A	

**Weeds Controlled:** Foxtail, pigweed, shattercane, velvetleaf.

**Crop Stage:** Do not apply to seed corn, popcorn, or sweet corn. Consult with your seed supplier before applying to any corn hybrids known to be sensitive to ALS-type herbicides. Apply to field corn that is up to 20 inches tall. Do not apply to corn taller than 20 inches or exhibiting 7 or more collars, whichever is more restrictive.

**General Comments:** RESOLVE Q is a unit area pack herbicide which contains rimsulfuron + thifensulfuron-methyl [18.4% + 4.0% per lb of product] plus a corn safener (isoxadifen). A nonionic surfactant or special adjuvant types can be used instead of COC or MSO or if applied with glyphosate or glufosinate that contains a built-in adjuvant no additional surfactant needs to be added to the spray tank (consult label). Apply when weeds are young and actively growing (consult label for recommended weed sizes). Apply in a minimum spray volume of 15 gal per acre. Do not apply more than 1.0 oz active ingredient of rimsulfuron from applications of RESOLVE Q or other rimsulfuron containing products. DO NOT apply within 45 days of crop emergence when an organophosphate insecticide (such as Counter) has been applied as a treatment. Consult label directions before applying RESOLVE Q with other organophosphate insecticides or foliar herbicides. The likelihood of corn injury may increase if applied at improper stage of growth or when corn is under stress due to drought, diseases, insect damage, or nutrient deficiency.

**Rainfall Delay:** Not indicated on the label (6 to 8 hours suggested).

**Rotation Restrictions:** Rotational crops which may be planted when only 1.25 oz/A has been applied per season include field corn anytime; soybean (including STS-soybean) after 1 month; wheat after 3 months; or sorghum, popcorn, sweet corn, alfalfa, red clover, and tobacco after 10 months following a RESOLVE Q application. Other crops may require an 18 month waiting period. Check label if a maximum 2.5 oz/A rate was applied per season.

**Harvest & Forage Restrictions:** Do not graze, feed forage, grain or fodder to livestock within 30 days.

**Tank Mixtures:** May be tank mixed with other products registered for use in corn unless these mixtures conflict with the RESOLVE Q label. Specific tank mixes include glyphosate (eg. Roundup, etc.) glufosinate (eg. Liberty), or Impact + atrazine. RESOLVE Q may also be tank mixed with soil-residual herbicides such as Breakfree, Breakfree ATZ, Cinch, Cinch ATZ, Lexar, Lumax, and Prequel.

**SEQUENCE**  
**(Glyphosate Tolerant Corn Hybrids ONLY)**

SEQUENCE	2.5 pt/A	[S-metolachlor:glyphosate (0.94:0.7 lb ai/A)]
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**Weeds Controlled:** Barnyardgrass, broadleaf signalgrass, burcucumber, cocklebur, crabgrass, fall panicum, foxtails, jimsonweed, johnsongrass, lambsquarters, pigweeds, common ragweed, giant ragweed, shattercane, smartweed, velvetleaf.

**Crop Stage:** Use only on selected field corn hybrids which are designated with Glyphosate Tolerance or the Roundup Ready gene. Apply from seedling emergence of corn until 30 inches in height.

**General Comments:** SEQUENCE 4.25L contains S-metolachlor + glyphosate [3.0+2.25 lb ai/gal]. For control of annual grasses and broadleaf weeds and for suppression of certain perennial weed species. Do not exceed 5 pt/A of SEQUENCE per season. Consult label for maximum use rates when tank mixed with Dual Magnum or glyphosate.

**Environmental Statements:** SEQUENCE has GROUNDWATER ADVISORY statements on the label. Do not use on very permeable soil or where ground water is close to the soil surface.

**Rain Delay:** Rainfall soon application may reduce control of emerged weeds.

**Rotation Restrictions:** Corn, sorghum (with Concep treated seed), and soybean may be planted immediately; alfalfa after 4 months; wheat, barley, rye, and oats after 4.5 months; clover after 9 months; and tobacco in the spring following application.

**Harvest & Forage Restrictions:** Make postemergence applications at least 50 days before harvest. Do not graze or feed forage from treated areas for 30 days following application.

**Tank Mixtures:** When applied postemergence SEQUENCE may be applied in a tank mixture with the following herbicide products - Atrazine, Bicep II Magnum, Callisto, Clarity, 2,4-D, Dual Magnum, Lexar, Lumax, Touchdown or the following insecticides – Karate, Warrior.

## 64 Corn

### SPIRIT

SPIRIT 57DF 1 oz/A [prosulfuron:primisulfuron (0.009:0.027) lb ai/A]  
+  
CROP OIL CONCENTRATE 1 qt/A or (additive)  
SURFACTANT (Non-Ionic 80%) 0.5 pt/25 gal

**Weeds Controlled:** Burcucumber, cocklebur, jimsonweed, black nightshade, Palmer amaranth, pigweed, common ragweed, giant ragweed, johnsongraas (seedling), shattercane, smartweed.

**Crop Stage:** SPIRIT is labeled for use on field corn grown for grain or silage, including white corn. Some corn hybrids are classified as "potentially susceptible" to SPIRIT (consult seed dealer or chemical supplier for a listing of sensitive hybrids). Consult the label for use on field corn grown for seed and popcorn. DO NOT apply to sweet corn or ornamental corn. Apply to field corn which is between 4 to 24 inches tall. Applications made after field corn is 20 inches tall or exhibits more than 6 collars (V6), whichever comes first, should be directed using drop nozzles to help achieve optimum spray coverage of weeds and avoid potential injury. Applications to popcorn are more restrictive. When tank mixed with other herbicides consult the labels for maximum crop growth stage and rates for application.

**General Comments:** SPIRIT 57DF contains prosulfuron + primisulfuron [14.2% + 42.8% per lb product]. Liquid Nitrogen or Ammonium Sulfate may be included in tank mixes for enhanced control of some weed species. SPIRIT is recommended for postemergence control of broadleaf weeds, but also controls seedling johnsongrass and shattercane. Consult label for recommended size of weeds for optimum control. DO NOT apply SPIRIT to "normal" or Imidazolinone-Tolerant (IT) corn hybrids when an organophosphate insecticide (such as COUNTER 15G) is applied at planting or as a foliar treatment. If an Imidazolinone-Resistant (IR or IMR) corn hybrid is planted, an organophosphate insecticide (including COUNTER) can be applied at any time. When other foliar herbicides are used, see label directions before applying SPIRIT. Consider planting a virus tolerant corn variety in fields where johnsongrass has over-wintered. The likelihood of corn injury may increase if applied at improper stage of growth or when corn is under stress due to drought, diseases, insect damage, or nutrient deficiency.

**Rain Delay:** 4 hours before expected rainfall.

**Rotation Restrictions:** If soil pH is below 7.8, crops which may be planted include wheat, barley, or rye after 3 months; popcorn or sweet corn after 8 months; soybeans, sorghum, forage grasses, or tobacco after 10 months; and alfalfa or clovers after 18 months following treatment. If soil pH is 7.8 or above, the rotation interval for sensitive broadleaf crops may be longer (consult label).

Do not apply SPIRIT after June 30 if soybeans will be planted next season. STS-soybean varieties should be considered if soil degradation processes has been slowed down by adverse environmental conditions. Other rotational crops not listed on the label should not be planted within 18 months after application.

**Harvest & Forage Restrictions:** Do not harvest corn for grain within 60 days after treatment. Do not harvest for silage within 40 days and wait 30 days after application before utilizing treated corn for grazing or forage feed.

**Tank Mixtures:** Accent, Atrazine, Banvel, Beacon, Buctril, Clarity, 2,4-D, Glyphosate products [glyphosate tolerant corn], Marksman, Stout. When SPIRIT is tank mixed with other herbicides consult the label for crop growth stage, rates, and use of additives. DO NOT tank mix SPIRIT with some insecticides, as severe crop injury can result, or tank mix with Poast or Poast Plus, as grass control may be reduced.

### STATUS

STATUS 56WG 5 to 10 oz/A [diflufenzopyr:dicamba (0.05:0.125) to (0.1:0.25) lb ai/A]  
+  
SURFACTANT (Non-Ionic 80%) 1 qt/100 gal (additive)  
or CROP OIL CONCENTRATE 1 to 2 pt/A  
or METYLATED SEED OIL 1 to 2 pt/A  
+  
FERTILIZER SOLUTION 5 qt/100 gal (additive)  
(28% to 34% UAN) or AMS (17 lb/100 gal)

**Weeds Controlled:** Cocklebur, jimsonweed, lambsquarters, morningglory, black nightshade, pigweed, common ragweed, giant ragweed, prickly sida, sicklepod, smartweed, velvetleaf.

**Crop Stage:** Apply STATUS from 4-inch tall (V2) to 36-inch tall (V10) corn.

**General Comments:** STATUS 56WG contains diflufenzopyr + dicamba (0.16 lb + 0.4 lb ae per lb product) + isoxadifen (crop safener). Apply with an adjuvant (NIS, COC, or MSO) plus a liquid fertilizer solution (UAN or AMS). STATUS primarily provides control of broadleaf weeds. For optimum results apply to actively growing weeds and use thorough spray coverage. Crop tolerance may be affected if corn is growing under stress conditions. Allow a minimum of 15 days between sequential applications of STATUS. Do not apply more than a total of 12.5 oz/A of STATUS per acre per season.

**Environmental Statements:** STATUS has Ground and Surface Water Advisory statements on the label. Avoid applications when conditions favor spray drift or when sensitive crops such as tobacco, soybeans, ornamentals, or vegetable crops are growing nearby.

**Rain Delay:** 4 hours before expected rainfall.

STATUS (continued)

**Rotation Restrictions:** Do not plant any crop within 120 days after last application with the following exceptions. If at least 1 inch of rainfall occurs following application of STATUS at ≤ 5 oz/A, crops such as alfalfa, cereal grain crops, grain sorghum, and soybeans may be planted 30 days after the rainfall event. If crop failure occurs, corn can be replanted within 7 or more days after application of STATUS .

**Harvest & Forage Restrictions:** Do not apply within 32 days of forage harvest or within 72 days of harvest for corn grain or stover.

**Tank Mixtures:** STATUS may be applied sequentially or in tank mixes with other corn herbicides except with the following limitations: 1) avoid tank mixes with plant growth regulating herbicides that contain dicamba, 2,4-D, or clopyralid, 2) avoid tank mixes with emulsifiable concentrate (EC) formulations of chloracetamide herbicides [eg. Dual II Magnum, Harness, Outlook, Surpass, etc.], 3) avoid foliar-applied tank-mixes with Lorsban insecticide (consult label).

STEADFAST Q

STEADFAST Q	1.5 oz/A		[nicosulfuron:rimsulfuron (0.024:0.012) lb ai/A]
		+	
Crop Oil Concentrate (1% v/v)	1 qt /25 gal or		(additive)
Modified Seed Oil (MSO) [0.5% v/v]	1 pt/25 gal		
or Non-Ionic Surfactant (25% v/v)	1 qt/100 gal		
		+	
Fertilizer Solution [28% or 32% UAN]	2 qt/A		(additive)
or Ammonium Sulfate	2 lb/A		

**Weeds Controlled:** Barnyardgrass, broadleaf signalgrass, foxtails, johnsongrass (seedling), pigweeds, shattercane.  
**Crop Stage:** Apply STEADFAST Q to field corn hybrids with a relative maturity rating of 77 days or more. Do not apply to seed corn, popcorn, or sweet corn. Apply STEADFAST Q as a broadcast treatment to field corn up to 20 inches tall. Do not apply to corn taller than 20 inches or exhibiting 6 or more collars, whichever is more restrictive. For applications to corn hybrids with 77 to 88 days of Relative Maturity and for tank mixtures containing atrazine, Exceed, and Spirit apply before corn exceeds 12" tall.

**General Comments:** STEADFAST Q is a prepackage mixture containing nicosulfuron+rimsulfuron [25.2%+12.5% per lb of product plus isoxadefin (corn safener)]. Apply when weeds are young and actively growing (consult label for recommended weed sizes). Apply in a minimum spray volume of 15 gal per acre. Do not make more than one application per cropping season. DO NOT apply STEADFAST Q to corn when a soil insecticide such as 'Counter' has been applied at planting or as a layby treatment. Consult label directions before applying STEADFAST with other organophosphate insecticides or foliar herbicides. The likelihood of corn injury may increase if applied at improper stage of growth or when corn is under stress due to drought, diseases, insect damage, or nutrient deficiency.

**Rain Delay:** Allow 4 hours.

**Rotation Restrictions:** Rotational crops which may be planted include soybean after 15 days (0.5 month); wheat, barley, oats, and rye after 4 months; popcorn, sweet corn, sorghum (pH<7.5), alfalfa, and clover 10 months following a STEADFAST Q application. If soil pH<6.5, do not plant other rotational crops not listed within 10 months after application; when soil pH>6.5 wait 18 months.

**Harvest & Forage Restrictions:** Wait 30 days after application before utilizing corn as forage, hay, or grazing.

**Tank Mixtures:** Atrazine, Callisto, dicamba (Clarity), Distinct, Exceed, Marksman, Spirit, (see label for application limitations to corn >12" tall for some tank mixtures). STEADFAST Q may also be tank mixed with Cinch, Dual II Magnum, Lumax, Outlook, and Prowl for preemergence grass control (apply before corn exceeds maximum height of preemergence grass herbicide label). DO NOT tank mix STEADFAST Q with Basagran, Laddok or some organophosphate insecticides, such as Lorsban, malathion, or parathion as severe crop injury may occur. DO NOT tank mix with 2,4-D since poor control of grasses may occur.

## 66 Corn

### ZEMAX

ZEMAX 2 to 2.4 qt/A

[S-metolachlor:mesotrione (1.67:0.17) to (2.0:0.2) lb ai/A]

[use higher rate when OM  $\geq$  3%]

+

+

Non-Ionic Surfactant (0.25% v/v) 1 qt/100 gal  
or Crop Oil Concentrate (1% v/v) 1 gal/100 gal

(additive)

**Weeds Controlled:** Cocklebur, lambsquarters, black nightshade, pigweeds, common ragweed, giant ragweed, smartweed, velvetleaf, waterhemp.

**Crop Stage:** ZEMAX may be applied postemergence after emergence until corn plants reach 30 inches tall (up to 8-leaf stage of corn growth). May also be applied early preplant (up to 14 days prior to planting) or preemergence.

**General Comments:** ZEMAX contain S-metolachlor + mesotrione [3.34 + 0.33 lb ai/gal]. A nitrogen based adjuvant (AMS or UAN) may also be used but can result in an increased risk of temporary crop injury. Do not use methylated seed oil (MSO) when applied to emerged corn. Do not apply more than 2.4 qt/A of ZEMAX per growing season. Do not apply postemergence to corn that has received an at-plant application of "Counter" or other organophosphate insecticide. Consult label before use with other organophosphate or carbamate insecticides.

**Environmental Statements:** ZEMAX contains GROUND and SURFACE WATER advisory statements on the label. Do not use on very permeable soils or where groundwater is close to the soil surface or where the potential exists to enter surface water.

**Rain Delay:** None indicated on label.

**Rotation Restrictions:** Corn (all types) and sorghum [seed safener] may be replanted anytime; soybeans the spring following application; and wheat, barley, oats or rye may be planted 4½ months after ZEMAX application. Rotational interval 18 months for other crops.

**Harvest & Forage Restrictions:** Do not graze, feed, or harvest corn for forage, grain or stover within 45 days after postemergence application.

**Tank Mixtures:** Atrazine, Princep, 2,4-D, Gramoxone, Roundup brands, Touchdown brands, and Warrior II insecticide. Early postemergence tank mixtures include Atrazine, Accent Q, Basis, Ignite (LL-corn), Northstar, Resolve Q, Roundup brands (RR-corn), Spirit, Status, Steadfast Q, Touchdown brands (RR-corn).

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## PREHARVEST or HARVEST AID

### GLYPHOSATE

**Glyphosate products labeled for preharvest use in corn are listed below. SEE PAGE 22 FOR A DETAILED LIST OF GLYPHOSATE PRODUCTS. Always consult the product label for specific directions.**

GLYPHOSATE [3 lb ae/gal formulation]* (4 lb ai/gal)	2 pt/A (32 fl.oz/A)	[glyphosate 0.75 lb ae/A] (1.0 lb ai/A)
<b>Example products:</b> Roundup Original and several other GLYPHOSATE products (SEE page 21) .		
GLYPHOSATE [3.75 lb ae/gal formulation]*	1.6 pt/A (26 fl.oz/A)	[glyphosate 0.75 lb ae/A]
<b>Example product:</b> Buccaneer 5		
GLYPHOSATE [4 lb ae/gal formulation]* (5.4 lb ai/gal)	1.5 pt/A (24 fl.oz/A)	[glyphosate 0.75 lb ae/A] (1.0 lb ai/A)
<b>Example product:</b> Duramax, Durango DMA, Gly Star 5		
GLYPHOSATE [4.5 lb ae/gal formulation]* (5.5 lb ai/gal)	1.38 pt/A (22 fl.oz/A)	[glyphosate 0.77 lb ae/A] (0.95 lb ai/A)
<b>Example products:</b> Roundup PowerMAX, Roundup WeatherMAX.		

**\*Additives:** Recommendations for use of non-ionic surfactants will vary depending on the Glyphosate product. Dry Ammonium Sulfate at 1 to 2% by weight (8.5 to 17 lb/100 gal) or an equivalent rate of liquid Ammonium Sulfate is recommended to improve weed control.

**Weeds Controlled:** For control of many annual and perennial grasses and broadleaf weeds, including some vines which may interfere with crop harvest.

**General Comments:** Higher application rates may be used with certain glyphosate products on non-Roundup Ready corn hybrids (consult label). Apply using either aerial or ground spray equipment. Make application at 35% or less grain moisture. Ensure that maximum kernel fill is complete and the corn is physiologically mature (i.e. black layer formed). Allow 7 days between application and harvest.

### 2,4-D AMINE or ESTER

2,4-D AMINE 1.5 to 2 pt/A or (2,4-D 0.75 to 1 lb ai/A) or  
2,4-D ESTER 1 to 2 pt/A (2,4-D 0.5 to 1 lb ai/A)  
[4 lb ai/gal formulations]

**Weeds Controlled:** Cocklebur, jimsonweed, common ragweed, velvetleaf and vines that interfere with crop harvest.

**Crop Stage:** As a preharvest treatment apply after hard dough or denting stage.

### PARAQUAT

GRAMOXONE SL 2.0 1.2 to 2 pt/A (paraquat 0.3 to 0.5 lb ai/A)  
FIRESTORM or PARAZONE 3S 0.8 to 1.3 pt/A

**Weeds Controlled:** For desiccation of broadleaf weeds and grasses.

**Crop Stage:** Make one application at least 7 days prior to harvest. Apply after the corn is mature and black layer has formed at the base of the kernels.

**Additives:** Apply with a Non-Ionic Surfactant at 0.25% v/v (1 to 2 pt/100 gal).

**General Comments:** GRAMOXONE INTEON and FIRESTORM are RESTRICTED-USE pesticides due to acute toxicity. Apply as a spray solution in a minimum of 20 gallons of water per acre.

**Environmental Statements:** Avoid spray particle drift to nearby crops and other sensitive vegetation.

**Rain Delay:** 15 to 30 minutes following application.

**Rotation Restrictions:** Any crop may be planted following normal corn growth and harvest.

**Harvest & Forage Restrictions:** 7 days.

## POSTHARVEST APPLICATIONS GLYPHOSATE

Glyphosate products labeled for Between Crop or Postharvest use in corn are listed below. SEE PAGE 22 FOR A DETAILED LIST OF GLYPHOSATE PRODUCTS. Always consult the product label for specific directions.

GLYPHOSATE [3 lb ae/gal formulation]* (4 lb ai/gal)	2 to 5 qt/A	[glyphosate 1.5 to 3.75 lb ae/A] (2 to 5 lb ai/A)
<b>Example products:</b> Roundup Original, and several other GLYPHOSATE products (SEE page 21).		
GLYPHOSATE [4 lb ae/gal formulation]* (5.4 lb ai/gal)	1.5 to 3.75 qt/A	[glyphosate 1.5 to 3.75 lb ae/A] (2 to 5 lb ai/A)
<b>Example product:</b> Duramax, Durango DMA,		
GLYPHOSATE [4.5 lb ae/gal formulation]* (5.5 lb ai/gal)	1.5 to 3.3 qt/A	[glyphosate 1.7 to 3.7 lb ae/A] (2 to 4.5 lb ai/A)
<b>Example products:</b> Roundup PowerMAX, Roundup WeatherMAX.		

**\*Additives:** Recommendations for use of non-ionic surfactants will vary depending on the Glyphosate product. Dry Ammonium Sulfate at 1 to 2% by weight (8.5 to 17 lb/100 gal) or an equivalent rate of liquid Ammonium Sulfate is recommended to improve weed control.

**Weeds Controlled:** Bindweeds, Canada thistle, honeyvine milkweed, johnsongrass, trumpetcreeper and other problem broadleaf weeds.

**REMARKS:** Rates depend on weed species present and their density. The higher rate is recommended when GLYPHOSATE is applied alone. GLYPHOSATE can also be tank mixed with DICAMBA at 0.25 lb ai/A (eg. CLARITY 0.5 pt/A) or 2,4-D at 0.5 lb ai/A (1 pt/A). Apply to actively growing weeds; therefore, allow sufficient time for weed regrowth after crop harvest. Do not disturb treated areas for at least 7 days following application. Avoid applications after plants have been exposed to a hard killing frost. Vines are best controlled when in or beyond full bloom stage.

## DICAMBA

DICAMBA 4S 4 to 32 oz/A (0.5 to 2 pt/A or (dicamba 0.25 to 1 lb ai/A)  
[eg. BANVEL, CLARITY, DIFLEXX, STERLING BLUE, VISION, etc.]

**Weeds Controlled:** Bindweeds, honeyvine milkweed, trumpetcreeper and other problem broadleaf weeds.

**REMARKS:** Rates depend on weed species present and their density. Dicamba can be tank mixed with 2,4-D (1 to 4 pt/A) Apply to actively growing weeds after crop harvest and before a killing frost. Vines are best controlled when in or beyond full bloom stage. Do not disturb treated areas for at least 7 days following application. Consult DICAMBA product label for crop rotation guidelines and other specific information.