



STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY
BOARD OF PESTICIDES CONTROL
28 STATE HOUSE STATION
AUGUSTA, MAINE 04333

4

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

To: Board of Pesticides Control Members
From: Mary Tomlinson, Pesticides Registrar/Water Quality Specialist
RE: Extension of EPA SLN ME-140002, Dual Magnum, EPA Reg. No. 100-816, to control yellow nutsedge and hairy galinsoga in asparagus, bell pepper, cabbage, carrots, garden beets, dry bulb onions, green onions, spinach, Swiss chard, and pumpkin
Date: May 26, 2020

Mark Hutton, Specialist at the University of Maine Cooperative Extension is requesting the SLN approved in 2014 be extended. No additional crops have been added and the covered crops do have established tolerances.

Control of yellow nutsedge (*Cyperus esculentis*) and hairy galinsoga (*Galinsoga cilita*) remains a significant problem for Maine small vegetable growers. This SLN affords growers a more effective and economical option over cultivation and hand weeding, according to Dr. Hutton.

The Section 3 label includes groundwater and surface water advisories. Metolachlor/S-metolachlor and the two primary degradates, metolachlor ESA and metolachlor OA, have occasionally been detected in ground water and surface water in Maine. This chemical is one of 57 pesticides of interest listed on the EPA Pesticides of Interest Tracking System (POINTS) through which states have been required to track water quality data. Maine first evaluated this chemical in 2012 and continues to do so yearly. Based on Maine data, neither metolachlor/s-metolachlor nor the degradates rise to the level of concern at this time.

Depending on soil type, metolachlor is mobile to highly mobile and is persistent in surface soils (EPA, 1995). Compared to metolachlor, S-metolachlor has a lower solubility and lower adsorption potential (KOC); thus, a greater potential to move through soil (Table). However, a much lower half-life in surface soil and an application rate that is approximately one-third lower than metolachlor indicate residues are less likely to appear in groundwater. In addition, the likely total acreage in Maine for the listed crops would be negligible as compared to the use of metolachlor in corn and potato production and the total pounds of material applied would be similarly negligible.

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WIN-PST Results

Name	PC_CODE	SOL	KOC	HL	PLP	PSRP
S-Metolachlor	108800	480	137	43	HIGH	HIGH
Metolachlor	108801	530	200	90	HIGH	HIGH

SOL – solubility

Koc – affinity to adsorb

HL – half-life in days

PLP – pesticide leaching potential

PSRP - Pesticide solution run-off potential

Pamela J. Bryer, Ph.D., BPC Toxicologist, reviewed the SLN for S-metolachlor and the EPA Draft Ecological Risk Assessment (Memo dated May 26, 2020). Because the EPA will soon be issuing a Proposed Interim Decision (PID) on the reregistration of these chemicals to address wildlife exposures and national water quality concerns which may impact labeling, she has proposed following four options:

- 1) wait until EPA has published the anticipated PID, scheduled for early 2020;
- 2) allow these SLN expanded vegetable uses but use rates that align with EPA’s recent ecological risk assessment findings;
- 3) issue a short-term SLN; or
- 4) a combination of the above.

Additional points to consider for options 1-3 above include the following.

- Option 1: The SLN is currently expired and not available for use by growers. However, delaying approval will result in an SLN reflective of the current science.
- Option 2: A revision in use rates requires a new SLN application. The necessary documents required for Board review can be obtained by the next Board meeting. The Board may also conditionally pre-approve the new SLN with the proposed use rates.
- Option 3: The board has issued new SLNs and extensions for one- and two-year periods as the situation has warranted.

Enclosed are supporting documents for your consideration to extend the SLN through December 31, 2024. Please let me know if you have any questions.

- Letter of request from Mark Hutton, Ph.D., Vegetable Specialist, University of Maine Cooperative Extension
- Memo from Pamela J. Bryer, Ph.D., BPC Toxicologist
- Letter of support from Pat Dinnen, Regulatory Manager, Syngenta Crop Protection, LLC
- Draft Maine Dual Magnum SLN label
- Dual Magnum Section 3 label

Citations



Highmoor Farm
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Monmouth, ME 04259-0179
207-933-2100
Fax 207-933-4647
ceshmf@umext.maine.edu

April 24, 2020

Mary Tomlinson
Pesticide Registrar/Water Quality Specialist
28 State House Station
Augusta, ME 04333-0028

Dear Mary,

I am writing to request expanding the current Dual Magnum (EPA 100-816), (EPA SLN ME-140002) registration for transplanted pepper and transplanted cabbage to include asparagus, transplanted bell pepper, cabbage, carrots, garden beets, dry bulb and green onions, spinach, Swiss chard, and pumpkins.

Yellow nutsedge (*Cyperus esculentus*) and hairy galinsoga (*Galinsoga ciliata*) are two of the most difficult weeds to control in vegetable crops, particularly in the crops listed above. The lack of effective chemical herbicides for these crop/weed combinations forces growers to rely on expensive cultivation or hand weeding operations. Metolachlor provides excellent control of these species and is very cost effective compared to cultivation and hand weeding.

The current label has worked extremely well for us and I feel that it is time to add additional crops to match the options that growers in New York and Massachusetts have available to them.

Sincerely,

A handwritten signature in black ink, appearing to read 'Mark Hutton'.

Mark Hutton, Ph.D.
Vegetable Specialist
Assoc. Professor Vegetable Crops
University of Maine Cooperative Extension
Highmoor Farm, P.O. Box 179
Monmouth, ME 04259-0179
mark.hutton@maine.edu

cc. Mary Tomlinson, Pesticide Registrar, Maine Board of Pesticide Control



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DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY
BOARD OF PESTICIDES CONTROL
28 STATE HOUSE STATION
AUGUSTA, MAINE 04333

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

Memorandum

To: Board of Pesticides Control
From: Pamela J. Bryer, Ph.D. | Toxicologist
Subject: Dual Magnum Special Local Need 24c Registration 2020 Review

May 26, 2020

Since 2014, Dual Magnum has been used in Maine under a Special Local Needs (SLN) 24c registration for the control of yellow nutsedge (*Cyperus esculentus*) and hairy galinsoga (*Galinsoga ciliate*) in transplanted pepper (bell), transplanted cabbage, asparagus, cabbage, carrots, garden beets, dry bulb and green onions, spinach, Swiss chard, and pumpkin. Following the last Maine SLN registration of this product EPA has produced a number of risk assessments and support documents in preparation for an upcoming Proposed Interim Decision (PID) on the reregistration for s-metolachlor, the active ingredient of Dual Magnum (83%).

EPA anticipates to publish a combined metolachlor & s-metolachlor (hereafter referred to as metolachlor) PID between April to June 2020. There are potential changes to current labeled uses in the upcoming PID based on new data detailed in the recent Draft Ecological Risk Assessment (EPA-HQ-OPP-2014-0772-0028). Specifically, while there were no acute risks noted, there were chronic risks to mammals for any single application greater than 1.25 lbs a.i./A and chronic risks at even lower application rates when multiple applications were modelled. Risks to mammals were found for every commodity and application method. Similarly, while there were no acute effects in birds, chronic effects were found at any single application rate greater than 1.7 lbs a.i./A or greater than 1.33 lbs a.i./A with multiple applications. In late 2014, EPA's Work Plan document for the currently awaited reregistration decision contained a call for additional data including quite a bit of data needed for environmental fate and transfer modeling. With additional fate and transfer data it is possible to better model expected environmental concentrations in terms of exposure concentrations and persistence in the environment.

Water Quality

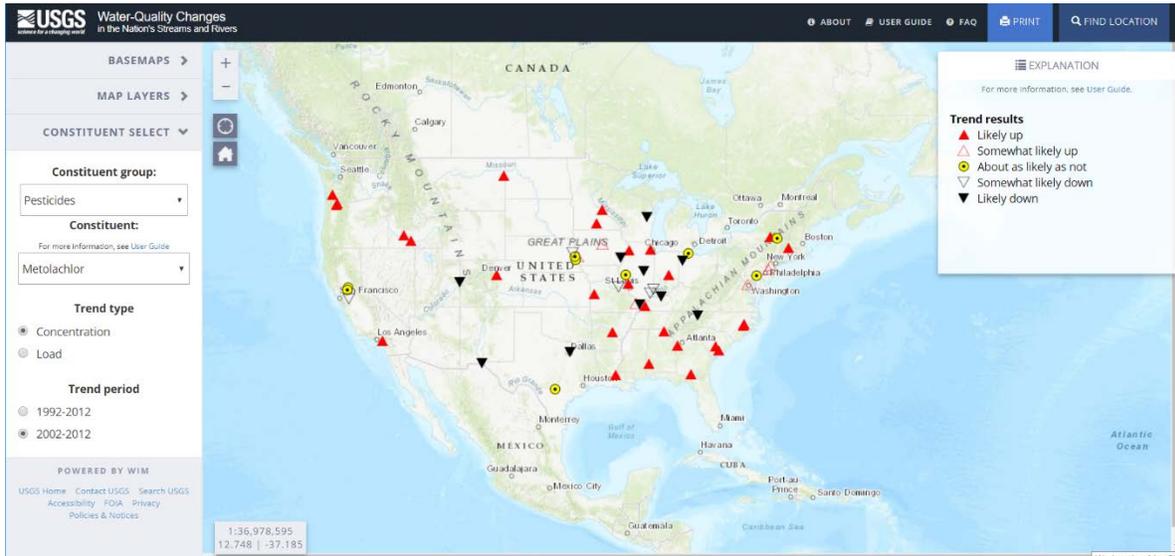
Metolachlor's potential for leaching is high due to its chemical properties. Metolachlor, s-metolachlor, and common metabolites are commonly found in surface and ground water

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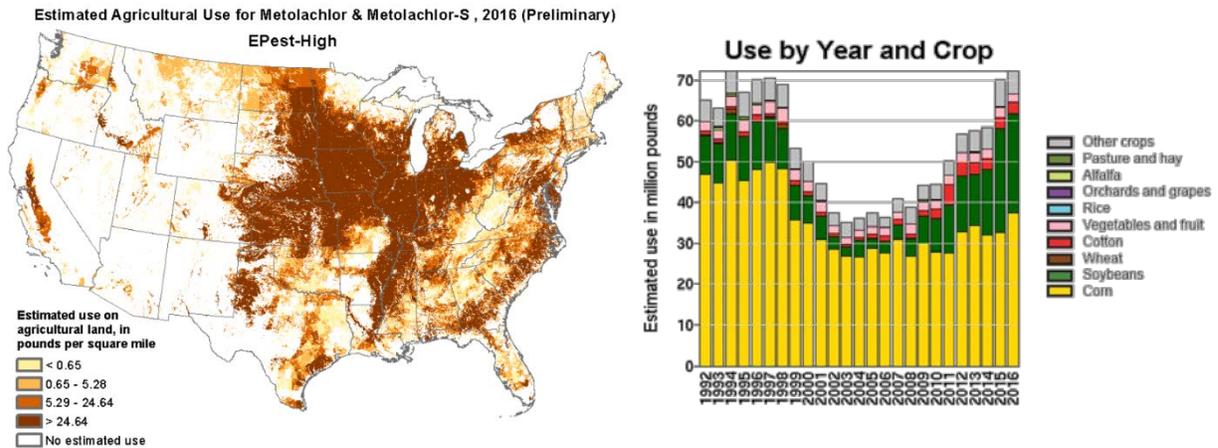


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surveys. Nationally there is a trend for increasing metolachlor to be found in surface waters (<https://nawqatrends.wim.usgs.gov/swtrends/>):



These detections are associated with surface water concentrations of up to 803.9 ug/L, though most are lower. The highest surface water detection from California’s sampling program was 28.5 ug/L (data from the 2019 Draft Ecological Risk Assessment <https://www.regulations.gov/document?D=EPA-HQ-OPP-2014-0772-0028>). These surface water detections reflect common national usage of metolachlor and s-metolachlor as seen in USGS agricultural usage estimates:



Despite these trends, regional surface water quality remains high and unlikely to be negatively affected by pesticides. Most of the surface water streams in the Northeastern area recently assessed by USGS had low predicted toxicity due to pesticides (<https://webapps.usgs.gov/rsqa/#!/results?regionId=NESQA>). Additionally, both freshwater and marine/estuarine aquatic organisms were considered to be not sensitive to metolachlor in the most recent Draft Ecological Risk Assessment.

Dual Magnum does have SLN registrations similar to this one in Massachusetts and New York. The listing for the New York registration notes this SLN registration is not allowed on Long Island.

In sum, the surface water risks from metolachlor are low: metolachlor is found in surface waters and its use is common, however, in New England we tend to have fewer pesticide-driven water quality issues and aquatic organisms are not particularly sensitive metolachlor.

Pesticide Residues

A survey of the past five years of USDA's Pesticide Data Program shows that metolachlor and associated forms have occurred as detectable residues in carrots, celery, cilantro, cucumbers, garbanzo beans, green beans, potatoes, spinach, tomatoes, and water. None of the detections have approached their respective tolerance level. For example, metolachlor has been detected in 0.7% of carrot samples with the highest residue of 0.059 ppm as compared to a root vegetable tolerance of 0.4 ppm. These data are searchable at: <https://apps.ams.usda.gov/pdp>. The EPA Draft Human Health Risk Assessment provides data demonstrating that residues on frozen food are stable for at least 17 months on plants and potentially longer for meat and meat by-products.

The EPA Draft Human Health Risk Assessment provides data on plant back intervals: 2 months for small grains that can be planted in fall, 7 months for small grains planted in spring, and 60 days for vegetable crops.

Cancer Designation

The most recent EPA Human Health Risk Assessment changes the cancer designation for metolachlor. Previously the designation was 'Group C -Possible Human Carcinogen', currently the designation is 'Not Likely to be Carcinogenic to Humans' at doses that do not induce cellular proliferation in the liver.

Bees (as surrogates for pollinators)

There is demonstrated low acute risk to honey bees. The overall risk to honey bee colonies is considered to be low, however, there are some known chronic risks under certain scenarios. There is a chronic risk to larval bee health under high exposures from bees foraging in the field and up to 59 feet from the edge of the field. This product is applied to prevent emergent weed growth placing its primary use prior to most bloom intervals. Nectar and pollen are potential sources for exposure from several honey bee attractive plants mentioned as part of this SLN request: asparagus, cabbage, Swiss chard, spinach, and root vegetables. These same plants are harvested prior to bloom. The risk is considered to be low to the colony because of the timing of use, the decomposition of the product over the season, and the use patterns of pollinators.

Risk Management

The focus of the risk concerns in EPA's newer risk assessment documents focus on wildlife exposures. There are data on residues on food commodities that demonstrate very low likelihood of risks in the food chain. Additionally, there are data on the potential for metolachlor for moving into surface and ground water. These newer data allow EPA to better understand this active ingredient and these new understandings will likely be reflected in new proposed registration language. In the meantime, the BPC would appear to have several options:

- 1) wait until EPA has published the anticipated PID, scheduled for early 2020;
- 2) allow these SLN expanded vegetable uses but use rates that align with EPA's recent ecological risk assessment findings;
- 3) issue a short-term SLN; or
- 4) a combination of the above.

If the Board is interested in allowing this SLN but modifying the rates to align with those mentioned in EPA's newest Draft Ecological Risk Assessment these are the modifications that would be needed:

Suggested revisions for uses proposed in this SLN:

No more than one application per year.

No more than 1.31 pts product/A for any application.

The current SLN label provides for the following:

The above changes will reduce maximum application rates for:

Asparagus (current label 1.3 to 2.0 pts/A),

Cabbage (current label 0.5 to 1.33 pts/A),

Carrot (current label 0.67 to 1.33 pts/A),

Dry Bulb Onions (current label fall: 1 to 1.33 pts/A, spring: not affected),

Green Onions (current label 0.67 to 1.33 pts/A),

Pumpkin (current label 0.67 to 1.33 pts/A).

The above changes will reduce the potential annual number of applications for:

Bell pepper,

Carrot,

Dry Bulb Onions,

Pumpkin,

Swiss Chard.

EPA's upcoming registration decision may not require these same application rate changes as different types of accommodations may be developed instead. These modifications above are a stopgap measure that allows Maine's 2020 growing season to progress, while the potential for undue environmental risk is better assessed.

Patricia (Pat) Dinnen
Regulatory Manager
State Registration/State
Affairs

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April 20, 2020

Ms. Mary E. Tomlinson
Pesticide Registrar and Water Quality Specialist
Board of Pesticides Control
ME Dept. of Agriculture
28 State House Station
Augusta, ME 04333-0028

Subject: EPA SLN No. ME-140002
Dual Magnum® Herbicide (EPA Reg. No. 100-816)
Active Ingredient: S-Metolachlor
Request to Renew SLN ME-140002 for Control of Weeds in Multiple Crops

Dear Ms. Tomlinson:

Syngenta Crop Protection, LLC respectfully requests the renewal of SLN ME-140002, Dual Magnum Herbicide for control of weeds in multiple crops. This SLN expires on December 31, 2019 and Syngenta wishes to renew for another five years. Besides some reformatting of this SLN label, a fourth bullet was added under the Directions for Use about the risk of crop injury when adjuvants are applied with Dual Magnum Herbicide. EPA has requested this statement be added to other Dual Magnum Herbicide SLN labels.

To support this request the following documents are enclosed:

- Updated SLN Label
- Dual Magnum® Herbicide Federal Label

If you have any questions please do not hesitate to call me at 336-632-2494 or email me at pat.dinnen@syngenta.com.

Sincerely,

A handwritten signature in cursive script that reads "Pat Dinnen".

Pat Dinnen
Regulatory Manager

Enclosures



Section 24(c) Special Local Need Label

FOR DISTRIBUTION AND USE ONLY WITHIN THE STATE OF MAINE

DUAL MAGNUM® HERBICIDE

FOR WEED CONTROL IN ASPARAGUS, BELL PEPPER, CABBAGE, CARROTS, GARDEN BEETS, DRY BULB ONIONS, GREEN ONIONS, SPINACH, SWISS CHARD, PUMPKIN

EPA Reg. No. 100-816
EPA SLN No. ME-140002

This label expires and must not be distributed or used in accordance with this SLN registration after December 31, 2024

SYNGENTA'S SPECIAL CONDITIONS, RISKS OF USE AND DISCLAIMER FOR USE OF DUAL MAGNUM HERBICIDE ON CROPS ON THIS 24(c) LABEL

IMPORTANT- READ BEFORE USE

THESE CONDITIONS RISKS OF USE AND DISCLAIMER ARE REQUIRED BY SYNGENTA CROP PROTECTION LLC AND NOT SPECIFIED BY U.S. EPA OR THE STATE OF MAINE

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, SYNGENTA CROP PROTECTION, LLC INTENDS THAT THE PRODUCT THAT IS THE SUBJECT OF THIS SECTION 24(c) LABEL BE PURCHASED ONLY BY END USERS WHO AGREE BY ELECTRONIC SIGNATURE ON SYNGENTA CROP PROTECTION'S INTERNET SITE TO THE TERMS AND CONDITIONS REQUIRED BY SYNGENTA CROP PROTECTION, LLC INCLUDING A WAIVER AND RELEASE FROM ALL LIABILITY AND INDEMNIFICATION BY THE USER AND/OR GROWER OF SYNGENTA AND OTHERS FOR FAILURE TO PERFORM AND FOR CROP INJURY, CROP YIELD REDUCTION, AND/OR CROP LOSS FROM USE OF DUAL MAGNUM HERBICIDE ON CROPS ON THIS 24(c) LABEL. IF SUCH TERMS AND CONDITIONS ARE UNACCEPTABLE, RETURN THE DUAL MAGNUM HERBICIDE AT ONCE UNOPENED OR USE THE DUAL MAGNUM HERBICIDE FOR A DIFFERENT APPROVED USE IN ACCORDANCE WITH THE LABEL AFFIXED TO THE PRODUCT CONTAINER.

USE OF DUAL MAGNUM HERBICIDE (THE "PRODUCT") ON CROPS LISTED (THE "CROP") FOR THIS SPECIAL LOCAL NEED MAY RESULT IN CROP INJURY, CROP YIELD REDUCTION AND/OR CROP LOSS AS FURTHER DISCUSSED BELOW. READ AND UNDERSTAND THESE CONDITIONS AND RISKS OF USE FOR SPECIAL LOCAL NEED BEFORE USING THE PRODUCT ON THE CROP. SYNGENTA RECOMMENDS THAT THE USER TEST THIS PRODUCT TO DETERMINE ITS SUITABILITY FOR SUCH INTENDED USE.

Syngenta Crop Protection, LLC makes the Product available for use in the manner described in this Supplemental Labeling on the basis that, in the sole opinion of the user, the benefits and utility derived from the use of the Product on the Crop outweigh the potential risk of Crop injury, Crop yield reduction or Crop loss.

The decision to use this Product in the manner described in this Supplemental Labeling must be made by each individual user on the basis of anticipated benefits versus (i) the potential risk of Crop injury, Crop yield reduction and Crop loss, (ii) the severity of the target pest infestation, (iii) the cost and availability of alternative pest controls and (iv) any other relevant factors. Syngenta recommends that the user test this Product to determine its suitability for such intended use.

By purchasing the Product for use, or using the Product in the manner described in this Supplemental Labeling, you acknowledge and accept that, to the extent consistent with applicable law:

- 1) you assume all risk of Crop injury, Crop yield reduction and Crop loss;
- 2) Syngenta Crop Protection, LLC do not make, and do not authorize any agent or representative to make, any representations or recommendations regarding the use of this Product on the Crop other than the statements on this Supplemental labeling;
- 3) Syngenta Crop Protection, LLC do not make, and do not authorize any agent or representative to make, any warranties, express or implied, with respect to the use of the Product on the Crop and disclaim all warranties, expressed or implied, including any implied warranty of merchantability;
- 4) Syngenta Crop Protection, LLC disclaim all liability for any damages, losses, expenses, claims or causes of actions arising out of or relating to Crop injury, Crop yield reduction and/or Crop loss;
- 5) these conditions and Risks of Use for Special Local Need supersede any contrary representations or recommendations by Syngenta Crop Protection, LLC or their respective agents or representatives, and any provisions in or on any Product literature or labeling including any provisions on the label affixed to the Product container.

If these Conditions and Risks of Use for Special Local Need are not acceptable, the unopened Product may be returned to the seller for a refund or used for a different labeled use in accordance with the label affixed to the Product container.

FAILURE TO FOLLOW THE DIRECTIONS FOR USE AND PRECAUTIONS ON THIS LABEL MAY RESULT IN POOR WEED CONTROL, CROP INJURY, OR ILLEGAL RESIDUES.

DIRECTIONS FOR USE

- It is a violation of Federal law to use this product in a manner inconsistent with its labeling.
- This label must be in the possession of the user at the time of application.
- Follow all applicable directions, restrictions, Worker Protection Standard requirements, and precautions on the EPA-registered label.
- The risk of crop injury increases when adjuvants (e.g., non-ionic surfactants, crop oils, etc.), nitrogen sources (e.g., AMS, UAN), fertilizers or other pesticides are applied with Dual Magnum Herbicide.

ASPARAGUS

Apply a single broadcast treatment of Dual Magnum Herbicide at 1.33 - 2.0 pt/A after the harvest season (i.e. post-harvest treatment), or to dormant established asparagus beds in the spring, prior to asparagus emergence. In that rate range, use lower rates on soils relatively coarse-textured and higher rates on fine-textured soils. A band application may also be used, applying proportionally less spray mixture on the area actually treated. Make uniform applications in a minimum of 15 gallons of water per treated acre. Dual Magnum Herbicide will not control emerged weeds. Control emerged weeds with an appropriate registered foliar herbicide or by mechanical or physical means.

Restrictions: (1) Make only one application per crop. (2) Do not harvest asparagus within 16 days following application.

Note: Applications of Dual Magnum Herbicide may cause significant injury to asparagus resulting in reduced yields. This product is available to the end user/grower solely to the extent that the benefit and utility, in the opinion of the end user/grower, outweigh the extent of potential injury associated with the use of this product. Due to the risk of crop damage, all such use is at the end user/grower's risk.

BELL PEPPER, TRANSPLANTED

Apply a single broadcast treatment of Dual Magnum Herbicide at 0.5 to 1.0 pt/A to the soil surface prior to transplanting or a broadcast application within 48 hours after transplanting bell pepper, but before weeds emerge. In that rate range, use lower rates on soils relatively coarse-textured and higher rates on fine-textured soils. Dual Magnum Herbicide will not control emerged weeds. Control emerged weeds with an appropriate registered foliar herbicide or by mechanical or physical means. Weed control may be reduced on muck soils.

Restrictions: (1) Do not incorporate. (2) Do not apply to direct seeded bell peppers. (3) Do not flood or sprinkler irrigate immediately following application. (4) Do not exceed more than 1.0 pt/A Dual Magnum Herbicide. (5) Do not harvest within 60 days of application.

Precautions: (1) In general, the risk of crop injury is less with post-transplant applications than from pretransplant surface applications, and the risk of crop injury is less with post-directed than from post over-the-top applications. To minimize the risk of crop injury, apply as a postdirected spray in a way that minimizes contact with the crop foliage. (2) Muck soils (>20%) normally require the higher use rate (1.0 pt/A), however, weed control may be reduced on muck soils. (3) The use addition of another registered herbicide as a tank mixture with Dual Magnum Herbicide will increase the risk of crop injury from postemergence applications. (4) The application of Dual Magnum Herbicide prior to bed formation may result in crop injury due to concentration of Dual Magnum Herbicide near the transplanted crop's root system.

Note: Applications of Dual Magnum Herbicide may cause significant injury to transplanted bell peppers resulting in reduced yields. This product is available to the end user/grower solely to the extent that the benefit and utility, in the opinion of the end user/grower, outweigh the

extent of potential injury associated with the use of this product. Due to the risk of crop damage, all such use is at the end user/grower's risk.

CABBAGE, DIRECT SEEDED AND TRANSPLANTED

Apply a single broadcast treatment of Dual Magnum Herbicide at 0.5-1.33 pt/A prior to transplanting or within 48 hours after transplanting, the latter often being less injurious. Apply to direct seeded cabbage only at the four-leaf stage. In that rate range, use lower rates on soils relatively coarse-textured and higher rates on fine-textured soils. Dual Magnum Herbicide will not control emerged weeds. Control emerged weeds with an appropriate registered foliar herbicide or by mechanical or physical means. Weed control may be reduced on muck soils.

Restrictions: (1) Make only one application per crop. (2) Do not incorporate Dual Magnum Herbicide. (3) Do not use in combination with Goal®. (4) Crop maturity may be delayed by Dual Magnum Herbicide application. (5) Do not harvest cabbage within 60 days following application.

Note: Applications of Dual Magnum Herbicide may cause significant injury to cabbage resulting in reduced yields. This product is available to the end user/grower solely to the extent that the benefit and utility, in the opinion of the end user/grower, outweigh the extent of potential injury associated with the use of this product. Due to the risk of crop damage, all such use is at the end user/grower's risk.

CARROTS

Carrots grown on mineral soils: Make a single broadcast application of Dual Magnum Herbicide at 0.67 – 1.33 pt/A preemergence to clean-tilled soil. Use lower rates on coarse-textured soils and higher rates on fine-textured soils. In general, the risk of crop injury from the use of Dual Magnum Herbicide on this crop is greater from preplant incorporated than from preplant non-incorporated or preemergence applications.

Note: (1) Do not apply more than 1.33 pt/A of Dual Magnum Herbicide per crop. (2) Harvest at normal maturity. (3) Do not apply to carrots grown on muck soils.

Precautions: To avoid crop injury, do not apply Dual Magnum Herbicide in areas where water is likely to "pond". To avoid concentration in the seed furrow, do not make broadcast applications of Dual Magnum Herbicide to carrots planted in furrows more than 2 inches deep. Band applications may be made to carrots planted in furrows deeper than 2 inches, but the band width should not exceed the width of the bottom of the furrow.

Note: Applications of Dual Magnum Herbicide may cause significant injury to carrots resulting in reduced yields. This product is available to the end user/grower solely to the extent that the benefit and utility, in the opinion of the end user/grower, outweigh the extent of potential injury associated with the use of this product. Due to the risk of crop damage, all such use is at the end user/grower's risk.

GARDEN BEETS

Make a single broadcast application of Dual Magnum Herbicide at a rate of 0.67 pt/A (0.64 lb ai/acre) to the soil surface after planting, but before the weeds or crop emerge (pre-emerge). For effective weed control, Dual Magnum Herbicide must be applied to clean-tilled soil where existing weeds are controlled by another labeled herbicide. Dual Magnum Herbicide will not control emerged weeds.

Make uniform applications in a minimum of 15 gallons of water per treated acre. A band application may also be used, applying proportionally less spray mixture on the area actually treated. Irrigate after application to activate the herbicide if rainfall is not expected. If the crop is irrigated, use 0.5 inches of water shortly after planting to incorporate the herbicide. Excessive irrigation may increase the risk of crop injury. Do not mechanically incorporate Dual Magnum Herbicide. **Do not use Dual Magnum Herbicide if the planting operation creates a furrow or trough over the seed-row into which rain or irrigation water will collect and thus concentrate the herbicide over the row.**

Restrictions and Precautions

- Do not use on coarse textured soils with less than 1.5% OM. Do not use on soils with greater than 10% OM.
- Do not exceed a total of 0.67 pt/A of Dual Magnum Herbicide in any single application, nor in total, per crop.
- Follow instructions for use of Dual Magnum Herbicide under Application Procedures on the EPA- registered label.
- Harvest at normal timing.

Note: Applications of Dual Magnum Herbicide may cause significant injury to crops on this label resulting in reduced yields. This product is available to the end user/grower solely to the extent that the benefit and utility, in the opinion of the end user/grower, outweigh the extent of potential injury associated with the use of this product. Due to the risk of crop damage, all such use is at the end user/grower's risk.

DRY BULB ONIONS

Fall Preplant Application

For pre-emergent control or suppression of yellow nutsedge the following spring in dry bulb onions apply 1 to 1.33 pt/A of Dual Magnum Herbicide in the fall after the harvest of the previous crop but before freeze-up. Fall applications of Dual Magnum Herbicide can be surface-applied or incorporated. To reduce the risk of crop injury apply at least 100 days prior to the planting of onion (seed, sets, or transplants).

Precautions: 1) In general, the risk of crop injury is greater on lighter textured soils and with higher application rates. 2) The addition of another registered herbicide as a tank mixture or in a program with Dual Magnum Herbicide can increase the risk of crop injury. 3) Deep tillage in the spring may reduce the effectiveness of fall applications.

Restrictions: (1) Make no more than one fall application per crop. (2) Apply not more than 1.33 pt/A in a single fall preplant application. (3) Do not apply this product, for this use, through any types of irrigation system. (4) Do not apply to frozen ground.

Note: Applications of Dual Magnum Herbicide may cause significant injury to dry bulb onions resulting in reduced yields. This product is available to the end user/grower solely to the extent that the benefit and utility, in the opinion of the end user/grower, outweigh the extent of potential injury associated with the use of this product. Due to the risk of crop damage, all such use is at the end user/grower's risk.

Postemergent Application to the Crop

For suppression and control of yellow nutsedge, grass, and some broadleaf weeds (see **Weeds Controlled** on the Dual Magnum Herbicide label), apply Dual Magnum Herbicide at the two (2) true leaf stage of onions at rates of 0.67 - 1.33 pints (0.64-1.27 lb active ingredient) per acre, depending on soil type and target weed. Use the lower rate on light, sandy soils and where a general weed spectrum is targeted. The higher rate will provide improved yellow nutsedge control, but comes with an increase risk of crop injury. One additional application of 0.67-1.33 pints may be applied 21 days or more after the first treatment, if needed, provided no fall preplant applications of Dual Magnum Herbicide were made. Dual Magnum Herbicide provides good to excellent control of yellow nutsedge. **If nutsedge is not a target weed delaying Dual Magnum Herbicide application until onions have three true leaves may reduce the risk of crop injury.**

Onion tolerance to Dual Magnum Herbicide increases with increasing onion size. However, growers must weigh the need to control early nutsedge flushes with the potential risk of crop injury.

Restrictions: (1) Do not apply within 60 days of harvest. (2) Do not harvest green onions. (3) Do not apply this product through any types of irrigation system. (4) Do not graze animals on green forage or stubble. (5) If a fall preplant application of Dual Magnum Herbicide was used for nutsedge, only one post-emergent application at a maximum rate of 1.33 pints/A is allowed. (6) Do not apply more than 2.66 pints per acre to dry bulb onions as a combined total across all application timings and use patterns to produce that crop.

GREEN ONIONS

Apply a broadcast application of Dual Magnum Herbicide at 0.67-1.33 pt/A postemergence at the two true-leaf stage of the green onions. In that rate range, use lower rates on soils relatively coarse-textured and higher rates on fine-textured soils. A band application may also be used, applying proportionally less spray mixture on the area actually treated. Make uniform applications in a minimum of 15 gallons of water per treated acre. Dual Magnum Herbicide will not control emerged weeds. Control emerged weeds with an appropriate registered foliar herbicide or by mechanical or physical means.

Precautions: (1) There is risk of crop injury from the use of Dual Magnum Herbicide on green onions. In general, the risk of crop injury is greater on lighter textured soils and with higher application rates. (2) The addition of another registered herbicide as a tank mixture with Dual Magnum Herbicide will increase the risk of crop injury.

Restrictions: (1) Make only one application per crop. (2) Do not harvest within 21 days of application.

Note: Applications of Dual Magnum Herbicide may cause significant injury to green onions resulting in reduced yields. This product is available to the end user/grower solely to the extent that the benefit and utility, in the opinion of the end user/grower, outweigh the extent of potential injury associated with the use of this product. Due to the risk of crop damage, all such use is at the end user/grower's risk.

SPINACH

Dual Magnum Herbicide will not control emerged weeds. For effective weed control, Dual Magnum Herbicide must be applied to clean-tilled soil.

Apply Dual Magnum Herbicide at a broadcast rate of 0.33 – 0.67 pt/A to the soil surface as a preemergence application i.e. prior to crop and weed emergence. In that rate range, use lower rates on soils relatively coarse-textured and higher rates on fine-textured soils. A band application may also be used if the crop is not planted in a trench or depressed bed, applying proportionally less spray mixture on the area actually treated. Dual Magnum Herbicide will not control emerged weeds. Control emerged weeds with an appropriate registered foliar herbicide or by mechanical or physical means. For irrigated spinach: Irrigate with sprinkler or by furrow irrigation within two days of Dual Magnum Herbicide application.

Restrictions: (1) Do not incorporate. (2) Do not apply this product through any type of irrigation system. (3) Only one application of Dual Magnum Herbicide permitted per spinach growing season on the same ground in one calendar year. (4) Do not exceed more than 0.67 pt/A Dual Magnum Herbicide. (5) Do not harvest within 50 days of application.

Note: Applications of Dual Magnum Herbicide may cause significant injury to spinach resulting in reduced yields. This product is available to the end user/grower solely to the extent that the benefit and utility, in the opinion of the end user/grower, outweigh the extent of potential injury associated with the use of this product. Due to the risk of crop damage, all such use is at the end user/grower's risk.

SWISS CHARD

Apply a single broadcast treatment of Dual Magnum Herbicide at 0.5 to 1.0 pt/A to the soil surface after planting, but before weeds or crop emerge (i.e., preemergence). In that rate range, use lower rates on soils relatively coarse-textured and higher rates on fine-textured soils. A band application may also be used, applying proportionally less spray mixture on the area actually treated. Dual Magnum Herbicide will not control emerged weeds. Control emerged weeds with an appropriate registered foliar herbicide or by mechanical or physical means.

Restrictions: (1) At application, do not exceed 40-psi spray nozzle pressure. (2) Do not apply when temperatures exceed 85°F. (3) Do not apply as a tank mixture with nitrogen or fertilizer solutions, or other pesticides, as injury to the crop may result. (4) Do not flood or sprinkler irrigate immediately following application. (5) Do not exceed a total of 1.4 pt/A per year. (6) Do not harvest within 62 days of application.

Note: Applications of Dual Magnum Herbicide may cause significant injury to Swiss chard resulting in reduced yields. This product is available to the end user/grower solely to the extent that the benefit and utility, in the opinion of the end user/grower, outweigh the extent of potential injury associated with the use of this product. Due to the risk of crop damage, all such use is at the end user/grower's risk.

PUMPKIN – DUAL MAGNUM HERBICIDE ALONE

Apply Dual Magnum Herbicide at a rate of 0.67 to 1.33 pt/A preemergence before crop or weeds have emerged, post-transplant (within 72 hrs) or postemergence to a crop having at least 4 true leaves following cultivation. Applications may be made broadcast or to row middles (inter-row). If Dual Magnum Herbicide is applied as a broadcast spray over the planted row or hill, injury to the pumpkin crop can occur. Under heavy rain conditions, pumpkins may show significant stunting. Low rates, needed for crop safety on low organic matter soils, may not provide season-long weed control. Use the lower Dual Magnum Herbicide rate on soils light in texture (loamy sand or lighter) and low in soil organic matter (less than 3%).

Restrictions:

1. Do not harvest pumpkins for 30 days following the application of Dual Magnum Herbicide.
2. Do not exceed 1.33 pt/A of Dual Magnum Herbicide per crop.
3. Do not apply during the fall or to frozen soils.

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24(c) Registrant:
Syngenta Crop Protection, LLC
P. O. Box 18300
Greensboro, NC 27419-8300

Label Code: ME0816019BA0819

Sale, use and distribution of this product in Nassau and Suffolk Counties in the State of New York is prohibited.

PULL HERE TO OPEN ►

GROUP 15 HERBICIDE



Dual Magnum[®]

Herbicide



syngenta[®]

For weed control in corn; cotton; grasses grown for seed; horseradish; peanuts; beans, peas, and lentils; potatoes; pumpkin; rhubarb; safflowers; sugar beets; sunflowers; sweet, grain or forage sorghum; soybean; soybean, immature seed; and tomatoes

Active Ingredient:

S-metolachlor (CAS No. 87392-12-9) 83.7%

Other Ingredients: 16.3%

Total: 100.0%

Dual Magnum is formulated as an Emulsifiable Concentrate (EC).

Dual Magnum contains 7.62 lb of active ingredient per gallon.

KEEP OUT OF REACH OF CHILDREN.

CAUTION

See additional precautionary statements and directions for use inside booklet.

EPA Reg. No. 100-816 EPA Est. 070989-IA-001

Product of Switzerland

Formulated in the USA

SCP 816A-L1W 0715

4059017

2.5 gallons

Net Contents



®

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

CAUTION

Causes moderate eye irritation. Harmful if swallowed or absorbed through skin. Avoid contact with eyes, skin, or clothing. May cause skin sensitization reactions in certain individuals.

FIRST AID

If in eyes	<ul style="list-style-type: none">• Hold eye open and rinse slowly and gently with water for 15-20 minutes.• Remove contact lenses if present, after the first 5 minutes, then continue rinsing eye.• Call a poison control center or doctor for treatment advice.
If on skin or clothing	<ul style="list-style-type: none">• Take off contaminated clothing.• Rinse skin immediately with plenty of water for 15-20 minutes.• Call a poison control center or doctor for treatment advice.
If swallowed	<ul style="list-style-type: none">• Call a poison control center or doctor immediately for treatment advice.• Do not give any liquid to the person.• Do not induce vomiting unless told to do so by the poison control center or doctor.• Do not give anything by mouth to an unconscious person.
If inhaled	<ul style="list-style-type: none">• Move person to fresh air.• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible.• Call a poison control center or doctor for further treatment advice.
Have the product container or label with you when calling a Poison Control Center or doctor, or going for treatment.	
HOT LINE NUMBER For 24 Hour Medical Emergency Assistance (Human or Animal) Or Chemical Emergency Assistance (Spill, Leak, Fire or Accident), Call 1-800-888-8372	

Personal Protective Equipment (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Chemical-resistant gloves, such as barrier laminate or Viton®
- Shoes plus socks

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

Engineering Control Statements

Mixers and loaders supporting aerial applications are required to use closed systems. The closed system must be used in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4-6)]. When using the closed system, the mixers' and loaders' PPE requirements may be reduced or modified as specified in the WPS.

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

continued...

PRECAUTIONARY STATEMENTS *(continued)*

User Safety Recommendations

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

Environmental Hazards

Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment wash water or rinsate.

Ground Water Advisory

The active ingredient in Dual Magnum has the potential to leach through soil into ground water under certain conditions as a result of agricultural use. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

Surface Water Advisory

The active ingredient in Dual Magnum has the potential to contaminate surface water through ground spray drift. Under some conditions, the active ingredient may also have a high potential for runoff into surface water (primarily via dissolution in runoff water) for several months post-application. These include poorly draining or wet soils with readily visible slopes toward adjacent surface waters, frequently flooded areas, areas overlaying extremely shallow ground water, areas with in-field canals or ditches that drain to surface water, areas not separated from adjacent surface waters with vegetated filter strips, and areas overlaying tile drainage systems that drain to surface water.

Mixing/Loading Instructions

Care must be taken when using this product to prevent back-siphoning into wells, spills, or improper disposal of excess pesticide, spray mixtures, or rinsates.

Check-valves or antisiphoning devices must be used on all mixing and/or irrigation equipment.

This product must not be mixed or loaded within 50 ft of perennial or intermittent streams and rivers, natural or impounded lakes and reservoirs. This product must not be mixed/loaded or used within 50 ft of all wells, including abandoned wells, drainage wells, and sink holes. Operations that involve mixing, loading, rinsing, or washing of this product into or from pesticide handling or application equipment or containers within 50 ft of any well are prohibited, unless conducted on an impervious pad constructed to withstand the weight of the heaviest load that may be positioned on or moved across the pad. Such a pad shall be designed and maintained to contain any product spills or equipment leaks, container or equipment rinse or wash water, and rain water that may fall on the pad. Surface water shall not be allowed to either flow over or from the pad, which means the pad must be self-contained. The pad shall be sloped to facilitate material removal. An unroofed pad shall be of sufficient capacity to contain at a minimum 110% of the capacity of the largest pesticide container or application equipment on the pad. A pad that is covered by a roof of sufficient size to completely exclude precipitation from contact with the pad shall have a minimum containment capacity of 100% of the capacity of the largest pesticide container or application equipment on the pad. Containment capacities as described above shall be maintained at all times. The above-specified minimum containment capacities do not apply to vehicles when delivering pesticide shipments to the mixing/loading site.

CONDITIONS OF SALE AND LIMITATION OF WARRANTY AND LIABILITY

NOTICE: Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

The Directions for Use of this product must be followed carefully. It is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as manner of use or application, weather or crop conditions, presence of other materials or other influencing factors in the use of the product, which are beyond the control of SYNGENTA CROP PROTECTION, LLC or Seller. To the extent consistent with applicable law, Buyer and User agree to hold SYNGENTA and Seller harmless for any claims relating to such factors.

SYNGENTA warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the Directions for Use, subject to the inherent risks referred to above, when used in accordance with directions under normal use conditions. To the extent consistent with applicable law: (1) this warranty does not extend to the use of the product contrary to label instructions or under conditions not reasonably foreseeable to or beyond the control of Seller or SYNGENTA, and, (2) Buyer and User assume the risk of any such use. To the extent consistent with applicable law, SYNGENTA MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS WARRANTED BY THIS LABEL.

To the extent consistent with applicable law, in no event shall SYNGENTA be liable for any incidental, consequential or special damages resulting from the use or handling of this product. **TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF SYNGENTA AND SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, SHALL BE THE RETURN OF THE PURCHASE PRICE OF THE PRODUCT OR, AT THE ELECTION OF SYNGENTA OR SELLER, THE REPLACEMENT OF THE PRODUCT.**

SYNGENTA and Seller offer this product, and Buyer and User accept it, subject to the foregoing Conditions of Sale and Limitation of Warranty and Liability, which may not be modified except by written agreement signed by a duly authorized representative of SYNGENTA.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Dual Magnum must be used only in accordance with directions on this label or in separately published EPA accepted supplemental labeling for this product.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 24 hours. Exception: If the product is soil-injected or soil-incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

continued...

AGRICULTURAL USE REQUIREMENTS *(continued)*

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water is:

- Coveralls
- Chemical-resistant gloves, such as barrier laminate or Viton
- Shoes plus socks

FAILURE TO FOLLOW THE DIRECTIONS FOR USE, RESTRICTIONS AND PRECAUTIONS ON THIS LABEL MAY RESULT IN POOR WEED CONTROL, CROP INJURY, OR ILLEGAL RESIDUES.

To avoid spray drift, do not apply under windy conditions. Avoid spray overlap, as crop injury may result.

Sale, use and distribution of this product in Nassau and Suffolk Counties in the State of New York is prohibited.

PRODUCT INFORMATION

Observe all precautions and restrictions on the labels of each product used in tank mixtures. Tank mixtures are permitted only in those states where the tank mix partner is registered. Refer to and follow the label for each tank mix product used for precautionary statements, directions for use, geographic and other restrictions.

Dual Magnum is a selective herbicide that can be applied as a preplant surface-applied, preplant incorporated, preemergence, or postemergence treatment for control of most annual grasses and certain broadleaf weeds in corn (all types); cotton; grasses grown for seed; peanuts; beans, peas, and lentils; potatoes; safflowers; sugar beets; sunflowers; grain or forage sorghum; soybeans; soybean, immature seed; and tomatoes.

Use Site Restriction: Do not use in nurseries, turf, or landscape plantings.

Do not apply under conditions which favor runoff or wind erosion of soil containing this product to nontarget areas.

To prevent off-site movement due to runoff or wind erosion:

- Avoid treating powdery dry or light sand soils when conditions are favorable for wind erosion. Under these conditions, settle the soil surface first by rainfall or irrigation.
- Do not apply to impervious substrates, such as paved or highly compacted surfaces.
- Do not use tailwater from the first flood or furrow irrigation of treated fields to treat nontarget crops, unless at least 1/2 inch of rainfall has occurred between application and the first irrigation.

Where directions specify a Dual Magnum tank mixture with AAtrex® formulations, other brands of atrazine may be used. Follow all use rates and other use restrictions on the AAtrex or respective atrazine product label if other brands of atrazine are used.

Note: Certain states may have established rate limitations for atrazine within specific geographical areas. Consult your state lead pesticide control agency for additional information. It is a violation of this label to deviate from state use regulations.

Precaution: Injury may occur following the use of Dual Magnum under abnormally high soil moisture conditions during early development of the crop.

SOIL TEXTURES AND HERBICIDE RATES

Where rates are based on coarse-, medium-, or fine-textured soils, it is understood that soil textural classes are generally categorized as follows:

Coarse	Medium	Fine	
Sand	Loam	Sandy clay loam	Sandy clay
Loamy sand	Silt loam	Silty clay loam	Silty clay
Sandy loam	Silt	Clay loam	Clay

Within rate ranges in the rate tables and elsewhere on this label, use the lower rate on soils relatively coarse-textured or low in organic matter; use the higher rate on soils relatively fine-textured or high in organic matter.

Dual Magnum may be applied preemergence alone, or in combination with tank mix partners specified on this label, following preplant incorporated herbicides when used according to their label use directions and restrictions, provided that such use is not prohibited on the respective labels.

Thoroughly clean sprayer or other application device before using. Dispose of cleaning solution in a responsible manner. Do not use a sprayer or applicator contaminated with any other materials, or crop damage or clogging of the application device may result.

DUAL MAGNUM APPLIED ALONE

WEEDS CONTROLLED

Dual Magnum is taken up by the shoots and/or roots of emerging weeds. This uptake results in the inhibition of shoot and root tissue growth soon after weed germination. Because of this, Dual Magnum will not control emerged weeds. Control weeds that are present by another means, e.g., mechanical means or by another herbicide.

If Dual Magnum is incorporated, do not exceed a 2-3 inch depth. Any tillage after the Dual Magnum incorporation and before planting may not exceed 2-3 inches, or the depth of incorporation.

Dry weather following application of Dual Magnum may reduce weed control. Cultivate if weeds develop.

Where reference is made to weeds partially controlled, partial control can either mean erratic control from good to poor, or consistent control at a level below that generally considered acceptable for commercial weed control. Control of these weeds can be erratic, due partially to variable weather conditions. The following procedures may improve the control of weeds listed as partially controlled in Table 1:

- Thoroughly till soil to destroy germinating and emerged weeds.
- Plant crop into moist soil immediately after tillage. If Dual Magnum is to be used preemergence, apply at planting or immediately after planting.
- If available, sprinkler irrigate within 2 days after application. Apply 1/2-1 inch of water. Use lower water volume (1/2 inch) on *coarse-textured soils* and higher volume (1 inch) on *fine-textured soils*. Also, refer to the section on **Center Pivot Irrigation Application** for this method of applying Dual Magnum.
- If irrigation is not possible and rain does not occur within 2 days after planting and application, weed control may be decreased. Under these conditions, make a uniform, shallow cultivation as soon as weeds emerge.

Table 1: Weeds Controlled or Partially Controlled by Dual Magnum Applied Prior to Weed Emergence

Common Name	Scientific Name	Weed Type	Control (C) or Partial Control (PC)
Barnyardgrass	<i>Echinochloa crus-galli</i>	Grass	C
Crabgrass, large	<i>Digitaria ischaemum</i>	Grass	C
Crabgrass, smooth	<i>Digitaria sanguinalis</i>	Grass	C
Crowfootgrass	<i>Dactyloctenium aegyptium</i>	Grass	C
Cupgrass, Prairie	<i>Eriochloa contracta</i>	Grass	C
Cupgrass, Southwestern	<i>Eriochloa acuminata</i>	Grass	C

continued...

Table 1: Weeds Controlled or Partially Controlled by Dual Magnum Applied Prior to Weed Emergence (continued)

Common Name	Scientific Name	Weed Type	Control (C) or Partial Control (PC)
Cupgrass, woolly	<i>Eriochloa villosa</i>	Grass	PC ¹
Foxtail, bristly	<i>Setaria verticillata</i>	Grass	C
Foxtail, giant	<i>Setaria faberi</i>	Grass	C
Foxtail, green	<i>Setaria viridis</i>	Grass	C
Foxtail, millet	<i>Setaria italica</i>	Grass	C
Foxtail, yellow	<i>Setaria pumila</i>	Grass	C
Goosegrass	<i>Eleusine indica</i>	Grass	C
Johnsongrass (seedling)	<i>Sorghum halepense</i>	Grass	PC
Millet, wild-proso	<i>Panicum miliaceum</i>	Grass	PC ¹
Panicum, fall	<i>Panicum dichotomiflorum</i>	Grass	C
Panicum, Texas	<i>Panicum texanum</i>	Grass	PC
Rice, red	<i>Oryza punctata</i>	Grass	C
Sandbur, field	<i>Cenchrus spinifex</i>	Grass	PC
Ryegrass, Italian	<i>Lolium multiflorum</i>	Grass	C
Sandbur, Southern	<i>Cenchrus echinatus</i>	Grass	PC
Shattercane	<i>Sorghum bicolor</i>	Grass	PC
Signalgrass, broadleaf	<i>Urochloa platyphylla</i>	Grass	C
Sorghum (volunteer)	<i>Sorghum bicolor</i>	Grass	PC
Witchgrass	<i>Panicum capillare</i>	Grass	C
Amaranth, Palmer	<i>Amaranthus palmeri</i>	Broadleaf	C
Amaranth, Powell	<i>Amaranthus powellii</i>	Broadleaf	C
Beggarweed, Florida	<i>Desmodium tortuosum</i>	Broadleaf	PC
Carpetweed	<i>Mollugo verticillata</i>	Broadleaf	C
Eclipta	<i>Eclipta prostrata</i>	Broadleaf	PC
Galinsoga, hairy	<i>Galinsoga quadriradiata</i>	Broadleaf	C
Galinsoga, smallflower	<i>Galinsoga parviflora</i>	Broadleaf	C
Nightshade, Eastern black	<i>Solanum ptychanthum</i>	Broadleaf	C
Nightshade, hairy	<i>Solanum physalifolium</i>	Broadleaf	PC
Pigweed, prostrate	<i>Amaranthus blitoides</i>	Broadleaf	C
Pigweed, redroot	<i>Amaranthus retroflexus</i>	Broadleaf	C
Pigweed, smooth	<i>Amaranthus hybridus</i>	Broadleaf	C
Pigweed, tumble	<i>Amaranthus albus</i>	Broadleaf	C

**Table 1: Weeds Controlled or Partially Controlled by Dual Magnum Applied Prior to Weed Emergence
(continued)**

Common Name	Scientific Name	Weed Type	Control (C) or Partial Control (PC)
Purslane, common	<i>Portulaca oleracea</i>	Broadleaf	PC
Pusley, Florida	<i>Richardia scabra</i>	Broadleaf	C
Spiderwort, tropical	<i>Commelina benghalensis</i>	Broadleaf	C
Waterhemp, common	<i>Amaranthus rudis</i>	Broadleaf	C
Waterhemp, tall	<i>Amaranthus tuberculatus</i>	Broadleaf	C
Nutsedge, yellow	<i>Cyperus esculentus</i>	Sedge	C

¹ Refer to the corn section of this label for additional use directions.

Weed Resistance Management

S-metolachlor, the active ingredient in this product, is a Group 15 herbicide based on the mode of action classification system of the Weed Science Society of America. Any weed population may contain plants naturally resistant to Group 15 herbicides. Such resistant weed plants may not be effectively managed using Group 15 herbicides but may be effectively managed utilizing another herbicide alone or in mixtures from a different group and/or by using cultural or mechanical practices. However, a herbicide mode of action classification by itself may not adequately address specific weeds that are resistant to specific herbicides. Consult your local company representative, state cooperative extension service, professional consultants or other qualified authorities to determine appropriate actions for treating specific resistant weeds.

Best Management Practices

Proactively implementing diversified weed control strategies to minimize selection for weed populations resistant to one or more herbicides is recommended. A diversified weed management program may include the use of multiple herbicides with different modes of action and overlapping weed spectrum with or without tillage operations and/or other cultural practices. Research has demonstrated that using the labeled rate and directions for use is important to delay the selection for resistance. Scouting after a herbicide application is important because it can facilitate the early identification of weed shifts and/or weed resistance and thus provide direction on future weed management practices. One of the best ways to contain resistant populations is to implement measures to avoid allowing weeds to reproduce by seed or to proliferate vegetatively. Cleaning equipment between sites and avoiding movement of plant material between sites will greatly aid in retarding the spread of resistant weed seed.

PREPLANT AND ROTATIONAL CROPS SECTION

Replanted Crop Directions:

This section covers replant crops that may be planted following a lost crop that has had an application of Dual Magnum.

If a crop treated with Dual Magnum is lost, any crop on this label, or on a supplemental Dual Magnum label, may be replanted immediately provided that the rate of Dual Magnum applied to the previous crop was not greater than the labeled rate for the crop to be replanted. If the first application was banded and the replant crop is planted in the center of the untreated bands, a second banded treatment may be applied at the rate for the use-pattern for the replant crop, provided the application does not overlap the first application band.

Rotational Crop Directions:

Do not rotate to food or feed crops other than those listed below. For all crops not listed, wait at least 12 months following the last application of Dual Magnum before planting.

Barley, oats, rye, or wheat may be planted 4 1/2 months following treatment.

Alfalfa may be planted 4 months following application. Clover may be seeded 9 months following application.

Restrictions: (1) Do not apply more than 1.9 lb active ingredient per acre (2.0 pt of Dual Magnum) in the previous crop. (2) Do not make lay-by or other postemergence applications of Dual Magnum in the previous crop.

Tobacco, buckwheat, and rice, may be planted in the next spring following treatment.

Below in the rotational crop subsections A through C is a listing of rotational crop options that are made possible through S-metolachlor tolerances which were established by the EPA as crop groupings.

Precaution: Rotating to crops within these crop groupings at less than 60 days may result in crop injury.

Restrictions: (1) Do not make a second application of a S-metolachlor containing product to the rotational crops listed in subsections A through C below within 60 days of the original application. (2) If the rate of Dual Magnum applied in the previous crops was greater than the rate listed here (Sections A-C below), these crops cannot be planted until the following spring.

- A. If not more than 1.33 pt/A of Dual Magnum was applied to the field, the following crops (as well as any listed under subsections B or C below) may be planted 60 days after the last application. A second application of a S-metolachlor containing product to the following crops is prohibited within 60 days of the original application.**

Crop Subgroup 1B Root Vegetables – garden beet, edible burdock, carrot, celeriac, turnip-rooted chervil, chicory, ginseng, horseradish, turnip-rooted parsley, parsnip, radish, oriental radish, rutabaga, salsify, black salsify, Spanish salsify, skirret, and turnip.

Crop Group 3 Bulb Vegetables (if to be harvested green) – garlic, great-headed garlic, leek, green onion, Welsh onion, shallot.

Winter squash (including pumpkins)

- B. If not more than 1.67 pt/A of Dual Magnum was applied to the field, the following crops (as well as any listed under subsection C below) may be planted 60 days after the last application. A second application of a S-metolachlor containing product to the following crops is prohibited within 60 days of the original application.**

Crop Group 8 Fruiting Vegetables, except Cucurbits – eggplant, groundcherry (*Physalis* spp.), pepino, peppers (bell, chili, cooking, pimento and sweet), tomatillo and tomato.

- C. If not more than 2.0 pt/A of Dual Magnum was applied to the field, the following crops may be planted 60 days after the last application. A second application of a S-metolachlor containing product to the following crops is prohibited within 60 days of the original application.**

Crop Subgroup 1C Tuberos and Corm Vegetables – arracacha, arrowroot, Chinese artichoke, Jerusalem artichoke, edible canna, bitter and sweet cassava, chayote (root), chufa, dasheen (taro), ginger, leren, potato, sweet potato, taniar, tumeric, yam bean, yam, true.

Crop Group 3 Bulb Vegetables (if to be harvested dry) – garlic, great-headed garlic, leek, dry bulb and green onion, Welsh onion, shallot.

Crop Subgroup 4B Leaf Petiole Vegetables – cardoon, celery, Chinese celery, celtuce, Florence fennel, rhubarb, and Swiss chard.

Crop Subgroup 5A Head and Stem Brassica Vegetables – broccoli, Chinese broccoli, brussel sprouts, cabbage, Chinese (napa) cabbage, Chinese mustard, cauliflower, cavalo broccolo and kohlrabi.

APPLICATION PROCEDURES

Application Timing

Dual Magnum alone or in tank mixtures with other labeled herbicides may be applied for weed control in certain crops at various times. Refer to the crop-specific use directions section of the label to determine which of the following application timings listed below are allowed.

- **Preplant Surface-Applied:** For minimum-tillage or no-tillage systems only, Dual Magnum alone and some Dual Magnum tank mixtures may be applied up to 45 days before planting certain crops. Use only split applications for treatments made 30-45 days before planting, with $\frac{2}{3}$ the listed broadcast rate for the crop and soil texture applied initially and the remaining $\frac{1}{3}$ at planting. Treatments less than 30 days before planting may be made either as a split or a single application. Refer to individual crop-specific use directions section on this label to determine if early preplant surface application may be made for that crop. If weeds are present at the time of treatment, apply in a tank mixture combination with a contact herbicide (for example, Gramoxone® brands, Touchdown® brands, or Roundup® brands). Observe directions for use, precautions, and restrictions on the label of the contact herbicide. To the extent possible, do not move treated soil out of the row or move untreated soil to the surface during planting, or weed control will be diminished.

- **Preplant Incorporated:** Apply Dual Magnum to the soil and incorporate into the top 2 inches of soil within 14 days before planting, using a finishing disk, harrow, rolling cultivator, or similar implement capable of providing uniform 2-inch incorporation. Use a preplant incorporated application if furrow irrigation is used or when a period of dry weather after application is expected. If crop will be planted on beds, apply and incorporate Dual Magnum after bed formation, unless specified otherwise.
- **Preemergence:** Apply Dual Magnum during planting (behind the planter) or after planting, but before weeds or crops emerge.
- **Postemergence:** Dual Magnum will not control emerged weeds. Control weeds that are present by another means, e.g., mechanical means or by another herbicide.

Special Application Procedures

- **CA Only (Corn; Safflowers; Beans, Peas, and Lentils): Preplant Incorporated:** Broadcast Dual Magnum alone or with tank mix partners listed on this label to the soil and thoroughly incorporate with a disk or similar implement set to till 4-6 inches deep. For more thorough incorporation, till the soil in 2 different directions (cross-till). Crops may be planted on flat surface or on beds. Use caution when forming the beds to ensure that only soil from the Dual Magnum treated zone is used (i.e., do not bring untreated soil to soil surface). If the application is made to preformed beds, incorporate Dual Magnum with a tillage implement set to till 2-4 inches deep. Use care during tilling to keep the tilled (Dual Magnum treated) soil on the beds. **Preemergence:** Apply Dual Magnum after planting. Water with sprinkler or flood irrigation within 7-10 days.

- **Fall Application for Spring Weed Control (Only in IA, MN, ND, SD, WI, and portions of NE and IL - See specific instructions in the Corn; Soybeans; and Beans, Peas, and Lentils sections of this label for timing of application and other information):** Use on medium and fine soils with greater than 2.5% organic matter that will be planted to corn or soybeans the next spring. Ground may be tilled before or after application. Do not exceed a 2 to 3-inch incorporation depth if tilled after treatment.

Restrictions: (1) Do not apply Dual Magnum to frozen ground. (2) If a spring application is made, the total rate of the fall plus spring applications must not exceed the maximum total rate for the specific crop planted.

- **Fall Application for Italian Ryegrass Control (Corn, Cotton, Grain and Forage Sorghum, and Soybean Only – See specific instructions in the Corn, Cotton, Grain and Forage Sorghum, and Soybean sections of this label for timing of application and other information):** Dual Magnum may be applied in the fall (September 1-December 1) for residual control of glyphosate-resistant Italian ryegrass (*Lolium multiflorum*). A tillage operation may precede the application. Do not incorporate to a depth greater than 2-3 inches if tillage follows the application of Dual Magnum. All crops on the Dual Magnum label may be planted the following spring after application. Refer to the crop sections on this label for specific directions.

Restrictions: (1) Do not apply Dual Magnum to frozen ground. (2) If a spring application is made, the combined total amount of Dual Magnum applied in the fall plus the spring must not exceed the maximum seasonal S-metolachlor rate for the specific crop planted.

Ground Application: Apply Dual Magnum alone or in tank mixtures by ground equipment in a minimum of 10 gal of spray mixture per acre, unless otherwise specified.

Use sprayers that provide accurate and uniform application. For Dual Magnum tank mixtures with wettable powder or dry flowable formulations, use screens and strainers no finer than 50-mesh. Rinse sprayer thoroughly with clean water immediately after use.

Calculate the amount of herbicide needed for band treatment by the formula:

$$\frac{\text{band width in inches}}{\text{row width in inches}} \times \begin{matrix} \text{broadcast rate} \\ \text{per acre} \end{matrix} = \begin{matrix} \text{amount needed} \\ \text{per acre of field} \end{matrix}$$

For information on applying in lower volumes of carrier, see **Low Carrier Application** section.

For application by air or through center pivot systems, see **Aerial Drift Management** and **Aerial Drift Reduction Advisory Information** sections.

For information on impregnating dry fertilizer, see **Dry Bulk Granular Fertilizers** section.

For information on application using variable-rate technologies, see **Variable-Rate Application** section.

SPRAY EQUIPMENT

LOW CARRIER APPLICATION

For Broadcast Ground Application Only

Use sprayers, such as Ag-Chem RoGator®, Hagie, John Deere Hi-Cycle™, Melroe Spra-Coupe, Tyler Patriot™, or Willmar Air Ride®, that provide accurate and uniform application. **Only water may be used as a carrier.** Use screens in suction and in-line strainers that are 50-mesh. Manufacturers may require that tip screens as fine as 100-mesh be used with some nozzles. Use a pump with capacity to: (1) maintain up to 35-40 psi at the nozzles, and (2) provide sufficient agitation in tank to keep mixture in suspension. Use a minimum of 5.0 gal of spray mixture per acre. To achieve best results, apply at a maximum sprayer speed of 15 mph. Rinse sprayer thoroughly with clean water immediately after each use.

Note: Low pressure nozzles will reduce drift and increase application accuracy. Use care when using automatic rate controlling devices to spray the material within the rated working pressure and flow ranges of the nozzles selected. Use nozzle screens when instructed by the manufacturer. Place all nozzles on 20-inch centers, except flooding types. Place flooding type nozzles on 40-inch centers. When Flat Fan-type nozzles are used, use angles of 80° or 110°. Always read and follow the manufacturer's directions for optimum setup and performance of their nozzles or tips.

AERIAL APPLICATION

Apply Dual Magnum in water alone or in tank mixtures with AAtrex, Lorox®, or TriCor® in a minimum total volume of 2.0 gal/A by aircraft. Dual Magnum may also be applied by air in combination with Balan®, Prowl®, or Treflan®. Avoid application under conditions where uniform coverage cannot be obtained or where excessive spray drift may occur. In order to assure that spray will be controllable within the target area when used according to label directions, make applications at a maximum height of 10 ft, using low-drift nozzles at a maximum pressure of 40 psi, and restrict application to periods when wind speed does not exceed 10 mph. To assure that spray will not adversely affect adjacent sensitive nontarget plants, apply Dual Magnum alone or Dual Magnum + AAtrex by aircraft at a minimum upwind distance of 400 ft from sensitive plants, or apply Dual Magnum, Lorox, or TriCor at a minimum upwind distance of 300 ft from sensitive plants.

Aerial Drift Management

The interaction of many equipment- and weather-related factors determine the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions.

The following drift management requirements must be followed to avoid off-target drift movement from aerial applications to agricultural field crops. These requirements do not apply to forestry applications, public health uses, or to applications using dry formulations.

- The distance of the outermost nozzles on the boom must not exceed $\frac{3}{4}$ the length of the wingspan or rotor.
- Nozzles must always point backward parallel with the air stream and never be pointed downward more than 45 degrees.

Where states have more stringent regulations, they must be observed.

Ensure that the applicator is familiar with and takes into account the information covered in the **Aerial Drift Reduction Advisory Information** section below.

Aerial Drift Reduction Advisory Information

Information on Droplet Size

The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see **Wind, Temperature and Humidity, and Temperature Inversions**).

Controlling Droplet Size

- **Volume** – Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.
- **Pressure** – Do not exceed the nozzle manufacturer's maximum pressures. For many nozzle types, lower pressure produces larger droplets. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.
- **Number of nozzles** – Use the minimum number of nozzles that provide uniform coverage.
- **Nozzle Orientation** – Orienting nozzles so that the spray is released parallel to the airstream produces larger droplets than other orientations and is the best practice. Significant deflection from horizontal will reduce droplet size and increase drift potential.
- **Nozzle Type** – Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift.

Application Height

Do not apply at a height greater than 10 ft above the top of the largest plants, unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

Swath Adjustment

When applications are made with a crosswind, the swath will be displaced downward. Therefore, on the upwind and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Increase swath adjustment distance with increasing drift potential (higher wind, smaller drops, etc.).

Wind

Drift potential is lowest between wind speeds of 2-10 mph. However, many factors, including droplet size and equipment type, determine drift potential at any given speed. If possible, avoid application below 2 mph due to variable wind direction and high inversion potential. **Note:** Local terrain can influence wind patterns.

Temperature and Humidity

When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is greatest when conditions are both hot and dry.

Temperature Inversions

If possible, avoid application during a temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

Sensitive Areas

Apply pesticides when the potential for drift to adjacent sensitive areas (e.g., residential areas, bodies of water, known habitat for threatened or endangered species, nontarget crops) is minimal (e.g., when wind is blowing away from the sensitive areas).

Avoid application to humans or animals. Flagmen and loaders must avoid inhalation of spray mist and prolonged contact with skin.

CENTER PIVOT IRRIGATION APPLICATION

Dual Magnum alone or in tank mixture with other herbicides on this label, which are registered for center pivot application, may be applied in irrigation water preemergence (after planting, but before weeds or crop emerge) at rates listed on this label. Dual Magnum also may be applied postemergence to the crop and preemergence to weeds in crops where postemergence applications are allowed on this label. Follow all restrictions (height, timing, rate, etc.) to avoid illegal residues. Apply this product only through a center pivot irrigation system. Do not apply this product through any other type of irrigation system. Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from nonuniform distribution of treated water. If you have questions about calibration, contact State Extension specialists, equipment manufacturers, or other experts. Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system, unless the pesticide label-prescribed safety devices for public water systems are in place. A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments when needed.

Operating Instructions

- The system must contain a functional check-valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water-source contamination from backflow.
- The pesticide injection pipeline must contain a functional, automatic, quick-closing check-valve to prevent the flow of fluid back toward the injection pump.
- The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
- Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump or piston pump), effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
- Do not apply when wind speed favors drift beyond the area intended for treatment.
- Prepare a mixture with a minimum of 1 part water to 1 part herbicide(s) and inject this mixture into the center pivot system. Injecting a larger volume of a more dilute mixture per hour will usually provide more accurate calibration of metering equipment. Maintain sufficient agitation to keep the herbicide in suspension.
- Meter into irrigation water during entire period of water application.
- Apply in 1/2-1 inch of water. Use the lower water volume (1/2 inch) on *coarse-textured soils* and the higher volume (1 inch) on *fine-textured soils*. More than 1 inch of water at application may reduce weed control by moving the herbicide below the effective zone in the soil.

Precaution for center pivot applications: Where sprinkler distribution patterns do not overlap sufficiently, unacceptable weed control may result. Where sprinkler distribution patterns overlap excessively, crop injury may result.

DRY BULK GRANULAR FERTILIZERS

Many dry bulk granular fertilizers may be impregnated or coated with Dual Magnum alone or selected Dual Magnum tank mixtures which are registered for preplant incorporated or preplant surface applications which are used to control weeds in crops on the Dual Magnum label and are not prohibited from use on dry bulk granular fertilizers.

When applying Dual Magnum or Dual Magnum mixtures with dry bulk granular fertilizers, follow all directions for use, restrictions and precautions on the respective product labels, regarding target crops, rates per acre, soil texture, application methods (including timing of application), and rotational crops.

All individual state regulations relating to dry bulk granular fertilizer blending, registration, labeling, and application are the responsibility of the individual and/or company selling the herbicide/fertilizer mixture.

Prepare the herbicide/fertilizer mixtures by using any closed drum, belt, ribbon, or other commonly used dry bulk fertilizer blender. Nozzles used to spray Dual Magnum and Dual Magnum mixtures onto the fertilizer must be placed to provide uniform spray coverage. Use care to aim the spray directly onto the fertilizer only and to avoid spraying the walls of the blender.

If the herbicide/fertilizer mixture is too wet, add a highly absorptive material, such as Agsorb® or Celatom MP-79®, or similar granular clay or diatomaceous earth materials, to obtain a dry, free-flowing mixture. Add absorptive materials only after the herbicide has been thoroughly blended into the fertilizer mixture. Best application results will be obtained by using a granule of 6/30 particle size or of a size similar to that of the fertilizer material being used. Generally, less than 2% by weight of absorptive material will be needed. Avoid using more than 5% absorptive material by weight.

Calculate amounts of Dual Magnum, AAtrex, AAtrex + Princep®, Balance® Pro, Princep, TriCor, or Sonalan® by the following formula:

$$\frac{2000}{\text{lb of fertilizer per acre}} \times \text{pt/A of liquid or flowable product} = \text{pt of liquid or flowable product per ton of fertilizer}$$

$$\frac{2000}{\text{lb of fertilizer per acre}} \times \text{lb/A of dry product} = \text{lb of dry product per ton of fertilizer}$$

Pneumatic (Compressed Air) Application (Dual Magnum Alone): High humidity, high urea concentrations, low fertilizer use rates, and dusty fertilizer may cause fertilizer mixture to build up or plug the distributor head, air tubes, or nozzle deflector plates. To minimize buildup, premix Dual Magnum with Exxon Aromatic 200 at a rate of 1.0-4.0 pt/gal of Dual Magnum. Aromatic 200 is a noncombustible/nonflammable petroleum product. Aromatic 200 may be used in either a fertilizer blender or through direct injection systems. Avoid drying agents when using Aromatic 200.

Precautions: (1) Use mixtures of Dual Magnum and Aromatic 200 on dry fertilizer only. Poor results or crop injury may result if these mixtures are used in water or liquid fertilizer solutions for spraying applications. (2) When impregnating Dual Magnum in a blender before application, a drier mixture can be attained by substituting a drying agent for Aromatic 200. Agsorb FG or drying agents of 6/30 particle size will provide best results. (3) When possible, avoid drying agents when using On-The-Go impregnation equipment.

Precautions: To avoid potential for explosion, (1) Do not impregnate Dual Magnum or Dual Magnum mixtures on ammonium nitrate, potassium nitrate, or sodium nitrate, either alone or in blends with other fertilizers. (2) Do not use Dual Magnum or Dual Magnum mixtures on straight limestone, since absorption will not be achieved. Fertilizer blends containing limestone can be impregnated.

Application

Apply 200-700 lb of the herbicide/fertilizer mixture per acre. For best results, apply the mixture uniformly to the soil with properly calibrated equipment immediately after blending. Uniform application of the herbicide/fertilizer mixture is essential to prevent possible crop injury. Nonuniform application may also result in unsatisfactory weed control. In areas where conventional tillage is practiced, a shallow incorporation of the mixture into the soil may improve weed control. On fine- or medium-textured soils in areas where soil incorporation is not planned, i.e., reduced tillage situations or in some conventional till situations, make applications approximately 30 days before planting to allow moisture to move the herbicide/fertilizer mixture into the soil. On coarse-textured soils, make applications approximately 14 days prior to planting.

Precaution: To avoid crop injury, do not use the herbicide/fertilizer mixture on crops where bedding occurs.

MIXING INSTRUCTIONS

Dual Magnum Alone: Mix Dual Magnum with water or fluid fertilizer and apply as a spray. Fill the spray tank 1/2-3/4 full with water or fluid fertilizer, add the proper amount of Dual Magnum, then add the rest of the water or fluid fertilizer. Provide sufficient agitation during mixing and application to maintain a uniform emulsion.

Tank Mixtures: Fill the spray tank $\frac{1}{4}$ full with water, and start agitation; add 2,4-D, AAtrex, Balance Pro, Balan, Banvel®, Basagran®, Butoxone®, Butyrac®, Canopy®, Caparol® 4L, Cotoran®, Eptam®, Liberty® Herbicide, Liberty ATZ Herbicide, Lorox, Marksman®, MSMA, Princep, Prowl, Pursuit®, AAtrex + Princep, Sonalan, Treflan, or TriCor and allow it to become dispersed; then add Dual Magnum; then add a Gramoxone brand, Landmaster® BW, Touchdown, or Roundup (glyphosate products) if these products are being used; and finally the rest of the water. For tank mixtures with AAtrex, Balance, Banvel, Canopy, Caparol 4L, Cotoran*, Eptam, Lorox, Marksman, Princep, Prowl*, Pursuit, AAtrex + Princep, Sonalan, Treflan, or TriCor fluid fertilizers may replace all or part of the water as carrier, except in the AAtrex postemergence and the Banvel postemergence tank mixes. For tank mixtures with AAtrex, see additional mixing instructions on the AAtrex label. For each mixture, check compatibility with fluid fertilizer, as described below, before mixing in spray tank. For all tank mixtures, agitate during mixing and application to maintain a uniform suspension.

*See **Special Mixing Instructions** for tank mixtures with Cotoran and with AAtrex or Princep + Prowl under the appropriate tank mixture section.

For directions on how to conduct a compatibility test, see the **Compatibility Test** section.

COMPATIBILITY TEST

To achieve best results, conduct a jar test before tank mixing to ensure compatibility of Dual Magnum with other pesticides. The following test assumes a spray volume of 25 gal/A. For other spray volumes, make appropriate changes in the ingredients.

Note: Nitrogen solutions or complete fluid fertilizers may replace all or part of the water in the spray. Because liquid fertilizers vary, even within the same analysis, **always check compatibility with pesticide(s) before use**. Incompatibility of tank mixtures is more common with suspensions of fertilizer and pesticides.

Test Procedure

1. Add 1.0 pt of carrier (fertilizer or water) to each of 2 one qt jars with tight lids. **Note:** Use the same source of water that will be used for the tank mix and conduct the test at the temperature the tank mix will be applied.
2. To one of the jars, add $\frac{1}{4}$ tsp or 1.2 milliliters of a compatibility agent approved for this use, such as Compex® or Unite® ($\frac{1}{4}$ tsp is equivalent to 2.0 pt/100 gal spray). Shake or stir gently to mix.
3. To both jars, add the appropriate amount of pesticide(s) in their relative proportions based on listed label rates. If more than one pesticide is used, add them separately with dry pesticides first, flowables next, and emulsifiable concentrates last. After each addition, shake or stir gently to thoroughly mix.
4. After adding all ingredients, put lids on and tighten, and invert each jar ten times to mix. Let the mixtures stand 15-30 minutes and then look for separation, large flakes, precipitates, gels, heavy oily film on the jar, or other signs of incompatibility. Determine if the compatibility agent is needed in the spray mixture by comparing the two jars. If either mixture separates, but can be remixed readily, the mixture can be sprayed as long as good agitation is used. If the mixtures are incompatible, test the following methods of improving compatibility: (a) Slurry the dry pesticide(s) in water before addition, or (b) add $\frac{1}{2}$ the compatibility agent to the fertilizer or water and the other $\frac{1}{2}$ to the emulsifiable concentrate or flowable pesticide before addition to the mixture. If incompatibility is still observed, do not use the mixture.
5. After compatibility testing is complete, dispose of any pesticide wastes in accordance with the **Storage and Disposal** section in this label.

CROP USE DIRECTIONS

CORN (ALL TYPES) – DUAL MAGNUM ALONE

Apply Dual Magnum, either preplant surface, preplant incorporated, preemergence, or lay-by, using the appropriate rate specified below.

PREPLANT SURFACE-APPLIED

Refer to instructions for use of Dual Magnum alone under **Application Procedures**.

Fall Application for Spring Weed Control:

- Apply after September 30 in ND, SD, MN, WI, and north of Route 30 in IA.
- Apply after October 15 north of Route 91 in NE and south of Route 30 in IA.
- Apply after October 31 north of Route 136 in IL.

In all locations, apply to crop stubble after harvest when the sustained soil temperature at a 4-inch depth is less than 55°F and falling. In minimum-till or no-tillage systems on soils having greater than 2.5% organic matter, use 1.67-2.0 pt/A on *medium-textured* and 2.0 pt/A on *fine-textured soils*. A tillage operation may precede the application. When a fall and/or a spring tillage follows application, avoid exceeding an incorporation depth greater than 2-3 inches. Minimize furrow and ridge formation in the tillage operations.

Restrictions: (1) Do not apply Dual Magnum to frozen ground. (2) If a spring application is made, the total rate of the fall plus spring applications must not exceed the maximum total rate for corn (3.9 pt/A depending on soil texture).

Fall Application for Italian Ryegrass Control: Dual Magnum may be applied for residual control of glyphosate-resistant Italian ryegrass (*Lolium multiflorum*). Apply Dual Magnum at 1.33-1.67 pt/A in the fall (September 1–December 1) after harvest of the previous crop and prior to Italian ryegrass emergence. Use the lower Dual Magnum rate for coarse-textured soils and the higher rate for fine-textured soils. A tillage operation may precede the application. If tillage follows the Dual Magnum application, avoid incorporating to a depth greater than 2-3 inches. For fall applications after emergence of glyphosate-resistant Italian ryegrass, a Gramoxone brand can be tank mixed with Dual Magnum to control emerged ryegrass. Refer to the Gramoxone brand label for specific rates, application instructions and restrictions. Other registered herbicides may be tank mixed with Dual Magnum for control or improved control of other weeds present at the time of application.

Restrictions: (1) Do not apply Dual Magnum to frozen ground. (2) If a spring application is made, the combined total amount of Dual Magnum applied in the fall plus the spring must not exceed the maximum seasonal S-metolachlor rate for corn (3.9 pt/A depending on soil texture).

Fall Application for Control or Suppression of Yellow Nutsedge (ID, OR and WA only): For preemergent control or suppression of yellow nutsedge the following spring, apply 1.33 pt/A of Dual Magnum in the fall after the harvest of the previous crop but before freeze-up. Fall applications of Dual Magnum can be surface-applied or incorporated.

Restrictions: (1) Make no more than one fall application per crop. (2) Apply no more than 1.33 pt/A in a single fall preplant application. (3) Do not apply to frozen ground. (4) If a spring application is made, the combined total amount of Dual Magnum applied in the fall plus the spring must not exceed the maximum seasonal S-metolachlor rate for corn (3.9 pt/A depending on soil texture).

Early Preplant Applications

- A. Use on medium- and fine-textured soils with minimum-tillage or no-tillage systems in CO, IA, IL, IN, KS, KY, MN, MO, MT, ND, NE, SD, TN, WI, and WY. Apply ²/₃ the listed rate of Dual Magnum (1.67 pt/A on *medium soils* and 2.0 pt/A on *fine soils*) as a split treatment 30-45 days before planting and the remainder at planting. Applications made less than 30 days prior to planting may be as either a split or single treatment. Apply 1.33 pt/A on *coarse soils* not more than 2 weeks prior to planting.
- B. On medium- and fine-textured soils with minimum- or no-tillage systems in CT, DE, MA, MD, ME, MI, NH, NY, OH, PA, RI, VA, VT, and WV, preplant surface applications may be applied following the directions for use above. If the amount of rainfall results in unsatisfactory length of weed control following the earlier treatment, a postemergence application of an appropriately labeled broadleaf and/or grass weed herbicide may be used, i.e., AAtrex, Beacon®, Bicep Magnum®, Bicep II Magnum®, Exceed®, Accent®, Banvel, Basagran, bromoxynil (Brominal® or Buctril®), or 2,4-D. Observe all directions for use, precautions, and restrictions on the label of the postemergent herbicide.

PREPLANT INCORPORATED OR PREEMERGENCE

Follow instructions for use of Dual Magnum alone under **Application Procedures**. On *coarse soils*, apply 1.0-1.33 pt/A of Dual Magnum if organic matter content is less than 3%, or 1.33 pt/A if organic matter content is 3% or greater. On *medium soils*, apply 1.33-1.67 pt/A of Dual Magnum. On *fine soils*, apply 1.33-1.67 pt/A of Dual Magnum if organic matter content is less than 3%, or 1.67-2.0 pt/A if organic matter content is 3% or greater.

Restrictions for all preplant and preemergence corn applications: (1) If a spring application is made, the total rate of the fall plus spring application must not exceed the maximum total rate for corn (3.9 pt/A depending on soil texture). (2) If a postemergence treatment is made and includes the herbicide used preplant surface-applied, do not exceed the total labeled rate for corn on a given soil texture.

POSTEMERGENCE OR LAY-BY

To extend the duration of weed control in corn, a maximum rate of 2.0 pt/A of Dual Magnum may be applied after corn emergence until the corn plants reach 40 inches in height, following any preplant surface-applied, preplant incorporated, or preemergence herbicide application, including Dual Magnum. For best results, make applications to soil free of emerged weeds and directed toward the base of corn plants in excess of 5 inches tall.

Restrictions for all applications to corn: (1) Preharvest Interval (PHI): Do not harvest sweet corn ears from treated areas for 30 days following application. (2) Do not graze or feed forage from treated areas for 30 days following application. (3) The total Dual Magnum rate applied on corn during any one crop year must not exceed the maximum total rate for corn (3.9 pt/A depending on soil texture).

PROBLEM WEED CONTROL DIRECTIONS

Shattercane, Wild Proso Millet, Woolly Cupgrass, and Eclipta – Partial Control: For more consistent partial control of shattercane, wild proso millet, woolly cupgrass, or eclipta, apply 1.0-1.33 pt/A of Dual Magnum preplant incorporated followed by 1.0-1.33 pt/A of Dual Magnum preemergence. Make the preemergence application during or after planting, but before weeds and corn emerge. Apply the 1.33 pt/A rate of Dual Magnum when a heavy infestation of shattercane, wild proso millet, woolly cupgrass, or eclipta is expected. A shallow cultivation may be needed to control any late emerging weeds.

Woolly Cupgrass and Wild Proso Millet Control Program: For control of these species, use the following 3-step program: (1) Apply Dual Magnum early preplant, preplant incorporated, or preemergence at 1.67 pt/A on *medium soils* and 2.0 pt/A on *fine-textured soils*, up to the maximum label rate. Lightly incorporate with a rotary hoe if rainfall does not occur within 5-7 days; (2) Apply a postemergence tank mix of Beacon at 0.38 oz/A or Exceed at 1 packet per 4 acres plus Accent SP at 0.33 oz/A plus 1.0 qt of crop oil concentrate plus 1.0 gal/A of 28% nitrogen, or the equivalent amount of ammonium sulfate, when grasses are 2-3 inches tall and the corn is at least 4 inches tall; and (3) Cultivate 14-21 days after the postemergence application.

In corn, Dual Magnum may be used up to 2.6 pt/A as either a preplant surface, preplant incorporated, or preemergence treatment on soils having an organic matter content between 6% and 20%. In the event of escape of annual weeds following a preplant surface, preplant incorporated, or preemergence treatment of Dual Magnum, follow with a post-emergence application of an appropriately labeled broadleaf and/or grass weed herbicide, i.e., AAtrex, Beacon, Bicep II Magnum, Exceed, Accent, Banvel, Basagran, Brominal, Buctril, or 2,4-D. Brominal or Buctril may be applied postemergence alone or in tank mix combination with AAtrex. Refer to the labels of all herbicides applied postemergence and follow all directions for use, restrictions and precautions.

Restrictions: (1) Do not apply more than the labeled application rate for a given soil texture per year, either as a single or split treatment. (2) If the postemergence treatment includes the herbicide used in the earlier treatment, do not exceed the total labeled rate for corn on a given soil texture. (3) Do not exceed 1.2 lb ai/A of AAtrex in tank mix combination with Brominal or Buctril postemergence. (4) Do not use Dual Magnum on peat or muck soils.

CORN – DUAL MAGNUM COMBINATIONS

Dual Magnum in any tank mixture for corn may be applied in water or fluid fertilizer before corn emerges. Use only water as a carrier when Dual Magnum is applied after corn emergence.

Restrictions: For all applications to corn, (1) Preharvest Interval (PHI): Do not harvest sweet corn ears from treated areas for 30 days following application. (2) Do not graze or feed forage from treated areas for 30 days following application.

IMPORTANT: FOR TANK MIXTURES WITH AATREX (OR OTHER BRANDS OF ATRAZINE) – If applying Dual Magnum in tank mixture with AAtrex, all the restrictions and rate limitations on the AAtrex label must be followed if more restrictive/ protective than those on this label. In addition, if AAtrex is/must be applied at rates lower than those listed on this label, broadleaf weed control may be affected. Refer to the AAtrex label for weeds controlled at the reduced rates.

Table 2: Dual Magnum Tank Mixtures for Corn – Additional Weeds Controlled and Special Instructions

	Dual Magnum + AAtrex and/or Princep (Preplant Surface, PPI, PRE)	Dual Magnum + AAtrex (Post)	Dual Magnum + Banvel (Field Corn)	Dual Magnum + AAtrex + Lorox	Dual Magnum + AAtrex or Princep + Prowl	Dual Magnum + Marksman	Dual Magnum + Balance Pro*
Special Mixing Instructions					1		
Comments	2,3,4,5,7,8	2,3,4,5		2,3,4,5,6	2,3,4,5	7	2,3,7
Browntop panicum	●			●	●		
Cocklebur	●	○	○	●	●	●	
Common purslane	●			●	●	●	●
Hairy nightshade	●			●	●	●	
Jimsonweed		●	○			●	●
Kochia		●				●	●
Lambsquarters	●	●	●	●	●	●	●
Morningglory	●	○	○	●	●	●	
Mustard		●				●	●
Pigweed				●	●	●	●
Prickly sida		●				●	
Ragweed	●	●	●	●	●	●	●
Smartweed	●	●	●	●	●	●	●
Velvetleaf	●	●	○	●	●	●	○-●

● = control; ○ = partial control; ○-● = partial to full control depending on ratio of products used or on weed population

*Field corn only

Comments

1. **Special Mixing Instructions for Dual Magnum + AAtrex or Princep and Prowl:** (A) Fill the spray tank $\frac{1}{4}$ full with water or fluid fertilizer and start agitation. (B) To aid compatibility, add a compatibility agent, such as Unite or X-77®, at 4.0 pt/100 gal of spray mixture. (C) Then add the AAtrex or Princep and allow it to become dispersed. (D) Then add Dual Magnum and Prowl 4E. (E) Add the rest of the water.
2. Although a single formulation for AAtrex or Princep is listed in the rate tables, other formulations may be substituted, using the following formula:
 - 1.0 lb of AAtrex Nine-O® or Princep® Caliber 90® = 1.8 pt of AAtrex 4L or Princep 4L.
3. Although directions specify AAtrex formulations in tank mixture with Dual Magnum, other brands of atrazine may be used. Follow the rates and other use directions and restrictions on the atrazine label.
4. See additional mixing instructions on the AAtrex label.
5. Do not exceed a total of 2.5 lb ai of atrazine per acre per year. However, certain states may have established rate limitations for atrazine within specific geographical areas. Consult your state lead pesticide control agency for additional information. It is a violation of this label to deviate from state use regulations.
6. Other formulations of Lorox can be used: 1.0 lb of Lorox DF = 1.0 pt of Lorox L.
7. In Minimum-Tillage and No-Tillage systems, mix with a Gramoxone brand herbicide for control of most emerged annual weeds and suppression of perennial weeds; or with Landmaster BW for suppression of emerged field bindweed and control or suppression of annual weeds; or with Touchdown brands or Roundup brands for control of most emerged annual and perennial weeds.
8. Refer to the **Corn – Dual Magnum Combinations – Tank Mixture with AAtrex or AAtrex + 2,4-D; or AAtrex + 2,4-D + Banvel for Minimum Tillage or No-Tillage Systems** section for specific directions for 2,4-D or Banvel burndown combinations with Minimum-Tillage and No-Tillage systems.

Dual Magnum in any tank mixture for corn may be applied in water or fluid fertilizer, except as noted. Refer to **Corn (All Types) – Dual Magnum Alone**, for directions for sequential postemergence treatments if escape weeds develop.

Restrictions: (1) Preharvest Interval (PHI): For all applications to corn, do not graze or feed forage from treated areas for 30 days following application and do not harvest sweet corn ears from treated areas for 30 days following application. (2) When applying Dual Magnum in tank mixture with AAtrex, do not exceed a total of 2.5 lb ai of atrazine per acre per year.

TANK MIXTURE WITH AATREX OR PRINCEP, OR AATREX + PRINCEP – PREPLANT SURFACE, PREPLANT INCORPORATED, OR PREEMERGENCE

In addition to the weeds controlled by Dual Magnum alone, Dual Magnum + AAtrex or Princep, or Dual Magnum + AAtrex + Princep, applied preplant surface, preplant incorporated, or preemergence, also controls the following weeds: browntop panicum, cocklebur, common purslane, hairy nightshade, lambsquarters, morningglory, ragweed, smartweed, and velvetleaf.

Apply Dual Magnum + AAtrex or Princep, or Dual Magnum + AAtrex + Princep either preplant surface, preplant incorporated, or preemergence.

Preplant Surface-Applied: Follow instructions for use of Dual Magnum alone under **Application Procedures** and under application instructions for Dual Magnum alone on corn. Apply Dual Magnum + AAtrex or Princep, or Dual Magnum + AAtrex + Princep on *medium soils* (1.67 pt/A of Dual Magnum + 3.2-4.0 pt/A of AAtrex 4L or Princep 4L, or AAtrex 4L + Princep 4L combined) and on *fine soils* (1.67-2.0 pt/A of Dual Magnum + 4.0 pt/A of AAtrex 4L or 4.0-5.0 pt/A of Princep 4L, or AAtrex 4L + Princep 4L combined) in minimum-tillage and no-tillage systems in CO, IA, IL, IN, KS, KY, MN, MO, MT, ND, NE, SD, TN, WI, and WY. Apply the tank mixtures as a split or single treatment in those states and as indicated in the **Dual Magnum Alone – Preplant Surface-Applied** section of the label for corn. On *coarse soils*, apply 1.33 pt/A of Dual Magnum and 3.2 pt/A of AAtrex 4L or Princep 4L, or AAtrex 4L + Princep 4L combined.

Preplant Incorporated or Preemergence: Follow instructions for use of Dual Magnum alone under **Application Procedures**. Apply Dual Magnum + AAtrex or Princep, or Dual Magnum + AAtrex + Princep, using the appropriate rates from Table 3.

Restriction: Do not apply more than the labeled rate for a given soil texture per year, either as a split or single treatment.

Shattercane and Wild Proso Millet – Partial Control

For more consistent partial control of shattercane or wild proso millet, where Dual Magnum is applied in tank mixture or sequentially with other registered corn herbicides, the following applications may be made:

- Apply 1.0-1.33 pt/A of Dual Magnum + 2.0 lb ai/A of AAtrex or Princep preplant incorporated, followed by 1.0-1.33 pt/A of Dual Magnum preemergence. Make the preemergence application during or after planting, but before weeds and corn emerge.
- Apply Dual Magnum at 1.33 pt/A alone or in tank mix combination with up to 2.0 lb ai/A of AAtrex or Princep preplant incorporated. Do not exceed the total rate of triazine herbicide listed in combination with Dual Magnum for corn grown on a given soil texture. Follow with a post-directed application of Evik® 80W at the labeled rate. Refer to the Evik 80W label for specific directions for the post-directed application.
- Apply Eradicane® (or equivalent EPTC or butylate formulations) at labeled rates preplant incorporated, followed by a preemergence application of Dual Magnum at 1.0-1.33 pt/A. Do not use Eradicane on soils where rapid degradation has been shown to occur. Make the preemergence application during or after planting, but before weeds and corn emerge.

Precaution: When following the application regimes in numbers 1-3 above, a shallow cultivation may be needed after the preemergence or postemergence application to help control any late emerging shattercane or wild proso millet plants.

Restriction: Do not exceed a total of 1.9 lb ai/A (2.0 pt of Dual Magnum) in the preplant incorporated plus preemergence application on soils with less than 6% organic matter.

Table 3: Dual Magnum + AAtrex or Princep, or Dual Magnum + AAtrex + Princep, Preplant Incorporated or Preemergence – Corn (All Types)

Soil Texture	Broadcast Rates Per Acre					
	<3% Organic Matter			3% Organic Matter or Greater		
	Dual Magnum + AAtrex Nine-O* or Princep Caliber 90*	or	Dual Magnum + AAtrex Nine-O** + Princep Caliber 90**	Dual Magnum + AAtrex Nine-O* or Princep Caliber 90*	or	Dual Magnum + AAtrex Nine-O** + Princep Caliber 90**
Coarse	0.8-1.0 pt + 1.1-2.2 lb		0.8-1.0 pt + 0.6-1.1 lb + 0.6-1.1 lb	1.0 pt + 1.3-2.2 lb		1.0 pt + 0.7-1.1 lb + 0.7-1.1 lb
Medium	1.0-1.33 pt + 1.3-2.2 lb		1.0-1.33 pt + 0.7-1.1 lb + 0.7-1.1 lb	1.33 pt + 1.8-2.2 lb		1.33 pt + 0.9-1.1 lb + 0.9-1.1 lb
Fine	1.33 pt + 1.8-2.2 lb		1.33 pt + 0.9-1.1 lb + 0.9-1.1 lb	1.33-1.67 pt + 1.8-2.2 lb***		1.33-1.67 pt + 0.9-1.1 lb*** + 0.9-1.1 lb***
Muck or Peat (soils with >20% organic matter)	DO NOT USE					

continued...

*Use Princep in preference to AAtrex when heavy infestations of crabgrass or fall panicum are expected. On soils having between 6% and 20% organic matter, Dual Magnum may be used up to 2.33 pt/A in tank mix combination with 2.2 lb/A of AAtrex Nine-O, or equivalent rates of AAtrex 4L. Refer to the AAtrex label for weeds controlled at this reduced rate.

**When using the tank mixture of Dual Magnum + AAtrex Nine-O + Princep Caliber 90, use equal rates of each as shown when heavy broadleaf weed infestations are expected. When heavy infestations of crabgrass or fall panicum are expected, use a 1:2 ratio of AAtrex + Princep instead of the 1:1 ratio given in Table 3. (Example: Total AAtrex Nine-O + Princep Caliber 90 = 1.2 lb/A, use 0.4 lb of AAtrex + 0.8 lb of Princep, respectively.) Refer to Comment No. 2 following Table 2 for AAtrex 4L and Princep 4L conversions.

***For cocklebur, yellow nutsedge, and velvetleaf control on *fine-textured soils* above 3% organic matter, apply 2.25 lb/A of AAtrex Nine-O, or equivalent rates of AAtrex 4L, or the same total amount of AAtrex + Princep with 1.33-1.67 pt/A of Dual Magnum.

TANK MIXTURE WITH AATREX – POSTEMERGENCE

Weeds Controlled		Weeds Partially Controlled		
Barnyardgrass (watergrass)	giant foxtail	lambsquarters	ragweed	cocklebur
crabgrass	green foxtail	mustard	smartweed	morningglory
crowfootgrass	yellow foxtail	pigweed	velvetleaf	yellow nutsedge
fall panicum	jimsonweed	prickly sida		
	kochia	purslane		

Apply 1.0 pt/A of Dual Magnum + 1.3 lb/A of AAtrex Nine-O* on *coarse soils*, 1.33 pt/A of Dual Magnum + 1.8 lb/A of AAtrex Nine-O on *medium soils*, or 1.33-1.67 pt/A of Dual Magnum + 1.8-2.2 lb/A** of AAtrex Nine-O on *fine soils*. Apply this tank mixture before grass and broadleaf weeds pass the 2-leaf stage and before corn exceeds 5 inches in height. Application to weeds larger than the 2-leaf stage will generally result in unsatisfactory control.

Lay-by: Apply to corn plants not more than 12 inches tall. Make applications to corn in excess of 5 inches directed to the base of the corn plants; whereas, applications to corn plants less than 5 inches tall may be made over the top. Occasionally, some corn leaf burn may result, but this will likely not affect later growth or yield. Do not apply this postemergence tank mixture in fluid fertilizer, or severe crop injury may occur.

*When using AAtrex 4L, use equivalent rates. One lb of AAtrex Nine-O = 1.8 pt of AAtrex 4L.

**For better control of cocklebur, morningglory, velvetleaf, and yellow nutsedge on *fine-textured soils* above 3% organic matter, apply 2.2 lb/A of AAtrex Nine-O, or equivalent rate of AAtrex 4L, with 1.33-1.67 pt/A of Dual Magnum.

Tank mixtures of Dual Magnum + AAtrex may be applied following use of any registered preplant surface-applied, pre-plant incorporated, or preemergence corn herbicide, including Dual Magnum + AAtrex.

Restriction: The total Dual Magnum rate must not exceed 3.9 pt, nor the AAtrex rate more than 2.5 lb ai/A during any one crop year. Refer to the AAtrex label for geographic, soil-texture, and rotational restrictions.

TANK MIXTURE WITH BANVEL

Preemergence: Use this tank mixture only on field corn which is flat-planted (no furrows) in CO, IA, IL, IN, KS, MN, NE, OH, SD, and WI.

In addition to the weeds controlled by Dual Magnum alone, Dual Magnum + Banvel, applied preemergence, also controls lambsquarters, ragweed, smartweed, cocklebur*, jimsonweed*, morningglory*, and velvetleaf*.

*Partially controlled.

Apply Dual Magnum + Banvel preemergence. Broadcast the labeled rate of Banvel with 1.33 pt/A of Dual Magnum on *medium soils*, or with 1.33-1.67 pt/A of Dual Magnum on *fine soils*. Apply this tank mixture to the soil surface at planting or after planting, but before corn emerges. Plant corn at least 1.5 inches deep and apply behind planting equipment, avoiding incorporation by the planter wheel or other seed covering device. If it is necessary to rotary hoe to break the soil crust, do not disturb the soil more than 1/2 inch deep.

Restrictions: (1) Do not apply on *coarse soils* or on soils with less than 2.5% organic matter. (2) Do not incorporate before corn emergence.

Postemergence for Control of Pigweed (Mid-Atlantic states, including DE, MD, PA, VA, and WV): Apply 1.0-1.5 pt of Dual Magnum + 0.5-1.0 pt/A of Banvel or Clarity® by ground equipment when pigweed plants are less than 3 inches tall and before corn exceeds 5 inches in height in a minimum of 20 gal of spray per acre. Use the lower rate on coarse-textured and low organic matter soils. Use the higher rate on fine-textured and high organic matter soils.

Precaution: Avoid drift to sensitive nontarget plants, such as soybeans, during application, or injury may occur.

Restriction: Do not apply with aircraft.

TANK MIXTURE WITH AATREX OR PRINCEP + PROWL FOR PROLONGED CONTROL OF LAMBSQUARTERS AND PIGWEED IN FIELD CORN ONLY (NORTHEAST U.S., INCLUDING MI, IN, KY, AND STATES EAST OF THESE)

For prolonged control of lambsquarters and pigweed, in addition to a broad spectrum of annual broadleaf and grass weeds, Dual Magnum in tank mix combination with AAtrex* or Princep + Prowl 4E may be applied after planting, but before corn or weeds emerge. Apply by ground equipment in a minimum of 10 gal of water or 20 gal of liquid fertilizer. Apply by air in a minimum of 5.0 gal of water. Refer to Table 3 of this label for rates of Dual Magnum, AAtrex, or Princep to be applied. Apply Prowl 4E according to the following rates in Table 4.

*Do not apply Dual Magnum in tank mix combination with AAtrex 80W + Prowl, as this combination is not compatible. Other AAtrex formulations may be used.

Mixing Instructions: See Comment No. 1 following Table 2.

Table 4: Prowl 4E – Broadcast Rates Per Acre

Soil Texture	Percent Organic Matter in Soil		
	Less Than 1.5%	1.5-3%	Over 3%
COARSE	1.5-2.0 pt	2.0 pt	3.0 pt
MEDIUM	2.0 pt	3.0 pt	3.0 pt
FINE	2.0 pt	3.0 pt	3.0 pt

Observe all directions for use, precautions, and restrictions on the respective product labels when applying these products in tank mix combination. Refer to the Prowl 4E label for replanting instructions in the event of crop loss.

TANK MIXTURE OF DUAL MAGNUM WITH AATREX OR PRINCEP, OR AATREX + PRINCEP WITH GRAMOXONE BRANDS, LANDMASTER BW, TOUCHDOWN OR ROUNDUP FOR MINIMUM-TILLAGE OR NO-TILLAGE SYSTEMS

In minimum-tillage or no-tillage systems where corn is planted directly into a cover crop, stale seedbed, established sod, or previous crop residues, tank mix the contact herbicides Gramoxone brands, Landmaster BW, Touchdown brands or Roundup brands with Dual Magnum + AAtrex, Dual Magnum + Princep, or Dual Magnum + AAtrex + Princep. See Comment No. 7 following Table 2. The Dual Magnum, Dual Magnum + AAtrex or Princep, or Dual Magnum + AAtrex + Princep portion of the tank mixture provides preemergence control of the weeds listed on this label in the tank mixture section for **Dual Magnum, Dual Magnum + AAtrex or Princep, or Dual Magnum + AAtrex + Princep – Preplant Surface, Preplant Incorporated, or Preemergence.**

Application: Apply before, during, or after planting, but before the corn emerges. Add Gramoxone brands, Landmaster BW, Touchdown brands or Roundup brands and apply as directed on the product label.

Gramoxone Brands: Apply as directed on the product label. This treatment will not control weeds taller than 6 inches.

Precaution: Do not apply combinations containing Gramoxone brands in suspension-type liquid fertilizers, because the activity of paraquat will be reduced.

Landmaster BW: See the Landmaster BW label for weeds controlled, listed rates for specific weeds, and other information concerning use.

Touchdown Brands or Roundup Brands: See the Touchdown brand or Roundup brand labels for weeds controlled, listed rates, and other use directions.

Apply in 20-60 gal of water or fluid fertilizer per acre with ground equipment.

On *coarse soils*, apply 1.0 pt/A of Dual Magnum with 1.3 lb of AAtrex Nine-O* or Princep Caliber 90*, or with 0.7 lb of AAtrex Nine-O** + 0.7 lb of Princep Caliber 90**. On *medium soils*, apply 1.33 pt/A of Dual Magnum with 1.8 lb of AAtrex Nine-O or Princep Caliber 90, or with 0.9 lb of AAtrex Nine-O + 0.9 lb of Princep Caliber 90. On *fine soils****, apply 1.33-1.67 pt/A of Dual Magnum with 1.8-2.2 lb of AAtrex Nine-O or Princep Caliber 90, or with 0.9-1.1 lb of AAtrex Nine-O + 0.9-1.1 lb of Princep Caliber 90.

*Use Princep in preference to AAtrex when heavy infestations of crabgrass or fall panicum are expected.

**When using the tank mixture of Dual Magnum + AAtrex Nine-O + Princep Caliber 90, use equal rates of AAtrex and Princep as shown when heavy broadleaf weed infestations are expected. When heavy infestations of crabgrass or fall panicum are expected, use a 1:2 ratio of AAtrex + Princep instead of the 1:1 ratio given. (*Example:* Total AAtrex Nine-O + Princep Caliber 90 = 1.8 lb/A, use 0.6 lb of AAtrex + 1.2 lb of Princep, respectively.) Refer to Comment No. 2 following Table 2 for AAtrex 4L and Princep 4L conversions.

***For cocklebur, yellow nutsedge, and velvetleaf control on *fine-textured soils* above 3% organic matter, apply 2.25 lb/A of AAtrex Nine-O, or equivalent rate of AAtrex 4L, or the same total amount of AAtrex + Princep, with 1.33-1.67 pt/A of Dual Magnum.

TANK MIXTURE WITH AATREX; OR AATREX + 2,4-D; OR AATREX + 2,4-D + BANVEL FOR MINIMUM-TILLAGE OR NO-TILLAGE SYSTEMS

In minimum-tillage or no-tillage systems where corn is planted directly into a cover crop, stale seedbed, established sod, or previous crop residues, Dual Magnum applied in combination with AAtrex will kill most emerged small annual weeds. Apply Dual Magnum + AAtrex before, during, or after planting, but before corn emerges, according to the rates in Table 3.

Where heavy crop residues exist, add 0.8-1.6 pt/A of an appropriately labeled 3.8 lb ai/gal of 2,4-D amine (such as Weedar 64, Weedar 64A, DMA-4 Herbicide, Weedone® 638, or Formula 40) to the spray tank last and apply in a minimum of 25 gal of carrier per acre.

As carriers, nitrogen solutions and complete liquid fertilizers applied before corn emergence enhance burndown of existing weeds. Therefore, for best results use nitrogen solutions or complete liquid fertilizers as carriers instead of water. Add X-77 surfactant at 1.0-2.0 qt/100 gal of diluted spray, or another appropriate surfactant at its labeled rate, or add crop oil concentrate plus 28% liquid nitrogen (or equivalent). Apply before weeds exceed 3 inches in height. If alfalfa is present, add Banvel to the spray mixture at 0.33-0.5 pt/A and apply before alfalfa exceeds 6 inches in height.

For fields with existing sod grasses (e.g., bromegrass, orchardgrass, rye, or timothy), when existing weeds exceed 3 inches in height or when very dry conditions exist, add Gramoxone brands at the rate indicated on the product label in place of or in addition to 2,4-D as indicated above. Do not apply Gramoxone brands in suspension-type liquid fertilizer. Observe all directions for use, precautions, and restrictions on the respective product labels when applying these products in tank mix combination. Use Balance combinations only on field corn.

TANK MIXTURE WITH MARKSMAN IN CONSERVATION TILLAGE – FIELD AND SILAGE CORN

In conservation tillage systems where corn is planted directly into a cover crop or previous crop residue, Dual Magnum + Marksman will kill most emerged small annual weeds. Apply Dual Magnum + Marksman before, during, or after planting, but before corn emergence on *medium* and *fine soils* with greater than 2.5% organic matter. For fields with existing vegetation exceeding 3 inches in height or when very dry conditions exist, add Gramoxone brands at its standard rate. Dual Magnum + Marksman may be applied postemergence to corn less than 3 inches tall and before weedy grasses exceed the 2-leaf stage.

As carriers, nitrogen solutions and complete liquid fertilizers applied before corn emergence enhance burndown of existing weeds. Do not apply Gramoxone brands in suspension-type liquid fertilizer or use on emerged corn.

Refer to the Marksman label and follow all directions, limitations, precautions, and restrictions regarding application and use in corn.

TANK MIXTURE WITH BALANCE PRO – FIELD CORN ONLY

Dual Magnum and Balance PRO have a complementary crop response and weed control profile which allows various tank mix rate combinations to be considered. The addition of Balance PRO will improve the control of certain problem weeds including Texas panicum, woolly cupgrass, and wild proso millet. Dual Magnum improves both the duration and spectrum of annual grass and small seeded broadleaf weed control, in particular foxtails (yellow foxtail), witchgrass, and yellow nutsedge.

To reduce the risk of an adverse crop response, the Balance PRO label does not allow applications to *coarse-textured soils* with less than 1.5% organic matter and warns about applications to all soils with less than 1.5% organic matter or with pH greater than 7.5, as well as applications made to areas in fields with clay knolls, eroded hillsides, and exposed subsoil.

Listed below are compensating rate options for combinations of Dual Magnum and Balance PRO, i.e. higher rates of Dual Magnum are combined with lower rates of Balance PRO, and vice versa. Select a rate option for Dual Magnum plus Balance PRO by weighing the intensity of problem weed pressure (population presence and density) and your acceptance for risk of an adverse crop response. For example, where Texas panicum, woolly cupgrass, or wild proso millet are a primary target weed, use a tank mix combination with a higher Balance PRO rate for the given soil type.

Where your acceptance of an adverse crop response risk is low and/or a more general weed spectrum is targeted (especially yellow foxtail, witchgrass or yellow nutsedge), use a tank mix combination with a higher Dual Magnum rate for the given soil type. Where a target weed is listed as controlled on both product labels, a tank mix combination option including intermediate rates of both products may be used. Where a target weed is listed as controlled on only one product label, do not apply a rate of that product below what is listed for that weed on the individual product label, or unacceptable control may result. Follow all other directions for use, rate limitations, precautions and restrictions on both the Dual Magnum and Balance PRO product labels.

Dual Magnum plus Balance PRO tank mix rate options when applied preplant (incorporated or surface applied) up to 7 days before planting or preemergence in field corn:

For *coarse-textured soils*, where 1.5 or 1.88 oz/A of Balance PRO is used, 1.0-1.33 pt/A of Dual Magnum may be applied. Do not use Balance PRO on *coarse-textured soils* with less than 1.5% organic matter.

For *medium-textured soils*, where 1.5 oz/A of Balance PRO is used, rates as low as 1.33 pt/A of Dual Magnum may be applied. Where 1.88 or 2.25 oz/A of Balance PRO is used, rates as low as 1.0 pt/A of Dual Magnum may be applied. Dual Magnum can be used in combinations with Balance PRO at rates up to 1.67 pt/A on *medium-textured soils*.

For *fine-textured soils*, where 1.5 oz/A of Balance PRO is used, rates as low as 1.33 pt/A of Dual Magnum may be applied if the soil organic matter is less than 3% - if the soil organic matter content is 3% or greater, 1.67 pt/A of Dual Magnum may be applied. Where 1.88 or 2.25 oz/A of Balance PRO is used, rates as low as 1.33 pt/A of Dual Magnum may be applied. Where 3.0 oz/A or more of Balance PRO are used, rates as low as 1.0 pt/A of Dual Magnum may be applied. Dual Magnum can be used in combinations with Balance PRO at rates up to 2.0 pt/A on *fine-textured soils* if the soil organic matter content is 3% or greater.

TANK MIXTURES FOR POSTEMERGENCE SALVAGE WEED CONTROL IN FIELD CORN ONLY

For postemergence control of weeds in specific types of field corn, the Dual Magnum combinations listed below may be used. Full season weed control from early preplant, preplant incorporated, or preemergence treatments can lead to maximum yield potential under competition-free conditions. However, if control of emerged weeds is needed, a post-emergence program listed below can be applied to provide residual control for the remainder of the season.

Precautions: (1) In-row weed control may be reduced because of lack of coverage when applied to corn over 4 inches tall. (2) Avoid using fluid fertilizer with these mixtures, or corn injury may occur.

Restrictions: (1) Follow all label directions, instructions, precautions, and restrictions for each product used. (2) For each tank mixture with Dual Magnum, apply only to the specific field corn type specified on the tank mix product label.

Dual Magnum + Liberty Herbicide or Ignite® 280 SL Herbicide: Postemergence Use in LibertyLink® Corn or Corn Warranted by Bayer CropScience as Being Tolerant to Liberty Herbicide or Ignite 280 SL Herbicide

These tank mixtures can be applied postemergence to weeds and corn from seed designated as LibertyLink or corn warranted by Bayer CropScience as being tolerant to Liberty Herbicide or Ignite 280 SL Herbicide. Liberty provides post-emergence control of a broad spectrum of grass and broadleaf weeds and Dual Magnum provides residual control of grasses and certain broadleaf weeds listed in the label section **Dual Magnum Applied Alone – Weeds Controlled**. Refer to the **Dual Magnum Alone – Preplant Incorporated or Preemergence** section and use the minimum rate per soil texture and organic matter classification for season-long residual control from this tank mix combination with Liberty. Refer to the Liberty Herbicide or Ignite 280 SL Herbicide labels for the postemergence application rates according to weed species and their maximum height at the time of postemergence application. Where multiple weed species are present, use the highest Liberty rate listed to control the species and growth stages present.

Follow all applicable use directions, limitations, precautions, and restrictions regarding application to corn on the Dual Magnum, Liberty Herbicide, and Ignite 280 SL Herbicide labels. Where difficult species and/or severe weed populations are expected, use the maximum rate where rate ranges are listed.

Dual Magnum + Touchdown Brands or Roundup Brands for Postemergence Application to Glyphosate-Tolerant Corn (e.g., Roundup Ready® or Agrisure™ GT)

The tank mixture of Dual Magnum + Touchdown or Roundup brands can be applied postemergence to weeds and to corn designated as glyphosate-tolerant. Application may be applied postemergence to glyphosate-tolerant corn from emergence until corn reaches 30 inches tall or the V8 stage (8 leaves with collars), whichever comes first. This mixture will provide postemergence control of weed species on the Touchdown brand or Roundup brand label and residual control of weed species on the Dual Magnum label. Use the minimum Dual Magnum rate postemergence with Touchdown or Roundup in glyphosate-tolerant corn as specified in the **Corn – Dual Magnum Alone – Preplant Incorporated or Preemergence** section of this label according to soil texture and organic matter. Refer to the Touchdown brand or Roundup brand label and follow appropriate use directions, application procedures, precautions, and restrictions. Refer to the Touchdown brand or Roundup brand label for directions for control of problem species.

Follow all applicable use directions, limitations, precautions, and restrictions regarding application to corn on the Dual Magnum and Touchdown brand or Roundup Ultra® brand labels, and on the **Supplemental Labeling of Roundup Ultra for Postemergence Application to Corn with the Roundup Ready Gene**. Where difficult species and/or severe weed populations are expected, use the maximum rate where rate ranges are listed.

Dual Magnum + Touchdown Brands or Roundup Brands + AAtrex for Postemergence Application to Glyphosate-Tolerant Corn (e.g., Roundup Ready or Agrisure GT)

The tank mixture of Dual Magnum + AAtrex + Touchdown brands or Roundup brands can be applied postemergence to weeds and to corn designated as glyphosate-tolerant. Application may be applied postemergence to glyphosate-tolerant corn from emergence up to 12 inches in height. This mixture will provide postemergence control of weed species on the Touchdown brand or Roundup brand label and residual control of weed species on the Dual Magnum + AAtrex label. Use the minimum Dual Magnum + AAtrex rate postemergence with Touchdown or Roundup in glyphosate-tolerant corn as specified in the **Corn – Dual Magnum Combinations – Tank Mixture With AAtrex or Princep, or AAtrex + Princep – Preplant Incorporated or Preemergence** section and **Table 3** of this label according to soil texture and organic matter.

Follow all applicable use directions, limitations, precautions, and restrictions regarding application to corn on the Dual Magnum, AAtrex, and Touchdown brand or Roundup brand labels for application to glyphosate-tolerant corn. Where difficult species and/or severe weed populations are expected, use the maximum rate where rate ranges are listed.

COTTON – DUAL MAGNUM ALONE

Application: Apply Dual Magnum preemergence only in Area 1* at the rate of 0.5-1.0 pt/A on sandy loams, 0.66-1.33 pt/A on *medium soils*, or 1.0-1.33 pt/A on *fine soils*. Apply Dual Magnum preplant incorporated or preemergence in Area 2** at 1.0 pt/A on sandy loams, 1.0-1.33 pt/A on *medium soils*, or 1.33 pt/A on *fine soils*. Apply Dual Magnum postemergence to cotton and preemergence to weeds at 0.5-1.33 pt/A, according to the state rate limitations in the following Postemergence section. **Do not use on sands and loamy sand.**

*Area 1 = AR, KS, LA, MS, TN, and Bootheel of MO

**Area 2 = NM, OK, and TX

Fall Application for Italian Ryegrass Control: Dual Magnum may be applied for residual control of glyphosate-resistant Italian ryegrass (*Lolium multiflorum*). Apply Dual Magnum at 1.33-1.67 pt/A in the fall (September 1 – December 1) after harvest of the previous crop and prior to Italian ryegrass emergence. Use the lower Dual Magnum rate for coarse-textured soils and the higher rate for fine-textured soils. A tillage operation may precede the application. If tillage follows the application of Dual Magnum, avoid incorporating to a depth greater than 2-3 inches. For fall applications after emergence of glyphosate-resistant Italian ryegrass, Gramoxone brands can be tank mixed with Dual Magnum to control emerged ryegrass. Refer to the Gramoxone brands label for specific rates, application instructions and restrictions. Other registered herbicides may be tank mixed with Dual Magnum for control or improved control of other weeds present at the time of application.

Preplant Incorporated (NM, OK, and TX Only): Apply to the soil and incorporate into the top inch of soil immediately before planting, at planting, or after planting, but before crop or weeds emerge. Use a rolling cultivator or similar implement to uniformly incorporate not more than 1 inch deep. Use a preplant incorporated application if furrow irrigation is used or when a period of dry weather after application is expected. Where furrow irrigation is used, wet the top of the bed for best results. If the crop is to be planted on beds, apply and incorporate after bed formation. Plant cotton below the zone of incorporation; i.e., at least 1 inch on *fine soils* and 1.5 inches on *coarse* and *medium soils*. If incorporated prior to planting, use a planter that will result in a minimum of soil disturbance.

Note: For best control of yellow nutsedge and suppression of seedling johnsongrass, apply Dual Magnum preplant incorporated at the maximum rate for the soil texture, whether applied alone or mixed with Caparol 4L.

Preemergence: Apply to the soil surface at planting or after planting, but before weeds or crop emerge.

Postemergence: Apply Dual Magnum broadcast over-the-top or directed to the soil surface according to the rate restrictions listed below by state. Application before weeds emerge or after clean cultivation to remove existing weeds is necessary since Dual Magnum will not control emerged weeds. Dual Magnum postemergence may be applied over any previous registered herbicide treatment. In sprinkler-irrigated areas, sprinkler irrigate after application with 1/2-1 inch of water (1/2 inch on *coarse-textured soils* to 1 inch on *fine-textured soils*) to incorporate Dual Magnum. In furrow-irrigated areas, apply Dual Magnum, incorporate with a rolling cultivator or similar implement that provides uniform shallow incorporation (2 inches or less), and then irrigate. In nonirrigated areas, if at least 1/2 inch of rainfall does not occur within 10 days after application, cultivate with a rolling cultivator or similar implement that provides uniform shallow incorporation of Dual Magnum.

VA, NC, SC, GA, FL, and AL: Apply Dual Magnum postemergence at 1.0-1.33 pt/A.

TN, AR, KS, MS, MO, and LA: Apply Dual Magnum postemergence at 0.5-1.33 pt/A.

TX, OK, NM, AZ, CA, and Clay Soils in AR: Apply Dual Magnum postemergence at 1.0-1.33 pt/A before August 1.

Multiple Applications: Where weed pressure is heavy, difficult to control species are expected, or reinfestation may occur, and a weed control program is used, multiple applications of Dual Magnum are effective when used as part of the weed control program. Apply as a preplant incorporated or preemergence treatment and follow with an application postemergence to cotton before weeds emerge or after clean cultivation to remove existing weeds, since Dual Magnum will not control emerged weeds. Apply Dual Magnum postemergence over a previous preplant or preemergence Dual Magnum application as shown in the following table.

State	Multiple Dual Magnum Applications to Cotton		
	Preplant Incorporated or Preemergence Pt/A	+	Postemergence Pt/A
MS, LA, TN, AR, KS, MO	0.5-1.33 (Preemergence Only)	+	0.5-1.33
TX, OK, NM	1.0-1.33	+	1.0-1.33 before August 1
NC, VA	1.0-1.33 (Preemergence Only)	+	1.0-1.33

In sprinkler-irrigated areas, sprinkler irrigate after application with 1/2-1 inch of water (1/2 inch on *coarse-textured soils* to 1 inch on *fine-textured soils*) to incorporate Dual Magnum. In furrow-irrigated areas, apply Dual Magnum, incorporate with a rolling cultivator or similar implement that provides uniform shallow incorporation (2 inches or less), and then irrigate. In nonirrigated areas, if at least 1/2 inch of rainfall does not occur within 10 days after application, cultivate with a rolling cultivator or similar implement that provides uniform shallow incorporation of Dual Magnum.

Precautions for all Dual Magnum Cotton Applications: (1) For best control of yellow nutsedge and suppression of seedling johnsongrass, apply Dual Magnum preplant incorporated, preemergence, or postemergence to cotton and preemergence to weeds at the maximum rate for the soil texture, whether applied alone or in combinations. (2) To avoid concentration in the seed furrow, do not make broadcast applications of Dual Magnum to cotton planted in furrows more than 2 inches deep. When making band applications to cotton planted in furrows deeper than 2 inches, ensure that band width does not exceed the width of the bottom of the furrow. (3) Applying over-the-top in fluid fertilizer or any other adjuvant, surfactant, oil, or other pesticide not listed in the cotton section of this label may result in crop injury. (4) In furrow-planted cotton, to avoid concentration in the furrow and potential injury, do not apply Dual Magnum postemergence until after first "knifing" or cultivation to level soil surface.

Restrictions for all Dual Magnum Cotton Applications: (1) Do not apply more than a total of 2.0 pt/A on coarse soils or 2.6 pt/A of Dual Magnum on medium and fine soils during a growing season. These treatments may be applied over previous registered herbicide treatments. (2) Do not apply Dual Magnum on sand or loamy sand soils, or in areas where water is likely to "pond" over the bed. (3) Do not apply on Taloka silt loam. (4) Do not use in Gaines County, TX. (5) Do not graze or feed forage or fodder from cotton to livestock. (6) Do not apply Dual Magnum to frozen ground. (7) Do not make over-the-top postemergence applications later than 100 days before harvest. (8) Do not make directed-postemergence applications later than 80 days before harvest.

COTTON – DUAL MAGNUM COMBINATIONS

TANK MIXTURE WITH CAPAROL 4L

Dual Magnum tank mixtures with Caparol 4L may be applied preplant incorporated or preemergence in water or fluid fertilizer. When fluid fertilizer is used as a carrier for Dual Magnum, either alone or in combination with Caparol 4L, mix only the amount that will be sprayed in one operation. Do not allow these mixtures to stand without agitation. Only water may be used as a carrier for postemergence-directed application.

In addition to those weeds controlled by Dual Magnum alone, Dual Magnum + Caparol 4L, applied preplant incorporated or preemergence, also controls the following weeds: junglerice, wild oats, annual morningglory, groundcherry, hairy nightshade, lambsquarters, malva, mustard, prickly sida (teaweed), purslane, ragweed, and shallow-germinating seedlings of cocklebur and coffeeweed. As a postemergence-directed application, Caparol provides postemergence control and residual control of weeds on its label, while Dual Magnum provides residual control of weed species on its label. Dual Magnum will not control emerged weeds.

Preplant Incorporated or Preemergence: Apply Dual Magnum + Caparol 4L, either preplant incorporated or preemergence, using the appropriate rate from Table 5. Plant cotton below the zone of incorporation; i.e., at least 1.0 inch on *fine soils* and 1.5 inches on *coarse and medium soils*. If incorporated before planting, use a planter that will result in a minimum of soil disturbance.

Table 5: Dual Magnum + Caparol 4L – Cotton (NM, OK, TX)

Use Areas	Soil Texture	Broadcast Rates Per Acre	
		Dual Magnum	Caparol 4L
ALL	Sand, loamy sand	DO NOT USE	
OK, Blacklands and Gulf Coast of TX	Loams	0.8-1.33 pt	2.4 pt
	Clays	1.33 pt	4.8 pt
Rio Grande Valley of TX	Loams	0.8-1.33 pt	3.2 pt
	Clays	1.33 pt	4.8 pt
NM; High Plains, Rolling Plains, Edwards Plateau of TX; and Southwest TX	Sandy loam	0.8-1.0 pt	1.6 pt
	Loams	0.8-1.33 pt	2.4 pt
	Sandy clay loams	1.33 pt	2.4 pt
	Other clay soils	1.33 pt	3.2 pt

Postemergence-Directed (AR, AZ, CA, LA, MS, NM, OK, TN, TX, and MO): Dual Magnum may be tank mixed with Caparol 4L in water and applied postemergence-directed in cotton for control of emerged weeds listed on the Caparol 4L label and residual preemergence control of weeds controlled by Dual Magnum and Caparol 4L. Alternatively, application may be made after cultivation for residual preemergence control. These treatments may be applied over previous registered treatments, including Dual Magnum, provided the maximum label rate of any product is not exceeded.

Apply Dual Magnum + Caparol 4L in a minimum of 20 gal of spray volume per acre. Follow the directions, restrictions, and precautions on the Caparol 4L label when Caparol is applied as a postemergence-directed application. Refer to the directions, restrictions, and precautions for use of Dual Magnum under the **Cotton – Dual Magnum Alone – Postemergence** section.

Precautions: (1) To avoid concentration in the seed furrow, do not make broadcast applications of Dual Magnum + Caparol 4L to cotton planted in furrows more than 2 inches deep. When making band applications to cotton planted in furrows deeper than 2 inches, ensure that the band width does not exceed the width of the bottom of the furrow. (2) Do not apply postemergence over-the-top of cotton, or injury may occur.

Restrictions: (1) Do not apply on sand or loamy sand soils, or in areas where water is likely to “pond” over the bed. (2) Do not apply in cut areas of newly leveled fields, or in areas of excess salt. (3) Do not apply to glandless cotton varieties. (4) Do not apply on Taloka silt loam. (5) Do not use in Gaines County, TX. (6) Do not graze or feed forage or fodder from cotton to livestock.

Refer to the Caparol 4L label for further instructions and restrictions.

TANK MIXTURE WITH COTORAN DF

Dual Magnum may be applied in tank mixture with Cotoran DF preemergence for control of those weeds controlled by Dual Magnum alone and those as listed on the Cotoran DF label. This combination will also control spotted spurge, hyssop spurge, nodding spurge, and prostrate spurge. Apply to the soil surface at planting or after planting, but before weeds or crop emerge, using the appropriate rates from Table 6. The tank mixture may be applied postemergence to cotton, but preemergence to weeds, or it may be applied postemergence to both cotton and broadleaf weeds for control of weeds on the Cotoran label. Apply as a directed, semi-directed, or over-the-top spray. Dual Magnum will not control emerged weeds, but will provide preemergence control of species on its label.

Mixing Instructions: Incompatibility may occur when tank mixing Dual Magnum and Cotoran DF. To help overcome this condition, fill the spray tank 1/4 full with water or fluid fertilizer and start agitation, add the Cotoran DF and allow it to become dispersed. Add X-77 at 0.5% volume/volume final spray (4.0 pt/100 gal), then add the Dual Magnum and finally the rest of the water or fluid fertilizer. Agitate during mixing and application to maintain a uniform suspension. Do not use fluid fertilizer as a carrier for postemergence applications.

Table 6: Dual Magnum + Cotoran DF – Cotton

Soil Texture	Broadcast Rates Per Acre		
	Dual Magnum (pt)		Cotoran DF*** (lb)
	Area 1*	Area 2**	
Sand, loamy sand	DO NOT USE		
Sandy loam	0.5-1.0	0.8-1.0	1.2
Loam, silt loam, silt	0.66-1.33	1.0-1.33	1.2-1.9
Fine soil	1.0-1.33	1.33	1.9-2.4

*Area 1 = AR, LA, MS, Bootheel of MO and TN

**Area 2 = Eastern OK, Gulf Coast, Rio Grande Valley, and Eastern TX

***When using Cotoran 4L, use equivalent rates. Multiply lb of Cotoran DF by 1.7 to get pt of Cotoran 4L.

Postemergence: This tank mixture may be applied postemergence to cotton, but preemergence to weeds or post-emergence to both cotton and weeds for control of weeds on the Cotoran label. Apply as a directed, semi-directed, or over-the-top spray. Dual Magnum will not control emerged weeds, but will provide preemergence control of species on its label. Where rate ranges are given for Cotoran DF, use the higher rate when applying postemergence to weeds that are 2 inches or less. These treatments may be applied over previous registered treatments, including Dual Magnum, provided the maximum label rate of any product is not exceeded.

Precautions: (1) The use of Cotoran following the use of a systemic insecticide at planting may result in crop injury. (2) To avoid concentration in the seed furrow, do not make broadcast applications of Dual Magnum + Cotoran to cotton planted in furrows more than 2 inches deep. When making band applications to cotton planted in furrows deeper than 2 inches, ensure that the band width does not exceed the width of the bottom of the furrow.

Restrictions: (1) Do not apply Dual Magnum + Cotoran on sand or loamy sand soils, or in areas where water is likely to “pond” over the bed. (2) Do not use on Taloka silt loam. (3) Do not use in Gaines County, TX. (4) Do not feed treated forage or gin trash to livestock, or graze treated areas.

Refer to the Cotoran labels for further instructions, precautions, and restrictions.

TANK MIXTURE OF DUAL MAGNUM OR DUAL MAGNUM + COTORAN WITH GRAMOXONE BRANDS, TOUCHDOWN BRANDS OR ROUNDUP BRANDS FOR MINIMUM-TILLAGE OR NO-TILLAGE SYSTEMS

In minimum-tillage or no-tillage systems where cotton is planted directly into a cover crop, stale seedbed, or previous crop residues, the contact herbicides Gramoxone brands, Touchdown brands or Roundup brands may be added to a tank mix of either Dual Magnum or Dual Magnum + Cotoran. When used as directed, the Gramoxone brands portion of the tank mixture controls most emerged weeds and suppresses many perennial weeds. Touchdown or Roundup brand combinations will control emerged annual and perennial weeds when applied as directed on the Touchdown or Roundup label. The Dual Magnum and Dual Magnum + Cotoran portion of the tank mixture provides preemergence control of the weeds listed on this label in the Dual Magnum and Dual Magnum + Cotoran sections, respectively.

Refer to the label of each product used in combination and observe the planting details, information regarding application, geographical restrictions, and all other precautions and restrictions. Refer to **Mixing Instructions** under **Tank Mixture with Cotoran DF** section.

Application: Apply before, during, or after planting, but before the cotton emerges. Apply Dual Magnum at 0.8-1.0 pt/A on sandy loams, *medium-*, and *fine-textured* soils. Refer to Table 6 for the Cotoran DF rates.

Gramoxone Brands: Apply as directed on the product label. This treatment will not control weeds taller than 6 inches.

Note: Do not apply combinations containing Gramoxone brands in suspension-type liquid fertilizers, as the activity of paraquat will be reduced.

Touchdown Brands or Roundup Brands: See the Touchdown or Roundup label for weeds controlled, listed rates, and other use directions.

Precaution: Do not apply Dual Magnum + Cotoran 4L + Roundup in tank mixture because of compatibility problems. Apply in 20-60 gal of water or fluid fertilizer per acre with ground equipment.

Precautions: (1) If heavy rain occurs soon after application, crop injury may result, especially in poorly drained areas where water stands for several days, or where the seeding slit has not been properly closed. (2) Refer to the Cotoran labels and the **Tank Mixture with Cotoran DF** section of this label for further instructions, precautions, and restrictions.

Restriction: Do not use in Gaines County, TX.

TANK MIXTURE WITH MSMA, MSMA + CAPAROL, OR MSMA + COTORAN

Dual Magnum may be tank mixed with MSMA in water and applied postemergence-directed for control of emerged weeds listed on the MSMA product label and residual preemergence control of weeds controlled by Dual Magnum. The addition of Caparol or Cotoran will add control of weed species on their respective labels.

Postemergence-Directed (AL, AR, AZ, CA, FL, GA, LA, MS, NC, NM, OK, SC, TN, TX, VA, and Bootheel of MO): Apply Dual Magnum + MSMA postemergence-directed to cotton at least 3 inches tall according to the directions, restrictions, and precautions on the MSMA product label, as well as the directions, restrictions, and precautions for use of Dual Magnum in the section for **Cotton – Dual Magnum Alone – Postemergence**. These treatments may be applied over previous registered treatments, including Dual Magnum, provided the maximum label rate of any product is not exceeded. Cotoran or Caparol may be added to the Dual Magnum + MSMA tank mixture according to the respective label directions for application to cotton at least 3 inches tall. When these mixtures are used, follow the mixing instructions for Dual Magnum + Caparol or Cotoran and then add the MSMA product.

Restrictions: (1) Do not use Dual Magnum in tank mix with premixes of MSMA plus herbicides other than those registered for use in tank mixture with Dual Magnum on cotton. (2) Do not apply after first cotton bloom.

TANK MIXTURE WITH TREFLAN FOR POST-DIRECTED FOLLOWED BY SOIL INCORPORATION APPLICATIONS

Dual Magnum may be applied as a tank mixture with Treflan in cotton for improved late-season weed control when used as an incorporated lay-by type application. This combination may be applied after the cotton is at least 3 inches tall and has reached the 4 true-leaf stage. Make the application directed to the soil surface and away from the crop foliage. Incorporate using a sweep or rolling type cultivator to provide uniform and shallow mixing into the top 2 inches of soil. Refer to each product label for the appropriate application rates by soil type and for this application timing and follow all product use limitations and restrictions.

TANK MIXTURE WITH TOUCHDOWN BRANDS OR ROUNDUP BRANDS FOR USE ON ROUNDUP READY COTTON ONLY

Apply Dual Magnum as a tank mixture with Touchdown or Roundup in water postemergence over-the-top or postemergence-directed for control of emerged weeds listed on the Touchdown or Roundup labels and for residual preemergence control of weeds listed on the Dual Magnum label. See the **Cotton – Dual Magnum Alone – Postemergence** section of this label for rates and timings of Dual Magnum and follow the Touchdown or Roundup label for their respective rates, application method, and application timing restrictions. Refer to the Touchdown brand or Roundup brand label and follow appropriate use directions, application procedures, precautions, and restrictions.

Precautions: (1) Postemergence over-the-top applications of this tank mixture may cause temporary injury in the form of necrotic spotting to exposed cotton leaves, which will not affect normal plant development. (2) Do not add additional spray adjuvants, surfactants, fertilizer additives, or pesticides to this tank mixture if applied postemergence over-the-top, or unacceptable injury may occur.

Restrictions: (1) Do not apply this tank mixture postemergence to any cotton variety unless it is designated Roundup Ready and unless the Touchdown or Roundup formulation being used is registered for postemergence use in Roundup Ready Cotton. (2) Do not apply Touchdown or Roundup postemergence over-the-top to cotton past the growth stage limit specified on their respective labels. (3) Do not use on sand or loamy sand soils in Gaines County, TX.

SOYBEAN, IMMATURE SEED

Dual Magnum may be applied preplant or preemergence for the control or suppression of grass and small seeded broad-leaf weeds in immature-seed soybean or other food-grade soybeans. For specific rates, see the rate table listed below.

Preplant Surface-Applied: For minimum-tillage or no-tillage systems only, Dual Magnum alone may be applied up to 45 days before planting. Use only split applications for treatments made 30-45 days before planting, with 2/3 the listed broadcast rate for the crop and soil texture applied initially and the remaining 1/3 applied at planting. Treatments less than 30 days before planting may be made either as a split or a single application. If weeds are present at the time of treatment, apply in a tank mixture combination with a contact herbicide (for example, Gramoxone brands, Touchdown, or Roundup). Observe directions for use, precautions, and restrictions on the label of the contact herbicide. To the extent possible, do not move treated soil out of the row or move untreated soil to the surface during planting, or weed control will be diminished.

Preplant Incorporated: Apply Dual Magnum to the soil and incorporate into the top 2 inches of soil within 14 days before planting, using a finishing disk, harrow, rolling cultivator, or similar implement capable of providing uniform 2-inch incorporation. Use a preplant incorporated application if furrow irrigation is used or when a period of dry weather after application is expected. If crop will be planted on beds, apply and incorporate Dual Magnum after bed formation, unless specified otherwise.

Preemergence: Apply Dual Magnum during planting (behind the planter) or after planting, but before weeds emerge.

Dual Magnum Broadcast Rates Per Acre

Soil Texture	Percent Organic Matter in Soil	
	<3%	≥3%
Coarse	1 – 1.33 pt	1.33 pt
Medium	1.33 – 1.67 pt	1.33 – 1.67 pt
Fine	1.33 – 1.67 pt	1.67 – 2.0 pt

Precaution: Dual Magnum will not control emerged weeds. Control weeds that are present by another means, e.g., mechanical means or by another herbicide.

Restrictions: (1) Do not cut for hay within 120 days following a Dual Magnum application. (2) Do not use for forage within 60 days following a Dual Magnum application. (3) Do not apply more than 2.0 pt/A of Dual Magnum during any one crop year.

GRASSES GROWN FOR SEED (ID, OR, WA) – DUAL MAGNUM APPLIED ALONE

To control weeds and volunteer grasses in established grasses grown for seed, apply Dual Magnum to established stands of tall fescue, orchardgrass, perennial ryegrass, fine fescue, bentgrass, and Kentucky bluegrass just before, during, or immediately following the first fall rains or just before or during a late summer or early fall irrigation, but before target grasses emerge. The seed crop must have had one seed harvest or been established at least one year. Evenly spread, remove, or burn the post-harvest residue (straw) before applying Dual Magnum. Rainfall or irrigation is required after application and before weed emergence for best control. Dual Magnum will provide preemergence control/suppression of volunteer seedlings of perennial ryegrass, fine fescue spp., tall fescue, orchardgrass, bentgrass and Kentucky bluegrass. Dual Magnum will control those weed species listed in the **Dual Magnum Alone** section of the Dual Magnum label and will suppress or control rattail fescue, annual bluegrass, Italian ryegrass, California brome, downy brome, and roughstalk bluegrass.

Apply Dual Magnum by ground equipment in a minimum of 10 gallons of water per acre using the rate listed below according to grass species. Hay may be harvested anytime between seed harvest and the next application of S-metolachlor.

Established Grass Crop Grown for Seed	Pt/A
Fine fescue spp.	1.0
Perennial ryegrass	1.0
Bentgrass	1.0-1.33
Kentucky bluegrass	1.0-1.33
Orchardgrass	1.0-1.33
Tall fescue	1.0-1.33

Precautions: (1) Avoid application after the 15th of November or poor control may result. (2) Tank mixtures with other pesticides, or the addition of an adjuvant, can increase the risk of crop injury. (3) Application to perennial ryegrass and fine fescue stands under stress may cause crop injury. (4) If weed escapes occur following a Dual Magnum application, an application of a postemergence herbicide may be necessary to control escapes. When making such an application, follow all directions, precautions and restrictions on the label of the postemergence herbicide. (5) Control may be decreased if excessive straw from the previous harvest is present at application and/or insufficient rainfall/irrigation occurs.

Restrictions: (1) Do not graze forage regrowth for 60 days following application west of the Cascades. (2) In areas east of the Cascades, do not graze forage regrowth for 150 days following application. (3) Apply Dual Magnum only once per crop year.

HORSERADISH

Apply a single application of Dual Magnum at a broadcast rate of 1.0-1.33 pt/A to the soil surface after planting, but before weeds or crop emergence (i.e., preemergence). Use lower rates on soils relatively coarse-textured and higher rates on fine-textured soils. A band application may also be used, applying proportionally less spray mixture on the area actually treated. Dual Magnum will not control emerged weeds. Control emerged weeds with an appropriate registered foliar herbicide or by mechanical means. Harvest horseradish at normal timing.

Restrictions: (1) Make only one application of Dual Magnum per crop. (2) Do not apply more than 1.33 pt/A of Dual Magnum per crop.

PEANUTS – DUAL MAGNUM ALONE

Apply Dual Magnum, either preplant incorporated, postplant incorporated, preemergence, or lay-by, using the appropriate rate specified below. **Preplant Incorporated or Preemergence:** Follow instructions for use of Dual Magnum alone under **Application Procedures**. **Postplant Incorporated:** Apply and shallowly incorporate Dual Magnum into the soil after planting, but before peanut germination. Incorporation depth and incorporating implements must be kept above the seed, or seed will be damaged. **Lay-by:** Apply Dual Magnum to the soil immediately after the last normal cultivation.

Apply Dual Magnum alone, preplant incorporated, postplant incorporated, preemergence, or lay-by, at a broadcast rate of 1.0-1.33 pt/A in the Southeast* and 0.8-1.33 pt/A in NM, OK, and TX. Dual Magnum alone may be applied as directed after any of the following preplant incorporated herbicides when used according to their label use rates, directions, and restrictions: Balan; Treflan E.C.; Sonalan; Pursuit; or Prowl.

*In the Southeast, use 1.33-2.0 pt/A and apply preemergence for partial control of Florida beggarweed.

Restrictions: (1) Preharvest Interval (PHI): Do not apply within 90 days of harvest. (2) Do not graze or feed peanut forage or fodder to livestock for 30 days following application.

PEANUTS – DUAL MAGNUM COMBINATIONS

TANK MIXTURE WITH BALAN L.C.

Dual Magnum + Balan tank mixture applied preplant incorporated controls those weeds listed under **Dual Magnum Applied Alone** and those weeds as listed on the Balan label.

Apply 1.0-1.33 pt/A of Dual Magnum + the labeled use rate of Balan in a minimum of 10 gal of spray volume per acre for ground application or in a minimum of 5.0 gal of spray volume per acre for aerial application. Follow all directions, restrictions and precautions on the Balan label for soil preparation, application and incorporation of this tank mix. Apply and incorporate Dual Magnum + Balan up to 14 days prior to planting.

Multiple Applications: Where weed pressure is heavy or where species difficult to control are expected, Dual Magnum is most effective when used as follows:

Southeast Only (AL, FL, GA, NC, SC, VA)

Preplant Incorporated: Apply Dual Magnum preplant incorporated as directed under **Peanuts – Dual Magnum Alone** or apply Dual Magnum + Balan preplant incorporated as directed previously in this section. Refer to the respective section for weeds controlled.

OR

Preemergence before “ground cracking”: Apply Dual Magnum any time from preemergence up to “ground cracking” at 1.0-2.0 pt/A for extended control of weeds not yet emerged. Refer to the **Dual Magnum Applied Alone** section for a list of weeds controlled.

Follow the PPI or PRE application by:

Lay-by: Apply Dual Magnum at lay-by as directed under **Peanuts – Dual Magnum Alone**. Use only when late germinating weeds are expected to be a problem. Refer to the **Dual Magnum Applied Alone** section for a list of weeds controlled.

Restrictions: (1) Preharvest Interval (PHI): Do not apply within 90 days of harvest. (2) Do not use Dual II Magnum®, or Dual IIG Magnum® after peanuts have emerged. (3) Do not apply more than the equivalent of 2.67 lb of active ingredient of Dual Magnum per acre during any one year. If Dual II Magnum is used as a sequential treatment, the lb of active ingredient (1.0 pt = 0.95 lb) plus the lb of active ingredient of Dual Magnum must not exceed 2.67 lb. (4) Do not graze or feed peanut forage or fodder to livestock for 30 days following application.

Southwest Only (NM, OK, TX)

1st Application: Apply Dual Magnum preplant incorporated or preemergence or at-cracking as directed previously in this section. Refer to the respective section for weeds controlled.

2nd Application: Apply Dual Magnum at lay-by as directed under **Peanuts – Dual Magnum Alone** on that label. Use only when late germinating weeds are expected to be a problem. Refer to the **Dual Magnum Applied Alone** section for a list of weeds controlled.

Restrictions: (1) Preharvest Interval (PHI): Do not apply within 90 days of harvest. (2) Do not use Dual II Magnum, or Dual IIG Magnum after peanuts have emerged. (3) Do not apply more than the equivalent of 2.67 lb of active ingredient of Dual Magnum per acre during any one year. If Dual II Magnum is used as a sequential treatment, the lb of active ingredient (1.0 pt = 0.95 lb) plus the lb of active ingredient of Dual Magnum must not exceed 2.67 lb. (4) Do not graze or feed peanut forage or fodder to livestock for 30 days following application.

TANK MIXTURE OR SEQUENTIALLY WITH PURSUIT

The tank mixture or sequential treatment of Dual Magnum and Pursuit controls all weeds controlled by Dual Magnum alone and by Pursuit alone. Refer to the **Dual Magnum Applied Alone** section for weeds controlled by Dual Magnum and to the Pursuit label for weeds controlled by Pursuit.

Refer to the respective labels for application methods, timing, rates, restrictions, and precautions; and use in accordance with the more restrictive label. Do not exceed the label rate of either product. Dual Magnum will not control emerged weeds.

TANK MIXTURE WITH SONALAN

The tank mixture controls all weeds controlled by Dual Magnum alone and by Sonalan alone. Refer to the **Dual Magnum Applied Alone** section for weeds controlled by Dual Magnum and to the Sonalan label for weeds controlled by Sonalan.

Apply Dual Magnum + Sonalan preplant incorporated using the appropriate rate from Table 7. Follow the directions for soil preparation procedures for Sonalan.

Table 7: Dual Magnum + Sonalan – Peanuts

Soil Texture	Broadcast Rates Per Acre			
	Southeast		NM, OK, TX	
	Dual Magnum	Sonalan	Dual Magnum	Sonalan
COARSE	1.0-1.33 pt	1.25-2.0 pt	0.8-1.33 pt	1.25-2.0 pt
MEDIUM	1.0-1.33 pt	1.75-2.5 pt	0.8-1.33 pt	1.75-2.5 pt
FINE	1.0-1.33 pt	2.25-3.0 pt	0.8-1.33 pt	2.25-3.0 pt

Follow all use directions, limitations, precautions, and restrictions regarding application to peanuts on the Dual Magnum and Sonalan labels.

TANK MIXTURE WITH PROWL

Dual Magnum + Prowl applied preplant incorporated controls all weeds controlled by Dual Magnum alone plus Texas panicum, field sandbur, johnsongrass from seed, lambsquarters, kochia, annual spurge, and other species on the Prowl label. Apply Dual Magnum + Prowl by ground or by aerial equipment within 14 days before planting. Incorporate into the top 1-2 inches of soil before planting and within 7 days of application, using a finishing disk or similar implement capable of providing uniform incorporation. If peanuts will be planted on beds, apply and incorporate after bed formation. Refer to the **Incorporation** instructions of the respective labels for additional directions.

Apply Dual Magnum + Prowl preplant incorporated, using the appropriate rates from Table 8.

Table 8: Dual Magnum + Prowl – Peanuts

Soil Texture	Broadcast Rates Per Acre	
	NM, OK, TX	Other Peanut Growing States
	Dual Magnum + Prowl	Dual Magnum + Prowl
Sand, loamy sand	0.8 + 1.0-1.5 pt	1.0-1.33 + 1.5-2.0 pt
Sandy loam	0.8-1.0 + 1.0-1.5 pt	1.0-1.33 + 1.5-2.0 pt
Fine soil	1.33 + 1.0-1.5 pt	1.33 + 1.5-2.0 pt

Follow all use directions, limitations, precautions, and restrictions regarding application to peanuts on the Dual Magnum and Prowl labels.

TANK MIXTURE OR SEQUENTIALLY WITH GRAMOXONE BRANDS

Dual Magnum + Gramoxone brands applied at ground cracking or sequentially will control or suppress small (1-6 inch) emerged annual grass and broadleaf weeds and provide residual control of weed species listed in the **Dual Magnum Applied Alone** section of this label. Apply Gramoxone brands plus the appropriate Dual Magnum rate from the **Peanuts – Dual Magnum Alone** section in a minimum spray volume of 20 gal/A with ground equipment. A second application of Dual Magnum + Gramoxone brands may be made 28 days after ground cracking. (Refer to the **Peanuts – Dual Magnum Combinations – Multiple Applications** section of this label for geographical areas where multiple applications are allowed.) Refer to the Gramoxone brands label and follow all directions, limitations, and restrictions.

TANK MIXTURE OR SEQUENTIALLY WITH GRAMOXONE BRANDS + BASAGRAN

The addition of Basagran to the Dual Magnum + Gramoxone brands mixture will result in improved control of such problem broadleaf weeds as prickly sida, cocklebur, smartweed, and bristly starbur. Dual Magnum + Gramoxone brands + Basagran applied at ground cracking or sequentially will control or suppress small (1-6 inch) emerged annual grass and broadleaf weeds and provide residual control of weed species listed in the **Dual Magnum Applied Alone** section of this label. Apply Basagran + Gramoxone brands with the appropriate Dual Magnum rate from the **Peanuts – Dual Magnum Alone** section in a minimum spray volume of 20 gal/A with ground equipment. A second application of Dual Magnum + Gramoxone brands + Basagran may be made 28 days after ground cracking. (Refer to the **Peanuts – Dual Magnum Combinations – Multiple Applications** section of this label for geographical areas where multiple applications are allowed.) Refer to the Gramoxone brands and Basagran labels and follow all directions, limitations, and restrictions.

TANK MIXTURE OR SEQUENTIALLY WITH GRAMOXONE BRANDS + BUTYRAC 200 OR BUTOXONE 200

The addition of Butyrac 200 or Butoxone 200 to the Dual Magnum + Gramoxone brands mixture will result in improved control of such problem broadleaf weeds as sicklepod, morningglory, and cocklebur. Dual Magnum + Gramoxone brands + Butyrac 200 or Butoxone 200 applied at ground cracking or sequentially will control or suppress small (1-6 inch) emerged annual grass and broadleaf weeds and provide residual control of weed species listed in the **Dual Magnum Applied Alone** section of this label. Apply Gramoxone brands + Butyrac 200 or Butoxone 200 with the appropriate Dual Magnum rate from the **Peanuts – Dual Magnum Alone** section in a minimum spray volume of 20 gal/A with ground equipment. A second application of Dual Magnum + Gramoxone brands + Butyrac 200 or Butoxone 200 may be made 28 days after ground cracking. (Refer to the **Peanuts – Dual Magnum Combinations – Multiple Applications** section of this label for geographical areas where multiple applications are allowed.) Refer to the Gramoxone brands, Butyrac 200 or Butoxone 200 labels and follow all directions, limitations, and restrictions.

TANK MIXTURE OR SEQUENTIALLY WITH BASAGRAN

Dual Magnum + Basagran applied at ground cracking or sequentially will control species on the Basagran label and provide residual control of species listed in the **Dual Magnum Applied Alone** section of this label. Apply the labeled rate of Basagran in 20 gal/A, depending on weed species and stage of growth as specified on the Basagran label, with the appropriate Dual Magnum rate from the **Peanuts – Dual Magnum Alone** section. A second application of the combination may be made before peanut pegging. (Refer to the **Peanuts – Dual Magnum Combinations – Multiple Applications** section of this label for geographical areas where multiple applications are allowed.) A second Basagran application may be made in all peanut growing areas, if needed. Refer to the respective labels and follow all directions, limitations, and restrictions for each product.

TANK MIXTURE OR SEQUENTIALLY WITH BASAGRAN + BUTYRAC 200 OR BUTOXONE 200

Dual Magnum + Basagran + Butyrac 200 or Butoxone 200 applied at ground cracking or sequentially will control species on the Basagran label and on the Butyrac or Butoxone labels, especially morningglories. Apply the labeled rate of Basagran + the labeled rate of Butyrac 200 or Butoxone 200 in 20 gal/A, depending on weed species and stage of growth as specified on the Basagran label, with the appropriate Dual Magnum rate from the **Peanuts – Dual Magnum Alone** section. A second application of the combination may be made before peanut pegging. (Refer to the **Peanuts – Dual Magnum Combinations – Multiple Applications** section of this label for geographical areas where multiple applications are allowed.) A second Basagran + Butyrac 200 or Butoxone 200 application may be made in all peanut growing areas, if needed. Refer to the respective labels and follow all directions, limitations, and restrictions for each product.

TANK MIXTURE OR SEQUENTIALLY WITH STORM®

Dual Magnum + Storm applied at ground cracking through 2 expanded tetrafoliate leaves or Dual Magnum applied according to the directions for **Dual Magnum Alone** and followed with an at-cracking through postemergence treatment of Storm as specified on its label will control species on the Storm label and provide residual control of species listed in the **Dual Magnum Applied Alone** section of this label. Dual Magnum will not control emerged weeds. Control weeds that are present by another means, e.g., mechanical means or by another herbicide. Refer to the **Peanuts – Dual Magnum Alone** section and to the Storm label and follow all directions, limitations, and restrictions for each product.

BEANS, PEAS, AND LENTILS – DUAL MAGNUM ALONE

Beans, peas, and lentils, including garbanzo, great northern beans, kidney beans, lima beans, mung beans, navy beans, peas (English*; southern peas, such as blackeye, pinkeye, crowder, etc.), pinto beans, snap beans (green, wax, string), lentils, and lupines (sweet, white, white sweet, and grain).

Fall Application:

- Apply after September 30 in ND, SD, MN, WI, and north of Route 30 in IA.
- Apply after October 15 north of Route 91 in NE and south of Route 30 in IA.
- Apply after October 31 north of Route 136 in IL.

In all locations, apply to crop stubble after harvest when the sustained soil temperature at a 4-inch depth is less than 55°F and falling. In minimum-till or no-tillage systems on soils having greater than 2.5% organic matter, use 1.67-2.0 pt/A on *medium-textured* and 2.0 pt/A on *fine-textured soils*. A tillage operation may precede the application. When a fall and/or a spring tillage follows application, avoid exceeding an incorporation depth greater than 2-3 inches. Minimize furrow and ridge formation in the tillage operations.

Restrictions: (1) If a spring application is made, the total rate of the fall plus spring applications must not exceed the maximum total rate for beans, peas, and lentils. (2) Do not apply to frozen ground.

Spring Application:

Apply Dual Magnum, either preplant incorporated or preemergence, using the appropriate rate specified below. **Preplant Incorporated or Preemergence:** Follow instructions for use of Dual Magnum alone under **Application Procedures**. On *coarse soils* with less than 3% organic matter, apply 1.0-1.33 pt/A of Dual Magnum or 1.33 pt/A if organic matter is 3% or greater. On *medium soils*, apply 1.33-1.67 pt/A of Dual Magnum. On *fine soils*, apply 1.33-1.67 pt/A of Dual Magnum if organic matter content is less than 3%, or 1.67-2.0 pt/A if organic matter content is 3% or greater.

*On English peas, use only preemergence applications. If soils are cold and wet during pea germination and emergence, the use of Dual Magnum may delay maturity and/or reduce yields.

Restrictions: (1) Do not cut for hay within 120 days following a Dual Magnum application. (2) Do not use for forage within 60 days following a Dual Magnum application. (3) Do not apply more than 2.0 pt/A of Dual Magnum during any one crop year.

BEANS, PEAS, AND LENTILS – DUAL MAGNUM COMBINATIONS

Restriction: When applying Dual Magnum in combination on beans, peas, and lentils, do not cut for hay within 120 days following application.

TANK MIXTURE AND SEQUENTIAL APPLICATIONS WITH EPTAM – BEANS (GREEN OR DRY)

This mixture controls all weeds controlled by Dual Magnum alone and by Eptam alone. Refer to the **Dual Magnum Applied Alone** section of this label for weeds controlled by Dual Magnum alone and to the Eptam label for weeds controlled by Eptam.

Preplant Incorporated: Follow instructions for use of Dual Magnum alone under **Application Procedures**. **Sequential:** Apply Eptam alone preplant incorporated, as specified on that label. Follow with a preemergence application of Dual Magnum, at rates specified for Dual Magnum alone, during planting (behind the planter) or after planting, but before the weeds or crop emerge.

Refer to the **Product Information** section of this label and to the Eptam label for weather, cultural practices, and all other precautions and limitations that affect performance of these products.

Apply the labeled rate of Eptam 7E* with Dual Magnum as specified. On *coarse soils*, apply 0.8 pt/A of Dual Magnum if organic matter content is less than 3%, or 1.0 pt/A if organic matter content is 3% or greater. On *medium soils*, apply 1.0 pt/A of Dual Magnum if organic matter content is less than 3%, or 1.33 pt/A if organic matter content is 3% or greater. On *fine soils*, apply 1.33 pt/A of Dual Magnum if organic matter is less than 3%, or 1.33-1.67 pt/A if organic matter is 3% or greater.

*Refer to the Eptam label for rate limitations depending on geographical area, and for species and varietal restrictions.

Follow all restrictions and precautions on the respective Eptam 7E label and in the **Beans, Peas, and Lentils – Dual Magnum Alone** section of this label.

TANK MIXTURE WITH TREFLAN – BEANS (DRY – KIDNEY, NAVY, PINTO, ETC.; LIMA; AND SNAP)

Dual Magnum + Treflan tank mix applied preplant incorporated controls those weeds listed under **Dual Magnum Applied Alone** and those weeds listed for Treflan alone on the Treflan label. Dual Magnum + Treflan may be applied by ground or by aerial equipment and incorporated up to 14 days prior to planting. Follow the most restrictive procedures on this label and on the respective Treflan label, using equipment that provides uniform 2-inch incorporation.

Apply Dual Magnum + Treflan tank mix using the appropriate Dual Magnum rate specified for Dual Magnum alone, and the Treflan rate from the Dry Beans, and the Lima and Snap Beans sections of the respective Treflan label. Choose the product rate for the specific soil texture/organic matter classification and weed species expected.

Follow all restrictions and precautions on the respective Treflan label and in the **Beans, Peas, and Lentils – Dual Magnum Alone** section of this label.

POTATOES – DUAL MAGNUM ALONE

Apply Dual Magnum, either incorporated, preemergence, or postemergence to potatoes after hilling/lay-by, according to directions specified below for control of weeds listed under the **Product Information** section. Within a rate range, use the lower rate on soils relatively coarse-textured or low in organic matter; use the higher rate on soils relatively fine-textured or high in organic matter. Effectiveness will be reduced if later cultural practices expose untreated soil. For applications by center pivot irrigation, see the **Center Pivot Irrigation Application** section of this label.

Incorporated: Apply Dual Magnum at 1.0-2.0 pt/A to the soil and incorporate into the top 3 inches before planting, using a finishing disk, harrow, rolling cultivator, or similar implement. During planting and later cultural practices, avoid bringing untreated soil to the surface. Postplant incorporated application may be made any time after planting to drag-off, but before potato emergence. Use an implement that evenly distributes Dual Magnum in the top 2 inches of soil. Do not damage potato seed pieces or sprouts with incorporation equipment.

Preemergence: Apply Dual Magnum at 1.0-2.0 pt/A, either after planting as a preemergence, delayed preemergence, after drag-off or hilling treatment, but before weeds emerge. Up to 2.6 pt/A of Dual Magnum alone may be used where soil organic matter is between 6% and 20%.

Postemergence After Hilling/Lay-by: Apply 1.67 pt/A of Dual Magnum postemergence to potatoes through after hilling/ at lay-by to control Dual Magnum-sensitive species for remainder of the growing season. This application will not control emerged weeds. It may be applied over a previous Dual Magnum application, but do not apply more than 3.6 pt/A of Dual Magnum in a single crop season.

Precautions: (1) If cool, wet soil conditions occur after application, Dual Magnum may delay maturity and/or reduce yield of Superior and other early maturing potato varieties. (2) These directions for use do not apply to sweet potatoes or yams.

Restrictions: (1) Preharvest interval: Do not harvest potatoes treated with Dual Magnum within 60 days after the at-planting to drag-off application, or within 40 days after a lay-by application. (2) Do not use on muck or peat soils. (3) Do not apply both as a preemergence and an incorporated treatment. (4) Do not apply more than 3.6 pt/A of Dual Magnum in a single crop season.

POTATOES – DUAL MAGNUM COMBINATIONS

TANK MIXTURE WITH TRICOR

In addition to those weeds controlled by Dual Magnum alone, Dual Magnum applied in tank mix combination with, or sequentially with, any of the registered TriCor formulations, also controls the following broadleaf weeds: cocklebur*, hairy nightshade*, hemp sesbania, jimsonweed*, lambsquarters, prickly sida, ragweed, smartweed, velvetleaf, Venice mallow, and wild mustard.

*Partially controlled.

Dual Magnum at 1.0-2.0 pt/A plus the labeled TriCor use rate may be used preemergence or postemergence to potatoes through after last hilling. Apply 1.0-1.33 pt/A of Dual Magnum on *coarse soils* and 1.33-2.0 pt/A on other soil textures. Within this rate range, use the lower rate on soils relatively coarse-textured or low in organic matter; use the higher rate on soils relatively fine-textured or high in organic matter. Effectiveness will be reduced if later cultural practices expose untreated soil. Dual Magnum will not control emerged weeds.

Refer to the TriCor label for precautionary statements, restrictions, application information, center pivot irrigation application, weeds controlled, and varietal limitations.

Precaution: Postemergence applications to potatoes, with the exception of center pivot application, can be made only as a directed or semi-directed spray to avoid chlorosis, minor necrosis, or leaf distortion. These directions for use do not apply to sweet potatoes or yams.

Restriction: Do not use this tank mixture on muck or peat soils.

Refer to the **Product Information** section of this label and to the TriCor label for precautionary statements, restrictions, application information, and weeds controlled.

DUAL MAGNUM + LOROX TANK MIXTURE (EAST OF ROCKY MOUNTAINS)

Dual Magnum may be applied in a tank mix combination with any of the registered Lorox formulations as a preemergence broadcast application to potatoes. Apply to the soil surface after planting and before emergence of the crop or after final drag-off according to the rates specified in Table 9.

Table 9: Dual Magnum + Lorox – Potatoes (East of Rocky Mountains)

Soil Texture	Broadcast Rates Per Acre			
	1% to Less Than 3% Organic Matter		3-5% Organic Matter	
	Dual Magnum	Lorox*	Dual Magnum	Lorox*
COARSE Sandy loam	1.0 pt	1.0-1.5 lb	1.33 pt	1.5-2.0 lb
MEDIUM Loam, silt loam, silt	1.33 pt	1.5-2.0 lb	1.67-2.0 pt	2.0-2.5 lb

*When using Lorox L or Lorox DF, use equivalent rates. One pt of Lorox L equals 1.0 lb of Lorox DF.

Restrictions: (1) Do not use on sands or loamy sands. (2) Do not incorporate or spray over the top of emerged potatoes.

Refer to the **Product Information** section of this label and to the Lorox label for precautionary statements, restrictions, application information, and weeds controlled.

TANK MIXTURE WITH PROWL 4E

In addition to the weeds controlled by Dual Magnum alone, this tank mixture with Prowl 4E controls such problem species as kochia, lambsquarters, purslane, annual spurge, stinging nettle, and others specified on the Prowl 4E Alone label. Apply Dual Magnum + Prowl 4E preemergence, preemergence incorporated, or early postemergence according to the specific directions on the Prowl 4E label, using the rates in Table 10.

Table 10: Dual Magnum + Prowl 4E – Potatoes

Soil Texture	Broadcast Rates Per Acre	
	Less Than 3% Organic Matter	More Than 3% Organic Matter
	Dual Magnum + Prowl 4E*	Dual Magnum + Prowl 4E*
COARSE	1.0-1.33 pt + 1.0-1.5 pt	1.0-1.33 pt + 1.0-1.5 pt
MEDIUM	1.33 pt + 1.5-2.0 pt	1.33-1.67 pt + 2.0-3.0 pt
FINE	1.33-1.67 pt + 2.0-3.0 pt	1.67-2.0 pt + 3.0 pt

*When using other formulations of Prowl, use equivalent rates of active ingredient.

Refer to the Dual Magnum and Prowl 4E labels and observe all directions, timings, limitations, precautions, and restrictions concerning the use of these products on potatoes and follow the most restrictive.

TANK MIXTURE WITH PROWL 4E + EPTAM

In addition to the weeds controlled by Dual Magnum alone, this tank mixture will control those species on the Prowl 4E and Eptam labels. Refer to the Dual Magnum + Prowl 4E labels for rates of those products and add Eptam 7E at the labeled rate, depending on geographical area. Refer to the respective Dual Magnum, Prowl 4E, and Eptam labels and observe all directions, limitations, precautions, and restrictions concerning the use of these products on potatoes and follow the most restrictive.

PUMPKIN – DUAL MAGNUM ALONE

Preemergence

Apply Dual Magnum preemergence (before the weeds have emerged) at 1.0 to 1.33 pt/A as an inter-row or inter-hill application in pumpkin. Leave 1 foot of untreated area over the row, or 6 inches to each side of the planted hill and/or any emerged pumpkin foliage (inter-row or inter-hill means not directly over the planted seed or young pumpkin plants). Use the lower Dual Magnum rate on soils light in texture (loamy sand or lighter) and low in soil organic matter (less than 3%). Dual Magnum applied as a broadcast spray over the planted row or hill, or applications made directly to crop foliage will increase the risk of injury to the pumpkin crop such as stand loss, delayed maturity, and loss of yield.

Dual Magnum will not control emerged weeds. Control weeds that are present by another means, e.g., by mechanical means or by another herbicide.

Restriction: Preharvest Interval (PHI): Do not harvest pumpkin within 30 days of the Dual Magnum application.

RHUBARB

Apply Dual Magnum at a broadcast rate of 0.67-1.33 pt/A to the soil surface in early spring, prior to crop emergence. Use lower rates on soils relatively coarse-textured and higher rates on fine-textured soils. A band application may also be used, applying proportionally less spray mixture on the area actually treated. Dual Magnum will not control emerged weeds. Control emerged weeds with an appropriate registered foliar herbicide or by mechanical or physical means.

Restrictions: (1) Preharvest Interval (PHI): Do not harvest rhubarb within 62 days of the Dual Magnum application. (2) Make only one application of Dual Magnum per crop. (3) Do not apply more than 1.33 pt/A of Dual Magnum per crop.

SAFFLOWERS – DUAL MAGNUM ALONE

Preplant Incorporated or Preemergence: Follow instructions for use of Dual Magnum alone under **Application Procedures**. On *coarse soils*, apply 1.0-1.33 pt/A of Dual Magnum if organic matter content is less than 3%, or 1.33 pt/A if organic matter is 3% or greater. On *medium soils*, apply 1.33-1.67 pt/A of Dual Magnum. On *fine soils*, apply 1.33-1.67 pt/A of Dual Magnum if organic matter content is less than 3%, or 1.67-2.0 pt/A if organic matter content is 3% or greater.

GRAIN OR FORAGE SORGHUM (SEED TREATED WITH CONCEP®) – DUAL MAGNUM ALONE

Apply Dual Magnum preplant surface, preplant incorporated, preemergence or postemergence using the appropriate rate specified below. Apply Dual Magnum alone only when the sorghum seed has been properly treated with Concep seed treatment. Preplant or preemergence applications of Dual Magnum to sorghum not treated with Concep seed treatment will result in crop death.

Fall Application for Italian Ryegrass Control: Dual Magnum may be applied for residual control of glyphosate-resistant Italian ryegrass (*Lolium multiflorum*). Apply Dual Magnum at 1.33-1.67 pt/A in the fall (September 1-December 1) after harvest of the previous crop and prior to Italian ryegrass emergence. Use the lower Dual Magnum rate for coarse-textured soils and the higher rate for fine-textured soils. A tillage operation may precede the application. If tillage follows the Dual Magnum application, avoid incorporating to a depth greater than 2-3 inches. For fall applications after emergence of glyphosate-resistant Italian ryegrass, Gramoxone brands can be tank mixed with Dual Magnum to control emerged ryegrass. Refer to the Gramoxone brands label for specific rates, application instructions and restrictions. Other registered herbicides may be tank mixed with Dual Magnum for control or improved control of other weeds present at the time of application.

Restrictions: (1) Do not apply Dual Magnum to frozen ground. (2) If a spring application is made, do not apply Dual Magnum or any other product containing S-metolachlor the following spring to grain or forage sorghum.

Preplant Surface-Applied: Refer to instructions for use of Dual Magnum under the **Application Procedures** section on this label. For minimum-tillage or no-tillage systems only, Dual Magnum may be applied up to 45 days before planting in CO, IA, IL, KS, MO, NE, and SD. Use only split applications for treatments made 30-45 days prior to planting, with $\frac{2}{3}$ of the broadcast rate applied initially and the remaining $\frac{1}{3}$ at planting. Apply 1.5 pt/A of Dual Magnum on *medium soils* or 1.67 pt/A on *fine soils*. Treatments less than 30 days prior to planting may be made either as a split or single application. Apply 1.33 pt/A of Dual Magnum on *coarse soils* not more than 2 weeks prior to planting. Under dry conditions, irrigate after application to move Dual Magnum into the soil.

Preplant Incorporated or Preemergence: Refer to instructions for use of Dual Magnum under the **Application Procedures** section on this label. Broadcast 1.0-1.33 pt/A of Dual Magnum on *coarse soils*, 1.33-1.5 pt/A on *medium soils*, or 1.33-1.67 pt/A on *fine soils*.

Postemergence: Refer to instructions for use of Dual Magnum under the **Application Procedures** section on this label. Dual Magnum may be applied broadcast postemergence at 1.0-1.33 pt/A on *coarse soils*, 1.33-1.5 pt/A on *medium soils*, or 1.33-1.67 pt/A on *fine soils*. Dual Magnum will not control emerged weeds. Therefore, emerged weeds must be controlled by cultural or chemical means. When applied alone, Dual Magnum will be safe to emerged sorghum. The risk of sorghum injury increases when adjuvants (e.g., non-ionic, crop oil), Nitrogen sources (e.g., AMS, UAN) or fertilizers are applied with Dual Magnum.

Precautions: (1) If sorghum seed is not properly treated with Concep seed treatment, preplant and preemergence applications of Dual Magnum will severely injure the crop. (2) Under high soil moisture conditions prior to sorghum emergence, injury may occur following preplant and preemergence application of Dual Magnum. The crop will normally outgrow this effect. (3) Avoid use of Dual Magnum on sorghum grown under dry mulch tillage, or injury may occur.

Restrictions: (1) Preharvest Interval (PHI): Do not apply Dual Magnum postemergence within 75 days of harvest. (2) Except for the split preplant surface treatment, do not make more than one application per year.

GRAIN OR FORAGE SORGHUM (SEED TREATED WITH CONCEP) – DUAL MAGNUM TANK MIXTURES

Dual Magnum preplant or preemergence (prior to sorghum emergence) tank mixtures with AAtrex may be applied in water or fluid fertilizer. Apply Dual Magnum preplant or preemergence tank mixtures only when the sorghum seed has been properly treated with Concep seed treatment. Preplant or preemergence applications of Dual Magnum to sorghum not treated with Concep seed treatment will result in crop death.

IMPORTANT: FOR TANK MIXTURES WITH AATREX (OR OTHER BRANDS OF ATRAZINE) – If applying Dual Magnum in tank mixture with AAtrex, all the restrictions and rate limitations on the AAtrex label must be followed if more restrictive/protective than those on this label. In addition, if AAtrex is/must be applied at rates lower than those listed on this label, broadleaf weed control may be affected. Refer to the AAtrex label for weeds controlled at the reduced rates.

Precautions: (1) Applications of Dual Magnum + AAtrex on highly alkaline soils or on eroded areas where calcareous subsoils are exposed may cause sorghum injury. (2) If sorghum seed is not properly treated with Concep, preplant and preemergence applications of Dual Magnum + AAtrex may severely injure the crop. (3) Under high soil moisture conditions prior to sorghum emergence, injury may occur following the use of preplant and preemergence applications of Dual Magnum + AAtrex. The crop will normally outgrow this effect. (4) Avoid use of Dual Magnum + AAtrex on sorghum grown under dry mulch tillage, or injury may occur.

Restriction: Except for the split preplant surface treatment, do not make more than one application per year.

TANK MIXTURE WITH AATREX

In addition to the weeds controlled by Dual Magnum alone, Dual Magnum + AAtrex also controls the following broadleaf weeds when applied either preplant surface, preplant incorporated, or preemergence: cocklebur, common purslane, hairy nightshade, lambsquarters, morningglory, ragweed, smartweed, and velvetleaf.

Preplant Surface-Applied: Refer to instructions for use of Dual Magnum under **Application Procedures** on this label. For minimum-tillage or no-tillage systems only, Dual Magnum + AAtrex may be applied up to 45 days prior to planting in IA, IL, eastern KS, MO, NE, and SD. Use only split applications for treatments made 30-45 days prior to planting, with $\frac{2}{3}$ of the broadcast rate applied initially and the remaining $\frac{1}{3}$ at planting. Apply 1.5 pt/A of Dual Magnum + 1.7-2.0 lb/A of AAtrex Nine-O* on *medium soils* with 1.5% organic matter or greater. Apply 1.5 pt/A of Dual Magnum + 1.7-2.0 lb/A of AAtrex Nine-O on *fine soils* with less than 1.5% organic matter, or apply 1.67 pt/A of Dual Magnum + 2.0-2.2 lb/A of AAtrex Nine-O on *fine soils* with 1.5% organic matter or greater. Treatments less than 30 days prior to planting may be made either as a split or single application. Under dry conditions, irrigation after application may be made to move Dual Magnum + AAtrex into the soil.

Restrictions: (1) Do not use on coarse soils. (2) Do not use on medium soils with less than 1.5% organic matter.

Preplant Incorporated or Preemergence: Refer to instructions for use of Dual Magnum under **Application Procedures** on this label. On *medium soils* with 1.5% organic matter or greater, apply 1.0 pt/A of Dual Magnum + 1.3 lb/A of AAtrex Nine-O*. On *fine soils* with less than 1.5% organic matter, apply 1.0 pt/A of Dual Magnum + 1.3 lb/A of AAtrex Nine-O; on *fine soils* with 1.5% organic matter or greater, apply 1.2-1.33 pt/A of Dual Magnum + 1.6-1.8 lb/A of AAtrex Nine-O.

*When using AAtrex 4L, use equivalent rates. One lb of AAtrex Nine-O = 1.8 pt of AAtrex 4L.

Restrictions: (1) Do not use on coarse soils. (2) Do not use on medium soils with less than 1.5% organic matter. (3) Do not use in NM, OK, or TX, except in northeast OK and the TX Gulf Coast and Blacklands areas. (4) Do not apply preplant incorporated in AZ or the Imperial Valley of CA.

TANK MIXTURE OF DUAL MAGNUM OR DUAL MAGNUM + AATREX WITH GRAMOXONE BRANDS, LANDMASTER BW, TOUCHDOWN BRANDS OR ROUNDUP BRANDS FOR MINIMUM-TILLAGE OR NO-TILLAGE SYSTEMS

In minimum-tillage or no-tillage systems where sorghum (seed treated with Concep) is planted directly into a cover crop, stale seedbed, established sod, or previous crop residues, the contact herbicides Gramoxone brands, Landmaster BW, Touchdown or Roundup may be tank mixed with Dual Magnum or Dual Magnum + AAtrex. See Comment No. 7 following Table 2. The Dual Magnum or Dual Magnum + AAtrex portion of the tank mixture provides preemergence control of the weeds listed on this label under the respective sections.

Refer to the label of each product used in combination and observe the planting details, restrictions, and all other precautions and limitations.

Application: Apply before, during, or after planting, but before sorghum emerges. Add Gramoxone brands, Landmaster BW, Touchdown brands or Roundup brands and apply as directed on the product labels.

Gramoxone Brands: Apply as directed on the product label. This treatment will not control weeds taller than 6 inches.

Landmaster BW: Apply as directed on the product label. See the Landmaster BW label for weeds controlled, listed rates for specific weeds, restrictions and other information concerning use.

Touchdown Brands or Roundup Brands: See the Touchdown brand or Roundup brand label for weeds controlled, listed rates, restrictions and other use directions.

SWEET SORGHUM (SEED TREATED WITH CONCEP)

Apply Dual Magnum preplant surface, preplant incorporated, preemergence or postemergence using the appropriate rate specified below. Apply Dual Magnum only when the sweet sorghum seed has been properly treated with Concep seed treatment. Preplant or preemergence applications of Dual Magnum to sweet sorghum not treated with Concep seed treatment will result in crop death.

Soil-Applied: Dual Magnum may be applied up to 45 days before planting. Use only split applications for treatments made 30-45 days prior to planting, with $\frac{2}{3}$ of the broadcast rate applied initially and the remaining $\frac{1}{3}$ at planting. Treatments less than 30 days prior to planting may be made either as a split or single application. Under dry conditions, irrigation after application may be made to move Dual Magnum into the soil.

Dual Magnum Rates for Soil Applications to Sweet Sorghum

Soil Type	30-45 days prior to planting ¹	<30 days prior to planting	At Planting ²
Coarse	Not Recommended	1.33 pt	1.0 - 1.33 pt
Medium	1.5 pt	1.5 pt	1.33 - 1.5 pt
Fine	1.67 pt	1.67 pt	1.33 - 1.67 pt

¹Use only as a split application with $\frac{2}{3}$ of the broadcast rate applied initially and the remaining $\frac{1}{3}$ applied at planting.

²Preplant Incorporated or preemergence

Post-Applied: Dual Magnum may be applied postemergence to sweet sorghum for residual control of grasses and small seeded broadleaf weeds. Postemergence application to sweet sorghum may be made to crop up to 5 inches in height. Dual Magnum will not control emerged weeds. Therefore, emerged weeds must be controlled by cultural or chemical methods. When applied alone, Dual Magnum will be safe to emerged sweet sorghum. Use of adjuvants is prohibited on sweet sorghum.

Dual Magnum Rates for Postemergence Applications to Sweet Sorghum

Soil Type	Postemergence Rate
Coarse	1.0 – 1.33 pt
Medium	1.33 pt
Fine	1.33 pt

Precautions: (1) If sweet sorghum seed is not properly treated with Concep seed treatment, soil applications of Dual Magnum prior to sorghum emergence will severely injure the crop. (2) Under high soil moisture conditions prior to sweet sorghum emergence, injury may occur following soil applications of Dual Magnum. The crop will normally outgrow this effect. (3) Avoid use of Dual Magnum on sorghum grown under dry mulch tillage, or injury may occur.

Restrictions: (1) Preharvest Interval (PHI): Do not apply Dual Magnum postemergence within 90 days of harvest. (2) Do not make more than one application per season. Dual Magnum may be applied either as a soil applied treatment or a postemergence treatment but not both.

SOYBEANS – DUAL MAGNUM ALONE

Apply Dual Magnum in the fall for spring weed control, in the fall for Italian ryegrass control or in the spring as a preplant surface-applied, preplant incorporated, preemergence, or postemergence application for control or partial control of weeds in Table 1.

The combined total amount of Dual Magnum from all applications in the fall plus the spring must not exceed 2.6 pt/A. The combined total amount of S-metolachlor from all applications to soybeans must not exceed 2.5 lb ai/A.

Follow instructions for use of Dual Magnum alone under the **Application Procedures** section of this label.

Read and follow all restrictions in the **Restrictions For All Dual Magnum Soybean Applications** section below.

Fall Application for Spring Weed Control

- Apply after September 30 in ND, SD, MN, WI, and north of Route 30 in IA.
- Apply after October 15 north of Route 91 in NE and south of Route 30 in IA.
- Apply after October 31 north of Route 136 in IL.

In all locations, apply to crop stubble after harvest when the sustained soil temperature at a 4-inch depth is less than 55°F and falling.

In minimum-till or no-tillage systems on soils having greater than 2.5% organic matter, use 1.67-2.0 pt/A of Dual Magnum on *medium-textured* and 2.0 pt/A of Dual Magnum on *fine-textured soils*. A tillage operation may precede the application. When a fall and/or a spring tillage follows application, avoid exceeding an incorporation depth greater than 2-3 inches. Minimize furrow and ridge formation in the tillage operations.

Fall Application for Italian Ryegrass Control

Dual Magnum may be applied for residual control of glyphosate-resistant Italian ryegrass (*Lolium multiflorum*). Apply Dual Magnum at 1.33-1.67 pt/A in the fall (September 1-December 1) after harvest of the previous crop and prior to Italian ryegrass emergence. Use the lower Dual Magnum rate for coarse-textured soils and the higher rate for fine-textured soils. A tillage operation may precede the application. If tillage follows a Dual Magnum application, avoid incorporating to a depth greater than 2-3 inches.

For fall applications after emergence of glyphosate-resistant Italian ryegrass, a Gramoxone brand herbicide can be tank mixed with Dual Magnum to control emerged ryegrass. Refer to the Gramoxone brand herbicide label for specific rates, application instructions and restrictions. Other registered herbicides may be tank mixed with Dual Magnum for control or improved control of other weeds present at the time of application.

Spring Preplant Surface Application

Use on *medium* and *fine soils* with minimum-tillage or no-tillage systems in CO, CT, DE, IA, IL, IN, KS, KY, MA, MD, ME, MI, MN, MO, MT, ND, NE, NH, NY, OH, PA, RI, SD, TN, VA, VT, WI, WV, and WY. Apply $\frac{2}{3}$ the listed rate of Dual Magnum (1.67 pt/A on *medium soils* and 2.0 pt/A on *fine soils*) as a split treatment 30-45 days prior to planting and the remainder at planting. Applications made less than 30 days before planting may be as either a split or single treatment. Apply 1.33 pt/A of Dual Magnum on *coarse soils* not more than 2 weeks prior to planting.

Dual Magnum may be used up to 2.6 pt/A as a preplant surface treatment on soils having organic matter content between 6% and 20%.

Preplant Incorporated or Preemergence

On *coarse soils*, apply 1.0-1.33 pt/A of Dual Magnum if organic matter content is less than 3%, or 1.33 pt/A if organic matter content is 3% or greater. On *medium soils*, apply 1.33-1.67 pt/A of Dual Magnum. On *fine soils*, apply 1.33-1.67 pt/A of Dual Magnum if organic matter content is less than 3%, or 1.67-2.0 pt/A if organic matter content is 3% or greater. Dual Magnum may be used up to 2.6 pt/A as a preplant incorporated or preemergence treatment on soils having an organic matter content between 6% and 20%.

Postemergence

Apply 1.0-1.33 pt/A of Dual Magnum as a postemergence treatment to soybeans. Dual Magnum will not control emerged weeds so it must be applied to a weed-free soil surface or in a tank mixture with products that provide postemergence control of weeds present at the time of application.

Dual Magnum can also be applied as part of a sequential soybean weed control program. If Dual Magnum was applied as a preplant surface, preplant incorporated, or a preemergence treatment, a second treatment of Dual Magnum can be applied postemergence provided that the total Dual Magnum rate during any one crop does not exceed 2.6 pt/A.

Restrictions For All Dual Magnum Soybean Applications: (1) Preharvest Interval (PHI): Do not apply within 90 days of harvest. (2) Do not graze or feed treated soybean forage, hay, or straw to livestock for 30 days following a preplant surface, preplant incorporated or preemergence application. (3) Do not graze or feed treated forage or hay from soybeans to livestock following a postemergence application of Dual Magnum. (4) The combined total amount of Dual Magnum from all applications in the fall plus the spring must not exceed 2.6 pt/A per year. (5) The combined total amount of S-metolachlor from all applications to soybeans must not exceed 2.5 lb ai/A per year. (6) Do not apply more than 1.33 pt/A per year of Dual Magnum postemergence to soybeans. (7) Do not apply Dual Magnum to frozen ground.

SOYBEANS – DUAL MAGNUM COMBINATIONS

Dual Magnum may be tank mixed with other herbicides for improved residual control of the weeds listed in Table 1. For Dual Magnum application rates, refer to the **Soybeans – Dual Magnum Alone** section above.

The combined total amount of Dual Magnum from all applications in the fall plus the spring must not exceed 2.6 pt/A. The combined total amount of S-metolachlor from all applications to soybeans must not exceed 2.5 lb ai/A.

The tank mixtures with Dual Magnum identified in Table 11 may be applied to soybeans for improved residual control. Refer to individual product labels for precautionary statements, restrictions, rates, approved uses, rotational restrictions and a list of weeds controlled. Follow the most restrictive label.

Table 11. Dual Magnum Tank Mixtures for Application in Soybeans

Tank-Mix	Application Timing	Comments
Gramoxone Brands Roundup Brands Touchdown Brands	Preplant Surface Preemergence	<ul style="list-style-type: none"> Use this tank mixture for burndown plus residual control in reduced or no-till systems.
Authority® MTZ TriCor	Preplant Surface Preemergence	<ul style="list-style-type: none"> Use this tank mixture for additional residual control. Do not use this tank mix on soil with less than 0.5% organic matter. Do not use this tank mix on alkaline soil with a pH over 7.4. If heavy rain occurs soon after application, crop injury may result. Use of this tank mix is not recommended for soybean varieties known to be metribuzin sensitive.

continued...

Table 11. Dual Magnum Tank Mixtures for Application in Soybeans (continued)

Tank-Mix	Application Timing	Comments
Canopy Authority® First Authority® Maxx Classic® FirstRate® Sharpen® Sonic® Verdict®	Preplant Surface Preemergence	<ul style="list-style-type: none"> • Use this tank mixture for additional residual control.
Classic FirstRate Flexstar® Fusilade® DX Fusion® Prefix® Python® Reflex®	Postemergence	<ul style="list-style-type: none"> • Dual Magnum alone will not control emerged weeds. • Use this tank mixture for control of emerged weeds plus residual control of grasses and small seeded broadleaf weeds. • Follow the tank mix product label for adjuvant use instructions. • The use of COC or UAN with Dual Magnum may result in temporary crop injury.
Flexstar® GT Roundup Brands Touchdown Brands	Postemergence	<ul style="list-style-type: none"> • Dual Magnum alone will not control emerged weeds. • Use this mixture for residual control. • Use this mixture only on glyphosate tolerant soybeans. • Follow the tank mix product label for adjuvant use instructions.
Liberty	Postemergence	<ul style="list-style-type: none"> • Dual Magnum alone will not control emerged weeds. • Use this mixture for residual control. • Use this mixture only on soybeans that are tolerant to glufosinate (e.g. LibertyLink). • Follow the Liberty product label for adjuvant use instructions. • The use of COC or UAN with Dual Magnum may result in temporary crop injury.

Restrictions For All Dual Magnum Soybean Tank Mixture Applications: (1) Preharvest Interval (PHI): Do not apply within 90 days of harvest. (2) Do not graze or feed treated soybean forage, hay, or straw to livestock for 30 days following a preplant surface, preplant incorporated or preemergence application. (3) Do not graze or feed treated forage or hay from soybeans to livestock following a postemergence application of Dual Magnum. (4) For all tank mixtures, refer to individual product labels for precautionary statements, restrictions, rates, approved uses, rotational restrictions and a list of weeds controlled. Follow the most restrictive label. (5) The combined total amount of Dual Magnum from all applications in the fall plus the spring must not exceed 2.6 pt/A per year. (6) The combined total amount of S-metolachlor from all applications to soybeans must not exceed 2.5 lb ai/A per year. (7) Do not apply more than 1.33 pt/A per year of Dual Magnum postemergence to soybeans. (8) Do not apply Dual Magnum to frozen ground.

SUGAR BEETS – DUAL MAGNUM ALONE

Postemergence Applications

Dual Magnum may be applied postemergence to sugar beets after the sugar beets have reached the first true leaf stage. However, because Dual Magnum is primarily a soil-active herbicide, it must be applied prior to weed emergence in order to provide consistent control of listed weeds. As such, weeds that are emerged with or before the crop, or that are present at the time Dual Magnum is applied, must be controlled with another appropriately labeled herbicide. Apply Dual Magnum at 1 pt/A on *coarse soils*, 1.33 pt/A on *medium soils*, and 1.67 pt/A on *fine soils*. More than one postemergence application may be applied, but the total must not exceed 2.6 pt/A. Weeds present at the time of application will not be controlled.

Restrictions: (1) Preharvest Interval (PHI): Do not harvest within 60 days after the last application. (2) Do not apply more than 2.67 pt/A postemergence.

Precaution: In coarse soils, Dual Magnum applied before emergence of sugar beets (i.e., other than postemergence) may cause injury.

SUGAR BEETS – DUAL MAGNUM TANK MIX COMBINATIONS

Dual Magnum may tank mixed with Assure® II, Betamix®, Betanex®, Poast®, Progress®, Select®, Stinger®, or Upbeet® and applied to sugar beets. Tank mixtures of these products with Dual Magnum will increase the risk of crop injury over that of either product applied alone, as the Dual Magnum formulation has some adjuvant properties. The addition of a spray adjuvant such as crop oil concentrates (COC's) or methylated seed oils (MSO's) can further increase the risk of crop injury. Injury risk can be reduced by using the lowest effective rate of the tank mix partner(s) and/or adjuvant and by avoiding applications under adverse growing conditions or high soil or air humidity. Refer to the individual product labels and follow all use restrictions and limitations.

SUNFLOWERS – DUAL MAGNUM ALONE

Preplant Incorporated or Preemergence

Within the rate ranges given below, use the higher rate of Dual Magnum if heavy weed infestations are expected. On *coarse soils* with organic matter of less than 3%, apply 1.0-1.33 pt/A of Dual Magnum; 1.33 pt/A if organic matter is 3% or greater. On *medium soils*, apply 1.33-1.67 pt/A of Dual Magnum. On *fine soils* with organic matter of less than 3%, apply 1.33-1.67 pt/A of Dual Magnum; 1.67-2.0 pt/A if organic matter content is 3% or greater.

Restrictions: (1) Do not allow livestock to graze or feed in treated area. (2) Do not exceed the maximum label rates given above for sunflowers for the soil type.

TOMATOES – DUAL MAGNUM ALONE

Transplanted

Dual Magnum may be applied preplant incorporated or preplant before transplanting. If the latter method is used, keep soil disturbance to a minimum during the transplanting operation. Application may also be made post-directed to transplants after the first settling rain or irrigation. When an application is made post-directed, apply in a minimum of 20 gallons of water per acre and minimize contact with tomato plants. Dual Magnum will not control emerged weeds. In bedded transplanted tomatoes, apply Dual Magnum preplant non-incorporated to the top of the pressed bed, as the last step, prior to laying plastic. Dual Magnum may also be used to treat row-middles in bedded tomatoes, as long as the total amount of Dual Magnum does not exceed the maximum allowed per crop.

Seeded

Dual Magnum may be applied post-directed to direct seeded tomatoes. Tomato plants must be at least 4 inches tall at the time of application and the product must be applied in a minimum of 20 gallons of water per acre. Minimize spray contact with tomato plants. Dual Magnum will not control emerged weeds.

Tomato Use Rates: On *coarse soils*, apply 1.0-1.33 pt/A of Dual Magnum if organic matter content is less than 3% or 1.33 pt/A if organic matter is 3% or greater. On *medium soils*, apply 1.33-1.67 pt/A of Dual Magnum. On *fine soils*, apply 1.33-1.67 pt/A of Dual Magnum if organic matter content is less than 3% or 1.67-2.0 pt/A if organic matter content is 3% or greater.

Precautions: (1) Application to varieties or cultivars with unknown tolerance to Dual Magnum may result in crop injury. (2) Dual Magnum may damage transplants that have been weakened by any cause. To prevent damage, plant only healthy transplants and avoid planting when wet, cool, or unfavorable growing conditions exist. (3) In transplanted tomatoes, if Dual Magnum is applied preplant incorporated, incorporate to a depth less than the depth of transplanting, and use the lower end of the rate range for the given soil type, or damage may occur. (4) For row middle applications where tomatoes are grown on sandy soils and where high soil moisture conditions can exist (e.g., low binding and high evaporation conditions), as may be found in the States of Florida, Georgia, Maryland, and Virginia, there is potential for crop injury in the form of leaf epinasty. The risk of this type of injury can be reduced by: a) incorporating the Dual Magnum immediately following application, b) applying the Dual Magnum seven or more days before transplanting (but only after the beds have been formed), c) minimizing the application of Dual Magnum onto the plastic of the bed, or d) any combination of the above.

Restrictions:

Do not exceed the maximum label rate for the soil texture per year.

Apply only by ground application.

90 Day PHI - If the single application rate of Dual Magnum is greater than 1.33 pt/A per year (up to 2.0 pt/A per year) do not harvest tomatoes within 90 days of application.

30 Day PHI - If the application rate of Dual Magnum does not exceed 1.33 pt/A per year, do not harvest tomatoes within 30 days of application.

When applying at 1.33 pt/A per year with a 30 day PHI, the following restrictions apply:

- Do not exceed two applications per growing season.
- The use of adjuvants is prohibited.
- Applications may be made using ground equipment, in concentrated spray volumes.
- Applications may be made as a foliar broadcast spray to the soil within a week of transplanting and again at blooming/fruiting to the row middles as a banded/directed application 38-77 days after the first treatment.

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage or disposal.

Pesticide Storage

This product may be stored at temperatures down to 30 degrees below 0°F.

Pesticide Disposal

Open dumping is prohibited. Wastes resulting from the use of this product are toxic. Improper disposal of unused pesticide, spray mixture, or rinsate is a violation of federal law. Pesticide, spray mixture, or rinsate that cannot be used according to label instructions must be disposed of according to federal, state, or local procedures. For guidance in proper disposal methods, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office.

Container Handling [less than or equal to 5 gallons]

Non-refillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container $\frac{1}{4}$ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures approved by state and local authorities.

Container Handling [greater than 5 gallons]

Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the person refilling. To clean container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures approved by state and local authorities.

Container Handling [greater than 5 gallons]

Non-refillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container $\frac{1}{4}$ full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures approved by state and local authorities.

For minor spills, leaks, etc., follow all precautions indicated on this label and clean up immediately. Take special care to avoid contamination of equipment and facilities during cleanup procedures and disposal of wastes. In the event of a major spill, fire, or other emergency, call 1-800-888-8372, day or night.

AAtrex®, AAtrex Nine-O®, Beacon®, Bicep Magnum®, Bicep II Magnum®, Caparol®, Concep®, Dual Magnum®, Dual II Magnum®, Dual IIG Magnum®, Eptam®, Eradicane®, Evik®, Exceed®, Flexstar®, Flexstar® GT, Fusilade®, Fusion®, Gramoxone®, Prefix®, Princep®, Princep® Caliber 90®, Reflex®, Touchdown®, the ALLIANCE FRAME  the SYNGENTA Logo and the PURPOSE ICON  are Trademarks of a Syngenta Group Company

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For non-emergency (e.g., current product information) call
Syngenta Crop Protection at 1-800-334-9481.

Manufactured for:
Syngenta Crop Protection, LLC
P. O. Box 18300
Greensboro, North Carolina 27419-8300

SCP 816A-L1W 0715
4059017

Sale, use and distribution of this product in Nassau and Suffolk Counties in the State of New York is prohibited.

GROUP 15 HERBICIDE

Dual Magnum® Herbicide

For weed control in corn; cotton; grasses grown for seed; horseradish; peanuts; beans, peas, and lentils; potatoes; pumpkin; rhubarb; sugar beets; sunflowers; safflowers; sweet, grain or forage sorghum; soybean; soybean, immature seed; and tomatoes

Active Ingredient:	
S-metolachlor (CAS No. 87392-12-9)	83.7%
Other Ingredients:	16.3%
Total:	100.0%

Dual Magnum is formulated as an Emulsifiable Concentrate (EC).

Dual Magnum contains 7.62 lb of active ingredient per gallon.

See directions for use in attached booklet.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. Refer to supplemental labeling under "Agricultural Use Requirements" in the Directions for Use section for information about this standard.

EPA Reg. No. 100-816
EPA Est. 070989-IA-001

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Manufactured for:
Syngenta Crop Protection, LLC
P. O. Box 18300
Greensboro, North Carolina 27419-8300

**SCP 816A-L1W 0715
4059017**

2.5 gallons

Net Contents

KEEP OUT OF REACH OF CHILDREN.

CAUTION

Precautionary Statements

Hazards to Humans and Domestic Animals
Causes moderate eye irritation. Harmful if swallowed or absorbed through skin. Avoid contact with eyes, skin, or clothing. May cause skin sensitization reactions in certain individuals.

FIRST AID

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

If swallowed: Call a poison control center or doctor immediately for treatment advice. Do not give any liquid to the person. Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give anything by mouth to an unconscious person.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.

Have the product container or label with you when calling a Poison Control Center or doctor, or going for treatment.

HOT LINE NUMBER: For 24 Hour Medical Emergency Assistance (Human or Animal) Or Chemical Emergency Assistance (Spill, Leak, Fire or Accident), Call **1-800-888-8372**.

Environmental Hazards: Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment wash water or rinsate.

Ground Water Advisory: The active ingredient in Dual Magnum has the potential to leach through soil into ground water under certain conditions as a result of agricultural use. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

Surface Water Advisory: The active ingredient in Dual Magnum has the potential to contaminate surface water through ground spray drift. Under some conditions, the active ingredient may also have a high potential for runoff into surface water (primarily via dissolution in runoff water) for several months post-application. These include poorly draining or wet soils with readily visible slopes toward adjacent surface waters, frequently flooded areas, areas overlaying extremely shallow ground water, areas with in-field canals or ditches that drain to surface water, areas not separated from adjacent surface waters with vegetated filter strips, and areas overlaying tile drainage systems that drain to surface water.

Mixing/Loading Instructions: Care must be taken when using this product to prevent back-siphoning

into wells, spills, or improper disposal of excess pesticide, spray mixtures, or rinsates.

Check-valves or antisiphoning devices must be used on all mixing and/or irrigation equipment.

This product must not be mixed or loaded within 50 ft of perennial or intermittent streams and rivers, natural or impounded lakes and reservoirs. This product must not be mixed/loaded or used within 50 ft of all wells, including abandoned wells, drainage wells, and sink holes*.

*For exceptions to this restriction, see the **Environmental Hazards** section of the **Precautionary Statements** in attached booklet.

Aerial Drift Management Requirements: Do not apply this product by air, unless the supplemental labeling on **Aerial Drift Management** in attached booklet is followed.

Chemigation: Refer to supplemental labeling in attached booklet for use directions for chemigation. Do not apply this product through any irrigation system, unless the supplemental labeling on chemigation is followed.

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage or disposal.

Pesticide Storage: This product may be stored at temperatures down to 30 degrees below 0°F.

Pesticide Disposal: Open dumping is prohibited. Wastes resulting from the use of this product are toxic. Improper disposal of unused pesticide, spray mixture, or rinsate is a violation of federal law. Pesticide, spray mixture, or rinsate that cannot be used according to label instructions must be disposed of according to federal, state, or local procedures. For guidance in proper disposal methods, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office.

Container Handling: Non-refillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures approved by state and local authorities.

For minor spills, leaks, etc., follow all precautions indicated on this label and clean up immediately. Take special care to avoid contamination of equipment and facilities during cleanup procedures and disposal of wastes. In the event of a major spill, fire, or other emergency, call 1-800-888-8372, day or night.

