

GROUP	15	HERBICIDE
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## DUAL<sup>®</sup> II MAGNUM<sup>®</sup> Herbicide

AGRICULTURAL

Emulsifiable Concentrate for Selective Weed Control

**GUARANTEE:**

S-Metolachlor\* ..... 915 g/L

\* and R-enantiomer

**READ THE LABEL AND ATTACHED BOOKLET BEFORE USING**

**WARNING: EYE IRRITANT  
POTENTIAL SKIN SENSITIZER**

REGISTRATION NO.: **25729**  
PEST CONTROL PRODUCTS ACT

**Syngenta Crop Protection Canada, Inc.**  
140 Research Lane, Research Park  
Guelph, Ontario  
N1G 4Z3  
Telephone: 1-877-964-3682

BOOKLET

## NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

## FIRST AID

**IN CASE OF POISONING**, contact a physician or a poison control centre **IMMEDIATELY**. Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

**IF SWALLOWED**, call a poison control centre or doctor **IMMEDIATELY** for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give any liquid to the person. Do not give anything by mouth to an unconscious person.

**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 centre 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 centre or doctor for treatment advice.

**IF INHALED**, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

**NOTE:** This product may cause skin sensitization reactions in certain individuals.

## TOXICOLOGICAL INFORMATION

If swallowed, there is no specific antidote. Treat symptomatically. If a large amount has been ingested and emesis has been inadequate, lavage stomach. The active ingredient in this product, S-Metolachlor, has a high affinity for activated charcoal. A suspension of activated charcoal in water can be given to absorb the remaining toxicant. Skin reactions have been treated with antihistamines and ointments containing an anti-inflammatory agent. This product contains a petroleum distillate.

## PRECAUTIONS

**KEEP OUT OF THE REACH OF CHILDREN.** Harmful if swallowed. Avoid contact with eyes or prolonged contact with skin. Avoid inhalation of vapours or spray mist. Do not contaminate food, feed, domestic or irrigation water supplies, lakes, streams and ponds.

Wear a long-sleeve shirt, long pants, a hat, and enclosed boots during all activities. For application to ornamentals using hand-held application equipment, wear the previously mentioned

clothing plus chemical-resistant gloves. When handling the concentrate wear a long-sleeve shirt, long pants, a hat, enclosed boots, chemical-resistant gloves and goggles or a face shield. Avoid breathing vapours or spray mist. If ventilation is not adequate, wear an appropriate pesticide respirator. Do not eat, drink, smoke or apply cosmetics in areas where there is potential for exposure to this product. Wear freshly laundered clothes daily. Wash hands and face before eating, drinking, smoking or using the toilet. Store and wash all protective clothing separately from household laundry. Wash clothing in detergent and hot water before reuse.

DO NOT re-enter treated areas within 12 hours of treatment. If required, individuals may re-enter treated areas within 12 hours of treatment for short term tasks not involving hand labour if at least 4 hours have passed since application and long-sleeved shirt, long pants and chemical resistant gloves are worn.

## ENVIRONMENTAL HAZARDS

To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body. For the protection of aquatic plants, overspray or drift to important wildlife habitats such as wetlands, sloughs or dry slough borders and water bodies should be avoided. Leave a buffer zone of 29 metres between the last spray swath and the edge of any of these habitats. Drift to emerging vegetation or newly emerged vegetation in shelterbelts or woodlots should be avoided. For tank mixes, consult the label(s) of the tank mix partner(s), and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture.

This product contains a petroleum distillate which is moderately to highly toxic to aquatic organisms. Avoid contamination of aquatic systems during application. Do not contaminate these systems through direct application, disposal of waste or cleaning equipment.

**CAUTION:** Do not graze treated immature crops or cut for hay. Sufficient data are not available to support such use. In the case of corn, immature means before ear emergence. Do not harvest corn within 80 days of making a post-emergent application. Make only one application per season.

When applied as a tank mix combination, read and observe all label directions, including rates, restrictions, and grazing limitations for each product used in the tank mix. Follow the more stringent label precautionary measures for mixing, loading and applying stated on both product labels.

## DO NOT APPLY BY AIR

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's web site at [www.croplife.ca](http://www.croplife.ca).

## DISPOSAL OF UNUSED, UNWANTED PRODUCT

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

### CONTAINER DISPOSAL OR REFILLING:

#### **For recyclable containers:**

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

#### **For refillable containers:**

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not use this container for any other purpose.

***IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL, FIRE OR POISONING,  
CALL 1-800-327-8633 (FASTMED)***

## DIRECTIONS FOR USE

### CROP INFORMATION:

DUAL II Magnum herbicide provides selective weed control in:

- Corn \* (hybrid, silage, seed, sweet)
- Soybeans
- Dry common beans (*Phaseolus vulgaris*)
- Snap common beans (yellow and green)
- Lima beans
- Potatoes
- Sugar beets
- Red beets
- Transplanted tomatoes
- Rutabagas
- Sweet white lupins
- Carrots
- Peas (grown for processing)
- Fruit trees (bearing and non-bearing)
- Second-year or older poplar stoolbeds

Second-year or older transplant or seedling stock of:  
 White Spruce, Norway Spruce, Black Spruce, White Pine, Jack Pine and Red Pine  
 Transplanted broccoli, cabbage, cauliflower and mustard greens  
 Newly planted strawberries  
 Field peppers  
 Outdoor Ornamentals (Woody and Herbaceous)  
 Asparagus (established beds)  
 Established conifers for field production

\* DUAL II Magnum herbicide contains benoxacor which has been shown to enhance S-Metolachlor metabolism in corn. This enhanced metabolism can reduce the potential of S-Metolachlor injury to corn seedlings when grown under unfavourable weather conditions such as cool temperature or water stress. Use of DUAL II Magnum herbicide will not provide improved crop safety on other labelled crops.

### WEEDS CONTROLLED:

American Nightshade <sup>1</sup>	Fall Panicum
Eastern Black Nightshade <sup>1</sup>	Foxtail (green, yellow, giant)
Crabgrass (smooth, hairy)	Old Witchgrass
Barnyard Grass	Yellow Nutsedge <sup>2</sup>
Redroot Pigweed <sup>3</sup> (suppression only)	

<sup>1</sup> Pre-emergent treatments sometimes give better control than pre-plant surface, pre-plant incorporated or post-emergent treatments.

<sup>2</sup> Pre-plant incorporated treatment only. Extended periods of dry hot weather following application may result in reduced nutsedge control.

<sup>3</sup> Pre-plant incorporated and pre-emergent treatments only.

As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

### TIMING OF APPLICATION:

EASTERN CANADA	PRAIRIES & INTERIOR B.C.	COASTAL B.C.
Pre-plant Surface or Pre-plant Incorporated or Pre-emergent or Early Post-Emergent	Pre-plant Incorporated or Pre-emergent if irrigated within 10 days	Pre-emergent

### APPLICATION INFORMATION

DO NOT APPLY BY AIR

**PRE-PLANT SURFACE APPLICATION:**

- For minimum tillage (reduced tillage), and no-till (zero-till) systems in corn and soybeans.
- Applications may be made up to 30 days before planting.
- 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.

**PRE-PLANT INCORPORATION:**

- Immediate incorporation is not necessary.
- Incorporation equipment should include rolling or western harrows.
- On sandy soils, heavy rainfall following an incorporated treatment may cause leaching of the herbicide.

INCORPORATION INSTRUCTIONS		
TYPE OF EQUIPMENT	MAXIMUM WORKING DEPTH	MINIMUM SPEED
"S"-Tine (Danish) cultivator	10 cm	10 km/hr
"C"-Tine cultivator with overlapping sweeps	10 cm	10 km/hr
Tandem disc (maximum 18 cm spacing between discs)	10 cm	6 km/hr
Power driven cultivator	5 cm	any
Mulch Master	5 cm	10 km/hr

DUAL II Magnum herbicide may be applied as an overall spray or as a band treatment. For band treatment, a suitable press wheel mounted ahead of the nozzle should be used for levelling the band. For band application, use proportionately less material.

**PRE-EMERGENT APPLICATION:**

- Apply evenly to a firm, lump-free seed bed.
- Rain is required within 10 days or a shallow cultivation or use of a rotary hoe is necessary.
- Pre-emergent applications may also be made in reduced tillage, ridge tillage, and no-till systems in corn and soybeans.
- Minimize exposure of untreated soil when cultivating or fertilizing.

**POST-EMERGENT APPLICATION:**

- CORN ONLY
- Apply when corn is in the spike to 6-leaf stage and **before weeds pass the 2-leaf stage**.
- Some leaf burn may occur but yield will not be affected.
- DO NOT tank-mix DUAL II Magnum herbicide with fluid fertilizers, oils, oil concentrates or surfactants when applying post-emergent.
- Do not graze/feed or harvest corn within 80 days of making a post-emergent application.

**CAUTION:**

Do not apply to soils that contain less than 1% or more than 10% organic matter. Winter cereals may be planted 4 1/2 months following application. If drought conditions persist after either a pre-plant surface, pre-plant incorporated or pre-emergent application, annual grass control may not be adequate.

**LIQUID FERTILIZERS:**

Nitrogen solutions or complete liquid fertilizers may replace water as a carrier for pre-plant surface, pre-plant incorporated or pre-emergent application of DUAL II Magnum herbicide alone or in tank mixes in corn. Do not use fertilizer solutions for post-emergent applications. Always predetermine the compatibility of DUAL II Magnum herbicide or labelled DUAL II Magnum herbicide tank mixes with your water or liquid fertilizer carrier by mixing small proportional quantities in advance. Always consult the label of the tank mix partner if tank mixtures are to use liquid fertilizer as the carrier.

**DRY BULK GRANULAR FERTILIZERS:**

Many dry bulk granular fertilizers may be impregnated with DUAL II Magnum herbicide plus AAtrex<sup>®</sup> herbicide for pre-plant incorporated application to control weeds in corn. Prepare the herbicide/fertilizer mixtures by using any commonly used dry bulk fertilizer blender. Spray herbicide mixture uniformly onto fertilizer. If the herbicide/fertilizer mixture is too wet, the use of a highly absorptive powder (generally less than 2% by weight) such as Microcel E, diatomaceous earth or finely powdered clay is recommended.

For best results, apply DUAL II Magnum herbicide/fertilizer mixtures or DUAL II Magnum herbicide plus AAtrex herbicide/fertilizer mixtures uniformly to the soil with properly calibrated equipment immediately after blending and incorporate according to label directions.

**Note:** Apply a minimum of 225 kg per hectare of dry granular fertilizer impregnated with recommended rates of DUAL II Magnum herbicide alone or DUAL II Magnum herbicide tank mixtures.

**Do not impregnate DUAL II Magnum herbicide alone or with AAtrex herbicide onto nitrate fertilizers, superphosphates, or limestone.**

**MIXING AND SPRAYING INSTRUCTIONS:**

- . Spray Pressure - 200 - 300 kPa
  - . Spray Volume - minimum 150 litres per hectare. The use of higher water volumes and larger spray tip sizes will generally increase spray deposition and reduce drift.
  - . Keep bypass line at bottom of tank to minimize foaming.
  - . Use 16 mesh suction screens, 50 mesh line and tip screens.
1. Fill sprayer 1/2 full of carrier. Start gentle agitation.
  2. Add wettable powder or wettable granule tank-mix partner, if applicable. Slurry with water first if using liquid fertilizers as the carrier.
  3. Add liquid flowable tank-mix partner, if applicable, and agitate thoroughly.
  4. Fill tank 9/10 full of carrier and add DUAL II Magnum herbicide and other emulsifiable concentrate or solution tank-mix partners.

5. Top off tank with carrier, maintain agitation and spray.
6. Do not let stand without agitation.
7. Sprayer equipment should be thoroughly flushed with clean water and drained before and after use of DUAL II Magnum herbicide and its tank mixes.

**Note:** If using Fieldstar<sup>†</sup> herbicide ensure that the water soluble packets and the Fieldstar herbicide are completely dissolved before proceeding to the next step.

## CORN

### TANK MIXTURES (EASTERN CANADA ONLY):

TIMING	WEEDS CONTROLLED	RATE/HA DUAL II MAGNUM <sup>1</sup> HERBICIDE	RATE PER HECTARE/TANK MIX PARTNER <sup>2</sup>
Pre-plant Surface (up to 30 days before planting)	Annual Grasses and Broadleaf Weeds <sup>3</sup>	1.25 - 1.75 L	+ 1.1 - 1.7 kg AAtrex Nine-0 <sup>®</sup> or 2.1 - 3.1 L AAtrex Liquid 480 <sup>®</sup> or 216 g Fieldstar <sup>4,7</sup>
	Annual Grasses, Emerged Annual or Perennial Weeds	1.25 - 1.75 L	+ 2.6 - 2.7 L TOUCHDOWN <sup>®</sup> 480 <sup>5</sup> or 2.0 L TOUCHDOWN 600 <sup>5</sup> or 1.7 – 1.8 L TOUCHDOWN TOTAL <sup>5</sup> or 2.35 – 2.5 L TOUCHDOWN iQ <sup>5</sup> or 2.35 - 2.5 L Roundup <sup>†</sup> Original <sup>5</sup> or 2.35 - 2.5 L Roundup Transorb <sup>5</sup> or 1.23 - 1.30 kg Roundup Dry (68.5% glyphosate) <sup>5</sup> or 2.35 - 2.5 L Glyphos <sup>†5</sup> or 2.35 - 2.5 L Credit <sup>†5</sup> or 2.35 - 2.5 L Vantage <sup>†5</sup> or 2.35 - 2.5 L Vantage Plus <sup>†5</sup> or 2.35 - 2.5 L Renegade <sup>†5</sup>
	Annual Grasses and Broadleaf Weeds, Emerged Annual or Perennial Weeds	1.25 - 1.75 L	+ 1.1 - 1.7 kg AAtrex Nine-0 <sup>6</sup> or 2.1 - 3.1 L AAtrex Liquid 480 <sup>6</sup>  + 2.6 - 2.7 L TOUCHDOWN 480 <sup>5</sup> or 2.0 L TOUCHDOWN 600 <sup>5</sup> or 1.7 – 1.8 L TOUCHDOWN TOTAL <sup>5</sup> or 2.35 – 2.5 L TOUCHDOWN iQ <sup>5</sup> or 2.35 - 2.5 L Roundup Original <sup>5</sup> or 2.35 - 2.5 L Roundup Transorb <sup>5</sup> or 1.23 - 1.30 kg Roundup Dry (68.5% glyphosate) <sup>5</sup> or 2.35 - 2.5 L Glyphos <sup>5</sup> or 2.35 - 2.5 L Credit <sup>5</sup> or 2.35 - 2.5 L Vantage <sup>5</sup> or 2.35 - 2.5 L Vantage Plus <sup>5</sup> or 2.35 - 2.5 L Renegade <sup>5</sup>

TIMING	WEEDS CONTROLLED	RATE/HA DUAL II MAGNUM <sup>1</sup> herbicide	RATE PER HECTARE/TANK MIX PARTNER <sup>2</sup>
Pre-plant Incorporated	Nutsedge, Annual Grasses	1.25 - 1.75 L	DUAL II Magnum herbicide applied alone
	Nutsedge, Annual Grasses and Broadleaf Weeds	1.25 - 1.75 L	+ 1.1 - 1.7 kg AAtrex Nine-0 or 2.1 - 3.1 L AAtrex Liquid 480 or 216 g Fieldstar <sup>7</sup>
Pre-emergent	Annual Grasses	1.25 - 1.75 L	DUAL II Magnum herbicide applied alone
	Annual Grasses and Broadleaf Weeds	1.25 - 1.75 L	+ 1.1 - 1.7 kg AAtrex Nine-0 or 2.1 - 3.1 L AAtrex Liquid 480
	Annual Grasses and Broadleaf Weeds including triazine tolerant weeds	1.25 - 1.75 L	+ 1.25 L Banvel <sup>†</sup> II <sup>7</sup> or 3.7 - 4.5 L Marksman <sup>†7,8</sup> <b>OR</b> + 1.1 - 1.7 kg AAtrex Nine-O + 1.25 L Banvel II <sup>7</sup> <b>OR</b> + 2.1 - 3.1 L AAtrex Liquid 480 + 1.25 L Banvel II <sup>7</sup> <b>OR</b> + 216 g Fieldstar <sup>7</sup> <b>OR</b> + 0.3 L CALLISTO <sup>®</sup> 480SC <b>OR</b> + 0.3 L CALLISTO 480SC + 2.1 - 3.1 L AATREX Liquid 480
	Annual Grasses, Emerged Annual or Perennial Weeds	1.25 - 1.75 L	+ 2.6 - 2.7 L TOUCHDOWN 480 <sup>5</sup> or 2.0 L TOUCHDOWN 600 <sup>5</sup> or 1.7 - 1.8 L TOUCHDOWN TOTAL <sup>5</sup> or 2.35 - 2.5 L TOUCHDOWN iQ <sup>5</sup> or 2.35 - 2.5 L Roundup Original <sup>5</sup> or 2.35 - 2.5 L Roundup Transorb <sup>5</sup> or 1.23 - 1.30 kg Roundup Dry (68.5% glyphosate) <sup>5</sup> or 2.35 - 2.5 L Glyfos <sup>5</sup> or 2.35 - 2.5 L Credit <sup>5</sup> or 2.35 - 2.5 L Vantage <sup>5</sup> or 2.35 - 2.5 L Vantage Plus <sup>5</sup> or 2.35 - 2.5 L Renegade <sup>5</sup>
	Annual Grasses and the following annual Broadleaf Weeds including triazine tolerant weeds: Redroot Pigweed, Lamb's Quarters, Velvetleaf, Common Ragweed, Mustard (wild, wormseed), Eastern Black Nightshade	1.5 L	+ 70 g Converge <sup>†</sup> 75WDG <sup>7,9</sup>  + 1.1 L Converge 480 <sup>7,9</sup>

TIMING	WEEDS CONTROLLED	RATE/HA DUAL II MAGNUM <sup>1</sup> herbicide	RATE PER HECTARE/TANK MIX PARTNER <sup>2</sup>
Pre-emergent	Annual Grasses and Broadleaf Weeds, Emerged Annual or Perennial Weeds	1.25 - 1.75 L	+ 1.1 - 1.7 kg AAtrex Nine-0 <sup>6</sup> or 2.1 - 3.1 L AAtrex Liquid 480 <sup>6</sup>  + 2.6 - 2.7 L TOUCHDOWN 480 <sup>5</sup> or 2.0 L TOUCHDOWN 600 <sup>5</sup> or 1.7 - 1.8 L TOUCHDOWN TOTAL <sup>5</sup> or 2.35 - 2.5 L TOUCHDOWN iQ <sup>5</sup> or 2.35 - 2.5 L Roundup Original <sup>5</sup> or 2.35 - 2.5 L Roundup Transorb <sup>5</sup> or 1.23 - 1.30 kg Roundup Dry (68.5% glyphosate) <sup>5</sup> or 2.35 - 2.5 L Glyphos <sup>5</sup> or 2.35 - 2.5 L Credit <sup>5</sup> or 2.35 - 2.5 L Vantage <sup>5</sup> or 2.35 - 2.5 L Vantage Plus <sup>5</sup> or 2.35 - 2.5 L Renegade <sup>5</sup>
Early Post-Emergent (spike to 2-leaf stage)	Annual Grasses	1.25 - 1.75 L	DUAL II Magnum herbicide applied alone
	Annual Grasses and Broadleaf Weeds	1.25 - 1.75 L	+ 1.1 - 1.7 kg AAtrex Nine-0 or 2.1 - 3.1 L AAtrex Liquid 480
	Annual Grasses and Broadleaf Weeds including triazine tolerant weeds	1.25 - 1.75 L	+ 3.7 - 4.5 L. Marksman <sup>7,8</sup> or 600 mL - 1.25 L Banvel II <sup>7</sup> <b>OR</b> + 1.2 kg AAtrex Nine-0 + 600 mL - 1.25 L Banvel II <sup>7</sup> <b>OR</b> + 2.3 L AAtrex Liquid 480 + 600 mL - 1.25 L Banvel II <sup>7</sup> <b>OR</b> + 0.3 L CALLISTO 480SC <sup>10</sup> <b>OR</b> + 0.3L CALLISTO 480SC + 2.1 - 3.1 L AATREX Liquid 480 <sup>10</sup>
Post-Emergent (3 to 6-leaf stage) (hybrid and silage corn only)	Annual Grasses	1.25 - 1.75 L	DUAL II Magnum herbicide applied alone <sup>7</sup>
	Annual Grasses and Broadleaf Weeds	1.25 - 1.75 L	+ 1.1 - 1.7 kg AAtrex Nine-0 <sup>7</sup> or 2.1 - 3.1 L AAtrex Liquid 480 <sup>7</sup>
	Annual Grasses and Broadleaf Weeds including triazine tolerant weeds	1.25 - 1.75 L	+ 3.7 - 4.5 L. Marksman <sup>7,8,11</sup> or 600 mL - 1.25 L Banvel II <sup>7,11</sup> <b>OR</b> + 1.2 kg AAtrex Nine-0 + 600 mL - 1.25 L Banvel II <sup>7,11</sup> <b>OR</b> + 2.3 L AAtrex Liquid 480 + 600 mL - 1.25 L Banvel II <sup>7,11</sup>

<sup>1</sup> Use the higher rate of DUAL II Magnum herbicide for heavier weed populations.

<sup>2</sup> Consult the label of the product(s) to be tank mixed with DUAL II Magnum herbicide for specific instructions regarding broadleaf weeds, soil-type variations, and rotational crop, grazing or other restrictions.

<sup>3</sup> Apply pre-plant surface applications of DUAL II Magnum herbicide plus AAtrex herbicide only when emerged annual weeds are less than 6 cm tall. If emerged annual weeds are taller than 6

cm, apply TOUCHDOWN, Roundup, Glyphos, Credit, Vantage or Renegade herbicides prior to the tank mix application or make an application of a 3-way tank mix of DUAL II Magnum herbicide plus AAtrex plus TOUCHDOWN, Roundup, Glyphos, Credit, Vantage or Renegade herbicides. Consult the tank mix partner label for specific instructions regarding precautions, restrictions, recommended rates and additives.

Annual broadleaf weeds beyond the 2 leaf stage of growth will not be controlled by surface preplant applications of DUAL II Magnum herbicide and Fieldstar herbicide.

Some perennial weeds may not be controlled with these rates of TOUCHDOWN, Roundup, Glyphos, Credit, Vantage or Renegade herbicides. Consult the TOUCHDOWN, Roundup, Glyphos, Credit, Vantage or Renegade herbicide labels regarding perennial weeds controlled.

It is recommended that liquid formulations of products be used when tank mixing with TOUCHDOWN, Roundup, Glyphos, Credit, Vantage or Renegade herbicide. Consult the TOUCHDOWN, Roundup, Glyphos, Credit, Vantage or Renegade herbicide labels for specific instructions regarding precautions, restrictions, recommended rates and additives.

**DO NOT USE THESE TIMINGS OR TANK MIXES ON SEED CORN, SWEET CORN OR POPCORN.**

Use the lower rate of Marksman herbicide on sand or sandy loam soil and the higher rate on loam or clay soils.

Follow all soil type restrictions on the Converge 75WDG herbicide label.

**FIELD CORN ONLY**

Do not apply tank mixes containing Marksman or Banvel II beyond the 5 leaf stage of corn.

#### NOTES for Pre-plant Surface and Pre-emergent Applications Only:

For improved burndown of **small** emerged annual weeds, the following additives may be applied in mixtures of DUAL II Magnum herbicide with AAtrex Nine-0 or AAtrex Liquid 480 herbicides,:

- Crop Oil, 28-0-0 or 10-34-0 at 5% v/v
- Crop oil concentrate at 1% v/v
- Non-ionic surfactant at 0.1% v/v

If annual weeds are larger or perennial weeds are present, use TOUCHDOWN, Roundup, Glyphos, Credit, Vantage or Renegade herbicides in the tank mix (See preceding table).

#### TANK MIXTURES (WESTERN CANADA ONLY):

TIMING	WEEDS CONTROLLED	RATE/HA DUAL II MAGNUM <sup>1</sup> HERBICIDE	RATE PER HECTARE/TANK MIX PARTNER <sup>2</sup>
Pre-plant Incorporated	Green and Yellow Foxtail, Barnyard Grass and Broadleaf Weeds	1.25 - 1.75 L	+ 1.1 - 1.7 kg AAtrex Nine-0 or 2.1 - 3.1 L AAtrex Liquid 480
Pre-emergent with irrigation	Green and Yellow Foxtail, Barnyard Grass and Broadleaf Weeds	1.25 - 1.75 L	+ 1.1 - 1.7 kg AAtrex Nine-0 or 2.1 - 3.1 L AAtrex Liquid 480

<sup>1</sup> Use the higher rate of DUAL II Magnum herbicide for heavier weed problems.

<sup>2</sup> Consult the label of the product to be tank mixed with DUAL II Magnum herbicide for specific instructions regarding soil-type variations and other restrictions.

**SOYBEANS**  
**TANK MIXTURES:**

TIMING	WEEDS CONTROLLED <sup>1</sup>	RATE/HA DUAL II MAGNUM <sup>2</sup> HERBICIDE	RATE PER HECTARE/TANK MIX PARTNER <sup>3</sup>
Pre-plant Surface (up to 30 days before planting)	Annual Grasses and Broadleaf Weeds including Nightshade <sup>4</sup>	1.15 - 1.75 L	+ 1.0 - 2.2 L Sencor <sup>†</sup> 500F or Sencor 480F or 1.0 – 2.2 L Sencor Soybean or 670 g - 1.45 kg Sencor 75DF or 670 g - 1.45 kg Lexone <sup>†</sup> DF <sup>5</sup>
	Annual Grasses, Nightshade, Emerged Annual or Perennial Weeds	1.15 - 1.75 L	+ 2.6 - 2.7 L TOUCHDOWN 480 <sup>6</sup> or 2.0 L TOUCHDOWN 600 <sup>6</sup> or 1.7 – 1.8 L TOUCHDOWN TOTAL <sup>6</sup> or 2.35 - 2.5 L TOUCHDOWN iQ <sup>6</sup> or 2.35 - 2.5 L Roundup Original <sup>6</sup> or 2.35 - 2.5 L Roundup Transorb <sup>6</sup> or 1.23 - 1.30 kg Roundup Dry (68.5% glyphosate) <sup>6</sup> or 2.35 - 2.5 L Glyphos <sup>6</sup> or 2.35 - 2.5 L Credit <sup>6</sup> or 2.35 - 2.5 L Vantage <sup>6</sup> or 2.35 - 2.5 L Vantage Plus <sup>6</sup> or 2.35 - 2.5 L Renegade <sup>6</sup>
	Annual Grasses and Broadleaf Weeds including Nightshade, Emerged Annual or Perennial Weeds	1.15 - 1.75 L	+ 2.6 - 2.7 L TOUCHDOWN 480 <sup>6</sup> or 2.0 L TOUCHDOWN 600 <sup>6</sup> or 1.7 – 1.8 L TOUCHDOWN TOTAL <sup>6</sup> or 2.35 - 2.5 L TOUCHDOWN iQ <sup>6</sup> or 2.35 - 2.5 L Roundup Original <sup>6</sup> or 2.35 - 2.5 L Roundup Transorb <sup>6</sup> or 1.23 - 1.30 kg Roundup Dry (68.5% glyphosate) <sup>6</sup> or 2.35 - 2.5 L Glyphos <sup>6</sup> or 2.35 - 2.5 L Credit <sup>6</sup> or 2.35 - 2.5 L Vantage <sup>6</sup> or 2.35 - 2.5 L Vantage Plus <sup>6</sup> or 2.35 - 2.5 L Renegade <sup>6</sup>  + 1.0 - 2.2 L Sencor 500F <sup>7</sup> or Sencor 480F <sup>7</sup> or 1.0 – 2.2 L Sencor Soybean <sup>7</sup> or 670 g - 1.45 kg Sencor 75DF <sup>7</sup> or 670 g - 1.45 kg Lexone DF <sup>5,7</sup>

TIMING	WEEDS CONTROLLED <sup>1</sup>	RATE/HA DUAL II MAGNUM <sup>2</sup> HERBICIDE	RATE PER HECTARE/TANK MIX PARTNER <sup>3</sup>
Pre-plant Incorporated	Nutsedge, Annual Grasses and Nightshade	1.15 - 1.75 L	DUAL II Magnum herbicide applied alone
	Nutsedge, Annual Grasses and Broadleaf Weeds including Nightshade	1.15 - 1.75 L	+ 550 - 750 g Sencor 75DF or 850 mL - 1.1L Sencor 500F or Sencor 480F or 850 mL - 1.1L Sencor Soybean or 540 - 640 g Lexone DF <sup>5</sup> or 312 mL Pursuit <sup>†8</sup>
Pre-emergent	Annual Grasses and Nightshade	1.15 - 1.75 L	DUAL II Magnum herbicide applied alone
	Annual Grasses and Broadleaf Weeds including Nightshade	1.15 - 1.75 L	+ 850 mL - 2.25 L Sencor 500F or Sencor 480F or 850 mL - 2.25 L Sencor Soybean or 550 g - 1.5 kg Sencor 75DF or 540 - 960 g Lexone DF <sup>5</sup> or 1.6 - 2.5 L Afolan <sup>†</sup> F or 1.9 - 2.3 L Lorox <sup>†</sup> L <sup>5</sup> or 1.75 - 2.25 kg Lorox DF <sup>5</sup> or 312 - 420 mL Pursuit <sup>8</sup> or 210 - 550 g Lexone DF <sup>5</sup> plus 1.4 - 2.0 kg Lorox DF <sup>5</sup> or 210 - 550 g Lexone DF <sup>5</sup> plus 1.5 - 2.0 L Lorox L <sup>5</sup> or 465 - 665 g Sencor 75DF plus 1.4 - 2.0 kg Lorox DF <sup>5</sup> or 465 - 665 g Sencor 75DF plus 1.5 - 2.0 L Lorox L <sup>5</sup> or 750mL - 1.0 L Sencor 500F or Sencor 480F or Sencor Soybean plus 1.4 - 2.0 kg Lorox DF <sup>5</sup> or 750mL-1.0 L Sencor 500F or Sencor 480F or Sencor Soybean plus 1.5 - 2.0 L Lorox L <sup>5</sup>
	Annual Grasses, Nightshade, Emerged Annual or Perennial Weeds	1.15 - 1.75 L	+ 2.6 - 2.7 L TOUCHDOWN 480 <sup>6</sup> or 2.0 L TOUCHDOWN 600 <sup>6</sup> or 1.7 - 1.8 L TOUCHDOWN TOTAL <sup>6</sup> or 2.35 - 2.5 L TOUCHDOWN iQ <sup>6</sup> or 2.35 - 2.5 L Roundup Original <sup>6</sup> or 2.35 - 2.5 L Roundup Transorb <sup>6</sup> or 1.23 - 1.30 kg Roundup Dry (68.5% glyphosate) <sup>6</sup> or 2.35 - 2.5 L Glyphos <sup>6</sup> or 2.35 - 2.5 L Credit <sup>6</sup> or 2.35 - 2.5 L Vantage <sup>6</sup> or 2.35 - 2.5 L Vantage Plus <sup>6</sup> or 2.35 - 2.5 L Renegade <sup>6</sup>

TIMING	WEEDS CONTROLLED <sup>1</sup>	RATE/HA DUAL II MAGNUM <sup>2</sup> HERBICIDE	RATE PER HECTARE/TANK MIX PARTNER <sup>3</sup>
Pre-emergent	Annual Grasses and Broadleaf Weeds including Nightshade, Emerged Annual or Perennial Weeds	1.15 - 1.75 L	+ 2.6 - 2.7 L TOUCHDOWN 480 <sup>6</sup> or 2.0 L TOUCHDOWN 600 <sup>6</sup> or 1.7 – 1.8 L TOUCHDOWN TOTAL <sup>6</sup> or 2.35 - 2.5 L TOUCHDOWN iQ <sup>6</sup> or 2.35 - 2.5 L Roundup Original <sup>6</sup> or 2.35 - 2.5 L Roundup Transorb <sup>6</sup> or 1.23 - 1.30 kg Roundup Dry (68.5% glyphosate) <sup>6</sup> or 2.35 - 2.5 L Glyphos <sup>6</sup> or 2.35 - 2.5 L Credit <sup>6</sup> or 2.35 - 2.5 L Vantage <sup>6</sup> or 2.35 - 2.5 L Vantage Plus <sup>6</sup> or 2.35 - 2.5 L Renegade <sup>6</sup>  + 850 mL - 2.25 L Sencor 500F <sup>7</sup> or Sencor 480F <sup>7</sup> or 850 mL - 2.25 L Sencor Soybean or 550 g – 1.5 kg Sencor 75DF <sup>7</sup> or 540 - 960 g Lexone DF <sup>5,7</sup> or 312 - 420 mL Pursuit <sup>8</sup>

<sup>1</sup> For optimum nightshade control, use the higher rate of DUAL II Magnum herbicide applied pre-emergently and choose a tank-mix partner which is also registered for the control of nightshade.

<sup>2</sup> Use the higher rate of DUAL II Magnum herbicide for heavier weed problems. For redroot pigweed suppression, apply a minimum of 1.25 L of DUAL II Magnum herbicide per hectare.

<sup>3</sup> Consult the label of the product(s) to be tank mixed with DUAL II Magnum herbicide for specific instructions regarding broadleaf weeds, soil-type variations and rotational crop, grazing or other restrictions.

<sup>4</sup> Apply pre-plant surface applications of DUAL II Magnum herbicide plus Sencor herbicide or DUAL II Magnum herbicide plus Lexone herbicide only when emerged annual weeds are less than 6 cm tall. If emerged annual weeds are taller than 6 cm, apply TOUCHDOWN, Roundup, Glyphos, Credit, Vantage or Renegade herbicides prior to the tank mix application or make an application of a 3-way tank mix of DUAL II Magnum herbicide plus TOUCHDOWN, Roundup, Glyphos, Credit, Vantage or Renegade herbicides plus Sencor or Lexone herbicides. Consult the tank mix partner label for specific instructions regarding precautions, restrictions, recommended rates and additives.

<sup>5</sup> Tank mixes with Lexone or Lorox herbicides are for use in eastern Canada only.

<sup>6</sup> Some perennial weeds may not be controlled with these rates of TOUCHDOWN, Roundup, Glyphos, Credit, Vantage or Renegade herbicides. Consult the TOUCHDOWN, Roundup, Glyphos, Credit, Vantage or Renegade herbicide labels regarding perennial weeds controlled.

<sup>7</sup> It is recommended that liquid formulations of products be used when tank mixing with TOUCHDOWN, Roundup, Glyphos, Credit, Vantage or Renegade herbicides. Consult the TOUCHDOWN, Roundup, Glyphos, Credit, Vantage or Renegade herbicide labels for specific instructions regarding precautions, restrictions, recommended rates and additives.

<sup>8</sup> Do not apply Pursuit herbicide as a pre-plant incorporated application more than one year in sequence. Only soybeans, field corn, spring barley, spring wheat and winter wheat may be planted the season following application of Pursuit herbicide. Winter wheat should not be planted within 120 days of the application of Pursuit herbicide.

**CAUTION:** Soybeans should be seeded at least 4 cm deep or crop injury may result. Do not apply DUAL II Magnum herbicide if soybeans have emerged.

**Notes for Pre-plant Surface and Pre-emergent Applications ONLY:**

For improved burndown of **small** emerged annual weeds, the following additives may be applied in mixtures of DUAL II Magnum herbicide with Sencor 500F, Sencor 480F, Sencor Soybean, Sencor 75DF, Lexone DF, or Pursuit herbicides:

- Crop oil, 28-0-0, or 10-34-0 at 5% v/v
- Crop oil concentrate at 1% v/v
- Non-ionic surfactant at 0.1% v/v

If annual weeds are larger or perennial weeds are present use TOUCHDOWN, Roundup, Glyphos, Credit, Vantage or Renegade herbicides in the tank mix (See preceding table).

**OTHER BEANS**

SNAP COMMON BEANS (Yellow and Green Only)  
AND LIMA BEANS

**Eastern Canada and B.C.**

TIMING	WEEDS CONTROLLED	RATE PER HECTARE DUAL II MAGNUM <sup>1</sup> HERBICIDE
Pre-plant Incorporation	Annual Grasses and Nutsedge	1.15 - 1.75 L

<sup>1</sup> Use the higher rate of DUAL II Magnum herbicide for heavier weed problems. For redroot pigweed suppression apply a minimum of 1.25 L of DUAL II Magnum herbicide per hectare.

CAUTION: Beans should be seeded at least 4 cm deep or crop injury may result.

**POTATOES****TANK MIXTURES:**

TIMING	WEEDS CONTROLLED	RATE/HA DUAL II MAGNUM <sup>1</sup> HERBICIDE	RATE PER HECTARE/TANK MIX PARTNER <sup>2</sup>
Pre-plant Incorporated	Nutsedge, Annual Grasses and Broadleaf Weeds	1.25 - 1.75 L	+ 750 g - 1.5 kg Sencor 75DF or 1.1 - 2.25 L Sencor 500F or Sencor 480F or 830 g - 1.2 kg Lexone DF
Pre-emergent	Annual Grasses and Broadleaf Weeds	1.25 - 1.75 L	+ 1.6 - 2.5 L Afolan F or 750 g - 1.5 kg Sencor 75DF or 1.1 - 2.25 L Sencor 500F or Sencor 480F or 830 g - 1.2 kg Lexone DF or 1.9 - 2.3 L Lorox L or 1.75 - 2.25 kg Lorox DF

<sup>1</sup> Use the higher rate of DUAL II Magnum herbicide for heavier weed problems.

<sup>2</sup> Consult the label of the product to be tank mixed with DUAL II Magnum herbicide for specific instructions regarding soil-type variations and special restrictions.

CAUTION: Do not apply DUAL II Magnum herbicide at ground crack or if potatoes have emerged. Do not use on the variety Superior.

**SUGAR BEETS****TIMING OF APPLICATION:**

DUAL II Magnum herbicide can be applied as:

1. a pre-plant incorporated spray in tank mix combination with Pyramin<sup>†</sup> herbicide or,
2. a pre-emergent spray in tank mix combination with Pyramin herbicide or,
3. a pre-plant incorporated spray, followed by a pre-emergent spray of Pyramin herbicide.

RATE PER HECTARE DUAL II MAGNUM <sup>1</sup> HERBICIDE	RATE PER HECTARE/TANK MIX PARTNER <sup>2</sup>
1.25 - 1.75 L	8.25 - 10.25 L Pyramin FL 430 g/L

<sup>1</sup> Use the higher rate of DUAL II Magnum herbicide for heavier weed problems.

<sup>2</sup> Consult the Pyramin FL herbicide label for specific instructions regarding soil-type variations and other restrictions.

**RUTABAGAS (EASTERN CANADA ONLY)****TIMING OF APPLICATION:**

DUAL II Magnum herbicide can be applied either as:

1. a pre-plant incorporated spray or,
2. a pre-emergent spray.

RATES PER HECTARE DUAL II MAGNUM <sup>1</sup> HERBICIDE
1.25 - 1.75 L

<sup>1</sup> Use the higher rate of DUAL II Magnum herbicide for heavier weed problems.

To control nutsedge, DUAL II Magnum herbicide must be applied as a pre-plant incorporated spray.

**TRANSPLANTED TOMATOES - GROWN FOR PROCESSING****TANK MIXTURES:**

TIMING	WEEDS CONTROLLED	RATE/HA DUAL II MAGNUM <sup>1</sup> HERBICIDE	RATE PER HECTARE/TANK MIX PARTNER <sup>2</sup>
Pre-plant Incorporated	Annual Nightshades (American Nightshade, Eastern Black Nightshade), Nutsedge, Annual Grasses and Broadleaf Weeds	1.25 - 1.75 L	+ 0.5 - 1.4 L Sencor 500F or Sencor 480F

<sup>1</sup> Use the higher rate of DUAL II Magnum herbicide for heavier weed problems.

<sup>2</sup> Consult the label of the product to be tank mixed with DUAL II Magnum herbicide for specific instructions regarding weeds, rates, soil-type and organic matter variations and other restrictions.

**CAUTION:** DO NOT APPLY DUAL II MAGNUM HERBICIDE ON DIRECT-SEEDED TOMATOES.

**NOTE:** DUAL II MAGNUM HERBICIDE MAY DAMAGE TRANSPLANTS THAT HAVE BEEN WEAKENED BY ANY CAUSE RESULTING IN REDUCED CROP YIELD. TO

PREVENT DAMAGE, PLANT ONLY HEALTHY TRANSPLANTS. DO NOT PLANT WHEN WET, COOL OR UNFAVOURABLE GROWING CONDITIONS EXIST. FOLLOW ALL APPLICATION AND INCORPORATION DIRECTIONS EXACTLY.

### SWEET WHITE LUPINS

WEEDS CONTROLLED	TIMING	RATE/HA <sup>1</sup>	REMARKS
Annual Grasses	Pre-emergent	DUAL II Magnum herbicide 1.10 - 1.75 L	Make one treatment per year with ground application equipment. Apply in 200 - 300 L of total volume per hectare.

<sup>1</sup> Use the higher rate of DUAL II Magnum herbicide for heavier weed problems. For redroot pigweed suppression apply a minimum of 1.25 L of DUAL II Magnum herbicide per hectare.

### TANK MIXTURE (EASTERN CANADA ONLY)

WEEDS CONTROLLED	TIMING	RATE/HA <sup>1</sup>
Annual Grasses and Broadleaf Weeds including Nightshade <sup>3</sup>	Pre-emergent	DUAL II Magnum <sup>2</sup> herbicide 1.10 - 1.75 L plus Lorox DF 2.0 - 3.0 kg

#### REMARKS:

Make one treatment per year using ground application equipment. Apply in 200 - 300L of water/ha. **Do not spray after lupins have emerged.** Lupins should be planted at least 5 cm deep. Use the lower rate of Lorox DF herbicide on light coloured soils with less than 2% organic matter. Do not harvest lupins within 80 days of treatment.

<sup>1</sup> Consult the label of the product to be tank mixed with DUAL II Magnum herbicide for additional specific instructions regarding broadleaf weeds, soil-type variations and rotational crop, grazing or other restrictions.

<sup>2</sup> Use the higher rate of DUAL II Magnum herbicide for heavier weed problems. For redroot pigweed suppression apply a minimum of 1.25 L of DUAL II Magnum herbicide per hectare.

<sup>3</sup> For optimum nightshade control, use the higher rate of DUAL II Magnum herbicide.

### SWEET WHITE LUPINS

#### TANK MIXTURE (MARITIMES ONLY)

WEEDS CONTROLLED	TIMING	RATE/HA <sup>1</sup>
Annual Grasses and Broadleaf Weeds including Nightshade <sup>3</sup>	At planting or Pre-emergent	DUAL II Magnum <sup>2</sup> herbicide 1.10 - 1.75 L plus Sencor 75DF 670 g

#### REMARKS:

Make one application per year. Apply as a broadcast spray during planting or as a separate operation after planting but **before** the crop has emerged. Lupin seed must be planted at least 4 cm below the soil surface. Do **not** apply to sandy or light soils with less than 2% organic matter or to muck soils. Better weed control will be obtained if light rainfall or irrigation follows application.

Rotational crops such as onions, celery, peppers, cole crops, lettuce, spinach, sugar beets,

table beets, turnips, pumpkins, squash, cucumbers and melons, tobacco and non-triazine tolerant canola are sensitive to Sencor herbicide and may be injured if planted into soil treated with Sencor during the year of application and the following year. After-harvest tillage practices which provide thorough mixing of the soil may be helpful in reducing the possibility of injury to succeeding crops. Do **not** use treated vines for feed and forage.

<sup>1</sup> Consult the label of the product to be tank mixed with DUAL II Magnum herbicide for additional specific instructions regarding broadleaf weeds, soil-type variations and rotational crop, grazing or other restrictions.

<sup>2</sup> Use the higher rate of DUAL II Magnum herbicide for heavier weed problems. For redroot pigweed suppression apply a minimum of 1.25 L of DUAL II Magnum herbicide per hectare.

<sup>3</sup> For optimum nightshade control, use the higher rate of DUAL II Magnum herbicide.

### FIRST-YEAR (NON-BEARING) APPLE, APRICOT, SWEET AND SOUR CHERRY, PEACH, PEAR, PLUM TREES

TIMING	WEEDS CONTROLLED	RATE/HA	REMARKS
Post planting, pre-emergent to weeds	Annual Grasses and Broadleaf Weeds (Late- season emerging fall panicum and crabgrass may not be controlled by this treatment)	DUAL II Magnum <sup>1</sup> herbicide 1.25 - 1.75 L plus PRINCEP® Nine-T <sup>®1</sup> 1.1 - 2.2 kg	Apply once per year. Avoid contact with trunk and leaves of trees. Do not use on sandy soils with less than 2% organic matter. Best results are obtained with applications made after rain has settled the soil around trees. Use only a tractor mounted boom sprayer to apply.

<sup>1</sup> Use the higher rate of DUAL II Magnum herbicide and PRINCEP Nine-T herbicide for heavier weed problems.

### ESTABLISHED (BEARING) APPLE, APRICOT, SWEET AND SOUR CHERRY, PEACH, PEAR, PLUM TREES

TIMING	WEEDS CONTROLLED	RATE/HA	REMARKS
Post planting, pre-emergent to weeds	Annual Grasses	DUAL II Magnum herbicide 1.75 L	Apply once per year as a band under the trees. Avoid contact with trunk and leaves of trees. Do not use on sandy soils with less than 2% organic matter. Use only a tractor mounted boom sprayer to apply.
	Annual Grasses and Broadleaf Weeds (Late-season emerging fall panicum and crabgrass may not be controlled by this treatment)	DUAL II Magnum herbicide 1.75 L plus PRINCEP Nine-T 2.5 kg	Apply once per year as a band treatment under the trees. Avoid contact with trunk and leaves of trees. Do not use on sandy soils with less than 2% organic matter. Use only a tractor mounted boom sprayer to apply.
	Annual Grasses and Broadleaf Weeds	DUAL II Magnum herbicide 1.75 L plus Lexone DF 1.0 kg	Apply once per year as a band under the tree(s). Avoid contact with trunk and leaves of trees. Do not use on sandy soils with less than 2% organic matter. Use only a tractor mounted boom sprayer to apply.

**PROCESSING PEAS (Eastern Canada only)**

<b>TIMING</b>	<b>WEEDS CONTROLLED</b>	<b>RATE<sup>1</sup>/HA DUAL II MAGNUM HERBICIDE</b>	<b>REMARKS</b>
Pre-emergent	Eastern Black Nightshade, Annual Grasses	1.25 - 1.75 L	Make one application per year. Apply in 150-250 L water/ha. Apply by ground application equipment only.

<sup>1</sup> Use the higher rate of DUAL II Magnum herbicide for heavier weed problems.

**SECOND-YEAR OR OLDER WHITE SPRUCE, NORWAY SPRUCE, BLACK SPRUCE, WHITE PINE, JACK PINE AND RED PINE TRANSPLANT OR SEEDLING STOCK AND POPLAR STOOLBEDS**

<b>TIMING</b>	<b>WEEDS CONTROLLED</b>	<b>RATE/HA</b>	<b>REMARKS</b>
Pre-emergent or early post-emergent to weeds	Annual grasses and broadleaf weeds	DUAL II Magnum <sup>1</sup> herbicide 1.25 - 1.75 L	Apply to spruce and pine in forest tree nurseries prior to budbreak. DO NOT APPLY DUAL II MAGNUM HERBICIDE WITHIN 4 WEEKS AFTER BURST OR UNTIL THE NEEDLES HAVE HARDENED. May be applied as a pre-emergent or early post-emergent application to weeds before they pass the 2 leaf stage. For Poplar Stoolbeds, apply to dormant and flushing stoolbeds.

<sup>1</sup> Use the higher rate of DUAL II Magnum herbicide for heavier weed problems.

## READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR THE INDICATED SPECIAL USE APPLICATION

### NOTE TO USER:

The DIRECTIONS FOR USE for this product for the uses described below were developed by persons other than Syngenta Crop Protection Canada, Inc. and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion program. Syngenta Crop Protection Canada, Inc. itself makes no representation or warranty with respect to performance (efficacy) and/or crop tolerance (phytotoxicity) claims for this product when used on the crops listed below.

Accordingly, the Buyer and User assume all risks related to performance and crop tolerance arising, and agree to hold Syngenta Crop Protection Canada, Inc. harmless from any claims based on efficacy and/or phytotoxicity in connection with the uses described below.

### TRANSPLANTED CABBAGE, TRANSPLANTED CAULIFLOWER, TRANSPLANTED BROCCOLI

TIMING	WEEDS CONTROLLED	RATE <sup>1</sup> /HA DUAL II MAGNUM HERBICIDE	REMARKS
<b>Post Transplant</b> Apply within 2 days after transplanting and prior to weed emergence.  Do not incorporate.	Nightshade, Annual Grasses and Redroot Pigweed <sup>2</sup>	1.25 – 1.75 L	Make one application per year. Apply in 300 L water/ha. Apply by ground application equipment only.

<sup>1</sup> Use the higher rate of DUAL II Magnum herbicide for heavier weed problems.

<sup>2</sup> Suppression only.

### TRANSPLANTED TOMATOES - GROWN FOR PROCESSING TANK MIXTURES

TIMING	WEEDS CONTROLLED	RATE/HA DUAL II MAGNUM <sup>1</sup> HERBICIDE	RATE PER HECTARE/TANK MIX PARTNER <sup>2</sup>
Pre-plant Incorporated	Annual Nightshades (American Nightshade, Eastern Black Nightshade), Nutsedge, Annual Grasses and Broadleaf Weeds	1.0 – 1.25 L	+ 330 - 660 g Sencor 75DF plus 1.0 – 2.0L Treflan <sup>†</sup> EC <sup>3,4</sup> or 500 mL - 1 L Sencor 500F or Sencor 480 plus 1.0 – 2.0L Treflan EC <sup>3,4</sup>

<sup>1</sup> Use the higher rate of DUAL II Magnum herbicide for heavier weed problems and for control of nightshade.

<sup>2</sup> Consult the label of the product to be tank mixed with DUAL II Magnum herbicide for specific instructions regarding weeds, rates, soil-type and organic matter variations and other restrictions.

<sup>3</sup> Use lower rates on light textured soils, higher rates on heavier soils.

<sup>4</sup> Make Only One Application Per Year. Do Not Apply Within 60 Days Of Harvest

**CAUTION:** DO NOT APPLY ON DIRECT-SEEDED TOMATOES

**NOTE:** DUAL II Magnum herbicide MAY DAMAGE TRANSPLANTS THAT HAVE BEEN WEAKENED BY ANY CAUSE RESULTING IN REDUCED CROP YIELD. TO PREVENT DAMAGE, PLANT ONLY HEALTHY TRANSPLANTS; DO NOT PLANT WHEN WET, COOL OR UNFAVOURABLE GROWING CONDITIONS EXIST. FOLLOW ALL APPLICATION AND INCORPORATION DIRECTIONS EXACTLY.

**NEWLY PLANTED STRAWBERRIES:**

<b>TIMING</b>	<b>WEEDS CONTROLLED</b>	<b>RATE<sup>1</sup>/HA DUAL II MAGNUM HERBICIDE</b>	<b>REMARKS</b>
Pre-plant Incorporated  or  Pre-emergent (post transplanting)	Annual Grasses, and Nutsedge <sup>2</sup>	1.25 – 1.75 L	Make only one application per year. Apply as either a pre-plant incorporated or pre-emergent (post transplanting) treatment. Some initial injury may occur but will be outgrown with no reduction in yield. Do not apply to cultivar Joliette. Do not harvest berries from varieties bearing fruit in the first year of planting. Apply by ground application equipment only.

<sup>1</sup> Use the higher rate of DUAL II Magnum Herbicide for heavier weed problems.

<sup>2</sup> Pre-plant incorporated treatment only. Extended periods of dry hot weather following application may result in reduced nutsedge control.

**SWEET CORN TANK MIXTURE:**

<b>TIMING</b>	<b>WEEDS CONTROLLED</b>	<b>RATE/HA DUAL II MAGNUM HERBICIDE</b>	<b>RATE PER HECTARE/TANK MIX PARTNER</b>	<b>REMARKS</b>
Pre-emergent	Annual grasses and broadleaf weeds including triazine tolerant weeds	1.25 L	+ 1.1 - 1.7 kg AAtrex Nine 0  + 790 mL– 1.56 L Afolan F or 790 mL – 1.56 L Lorox L or 750 g – 1.5 kg Lorox DF	Make only one application per year. Apply as pre-emergent treatment. Apply in 150 L water/ha minimum. Do not harvest sweet corn within 50 days of treatment. Apply by ground equipment only.

**DRY COMMON BEANS**

CROP	TIMING	WEEDS CONTROLLED	RATE <sup>1</sup> /HA DUAL II MAGNUM HERBICIDE	REMARKS
Dry Common Beans ( <i>Phaseolus vulgaris</i> species only)	Pre-plant incorporated OR Pre-emergent soil application	American Nightshade <sup>2</sup> Fall Panicum Eastern Black Nightshade <sup>2</sup> Foxtail (green, yellow, giant) Crabgrass (smooth, hairy) Old Witchgrass Barnyard Grass Yellow Nutsedge <sup>3</sup> Redroot Pigweed <sup>4</sup>	1.15 to 1.75 L	Make only one application per year. Apply in 150 L water/ha. Apply by ground application equipment only. <b>NOTE:</b> Dry common bean varieties may vary in their tolerance to herbicides, including to DUAL II Magnum. Since not all dry common bean varieties have been tested for tolerance to DUAL II Magnum, first use of DUAL II Magnum should be limited to a small area of each variety to confirm tolerance prior to adoption as a general field practice. Additionally, consult your seed supplier for information on the tolerance of specific varieties of dry common beans to DUAL II MAGNUM <b>CAUTION:</b> Beans should be seeded at least 4 cm deep or crop injury may result.

<sup>1</sup> Use the higher rate of DUAL II Magnum Herbicide for heavier weed problems.

<sup>2</sup> Pre-emergent treatments sometimes give better control than pre-plant incorporated

<sup>3</sup> Pre-plant incorporated treatment only. Extended periods of dry hot weather following application may result in reduced nutsedge control.

<sup>4</sup> Suppression only.

**DRY COMMON BEANS TANK MIXTURE (EASTERN CANADA ONLY)**

CROP	TIMING	WEEDS CONTROLLED	RATE <sup>1</sup> /HA DUAL MAGNUM HERBICIDE	RATE/HA TANK MIX PARTNER <sup>2</sup>	REMARKS
Dry Common Beans ( <i>Phaseolus vulgaris</i> species only)	Pre-plant incorporated	American Nightshade, Eastern Black Nightshade, Fall Panicum, Foxtail (green, yellow, giant), Crabgrass (smooth, hairy), Old Witchgrass, Barnyard Grass, Yellow Nutsedge <sup>3</sup> , Redroot Pigweed <sup>4</sup>	1.15 to 1.75 L	0.312 L	<p>Make only one application per year. Apply in 150 L – 400 L water/ha. Apply by ground application equipment only.</p> <p>DO NOT harvest within 100 days of treatment.</p> <p><b>NOTE:</b> Dry common bean varieties may vary in their tolerance to herbicides, including to DUAL II Magnum. Since not all dry common bean varieties have been tested for tolerance to the tankmix of Pursuit plus DUAL II Magnum, first use of this tankmix should be limited to a small area of each variety to confirm tolerance prior to adoption as a general field practice. Additionally, consult your seed supplier for information on the tolerance of specific varieties of dry common beans to the tankmix of Pursuit plus DUAL II MAGNUM</p> <p><b>CAUTION:</b> Beans should be seeded at least 4 cm deep or crop injury may result.</p>

<sup>1</sup> Use the higher rate of DUAL II Magnum Herbicide for heavier weed problems.

<sup>2</sup> Refer to the Pursuit Herbicide label for additional recommendations, precautions and restrictions not specified on this label.

<sup>3</sup> Extended periods of dry hot weather following application may result in reduced nutsedge control.

<sup>5</sup> Suppression only.

### CRANBERRY BEANS AND KIDNEY BEANS FOR USE IN EASTERN CANADA ONLY

CROP	TIMING	WEEDS CONTROLLED	RATE <sup>1</sup> /HA DUAL II MAGNUM HERBICIDE	RATE/HA TANK MIX PARTNER <sup>2</sup>	REMARKS
Cranberry Beans	Pre-plant incorporated OR Pre-emergent soil application	American Nightshade <sup>3</sup> Eastern Black Nightshade <sup>3</sup> Fall Panicum Foxtail (green, yellow, giant)	1.15 to 1.75 L	+ 0.312 L Pursuit Herbicide	Make only application per year. Apply by ground application equipment only. <b>CAUTION:</b> Beans should be seeded at least 4 cm deep or crop injury may result.
Kidney Beans	Pre-Plant incorporated OR Pre-emergent soil application	Crabgrass (smooth, hairy) Old Witchgrass Barnyard Grass Yellow Nutsedge <sup>4</sup> Redroot Pigweed <sup>5</sup>	1.15 to 1.75 L	+ 0.312 L Pursuit Herbicide	

<sup>1</sup> Use the higher rate of DUAL II Magnum Herbicide for heavier weed problems.

<sup>2</sup> Consult the label of the product to be tank mixed with DUAL II Magnum herbicide for specific instructions regarding soil-type variations and other restrictions.

<sup>3</sup> Pre-emergent treatments sometimes give better control than pre-plant incorporated

<sup>4</sup> Pre-plant incorporated treatment only. Extended periods of dry hot weather following application may result in reduced nutsedge control.

<sup>5</sup> Suppression only.

### SUGAR BEETS

TIMING	WEEDS CONTROLLED	RATE <sup>1</sup> /HA DUAL II MAGNUM HERBICIDE	REMARKS
<b>Post-emergent, apply within the period from cotyledon to 4 leaf stage of sugar beets, but before weed emergence</b>	Nightshade, Annual Grasses	1.25 – 1.75 L	Make only one application per year. Apply in 150 - 300L water/ha. Apply by ground application equipment only. Do not use more than 1 application per year. Do not harvest within <b>120</b> days of treatment. <b>DO NOT USE SUGAR BEET TOPS FOR FEEDING TO LIVESTOCK.</b>

<sup>1</sup> Use the higher rate of DUAL II Magnum herbicide for heavier weed problems.

**NOTE:** DO NOT tank-mix DUAL II Magnum herbicide with fluid fertilizers, oils, oil concentrates or surfactants when applying post-emergent.

**RED BEETS**

<b>TIMING</b>	<b>WEEDS CONTROLLED</b>	<b>RATE/HA DUAL II MAGNUM HERBICIDE</b>	<b>REMARKS</b>
<b>Pre-emergent to weeds and crop</b>	Nightshade (American and Eastern Black), Crabgrass (Smooth, Hairy), Barnyard Grass, Fall Panicum, Foxtail (Green, Yellow, Giant), Old Witchgrass, Redroot Pigweed <sup>1</sup>	1.25 L	<p>Make only one application per year. Apply in 150 L water/ha minimum. Apply by ground application equipment only.</p> <p>Do not use more than 1 application per year.</p> <p><b>DO NOT APPLY BY AIR.</b></p> <p>Application of DUAL II MAGNUM may result in injury to the red beet crop which may include stand loss, delayed maturity and even loss of yield.</p> <p>Irrigate after application to activate the herbicide if rainfall is not expected, but use only 0.5 inches of water to incorporate the herbicide. Excessive irrigation will increase the risk of crop injury. Mechanical incorporation of DUAL II MAGNUM will increase the risk of crop injury.</p> <p>DO NOT use DUAL II MAGNUM 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.</p> <p>Do not enter or allow worker entry into the treated areas during the restricted entry interval (REI) of 12 hours.</p>

<sup>1</sup> Suppression only.

**FIELD PEPPERS**

<b>TIMING</b>	<b>WEEDS CONTROLLED</b>	<b>RATE<sup>1</sup>/HA DUAL II MAGNUM HERBICIDE</b>	<b>REMARKS</b>
<b>Post-emergent, apply within 48 hours of transplanting, but before weed emergence</b>	Nightshade, Annual Grasses	1.15 – 1.25 L	Apply in a minimum of 150 L water/ha. Apply by ground application equipment only. Do not harvest within <b>80</b> days of treatment. Risk of crop injury increases with early transplanting and soil temperatures below 10°C. Applications made more than 48 hours after transplanting may increase the risk of foliar injury. Using the lower application rate for field peppers may result in reduced control in heavy weed populations.

<sup>1</sup>Use the higher rate of DUAL II Magnum herbicide for heavier weed problems.

**NOTE:** DO NOT tank-mix DUAL II Magnum herbicide with fluid fertilizers, oils, oil concentrates or surfactants when applying post-emergent.

**SOYBEANS – SUPPRESSION OF TALL WATERHEMP**

<b>TIMING</b>	<b>RATE/HA DUAL II MAGNUM HERBICIDE</b>	<b>REMARKS</b>
<b>Pre-emergent</b>	1.75 L	Make only one application per year. Apply in a minimum of 150 L water/ha. Apply by ground application equipment only.

**PUMPKIN AND WINTER SQUASH**

<b>TIMING</b>	<b>WEEDS CONTROLLED</b>	<b>RATE/HA DUAL II MAGNUM HERBICIDE</b>	<b>REMARKS</b>
<b>Direct seeded:</b> Pre-emergence (prior to weed emergence) <b>OR</b> Post-emergent (1-2 leaf pumpkin or winter squash), prior to weed emergence)	Nightshade, Annual Grasses and Redroot Pigweed <sup>1</sup>	1.15 L	Make only one application per year. Apply in a minimum of 150 - 200L water/ha. Apply by ground application equipment only. Do not harvest within <b>65</b> days of treatment. Application of DUAL II MAGNUM may result in injury to the pumpkin or winter squash crop which may include stand loss, delayed maturity and even loss of yield. Reduced control in heavy weed populations may occur.

<sup>1</sup>Suppression only.

**OUTDOOR ORNAMENTALS (Woody and Herbaceous): Container-, Field- and Liner\*-Grown Plants and Plants in Landscape Plantings**

The following plant species have been tested results indicated that they are tolerant to Dual II Magnum herbicide when the product is applied according to the label.

**Tolerance Plant Species**

Plant Category	Common name	Scientific name
Broadleaf	Burning bush	Euonymous spp.
	Rhododendron	Rhododendron spp
Herbaceous	Daylily	Hemerocallis spp.
	Hosta	Hosta spp.
Conifer	Juniper	Juniperus spp.
	Eastern white-cedar	Thuja spp.

DUAL II Magnum herbicide may be applied to other non-listed plant species. However, non-listed plant species may vary in their tolerance to herbicides, including DUAL II Magnum herbicide. First use of DUAL II Magnum herbicide to any non-listed plant species should be limited to a small number of plants to confirm tolerance prior to adoption as a large scale practice.

TIMING	WEEDS CONTROLLED	RATE/HA DUAL II MAGNUM HERBICIDE	REMARKS
Pre-emergence (prior to weed emergence) <b>OR</b> Early Post-emergent (1-2 leaf weed stage)	Nightshade, Annual Grasses and Redroot Pigweed <sup>1</sup>	1.25 – 1.75 L	Make only one application per year. Apply in a minimum of 150 - 200L water/ha. Apply by ground application equipment only. To avoid plant injury, do not apply to seedbeds, cutting beds, or uprooted cuttings before transplanting and to plants until the soil has firmly settled around roots. When applied broadcast over-the-top of plant foliage, follow with sufficient overhead irrigation to wash DUAL II Magnum from the foliage to reduce the chance of injury. Do not apply to trees or plants that will bear harvestable fruit within 12 months, or illegal residues may result. Do not use this product in residential areas where bystanders including children, may be potentially exposed during or after spraying.

<sup>1</sup>Suppression only

\*Plants transplanted normally in rows in a nursery or similar area for further growth before transplanting to final growing location (place of establishment).

**ASPARAGUS (Established beds)**

**WARNING:** Application of DUAL II Magnum may result in injury to the asparagus crop, which may include potential stand loss, delayed maturity, and even loss of yield.

TIMING	WEEDS CONTROLLED	RATE/HA DUAL II MAGNUM HERBICIDE	REMARKS
In the spring, apply to dormant asparagus beds prior to emergence <b>OR</b> Post-harvest	American Nightshade, Eastern Black Nightshade, Crabgrass (smooth, hairy), Barnyard Grass, Fall Panicum, Foxtail (green, yellow, giant), Old Witchgrass, and Redroot Pigweed <sup>1</sup>	1.55 – 1.75 L	Make only one application per year. Apply by ground application equipment only. PHI is 16 days.

<sup>1</sup>Suppression only

**CONIFERS (Established for field production)**

DUAL II Magnum herbicide has been tested on Balsam fir, Fraser fir, White pine, and White spruce. DUAL II Magnum herbicide may be applied to other non-listed conifer species; however, non-listed conifer species may vary in tolerance to herbicides, including DUAL II Magnum herbicide. First use of DUAL II Magnum herbicide to any non-listed conifer species should be limited to a small number of plants to confirm tolerance prior to adoption as a large scale practice.

TIMING	WEEDS CONTROLLED	RATE <sup>1</sup> /HA DUAL II MAGNUM HERBICIDE	REMARKS
Pre-emergent to weeds as per label directions	Annual broadleaf and grass weeds	1.25 – 1.75 L	Make only one ground application per year, banded over top of trees. Apply in a minimum of 300 L water/ha.

<sup>1</sup>Use higher rate for heavier weed infestations.

**CONIFERS (Established for field production)**

TIMING	WEEDS CONTROLLED	RATE <sup>2</sup> /HA DUAL II MAGNUM HERBICIDE	RATE <sup>3</sup> /HA SIMAZINE 480 HERBICIDE	REMARKS
Pre-emergent or early post emergent (before 2 leaf stage) to weeds	Labelled weeds <sup>1</sup>	1.25 – 1.75 L	4.7 – 7.0 L	Make only one ground application per year. Apply in a minimum of 150 L water/ha.

<sup>1</sup> See Simazine 480 for further information.

<sup>2</sup> Use higher rate for heavier weed infestations.

<sup>3</sup> Use lowest rate in sandy or low organic matter soils; use highest rate in clay or high organic matter soils.

**CARROTS**

TIMING	WEEDS CONTROLLED	RATE/HA DUAL MAGNUM HERBICIDE	REMARKS
Post-emergent (crop at 3-5 leaf stage and weeds prior to 2-leaf stage)	American Nightshade, Fall Panicum, Eastern Black Nightshade, Foxtail (green, yellow, giant), Crabgrass (smooth, hairy), Old Witchgrass, Barnyard Grass	1.2 – 1.5 L	Make only one application per year. Apply by ground (broadcast) application only. Apply in 150 - 300L water/ha. Reduced levels of weed control may be observed when weed densities are high. PHI is 30 days.

**MUSTARD GREENS – transplanted only (DO NOT apply to direct-seeded crop)**

TIMING	WEEDS CONTROLLED	RATE <sup>1</sup> /HA DUAL II MAGNUM HERBICIDE	REMARKS
Pre-emergent or post emergent (weeds at 2-leaf stage or less)	Labelled annual broadleaf and grass weeds	1.2 – 1.5 L	Make only one ground application per year. Apply in a minimum of 150-300 L/ha water. PHI is 30 days. <b>Yield losses may be observed when this product is applied to transplanted mustard greens.</b>

<sup>1</sup> Reduced levels of weed control may be observed when weed densities are high.

**Resistance-Management Recommendations**

For resistance management, DUAL II Magnum Herbicide is a Group 15 herbicide. Any weed population may contain or develop plants naturally resistant to DUAL II Magnum Herbicide and other Group 15 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field.

Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

**To delay herbicide resistance:**

Where possible, rotate the use of DUAL II Magnum Herbicide or other Group 15 herbicides with different herbicide groups that control the same weeds in a field.

Use tank mixtures with herbicides from a different group when such use is permitted.

Herbicide use should be based on an IPM program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical), cultural, biological and other chemical control practices.

Monitor treated weed populations for resistance development. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment and planting clean seed.

Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.

For further information and to report suspected resistance, contact Syngenta Crop Protection Canada, Inc. company representatives at 1-87-SYNGENTA (1-877-964-3682) or at [www.syngenta.ca](http://www.syngenta.ca).

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Consult the label of products to be tank mixed or split applied with DUAL II Magnum herbicide for specific crop recommendations.

ADHERE TO THESE PRODUCT LABELS FOR BROADLEAF WEEDS CONTROLLED, PRECAUTIONS, WARNINGS, RESTRICTIONS, TANK MIXING AND SPRAYING INSTRUCTIONS, ROTATIONAL CROPS AND DETAILED DIRECTIONS FOR USE REGARDING DOSAGE VARIATIONS ACCORDING TO SOIL TYPE.