

Container Label

GROUP	<b>4</b>	HERBICIDE
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**ENGENIA®**

**HERBICIDE**

**SOLUTION**

**COMMERCIAL (AGRICULTURAL)**

**ACTIVE INGREDIENT:** Dicamba, present as N,N-Bis-(3-aminopropyl)  
methylamine salt ..... 600 g ae/L

**REGISTRATION NO. 32220**

**PEST CONTROL PRODUCTS ACT**



**WARNING**

**POISON**

**EYE IRRITANT**

**POTENTIAL SKIN SENSITIZER**

**IN CASE OF EMERGENCY ENDANGERING LIFE OR PROPERTY  
INVOLVING THIS PRODUCT, CALL DAY OR NIGHT  
1-800-454-2673**

**NET CONTENTS: 1 L to 1000 L**

**READ THE LABEL AND THE BROCHURE BEFORE USING**

**KEEP OUT OF REACH OF CHILDREN**

BASF Canada Inc.  
100 Milverton Drive  
5th Floor  
Mississauga, Ontario  
L5R 4H1  
1-877-371-2273

ENGENIA is a registered trade-mark of BASF Corporation, used with permission by BASF Canada Inc.

## **PRECAUTIONS**

### **KEEP OUT OF REACH OF CHILDREN.**

May be fatal if inhaled. Avoid inhaling/breathing sprays. May irritate eyes. Avoid contact with eyes. Potential skin sensitizer.

Thaw if frozen. Shake before use.

Applicators must wear a long-sleeved shirt, long pants and chemical-resistant gloves. For applications to non-crop areas, applicators must also wear coveralls.

Mixer/loader must wear either a respirator with a NIOSH-approved organic-vapour-removing cartridge with a pre-filter approved for pesticides or a NIOSH-approved canister approved for pesticides.

DO NOT enter treated fields until 12 hours after application to barley, low bush blueberries, canary seed (*Phalaris canariensis*), corn (field), fallow, oats, pastures, red fescue, Roundup Ready 2 Xtend Soybeans and XtendFlex Soybeans, spring rye, seedling grasses, stubble fields, summer fallow and wheat (spring).

Apply only when the potential for drift to areas of human habitation or activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

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.

## **ENVIRONMENTAL PRECAUTIONS**

TOXIC to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.

### **Surface Runoff**

To reduce runoff from treated areas into aquatic habitats, consider the characteristics and conditions of the site before treatment. Site characteristics and conditions that may lead to runoff include, but are not limited to, heavy rainfall, moderate to steep slope, bare soil, poorly draining soil (e.g. soils that are compacted, fine textured or low in organic matter such as clay).

Potential contamination of aquatic areas as a result of runoff may be reduced by including an untreated vegetative strip between the treated area and the edge of the water body.

Avoid applying this product when heavy rain is forecast.

### **Leaching**

The use of this chemical may result in contamination of groundwater particularly in areas where soils are permeable (e.g. sand, loamy sand and sandy loam soils) and/or the depth to the water table is shallow.

## FIRST AID

**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 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 swallowed:** Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre 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 by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

## TOXICOLOGICAL INFORMATION

Dicamba may cause severe irritation to the eyes and irritation to the skin and mucous membranes. Symptoms of overexposure to dicamba may include dizziness, muscle weakness, loss of appetite, weight loss, vomiting, decreased heart rate, shortness of breath, excitement, tenseness, depression, incontinence, cyanosis, muscle spasms, exhaustion and loss of voice.

Treat symptomatically.

## STORAGE

1. Store **ENGENIA** in its original container only, away from other pesticides, fertilizer, food, or feed.
2. Keep the container closed to prevent spills and contamination.
3. Keep packages dry at all times.

## DISPOSAL

Do not reuse this container for any purpose. This is a recyclable container, and it 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 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 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.

#### **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.

Booklet

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## ABOUT ENGENIA

**ENGENIA** controls broadleaf weeds in cereals, field corn, Roundup Ready 2 Xtend Soybeans and XtendFlex Soybeans, reduced tillage (prior to seeding and reduced tillage fallow), pastures and rangeland grasses, crop-free land (summerfallow and stubble), red fescue, canary seed (*Phalaris canariensis*), seedling grasses grown for seed and forage and low bush blueberries.

## GENERAL PRECAUTIONS

1. **ENGENIA** should not be applied on or near desirable trees or plants. **ENGENIA** may cause injury to desirable trees and plants, particularly non-dicamba tolerant soybeans, flowers, fruit trees, grapes, ornamentals, peas, potatoes, tomatoes, tobacco, and other broadleaf plants especially in their developmental and growing stage.
2. Do not contaminate domestic or irrigation water. Thoroughly clean application equipment.
3. Do not treat areas where movement of the chemical into the soil or surface washing may bring **ENGENIA** into contact with roots of desirable plants.
4. DO NOT apply using aerial application equipment.
5. Avoid applying **ENGENIA** to dry or powdery soil when there is low likelihood for rainfall after treatment. Applications under these conditions may result in soil particle movement and possible damage to desirable plants when soil particles are moved by wind or water. Injury to desirable plants may result if treated soil is washed, blown, or moved onto a site with desirable vegetation or foliage comes into contact with treated soil particles.
6. Crop damage can occur if the chemical is applied at any time other than the recommended crop stage.

**NOTE:** Crops growing under stress from adverse environmental conditions such as excess moisture, drought, disease, etc., may suffer a further setback and exhibit more pronounced injury symptoms if **ENGENIA** is applied. However, the crop injury that may occur is usually offset by the weed control obtained.

7. Unless otherwise specified on the **ENGENIA** or tank mix partners labels, do not use additives such as acidifying agents, oil, wetting agents, emulsifiers, detergents, spreaders, sticking agents, dispersing agents or surfactants on crops.
8. Unless otherwise specified on the **ENGENIA** label, do not mix with ammonium containing adjuvants or fertilizer carriers.
9. Hard water does not usually negatively affect the activity of **ENGENIA**, however, other tank mix components may be adversely affected (e.g. glyphosate). The use of a conditioning agent should be considered when hard water (i.e. total calcium, magnesium or iron content is above 500 ppm) is used as a spray carrier. However, do not mix **ENGENIA** with ammonium conditioners.

10. The ideal spray solution pH for **ENGENIA** is in the range of pH 5 to 8. A neutral buffering agent may be warranted if the water source or tank mix components will create an acidic spray solution < pH 5.
11. If **ENGENIA** is tank mixed with another pesticide, consult that product's label for additional safety precautions, restrictions, application rates, timings and additional weeds controlled.

Do not tank-mix **ENGENIA** with glyphosate products where glyphosate is present as an ammonium salt.

12. In some cases, tank mixing a pest control product with another pest control product or a fertilizer can result in biological effects that could include, but are not limited to: reduced pest efficacy or increased host crop injury. The user should contact BASF at 1-877-371-2273 or [www.agsolutions.ca](http://www.agsolutions.ca) for information before mixing any pesticide or fertilizer that is not specifically recommended on this label.
13. For information on feeding and grazing, refer to appropriate Grazing Restrictions found herein.
14. Ensure that spray equipment used to apply **ENGENIA** is properly cleaned before re-using to apply any other chemicals. See section on suggested procedure for cleaning spray equipment.

## **SPRAY DRIFT PRECAUTIONS AND MANAGEMENT**

Avoiding spray drift at the application site is the responsibility of the applicator. The spray system and weather-related factors determine the potential for spray drift. The applicator is responsible for considering these factors when making application decisions to avoid spray drift onto non-target areas.

Applicators must follow application requirements to avoid spray drift hazards, including those found in this labeling and applicable provincial and local regulations and ordinances. Areas with more stringent regulations must be observed.

All application equipment must be properly maintained and calibrated using appropriate carriers.

The applicator should be familiar with and take into account all factors that affect spray drift. The information covered in the following spray drift reduction review should be considered before applying.

### **Controlling Droplet Size**

The most effective way to reduce drift potential is to utilize nozzles that produce large spray droplets. Applying larger droplets reduces drift potential but will not prevent drift if applications are made improperly or under unfavorable environmental conditions (see **Temperature and Humidity**; **Temperature Inversions**; and **Wind Speed and Direction**).

- **Volume** – Use high flow rate (large orifice) nozzles to apply the highest practical spray volume. Nozzles with higher rated flows generally produce larger droplets.

- **Pressure** – DO NOT exceed the nozzle manufacturer’s recommended 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. Ensure that sprayer rate controller hardware (if so equipped) does not allow pressure increases above the desired range.
- **Temperature and Humidity** – Low humidity and high temperatures increase the evaporation of water from spray, reducing droplet size and increasing potential for spray drift. Avoid spraying during conditions of low humidity and/or high temperatures. Avoid spraying under conditions of high humidity or fog. Apply **ENGENIA** when air temperature is between 10 and 25°C. Do not apply when there is a risk of severe fall in night temperature after use. Do not spray when the temperature is expected to exceed 30°C. Set up equipment to produce larger droplets to compensate for evaporation when making applications in hot and dry conditions.

### **Temperature Inversions**

DO NOT apply **ENGENIA** when temperature inversions exist. Temperature inversions increase drift potential because fine droplets may remain suspended after application. Suspended droplets can move in unpredictable directions because of the light and 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 before surface warming. 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. Smoke that layers and moves laterally (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing. The inversion typically dissipates with increased winds (above 5 km/hr) or when surface air begins to warm (2°C from morning low).

### **Wind Speed and Direction**

Measure wind speed at the boom height. DO NOT apply **ENGENIA** when sustained wind speed exceeds 15 kilometres per hour.

Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

Do not apply during periods of dead calm or when weather conditions may cause drift from target areas to adjacent sensitive crops. Leave an adequate buffer zone between treatment areas and sensitive plants.



For wind speeds:

Wind speed	Application conditions and restrictions
< 3 km/hr	DO NOT make applications of <b>ENGENIA</b> if temperature inversion conditions exist. See Temperature Inversions for more detail.
3 - 15 km/hr	Optimum application conditions.
> 15 km/hr	DO NOT spray. Determine average wind speed and direction at boom height.

### Ground Application Spray Drift Management

- **Nozzle type** – Correct nozzle selection is one of the most important parameters in drift reduction. Use nozzles that minimize the production of fine spray droplets less than 150 microns.

Use coarse sprays since they are less likely to drift than fine sprays. Select nozzles which minimize amounts of the fine spray particles. Keep the spray pressure below 150 kPa and the spray volume above 220 L/ha unless otherwise required by the nozzle manufacturer.

Selection of nozzles that deliver large droplets may require increased spray volume per hectare (litres per hectare) to maintain coverage of target vegetation.

For application to Roundup Ready 2 Xtend Soybeans and XtendFlex Soybeans, apply **ENGENIA** using nozzles that deliver **extremely coarse** to **ultra-coarse** spray droplets (volume median diameter of 450 microns or more) as defined by ASABE standard S572.1, and as shown in the nozzle manufacturer's catalog.

- **Boom Height** – Boom height should not be more than 50 cm above the target. Decreasing the boom height reduces exposure of droplets to environmental conditions like evaporation and wind. Automated boom height controllers are recommended with large booms to better maintain optimum nozzle-to-canopy height.
- **Equipment Ground Speed** – Select a ground speed under 25 kilometres per hour that will deliver the desired spray volume while maintaining the desired spray pressure. Slower speeds generally result in better spray coverage and deposition on the target area.

### Sensitive Areas

**ENGENIA** should only be applied when the potential for drift to adjacent sensitive areas (e.g. residential areas, bodies of water, known habitat for threatened or endangered species, or sensitive crop plants) is minimal (e.g. when the wind is blowing away from sensitive areas).

Small amounts of spray drift that may not be visible may injure susceptible broadleaf plants. Applicators are required to ensure that they are aware of the proximity to sensitive areas, and to avoid potential adverse effects from off-target movement of **ENGENIA**. Before making an application, the applicator must survey the application site of neighboring sensitive areas.

For application to Roundup Ready 2 Xtend Soybeans and XtendFlex Soybeans: In addition to the required buffer zones for sensitive habitats, additional protections are required for dicamba sensitive specialty crops. DO NOT apply when wind is blowing in the direction of neighboring specialty crops. Specialty crops include, but are not limited to: non- dicamba tolerant soybeans, cucumber and melons (PMRA Crop Group 9), flowers, fruit trees, grapes, ornamentals including greenhouse-grown and shade house-grown broadleaf plants, peanuts, peas and beans (PMRA Crop Group 6), peppers, tomatoes and other fruiting vegetables (PMRA Crop Group 8), potato, sweet potato and tobacco.

## **ENVIRONMENTAL PRECAUTIONS**

TOXIC to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.

## **DIRECTIONS FOR USE**

### **Field Sprayer Application**

DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) coarse classification. Boom height must be 50 cm or less above the crop or ground. For application to Roundup Ready 2 Xtend Soybeans and XtendFlex Soybeans, DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) extremely coarse classification.

DO NOT apply this product directly to freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands), estuarine or marine habitats.

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/drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

### **Surface Runoff**

To reduce runoff from treated areas into aquatic habitats, consider the characteristics and conditions of the site before treatment. Site characteristics and conditions that may lead to runoff include, but are not limited to, heavy rainfall, moderate to steep slope, bare soil, poorly draining soil (e.g. soils that are compacted, fine textured or low in organic matter such as clay).

Potential contamination of aquatic areas as a result of runoff may be reduced by including an untreated vegetative strip between the treated area and the edge of the water body.

Avoid applying this product when heavy rain is forecast.

### **Leaching**

The use of this chemical may result in contamination of groundwater particularly in areas where soils are permeable (e.g. sand, loamy sand and sandy loam soils) and/or the depth to the water table is shallow.

## Buffer Zones

Use of the following spray methods or equipment DO NOT require a buffer zone: hand-held or backpack sprayer, spot treatment and inter-row hooded sprayer.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, rangelands, riparian areas and shrublands), sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine/marine habitats.

When a tank mixture is used, consult the labels of the tank mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture.

## Buffer Zones Using ASAE Coarse Applications

Method of Application	Crop	Buffer Zones (metres) Required for the Protection of:				
		Freshwater Habitat of Depths:		Estuarine/Marine Habitats of Depths:		Terrestrial Habitat
		Less than 1 m	Greater than 1 m	Less than 1 m	Greater than 1 m	
Field sprayer <sup>1</sup>	Barley, oats, rye, wheat, canary seed ( <i>Phalaris canariensis</i> ), forage grass (seedlings)	0	0	0	0	1
	Corn, forage grass (established), red fescue	1	1	0	0	4
	Roundup Ready 2 Xtend Soybeans and XtendFlex Soybeans <sup>2</sup>	1	1	0	0	4
	Stubble fields, fallow land	1	1	0	0	5
	Pasture and rangeland, non-cropland	1	1	0	0	10
	Blueberry (low bush)	1	1	1	0	15

<sup>1</sup> For field sprayer application, buffer zones can be reduced with the use of drift-reducing spray shields. When using a spray boom fitted with a full shield (shroud, curtain) that extends to the crop canopy, the labelled buffer zone can be reduced by 70%. When using a spray boom where individual nozzles are fitted with cone-shaped shields that are no more than 30 cm above the crop canopy, the labelled buffer zone can be reduced by 30%.

<sup>2</sup> For application to Roundup Ready 2 Xtend Soybeans and XtendFlex Soybeans, use nozzles that deliver extremely coarse to ultra-coarse spray droplets.

## CEREALS (not underseeded to legumes)

### Treatment Notes

- For best performance, spray when weeds are in the 2 to 3 leaf stage and rosettes are less than 5 cm across.

2. Use the higher level of listed rate ranges when treating more mature weeds or dense vegetative growth.
3. Crop damage can occur if application is made at any time other than the recommended crop stage.
4. Do not apply **ENGENIA** or **ENGENIA** tank-mixes if crop is under-seeded to legumes.
5. Apply **ENGENIA** or **ENGENIA** tank-mixes in at least 110 litres of water/ha.

### Weeds Controlled

Weeds Controlled	ENGENIA Rate	Tank Mix
Buckwheat, <i>Tartary</i> buckwheat, <i>wild</i> cockle, <i>cow</i> Cleavers ( <b>higher rate only</b> ) lady's thumb sow-thistle, <i>perennial</i> ( <b>top growth only</b> ) smartweed, <i>green</i> spurry, <i>corn</i> thistle, <i>Canada</i> ( <b>top growth only</b> )	<b>ENGENIA</b> alone at 183 - 232 mL/ha	None
<u>Weeds listed for <b>ENGENIA</b> alone plus:</u> burdock ( <b>young seedlings</b> ) canola, <i>volunteer</i> * cocklebur flixweed hemp-nettle** kochia pigweed, <i>redroot</i> pigweed, <i>Russian</i> radish, <i>wild</i> shepherd's-purse sunflower, <i>volunteer</i> *** thistle, <i>Russian</i>	<b>ENGENIA</b> at 183 mL/ha +	2, 4-D amine <b>OR</b> MCPA amine <b>OR</b> MCPA K
<u>Weeds listed for <b>ENGENIA</b> alone plus:</u> chickweed hemp-nettle** stinkweed sunflower, <i>volunteer</i> ***	<b>ENGENIA</b> at 183 mL/ha +	Sencor <b>OR</b> Lexone
<u>Weeds listed for <b>ENGENIA</b> alone plus:</u> canola, <i>volunteer</i> *	<b>ENGENIA</b> at 183 mL/ha +	Ally

\* Best results will be obtained if application is made prior to bolting of canola, when this weed is at the 2 to 4 leaf stage.

\*\* Use **ENGENIA** + MCPA K for hemp-nettle control. Apply at the 2 to 3 leaf stage of weed for best control. Hemp-nettle may not be controlled if application is made at a more advanced stage of crops and weeds.

\*\*\* Depending on the growing conditions, control may be slightly delayed.

## Application Directions

**ENGENIA** may be applied to:

- Spring Wheat\*
- Spring Barley
- Winter Wheat
- Oats
- Spring Rye

\* Do not apply to durum wheat.

The following sections describe application directions for these crops.

### Spring Wheat

Herbicide Mix	Rate/ha	Crop Stage
<b>ENGENIA</b> alone	183 - 232 mL/ha	2-5 leaf
+ 2,4-D amine	850 mL/ha (500 g/L formulation)	2-5 leaf
or MCPA amine	850 mL/ha (500 g/L formulation)	2-5 leaf
or MCPA K	1.1 L/ha (400 g/L formulation)	2-5 leaf
or Sencor 500*	275 - 425 mL/ha**	2-3 leaf
or Lexone DF*	275 g/ha	2-3 leaf
or Ally***	5 g/ha	2-5 leaf

\* *Sencor/Lexone tank-mixes apply to Western Canada only. Application may be delayed until the 4-leaf stage of the crop, however, crop tolerance may be reduced. Apply **ENGENIA** at 183 mL/ha with Sencor/Lexone.*

\*\* *Use the higher rate of Sencor 500 for control of volunteer sunflowers.*

\*\*\* *Ally tank-mixes apply to Western Canada only. Apply **ENGENIA** at 183 mL/ha with Ally. Ensure that Ally is completely in suspension in the spray tank before adding **ENGENIA**. Do not add a surfactant.*

### Spring Rye

Herbicide Mix	Rate/ha	Crop Stage
<b>ENGENIA</b> alone	183 - 232 mL/ha	2-3 leaf
+ 2,4-D amine	850 mL/ha (500 g/L formulation)	2-3 leaf

## Spring Barley

Herbicide Mix	Rate/ha	Crop Stage
<b>ENGENIA</b> alone	183 - 232 mL/ha	2-5 leaf
+2,4-D amine	850 mL/ha (500 g/L formulation)	2-5 leaf
or MCPA amine	850 mL/ha (500 g/L formulation)	2-5 leaf
or MCPA K	1.1 L/ha (400 g/L formulation)	2-5 leaf
or Sencor 500*	275 - 425 mL/ha**	2-3 leaf
or Lexone DF*	275 g/ha	2-3 leaf
or Ally***	5 g/ha	2-5 leaf

\* Sencor/Lexone tank-mixes apply to Western Canada only. **NOTE:** Do not use on Klondike barley.

\*\* Use the higher rate of Sencor 500 for control of volunteer sunflowers.

\*\*\* All tank-mixes apply to Western Canada only. Apply **ENGENIA** at 183 mL/ha with Ally. Ensure that Ally is completely in suspension in the spray tank before adding **ENGENIA**. Do not add a surfactant.

## Winter Wheat

Herbicide Mix	Rate/ha	Crop Stage
<b>ENGENIA</b> alone	183 - 232 mL/ha	15-25 cm tall or before shot-blade stage
+ 2,4-D amine	850 mL/ha (500 g/L formulation)	15-25 cm tall or before shot-blade stage
or MCPA amine	850 mL/ha (500 g/L formulation)	
or MCPA K	1.1 L/ha (400 g/L formulation)	

## Oats

Herbicide Mix	Rate/ha	Crop Stage
<b>ENGENIA</b> alone	183 - 232 mL/ha	2-5 leaf
+ MCPA amine	850 mL/ha (500 g/L formulation)	2-5 leaf
or MCPA K	1.1 L/ha (400 g/L formulation)	2-5 leaf

### **Grazing Restrictions**

Following treatment with **ENGENIA** or **ENGENIA** plus 2,4-D, follow these grazing restrictions:

- DO NOT permit lactating dairy animals to graze fields within 7 days after application.
- DO NOT harvest forage or cut hay within 30 days after application.
- Withdraw meat animals from treated fields at least 3 days before slaughter.

Following treatment with **ENGENIA** plus any other herbicide tank-mix: Do not graze or harvest for livestock feed prior to crop maturity; sufficient data are not available to support such use.

### **FIELD CORN**

DO NOT apply using aerial application equipment.

#### **Treatment Notes**

1. Apply **ENGENIA** or **ENGENIA** tank-mixes in 220 to 350 litres of water/ha at a pressure of 150 to 275 kPa. Use coarse sprays.
2. Keep spray mixture in suspension at all times. If mixture is allowed to settle, thoroughly agitate the mixture before spraying.
3. Do not apply to sweet corn.
4. Unless otherwise specified, do not use additives such as oil, wetting agents, emulsifiers, detergents, spreaders, sticking agents, or dispersing agents on corn with **ENGENIA**.
5. Corn height refers to the crop as it stands, not leaf-extended.
6. When using drop pipes (drop nozzles), direct the spray beneath the lower leaves of the corn and onto the weeds and soil. Do not apply to corn over 50 cm in height.
7. Apply no later than 2 weeks prior to tassel emergence when using **ENGENIA** alone up to 50 cm.
8. For the best control of annuals, spray when they are actively growing and in the seedling stage. Poor results may occur if weeds are well advanced at the time of application.
9. When applying **ENGENIA** herbicide adjacent to sensitive crops, apply as a pre-emergent or early post-emergent treatment to avoid potential drift onto these sensitive crops.
10. 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 and PPE measures for mixing/loading/applying, and label statements pertaining to environmental protection, such as buffer zones, stated on all tank-mix product labels.

## ENGENIA / LIQUID NITROGEN

Pre-emergent applications of **ENGENIA** are generally compatible with most liquid nitrogen fertilizers. To determine compatibility, mix all components of the finished spray in proportionate quantities in a small jar before mixing in the spray tank. If the herbicides do not ball-up or form flakes, sludge, jelly, oily films or layers, or other precipitates within 5 minutes after mixing, the tested spray-mix is compatible.

### Weeds Controlled

Weeds Controlled	ENGENIA Rate	Tank Mix
bindweed, <i>field</i> ** buckwheat, <i>Tartary</i> buckwheat, <i>wild</i> cleavers cockle, <i>cow</i> fleabane, <i>Canada</i> *** lady's-thumb lamb's-quarters* mustard, <i>hare's-ear</i> mustard, <i>Indian</i> mustard, <i>tumble</i> mustard, <i>wild</i> mustard, <i>wormseed</i> pigweed, <i>redroot</i> * pigweed, <i>Russian</i> ragweed, <i>common</i> * ragweed, <i>false</i> ragweed, <i>giant</i> sow-thistle, <i>perennial</i> ** spurry, <i>corn</i> smartweed, <i>green</i> thistle, <i>Canada</i> ** velvetleaf	<b>ENGENIA</b> alone at 480 mL – 1 L/ha	none

\* Including atrazine-resistant species.

\*\* Apply **ENGENIA** annually for three years at the flowering stage of bindweed and the budding stage of thistles.

\*\*\* Post-emergence application only.

### Pre-Emergence Treatment

#### Eastern Canada Only

**ENGENIA** can be used alone at 1 L/ha or in tank-mixes with the following herbicides for additional broadleaf and grassy weed control.

Herbicide	Rate/ha
Dual Magnum	2.0 - 2.75 L
Dual II Magnum	2.0 - 2.75 L
Frontier Max Herbicide	756 - 963 mL
Primextra II Magnum	3.0 - 4.0 L



Herbicide	Rate/ha
Aatrex Liquid 480*	2.10 L
Prowl H2O herbicide**	3.7 L
Aatrex Liquid 480* + Dual II Magnum	2.10 L + 2.0 L

\* Other atrazine formulations will require a rate calculation adjustment according to percent active ingredient

\*\* Other pendimethalin formulations will require a rate calculation adjustment according to percent active ingredient.

### Pre-Emergence Treatment Notes

- Apply **ENGENIA** tank-mixes as broadcast ground treatments after planting but before weeds and corn emerge.
- Apply to medium to fine textured soils containing more than 2.5% organic matter.
- Do not use on sandy or sandy loam soils.
- Avoid direct chemical contact with the corn seed. If you plan to apply **ENGENIA** prior to corn emergence, be sure to place the corn seeds 4 cm or more below the soil surface. If seeds are planted less than 4 cm below the soil surface, delay application of **ENGENIA** until the spike stage.
- Do not incorporate. If applications are made during planting, apply **ENGENIA** far enough behind the planting equipment to avoid incorporation by the planter wheel or other covering device. If soil crusting makes it necessary to use a rotary hoe after a pre-emergence treatment, delay hoeing the soil more than 1.3 cm deep.
- Always consult the tank mix partner label for further limitations and restrictions (especially re: soil type).

### Post-Emergence Treatment

**ENGENIA** or **ENGENIA** tank-mixes can be applied as “overlay” to corn previously treated with any other broadleaf or grass herbicide. The 1 L rate of **ENGENIA** as “overlay” is particularly effective in controlling velvetleaf and providing extended residual control of other late germinating, deep rooted annuals. **Note:** Unless otherwise specified, do not use additives such as oils, wetting agents, or sticking agents.

### ENGENIA alone

#### Spike to 5-leaf corn

#### Eastern and Western Canada

Herbicide	Rate/ha	Corn Stage	Weed Stage
<b>ENGENIA</b> alone	1 L/ha	Spike to 5-leaf	Pre-emergence to 2-leaf <sup>1</sup>

<sup>1</sup> For best performance, spray when the broadleaf weeds are emerged and up to the 2-leaf stage of their development.

**ENGENIA Tank-mixes  
Western Canada (Prairie Provinces only)\***

Herbicide	Rate/ha	Corn Stage	Weed Stage
<b>ENGENIA +</b> Accent 75DF + non-ionic surfactant such as Agral, Agsurf or Citowett Plus	0.48 L (288 g ai/ha) + 33 g (25 g ai/ha) + 0.2% v/v	Spike to 6-leaf	Post-emergence to 6-leaf

\* Single post-emergent spray; ground application only; do not apply this tank mix within 30 days of harvest.

**ENGENIA tank-mixes  
Eastern Canada only**

Herbicide	Rate/ha	Corn Stage	Weed Stage
<b>ENGENIA +</b> Frontier Max Herbicide	1 L + 756 - 963 mL	Spike to 3-leaf	Pre-emergence to 2-leaf***
<b>ENGENIA +</b> Aatrex Liquid 480*	1 L + 2.10 L	Spike to 5-leaf	Pre-emergence to 2-leaf
<b>ENGENIA +</b> Aatrex Liquid 480* + Dual II Magnum	0.48 - 1 L + 2.3 L + 2.0 - 2.75 L	Spike to 2-leaf	Emergence to 2-leaf
<b>ENGENIA +</b> Primextra II Magnum	0.48 - 1 L + 3.0 - 4.0 L	Spike to 2-leaf	Emergence to 2-leaf
<b>ENGENIA +</b> Prowl H2O herbicide**	0.48 - 1 L + 3.7 L	Spike to 4-leaf	Pre-emergence to 2-leaf
<b>ENGENIA +</b> Ultim 75% DF + non-ionic surfactant	0.48 L + 1 bag + 0.2% v/v	Spike to 6-leaf	Emergence to 6-leaf
<b>ENGENIA +</b> Elim EP Herbicide 25% DF + non-ionic surfactant	0.48 L + 60 g + 0.2% v/v	Spike to 3-leaf	Emergence to 4-leaf
<b>ENGENIA +</b> Dual II Magnum	0.48 - 1 L + 2.0 - 2.75 L	Spike to 2-leaf	Emergence to 2-leaf
<b>ENGENIA +</b> Prowl H2O herbicide ** + Elim EP Herbicide 25% DF + non-ionic surfactant	0.5 L + 2.2 L + 50 g + 0.2% v/v	Spike to 3-leaf	Emergence to 4-leaf

\* Other atrazine formulations will require a rate calculation adjustment according to percent active ingredient

\*\* Other pendimethalin formulations will require a rate calculation adjustment according to percent active ingredient.

\*\*\* For annuals, apply before 2-leaf stage.

**ENGENIA tank-mixes**  
**Eastern Canada and the Province of Manitoba\***

**ENGENIA** can be tank mixed with Option 35 DF herbicide and applied as a post-emergence application to field corn grown in Eastern Canada and the province of Manitoba. Tank mixing **ENGENIA** with Option 35 DF will provide enhanced control of annual broadleaf weeds.

Option 35 DF herbicide is to be used in conjunction with Hasten spray additive at 1.75 L/ha plus liquid nitrogen fertilizer (28% UAN) at a rate of 2.5 L/ha. Use of a spray-grade liquid nitrogen fertilizer is recommended.

Herbicide	Rate/ha	Corn Stage	Weed Stage	Weeds Controlled
<b>ENGENIA</b> + Option 35 DF + Hasten spray adjuvant + liquid nitrogen fertilizer (28% UAN)	0.24 L + 100 g + 1.75 L + 2.5 L/ha	1 to 8-leaf	Consult the Option 35 DF label for the recommended leaf stage of weeds at application. For best results, apply to emerged, young, actively growing weeds.	<b>Perennials</b> quackgrass  <b>Annual Grasses</b> foxtail, bristly foxtail, green foxtail, yellow grass, barnyard grass, large crab millet, proso panicum, fall witchgrass  <b>Annual Broadleaf Weeds</b> chickweed, common lamb's-quarters mustard, wild mustard, wormseed nightshade, Eastern black pigweed, redroot ragweed, common (suppression only) velvetleaf

\* Ground application only. Do not apply using aerial application equipment. Make only one application per season. Apply in a minimum of 220 L/ha of water and at a pressure of 175 – 275 kPa.

**Spike to 50 cm standing corn**  
**Eastern and Western Canada**

Herbicide	Rate/ha	Corn Stage	Weed Stage
<b>ENGENIA</b> alone	480 mL	Emergence to 50 cm (drop nozzles from 20- 50 cm corn)	Pre-emergence to 2- leaf
<b>ENGENIA</b> + 2,4-D amine	232 mL + 850 mL	Emergence to 50 cm (drop nozzles from 20- 50 cm corn)	Pre-emergence to 2- leaf

## **Sequential ENGENIA Applications Eastern and Western Canada**

**ENGENIA** may be applied sequentially to a **ENGENIA** application to control late-emerging weeds such as field bindweed, Canada thistle and velvetleaf. Follow application directions as outlined for the **ENGENIA** alone post-emergence treatments up to 50 cm tall corn.

### **Grazing Restrictions**

DO NOT permit lactating dairy animals to graze fields within 7 days after application.

DO NOT harvest forage or cut hay within 30 days after application.

Withdraw meat animals from treated fields at least 3 days before slaughter.

## **Roundup Ready 2 Xtend Soybeans and XtendFlex Soybeans**

### **Application Instructions for Roundup Ready 2 Xtend Soybeans and XtendFlex Soybeans**

**ENGENIA** can be used alone at 480 mL to 1 L/ha or in tank mix with glyphosate for additional broadleaf and grass weed control.

Use **ENGENIA** as part of herbicide programs that include residual herbicides and herbicides with alternate sites of action.

**ENGENIA** applications should be made to small (less than 10 cm tall), actively growing weeds. Sequential post-emergence applications may be necessary to control new flushes of weeds. For best results, apply a sequential application of **ENGENIA** after some weed regrowth has occurred.

Apply **ENGENIA** only to **Roundup Ready 2 Xtend Soybeans and XtendFlex Soybeans**. SOYBEAN VARIETIES WHICH ARE NOT DESIGNATED AS DICAMBA TOLERANT WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

Apply pre-plant, pre-emergence and/or post-emergence to **Roundup Ready 2 Xtend Soybeans and XtendFlex Soybeans** by ground only.

DO NOT apply using aerial application equipment.

Use 100 or more litres of water per treated hectare. Thorough coverage of existing vegetation is essential for post-emergence applications; higher spray volumes may be necessary for optimum performance.

For application to Roundup Ready 2 Xtend Soybeans and XtendFlex Soybeans, apply **ENGENIA** using nozzles that deliver extremely coarse to ultra-coarse spray droplets (volume median diameter of 450 microns or more) as defined by ASABE standard S572.1, and as shown in the nozzle manufacturer's catalog. See SPRAY DRIFT PRECAUTIONS AND MANAGEMENT for further directions.

Proper nozzle selection remains one of the most important factors for reducing drift (see **SPRAY DRIFT PRECAUTIONS AND MANAGEMENT**). To further minimize the percentage of driftable fines when applying to Roundup Ready 2 Xtend Soybeans and XtendFlex Soybeans, **ENGENIA** may be tank-mixed with a drift reduction agent or a utility modifier adjuvant which has a drift reduction additive component. However, the applicator must check with the additive manufacturer to determine the compatibility of the additive with the nozzle type and desired spray solution. Please note that not all additives are compatible with the nozzle type and spray solution. Read and observe all limitations, precautions and all other information on the additive label.

Pre-Harvest Interval(s): 7-10 days for soybean forage and 13-15 days for soybean hay.

A plant back interval of 120 days is required for those crops not on the **ENGENIA** label.

### **ENGENIA Use in Roundup Ready 2 Xtend Soybeans and XtendFlex Soybeans**

<b>Weeds Controlled*</b>	<b>Rates</b>	<b>Timing</b>
<p><b>Annual Broadleaved Weeds:</b>  buckwheat, <i>wild</i>  buckwheat, <i>tartary</i>  cleavers  cockle, <i>cow</i>  fleabane, <i>Canada</i> (1)  lady's-thumb  lamb's-quarters, <i>common</i>  mustard, <i>hare's-ear</i>  mustard, <i>Indian</i>  mustard, <i>tumble</i>  mustard, <i>wild</i>  mustard, <i>wormseed</i>  pigweed, <i>redroot</i>  pigweed, <i>Russian</i>  pigweed, <i>smooth</i>  ragweed, <i>common</i>  ragweed, <i>false</i>  ragweed, <i>giant</i>  smartweed, <i>green</i>  spurry, <i>corn</i>  velvetleaf</p> <p><b>Perennial Weeds:</b>  bindweed, <i>field</i> (2)  sow-thistle, <i>perennial</i> (2)  thistle, <i>Canada</i> (2)</p>	<p><b>ENGENIA</b> at 480 mL to 1 L/ha</p>	<p>Pre-plant or Pre-emergence to the crop   and/or   Post-emergence to the crop once or twice up to the early flower stage of the crop.</p> <p><b>Notes:</b></p> <ul style="list-style-type: none"> <li>• The 1 L/ha rate of <b>ENGENIA</b> is to be used only once in a season and should be used pre-plant, pre-emergence or in-crop early post-emergence.</li> <li>• 1.96 L/ha of <b>ENGENIA</b> is the maximum total to be applied in a single growing season.</li> <li>• A third application of <b>ENGENIA</b> should only be made for the control of glyphosate resistant weed populations.</li> </ul>

#### **Application Footnotes:**

- (1) Post-emergence application only
- (2) Apply **ENGENIA** annually for three years at the flowering stage of bindweed and the budding stage of thistles.

\* Weeds will be more easily controlled and early crop competition avoided with applications made when the weeds are small. Control of annual weeds greater than 25 cm in height will be inconsistent, although some weeds may be controlled.

## ENGENIA and Glyphosate Use in Roundup Ready 2 Xtend Soybeans and XtendFlex Soybeans

Weeds Controlled	Rates	Timing
<p><b>Annual Broadleaved Weeds:</b>  adzuki beans, <i>volunteer</i> (1)  bill, <i>stork's</i>  buckwheat (<i>wild, tartary</i>)  canola, <i>non-glyphosate tolerant</i>  catchfly, <i>night flowering</i>  chickweed  cleavers  cockle, <i>cow</i>  cocklebur  cucumber, <i>bur</i> (2)  fleabane, <i>Canada</i>  flixweed  hawk's-beard, <i>narrow leaved</i>  hempnettle  kochia  lady's-thumb  lamb's-quarters, <i>common</i>  mustard (<i>hare's-ear, Indian, tumble, wormseed, wild</i>)  nightshade, <i>Eastern black</i>  pigweed (<i>redroot, smooth, Russian</i>)  ragweed (<i>common, giant, false</i>)  shepherd's-purse  smartweed (<i>green, Pennsylvania</i>)  spurry, <i>corn</i>  stinkweed  thistle, <i>Russian</i>  tomato, <i>wild</i>  velvetleaf  wormwood, <i>biennial</i> (3)</p> <p><b>Annual Grass Weeds:</b>  barley, <i>volunteer</i>  barnyard grass  crabgrass (<i>smooth, large</i>)  foxtail (<i>green, yellow, giant</i>)  millet, <i>wild proso</i>  oats, <i>wild</i>  panicum, <i>fall</i>  wheat, <i>volunteer</i></p> <p><b>Perennial Weeds:</b>  bindweed, <i>field</i> (7)  dandelion (4)</p>	<p><b>ENGENIA</b> at 480 mL to 1 L/ha + glyphosate at 902 g ae/ha</p>	<p>Pre-plant or Pre-emergence to the crop  and/or  Post-emergence to the crop once or twice up to the early flower stage of the crop.</p> <p><b>Notes:</b></p> <ul style="list-style-type: none"> <li>The 1 L/ha rate of <b>ENGENIA</b> is to be used only once in a season and should be used pre-plant, pre-emergence or in-crop early post-emergence.</li> <li>1.96 L/ha of <b>ENGENIA</b> is the maximum total to be applied in a single growing season.</li> <li>Only use glyphosate products registered for use in soybeans. Do not tank-mix <b>ENGENIA</b> with glyphosate products where glyphosate is present as an ammonium salt.</li> <li>See the Residual Weed Control Section below for more information.</li> </ul>

Weeds Controlled	Rates	Timing
milkweed, common (6,7) muhly, <i>wire-stemmed</i> (5) nutsedge, yellow (6,7) quackgrass (5) sow-thistle, <i>perennial</i> (5) thistle, <i>Canada</i> (5)		
All Weeds listed above plus tall water hemp (8) and horsenettle (8),	<b>ENGENIA</b> at 480 mL to 1 L/ha + glyphosate at 1798 g ae/ha	See notes above for application details. Apply 1 application per season at 1798 g ae/ha.
All Weeds listed above plus volunteer alfalfa (9) and bromegrass (9)	<b>ENGENIA</b> at 480 mL to 1 L/ha + glyphosate at 2522 g ae/ha (10)	See notes above for application details. Apply 1 application per season at 2522 g ae/ha.

#### Application Footnotes:

- (1) Applications including glyphosate at 902 g ae/ha applied at the unifoliate to 4<sup>th</sup> trifoliate leaf stage of the adzuki beans. A second 902 g ae/ha application may be used for late flushes emerging after the initial treatment when the adzuki beans are in the unifoliate to 4<sup>th</sup> trifoliate leaf stage and actively growing.
- (2) Two applications including glyphosate at 902 g ae/ha applied when the bur cucumber is at the 1 to 18 leaf stage. Applications should be at least 2 weeks apart for best results.
- (3) One application including glyphosate at 902 g ae/ha applied at the 2-8 leaf stage of actively growing biennial wormwood
- (4) Applications including glyphosate applied pre-plant surface or pre-emergence at 902 to 1798 g ae/ha. Use glyphosate rates of 1334 to 1798 g ae/ha on heavy infestations of dandelions and on dandelions greater than 15 cm in size. Apply up to and including bloom for best results.
- (5) Applications including glyphosate at 902 g ae/ha applied when quackgrass has 3-4 leaves, Canada thistle and perennial sow thistle are rosette to 50 cm in height, and wire-stemmed muhly is 10-20 cm in height. Weeds should be actively growing at application.
- (6) Applications including glyphosate at 902 g ae/ha will provide suppression.
- (7) For control of common milkweed, yellow nutsedge and field bindweed, a second application including glyphosate at 902 g ae/ha may be needed and should be applied at least 2 weeks after the first application or 1800 g ae/ha should be applied once. Milkweed should be 15-60 cm in height, yellow nutsedge should be 5-15 cm in height.
- (8) Applications including glyphosate at 1798 g ae/ha applied at the 2-12 leaf stage of horse-nettle or up to the 18-leaf stage of tall waterhemp or 2 applications of 902 g ae/ha applied at least 2 weeks apart. For control of tall waterhemp, use the higher rate if weeds are beyond the 6-leaf stage.
- (9) Alfalfa should have 9 or more leaves and be at least 10-15 cm tall. Bromegrass should have at least 3-5 leaves and be at least 10-15 cm tall.
- (10) With the 2522 g ae/ha rate, some short-term yellowing may occur in the sprayer overlap areas, but this effect is temporary and will not influence growth or yield.

## Residual Weed Control and Suppression with ENGENIA Applications in Roundup Ready 2 Xtend Soybeans and XtendFlex Soybeans

In addition to providing post-emergence burndown activity on weeds, **ENGENIA** applications will also provide short term residual activity on the weeds listed below. The 1 L/ha rate provides short term control and the 480 mL/ha rate provides suppression.

common lamb's-quarters  
redroot pigweed  
common ragweed  
wild buckwheat  
velvetleaf\*

\*suppression only for both rates

### WEED CONTROL IN REDUCED TILLAGE (prior to seeding)

DO NOT apply using aerial application equipment.

#### Treatment Notes

- ENGENIA** + glyphosate applications may be applied to emerged annual grass and annual broadleaf weeds in reduced tillage systems prior to seeding of wheat, barley, rye, oats, and field corn only.
- Do not apply prior to seeding sweet corn.
- Planting should follow soon after application since this tank-mix does not provide residual weed control.
- Delayed planting following chemical application will allow weeds to emerge between application and crop emergence.
- For field corn, apply to medium to fine textured soils containing more than 2.5% organic matter. Do not use on sandy or sandy loam soil.
- Certain broadleaf crops such as sweet corn, lentils, peas, canola and flax can be injured by a pre-seeding application of this tank-mix and should not be planted after the use of this tank-mix.
- Under certain stress conditions, such as drought, cool temperatures or where extremely hard water (> 700 ppm Ca + Mg) will be used, use a minimum of 50 L/ha of water with this tank-mix to help improve results.

### Application Directions

Weeds Controlled	ENGENIA Rate	Tank Mix
Annual Grasses (Apply any time between emergence and heading) brome, downy	<b>ENGENIA</b> at 252 mL/ha +	Glyphosate**** at 333 g ae/ha in 100 L of water



Weeds Controlled	ENGENIA Rate	Tank Mix
cereals, <i>volunteer</i> darnel, <i>Persian</i> foxtail, <i>green</i> oats, <i>wild</i>		
<b>Annual Broadleaves</b> (Apply up to 15 cm height) buckwheat, <i>wild</i> * canola, <i>volunteer</i> *** cockle, <i>cow</i> flixweed** kochia lady's-thumb lamb's-quarters mustard, <i>wild</i> pigweed, <i>redroot</i> smartweed, <i>green</i> stinkweed** thistle, <i>Russian</i> cleavers (1-4 whorls) <b>(suppression only)</b>	<b>ENGENIA</b> at 252 mL/ha +	Glyphosate **** at 333 g ae/ha in 100 L of water
<b>Perennials</b> (Apply before initiation of seed head or browning of lower leaves) barley, <i>foxtail</i> (suppression only)	<b>ENGENIA</b> at 252 mL/ha +	Glyphosate**** at 333 g ae/ha in 100 L of water

\* Apply at the 1 to 4-leaf stage.

\*\* For optimal control of winter annual broadleaf weeds such as flixweed and stinkweed, 2,4-D should be applied to emerged, actively growing weeds in the fall the year prior to the **ENGENIA** + glyphosate spring pre-seeding tank-mix. Refer to the 2,4-D product label for appropriate rates.

\*\*\* Not including glyphosate tolerant canola, i.e. Roundup Ready Canola.

\*\*\*\* Only use glyphosate products registered for reduced or minimum tillage systems and refer to glyphosate label for adjuvant recommendations. Do not tank-mix **ENGENIA** with glyphosate products where glyphosate is present as an ammonium salt.

## WEED CONTROL IN REDUCED TILLAGE FALLOW

DO NOT apply using aerial application equipment.

### Treatment Notes

1. Apply **ENGENIA** tank-mixes in the spring to fallow land when seedling weeds have emerged, and are actively growing at the 2 to 4-leaf stage.
2. Reduced control may occur if applications are made at an advanced stage of weed development.

## Application Directions

Weeds Controlled	ENGENIA Rate	Tank Mix
buckwheat, <i>wild</i> buckwheat, <i>Tartary</i> cockle, <i>cow</i> flixweed kochia lady's-thumb lamb's-quarters mustard, <i>wild</i> pigweed, <i>redroot</i> shepherd's-purse smartweed, <i>green</i> sow-thistle, <i>perennial (top growth)</i> stinkweed thistle, <i>Canada (top growth)</i> thistle, <i>Russian</i>	183 – 232 mL/ha +	1.1 L/ha of 2,4-D amine 500 <b>OR</b> 920 mL/ha of 2,4-D L.V. ester 600 in 50-100 L of water
barley, <i>foxtail**</i> buckwheat, <i>wild**</i> cereals, <i>volunteer</i> cockle, <i>cow</i> flixweed* foxtail, <i>green</i> kochia lady's-thumb lamb's-quarters mustard, <i>wild</i> oats, <i>wild</i> pigweed, <i>redroot**</i> canola, <i>volunteer***</i> stinkweed thistle, <i>Russian</i>	232 mL/ha +	267 - 356 g ae/ha glyphosate**** in 50-100 L of water
Buckwheat, <i>wild</i>	480 mL/ha +	267 - 356 g ae/ha glyphosate **** in 50-100 L of water

\* For control of flixweed use 356 g ae/ha of glyphosate.

\*\* Suppression only.

\*\*\* Not including glyphosate tolerant canola, i.e. Roundup Ready Canola.

\*\*\*\* Only use glyphosate products registered for reduced or minimum tillage systems and refer to glyphosate label for adjuvant recommendations. Do not tank-mix **ENGENIA** with glyphosate products where glyphosate is present as an ammonium salt.

### ENGENIA / Glyphosate Application Notes

1. These tank-mixes should be applied to emerged, actively growing annual weeds from 8-15 cm in height.
2. Use the higher rate of glyphosate when weeds are at a more advanced stage of growth.
3. For perennial weed control, refer to the appropriate section of this label for proper stages of growth and recommended stages of application.

4. Reduced control may occur if muddy water is used, such as water from dug-outs, ponds and unlined ditches.

## PERENNIAL WEED CONTROL IN SUMMERFALLOW AND STUBBLE

DO NOT apply using aerial application equipment.

### Treatment Notes

1. Apply **ENGENIA** in 110-220 litres of water/ha.
2. For the most effective control of Canada thistle, follow a long-term approach that includes in crop, post-harvest, and summerfallow treatments, in conjunction with tillage operations.
3. If application is made after September 1st, or if soil moisture levels are extremely low after application, crop injury may occur in the spring following application.

### Weeds Controlled

Weeds Controlled	Rate	Recropping in Year Following
bindweed, <i>field</i> daisy, <i>English</i> dock, <i>curled (top growth)</i> goldenrod ragwort, <i>tansy</i> sow thistle, <i>perennial</i> thistle, <i>Canada</i>	<b>ENGENIA</b> alone at 2 L/ha	cereals soybeans field corn white beans sweet corn
thistle, <i>Canada</i> sow-thistle, <i>perennial</i>	<b>ENGENIA</b> at 1 L/ha + glyphosate * at 605 g ae/ha	<u>All of the above</u> <u>plus:</u> canola

\* Only use glyphosate products registered for summerfallow and stubble and refer to glyphosate label for adjuvant recommendations. Do not tank-mix **ENGENIA** with glyphosate products where glyphosate is present as an ammonium salt.

### Application Directions

#### Summerfallow Treatment Notes

1. Cultivate in the spring and apply **ENGENIA** when:

Weed	Weed Stage
thistles	the majority of thistles are up and before the early bud stage (15-25 cm tall)
field bindweed	in the flowering stage
other weeds	in the early bud stage of growth

2. Cultivate three weeks after application.

### Stubble Treatment Notes

Apply to regrowth after harvest and at least 2 weeks prior to a killing frost.

DO NOT permit lactating dairy animals to graze fields within 7 days after application.

DO NOT harvest forage or cut hay within 30 days after application.

Withdraw meat animals from treated fields at least 3 days before slaughter.

### PERENNIAL ROSETTE CONTROL IN SUMMERFALLOW

DO NOT apply using aerial application equipment.

#### Treatment Notes

1. For the most effective control of Canada thistle, follow a long-term approach that includes in crop, post-harvest, and summerfallow treatments, in conjunction with tillage operations.
2. Commence early spring cultivation and continue as required throughout the summer.
3. **Note:** The final cultivation must occur by the end of July between July 15-August 1 and the final cultivation should cut the thistle off 5 to 7.5 cm below the soil surface.
4. Spray in 110-220 L of water/ha when the majority of thistles have emerged as low growing rosettes 15 to 25 cm across.
5. Apply at least two weeks prior to a killing frost.
6. Cultivate three weeks after application.

#### Weeds Controlled

Weeds Controlled	ENGENIA Rate	Recropping in Year Following
thistle, <i>Canada</i>	1 L/ha	cereals field corn white beans canola soybeans

### PASTURES, RANGELAND, AND NON-CROP AREAS

**ENGENIA** herbicide may be used to control deciduous brush species and broadleaf weeds that are found growing along fence rows and in other areas around the farm where they may be undesirable.

#### Treatment Notes

For high volume handwand applications, applicators must limit volume of solution used per day to 400 L (broadleaf control spot treatment only).

### For Broadleaf Weed Control

1. Apply **ENGENIA** or **ENGENIA** tank-mixes in 110-220 L of water/ha when weeds are actively growing. Thorough coverage of foliage is necessary to control weeds.
2. Do not apply **ENGENIA** or **ENGENIA** tank-mixes if pasture is underseeded to legumes.

DO NOT apply using aerial application equipment.

Weeds Controlled	ENGENIA Rate	Tank Mix
bindweed, <i>field</i> daisy, <i>English</i> dock, <i>curled (top growth)</i> goldenrod ragwort, <i>tansy</i> sow-thistle, <i>perennial</i> thistle, <i>Canada</i>	<b>ENGENIA</b> alone at 1.68 L/ha	none
beard, <i>goat's</i> cherry, <i>ground</i> knapweed, <i>diffuse</i> sage, <i>pasture</i> sorrel, <i>sheep</i> spurge, <i>thyme-leafed</i> weed, <i>poverty</i>	<b>ENGENIA</b> alone at 3.68 L/ha	none
poison ivy	<b>ENGENIA</b> at 1.32 L/ha +	2.2 L/ha of 2,4-D amine (500 g/L formulation) in 560 L of water/ha
Weeds listed for <b>ENGENIA</b> alone at 1.68 L/ha plus wild carrot plus additional weeds found on the 2,4-D amine label.	<b>ENGENIA</b> at at 1.68 L/ha +	2.2 L/ha of 2,4-D amine (500 g/L formulation)
Weeds listed for <b>ENGENIA</b> alone at 1.68 L/ha plus wild carrot plus additional weeds found on the 2,4-D ester label.	<b>ENGENIA</b> at at 1.68 L/ha +	1.83 L of 2,4-D L.V. ester (600 g/L formulation)

### For Brush Weed Control

1. **ENGENIA** is effective in controlling many deciduous brush species that are found growing along fence rows and in other areas around the farm where they may be undesirable.
2. Apply **ENGENIA** tank-mixes in spring or early summer to deciduous species (leaves should be fully expanded) either as a leaf stem treatment or as a broadcast ground application.
3. Brush and trees over 2 meters tall should be cut and regrowth treated when it develops.
4. Do not apply **ENGENIA** tank-mixes if pasture or rangeland is underseeded to legumes.
5. For Stem Foliage Treatment, apply to all foliage and stems to the point of runoff. The volume of spray mix applied per hectare will vary according to the height and density of the woody species present.

6. For Broadcast Ground Treatment, apply **ENGENIA** tank-mixes in sufficient dilution to wet all foliage. Normally, 220-230 litres of water/ha is recommended for brush stands.

DO NOT apply using aerial application equipment.

Weeds Controlled	ENGENIA Rate	Tank Mix
alder aspen poplar cherry western snowberry (buckbrush) wolf willow (silver willow) wild rose	<b>ENGENIA</b> at 1.68 L/1000 L of water +	4.0 L of 2,4-D amine (500 g/L formulation) <b>OR</b> 3.3 L of 2,4-D L.V. (600 g/L formulation)
aspen poplar	<b>ENGENIA</b> at 2.6 L/ha +	4.4 L/ha of 2,4-D amine (500 g/L formulation) <b>OR</b> 3.75 L/ha of 2,4-D L.V. ester (600 g/L formulation)
prickly rose	<b>ENGENIA</b> at 2.92 L/ha +	4.4 L/ha of 2,4-D amine (500 g/L formulation) <b>OR</b> 3.75 L/ha of 2,4-D L.V. ester (600 g/L formulation)
western snowberry	<b>ENGENIA</b> at 2.92 L/ha +	3.75 L/ha of 2,4-D L.V. ester (600 g/L formulation)

### Grazing Restrictions

DO NOT permit lactating dairy animals to graze fields within 7 days after application.

DO NOT harvest forage or cut hay within 30 days after application.

Withdraw meat animals from treated fields at least 3 days before slaughter.

### SEED PRODUCTION

DO NOT apply using aerial application equipment.

### Treatment Notes

#### For New/Established Stands of Red Fescue

1. Apply **ENGENIA** or **ENGENIA** tank-mixes in at least 110 litres of water/ha.
2. Applications to new seedling stands may be made when the crop is 5 cm tall.
3. Application to established stands may be made up to the shot-blade stage of the crop.
4. For dandelion control, apply **ENGENIA** plus 2,4-D amine in the fall when weeds are in the rosette or early bud stage.

Weeds Controlled	ENGENIA Rate	Tank Mix
buckwheat, <i>wild</i> buckwheat, <i>Tartary</i> cockle, <i>cow</i> clover lady's-thumb sow-thistle, <i>perennial (top growth)</i> spurry, <i>corn</i> smartweed, <i>green</i> thistle, <i>Canada (top growth)</i>	<b>ENGENIA</b> alone at 480 mL/ha	none
<i>All of the above plus:</i> additional weeds found on the 2,4-D amine label	<b>ENGENIA</b> at 480 mL/ha +	1.5 L/ha of 2,4-D amine (500 g/L formulation)

### For Canary seed (*Phalaris canariensis*)

1. The canary seed (*Phalaris canariensis*) should only be used as bird seed.
2. For specific weeds controlled, refer to the **ENGENIA** + MCPA amine weed spectrum list under "Cereals".

Herbicide	Rate	Canary Seed ( <i>Phalaris canariensis</i> ) Stage
<b>ENGENIA</b> alone	232 mL/ha	3 - 5 leaf stage
<b>ENGENIA</b> + MCPA amine	232 mL/ha + 850 mL/ha (500 g/L formulation)	3 - 5 leaf stage

### For Seedling Grasses (seeded alone or underseeded with cereals)

#### For seed and forage production of the following seedling grasses

bromegrass, <i>smooth</i>	wheatgrass, <i>crested</i>
fescue, <i>meadow</i>	wheatgrass, <i>Intermediate</i>
fescue, <i>tall</i>	wheatgrass, <i>pubescent</i>
foxtail, <i>meadow</i>	wheatgrass, <i>slender</i>
orchard grass	wheatgrass, <i>streambank</i>
red fescue, <i>creeping</i>	wheatgrass, <i>tall</i>
timothy	

1. Apply **ENGENIA** or **ENGENIA** + tank-mixes in at least 110 litres of water/ha.
2. Application to new seedling grasses may be made when they are in the 2 to 4-leaf stage. If the seedling grass is under seeded with a cereal crop, refer to "Cereals" for additional restrictions pertaining to application type and rate.
3. If the crops are to be used as feed or pasture following treatment with **ENGENIA**, **ENGENIA** plus 2,4-D amine or MCPA, refer to "Grazing Restrictions".

Weeds Controlled	ENGENIA Rate	Tank Mix
buckwheat, <i>Tartary</i> buckwheat, <i>wild</i> cockle, <i>cow</i> cleavers ( <b>higher rate only</b> ) lady's-thumb sow-thistle, <i>perennial (top growth)</i> smartweed, <i>green</i> spurry, <i>corn</i> thistle, <i>Canada (top growth)</i>	<b>ENGENIA</b> alone at 183 - 232 mL/ha	none
<i>All of the above plus:</i> burdock ( <b>young seedlings</b> ) canola, <i>volunteer*</i> cocklebur flixweed hemp-nettle** kochia pigweed, <i>redroot</i> pigweed, <i>Russian</i> radish, <i>wild</i> shepherd's-purse sunflower, <i>volunteer***</i> thistle, <i>Russian</i>	<b>ENGENIA</b> at 183 - 232 mL/ha +	850 mL/ha of 2,4-D amine (500 g/L formulation) <b>OR</b> 850 mL/ha of MCPA amine (500 g/L formulation) <b>OR</b> 1.1 L/ha of MCPA K (400 g/L formulation)

\* *Best results will be obtained if application is made prior to bolting of canola, when this weed is at the 2 to 4 leaf stage.*

\*\* *Use **ENGENIA** + MCPA K for hemp-nettle control. Apply at the 2 to 3 leaf stage of weed for best control. Hemp-nettle may not be controlled if application is made at a more advanced stage of crops and weeds.*

\*\*\* *Depending on the growing conditions, control may be delayed slightly.*

### For Established Grass Pasture

1. Apply **ENGENIA** at 480 mL/ha with 1.5 L/ha of 2,4-D amine (500 g/L formulation) to suppress volunteer alfalfa.
2. Apply **ENGENIA** + 2,4-D amine in 110-220 L/ha in the spring to actively growing alfalfa at greater than 5 cm in height.

### LOW-BUSH BLUEBERRIES

DO NOT apply using aerial application equipment.

### Treatment Notes

1. **ENGENIA** can be used alone or in a tank-mix with 2,4-D L.V. ester.
2. Apply **ENGENIA** or the **ENGENIA** tank-mix in 550 litres of water per hectare.



- Apply in the fall while the sweet-fern is still moderately green after 90% of the blueberries have dropped their leaves. This should be done before the area is burned. Fall burning or cutting should be carried out 4 to 5 weeks after spraying. If spring burning or cutting is planned, it should be done as early as possible in the spring to reduce injury to the blueberries.

### Weeds Controlled

Weeds Controlled	ENGENIA Rate	Tank Mix
fern, sweet lambkill (sheep laurel)	3.68 - 5.68 L/ha	none
additional broadleaf control	1.84 L/ha +	5.7 L of 2,4-D L.V. ester (600 g/L formulation)

### RESISTANCE-MANAGEMENT RECOMMENDATIONS

For resistance management, **ENGENIA** is a Group 4 herbicide. Any weed population may contain or develop plants naturally resistant to **ENGENIA** and other Group 4 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 **ENGENIA** or other Group 4 herbicides within a growing season (sequence) or among growing seasons 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. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.

- 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 or to report suspected resistance, contact BASF at 1-877-371-2273.

## PRECAUTIONS

### KEEP OUT OF REACH OF CHILDREN.

May be fatal if inhaled. Avoid inhaling/breathing sprays. May irritate eyes. Avoid contact with eyes. Potential skin sensitizer.

Thaw if frozen. Shake before use.

Applicators must wear a long-sleeved shirt, long pants and chemical-resistant gloves. For applications to non-crop areas, applicators must also wear coveralls.

Mixer/loader must wear either a respirator with a NIOSH-approved organic-vapour-removing cartridge with a pre-filter approved for pesticides or a NIOSH-approved canister approved for pesticides.

DO NOT enter treated fields until 12 hours after application to barley, low bush blueberries, canary seed (*Phalaris canariensis*), corn (field), fallow, oats, pastures, red fescue, Roundup Ready 2 Xtend Soybeans and XtendFlex Soybeans, spring rye, seedling grasses, stubble fields, summer fallow and wheat (spring).

Apply only when the potential for drift to areas of human habitation or activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

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.

## FIRST AID

**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 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 swallowed:** Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre 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 by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

## **TOXICOLOGICAL INFORMATION**

Dicamba may cause severe irritation to the eyes and irritation to the skin and mucous membranes. Symptoms of overexposure to dicamba may include dizziness, muscle weakness, loss of appetite, weight loss, vomiting, decreased heart rate, shortness of breath, excitement, tenseness, depression, incontinence, cyanosis, muscle spasms, exhaustion and loss of voice.

Treat symptomatically.

## **CLEANING SPRAY EQUIPMENT**

Severe crop injury may occur if any **ENGENIA** remains in the spray equipment following application and is subsequently applied to sensitive crops. After using **ENGENIA**, clean all mixing and spray equipment (including tanks, pumps, lines, filters, screens, and nozzles) with a strong detergent or commercial sprayer cleaner, using a triple rinse procedure:

1. After spraying, drain the sprayer (including boom). DO NOT allow the spray solution to remain in the spray boom lines overnight or for extended periods of time.
2. Flush tank, hoses, boom, and nozzles with clean water.
3. Inspect and clean all strainers, screens, and filters.
4. Prepare a cleaning solution with ammonia (1 L for every 100 L of water) or a commercial sprayer cleaner according to the manufacturer's directions.
5. Wash all parts of the tank, including the inside top surface. Start agitation in the sprayer and thoroughly recirculate the cleaning solution for at least 15 minutes. All visible deposits must be removed from the spraying system.
6. Flush hoses, spray lines, and nozzles with the cleaning solution for at least 1 minute.
7. Repeat above steps for two additional times to accomplish an effective triple rinse.
8. Remove nozzles, screens, and strainers, and clean separately in the cleaning solution after completing the above procedures.

9. Dispose of rinsate in compliance with the provincial regulatory agency guidelines.
10. Drain pump, filter, and lines.
11. Rinse the complete spraying system with clean water.

### **Bulk Container Refilling**

1. The container is to be refilled only with **ENGENIA**.
2. Reseal and return to an authorized BASF bulk site.
3. Prior to refilling, inspect thoroughly for damage such as cracks, punctures, bulges, dents, abrasions and damaged or worn threads on closure devices.
4. Check for leaks after refilling and before transportation.
5. Do not refill or transport damaged or leaking containers.
6. For disposal, this container may be returned to the point of purchase (dealer/distributor). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.
7. If the container is not being refilled, refer to Section on "Disposal".

### **STORAGE**

1. Store **ENGENIA** in its original container only, away from other pesticides, fertilizer, food, or feed.
2. Keep the container closed to prevent spills and contamination.
3. Keep packages dry at all times.

### **DISPOSAL**

Do not reuse this container for any purpose. This is a recyclable container, and it 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 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 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.

#### **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.

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