

2017-0516  
2017-02-09

GROUP	<b>22</b>	HERBICIDE
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## Guardsman® Diquat

Solution

AGRICULTURAL

For Potato Vine Killing, Desiccation of Pulse, Oilseed and Legume Forage Seed Crops, Weed Control in Vegetable and Field Crops, Control of Corn Spurry in Oats and Weed Control in Non-crop Land (rights-of-way for transportation or utility corridors, airports, wasteland, garbage dumps and industrial parks).

**GUARANTEE:**

diquat ion..... 240 g per litre  
(present as dibromide)

**READ THE LABEL AND BOOKLET BEFORE USING  
KEEP OUT OF REACH OF CHILDREN**

**WARNING**



**POISON**

**CAUTION – EYE AND SKIN IRRITANT**

REGISTRATION NO. **32606**  
PEST CONTROL PRODUCTS ACT

NET CONTENTS: **10 L- Bulk**

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

**WARNING!**  
**\*HARMFUL OR FATAL IF SWALLOWED.**  
**HARMFUL IF INHALED, AVOID INHALING/BREATHING DUST,**  
**SPRAYS, ETC.**  
**\*CAUSES SUBSTANTIAL EYE INJURY AND SKIN IRRITATION.**  
**\*DO NOT GET IN EYES, ON SKIN OR ON CLOTHING.**  
**\*NEVER TRANSFER TO OTHER CONTAINERS.**  
**\* KEEP OUT OF REACH OF CHILDREN AND ANIMALS.**

## 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

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 anything by mouth to an unconscious person.

**If in eyes**, **IMMEDIATELY** 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.

## TOXICOLOGICAL INFORMATION

**To be effective, treatment for ingestion of the product must begin IMMEDIATELY.** If **swallowed**, give adsorbent suspension, for example either activated charcoal (100 g for adults or 2 g/kg body weight for children) or bentonite clay (100 to 150 g for adults or 2 g/kg body weight for children), mixed with a purgative (MgSO<sub>4</sub>, Na<sub>2</sub>SO<sub>4</sub> or mannitol). Maintain and monitor electrolyte and fluid status daily. Consider haemodialysis or haemoperfusion using charcoal column.

**If in eyes**, treat symptomatically, using antibiotics and steroids as necessary. Symptoms may develop gradually. Severe damage may be caused by apparently trivial contact and healing may be delayed. Medical supervision should continue until complete healing has occurred.

The use of supplemental oxygen is contraindicated. Do not administer supplemental oxygen unless the patient develops severe hypoxemia.

## **PRECAUTIONS**

**EXCESSIVE EXPOSURE TO DIQUAT MAY CAUSE A HEALTH HAZARD. FOLLOWING THE DIRECTIONS AND PRECAUTIONS WILL REDUCE EXPOSURE.**

DO NOT get on skin or clothing. DO NOT get in eyes. Wear chemical resistant coveralls over a long-sleeved shirt and long pants, chemical-resistant gloves, protective eyewear, socks, chemical resistant footwear, and a respirator during mixing, loading and application, clean-up and repair. Chemical-resistant headgear must be worn for overhead applications. Most exposure to pesticides is by absorption through skin, especially from concentrated material handled at the time of mixing and loading. Rolling down the sleeve end of the glove will prevent drips of liquid from running down the glove onto your arm.

Users should remove personal protective equipment immediately after handling this product. Wash the outside of the gloves before removing. As soon as possible, wash thoroughly and change into clean clothing. REMOVE CONTAMINATED CLOTHING IMMEDIATELY. Launder contaminated clothing prior to reuse and separate from household laundry. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with the product's concentrate. Do not reuse them.

Do not eat, drink, handle or use tobacco, or apply cosmetics in areas where there is potential for exposure to this product. Users should wash hands and face before eating, drinking, chewing gum, handling tobacco or using the toilet. Store and wash all protective clothing separately from household laundry.

Do not contaminate food, feed, domestic or irrigation water supplies, lakes, streams and ponds.

DO NOT enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 24 hours for all agricultural uses. For all other terrestrial uses, DO NOT enter or allow worker entry into treated areas during the restricted-entry interval of 12 hours.

STORE IN ORIGINAL CONTAINER tightly closed in a safe place away from children.

If this pest control product is to be used on a commodity that may be exported to other countries in the world and you require information on acceptable residue levels in these countries, please contact Syngenta Canada Inc. at 1-877-SYNGENTA / 1-877-964-3682.

## **ENVIRONMENTAL HAZARDS**

ANY DRIFT OF THIS PRODUCT OUTSIDE THE IMMEDIATE FIELD AREA MAY RESULT IN DAMAGE TO CROPS, SHELTERBELTS, ORNAMENTAL PLANTS, LAWNS, GRAZING AREAS, WILDLIFE COVER, WETLANDS, AND OTHER DESIRABLE GROWTH.

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

To reduce runoff from treated areas into aquatic habitats avoid applications 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 buffer strip between the treated area and the edge of the water body.

## **STORAGE**

Store in original container, tightly closed, in a safe place away from children.

Store above 0 °C. If crystallization occurs because of storage below this, warm to room temperature and agitate gently until reconstituted.

To prevent contamination store this product away from food or feed.

## **DECONTAMINATION AND DISPOSAL**

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:**

#### **FOR DISPOSAL OF PLASTIC JUGS:**

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.
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CALL 1-800-327-8633 (FASTMED)***

<b>GROUP</b>	<b>22</b>	<b>HERBICIDE</b>
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## Guardsman® Diquat

Solution

AGRICULTURAL

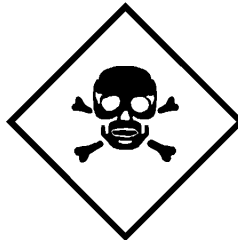
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## **PRODUCT INFORMATION**

Guardsman<sup>®</sup> Diquat is a non-volatile, fast acting herbicide. It is inactivated on contact with the soil and therefore, has no residual effect. The herbicidal effect varies with weed species, hence repeat applications may be necessary upon certain perennial weeds. Annual weeds are generally killed with one application.

Germination of seed is not affected by Guardsman Diquat for all crops which could go for seed sale.

Guardsman Diquat is easily applied in high or low volume sprayers. Very low volume or ultra low volume equipment for aerial application, e.g. rotary atomizer nozzles such as MICRONAIR, are not recommended. Flat fan or hollow cone nozzles are recommended for optimum results. Always use recommended water volume. Complete coverage is essential. **DO NOT USE MIST BLOWERS.**

Guardsman Diquat is rapidly absorbed by plants, and effectiveness is not reduced by rain falling shortly after treatment. **EFFECTIVENESS OF THE TREATMENT MAY BE ENHANCED WHEN APPLICATION IS MADE ON CLOUDY DAYS OR PRIOR TO PERIODS OF DARKNESS.**

Use clean (non-turbid) water for spraying Guardsman Diquat. Muddy water will reduce the effectiveness of Guardsman Diquat.

**THE USER MUST BE AWARE THAT THIS PRODUCT ACCELERATES THE NATURAL PROCESS OF CROP DRY DOWN. IN CASES OF ADVERSE WEATHER CONDITIONS SUCH AS HEAVY RAIN, HAIL OR STRONG WIND, THE RESULTANT DAMAGE TO YOUR CROP MAY BE ENHANCED. TAKE NOTE THAT CERTAIN CROPS ARE MORE FRAGILE THAN OTHERS.**

Crop waste remaining after harvest (e.g. pea vines, alfalfa stems) may be used as a feed supplement for livestock.

## **HARVESTING**

The use of Guardsman Diquat facilitates direct combining of many field crops such as lentils, peas, canola, mustard or legumes. Growers who wish to swath desiccated crops should wait until the crop has dried down sufficiently to allow the desiccated crop to be picked up and threshed immediately after swathing. Delaying threshing after swathing desiccated crops will increase shattering and seed loss.

For most crops, harvest can normally commence within 4-10 days after desiccation. However, adverse weather conditions such as rainfall, cool temperatures and high humidity will slow plant desiccation and keep seed moisture levels high which can delay commencement of harvest beyond 10 days after application. When those conditions prevail after Guardsman Diquat desiccation, commence harvest when plant material is dry and seed moisture level allows efficient harvesting. To minimize seed loss and to maintain seed quality, harvest of desiccated crops should commence as soon as seed moisture reaches the level for normal harvest.

## **CLEANING SPRAYER AFTER USE**

It is important to thoroughly wash equipment after spraying - use a wetting agent (AGRAL<sup>®</sup> 90 at 60 mL per 100 L of water), flush and spray out, then thoroughly rinse with clean water. When possible, the equipment should be filled with clean water and left overnight. Spray out before storing equipment or using for other materials.

## DIRECTIONS FOR USE

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.

Refer to the following table for a summary of rates, application volumes and growth stages for ground and aerial application of Guardsman Diquat. The table provides operational information. The applicator is directed to the CROPS-ADDITIONAL NOTES section for any additional information prior to spraying. Ground spraying may be done with any standard boom sprayer.

When tank mixing, always read the labels of the tank mix partners and follow all directions for use, restrictions and precautions.

Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and parks is minimal. Take into consideration meteorological conditions (e.g. wind speed, wind direction, temperature inversion) and application equipment and sprayer settings used for application.

Mixers and loaders supporting aerial applications are required to use closed systems.

Field sprayer application: DO NOT apply during period 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) medium classification. Boom height must be 60 cm or less above the crop or ground.

Aerial application: DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. Suggested conditions for good aerial application are **moderate temperatures** (less than 25°C) and **humidity** (greater than 50%). DO NOT apply when wind speed is greater than 9 km/h at flying height at the site of application. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. To minimize spray drift, use flat fan or hollow cone nozzles, and a pressure of 150-200 kPa, with the nozzle pointed back 150°-180°. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wingspan or rotorspan.

For application to rights-of-way, buffer zones for production of sensitive terrestrial habitats are not required; however, the best available application strategies which minimize off-site drift, including meteorological conditions (e.g. wind direction, low wind speed) and spray equipment (e.g. coarse droplet sizes, minimizing height above canopy), should be used. Applicators must, however, observe the specified buffer zones for protection of sensitive aquatic habitats.

Use AGRAL 90, a wetting and spreading agent, at a rate of 1 L for each 1000 L of spray mixture unless otherwise stated. For beans (white and red kidney, soybeans and adzuki beans) or lentils, LI 700® at a rate of 2.5 L for each 1000 L of spray mixture may be used. See potato vine killing use for detailed information on use of adjuvant on potatoes in the prairie provinces.

AGITATE WELL BEFORE USE.

### Buffer zones:

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, 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.

Method of Application	Crop		Buffer Zones (metres) Required for the Protection of:		
			Aquatic Habitat of Depths:		Terrestrial Habitat
			Less than 1 m	Greater than 1 m	
Field sprayer <sup>1</sup>	Beans, canola, flax, lentils, mustard, peas, sunflower, legume forage seed crops, sweet white lupins		5	3	3
	Vegetable and field crops, fruit, non-cropland (including rights-of-way <sup>2</sup> for transportation or utility corridors, airports, wasteland, garbage dumps and industrial parks), potatoes		10	5	5
Aerial	Beans, legume forage seed crops	Fixed wing	150	80	90
		Rotary wing	100	55	70
	Potato	Fixed wing	200	100	100
		Rotary wing	125	65	80

<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 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 rights-of-way, buffer zones for protection of sensitive terrestrial habitats are not required.

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

## GROUND APPLICATION

Ground spraying may be done with any standard boom sprayer.

## AERIAL APPLICATION

### Generic Aerial Application Label Instructions - Directions for Use

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.

Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices.

### **Use Precautions**

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the *National Aerial Pesticide Application Manual*, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed.

Coarse sprays are less likely to drift, therefore, avoid combinations of pressure and nozzle type that will result in fine particles (mist). Do not apply during periods of dead calm or when wind velocity and direction pose a risk of spray drift. Do not spray when the wind is blowing towards a nearby sensitive crop, garden, terrestrial habitat (such as shelter-belt) or aquatic habitat.

### **Operator Precautions**

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals are required to use a closed system.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical-resistant coveralls over a long-sleeved shirt, long pants, chemical-resistant gloves and footwear, goggles and a respirator during mixing/loading, clean-up and repair, and chemical-resistant headgear for overhead applications.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

### **Product Specific Precautions**

Read and understand the entire label before opening this product. If you have questions, call the manufacturer at 1-87-SYNGENTA (1-877-964-3682) or obtain technical advice from the distributor or your provincial agricultural representative. Application of this specific product must meet and/or conform to the following:

Volume: Apply the recommended rate in a minimum spray volume of 45 litres per hectare.

Refer to ENVIRONMENTAL PRECAUTIONS for additional details.

## ENVIRONMENTAL PRECAUTIONS

AIRCRAFT APPLICATION IS NOT RECOMMENDED WHERE WETLANDS OR WILDLIFE COVER MIGHT BE OVERSPRAYED. AVOID SPRAY DRIFT ONTO ADJACENT CROPS, SHELTER BELTS AND WILDLIFE COVER. AVOID OVERSPRAYING OR DRIFT ONTO SLOUGHS.

SINCE HERBICIDE APPLICATION MAY DAMAGE THE HABITAT OF MIGRATORY BIRDS AND OTHER WILDLIFE SPECIES, DO NOT USE AERIAL APPLICATION IN FIELDS WHERE WETLANDS OR OTHER GOOD WILDLIFE COVER MIGHT BE OVERSPRAYED; THIS INCLUDES SLOUGHS AND DRY SLOUGH MARGINS IN WESTERN CANADA. USE GROUND SPRAYERS AND LEAVE AN UNSPRAYED MARGIN OF 15 M AROUND THE BORDER OF ALL SLOUGHS.

Apply in weather conditions that will not promote drift. Suggested conditions for good aerial application are **moderate temperatures** (less than 25°C), **humidity** (greater than 50%), and **wind** 3.5-9 kph at flying height at the site of application. Do not apply in dead calm conditions or when temperature inversion is likely (e.g. evening when warm air is rising from crop or morning when sunshine warms the soil and air rises from the field). To avoid spray drift, use flat fan or hollow cone nozzles, and a pressure of 150-200 kPa, with the nozzles pointed back 150°-180°.

TABLE 1

CROPS	RATE (L/ha)	APPLICATION METHOD	APPLICATION VOLUME (L/ha)	CROP CONDITION	NOTES
<b>Field Crops</b>					
Beans - White & Red Kidney, Soybeans and Adzuki beans	1.25-1.7	Ground	225-550	Full canopy, few weeds (normal crop)	Spray at 80-90% natural leaf defoliation and at least 80% of the pods have turned yellow. Consider pod turn only when determining application time in years when heavy vine growth is anticipated.
	1.7-2.1	Aerial	at least 45		
	1.7	Ground	225-550	Heavy crop stand and/or weedy crop and/or heavy vine regrowth	
	2.3	Aerial	at least 45		
Canola	1.25-1.7	Ground	225-550	Full canopy, few weeds (normal crop)	Apply when 90% or more of seed has turned brown. Combine no later than 14 days after application.
	1.7	Aerial	at least 45		
	1.7	Ground	225-550	Very dense canopy and/or weedy crop	
	2.3	Aerial	at least 45		
Chickpeas	1.25-1.7	Ground	225-550	Full canopy, few weeds (normal crop)	For Desi type, apply at the time swathing would normally commence, when the majority of plants are yellow and most pods are mature and seeds have turned from green to yellow or brown. Upper part of plant may still be green. For Kabuli type, apply when the majority of plants and pods are ripe and dry with seeds turned from green to white or tan, and detached from the pods. Drydown is less complete in Kabuli type due to its thick pod wall.
	1.7	Aerial	at least 45		
	1.7	Ground	225-550	Heavy crop stand and/or weedy crop and/or heavy vine regrowth	
Flax (including low linolenic acid varieties)	1.25-1.7	Ground	225-550	Full canopy, few weeds (normal crop)	Spray when crop is at 75% boll turn stage.
	1.7	Aerial	at least 45		Harvest when flaxseed tests 'dry'.
	1.7	Ground	225-550	Very dense canopy and/or weedy crop	
	2.3	Aerial	at least 45		

CROPS	RATE (L/ha)	APPLICATION METHOD	APPLICATION VOLUME (L/ha)	CROP CONDITION	NOTES
Legumes (alfalfa, birdsfoot trefoil, red clover and white clover) Seed Crops	1.7-2.7	Ground	225-550	Full canopy and/or weedy crop	Seed crops only. Apply when the majority of the pods of individual plants are ripe but before they shatter. To prevent pod shattering and loss of seed the interval between spraying and harvest should not exceed 7 days.
	1.7-2.7	Aerial	at least 45		
	2.7	Ground	225-550	Very dense canopy and/or weedy crop	
	2.7	Aerial	at least 45	and/or secondary regrowth	
Lentils	1.25-1.7	Ground	225-550	Full canopy, few weeds (normal crop)	Apply Guardsman Diquat at the time swathing would normally commence. This is when the lowermost pods are yellow-brown and rattle.
	1.7	Aerial	at least 45		
	1.7	Ground	225-550	Very dense canopy and/or weedy crop	
	2.3	Aerial	at least 45		
Mustard (condiment type only)	1.25-1.7	Ground	225-550	Full canopy, few weeds (normal crop)	Spray when crop is at 75% seed turn (green to brown) stage.
	1.7	Aerial	at least 45		
	1.7	Ground	225-550	Very dense canopy and/or weedy crop	Combine no later than 14 days after application.
	2.3	Aerial	at least 45		
Oats - Corn Spurry Control	0.9	Ground	225-335	Corn spurry less than 8 cm high	Do not use wetters, spreaders or stickers.
	1.25	Ground	225-335	Corn spurry more than 8 cm high	Apply when oats are 8-15 cm in height.  DO NOT APPLY BY AIR.
Peas - Field or Dry	1.25-1.7	Ground	225-550	Full canopy, few weeds (normal crop)	Apply Guardsman Diquat when bottom pods of the majority of the plants are ripe & dry with the seeds detached from the pods. Seed in less mature pods will split when squeezed.
	1.7	Aerial	at least 45		
	1.7	Ground	225-550	Very dense canopy and/or weedy crop	
	2.3	Aerial	at least 45		

CROPS	RATE (L/ha)	APPLICATION METHOD	APPLICATION VOLUME (L/ha)	CROP CONDITION	NOTES
Potato - Vine Killing	3.5	Ground	550-1100	Top growth heavy or weedy field	DO NOT apply to drought stressed potatoes (see additional notes on Potato Vine Killing).
	1.7-2.3	Ground	550-1100	Top growth light, little weed growth <u>or</u> top growth heavy and in early stage of maturity	
	1.25-2.3 plus 1.25	Ground	550-1100	Top growth heavy <u>or</u> top growth light and weedy field (for Eastern Canada only)	Second application 4-6 days after first application at normal top killing time.
	1.7-2.3 plus 1.25	Aerial	at least 45	All top growth conditions. No geographic limitation.	Use higher rate in the first application on denser or immature vines. A fungicide may be added.
	1.25	Ground	550-1100 (add 1 L AGRAL 90 /1000 L or 2.5 L LI 700/ 1000 L in the prairie provinces)	Top growth fully mature, little or no weeds	1.25 L rate may require more than 10-14 days to give a complete kill.  Do not use 1.25 L rate in BC.
Sweet White Lupins	2.3	Ground	225-550	Full canopy, few weeds (normal crop)	Spray when the pods are brown and the internal seed (endosperm) yellow when cut.  DO NOT APPLY BY AIR.
Sunflowers	1.25-1.7	Ground	225-550	Full canopy, few weeds (normal crop)	Spray when seeds reach maturity (20-50% moisture in the seed and hull). Combine 15-20 days after spraying.
	1.7	Aerial	at least 45	Very dense canopy and/or weedy crop	
	1.7	Ground	225-550		
	2.3	Aerial	at least 45		



CROPS	RATE (L/ha)	APPLICATION METHOD	APPLICATION VOLUME (L/ha)	CROP CONDITION	NOTES
<b>Vegetables &amp; Field Crops</b>					
Stale Seedbed	2.3	Ground	at least 300	Small weeds (3-5 cm high)	Stale Seedbed - Pre-emergent to crop, post emergent weeds.
	4.6	Ground	at least 300	Large weeds (greater than 5 cm high)	Burn off weeds either prior to, or after seeding, but 3 days before crop emergence. If grasses are present, use GRAMOXONE® in place of Guardsman Diquat.  DO NOT APPLY BY AIR.
<b>Vegetables</b>					
Inter-row directed weeding	2.3-4.6	Ground	900-1100		If grasses are present use GRAMOXONE in place of Guardsman Diquat.  DO NOT APPLY BY AIR.
<b>Fruit</b>					
Perennial grass suppression under apple trees	4.6	Ground	225-675		DO NOT APPLY BY AIR.
<b>Non-Crop Land (Rights-of-way for transportation or utility corridors, airports, wasteland, garbage dumps and industrial parks)</b>					
Weed Control in non-crop land	2.3-4.6	Ground	550-1100		Use higher rates and higher volume of water for dense weed growth. Thoroughly wet foliage.  DO NOT APPLY BY AIR.

## CROPS - ADDITIONAL NOTES

### Beans

#### White and Red-Kidney Beans, Soybeans and Adzuki Beans

Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used with aircraft fitted to apply uniform spray coverage. Spray at 80-90% natural leaf defoliation and when at least 80% of the pods have turned yellow. In years of excessive vine regrowth, consider pod colour only for the timing of Guardsman Diquat application. Desiccation of weeds is completed in a week. THIS TREATMENT DOES NOT MATURE BEANS NOR DOES IT LOWER MOISTURE CONTENT OF BEANS. Direct combine or pull beans when they are considered ready. Combining of dry beans and Adzuki beans can often be done the day of pulling; however, this is dependent on the condition of the beans.

Guardsman Diquat applied to beans under prolonged drought stress will provide slower and less effective desiccation compared to applications made under normal growing conditions. If prolonged

drought stress conditions exist prior to application, use the highest registered rate of Guardsman Diquat for beans as well as the highest registered water volume to obtain the best activity.

### **Canola**

This treatment does not mature canola. Guardsman Diquat is an effective desiccant aiding in the harvest of canola. Speed of pod and stem dry down will vary depending on spray coverage, environmental conditions and plant growth stage at application; however pod and stem kill will take place 7-10 days after application.

Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used with aircraft fitted to apply uniform spray coverage. Apply when 90% or more of seed has turned brown; application of Guardsman Diquat prior to this stage can result in high levels of green seed in the sample.

Commence harvest as soon as the crop can be combined since significant yield loss in standing desiccated canola crops, particularly Argentine varieties, can occur due to pod drop and pod shattering. This yield loss can be greater if harvest of the standing desiccated crop is delayed or when unfavourable weather conditions including high winds and heavy rainfall occur.

Germination of seed is not affected by Guardsman Diquat desiccation.

### **Chickpeas**

This treatment does not mature chickpeas. Chickpea swaths are at risk to wind loss, and straight cutting is preferred. Timing is vital as premature desiccation will result in yield and quality loss. Crops should be closely monitored for correct stage of application. Application of Guardsman Diquat may cause the small stem attaching the pod to the chickpea plant to become brittle and lead to increased pod loss. Wait 4 to 7 days before combining the crop. It may be advantageous to harvest, and bin separately, chickpea grain from late maturing areas of the field. Use of higher water volumes will provide more complete coverage.

For Desi type, apply at the time swathing would normally commence, when the majority of plants are yellow and most pods are mature and seeds have turned from green to yellow or brown. Upper part of plant may still be green.

For Kabuli type, apply when the majority of plants and pods are ripe and dry with seeds turned from green to white or tan, and detached from the pods. Drydown is less complete in Kabuli type due to its thick pod wall.

Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used with aircraft fitted to apply uniform spray coverage.

Germination of seed is not affected by Guardsman Diquat desiccation.

### **Flax (including low linolenic acid varieties)**

Guardsman Diquat is an effective desiccant aiding in the harvest of flax (including low linolenic acid varieties). Desiccation reduces the period of time from maturity to harvest, reduces wear and tear on harvesting equipment, reduces harvest time, decreases the moisture content of the seed and eliminates the need for swathing.

Spray when the crop is at the 75% boll turn stage (normal swathing time).

Do not apply before 75% boll turn. Harvest when the flaxseed tests 'dry'.

Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage.

Aerial application may be used where the crop is too dense or the ground too soft for ground rigs. Ensure aircraft is fitted to apply uniform spray coverage.

Germination of seed is not affected by Guardsman Diquat desiccation of the crop.

## **Fruit**

### **Perennial Grass Suppression Under Apple Trees**

See Table 1 for rates.

DO NOT APPLY BY AIR.

## **Legumes**

### **Alfalfa, Birdsfoot Trefoil, Red Clover, and White Clover Seed Crops**

To prevent seed pod shattering and loss of seed, the interval between spraying and harvest should not exceed 7 days. NOTES: 1) Birdsfoot trefoil plants under drought or disease stress may be subject to damage when desiccated with Guardsman Diquat. 2) Do not use Guardsman Diquat if a residual herbicide has been used on the legumes within the past 12 months.

Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used where the crop is too dense or the ground too soft for ground rigs. Ensure aircraft is fitted to apply uniform spray coverage.

## **Lentils**

Apply Guardsman Diquat at the time swathing would normally commence. This is when the lowermost pods are yellow-brown and seeds rattle. Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used where the crop is too dense or the ground too soft for ground rigs.

Guardsman Diquat applied to lentils under prolonged drought stress, rainfall, cool temperatures and high humidity will provide slower and less effective desiccation compared to applications made under normal growing conditions. If these conditions exist prior to application, use the highest registered rate of Guardsman Diquat for lentils as well as the highest registered water volume to obtain the best activity. Harvest delays should be expected.

## **Mustard (condiment type only)**

Spray when the crop is at the 75% seed turn (green to brown) stage. Do not apply when the crop is immature or past the recommended stage of maturity. Commence combining no later than 14 days after application. **NOTE:** Pod drop and some shattering can occur in high winds in the standing

crop.

Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used where the crop is too dense or the ground too soft for ground rigs. Apply by means of an aircraft fitted to apply uniform spray coverage.

**Non-Crop Land (Rights-of-way for transportation or utility corridors, airports, wasteland, garbage dumps and industrial parks)**

**Weed Control in Non-Crop Land**

For the top kill of weeds, Guardsman Diquat will provide a rapid top-kill of weeds and grasses when applied as a foliar spray. Guardsman Diquat may be added to tank mixes of certain soil sterilants where immediate top kill and long term soil sterilization is required. The combined use with soil sterilants should be based on previous experimental experience, and recommendations on the label of the residual herbicide.

DO NOT APPLY BY AIR.

**Oats - Corn Spurry Control**

Guardsman Diquat, when applied by ground sprayer as recommended in Table 1 will burn corn spurry and give a temporary burning of the exposed oats leaves, but the plants quickly recover. Do not use any surfactant.

DO NOT APPLY BY AIR.

**Peas**

This treatment does not mature peas. Because pea swaths are at considerable risk to wind losses, straight cutting should be considered. Timing is vital as premature desiccation will result in yield loss: crops should be closely monitored. Commence combining when the peas test "dry".

Guardsman Diquat applied to peas under prolonged drought stress will provide slower and less effective desiccation compared to applications made under normal growing conditions. If prolonged drought stress conditions exist prior to application, use the highest registered rate of Guardsman Diquat for peas as well as the highest registered water volume to obtain the best activity.

With indeterminate varieties, apply Guardsman Diquat when the lower pods of most plants are ripe, dry, translucent and shrunken, with enclosed seeds detached from the pods. Middle pods will be somewhat shrunken and leathery, and the seed will split when squeezed. Desiccation will dry out upper pods and green plant growth, leaving bottom and middle pods with the highest quality seed.

With determinate varieties, Guardsman Diquat should be applied when the top and upper middle pods are somewhat shrunken and leathery and seeds in these pods split when squeezed. The lower middle and bottom pods are ripe and dry, translucent and shrunken, with seeds enclosed in these pods detached.

Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used where the crop is too dense or the ground too soft for ground rigs. Ensure aircraft is fitted to apply uniform spray coverage.

## **Potato Vine Killing**

**Use of adjuvant is not recommended in the spray mixture for this crop except in the Prairie Provinces.**

Guardsman Diquat is an effective potato vine killer of seed and table potatoes. Leaf kill is rapid (3-4 days) with kill of stems taking place gradually (10-14 days) giving conditions that closely approach 'natural' maturity. At recommended rates of application, Guardsman Diquat also desiccates weeds that are present, and thus speeds and eases the harvesting operations. By stopping growth of potato tops the incidence of tuber rot is greatly reduced.

Best results are obtained after growth has passed its peak and adequate skin set has been established. Poor results may be obtained when plants are sprayed while growing actively. NOTE: Active growth of potato tops can continue into late season in part or all of a field if growth has been delayed for any reason during the growing period. Do not harvest potatoes within 24 hours of Guardsman Diquat application.

Do not apply Guardsman Diquat during periods of extreme weather conditions. Do not apply Guardsman Diquat during drought, particularly when the soil is so dry that the tops wilt during the day. After drought conditions, wait for at least three days after the soil has been thoroughly moistened by rain or irrigation. During extremely wet conditions, particularly if the soil is water logged and algal colonies are present on the soil as an indicator of excessive moisture, wait until soil conditions are drier and more closely resemble harvesting conditions. Do not use Guardsman Diquat if tops have been damaged by a roto-beater or other similar mechanical top beater. Do not use wetters, spreaders or stickers except as directed for the 1.25 L rate in the prairie provinces. When potato tops are especially dense or heavy weed growth is present, use 1100 L of water/ha.

## **Sweet White Lupins**

Apply Guardsman Diquat once per season for pre-harvest desiccation. Spray when the pods are brown and the internal seed (endosperm) yellow when cut. Wait at least 7 days before harvesting. Do not add wetters, spreaders or stickers to the spray solution. Ground rig application only. Ground spraying may be done with any standard boom sprayer. DO NOT APPLY BY AIR.

## **Sunflowers**

Guardsman Diquat is an effective desiccant aiding in the harvest of sunflower seed for seed, oil production and confectionery use. If specialized high clearance equipment is available, ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used where the crop is too tall or the ground too soft for ground rigs. Do not apply when the crop is immature.

Combine 15-20 days after spraying.

## Vegetables and Field Crops

### Stale Seedbed - Pre-emergent to crop, Post-emergent to Weeds on Stale Seedbed

For weed control in beans (all types), beets, carrots, cole crops, corn, onions, peas, cucumbers, potatoes, soybeans and turnips, prepare a stale seedbed by early cultivation (at least two to four weeks in advance of seeding) to stimulate weed growth. Seed without further cultivation and with a minimum of soil disturbance.

Apply by ground sprayer 2.3 to 4.6 L of Guardsman Diquat (2.3 L for small weeds, 3 to 5 cm high, and 4.6 L for larger weeds) in 300 L or more of water per hectare to burn off emerged weeds either prior to seeding or after seeding, but three days before crop emergence. If grasses are present, use GRAMOXONE herbicide in place of Guardsman Diquat.

DO NOT APPLY BY AIR.

## Vegetables

### Inter-row, Directed Chemical Weeding of Vegetable Crops

For weed control between the rows after crop and weed emergence, use suitable protective equipment and spray nozzle to protect crop from spray. If grasses are present, use GRAMOXONE herbicide in place of Guardsman Diquat.

DO NOT APPLY BY AIR.

### **NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR THE INDICATED SPECIAL USE APPLICATIONS**

The DIRECTIONS FOR USE for this product for the uses described below were developed by persons other than Syngenta Canada Inc. and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion program. Syngenta 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 Canada Inc. harmless from any claims based on efficacy and/or phytotoxicity in connection with the uses described below.

**FABA BEANS**

<b>RATE (L/ha)</b>	<b>APPLICATION METHOD</b>	<b>APPLICATION VOLUME (L/ha)</b>	<b>CROP CONDITION</b>	<b>NOTES</b>
1.25-1.7	Ground	225-550	Use higher spray rates for dense canopies and/or weedy crops	Apply 1 application only for crop desiccation.
1.7-2.3	Aerial	at least 45		<p>Apply when the majority of the plants are ripe and dry. Pods will be fully filled and the bottom pods will be tan or black in colour.</p> <p>For ground or aerial application, use AGRAL 90 as a wetting and spreading agent, at a rate of 1 L for each 1000 L of spray mixture.</p> <p>Observe a 4 – 10 day pre-harvest interval (PHI).</p> <p>Spray pressure should be increased with high clearance sprayers (90 – 100 psi) to ensure adequate coverage of Guardsman Diquat in the lower stem area. Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used with aircraft fitted to apply uniform spray coverage. Desiccation of weeds is completed in a week. <b>THIS TREATMENT DOES NOT LOWER MOISTURE CONTENT OF BEANS.</b> Guardsman Diquat applied to beans under prolonged drought stress will provide slower and less effective desiccation compared to applications made under normal growing conditions. If prolonged drought stress conditions exist prior to application, use the highest registered rate of Guardsman Diquat for beans as well as the highest registered water volume to obtain the best activity. Timing is vital as premature desiccation will result in yield loss; crops should be closely monitored.</p>

## Resistance-Management Recommendations

For resistance management, Guardsman Diquat is a Group 22 herbicide. Any weed population may contain or develop plants naturally resistant to Guardsman Diquat and other Group 22 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 Guardsman Diquat or other Group 22 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 company representatives at 1-87-SYNGENTA (1-877-964-3682) or at [www.syngenta.ca](http://www.syngenta.ca).

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