

GROUP	4	HERBICIDES
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PULSAR® Herbicide

HERBICIDE

EMULSIFIABLE CONCENTRATE

AGRICULTURAL

A post emergence herbicide for control of broadleaf weeds in spring wheat, durum wheat and barley.

For sale and for use only in the Prairie Provinces and Interior of British Columbia.

ACTIVE INGREDIENTS:

Dicamba 86.9 g a.e./L
(present as diglycolamine salt)
Fluroxypyr 113.3 g a.e./L
(present as 1-methylheptyl ester)

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

WARNING - EYE AND SKIN IRRITANT

REGISTRATION NO.: **29450**
PEST CONTROL PRODUCTS ACT

NET CONTENTS: **1 L to Bulk**

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

Label

1.0 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.

2.0 FIRST AID

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

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

IF 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 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.

3.0 TOXICOLOGICAL INFORMATION

This product contains petroleum distillates. Do not induce vomiting. Treat symptomatically for ingestion, inhalation, skin or eye contact.

4.0 PRECAUTIONS

- KEEP OUT OF THE REACH OF CHILDREN.
- Causes eye and skin irritation. DO NOT get in eyes or on skin.
- Do not ingest.
- **Restricted Entry Intervals (REI): DO NOT** enter treated fields until 12 hours after application.
- DO not use in residential areas. Residential areas are defined as any use site where bystanders, including children, could be exposed during or after application. This includes homes, schools, parks, playgrounds, playing fields, public buildings, or any other area where the general public, including children, could be exposed.
- Apply only when the potential for drift to areas of human habitation or areas of human 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.

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 1-87-SYNGENTA / 1-877-964-3682.

5.0 PERSONAL PROTECTIVE EQUIPMENT (PPE)

Avoid contact with clothing. Wear coveralls or long sleeved shirt and long pants, chemical resistant gloves, and goggles when mixing, loading or during equipment clean up or repair. Goggles and chemical resistant gloves are not required during application.

Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Wash splashes from skin IMMEDIATELY with plenty of water. Remove PPE immediately after handling this product. Wash the outside of gloves with soap and water before removing. As soon as possible, wash thoroughly and change into clean clothing. After spraying, wash hands and shower thoroughly with soap and water.

Heavily contaminated or drenched clothing and other absorbent materials contaminated with this product should be discarded. Do not reuse them.

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

Wear freshly laundered clothes daily.

Do not wear contaminated shoes.

Users should wash hands and exposed skin before eating, drinking, chewing gum, using tobacco, applying cosmetics or using the toilet.

While using product, do not eat, drink or use tobacco (including smoking).

6.0 ENVIRONMENTAL PRECAUTIONS

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 application to areas with a moderate to steep slope, compacted soil, or clay.

Avoid application when heavy rain is forecast.

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

This product contains an active ingredient and aromatic petroleum distillates which are toxic to aquatic organisms.

7.0 STORAGE

Store the product in closed original container in a well-ventilated room. Keep out of reach of children, unauthorised persons and animals. To prevent contamination, store this product away from food or feed.

8.0 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.

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.
2. Make the empty, rinsed container unsuitable for further use.

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

FOR REFILLABLE CONTAINERS

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

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

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Pamphlet

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

9.0 PRODUCT INFORMATION

PULSAR® Herbicide is a systemic, post-emergence herbicide for the selective control of: cleavers, wild buckwheat, kochia, Russian thistle, redroot pigweed (suppression only), lamb's quarter (suppression only), volunteer flax, stork's bill (suppression only) in spring wheat, durum wheat and barley in western Canada.

MODE OF ACTION: PULSAR Herbicide moves within the plant to control both exposed and underground plant tissues. The product controls weeds by disrupting normal plant growth patterns. Symptoms include epinasty (twisting of the stems) and swollen nodes.

10.0 DIRECTIONS FOR USE

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

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.

10.1 General Information

1. Do not apply on or near desirable trees or plants, or in locations where chemical may be washed into contact with their roots.
2. Apply PULSAR Herbicide when the air temperature is between 10 and 25 °C for best results. Do not apply when there is a risk of a severe fall in night temperature after use.
3. Do not contaminate domestic or irrigation waters. Thoroughly clean application equipment after use.
4. Do not treat areas where movement of the chemical into the soil or where surface washing may bring PULSAR Herbicide into contact with the roots of desirable plants.
5. Crop damage can occur if the chemical is applied at any time other than the recommended crop stage.

NOTE: Crop injury may occur if application is made to crops that have been stressed by abnormally hot, humid or cold weather conditions, frost, low fertility, drought, water saturated soil, compacted soil, previous pesticide applications, disease or insect damage etc. However, crop injury that may occur is usually offset by the weed control obtained.

6. Do not use additives such as oil, wetting agents, emulsifiers, detergents, spreaders, sticking agents, or dispersing agents with PULSAR Herbicide on crops unless otherwise specified.
7. Read and follow the label instructions for the tank-mix products noting pertinent recommendations, directions for use, restrictions or additional weeds controlled.
8. Do not apply through any type of irrigation system.
9. To avoid subsequent injury to other crops, thoroughly clean application equipment immediately after spraying. Ensure that all traces of the product are removed. See section on suggested procedure for cleaning spray equipment.

10.2 Ground Application

10.2.1 General Precautions

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 S572.1) medium classification. Boom height must be 60 cm or less above the crop or ground.

10.2.2 Mixing Instructions

1. Clean spray tank and half fill with clean water. Start agitation or bypass system.
2. Add correct amount of PULSAR Herbicide, and HORIZON® 240EC Tank Mix Herbicide (if being used) and then add the correct amount of MCPA ESTER 600 Herbicide (if being used) and continue to agitate.
3. Agitate for 2-3 minutes.
4. Add correct amount of TRAXOS Herbicide (if being used) and HORIZON NG (if being used).
5. If tank mixing with HORIZON 240EC, add SCORE adjuvant.
6. Agitate additional 1 – 2 minutes.
7. After any break in spraying operations, agitate thoroughly before spraying again.
8. Use the spray suspension as soon as it is prepared.
9. Follow directions and precautions as outlined above, especially when applying next to sensitive crops (e.g., forages, legumes, and canola).
10. Follow sprayer clean-up directions.

10.2.3 Spraying Instructions

1. DO NOT APPLY USING AERIAL APPLICATION EQUIPMENT.
2. Water Volume: 110 litres per hectare.
3. Spray Nozzles: 80° or 110° flat fan nozzles are recommended for optimal spray coverage. Use 50 mesh nozzle screens. Do not use flood type nozzles, controlled droplet application equipment, spray foils or hollow cone nozzles.
4. Pressure: 275 - 310 kPa.
5. Apply uniformly at 6 - 8 km/hr and avoid overlapping. Shut off spray boom while starting, turning, slowing or stopping to prevent crop injury from an over application.

10.2.4 Equipment Clean-Up

Before Spraying:

- Prior to using PULSAR Herbicide, ensure that the spray tank, lines and filter are thoroughly clean.

After Spraying:

- Thoroughly clean application equipment immediately after spraying. To avoid subsequent injury to other crops, immediately after spraying and before spraying other crops, thoroughly remove all traces of PULSAR Herbicide from mixing and spraying equipment.
- When using tank mixes, consult the tank-mix partner label for additional cleanup instructions.
- The following recommendations are provided:

1. Drain and flush tank walls, boom and all hoses for ten minutes with a clean water/detergent mixture. Rinse with clean water. **Do not** clean the sprayer near desirable vegetation, wells or other water sources.
2. Remove all nozzles and screens and wash separately.
3. Dispose of all rinsate in accordance with provincial regulations.

All traces of PULSAR Herbicide must be removed before equipment can be used on crops other than Wheat and Barley.

10.3 Buffer Zones

Spot treatments using hand-held equipment **DO NOT** require a buffer zone.

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:				
		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	Spring wheat, durum wheat and barley	15	15	15	15	15

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

The buffer zones for this product can be modified based on weather conditions and spray equipment configuration by access the Buffer Zone Calculator on the Pesticides portion of the Canada.ca website.

10.4 Rotational Crop Restrictions

Fields previously treated with PULSAR Herbicide can be seeded the following year to barley, canola, flax, forage grasses, lentils, mustard, oats, peas, rye or wheat or fields can be summerfallowed.

PULSAR Herbicide may cause injury to desirable trees and plants, particularly soybeans, flowers, fruit trees, grapes, ornamentals, peas, potatoes, tomatoes and tobacco and other broadleaf crops especially in their developmental and growing stage. Follow these precautions when spraying PULSAR Herbicide in areas where sensitive crops are grown.

1. Avoid making applications where spray particles may be carried by air currents onto nearby sensitive crops. Apply when wind is 3 to 15 km/hr. 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 areas to be

- treated and sensitive plants.
2. Apply with coarse spray droplets since they are less likely to drift than fine spray droplets. Select nozzles which minimize the amount of fine spray particles. Apply in a minimum of 220 L/ha spray volume and a maximum pressure of 150 kPa unless otherwise required by the nozzle manufacturer.
 3. Do not apply PULSAR Herbicide when the temperature on the day of application is expected to exceed 30 °C as drift is more likely to occur.
 4. Ensure that spray equipment used to apply PULSAR Herbicide is properly cleaned before reusing to apply any other chemicals.
 5. Avoid spraying under conditions of high humidity or fog to prevent drift to adjacent crops.

DO NOT apply using aerial application equipment.

10.5 Pre-Harvest/Grazing Intervals

Do not harvest the treated crop within 60 days after application.

Do not graze cattle on treated crop, or harvest for silage until 7 days after the application of PULSAR Herbicide alone and at least 12 weeks following treatment with PULSAR Herbicide tank-mixes.

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

11.0 CROP USE DIRECTIONS

Apply PULSAR Herbicide alone or in tank mix in at least 110 litres of water/ha.

DO NOT APPLY USING AERIAL APPLICATION EQUIPMENT.

PULSAR Herbicide can be used on all varieties of spring wheat, durum wheat and barley. **One application per year is permitted.** Apply when crop is in the 2-5 leaf stage.

11.1 PULSAR Herbicide When Applied Alone

Crops	Rate /Ha	Weeds
Spring wheat Durum wheat Spring barley	0.607 - 0.917 L	cleavers , wild buckwheat* (up to the 9-leaf stage), kochia (up to the 9-leaf stage), Russian thistle**, redroot pigweed** (suppression only), lamb's quarter** (suppression only), volunteer flax**, stork's bill (suppression only)**

* Use the 0.917 L/ha rate to obtain control of wild buckwheat. The 0.607 L/ha rate will provide suppression of wild buckwheat.

** 0.917 L/ha rate only.

11.2 PULSAR Herbicide (0.607 - 0.917 L/ha) Applied with Tank Mix Partners***

Herbicide Tank-Mix Partner	Rate/Ha of Tank-Mix Partner	Crops	Weeds Controlled
		2-5 leaf growth stage (BBCH) (12 - 15)	
MCPA Ester (600 series)*	0.583 L	Spring wheat Durum wheat	Weed claims listed in Table 1 +

Herbicide Tank-Mix Partner	Rate/Ha of Tank-Mix Partner	Crops 2-5 leaf growth stage (BBCH) (12 - 15)	Weeds Controlled
		Spring barley	Control of wild buckwheat at 0.607 L/ha rate of PULSAR Herbicide + Burdock, cocklebur, stinkweed, flixweed**, kochia, lamb's quarter, mustards (except dog & green tansy), prickly lettuce, ragweeds, Russian pigweed, shepherd's purse, volunteer canola
HORIZON HERBICIDE TANK MIX HERBICIDE (HORIZON 240EC**** Herbicide + 0.8% v/v SCORE® Adjuvant)	0.23 L	Spring wheat Durum wheat	Broadleaf weed claims listed in Table 1 + Annual Grass Weeds on the HORIZON HERBICIDE TANK MIX label listed as controlled at a rate of 0.23 L/ha HORIZON 240EC + 0.8 %v/v SCORE Adjuvant. Reduced control of grass weeds may be observed.
HORIZON HERBICIDE TANK MIX HERBICIDE (HORIZON 240EC**** Herbicide + 0.8% v/v SCORE Adjuvant) + MCPA Ester (600 series)*	0.23 L + 0.583 L	Spring wheat Durum wheat	Broadleaf weed claims listed above as controlled by the PULSAR Herbicide and MCPA Ester tank-mix + Annual Grass Weeds on the HORIZON HERBICIDE TANK MIX label listed as controlled at a rate of 0.23 L/ha HORIZON 240EC + 0.8 %v/v SCORE Adjuvant. Reduced control of grass weeds may be observed.
HORIZON NG**** Herbicide	0.93 L	Spring wheat Durum wheat	Broadleaf weed claims listed above as controlled by PULSAR Herbicide + Annual Grass Weeds on the HORIZON NG label listed as controlled at a rate of 0.93 L/ha. Reduced control of grass weeds may be observed.
HORIZON NG**** Herbicide + MCPA Ester (600 series)*	0.93 L + 0.578 L	Spring wheat Durum wheat	Broadleaf weed claims listed above as controlled by the PULSAR Herbicide and MCPA Ester tank-mix + Annual Grass Weeds on the HORIZON NG label listed as controlled at a rate of 0.93 L/ha. Reduced control of grass weeds may be observed.
TRAXOS® Herbicide****	1.2 L	Spring wheat Durum wheat	Broadleaf weed claims listed in Table 1 + Annual Grass Weeds on the TRAXOS label listed as controlled at a rate of 1.2 L/ha.

Herbicide Tank-Mix Partner	Rate/Ha of Tank-Mix Partner	Crops 2-5 leaf growth stage (BBCH) (12 - 15)	Weeds Controlled
TRAXOS Herbicide**** + MCPA Ester (600 series)*	1.2 L + 0.578 L	Spring wheat Durum wheat	Broadleaf weed claims listed above as controlled by the PULSAR Herbicide and MCPA Ester tank-mix + Annual grass weeds on the TRAXOS label listed as controlled at a rate of 1.2 L/ha. Reduced barnyard grass control may be observed.

- * Avoid spray overlap as yield reduction may occur.
- ** Flixweed susceptible only at seedling stage; top growth control only.
- *** For tank mix partners, regions of use are restricted to regions specified on the most restrictive labels.
- **** Do not use the tank mixes with HORIZON 240EC TANK MIX HERBICIDE, HORIZON NG or TRAXOS on barley.

NOTES:

Do not tank mix with any other adjuvant, chemical additives, pesticides or fertilizers unless recommended on this label.

For optimum results, apply PULSAR Herbicide to actively growing weeds. An early application will maximize crop yields by reducing weed competition. Weeds emerging after application of PULSAR Herbicide will not be controlled.

Weed control following application of PULSAR Herbicide alone or in combination with tank mix partners, can be reduced or delayed under stress conditions such as drought, heat, insufficient fertility, flooding or prolonged cool temperatures. Optimum weed control will be obtained if application of PULSAR Herbicide is delayed until the stress conditions have ended and weeds are once again actively growing.

PULSAR Herbicide alone can be used one hour before rainfall.

Do not apply to crop that is stressed by conditions such as frost, low fertility, drought, flooding, disease or insect damage as crop injury may result.

12.0 RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, PULSAR Herbicide is a Group 4 herbicide. Any weed population may contain or develop plants naturally resistant to PULSAR Herbicide 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 PULSAR Herbicide or other Group 4 herbicides with different herbicide groups that control the same weeds in a field.

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

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

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

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

For further information or to report suspected resistance, contact company representatives at 1-877-964-3682 or at www.syngenta.ca.

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