

## **SIERRA<sup>®</sup> 2.0 Herbicide**

SUSPENSION CONCENTRATE HERBICIDE

### AGRICULTURAL

FOR POSTEMERGENCE APPLICATION ON SPRING WHEAT (INCLUDING DURUM WHEAT) AND WINTER WHEAT FOR CONTROL OF WILD OAT, GREEN FOXTAIL, JAPANESE BROME, VOLUNTEER TAME OAT AND CERTAIN BROADLEAF WEEDS

FOR SALE AND USE IN MANITOBA, SASKATCHEWAN, ALBERTA AND PEACE RIVER REGION OF BRITISH COLUMBIA ONLY

### **GUARANTEE:**

Flucarbazone (present as flucarbazone-sodium)..... 397.33 g/L

Contains 2-methyl-4-isothiazolin-3-one at 0.00033%, 5-chloro-2-methyl-4-isothiazolin-3-one at 0.00084% and bronopol at 0.0052% as preservatives.

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

**STORE IN A COOL, DRY PLACE**

REGISTRATION NO.: **30430**  
PEST CONTROL PRODUCTS ACT

NET CONTENTS: **500 mL to 1000 L**

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

LABEL

## **NOTICE TO USER**

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

## **FIRST AID**

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

**If swallowed**, call a poison control centre or doctor **IMMEDIATELY** for treatment advice. 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 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.

## **TOXICOLOGICAL INFORMATION**

No specific antidote is available. Treat the patient symptomatically.

## **PRECAUTIONS**

**KEEP OUT OF REACH OF CHILDREN.**

## **PROTECTIVE CLOTHING**

When handling (mixing and loading) SIERRA<sup>®</sup> 2.0 Herbicide, wear long-sleeved shirt, long pants, chemical-resistant gloves, socks and shoes. When applying (by ground or aerial equipment), wear long-sleeved shirt and long pants, socks and shoes.

Read and follow handling precautions and protective clothing recommendations on broadleaf herbicide and surfactant tank-mix partner labels. Follow manufacturer's instructions for cleaning/maintaining PPE (Personal Protective Equipment). If no such instructions for washables, use detergent and hot water. Keep PPE apart from other laundry and wash separately.

Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

Remove personal protective equipment immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

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.

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

## **ENVIRONMENTAL HAZARDS**

TOXIC to aquatic organisms / 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.

## **PESTICIDE STORAGE**

Store in cool, dry place and in such a manner as to prevent cross contamination with other pesticides, fertilizers, food, or feed. Store in original container and out of reach of children, preferably in a locked storage area.

## **SPILL CLEAN-UP**

Contact the manufacturer and the provincial regulatory agency in case of a spill and for clean-up of spills. Follow safety precautions as directed for handling the product. If the product is clean, it may be used; otherwise, follow the DISPOSAL instructions.

## **DISPOSAL/DECONTAMINATION**

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 recyclable containers:**

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

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

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

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

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

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Store in cool, dry place and in such a manner as to prevent cross contamination with other pesticides, fertilizers, food, or feed. Store in original container and out of reach of children, preferably in a locked storage area.

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

#### **PRODUCT INFORMATION**

SIERRA 2.0 Herbicide is a selective herbicide for post-emergence timings in spring wheat (hard red spring, Canada Prairie spring, soft white spring, and extra strong or utility), durum wheat, and winter wheat

**SIERRA 2.0 Herbicide applied post-emergence must be tank mixed with a surfactant listed on this label. For broader spectrum activity, SIERRA 2.0 Herbicide may be tank mixed with a broadleaf herbicide listed on this label. See TANK MIXES section for recommended products.**

SIERRA 2.0 Herbicide is absorbed by foliage and roots of wild oat, green foxtail and certain broadleaf weeds. These weeds cease growth soon after application, removing the competitive effects of susceptible weeds. However, complete weed control may not be seen for one to two weeks.

SIERRA 2.0 Herbicide will control wild oat biotypes which have developed resistance to ACCase (Group 1) and triallate (Group 8) herbicides. SIERRA 2.0 Herbicide will also control green foxtail biotypes resistant to ACCase (Group 1) and dinitroaniline (Group 3) herbicides.

One 1.937 L jug contains enough SIERRA 2.0 Herbicide to treat 27 to 54 hectares depending on the target weeds to be controlled. For weeds controlled and staging of application for each rate refer to the recommended application tables.



1.937 L Jug Treats the Following:		
Use Rate	Acres	Hectares
36 mL/ha	134	54
48 mL/ha	100	41
60 mL/ha	80	33
72 mL/ha	67	27

## DIRECTIONS FOR USE

### General Precautions

Read the entire DIRECTIONS FOR USE before using SIERRA 2.0 Herbicide.

- Do not mix, load or clean spray equipment within 10 metres of well-heads or aquatic systems, including marshes, ponds, ditches, streams, lakes, etc.
- Buffer Zones: Overspray or drift to sensitive habitats should be avoided. A buffer zone of 20 metres is required between the downwind edge of the boom and the closest edge of sensitive terrestrial habitats including forested areas, shelter belts, woodlots, hedgerows, and shrublands. A buffer zone of 35 metres is required between the downwind edge of the boom and the closest edge of sensitive aquatic habitats including sloughs, coulees, ponds, prairie potholes, lakes, rivers, streams, wetlands, and wildlife habitat at the edge of these bodies of water. Do not contaminate these habitats when cleaning and rinsing spray equipment or containers.
- Consult the label of the tank mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture.
- Do not apply during periods of dead calm, when winds are gusty or when wind speed is greater than 15 km/h at 2 metres high above ground at the site of application.
- **Do not apply post-emergence treatments if it is raining or if rainfall is expected within one (1) hour after application.**
- Do not graze treated fields or use green crop for feed. Wheat grain or straw from harvested treated fields may be fed to livestock.
- Do not allow this chemical to drift on to other crops, especially canola, tame oats, or other non target crops.
- Observe minimum interval to harvest of 80 days after treatment.
- Do not treat wheat underseeded to legumes.
- Do not freeze.

### Ground Application

Apply alone or in tank mixes in a spray volume of 50 – 100 L/ha (22.5 – 45 L/acre or 5 – 10 gallons/acre) at 207-345 kPa (30-50 PSI) pressure to ensure proper weed coverage.

Flat fan nozzles of 80° or 110° are recommended for optimum coverage. Do not use floodjet nozzle or control droplet application equipment. Nozzles may be oriented 45° forward to enhance crop penetration and to give better weed coverage.

Do not apply during periods of dead calm, when winds are gusty or when wind speed is greater than 15 km/h at 2 metres high above ground at the site of application.

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.

### **Aerial Application**

Apply alone or in tank mixes (ONLY with the recommended tank mix partners that are registered for aerial use) in no less than 28 L/ha spray volume at a pressure that delivers medium spray droplets as classified by the ASAE.

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.

To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wing- or rotorspan.

### **Aerial 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 terrain where there is potential for surface run off to enter aquatic systems.

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

Do not apply during periods of dead calm. Avoid application of this product when winds are gusty or when wind velocity and direction pose a risk of spray drift.

Do not apply when wind speed is greater than 16 km/h at a flying height at the site of application.

Do not apply with spray droplets smaller than ASAE medium classification.

### **Aerial Operator Precautions**

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

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

application.

The pilot (aerial applicator) must wear long-sleeved shirt, long pants, socks and shoes.

The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label.

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 1-877-964-3682 or obtain technical advice from the distributor or your provincial agricultural representative.

### **Buffer Zones**

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

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) and sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands).

Method of application	Crop		Buffer Zones (metres) Required for the Protection of:	
			Aquatic Habitat	Terrestrial Habitat
Field sprayer	Wheat		35	20
Aerial	Wheat	Fixed wing	325	95
		Rotary wing	300	75

Consult the label of the tank mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture. Apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

Field sprayer 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 labeled 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 labeled buffer zone can be reduced by 30 %.

### **TIMING OF APPLICATION**

SIERRA 2.0 Herbicide can be applied post-emergence in all types of spring wheat (including

durum wheat).

Research has demonstrated that optimum wheat yield is obtained by early removal of target weeds prior to tillering of wheat. In post-emergence use, apply SIERRA 2.0 Herbicide to wheat that has a minimum of one leaf to a maximum of four leaves on the main stem, plus two tillers. Application beyond this stage may result in yield losses due to weed competition.

### POSTEMERGENCE USE DIRECTIONS IN SPRING AND DURUM WHEAT

Apply SIERRA 2.0 Herbicide plus a surfactant when the majority of wheat has a minimum of one leaf to a maximum of four leaves on the main stem, plus two tillers. Use a registered non-ionic surfactant such as AGRAL<sup>®</sup> 90, Ag-Surf<sup>®</sup>, etc. at a rate of 0.25% v/v (0.25 L per 100 L total spray solution).

Do not apply more than 72 mL/ha of SIERRA 2.0 Herbicide (30 g ai/ha) per growing season.

### RECOMMENDED APPLICATIONS

CROP APPLICATION TIMING		
CROP	GROWTH STAGE	REMARKS
Spring Wheat Durum Wheat Winter Wheat	1 leaf to 6 total leaves	1 leaf to 4 leaves on main stem, plus 2 tillers

GRASS WEED CONTROL IN WHEAT			
CROP	WEEDS	RATE	REMARKS
Spring Wheat  <b>Including:</b> hard red spring, Canada Prairie spring, soft white spring and extra strong (utility) wheat  Durum Wheat  Winter Wheat	Green Foxtail (Wild millet)	36 mL/ha	Green foxtail should be no larger than 4-leaf, 2 tillers.
	Weeds controlled at 36 mL/ha plus  Wild Oat Volunteer Tame Oat	48 mL/ha	Wild oat should be no larger than 4-leaf, 2 tillers. Use 48 mL/ha when wild oat infestations are below 100 plants/m <sup>2</sup> . Volunteer tame oat should be no larger than 4-leaf, 2 tillers.
	Weeds controlled at 48 mL/ha plus  Wild Oat Japanese Brome	60 mL/ha	Wild oat should be no larger than 4-leaf, 2 tillers. Japanese brome should be no larger than 4-leaf. Use 60 mL/ha when wild oat infestations are greater than 100 plants/m <sup>2</sup> . Use 60 ml/ha when wild oats and Japanese brome grasses are actively growing under ideal environmental conditions.
	Weeds controlled at 60 mL/ha plus  Wild Oat Japanese Brome	72 mL/ha	Wild oat should be no larger than 4-leaf, 2 tillers. Japanese brome should be no larger than 4-leaf. Use 72 mL/ha when wild oat infestations are greater than 100 plants/m <sup>2</sup> . Use 72 ml/ha when wild oats and Japanese brome grasses are not actively growing due to poor environmental conditions or when tank mixing with a product that contains dicamba.

BROADLEAF WEED CONTROL IN SPRING AND DURUM WHEAT		
WEED	RATE	REMARKS
Redroot Pigweed ( <i>Amaranthus retroflexus</i> )	48 mL/ha	For control of redroot pigweed, apply SIERRA 2.0 Herbicide to weeds at the 2 to 6 leaf stage.
Wild Mustard ( <i>Brassica kaber</i> )		For control of wild mustard apply SIERRA 2.0 Herbicide to weeds at the 2 to 6 leaf stage.
Stinkweed ( <i>Thlaspi arvense</i> )		For control of stinkweed apply SIERRA 2.0 Herbicide to weeds at the 2 to 9 leaf stage.
Volunteer Canola ( <i>Brassica napus</i> )		For control of volunteer canola apply SIERRA 2.0 Herbicide to weeds at the 2 to 6 leaf stage. Will not control imidazolinone-tolerant (Clearfield®) canola varieties.
Green Smartweed ( <i>Polygonum scabrum</i> Moench.)		For control of green smartweed apply SIERRA 2.0 Herbicide to weeds at the 2 to 6 leaf stage.
Shepherd's Purse ( <i>Capsella bursa-pastoris</i> )		For control of shepherd's purse, apply SIERRA 2.0 Herbicide to weeds at the 2 to 6 leaf stage.

Wheat exposed to water-logged or saturated soils, or temperature extremes such as heat or freezing weather, or drought, low fertility or plant disease at application time could show unacceptable injury symptoms. Weed control also may be reduced by these same conditions.

## TANK MIXES

For broader spectrum control of both annual grasses and broadleaf weeds, SIERRA 2.0 Herbicide may be mixed with one of the broadleaf herbicides listed in the following tables.

**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.**

Refer to previous tables for the appropriate rate and application timing for SIERRA 2.0 Herbicide. Use a registered non-ionic surfactant (0.25% v/v or 0.25 L/100 L total spray solution) with SIERRA 2.0 Herbicide tank mixes.

APPROVED TANK MIX PARTNERS IN SPRING WHEAT	
BROADLEAF HERBICIDE TANK MIX PARTNER	REMARKS
2,4-D Amine	Use up to 560 g ae/ha 2,4-D Amine.
2,4-D Ester	Use up to 560 g ae/ha 2,4-D Ester.
Ally® + 2,4-D Amine	Addition of a second surfactant is not required. Use only one of the recommended surfactants from the SIERRA 2.0 Herbicide label at an application rate of 0.25% v/v (0.25 L per 100 L total spray solution). Apply tank mix in at least 100 L of water per hectare (45 L/acre or 10 gallons/acre) if 48 or 72 mL/ha rates of SIERRA 2.0 Herbicide are used for this tank mix.

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Ally + 2,4-D Ester	Addition of a second surfactant is not required. Use only one of the recommended surfactants from the SIERRA 2.0 Herbicide label at an application rate of 0.25% v/v (0.25 L per 100 L total spray solution). Apply tank mix in at least 100 L of water per hectare (45 L/acre or 10 gallons/acre) if 48 or 72 mL/ha rates of SIERRA 2.0 Herbicide are used for this tank mix.
Attain™ XC	Apply tank mix in at least 100 L of water per hectare (45 L/acre or 10 gallons/acre) if 48 or 72 mL/ha rate of SIERRA 2.0 Herbicide are used for this tank mix.
Buctril® M/Logic M®	
Curtail® M	Apply tank mix in at least 100 L of water per hectare (45 L/acre or 10 gallons/acre) if 48 or 72 mL/ha rates of SIERRA 2.0 Herbicide are used for this tank mix.
DyVel®	Reduction in wild oat control may be observed with this tank mix partner. Use 72 mL rate of SIERRA 2.0 Herbicide for control of wild oat. Do not use 48 mL/ha rate of SIERRA 2.0 Herbicide with this tank mix.
Enforcer™ M Herbicide	
Estoprop® Dichlorprop-D	
Express® Pack	
Frontline™ 2,4-D XC	
Frontline Herbicide Tank-Mix	
Frontline XL	Apply tank mix in at least 100 L of water per hectare (45 L/acre or 10 gallons/acre).
MCPA Amine	Use up to 560 g ae/ha MCPA Amine.
MCPA Ester	Use up to 560 g ae/ha MCPA Ester.
OcTTain™ XL	Apply tank mix in at least 100 L of water per hectare or 10 gallons/acre).
Optica™ Trio	Reduction in wild oat control may be observed with this tank mix partner. For control of high wild oat populations, use 72 ml/ha rate of SIERRA 2.0 Herbicide.
Paradigm™ Herbicide	
Paradigm Herbicide + MCPA Ester	
Paradigm Herbicide + Curtail M Herbicide	
Pardner® / Brotex® 240	
Prestige™ XC	Apply tank mix in at least 100 L of water per hectare (45 L/acre or 10 gallons/acre) if 48 or 72 mL/ha rates of SIERRA 2.0 Herbicide are used for this tank mix.
Pixxaro™ A Herbicide	
Pixxaro A Herbicide + MCPA Ester	
Pixxaro A Herbicide + Curtail M Herbicide	
Refine® SG / Deploy® WDG + 2,4-D Amine	Addition of a second surfactant is not required. Use only one of the recommended surfactants from the SIERRA 2.0 Herbicide label at an application rate of 0.25% v/v (0.25 L per 100 L total spray solution).

<b>APPROVED TANK MIX PARTNERS IN SPRING WHEAT</b>	
<b>BROADLEAF HERBICIDE TANK MIX PARTNER</b>	<b>REMARKS</b>
Refine SG / Deploy WDG + 2,4-D Ester	Addition of a second surfactant is not required. Use only one of the recommended surfactants from the SIERRA 2.0 Herbicide label at an application rate of 0.25% v/v (0.25 L per 100 L total spray solution).
Refine SG / Deploy WDG	Addition of a second surfactant is not required. Use only one of the recommended surfactants from the SIERRA 2.0 Herbicide label at an application rate of 0.25% v/v (0.25 L per 100 L total spray solution).
Spectrum™	
Stellar A™	Apply tank mix in at least 100 L of water per hectare (45 L/acre or 10 gallons/acre) if 48 or 72 ml/ha rate of SIERRA 2.0 Herbicide is used for this tank mix.
TARGET®	Reduction in wild oat control may be observed with this tank mix partner. Use 72 mL rate of SIERRA 2.0 Herbicide for control of wild oat. Apply tank mix in at least 100 L of water per hectare (45 L/acre or 10 gallons/acre) if 72 mL/ha rate of SIERRA 2.0 Herbicide is used for this tank mix. Do not use 48 mL/ha rate of SIERRA 2.0 Herbicide with this tank mix.
Thumper® / Leader®	
Triton™ C	Addition of a second surfactant is not required. Use only one of the recommended surfactants from the SIERRA 2.0 Herbicide label at an application rate of 0.25% v/v (0.25 L per 100 L total spray solution).
Trophy®	

<b>APPROVED TANK MIX HERBICIDE PARTNERS IN DURUM WHEAT</b>	
<b>BROADLEAF HERBICIDE TANK MIX PARTNERS</b>	<b>REMARKS</b>
2,4-D Amine	Use 420 g ae/ha 2,4-D Amine. Apply tank mix in at least 100 L of water per hectare (45 L/acre or 10 gallons/acre).
2,4-D Ester	Use 420 g ae/ha 2,4-D Ester. Apply tank mix in at least 100 L of water per hectare (45 L/acre or 10 gallons/acre).
Enforcer M Herbicide	
Frontline	Apply tank mix in at least 100 L of water per hectare (45 L/acre or 10 gallons/acre).
Paradigm Herbicide	
Paradigm Herbicide + MCPA Ester	
Paradigm Herbicide + Curtail M Herbicide	
Pixxaro A Herbicide	
Pixxaro A Herbicide + MCPA Ester	
Pixxaro A Herbicide + Curtail M Herbicide	
Spectrum Herbicide Tank-Mix	Apply tank mix in at least 100 L of water per hectare (45 L/acre or 10 gallons/acre).

APPROVED TANK MIX HERBICIDE PARTNERS IN WINTER WHEAT	
BROADLEAF HERBICIDE TANK MIX PARTNERS	REMARKS
2,4-D Amine	Use up to 560 g ae/ha 2,4-D Amine Herbicide.
2,4-D Ester	Use up to 560 g ae/ha 2,4-D Ester Herbicide.
Buctril M / Logic M	
MCPA Amine	Use up to 560 g ae/ha MCPA Amine Herbicide.
MCPA Ester	Use up to 560 g ae/ha MCPA Ester Herbicide.
Refine SG / Deploy WDG	Addition of a second surfactant is not required. Use only one of the recommended surfactants from the SIERRA 2.0 Herbicide label at an application rate of 0.25% v/v (0.25 L per 100 L total spray solution).

### MIXING INSTRUCTIONS

Ensure the spray tank is clean. In-line strainers and nozzle screens should be clean and 50-mesh or coarser.

1. Fill the spray tank 1/3 to 1/2 full with clean water and begin agitation or bypass.
2. Add the appropriate SIERRA 2.0 Herbicide rate directly to the spray tank. Vigorous agitation is required to dissolve the SIERRA 2.0 Herbicide. Maintain sufficient agitation during both mixing and application.
3. Add the broadleaf weed herbicide.
4. Add the surfactant, then complete filling tank with balance of water needed.

### SPRAYING INSTRUCTIONS

#### Ground Application

Unless otherwise specified in the tank mix partner section of this label, apply in a spray volume of 50 – 100 L/ha (22.5 – 45 L/acre or 5 – 10 gallons/acre) at 207-345 kPa (30-50 PSI) pressure to ensure proper weed coverage.

Flat fan nozzles of 80° or 110° are recommended for optimum coverage. Do not use floodjet nozzle or control droplet application equipment. Nozzles may be oriented 45° forward to enhance crop penetration and to give better weed coverage.

#### Aerial Application

Unless otherwise specified in the tank mix partner section of this label, apply in a spray volume no less than 28 L/ha (11 L/acre or 3 gallons/acre) at no less than 300 kPa pressure to ensure proper weed coverage.

Do not apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. To reduce drift caused by turbulent wingtip vortices, the nozzles distribution along the spray boom length **MUST NOT** exceed 65% of the wing or rotorspan.

### SPRAYER CLEAN-UP

1. Drain the tank and thoroughly rinse spray tank, boom and hoses with clean water. Pay particular attention to flushing out any visible deposits.
2. Fill the tank with clean water and 1% v/v (1 L/100 L) household ammonia. Flush the hoses, boom and nozzles with the cleaning solution. Circulate for at least 15 minutes. Flush



hoses, boom and nozzles once more, then drain the tank.

3. Clean nozzles and screens in a separate container using the ammonia and water.
4. Repeat #2.
5. Rinse tank, boom and hoses with clean water.
  - Do not clean sprayer near desirable vegetation, wells, or other water sources;
  - Dispose of all rinsings in accordance with provincial regulations;
  - Check tank mix partner label for any additional clean-up procedures.

## ROTATIONAL CROPS

The following crops may be planted 11 months after an application of SIERRA 2.0 Herbicide.

Soil Zones and Rotational Crops			
Gray-Wooded	Black	Dark Brown	Brown
Spring wheat Barley Canola Field peas*	Spring wheat Barley Canola Field peas* Field bean Flax Durum wheat	Spring wheat Barley Canola Field peas* Flax Durum wheat	Spring wheat

\*Field peas may be grown the year following SIERRA 2.0 Herbicide application providing the following are all met:

1. Soil pH must be below 7.5,
2. Organic matter must be above 4%, and
3. Precipitation must be equal to or above 10 year average (minimum 100 mm within 60 days of application in year of application).

Or, fields can be summerfallowed.

As SIERRA 2.0 Herbicide is degraded by soil microbes, environmental conditions that decrease microbial activity must be considered when making rotational cropping decisions. These environmental conditions include prolonged drought and/or cold temperatures within the following cropping season, as well as soils with both low OM (less than 2%) and high pH (greater than 7.5). If these conditions exist, a soil bioassay may be necessary to ensure rotational crop safety.

Do not plant crops other than those listed above in the year following application of SIERRA 2.0 Herbicide on wheat.

## RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, SIERRA 2.0 Herbicide is a Weed Science Society of America (WSSA) Group 2 Herbicide. Any weed population may contain or develop plants naturally resistant to SIERRA 2.0 Herbicide and other Group 2 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 SIERRA 2.0 Herbicide or other Group 2 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 Integrated Pest Management (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 Syngenta Canada Inc. at 1-87-SYNGENTA (1-877-964-3682) or at [www.syngenta.ca](http://www.syngenta.ca).

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