

2023-03-27
2022-3218
(Sleeve)

GROUP	2	HERBICIDE
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ThunderHawk™ B Herbicide

Suspension Concentrate

COMMERCIAL (AGRICULTURAL)

THUNDERHAWK B IS A SELECTIVE HERBICIDE FOR CONTROL OR SUPPRESSION OF ANNUAL BROADLEAF WEEDS INCLUDING CLEAVERS, WILD BUCKWHEAT AND CHICKWEED PRIOR TO THE EMERGENCE OF SPRING WHEAT (INCLUDING DURUM) SPRING BARLEY AND OATS

FOR SALE FOR USE IN THE PRAIRIE PROVINCES AND THE INTERIOR OF BRITISH COLUMBIA (INCLUDING THE PEACE RIVER REGION) ONLY

ACTIVE INGREDIENT:
Florasulam ... 50 g/L

Contains 1,2-benzisothiazolin-3-one at 0.02% as a preservative OR
Contains 5-Chloro-2-methyl-4-isothiazolin-3-one at 0.0010%, 2-Methyl-4-isothiazolin-3-one at 0.00033% as preservatives

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



CAUTION POISON
MAY CAUSE SLIGHT EYE IRRITATION

REGISTRATION NO.: 33717 PEST CONTROL PRODUCTS ACT

Net Contents: (0.8 – 1020) Litres

Nufarm Agriculture Inc.
5101, 333 – 96th Ave NE
Calgary, Alberta T3K 0S3

**24 HOUR EMERGENCY RESPONSE NUMBER 1-800-424-9300
PRODUCT INFORMATION: 1-800-868-5444**

PRECAUTIONS:**MAY CAUSE SLIGHT EYE IRRITATION****KEEP OUT OF REACH OF CHILDREN****DO NOT apply using aerial application equipment**

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

At all times: Wear clean clothing with full length sleeves and pants.

During mixing and loading, application and clean-up and repair:

Wear a long-sleeved shirt, long pants, chemical-resistant gloves, socks and shoes during mixing, loading, application, clean-up and repair. Gloves are not required during application within a closed cab.

At completion of spraying or end of the day: Take a shower immediately. Wash thoroughly with soap and water before eating, drinking or smoking. Remove contaminated clothing at the end of the work session and store and wash separately from household laundry using detergents and hot water before reuse.

Apply only to agricultural crops when the potential for drift to areas of human habitation and 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.

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. 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 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.

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.

TOXICOLOGICAL INFORMATION:

No specific antidote. Employ supportive care. Treatment should be based on judgment of the physician in response to reactions of the patient. Treat symptomatically.

AGRICULTURAL CHEMICAL:

Do not ship or store with food, feeds, drugs or clothing.

ENVIRONMENTAL PRECAUTIONS:

- TOXIC to aquatic organisms and non-target terrestrial plants. Observe spray 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 filter strip between the treated area and the edge of the water body.
- This product demonstrates the properties and characteristics associated with chemicals detected in groundwater. The use of this product in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

EMERGENCY TELEPHONE NUMBERS:

For spills or transportation accidents, Chemtrec, 1-800-424-9300.

For health or environmental emergencies, ProPharma Group, 1-877-325-1840.

For product and use information, Nufarm Agriculture Inc., 1-800-868-5444.

STORAGE:

Store this product away from food or feed. Store in original containers in a secure, dry heated storage. **ThunderHawk™ B Herbicide** will freeze at -10°C. If product is frozen, bring to room temperature and agitate before use. Do not allow contamination of seeds, plants, fertilizers or other pesticides. Do not contaminate food, feedstuffs or domestic water supplies. If containers are damaged or spill occurs, use the product immediately or contain the spill with absorbent materials and dispose of waste.

DISPOSAL:

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 rinsing 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.

Returnable Containers:

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

NOTICE TO USER:

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in any way that is inconsistent with the directions on the label.

ThunderHawk™ is a trademark of Nufarm Agriculture Inc.

(Booklet)

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GENERAL INFORMATION:

ThunderHawk B Herbicide is a selective herbicide for the control of hard-to-kill annual broadleaf weeds such as chickweed, wild buckwheat and cleavers in spring wheat (including durum), spring barley, and oats not underseeded with legumes. **ThunderHawk B Herbicide** is mixed with water and applied as a uniform broadcast spray. It is non-corrosive, nonflammable, and nonvolatile.

ThunderHawk B Herbicide must be applied to the main flush of actively growing broadleaf weeds. Warm, moist growing conditions promote active weed growth and enhance the activity of **ThunderHawk B Herbicide** by allowing maximum foliar uptake and contact activity. Weeds hardened off by cold weather or drought stress may not be adequately controlled or suppressed and re-growth may occur. For best results, ensure thorough spray coverage of target weeds. See “DIRECTIONS FOR USE” section of this label for complete use details.

ThunderHawk B Herbicide stops growth of susceptible weeds rapidly. However, typical symptoms (discolouration) of dying weeds may not be noticeable for 1 to 2 weeks after application, depending upon growing conditions and weed susceptibility. Degree of control and duration of effect are dependent on weed sensitivity, weed size, crop competition, growing conditions at and following treatment, and spray coverage.

MODE OF ACTION:

ThunderHawk B Herbicide inhibits the production of the ALS enzyme in plants. This enzyme is essential for the production of certain amino acids which are essential for plant growth. **ThunderHawk B Herbicide** is a Group 2 mode of action herbicide.

GENERAL USE PRECAUTIONS:

Sensitive Plants

Do not apply **ThunderHawk B Herbicide** directly to, or otherwise permit it to come in direct contact with susceptible crops or desirable plants including alfalfa, edible beans, canola, flowers and ornamentals, lentils, lettuce, peas, potatoes, radishes, soybeans, sugar beets, sunflowers, tomatoes or tobacco.

Non-Target Sites

Do not apply where proximity of susceptible crops (e.g. canola and legumes) or other desirable plants is likely to result in exposure to spray or spray drift. See Environmental Precautions section of the label.

This product has potential to leach. Do not apply excessive irrigation.

Tank Mixtures

This product may be tank mixed with a fertilizer, a supplement, or with registered pest control products, whose labels also allow tank mixing, provided the entirety of both labels, including Directions For Use, Precautions, Restrictions, Environmental Precautions, and Spray Buffer Zones are followed for each product. In cases where these requirements differ between the tank mix partner labels, the most restrictive label must be followed. Do not tank mix products containing the same active ingredient unless specifically listed on this label.

In some cases, tank mixing pest control products can result in reduced pesticide efficacy or increased host crop injury. The user should contact Nufarm Agriculture Inc. at 1-800-8685444 or www.nufarm.ca for information before applying any tank mix that is not specifically recommended on this label.

When tank-mixes are permitted, read and observe all label directions, including rates and restrictions for each product used in the tank-mix. Follow the more stringent label precautionary measures for mixing, loading and applying stated on all product labels.

Spray Equipment Precaution

Do not apply through any type of irrigation system.

To Reduce Spray Drift:

1. Use nozzles delivering higher volumes and coarser droplets.
2. Use low pressures (200 to 275 kPa).
3. Use 100 L/ha of spray solution.
4. Spray when the wind velocity is 15 km/hr or less.
5. Spot treatments should only be applied with a calibrated boom to prevent over-application.

Sprayer Clean-Out Instructions

To avoid injury to desirable plants, thoroughly clean equipment used to apply this product before re-use or using it to apply other chemicals.

1. Immediately after spraying, completely drain the sprayer tank. Any contamination on the outside of the spraying equipment should be removed by washing with clean water.
2. First rinse:
 - Spray the inside of tank with clean water and fill the sprayer with at least one tenth of the spray tank volume.
 - Agitate and circulate for 15 minutes, and flush through booms and hoses.
 - Remove end caps or open ball valves on the ends of each boom section, and flush solution through the boom ends to ensure there is no spray solution trapped between the boom end and the nozzles.
 - Drain tank completely.
3. Second rinse:
 - Fill the tank with clean water.
 - Add All Clear Spray Tank Decontaminator, or Clean-Out Spray Tank Cleaner, or 1 L of household ammonia (containing a minimum of 3 % ammonia) per 100 L of water, or similar tank cleaning agent as per manufacturer's recommendations while filling the tank with clean water.
 - Agitate and then flush the boom and hoses with the cleaning solution. Top up with water making sure the tank is completely full. Allow to stand for 15 minutes with agitation. Flush the solution out of the spray tank through the spray booms. Remove end caps or open ball valves on the ends of each boom section, and flush solution through the boom ends to ensure there is no spray solution trapped between the boom end and the nozzles.
 - If possible, let the solution stand in the sprayer tank and booms for an extended period of time, overnight if possible.
 - After flushing the boom and hoses, drain tank completely.
 - Remove nozzles and screens and clean separately with a cleaning agent or an ammonia solution (100 mL in 10 L water).
4. Third rinse:
 - Rinse the tank with clean water and flush through the boom and hoses using at least one tenth of the spray tank volume.
 - Remove end caps or open ball valves on the ends of each boom section, and flush solution through the boom ends to ensure there is no spray solution trapped between the boom end and the nozzles.
 - Drain tank completely.

Do not use ammonia with chlorine bleach. Using ammonia with chlorine bleach will release a gas with a musty odour which may cause eye, nose, throat and lung irritation. Do not clean equipment in an enclosed area.

DIRECTIONS FOR USE

READ THE ENTIRE LABEL BEFORE USE. FAILURE TO FOLLOW LABEL INSTRUCTIONS MAY RESULT IN ERRATIC WEED CONTROL OR CROP DAMAGE. DO NOT APPLY TO CROPS UNDERSEEDDED WITH LEGUMES.

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.

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.

Aerial application

DO NOT apply using aerial application equipment.

Weeds Controlled or Suppressed by ThunderHawk B Herbicide

Weeds Controlled:

buckwheat, wild	shepherd's-purse
canola, volunteer*	smartweed
chickweed, common	stinkweed
cleavers	mustard, wild
cow cockle	

* Including herbicide-tolerant canola varieties except Clearfield canola.

Weeds Suppressed:

hempenettle	sowthistle, annual
narrow-leaved hawk's beard	sowthistle, perennial**
pigweed, redroot	

**Applications made at advanced leaf stages will reduce product effectiveness.

TANK-MIX COMBINATION - THUNDERHAWK B HERBICIDE + GLYPHOSATE

Application Directions

ThunderHawk B Herbicide may be tank mixed with glyphosate to control volunteer glyphosate tolerant canola, wild buckwheat (up to 5 leaf) and top growth control of dandelion (up to 6 leaf stage) in addition to the labelled weeds controlled by **ThunderHawk B Herbicide** or glyphosate.

Apply **ThunderHawk B Herbicide** at 100 mL/ha and glyphosate (present as isopropylamine salt or dimethylamine salt) at 450 g a.e./ha in 100 L water per hectare.

Application Timing

Apply to actively growing weeds in the 2-4 leaf stage, except where noted above. Extreme growing conditions such as drought or near freezing temperature prior to, at or following time of application may reduce weed control. Only weeds which are emerged at the time of application will be affected. If foliage is wet at the time of application, control may be decreased. Under conditions of high weed density, control may be reduced.

Spring

ThunderHawk B Herbicide + glyphosate may be applied in the spring prior to seeding and no longer than 48 hours after seeding prior to any crop emergence. Fields treated with **ThunderHawk B Herbicide** in the spring may be planted to barley, oats, wheat, durum or summer fallowed.

Fall

ThunderHawk B Herbicide + glyphosate may be applied to stubble or summer fallow fields after August 1st and prior to freeze-up and may be seeded to barley, oats or wheat (including durum) or summer fallowed.

Apply up to 2 applications per year (to a maximum of 10 g ai/ha of florasulam)

Mixing Instructions

1. Fill sprayer tank 1/2 full of water.
2. Start sprayer tank agitation.
3. Add **ThunderHawk B Herbicide**
4. Add tank mix partner and continue to agitate.
5. Fill sprayer tank with sufficient water to spray 100 L of spray mixture per hectare.
6. Follow sprayer directions and precautions as outlined above, especially when applying next to sensitive crops (e.g. canola and legumes).
7. Follow sprayer clean-up directions.

SPRAY BUFFER ZONES

Spot treatments using hand-held equipment do not require a spray buffer zone.

The spray 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	Spray Buffer Zones (metres) Required for the Protection of:		
		Freshwater Habitat of Depths:		Terrestrial Habitat
		Less than 1 m	Greater than 1 m	
Field sprayer	All labelled crops	1	0	3

When tank mixes are permitted, consult the labels of the tank-mix partners and observe the largest (most restrictive) spray 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 spray buffer zones for this product that are larger than 1m can be modified based on weather conditions and spray equipment configuration by accessing the Spray Buffer Zone Calculator on the Pesticide portion of the Canada.ca website.

RESISTANCE MANAGEMENT RECOMMENDATIONS:

For resistance management, **ThunderHawk B Herbicide** is a Group 2 herbicide. Any weed population may contain or develop plants naturally resistant to **ThunderHawk B 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 **ThunderHawk B Herbicide** or other Group 2 herbicide 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 Nufarm Agriculture Inc. at 1-800-868-5444 or www.nufarm.ca

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