

HEADLINE® EC Fungicide

Broad spectrum fungicide for use in cereals, corn, edible-podded legume vegetables (Crop Subgroup 6-A), succulent shelled beans and peas (Crop Subgroup 6-B), dried shelled peas and beans (Crop Subgroup 6-C including pulses such as chickpea, lentils, dry field peas), soybeans, potatoes, sugar beets, flax, sunflower, rapeseed, canola, canola quality *Brassica juncea*, mustard (oilseed and condiment), bluegrasses, fescues and ryegrasses grown for seed and alfalfa for seed production (in Manitoba, Saskatchewan, Alberta and the Peace River Region of British Columbia)

EMULSIFIABLE CONCENTRATE

COMMERCIAL (AGRICULTURAL)

GUARANTEE: Pyraclostrobin 250 g/L

REGISTRATION NO. 27322

PEST CONTROL PRODUCTS ACT



DANGER **POISON**
DANGER - SKIN AND EYE IRRITANT

READ THE LABEL AND ATTACHED BROCHURE BEFORE USING

KEEP OUT OF REACH OF CHILDREN

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

NET CONTENTS: 100 mL - 1000 L

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GENERAL INFORMATION

This package contains **HEADLINE EC Fungicide**, a 250 g/L emulsifiable concentrate (EC). The active ingredient in **HEADLINE EC Fungicide** belongs to the strobilurins, a class of fungicides. Strobilurins are synthetic derivatives of a natural antifungal substance. **HEADLINE EC Fungicide** has a different mode of action and is effective against pathogens resistant to other fungicides.

HEADLINE EC Fungicide has a protective effect because it inhibits spore germination and a curative-eradicator effect due to the inhibition of mycelial growth and sporulation of the fungus on the leaf surface. While **HEADLINE EC Fungicide** can be applied in either pre- or post-infection situations, optimum disease control is achieved when **HEADLINE EC Fungicide** is applied preventatively in a regularly scheduled protective spray program and is used in a rotation program with other fungicides.

DIRECTIONS FOR USE (See specific sections for each crop group)

Apply recommended rates of **HEADLINE EC Fungicide** as instructed by the following series of Crop application rate tables. Apply **HEADLINE EC Fungicide** with ground or aerial spray equipment. Equipment should be checked frequently for proper calibration.

As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests. DO NOT contaminate irrigation, drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

Cereals Application Rate Table (Ground, Aerial and Pivot or Sprinkler Irrigation)

Crop	Disease	Application Rate* (L/ha)
Wheat	Leaf rust (<i>Puccinia recondita</i>) Tan spot (<i>Pyrenophora tritici-repentis</i>) Septoria leaf spot (<i>Septoria tritici</i> or <i>Leptosphaeria nodorum</i>)	0.3 - 0.6
	Spot blotch (<i>Cochliobolus sativus</i>) Stripe rust (<i>Puccinia striiformis</i>) Powdery mildew (<i>Erysiphe graminis f. sp. tritici</i>)	0.4 - 0.6
Barley	Net blotch (<i>Pyrenophora teres</i>)	0.3 - 0.6
	Spot blotch (<i>Cochliobolus sativus</i>) Stripe rust (<i>Puccinia striiformis</i>) Scald (<i>Rhynchosporium secalis</i>)	0.4 - 0.6
Rye	Leaf rust (<i>Puccinia recondita</i>)	0.3 - 0.6
	Powdery mildew (<i>Erysiphe graminis f. sp. secalis</i>)	0.4 - 0.6
Oats	Crown rust (<i>Puccinia coronata</i>)	0.3 - 0.4

*DO NOT apply more than 0.4 L/ha by aerial application.

Leaf Diseases in Cereals

To maximize yield in cereals it is important to protect the flag leaf from disease. Therefore the optimum time to apply a single application of **HEADLINE EC Fungicide** is immediately after flag leaf emergence (GS 37-39). Use 0.4 - 0.6 L/ha of **HEADLINE EC Fungicide** to control spot blotch, stripe rust and powdery mildew in wheat, spot blotch, stripe rust and scald in barley and powdery mildew in rye. Use 0.3 - 0.6 L/ha of **HEADLINE EC Fungicide** to control leaf rust, tan spot, septoria leaf spot in wheat, net blotch in barley and leaf rust in rye. Use 0.3 - 0.4 L/ha **HEADLINE EC Fungicide** to control crown rust in oats.

Use the higher rate to obtain extended protection with maximum yield benefits. If disease persists or weather conditions are favourable for disease development, apply a second time 10-14 days later with a fungicide that contains a different mode of action.

**Dried and Succulent Shelled Peas and Beans (including soybean) Application Rate Table
(Ground, Aerial and Pivot or Sprinkler Irrigation)**

Crop*	Disease	Application Rate** (L/ha)
Lentils	Anthraco-nose (<i>Colletotrichum spp.</i>) Ascochyta blight (<i>Ascochyta spp.</i>)	0.4
Dry field peas	Mycosphaerella blight (<i>Mycosphaerella spp.</i>) Powdery mildew (<i>Erysiphe spp.</i>)	0.4
	Asian soybean rust (<i>Phakopsora pachyrhizi</i>)	0.4 - 0.6
Dry beans <i>Phaseolus, spp.</i>	Anthraco-nose (<i>Colletotrichum spp.</i>) Powdery mildew (<i>Erysiphe spp.</i>) Rust (<i>Uromyces spp.</i>)	0.4
	Asian soybean rust (<i>Phakopsora pachyrhizi</i>)	0.4 - 0.6
Dry beans <i>Vigna spp.</i>	Anthraco-nose (<i>Colletotrichum spp.</i>) Mycosphaerella blight (<i>Mycosphaerella spp.</i>) Powdery mildew (<i>Erysiphe spp.</i>) Rust (<i>Uromyces spp.</i>)	0.4
	Asian soybean rust (<i>Phakopsora pachyrhizi</i>)	0.4 - 0.6
Dry beans <i>Lupinus spp.</i>	Mycosphaerella blight (<i>Mycosphaerella spp.</i>) Powdery mildew (<i>Erysiphe spp.</i>)	0.4
	Asian soybean rust (<i>Phakopsora pachyrhizi</i>)	0.4 - 0.6
Faba beans	Mycosphaerella blight (<i>Mycosphaerella spp.</i>) Powdery mildew (<i>Erysiphe spp.</i>)	0.4
	Asian soybean rust (<i>Phakopsora pachyrhizi</i>)	0.4 - 0.6
Soybeans	Frog eye leaf spot (<i>Cercospora sojina</i>) Asian soybean rust (<i>Phakopsora pachyrhizi</i>)	0.4 - 0.6
	Angular Leaf Spot (<i>Phaeoisariopsis griseola</i>)	0.4
Succulent shelled beans and peas	Mycosphaerella blight (<i>Mycosphaerella spp.</i>) Rust (<i>Uromyces spp.</i>) Ascochyta blight (<i>Ascochyta spp.</i>) Asian soybean rust (<i>Phakopsora pachyrhizi</i>)	0.4 - 0.6

*Complete list of crops:

Crop Subgroup 6-A: Edible-podded legume vegetables. Bean (*Phaseolus spp.*) (includes runner bean, snap bean, wax bean); bean (*Vigna spp.*) (includes asparagus bean, Chinese long bean, moth bean, yardlong bean); jack bean; pea (*Pisum spp.*) (includes dwarf pea, pea (*Pisum spp.*), edible pod pea, snow pea, sugar snap pea); pigeon pea; soybean (immature seed); sword bean.

Crop Subgroup 6-B: Succulent shelled peas and beans. Bean (*Phaseolus spp.*) (includes lima (green)); broad bean (succulent); bean (*Vigna spp.*) (includes blackeyed pea, cowpea, southern pea); pea (*Pisum spp.*) (includes English pea, garden pea, green pea); pigeon pea.

Crop Subgroup 6-C: Dried shelled peas and beans (except soybean). Dried cultivars of bean (*Lupinus spp.*) (includes grain lupin, sweet lupin, white lupin, and white sweet lupin); (*Phaseolus spp.*) (includes field bean, kidney bean, lima bean (dry), navy bean, pinto bean; tepary bean; bean (*Vigna spp.*) (includes adzuki bean, blackeyed pea, catjang, cowpea, Crowder pea, moth bean, mung bean, rice bean, southern pea, urd bean); broad bean (dry); chickpea; guar; lablab bean; lentil; pea (*Pisum spp.*) (includes field pea); pigeon pea.

**DO NOT apply more than 0.4 L/ha by aerial application.

Apply **HEADLINE EC Fungicide** at 0.4 - 0.6 L/ha as specified above at the beginning of flowering OR at the onset of symptoms for the more aggressive diseases (e.g. anthracnose in lentils). If disease persists or weather conditions are favourable for disease development, apply a second time 10-14 days later with a fungicide that contains a different mode of action. Anthracnose in lentils and Asian rust in soybeans all develop quickly once established so early detection is essential to the success of any fungicide program.

Crop	Disease	Application Rate*
Chickpeas	Ascochyta blight (<i>Ascochyta rabiei</i>)	<p>HEADLINE EC Fungicide must be tank mixed at a rate of 0.40 - 0.60 L/ha with LANCE® WDG Fungicide at 0.36 - 0.42 kg /ha.</p> <p>Do not apply by pivot or sprinkler irrigation.</p>

Apply **HEADLINE EC Fungicide** and LANCE WDG Fungicide as specified above at the beginning of flowering OR at the onset of symptoms for the more aggressive diseases (e.g. ascochyta blight in chickpeas).

Ascochyta blight in chickpeas develops quickly once established so early detection is essential to the success of any fungicide program.

DO NOT apply sequential applications of this tank mixture combination. Alternate to a fungicide with a mode of action other than Group 7 and 11 for at least one application. If disease conditions persist or weather conditions are favourable for disease development, apply another application of **HEADLINE EC Fungicide** tank mixed with LANCE WDG Fungicide.

Do not apply by pivot or sprinkler irrigation.

Follow the most restrictive application directions for each of the tank mix partners with respect to the maximum number of applications, application timing and pre-harvest interval.

*DO NOT apply more than 0.4 L/ha by aerial application.

Potato Application Rate Table (Ground and Aerial)

Crop	Disease	Spray Interval	Application Rate (L/ha)
Potato	Early blight (<i>Alternaria solani</i>)	7 - 14 days	0.45 - 0.67
	Late blight (<i>Phytophthora infestans</i>)	5 - 7 days	0.45 - 0.67
		7 - 10 days	Tank mix HEADLINE EC Fungicide (0.45 - 0.67) with Bravo® 500 Agricultural Fungicide. Do not apply by pivot or sprinkler irrigation.
		7 - 10 days	Tank mix HEADLINE EC Fungicide (0.45 - 0.67) with POLYRAM® DF Fungicide. Do not apply by pivot or sprinkler irrigation.

Applications of **HEADLINE EC Fungicide** for the control of early blight (*Alternaria solani*) and late blight (*Phytophthora infestans*) should begin prior to row closure or when conditions become favourable for the development of disease (whichever comes first). For early blight use 0.45 to 0.67 L/ha and apply on a 7-14 day interval. For late blight use 0.45 to 0.67 L/ha and apply on a 5-7 day interval.

Use higher rates of **HEADLINE EC Fungicide** alone and/or tank mix with either Bravo 500 Agricultural Fungicide or POLYRAM DF Fungicide under heavy disease pressure. Refer to the respective tank mix partner label for rates, additional recommendations, restrictions and precautions. Follow the most restrictive application directions for each of the tank mix partners with respect to the maximum number of applications, application timing and pre-harvest interval.

In order to reduce the selection of less sensitive strains of the target fungi, for early blight control it is recommended that no more than one (1) application of **HEADLINE EC Fungicide** be made before alternating to an effective fungicide with a different mode of action for at least one application. For the control of late blight, do not make more than one application of **HEADLINE EC Fungicide** before alternating to a fungicide with a different mode of action. No more than three (3) applications of **HEADLINE EC Fungicide** should be made per season.

Corn Application Rate Table (Ground, Aerial and Pivot or Sprinkler Irrigation)

Crop	Disease	Application Rate* (L/ha)
Corn (field, sweet, pop, seed types)	Common rust (<i>Puccinia sorghi</i>) Gray leaf spot (<i>Cercospora zea-maydis</i>)	0.4 - 0.6

*DO NOT apply more than 0.4 L/ha by aerial application.

For optimal disease control, begin applications of **HEADLINE EC Fungicide** prior to disease development. If disease persists or weather conditions are favourable for disease development, apply a second time 10-14 days later, with a fungicide that contains a different mode of action. Use the higher rate and shorter interval when disease pressure is high.

Sugar Beet Application Rate Table (Ground and Pivot or Sprinkler Irrigation)

Crop	Disease	Application Rate (L/ha)
Sugar beets	Cercospora leaf spot (<i>Cercospora beticola</i>) Powdery mildew (<i>Erysiphe betae</i>)	0.67 - 0.9

Apply **HEADLINE EC Fungicide** at 0.67 - 0.9 L/ha at the onset of disease to control cercospora leaf spot and powdery mildew. Use the higher rate when disease pressure is high. If disease persists or weather conditions are favourable for disease development, apply a second time 14 days later, with a fungicide that contains a different mode of action.

Grasses Grown for Seed Application Rate Table (Ground, Aerial and Pivot or Sprinkler Irrigation)

Crop	Disease	Application Rate* (L/ha)
Bluegrasses, fescues, ryegrasses grown for seed	Leaf and stem rust (<i>Puccinia recondita</i> and <i>graminis</i>) Powdery mildew suppression (<i>Erysiphe graminis</i>)	0.4 - 0.67

*DO NOT apply more than 0.4 L/ha by aerial application.

For optimal disease control, begin applications prior to disease development at 0.4 - 0.67 L/ha of **HEADLINE EC Fungicide**. If disease persists or weather conditions are favourable for disease development, apply a second time 14-21 days later, with a fungicide that contains a

different mode of action. Use the higher rate and shorter interval when disease pressure is high.

Alfalfa Application Rate Table (Ground, Aerial and Pivot or Sprinkler Irrigation)

Alfalfa grown for seed production in Manitoba, Saskatchewan, Alberta, and the Peace River Region of British Columbia

Crop	Disease	Application Rate (L/ha)
Alfalfa for seed production	Common Leaf Spot (<i>Pseudopeziza medicaginis</i>)	0.4

For optimal disease control, apply **HEADLINE EC Fungicide** at the beginning of flowering (10-30% bloom) or the onset of disease. Do not make more than 1 application per year.

Rapeseed, canola, canola quality *Brassica Juncea*, mustard (oilseed and condiment) Application Rate Table (Ground, Aerial and Pivot or Sprinkler Irrigation)

Crop	Disease	Application Rate (L/ha)
Rapeseed, canola, canola quality <i>Brassica juncea</i> , mustard (oilseed and condiment)	Black spot (<i>Alternaria brassicae</i> and <i>A. raphani</i>) Blackleg (<i>Leptosphaeria maculans</i>)	0.3 - 0.4

Do not make more than two (2) applications per year.

Leaf Diseases

Apply **HEADLINE EC Fungicide** at 0.3 to 0.4 L/ha to control blackleg at the 2 to 6-leaf (rosette) stage. Apply **HEADLINE EC Fungicide** at 0.3 to 0.4 L/ha to control alternaria black spot at 20-50% bloom to early pod stage (90% bloom) in canola. Use the higher rate to obtain extended protection with maximum yield benefits. Applications at 20-50% bloom will provide suppression of alternaria black spot whereas applications at early pod stage will control alternaria black spot.

Fungicide Tank Mixes in Canola

HEADLINE EC Fungicide can be tank mixed with **LANCE WDG Fungicide** at 350 g/ha at 20-50% flowering to control sclerotinia stem rot (*Sclerotinia sclerotiorum*) and suppress black spot (*Alternaria brassicae* and *raphani*). This tank mix will provide multiple modes of action for disease and fungicide resistance management.

Crop	Disease	Application Rate (L/ha)
<p>Herbicide Tank Mixes in Canola HEADLINE EC Fungicide can be tank mixed with the following canola herbicides at registered rates and timings:</p> <p>ODYSSEY® WDG Herbicide in Clearfield® canola (e.g. canola varieties with the Clearfield trait) and Clearfield canola quality <i>Brassica juncea</i> (e.g. canola quality <i>Brassica juncea</i> varieties with the Clearfield trait)</p> <p>EQUINOX® EC Herbicide in canola and canola quality <i>Brassica juncea</i></p> <p>ODYSSEY WDG Herbicide plus EQUINOX EC Herbicide in Clearfield canola (e.g. canola varieties with the CLEARFIELD trait)</p> <p>POAST® ULTRA Liquid Emulsifiable Herbicide in canola</p> <p>Liberty® Herbicide (150 SN or 200 SN) in glufosinate ammonium tolerant canola (e.g. LibertyLink® canola)</p> <p>Registered glyphosate herbicides in glyphosate tolerant canola (e.g. Roundup® Ready)</p> <p>Do not apply by pivot or sprinkler irrigation.</p> <p>Consult the label of the tank mix partner for weed species controlled, rates, timings, recropping restrictions, grazing interval restrictions, and directions for use and precautions. Always follow the most restrictive label.</p>		

Sunflowers Application Rate Table (Ground, Aerial and Pivot or Sprinkler Irrigation)

Crop	Disease	Application rate (L/ha)
Sunflowers	Rust (<i>Puccinia helianthi</i>)	0.4
<p>Leaf Diseases in Sunflowers Apply HEADLINE EC Fungicide at 0.4 L/ha to suppress rust in sunflowers. For optimal disease suppression, apply HEADLINE EC Fungicide prior to disease development. If disease persists or weather conditions are favourable for disease development, apply a second time 10-14 days later with a fungicide that contains a different mode of action.</p>		

**Flax (including low linolenic acid varieties) Application Rate Table
(Ground, Aerial and Pivot or Sprinkler Irrigation)**

Crop	Disease	Application rate (L/ha)
Flax (including low linolenic acid varieties)	Pasmó (<i>Septoria linicola</i>)	0.3 - 0.4
<p>Apply HEADLINE EC Fungicide at 0.3 - 0.4 L/ha at the mid-flower stage (7-10 days after the initiation of flowering). If disease persists or weather conditions are favourable for disease development, apply a second time 10-14 days later with a fungicide that contains a different mode of action. Use the high rate and shorter interval where conditions conducive to severe disease are expected. Do not make more than two applications of HEADLINE EC Fungicide or other strobilurin fungicide per season.</p>		

Ground Application

Apply **HEADLINE EC Fungicide** at rates listed in application rate and timing table (crop specific) when conditions are favourable for the development of disease. Use a minimum water volume of 100 L/ha on cereals, soybeans, legume vegetables, pulses, corn, alfalfa, grasses grown for seed and flax and 200 L/ha on potatoes and sugar beets. Ensure thorough coverage of foliage. Consult nozzle manufacturers recommendation for spray pressures for specific nozzles.

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

Chemigation

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) medium classification. Applications **MUST** be conducted **WITHOUT** the use of end guns.

Aerial Application

Apply **HEADLINE EC Fungicide** at rates listed in application rate and timing table (crop specific) when conditions are favourable for the development of disease. Use a minimum water volume of 50 L/ha. Ensure thorough coverage of foliage. Consult nozzle manufacturers recommendation for spray pressures for specific nozzles.

DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. DO NOT apply when wind speed is greater than 16 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 reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wing- or rotorspan.

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.

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 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 1-877-371-BASF (2273) or obtain technical advice from the distributor or your provincial agricultural representative.

Pivot or Sprinkler Irrigation

Sprayer Preparation: Chemical tank and injector system should be thoroughly cleaned. Flush System with clean water.

Application instructions: Apply **HEADLINE EC Fungicide** at rates and timings described above. Only products registered by Pivot or Sprinkler Irrigation can be tank mixed with **HEADLINE EC Fungicide**.

Use Precautions for Sprinkler Irrigation Applications

- Apply this product only through overhead sprinkler irrigation systems including center pivot and lateral move containing low pressure drop nozzles. Do not apply this product through any other type of irrigation system.
- Add this product to the pesticide supply tank containing sufficient water to maintain a continuous flow by the injection equipment. In continuous moving systems, inject this product-water mixture continuously, applying the labeled rate per acre for that crop. Do not exceed 0.64 cm (1/4) inch (63,500 litres) per hectare. In stationary or non-continuous moving systems, inject the product-water mixture in the last 15-30 minutes of each set allowing sufficient time for all of the required pesticide to be applied by all the sprinkler heads and applying the labeled rate per acre for that crop. Do not apply when wind speed causes non-uniform distribution and/or favors drift beyond the area intended for treatment. Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from non-uniform distribution of treated water. Thorough coverage of foliage is required for good control. Good agitation should be maintained during the entire application period.
- The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water-source contamination from backflow.
- The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
- The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
- Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
- Allow sufficient time for pesticide to be flushed through all lines and all nozzles before turning off irrigation water. A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.
- Do not connect an irrigation system used for pesticide application to a public water system unless the pesticide label- prescribed safety devices for public water systems are in place.
- Do not apply by chemigation if the area to be treated is within 100 metres of a residential area or park.

Specific Instructions for Public Water Systems

- Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.
- Chemigation systems connected to public water systems must contain a functional, reduced- pressure zone, back-flow preventer (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.
- The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
- The pesticide injection pipeline must contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.
- Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
- Do not apply when wind speed favors drift beyond the area intended for treatment.

Restrictions

DO NOT apply during periods of dead calm or when winds are gusty. **DO NOT** over spray non-target terrestrial or aquatic habitats. **DO NOT** contaminate aquatic habitats when cleaning and rinsing spray equipment or containers.

Additives

Do not use additives or adjuvants unless otherwise specified.

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), 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:	
			Less than 1 m	Greater than 1 m	Less than 1 m	Greater than 1 m
Field sprayer* and chemigation	Cereals (wheat, barley, rye, oats), legumes, pulses, soybean, corn, grasses for seed, sunflower, flax, alfalfa (for seed), rapeseed, canola, mustard		5	1	1	1
	Potatoes, sugar beet		10	3	1	1
Aerial	Rapeseed, canola, mustard, alfalfa (for seed production)	Fixed and rotary wing	80	10	1	1
	Cereals (wheat, barley, rye, oats), legumes, pulses, soybean, corn, sunflower, flax, grasses for seed	Fixed and rotary wing	95	10	3	1
	Potatoes (early blight)	Fixed and rotary wing	275	30	10	10
	Potatoes (late blight)	Fixed and rotary wing	325	30	10	10

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

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

RESISTANCE-MANAGEMENT RECOMMENDATIONS

Mode of Action

Pyraclostrobin, the active ingredient of **HEADLINE EC Fungicide**, belongs to the group of respiration inhibitors classified by the EPA and PMRA as Quinone Outside Inhibitors (QoI), or Target Site of Action Group 11 Fungicides.

Resistance management

HEADLINE EC Fungicide contains pyraclostrobin, a Group 11 fungicide, and is effective against pathogens resistant to fungicides with modes of action different from those of QoI fungicides (Target site Group 11), such as for example dicarboximides, sterol inhibitors, benzimidazoles, or phenylamides. Fungal isolates with acquired resistance to Group 11

fungicides, such as pyraclostrobin, azoxystrobin, trifloxystrobin, and kresoxim-methyl, may eventually dominate the fungal population if Group 11 fungicides are used predominantly and repeatedly in the same field in successive years as the primary method of control for the targeted pathogen species. This may result in reduction of disease control by **HEADLINE EC Fungicide** or other Group 11 fungicides.

The following recommendations may be considered to delay the development of fungicide resistance:

1. **Applications:** **DO NOT** apply more than one (1) application before rotating to another mode of action for at least one application. Adhere to the label instructions regarding the consecutive use of **HEADLINE EC Fungicide** or other target site of action Group 11 fungicides that have a similar site of action on the same pathogens. To maintain the performance of **HEADLINE EC Fungicide** in the field, do not exceed the total number of sequential applications of Headline and the total number of applications of **HEADLINE EC Fungicide** per season as stated below in the Restrictions and Limitations table.
2. **IPM:** **HEADLINE EC Fungicide** should be integrated into an overall disease and pest management program. Cultural practices known to reduce disease development should be followed. Consult your local extension specialist, certified crop advisor and/or BASF for additional IPM strategies established for your area. **HEADLINE EC Fungicide** may be used in Agricultural Extension advisory (disease forecasting) programs, which recommend application timing based on environmental factors favourable for disease development.
3. **Monitor:** Monitor efficacy of all fungicides used in the disease management program against the targeted pathogen and record other factors that may influence fungicide performance and/or disease development.
4. **Reporting:** If a Group 11 target site fungicide, such as **HEADLINE EC Fungicide**, appears to be less or no longer effective against a pathogen that it previously controlled or suppressed, contact a BASF-representative at 1-877-371-2273 or at www.agsolutions.ca, local extension specialist, or certified crop advisor to assist in determining the cause of reduced performance.

MIXING

1. Clean spray tank following sprayer clean-up recommendations on the label of the product applied previously.
2. Fill the spray tank one-half full of water and start agitation.
3. Add the required amount of the tank mix partner.
4. Add the required amount of **HEADLINE EC Fungicide** to the tank.
5. Continue agitation while filling the remainder of the spray tank with water.
6. After use, clean the spray tank.

RESTRICTIONS AND LIMITATIONS

- Crop Rotation Restrictions:** Crops listed on the **HEADLINE EC Fungicide** label may be planted immediately following the last application. All other crops can be planted 14 days after last application.
- Crop preharvest interval and application limitation:

Crop	Application to harvest interval (days)	Maximum number of applications per year	Maximum number of sequential applications
Barley, oats, rye and wheat	Apply no later than the end of flowering	2	1
Dry beans (<i>Phaseolus</i> , <i>Vigna</i> and <i>Lupinus</i> spp.), faba beans, lentils, dry field peas	30	2	1
Rapeseed, canola, canola quality <i>Brassica juncea</i> , mustard (oilseed and condiment), sunflower, flax	21	2	1
Chickpeas	30	2	1
Bluegrasses, fescues and ryegrasses grown for seed	14	2	1
Corn	7	2	1
Edible-podded legume vegetables	7	2	1
Potatoes	3	3	1
Soybeans	21	2	1
Succulent shelled beans and peas	7	2	1
Sugar beets	7	4	1

- DO NOT feed alfalfa hay or forage to livestock. All other crops can be grazed or fed to livestock. DO NOT graze treated corn crops within 6 days of last application.

ENVIRONMENTAL HAZARDS

Toxic to aquatic organisms, non-target terrestrial plants and small wild mammals. 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.

PRECAUTIONS

1. **KEEP OUT OF REACH OF CHILDREN.**
2. Fatal or poisonous if swallowed.
3. Severely irritating to the eyes and skin. **DO NOT** get in eyes or on skin or clothing.
4. Wash thoroughly after handling and before eating, drinking or smoking.
5. During mixing/loading/clean-up and repair, wear chemical-resistant gloves, goggles or face shield and coveralls over a long-sleeved shirt and long pants, socks and foot wear. Wear a long sleeved shirt, long pants, chemical-resistant gloves, socks and footwear during application. Gloves are not required for an applicator in an enclosed cab.
6. If clothing becomes contaminated, remove and wash separately from household laundry before reuse.
7. Clean spray equipment thoroughly after use.
8. 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, application equipment and sprayer settings.
9. 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.
10. This product contains an active ingredient and aromatic petroleum distillates which are toxic to aquatic organisms. **DO NOT** contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.
11. Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.
12. Custom applicators must use ground boom equipment with an enclosed cab. A closed cab is a chemical resistant barrier that completely surrounds the occupant of the cab and prevents contact with the pesticide or treated surfaces outside the cab.

FIRST AID

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 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.

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

TOXICOLOGICAL INFORMATION

This product contains petroleum distillates. Vomiting may cause aspiration pneumonia. The patient should be treated symptomatically.

STORAGE

1. Store in original tightly closed container. Protect from freezing.
2. Do not ship or store near food, feed, seed and fertilizers.
3. Store in cool, dry, locked, well-ventilated area without floor drain.

DISPOSAL

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

NOTICE TO USER

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

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All other products mentioned are trademarks or registered trademarks of their respective companies.

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