

(Container)

Ethalfuralin Manufacturing Concentrate

GROUP	3	HERBICIDE
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FOR USE IN MANUFACTURING OF BLENDED FERTILIZER WHICH IS REGULATED UNDER THE FERTILIZERS ACT.

**READ LABEL AND BOOKLET BEFORE USING.
PREVENT ACCESS BY UNAUTHORIZED PERSONNEL**

Note: See separate booklet for additional information including directions and cautions for mixing and application.

**POTENTIAL SKIN SENSITIZER
DANGER - EYE AND SKIN IRRITANT**

GUARANTEE: ethalfuralin 360 g/L

REGISTRATION NO. 21012 PEST CONTROL PRODUCTS ACT

NET CONTENTS: 115 L, 208 L, 400 L, 700 L - bulk

Gowan Company, L.L.C.
P.O. Box 5569
Yuma, AZ 85366-5569
United States
1-800-883-1844

PRECAUTIONS

HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH THE SKIN

POTENTIAL SKIN SENSITIZER

CAUSES EYE AND SKIN IRRITATION. DO NOT GET IN EYES OR ON SKIN.

AVOID BREATHING DUST, SPRAY MIST AND VAPOURS

PREVENT ACCESS BY UNAUTHORIZED PERSONNEL

DO NOT APPLY BY AIR

Occupational exposure to this product may be hazardous to your health. When handling, mixing or loading pesticides, workers are subject to potential dermal (skin) and inhalation exposure. Occupational exposure studies have shown that with the proper use of Personal Protective Equipment (PPE) much of the potential exposure to ethalfluralin can be reduced.

To minimize exposure the following precautions should be followed when using Ethalfluralin Manufacturing Concentrate:

- DO NOT get in eyes or on skin. Avoid contact with clothing. Avoid breathing dust, spray mist and vapours.
- Wear coveralls over a long-sleeved shirt and long pants, chemical resistant gloves and protective eyewear during blending and repair activities, plus a respirator with a NIOSH/MSHA/BHSE approved organic-vapour-removing cartridge with a prefilter approved for pesticides or a NIOSH/MSHA/BHSE approved canister approved for pesticides while loading (unless a closed transfer system is used for loading). In addition, when handling more than 110 kg a.i./day (76 ha at the maximum rate of 1.44 kg a.i./ha) wear a respirator as specified above when applying or use a closed cab while applying.
- Change contaminated clothing daily and wash before reuse (apart from household laundry).
- Do not handle product with bare hands. Do not use leather or cloth gloves.
- Rinse gloves with water before removal and wash hands thoroughly before eating, drinking or smoking.
- Personal protective equipment as outlined above is required for the first soil incorporation.
- DO NOT enter treated areas for 12 hours following the first soil incorporation.

FIRST AID

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

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **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.

TOXICOLOGICAL INFORMATION

This product contains petroleum distillates. Vomiting may cause aspiration pneumonia. No specific antidote. Employ supportive care. Treatment should be based on judgement of the physician in response to reactions of the patient.

AGRICULTURAL CHEMICAL

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

ENVIRONMENTAL HAZARDS

TOXIC to aquatic organisms and non-target terrestrial plants. Do not contaminate any body of water by direct application, cleaning of equipment or disposal of wastes.

STORAGE

Store in a warm, dry place. Store in areas not exposed to high temperatures or prolonged, direct sunlight. Do not let product remain standing in applicators under these conditions. After use, close the lid of the container immediately to avoid prolonged exposure of the Ethalfluralin Manufacturing Concentrate to direct sunlight. DO NOT contaminate water, food, feed, fertilizers or other pesticides by storage. Keep away from fire or open flame, or other source of heat. In addition, DO NOT FREEZE liquid ethalfluralin-blended fertilizers.

DISPOSAL

Canadian formulators of ethalfluralin blended fertilizers or manufacturers of this Ethalfluralin Manufacturing Concentrate product should dispose of unwanted active ingredients and containers in accordance with municipal or provincial regulations. For additional details and information on clean up of spills, contact the manufacturer or the provincial regulatory agency.

Returnable Handi-Tank Systems

1. Empty container thoroughly. Do not attempt to rinse or open the container.
2. Follow manufacturer's instructions for any required additional cleaning of the container prior to its return.
3. Do not destroy container.
4. Make the empty container suitable for pick-up and return according to manufacturer's instructions.

Unused ethalfluralin blended fertilizers should be returned to the blending plant for disposal.

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.

(blending booklet)

Ethalfuralin Manufacturing Concentrate

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MANUFACTURING INSTRUCTIONS FOR BLENDING PLANT OPERATORS

Blending Plant Operators must provide the booklets entitled "Directions for Use for Custom Applicators" and "Directions for Use for Growers" to the applicator for information on precautions, use instructions and use information for applicators and growers.

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To minimize exposure the following precautions should be followed when using Ethalfluralin Manufacturing Concentrate:

- DO NOT get in eyes or on skin. Avoid contact with clothing. Avoid breathing dust, spray mist and vapours.
- Wear coveralls over a long-sleeved shirt and long pants, chemical resistant gloves and protective eyewear during blending and repair activities, plus a respirator with a NIOSH/MSHA/BHSE approved organic-vapour-removing cartridge with a prefilter approved for pesticides or a NIOSH/MSHA/BHSE approved canister approved for pesticides while loading (unless a closed transfer system is used for loading). In addition, when handling more than 110 kg a.i./day (76 ha at the maximum rate of 1.44 kg a.i./ha) wear a respirator as specified above when applying or use a closed cab while applying.
- Change contaminated clothing daily and wash before reuse (apart from household laundry).
- Do not handle product with bare hands. Do not use leather or cloth gloves.
- Rinse gloves with water before removal and wash hands thoroughly before eating, drinking or smoking.
- Personal protective equipment as outlined above is required for the first soil incorporation.
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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

This product contains petroleum distillates. Vomiting may cause aspiration pneumonia. No specific antidote. Employ supportive care. Treatment should be based on judgement of the physician in response to reactions of the patient.

AGRICULTURAL CHEMICAL

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

ENVIRONMENTAL HAZARDS

TOXIC to aquatic organisms and non-target terrestrial plants. Do not contaminate any body of water by direct application, cleaning of equipment or disposal of wastes.

DISPOSAL

Canadian formulators of ethalfluralin-blended fertilizers or manufacturers of this Ethalfluralin Manufacturing Concentrate product should dispose of unwanted active ingredients and containers in accordance with municipal or provincial regulations. For additional details and information on clean up of spills, contact the manufacturer or the provincial regulatory agency.

Unused ethalfluralin-blended fertilizers should be returned to the blending plant for disposal.

DIRECTIONS FOR USE

To be used only in the manufacture of a blended fertilizer which is regulated under the *Fertilizers Act*. The ethalfluralin-blended fertilizer is to be custom applied.

Application should be made as soon as possible after blending. All ethalfluralin label instructions regarding rates per hectare, approved crops, incorporation, special instructions, cautions and special precautions must be followed.

Mixing and Blending

Ethalfluralin Manufacturing Concentrate must be uniformly applied to bulk fertilizers using a closed system.

Note: Do not mix ammonium nitrate with Ethalfluralin Manufacturing Concentrate. All other commonly used dry and liquid fertilizers may be used for blending.

Dry Fertilizer

A minimum of 250 kg/ha for fall application and 330 kg/ha for spring application of dry fertilizer must be blended with Ethalfluralin Manufacturing Concentrate at the rates identified in the tables below. Mix and blend the dry fertilizer and Ethalfluralin Manufacturing Concentrate in mixers commonly used in dry fertilizer blending. The nozzle or nozzles used to spray Ethalfluralin Manufacturing Concentrate on the fertilizer should be placed to provide uniform spray coverage. Sufficient mixing/blending time should be allowed to ensure uniform coverage of dry fertilizer with the concentrate.

A drying agent may need to be added to ensure that the blended fertilizer will apply uniformly.

Liquid Fertilizer

A minimum of 110 L/ha of liquid fertilizer must be blended with Ethalfluralin Manufacturing Concentrate at the spring and fall rates identified in the tables below. Mix and blend the liquid fertilizer and Ethalfluralin Manufacturing Concentrate in mixers commonly used in liquid fertilizer blending. Sufficient mixing/blending time should be allowed to ensure uniform mixing of liquid fertilizer with the concentrate.

Rates Of Ethalfluralin Manufacturing Concentrate To Be Blended With Bulk Fertilizer

Ethalfluralin can be applied at a maximum of 1.44 kg ethalfluralin per hectare.

WESTERN CANADA: SPRING APPLICATION			
Minimum Fertilizer	Rates per Hectare for Specific Soil Textures		
	Light	Medium	to Heavy
dry - 330 kg/ha liquid - 110 L/ha	sand sandy loam	loam silt loam silt sandy clay loam	silty clay loam clay loam clay
Soil Organic Matter			
dark brown 2-4%	2.25 L/ha	2.25 L/ha	
black 4-6%	2.25 L/ha	3.0 L/ha	
deep black 6-15%	3.0 L/ha	3.0-4.0 L/ha*	

*For improved results on medium-heavy texture soils with 6-15% organic matter, the spring application rate may be increased to 4.0 L/ha in fields with high populations of weeds listed as suppressed.

Rates Of Ethalfluralin Manufacturing Concentrate To Be Blended With Bulk Fertilizer

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WESTERN CANADA: FALL APPLICATION			
Minimum Fertilizer	Rates per Hectare for Specific Soil Textures		
	Light	Medium	to Heavy
dry - 250 kg/ha liquid - 110 L/ha	sand sandy loam	loam silt loam silt sandy clay loam	silty clay loam clay loam clay
Soil Organic Matter			
dark brown 2-4%	3.0 L/ha	3.0 L/ha	
black 4-6%	3.0 L/ha	4.0 L/ha	
deep black 6-15%	4.0 L/ha	4.0 L/ha	

Rates Of Ethalfluralin Manufacturing Concentrate To Be Blended With Bulk Fertilizer

Ethalfluralin can be applied at a maximum of 1.44 kg ethalfluralin per hectare.

EASTERN CANADA: SPRING APPLICATION			
Minimum Fertilizer	Rates per Hectare for Specific Soil Textures		
	Light	Medium	Heavy
dry - 330 kg/ha liquid - 110 L/ha	sand sandy loam	loam silt loam silt sandy clay loam	silty clay loam clay loam clay
	2.0 L/ha	2.25 L/ha	3.0 L/ha

Loading/Handling

Ethalfluralin-blended fertilizer should be transferred (closed system only) to applicator equipment as soon as blending is completed (dry fertilizer) and during blending (liquid fertilizer).

DO NOT store ethalfluralin-blended fertilizer. Blended product should be applied as soon as possible after blending. DO NOT contaminate water, food, feed, fertilizers or other pesticides by storage. Keep away from fire or open flame, or other source of heat. In addition, DO NOT FREEZE liquid ethalfluralin-blended fertilizers. The blended fertilizer must be spread with a properly calibrated applicator that will result in uniform distribution of the product on the soil surface.

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.

(applicator booklet)



Dow AgroSciences

Ethalfuralin Manufacturing Concentrate

GROUP	3	HERBICIDE
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DIRECTIONS FOR USE FOR CUSTOM APPLICATORS

Custom applicators must provide the grower/farmer with a copy of the booklet entitled **Directions for Use for Growers** for information on precautions and use instructions.

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AGRICULTURAL CHEMICAL

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

ENVIRONMENTAL HAZARDS

TOXIC to aquatic organisms and non-target terrestrial plants. Do not contaminate any body of water by direct application, cleaning of equipment or disposal of wastes.

Observe buffer zones specified under DIRECTIONS FOR USE.

To reduce runoff from treated areas into aquatic habitats, DO NOT apply to areas with a moderate to steep slope, compacted soil, or clay. DO NOT apply 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.

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.

STORAGE

Apply blended fertilizer as soon as possible after blending, DO NOT store blended product. DO NOT contaminate water, food, feed, fertilizers or other pesticides. Keep away from fire or open flame, or other source of heat. In addition, DO NOT FREEZE liquid ethalfluralin-blended fertilizers.

DISPOSAL

The empty blended fertilizer applicator should be returned to the blending plant for clean-out. For additional details and information on clean up of spills, contact the manufacturer or the provincial regulatory agency.

GENERAL INFORMATION

Ethalfluralin is a preplant incorporated herbicide which is mixed (incorporated) into the soil to provide long-lasting control of volunteer cereal, annual grass and broadleaved weeds. Ethalfluralin controls susceptible weeds in the treated layer only, by killing seedlings as they germinate. It does not control established weeds.

Follow this label for ethalfluralin claims, uses and management of the product. Failure to follow the label instructions for ethalfluralin-blended fertilizer may result in erratic weed control and/or crop damage.

When a blended fertilizer is used, consult the labels of the blended fertilizer partners and observe the most restrictive precautions for the products involved in the blended fertilizer. Consult the labels of the blended fertilizer partners and observe the largest (most restrictive) buffer zone of the products involved in the blended fertilizer.

If this ethalfluralin-blended fertilizer 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.

GENERAL USE PRECAUTIONS

Application of ethalfluralin fertilizer

- Do not apply ethalfluralin to peat or muck soils, or soils which contain more than 15% organic matter.
- Do not apply to fields spread with manure within the last 12 months. After this period, ensure the manure has been thoroughly disintegrated and mixed into the soil to a depth of 10 to 15 cm.
- If the swath or stubble is removed by burning, cultivate once to remove the charcoal layer from the soil surface prior to ethalfluralin application.
- Application to soils subject to prolonged periods of flooding may result in accelerated herbicide breakdown. Additionally, application to wet soils or soils in poor working condition could result in reduced weed control. See Land Preparation section of this label for further precautions.
- Do not apply to soils with less than 2% organic matter. Application to eroded knolls or grey-wooded soils with highly variable texture or organic matter may result in reduced crop stand, delayed development or reduced yields in either the treated crop or rotational crop.
- Apply uniformly at the recommended rates. Over-application caused by overlapping, improper calibration or uneven application may reduce crop stands in the treated crop or rotational crop.
- **DO NOT APPLY BY AIR**
- 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.
- The blended fertilizer must be spread with a properly calibrated applicator that will result in uniform distribution on the soil surface.

DIRECTIONS FOR USE

NOTE: Custom applicators must provide the grower with proper use information. Follow the manufacturing concentrate label for ethalfluralin-blended fertilizer for all claims, uses and management of the end use formulated product. Failure to follow the manufacturing concentrate label for ethalfluralin-blended fertilizer may result in erratic weed control and/or crop damage.

Apply to soil surface free of large clods and incorporate in the same operation if possible. The first incorporation must be done within 24 hours of application.

DO NOT enter treated areas for 12 hours following the first soil incorporation.

Field Application

Apply with a properly calibrated herbicide applicator that applies the product uniformly. Calibrate the applicator according to manufacturer's directions and check frequently during application to be sure equipment is operating correctly. Apply ethalfluralin fertilizer blend to a soil surface free of large clods and incorporate in the same operation if possible. Avoid concentration of the material in narrow bands. The first incorporation should be done within 24 hours of application.

DO NOT apply liquid ethalfluralin-blended fertilizer during periods of dead calm. Avoid application of this liquid 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 ground.

See specific recommendations in GENERAL USE PRECAUTIONS section of this label.

Weeds Controlled**Grasses Controlled**

barnyard grass
 crab grass
 fall panicum
 giant foxtail
 green foxtail
 Johnsongrass (seedling)
 witch grass
 yellow foxtail
 redroot pigweed
 Wild buckwheat

Broadleaved Weeds Controlled

blueweed
 chickweed
 corn spurry
 cow cockle
 kochia
 lamb's-quarters
 prostrate pigweed
 purslane

Ethalfluralin-blended fertilizer will not control trifluralin tolerant green foxtail.

Weeds Suppressed

cleavers
 hemp-nettle
 lady's-thumb
 nightshade
 Russian thistle
 volunteer barley
 volunteer wheat
 wild oats

Suppression is a visual reduction in weed competition (reduced population and/or vigour) as compared to an untreated area. Competition by weeds listed as suppressed that remain in a crop will vary depending upon factors such as crop competition, the number of weed seeds in the soil and the time of weed emergence relative to crop emergence.

Suppression of volunteer barley will be enhanced by cultural and management practices which promote germination of volunteer barley prior to seedbed preparation.

Weed Resistance

Populations of green foxtail tolerant to trifluralin have developed in a number of fields in Western Canada which have had a long history of repeated trifluralin use. Trifluralin or ethalfluralin containing products (*i.e.*, Advance™ 10G, Treflan™, Heritage, Triflurex, Rival, Fortress and Edge™ Herbicides) will not control trifluralin tolerant green foxtail. To delay selection or reduce the spread of trifluralin tolerant green foxtail, avoid the use of these products repeatedly in the same field or use a separate herbicide application for control of trifluralin tolerant green foxtail. Consult Resistance Management Recommendations section of this label for further information.

Crops Registered**Western Canada**

canola	fababeans
field peas	soybeans
mustard (yellow only)	dry common beans (white or kidney)
sunflowers	dill
alfalfa establishment	caraway
coriander	safflower
	lentils (fall application only)

Crops Registered Eastern Canada

canola
soybeans
dry common beans (white or kidney)

Application Instructions

Land Preparation

Cultivate unworked stubble fields before ethalfluralin fertilizer blend application. Disc-type implements provide best results. Destroy established weeds by cultivation before ethalfluralin fertilizer blend application, if existing weed growth is too heavy to allow uniform application and incorporation.

Application Rates

Apply ethalfluralin-blended fertilizer as per manufacturer's directions. DO NOT apply more than 1.44 kg of ethalfluralin per hectare. Apply ethalfluralin at rates identified in the tables below.

Rates of Ethalfluralin Manufacturing Concentrate To Be Blended With Bulk Fertilizer

WESTERN CANADA: SPRING APPLICATION			
Minimum Fertilizer	Rates per Hectare for Specific Soil Textures		
	Light	Medium	to Heavy
dry - 330 kg/ha liquid - 110 L/ha	sand sandy loam	loam silt loam silt sandy clay loam	silty clay loam clay loam clay
Soil Organic Matter			
dark brown 2-4%	2.25 L/ha	2.25 L/ha	
black 4-6%	2.25 L/ha	3.0 L/ha	
deep black 6-15%	3.0 L/ha	3.0-4.0 L/ha*	

*For improved results on medium-heavy texture soils with 6-15% organic matter, the spring application rate may be increased to 4.0 L/ha in fields with high populations of weeds listed as suppressed.

Rates of Ethalfluralin Manufacturing Concentrate To Be Blended With Bulk Fertilizer

WESTERN CANADA: FALL APPLICATION			
Minimum Fertilizer	Rates per Hectare for Specific Soil Textures		
	Light	Medium	to Heavy
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dark brown 2-4%	3.0 L/ha	3.0 L/ha	
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	Light	Medium	Heavy
dry - 330 kg/ha liquid - 110 L/ha	sand sandy loam	loam silt loam silt sandy clay loam	silty clay loam clay loam clay
	2.0 L/ha	2.25 L/ha	3.0 L/ha

Application Timing

Ethalfluralin can be applied in the fall between September 1 and prior to freeze-up for weed control the following year, or it may be applied in the spring any time up to seeding. A minimum of 250 kg/ha for fall application and 330 kg/ha for spring application of dry fertilizer may be used. Or 110 L/ha for fall or spring application of liquid fertilizer may be used.

Fall Application

Ethalfluralin-blended fertilizer can be applied in the fall between September 1 and prior to soil freeze-up for weed control the following year. On all deep black soils and heavy textured soils, early fall application is preferred to allow more time for even dispersion of ethalfluralin in the treated soil layer. Apply fall rates and incorporate as above. **The initial incorporation must be done within 24 hours of application.** For best results, it is recommended to do both incorporations in the fall, followed by tillage (5 to 8 cm) in the spring prior to planting.

Spring tillage following the two fall incorporations of ethalfluralin-blended fertilizer should be done when the soil is warm enough to promote germination. Use a disc or vibra-shank cultivator set to cut 5 to 8 cm deep. Refer to Spring Application, Tillage for Seedbed Preparation section.

Following only one fall incorporation of ethalfluralin-blended fertilizer, a second incorporation is required in the spring. Incorporate to an 8 to 10 cm depth at a cross angle to the fall incorporation. For optimum weed control, complete the spring incorporation as soon as there are good soil working conditions early in the spring. Separate tillage for seedbed preparation must still be done prior to seeding.

Spring Application

Ethalfluralin-blended fertilizer can be applied and incorporated in the spring prior to seeding. Apply ethalfluralin-blended fertilizer as soon as there are good soil working conditions early in the spring and **complete the first incorporation within 24 hours**, using a recommended implement operated 8 to 10 cm deep. The second incorporation (8 to 10 cm) must be delayed for a minimum of 3 days following the first incorporation. For best results, it is recommended to complete a separate tillage (5 to 8 cm) for seedbed preparation at least 3 days after the second incorporation.

BUFFER ZONES FOR LIQUID BLENDED FERTILIZER APPLICATION

A buffer zone is required for liquid fertilizer applications. 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 1m	Greater than 1m	Less than 1m	Greater than 1m	
Field sprayer	Western and eastern Canadian crops	10	1	1	1	1

Use of the following application methods or equipment DO NOT require a buffer zone: granular fertilizer applications.

Incorporation Instructions

Apply to a soil surface free of large clods and incorporate in the same operation if possible. **The first incorporation must be done within 24 hours of application.**

Personal protective equipment as outlined in the PRECAUTIONS section is required for the first soil incorporation.

To incorporate, work ethalfluralin into the soil in two different directions. An even uniform layer of ethalfluralin treated soil is required to obtain optimum control of germinating weed seeds. Use a tandem disc, discer or field (vibra-shank type) cultivator set to work 8 to 10 cm deep for the first incorporation.

A field cultivator (vibra-shank type) is defined as an implement with 3 or 4 rows of sweeps spaced at intervals of 20 cm or less and staggered so that no soil is left unturned. The second incorporation should be a discing or cultivation in a cross direction also at 8 to 10 cm deep. Operate disc implements at 7 to 10 km/hr and cultivators at 10 to 13 km/hr. Failure to operate implements at recommended speeds and depths may result in erratic weed control due to poor distribution of ethalfluralin in the soil (deep tillage cultivator is not recommended).

NOTE: For more effective weed control, it is recommended that the second incorporation MUST be delayed at least 3 days following the first incorporation. This allows time for greater release of ethalfluralin onto soil particles and assures more uniform distribution in soils.

- Ethalfluralin should not be incorporated with a field cultivator when the soil is crusted, lumpy or too wet for good mixing action.
- Disc type implements are preferred on stubble to ensure a 10 cm depth of operation and good mixing action.
- Incorporation with implements set to cut less than 8 cm deep or more than 10 cm deep may result in erratic weed control or crop damage.
- Rod weeders, harrows, deep tillage cultivators, chisel plows, vibra-chisels or hoe drills will not properly incorporate ethalfluralin.
- Single incorporation will not properly incorporate ethalfluralin and may result in poor weed control and/or crop damage.

RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management ethalfluralin is a Group 3 herbicide. Any weed population may contain or develop plants naturally resistant to ethalfluralin and other Group 3 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 ethalfluralin or other Group 3 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 Gowan Company, L.L.C. at 1-800-883-1844.

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.

All other products listed are registered trademarks of their respective companies.

(grower booklet)

Ethalfluralin Manufacturing Concentrate

GROUP	3	HERBICIDE
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DIRECTIONS FOR USE FOR GROWERS ETHALFLURALIN-BLENDED FERTILIZERS

**READ LABEL AND BOOKLET BEFORE USING.
PREVENT ACCESS BY UNAUTHORIZED PERSONNEL**

**POTENTIAL SKIN SENSITIZER
DANGER - EYE AND SKIN IRRITANT**

GUARANTEE: ethalfluralin 360 g/L

REGISTRATION NO. 21012 PEST CONTROL PRODUCTS ACT

NET CONTENTS: 115 L, 208 L, 400 L, 700 L – bulk

Gowan Company, L.L.C.
P.O. Box 5569
Yuma, AZ 85366-5569
United States
1-800-883-1844

PRECAUTIONS

HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH THE SKIN

POTENTIAL SKIN SENSITIZER

CAUSES EYE AND SKIN IRRITATION. DO NOT GET IN EYES OR ON SKIN.

AVOID BREATHING DUST, SPRAY MIST AND VAPOURS

PREVENT ACCESS BY UNAUTHORIZED PERSONNEL

DO NOT enter treated areas for 12 hours following the first soil incorporation.

To minimize exposure the following precautions should be followed during incorporation of ethalfluralin:

- DO NOT get in eyes or on skin. Avoid contact with clothing. Avoid breathing dust, spray mist and vapours.
- Wear coveralls over a long-sleeved shirt and long pants, chemical resistant gloves and protective eyewear during blending and repair activities, plus a respirator with a NIOSH/MSHA/BHSE approved organic-vapour-removing cartridge with a prefilter approved for pesticides or a NIOSH/MSHA/BHSE approved canister approved for pesticides while loading (unless a closed transfer system is used for loading). In addition, when handling more than 110 kg a.i./day (76 ha at the maximum rate of 1.44 kg a.i./ha) wear a respirator as specified above when applying or use a closed cab while applying.
- Change contaminated clothing daily and wash before reuse (apart from household laundry).
- Do not handle product with bare hands. Do not use leather or cloth gloves.
- Rinse gloves with water before removal and wash hands thoroughly before eating, drinking or smoking.
- Personal protective equipment as outlined above is required for the first soil incorporation.
- DO NOT enter treated areas for 12 hours following the first soil incorporation.

FIRST AID

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

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **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.

TOXICOLOGICAL INFORMATION

This product contains petroleum distillates. Vomiting may cause aspiration pneumonia. No specific antidote. Employ supportive care. Treatment should be based on judgement of the physician in response to reactions of the patient.

AGRICULTURAL CHEMICAL

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

ENVIRONMENTAL HAZARDS

TOXIC to aquatic organisms and non-target terrestrial plants. DO NOT contaminate any body of water by direct application, cleaning of equipment or disposal of wastes.

GENERAL INFORMATION

Ethalfuralin is a selective herbicide for preplant soil incorporated weed control in oilseed and pulse crops. The ethalfuralin-blended fertilizer is to be custom applied.

GENERAL USE PRECAUTIONS

To avoid potential injury to future wheat rotational crops, to minimize the potential for carryover and accumulation of soil residues and to reduce the selection and spread of trifluralin resistant green foxtail, it is recommended that growers avoid applying trifluralin and/or ethalfuralin on the same land for two consecutive years.

Crop Year

- Applied and incorporated according to directions, ethalfuralin will not harm the treated or rotational crop. However, seedling disease, deep planting, excessive moisture, high salt concentration, soil compaction or drought may weaken crop seedlings and increase the risk of injury, which may result in delayed crop development or reduced yields.
- To reduce the possibility of injury to the treated crop, use good quality certified seed. Seed shallow into a warm, moist firm seedbed using recommended agronomic practices which will promote rapid and even crop germination and emergence.
- Every crop will have a specific seeding depth requirement, and seeding deeper than recommended can increase the potential risk of damage to the seedling. Refer to industry or government extension published documents which outline recommended seeding practices/depths for each crop.
- CAUTION: Do not graze the treated crops or cut for hay. There are not sufficient data available to support such use.

Rotation Crop

- Applied and incorporated according to label directions, ethalfuralin will not harm rotational crops. However, seedling disease, cold weather, deep planting, excessive moisture, high salt concentrations, soil compaction or drought may weaken seedlings and increase the risk of injury, which may result in delayed crop development or reduced yields.
- As a precaution, oats, sugar beets and small-seeded grasses such as timothy, canaryseed grass and creeping red fescue should not be grown in rotation following a crop treated with ethalfuralin.
- The persistence of ethalfuralin is influenced by soil moisture and the majority of breakdown occurs during the growing season. If drought or extended dry periods were present in the previous year, higher levels of ethalfuralin may be present in the soil. To reduce the possibility of injury to rotational crops, seed shallow into a warm moist seedbed using recommended agronomic practices and seeding depths. As an additional safety precaution seeding rate may be increased slightly (10%).
- When seeding a rotational crop, use good quality certified seed. Seed shallow into a warm, moist firm seedbed using recommended agronomic practices which will promote rapid and even crop germination and emergence. Avoid deep seeding, loose seedbeds and seeding into cold soils.
- Each crop has a specific seeding depth requirement and seeding deeper than recommended can increase the potential risk of damage to the seedling. Refer to industry or government extension published documents which outline recommended seeding practices/depths for each crop.
- Western Canada Only - Do not seed wheat as a rotational crop on land if trifluralin and/or ethalfuralin has been used at an oilseed/special crop/barley rate for two consecutive crops.
- Western Canada Only - Do not direct seed (zero till) a rotational crop into standing stubble on land that has been treated with trifluralin or ethalfuralin for the previous crop. A cultivation prior to seeding of the rotational crop is strongly recommended to help aerate the soil and promote seedbed conditions which will enhance seed germination.

DIRECTIONS FOR USE

See specific recommendations in GENERAL USE PRECAUTIONS section of this label.

Weeds Controlled

Grasses Controlled

barnyard grass
 crab grass
 fall panicum
 giant foxtail
 green foxtail
 Johnsongrass (seedling)
 witch grass
 yellow foxtail
 redroot pigweed
 Wild buckwheat

Broadleaved Weeds Controlled

blueweed
 chickweed
 corn spurry
 cow cockle
 kochia
 lamb's-quarters
 prostrate pigweed
 purslane

Ethalfuralin-blended fertilizer will not control trifluralin tolerant green foxtail.

Weeds Suppressed

cleavers
 hemp-nettle
 lady's-thumb
 nightshade
 Russian thistle
 volunteer barley
 volunteer wheat
 wild oats

Suppression is a visual reduction in weed competition (reduced population and/or vigour) as compared to an untreated area. Competition by weeds listed as suppressed that remain in a crop will vary depending upon factors such as crop competition, the number of weed seeds in the soil and the time of weed emergence relative to crop emergence.

Suppression of volunteer barley will be enhanced by cultural and management practices which promote germination of volunteer barley prior to seedbed preparation.

Weed Resistance

Populations of green foxtail tolerant to trifluralin have developed in a number of fields in Western Canada which have had a long history of repeated trifluralin use. Trifluralin or ethalfuralin containing products (*i.e.*, Advance™ 10G, Treflan™, Heritage, Triflurex, Rival, Fortress and Edge™ Herbicides) will not control trifluralin tolerant green foxtail. To delay selection or reduce the spread of trifluralin tolerant green foxtail, avoid the use of these products repeatedly in the same field or use a separate herbicide application for control of trifluralin tolerant green foxtail. Consult Resistance Management Recommendations section of this label for further information.

Crops Registered

Western Canada

canola	fababeans
field peas	soybeans
mustard (yellow only)	dry common beans (white or kidney)
sunflowers	dill
alfalfa establishment	caraway
coriander	safflower
	lentils (fall application only)

Crops Registered Eastern Canada

canola
soybeans
dry common beans (white or kidney)

Land Preparation

Destroy established weeds by cultivation before application of ethalfluralin-blended fertilizers, if existing weed growth is too heavy to allow uniform application and incorporation.

Cultivate unworked stubble fields and fields with heavy weed growth once before ethalfluralin-blended fertilizers application. Disc-type implements provide best results.

To avoid concentrating wild oat and volunteer cereal seeds below treated layer, do not plow (moldboard) prior to ethalfluralin-blended fertilizers application. Weed seeds which germinate below the treated soil layer may not be controlled.

If the straw swath is removed by burning, cultivate once to remove charcoal layer before ethalfluralin-blended fertilizers application.

Tillage for Seedbed Preparation

Spring tillage following fall or spring application of ethalfluralin-blended fertilizer should be done prior to seeding when the soil is warm enough to promote germination. Use a disc or field cultivator (vibra-shank) set to cut 5 to 8 cm deep. For optimum weed control in soils with heavy wild oat populations prework early in the spring with a shallow cultivation to promote weed seed germination, followed by a 5 to 8 cm deep cultivation prior to seeding to destroy existing green growth. Avoid transplanting weed seedlings; seed into a weed-free seedbed using accepted cultural practices. Avoid excessive compaction of the soil layer treated with ethalfluralin-blended fertilizer. Any operation that results in a more shallow or compacted treated layer may allow weeds to emerge. This compaction may result from tractor wheel tracks, implement wheels, drill press wheels or other field operations done after incorporation. Soils are more susceptible to compaction when they are moist.

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