

87290-1

01/23/2012

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

OFFICE OF  
CHEMICAL SAFETY AND  
POLLUTION PREVENTION

Willowood, LLC  
1600 NW Garden Valley Blvd.  
Suite 120  
Roseburg, OR 97471  
c/o  
Ms. Leanne Pruett  
Pyxis Regulatory Consulting, Inc.  
4110 136<sup>th</sup> St. NW  
Gig Harbor, WA 98332

JAN 23 2012

Subject: Label Amendment to Add Ornamental Turf  
Product Name: Willowood Ethofumesate 4SC  
EPA Reg. No. 87290-1  
Application dated: September 21, 2011  
Decision No. 457165

Dear Ms. Pruett:

The labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended, is acceptable.

One copy of the label stamped "Accepted" is enclosed for your records. Products shipped after 18 months from the date on this notice or the next printing of the label, whichever occurs first, must bear the new revised label. Amended labeling will supersede all previously accepted ones. Submit one (1) copy of final printed labeling before you release the product for shipment.

If you have questions or concerns regarding this letter, please contact Beth Benbow at (703) 347-8072 or email at [benbow.bethany@epa.gov](mailto:benbow.bethany@epa.gov).

Sincerely,

A handwritten signature in cursive script that reads "Kathryn V. Montague".

Kathryn V. Montague  
Product Manager 23  
Herbicide Branch  
Registration Division (7505P)



# Willowood Ethofumesate 4SC

## Suspension Concentrate

**BROAD SPECTRUM HERBICIDE** for selective control of weeds in sugar beets, garden beets, onions, garlic, shallots (in all states) and carrots in Washington and Oregon only.

**GRASS SEED HERBICIDE** for selective control of weeds in certain grass seed crops and commercial sod production in California, Idaho, Nevada, Oregon and Washington.

**TURF HERBICIDE** for selective control of weeds, on Ornamental Turf

<b>ACTIVE INGREDIENT:</b>	<b>% by Weight</b>
Ethofumesate (2-ethoxy-2, 3-dihydro-3, 3-dimethyl-5-benzofuranyl methanesulfonate) .....	42.0%
<b>OTHER INGREDIENTS:</b> .....	<u>58.0%</u>
<b>TOTAL:</b> .....	100.0%

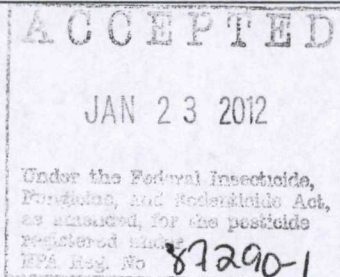
This product contains 4.0 lbs. active ingredient per gallon.

### KEEP OUT OF REACH OF CHILDREN CAUTION

FIRST AID	
<b>If swallowed:</b>	<ul style="list-style-type: none"> <li>• Call a poison control center or doctor immediately for treatment advice.</li> <li>• Have person sip a glass of water if able to swallow.</li> <li>• Do not induce vomiting unless told to do so by the poison control center or doctor.</li> <li>• Do not give anything by mouth to an unconscious person.</li> </ul>
<b>In inhaled:</b>	<ul style="list-style-type: none"> <li>• Move person to fresh air.</li> <li>• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible.</li> <li>• Call a poison control center or doctor for further treatment advice.</li> </ul>
<b>If in eyes:</b>	<ul style="list-style-type: none"> <li>• Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li> <li>• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If on skin or clothing:</b>	<ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
HOT LINE NUMBER	
<p>Have the product container or label with you when calling a poison control center or doctor, or going for treatment. For emergency information concerning this product, call the National Pesticides Information Center (NPIC) at 1-800-858-7378 seven days a week, 6:30 am to 4:30 pm Pacific Time or your poison control center at 1-800-222-1222.</p>	

**EPA Reg. No. 87290-1**

Manufactured for:  
Willowood, LLC  
1600 NW Garden Valley Blvd. #130  
Roseburg, OR 97471



**EPA Est. No.**

**Net Contents:**



**PRECAUTIONARY STATEMENTS  
HAZARDS TO HUMANS AND DOMESTIC ANIMALS  
CAUTION**

Harmful if swallowed or inhaled. Avoid breathing vapor or spray mist.

**PERSONAL PROTECTIVE EQUIPMENT (PPE)**

Some materials that are chemical-resistant to this product are polyethylene or polyvinyl chloride. If you want more options, follow the instructions for category A on an EPA chemical-resistance category selection chart.

**All mixers, loaders, applicators and other handlers must wear:**

- Long-sleeved shirt and long pants
- Chemical-resistant gloves (except flaggers, or applicator in cockpits, and enclosed cabs)
- Shoes plus socks

See Engineering Controls for additional requirements.

**On-Site Closed Mixing and Loading System Engineering Controls for Liquid Formulations for Commercial Dry Bulk Fertilizer Impregnation**

Mixers and loaders must use a closed system designed by the manufacturer to provide dermal and inhalation protection to enclose the pesticide to prevent it from contacting handlers or other people AND the system is functioning properly and is used and maintained in accordance with the manufacturer's written operating instructions. The handlers:

- Must wear PPE listed on this label
- Must wear protective eyewear if the system operates under pressure
- Must have immediately available for use in an emergency, such as a spill, or equipment breakdown, chemical resistant footwear and chemical resistant apron

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

**ENGINEERING CONTROLS STATEMENT**

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d) (4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS. Pilots must use an enclosed cockpit that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(6)].

**USER SAFETY REQUIREMENTS**

**Users should:**

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

**ENVIRONMENTAL HAZARDS**

This pesticide is toxic to fish. Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas. Do not contaminate water when disposing of equipment washwaters or rinsate.

**USE PRECAUTIONS**

Willowood Ethofumesate 4SC or tank mixes must be used for label listed purposes and at label specified rates only. (DO NOT OVERTREAT).

Do not graze livestock on treated crops. Do not feed treated grass clippings to livestock.



Do not apply this product through any type of irrigation system.

If crop is lost due to climatic or soil conditions following application of Willowood Ethofumesate 4SC or tank mixes, do not plant crops other than sugar beets or ryegrass in treated land during the same season. Do not retreat field with Willowood Ethofumesate 4SC. If fields are replanted to sugar beets, reseed into treated band.

Do not rotate with any crops other than sugar beets or ryegrass for:

- 12 months following preplant incorporated, preemergence, conventional postemergence applications, or split (low rate) applications totaling more than 12 fl. oz. (0.375 lb. ai/acre);
- 6 months following split (low rate) postemergence applications totaling 12 fl. oz. (0.375 lb. ai/acre) or less.

Thorough tillage, including moldboard plowing, should precede the planting of crops other than sugar beets or ryegrass. Do not use Willowood Ethofumesate 4SC on muck or peat soils.

Do not allow spray mixture to stand in tank overnight. Flush and drain spray equipment after each day's use.

Store unused spray mixture in tightly-sealed containers and protect from frost.

This label must be in the possession of the user at the time of pesticide application.

### DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Read entire Directions for Use and Condition of Sale and Limitation of Warranty and Liability before using this product.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

### SHAKE CONTAINER WELL BEFORE USING.

#### AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours for all crops, except turf grown for sod. The REI for turf is 9 days. The REI for each crop is listed in the directions for use associated with each crop.

Exception: If the product is soil-injected or soil-incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- Coveralls
- Chemical-resistant gloves made of any waterproof material
- Shoes plus socks

Notify workers of the application by warning them orally and by posting warning signs at entrances to treated areas.



**NON-AGRICULTURAL USE REQUIREMENTS**

The requirements in this box apply to uses of this product that are not within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

Do not enter or allow others to enter until sprays have dried.

Professional pesticide applicators applying to residential turf, including home lawns, parks, and recreation areas must inform their customers that all persons and pets must be kept off the treated turf until sprays have dried.

**SPRAY DRIFT MANAGEMENT**

This chemical can contaminate surface water through spray drift.

A variety of factors including weather conditions (e.g. wind direction, wind speed, temperature, relative humidity) and method of application (e.g. ground, aerial) can influence pesticide drift. The applicator must evaluate all factors and make appropriate adjustments when applying this product.

**Wind Speed** - Do not apply when wind speeds are greater than 15 mph.

**Temperature Inversions** - Do not make applications into areas of temperature inversion or stable atmospheric conditions.

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**SUGAR BEETS**

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**PRODUCT INFORMATION**

Willowood Ethofumesate 4SC is a selective herbicide for use in sugar beets for the control of the weed species listed below. It provides effective control of these weeds for up to 10 weeks following application.

Residual control of weeds is dependent upon soil moisture conditions; rate of herbicide used, and soil texture. The activity of Willowood Ethofumesate 4SC in the soil is reduced as the soil texture becomes finer and organic matter increases.

**Aerial Application Rate Restriction:** Do not apply more than 1.5 lbs. a.i. (3 pints of product) per acre with aircraft.

**PRECAUTIONS/RESTRICTIONS**

Following a preemergence treatment of Willowood Ethofumesate 4SC, do not apply conventional rates of Willowood Ethofumesate 4SC postemergence where more than 6 pints were applied preplant or preemergence. Do not apply more than 3.75 lbs. a.i. (7.5 pints of product) per acre per season for sugar beets. See *Use Precautions* for additional information on proper use.

**WEED SPECIES CONTROLLED**

Annual Broadleaf Weeds		Annual Grass Weeds	
Black nightshade	<i>Solanum nigrum</i>	Annual bluegrass	<i>Poa annua</i>
Common chickweed	<i>Stellaria media</i>	Barnyardgrass*	<i>Echinochloa crus-galli</i>
Common lambsquarters	<i>Chenopodium album</i>	Canarygrass	<i>Phalaris canariensis</i>
Common purslane	<i>Portulaca oleracea</i>	Green foxtail	<i>Setaria viridis</i>
Kochia	<i>Kochia scoparia</i>	Large crabgrass	<i>Digitaria sanguinalis</i>
Ladysthumb	<i>Polygonum persicaria</i>	Volunteer barley	<i>Hordeum sp.</i>



Annual Broadleaf Weeds		Annual Grass Weeds	
Pennsylvania smartweed	<i>Polygonum pennsylvanicum</i>	Volunteer wheat	<i>Triticum sp.</i>
Redroot pigweed	<i>Amaranthus retroflexus</i>	Wild oats**	<i>Avena fatua</i>
Russian thistle	<i>Salsola kali var. tenuifolia</i>	Yellow foxtail	<i>Setaria glauca</i>
Wild buckwheat	<i>Polygonum convolvulus</i>		

\* Control of barnyardgrass may be reduced with the Willowood Ethofumesate 4SC + Pyramin® tank mix because of the lower rate of Willowood Ethofumesate 4SC recommended.

\*\* Control of wild oats has been inconsistent in Minnesota and North Dakota.

Willowood Ethofumesate 4SC alone will also reduce competition from these HARD-TO-CONTROL weeds:	
Annual Sowthistle	<i>Sonchus oleraceus</i>
Puncturevine	<i>Tribulus terrestris</i>
Shepherdspurse	<i>Capsella bursa-pastoris</i>
Purple nutsedge	<i>Cyperus rotundus</i>
Yellow nutsedge	<i>Cyperus esculentus</i>

Apply tank mixes only in specific regions or States and in accordance with directions on label.

**PREPLANT INCORPORATED AND PREEMERGENCE APPLICATIONS**

**SOIL PREPARATION:** The soil should be prepared according to good agricultural practices. Large clods can reduce the effectiveness of Willowood Ethofumesate 4SC and tank mixes. All existing vegetative growth should be thoroughly worked into the soil before treatment.

**SPRAY EQUIPMENT:** Apply Willowood Ethofumesate 4SC alone or in tank mixes to the soil using standard low pressure (20 to 50 psi) spray equipment. Spray equipment should be carefully calibrated before use and checked frequently during application to see that it is functioning properly. Do not use smaller than 50-mesh strainer. Uniformly apply the label-listed rates of Willowood Ethofumesate 4SC or tank mixes in 10 to 60 gallons of water per acre on a broadcast basis. Avoid overlaps since crop injury may result. When applying Willowood Ethofumesate 4SC or tank mixes in a band; check to make certain that the band width is accurate for the dosage rate being applied.

The spray tank and lines should be thoroughly cleaned and rinsed prior to using Willowood Ethofumesate 4SC.

**INCORPORATION EQUIPMENT:** Where soil incorporation is recommended, use a hooded power- or ground-driven rotary tiller, rolling cultivator, or similar equipment properly adjusted to uniformly incorporate Willowood Ethofumesate 4SC or tank mixes to a depth of 1 to 2 inches. Deeper incorporation may reduce effectiveness. Do not apply Willowood Ethofumesate 4SC or tank mixes through soil injector shanks. Incorporation should be accomplished prior to planting. If done after planting, proper precautions should be taken to avoid damaging or moving the crop seed. See below for Layering Application.

**LAYERING APPLICATION: Spring:** Form beds with appropriate bedding equipment. Pre-irrigate field if necessary. Remove bed top with suitable de-ridging machinery to provide a minimum width of 10" across the top of the bed. Apply Willowood Ethofumesate 4SC in a band at the specified rate indicated in the appropriate regional dosage table and cover the treated band with 1 inch of soil using ditchers or discs equipment. Shape the bed with roller shaper and irrigate until the tops of the beds are thoroughly wetted. Irrigate from furrows on both sides of the row.



**Fall:** This method of application can be used when spring moisture is marginal or where irrigation water is not available at planting time. Fall bedding utilizes the winter-accumulated moisture to enhance activation of the herbicide and to aid in germination of the sugar beet crop.

Prepare the field (as for planting; plow; pack, and float, etc.), in the fall, usually late September or October. Apply Willowood Ethofumesate 4SC in a band to the soil surface at the specified rate indicated in the appropriate regional dosage table. Be sure that the soil surface to be treated is free of trash and vegetation.

Cover the treated bands with soil and form beds or ridges using ditchers or discs. In the spring when the soil is sufficiently dry to be worked, de-ridge the beds down to within 1/2" to 1" of the treated layer using suitable equipment such as the Kirchner bedder or Oregon Northslope harrow. When de-ridging, maintain the original bedding guidance system by using a bull tongue chisel, slide guides or similar equipment. This will ensure that the planter will follow in the treated band. Plant sugar beets in the de-ridged area when the soil conditions allow.

**APPLICATION INSTRUCTIONS**

**Sugar beets grown under rainfall:** Apply Willowood Ethofumesate 4SC alone or in a tank mix preemergence at time of planting or shortly after, but prior to weed germination. Willowood Ethofumesate 4SC or tank mix does not require mechanical soil incorporation provided that sufficient rainfall occurs shortly following application to activate the chemical. One-half inch of rainfall is usually adequate for activation. In areas where rainfall can be marginal for activation, such as the Red River Valley (Minnesota and North Dakota), it is recommended that Willowood Ethofumesate 4SC or the tank mix be applied before or at the time of planting and incorporated into the soil.

**Sugar beets grown under furrow irrigation:** Apply Willowood Ethofumesate 4SC alone or in a tank mix to the soil surface preplant or at time of planting, but prior to weed germination, and incorporate into the soil. Where sugar beets are grown in beds, apply Willowood Ethofumesate 4SC or tank mix after bedding and incorporate. Since Willowood Ethofumesate 4SC or tank mix must have moisture to control weeds effectively, irrigate until tops of beds are thoroughly wetted.

**Sugar beets grown under sprinkler irrigation:** Apply Willowood Ethofumesate 4SC alone or in a tank mix preemergence at time of planting or shortly after, and irrigate prior to crop and weed germination. Repeat irrigation as necessary to maintain good moisture in upper soil layer. Apply at least one-half inch of water during first irrigation. Do not mechanically incorporate Willowood Ethofumesate 4SC or tank mix into the soil under sprinkler irrigation.

**Cultural Practices Following Application:** When properly applied, Willowood Ethofumesate 4SC alone or in a tank mix will provide up to ten weeks control of susceptible weed species. When cultivating fields in which Willowood Ethofumesate 4SC or tank mixes have been banded, care should be exercised to minimize the movement of untreated soil into the treated band. Where a broadcast application has been made, do not cultivate deeper than two inches, as this reduces the effectiveness of Willowood Ethofumesate 4SC or tank mixes.

**WILLOWOOD ETHOFUMESATE 4SC ALONE  
DOSAGE TABLE 1  
(All Regions Except North Dakota and Minnesota):**

Soil Texture	Rate of Willowood Ethofumesate 4SC per Acre <sup>1</sup>			
	Broadcast	7-inch Band Width <sup>2</sup>		
		22" Row	28" Row	30" Row
<b>Coarse Textured Soils:</b> Sands, loamy sands and sandy loams	2 1/4 to 3 3/4 Pints	3/4 to 1 1/4 Pints	2/3 to 1 Pint	1/2 to 1 Pint



Soil Texture	Rate of Willowood Ethofumesate 4SC per Acre <sup>1</sup>			
	Broadcast	7-inch Band Width <sup>2</sup>		
		22" Row	28" Row	30" Row
<b>Medium Textured Soils:</b> Silt loams, clay loams which contain less than 3% organic matter	3 3/4 to 6 Pints	1 1/4 to 2 Pints	1 to 1 1/2 Pints	1 to 1 3/4 Pints
<b>Fine Textured Soils:</b> Silt loams, clay loams, clays which contain more than 3% organic matter	6 to 7 1/2 Pints	2 to 2 1/2 Pints	1 1/2 to 2 Pints	1 1/2 to 1 3/4 Pints

<sup>1</sup> Use the higher rate within each soil texture category on the finer texture soils and/or where Kochia, barnyardgrass or black nightshade are expected to be a problem.

<sup>2</sup> For other band or row widths, adjust the rate in proportion to the area actually treated.

**DOSAGE TABLE 2**  
(North Dakota and Minnesota only):

Soil Texture	Willowood Ethofumesate 4SC per Acre	
	Broadcast	7-inch Band Width <sup>1</sup>
		22" Row
<b>Coarse Textured Soils:</b> Sandy loams only	6 Pints	2 Pints
<b>Medium Textured Soils:</b> Silt loams and clay loams	6 Pints	2 Pints
<b>Fine Textured Soils:</b> Heavy clays	7 1/2 Pints	2 1/2 Pints

<sup>1</sup> For other band or row widths, adjust the rate in proportion to the area actually treated.

**WILLOWOOD ETHOFUMESATE 4SC + PYRAMIN® (TANK MIX)**

**This tank mix will control these additional broadleaf weeds:**

Annual sowthistle	<i>Sonchus oleraceus</i>
Black mustard	<i>Brassica nigra</i>
Buffalobur	<i>Solanum rostratum</i>
Coast fiddleneck	<i>Amsinckia intermedia</i>
Common groundsel	<i>Senecio vulgaris</i>
Common ragweed	<i>Ambrosia artemisiifolia</i>
Cutleaf nightshade	<i>Solanum triflorum</i>
Groundcherry	<i>Physalis</i> spp.



Henbit	<i>Lamium amplexicaule</i>
Nettleleaf goosefoot	<i>Chenopodium murale</i>
Prickly lettuce	<i>Lactuca serriola</i>
Prostrate knotweed	<i>Polygonum aviculare</i>
Shepardspurse	<i>Capsella bursa-pastoris</i>

**Mixing Directions:** When mixing Willowood Ethofumesate 4SC in the spray tank with Pyramin, fill the spray tank with 1/2 of the total amount of water to be used and add Willowood Ethofumesate 4SC first. Agitate spray solution thoroughly and continuously. See Pyramin label for additional mixing directions.

**CALIFORNIA (winter-grown sugar beets only):** Under sprinkler irrigation or where natural rainfall is adequate, apply this tank mix preemergence. See Pyramin label for precautions regarding application of sprinkler irrigation. Where furrow irrigation is to be used, apply preplant incorporated. Prepare seedbed or form beds for planting. Then use rotary tiller type of incorporation and incorporate not more than 2 inches deep. Plant sugar beets and irrigate. Sub-irrigate until tops of beds are thoroughly wetted. Refer to Dosage Table 3 for specified rates.

**DOSAGE TABLE 3**  
**(California, winter-grown sugar beets only):**

Soil Texture	Willowood Ethofumesate 4SC per Acre		PYRAMIN DF per Acre	
	Broadcast (For calibration purposes only)	10-inch Band Width <sup>1,2</sup> 30" Row	Broadcast (For calibration purposes only)	10-inch Band Width 30" Row
<b>Coarse Textured Soils:</b> Sands, loamy sands and sandy loams	<b>NOT RECOMMENDED</b>			
<b>Medium Textured Soils:</b> Silt loams, clay loams which contain less than 3% organic matter	3 to 3 1/4 Pints	1 to 1 1/4 Pints	4 1/2 Pounds	1 1/2 Pounds
<b>Fine Textured Soils:</b> Clay loams which contain more than 3% organic matter and clays	4 to 5 1/4 Pints	1 1/3 to 1 3/4 Pints	4 1/2 Pounds	1 1/2 Pounds

<sup>1</sup> For other brand or row widths, adjust rates in proportion to the area actually treated. Do not apply this mixture broadcast.

<sup>2</sup> Use the higher rate of Willowood Ethofumesate 4SC within each soil texture category on the finer-textured soils and/or where volunteer barley or wheat are expected to be a problem.

**Precautions:** Do not exceed 3/4 inch of sprinkler irrigation per set until the beets have two true leaves. Do not use the tank mix under conditions where Pyramin alone is not recommended. Before use, read the Pyramin label for additional information and precautions.

**CENTRAL AND EASTERN STATES, INCLUDING MICHIGAN AND OHIO:** This tank mix controls the additional weed, common ragweed, and other broadleaf weeds specified in the weed table. Apply preemergence at the time of planting or shortly after, but before weed germination, using specified rates listed in Dosage Table 4. Do not mechanically incorporate the herbicides into the soil as crop injury may result. Do not use this tank mix where Pyramin alone is not recommended. Before use, read Pyramin label for additional information and precautions.



**DOSAGE TABLE 4**  
**(Central and Eastern States Only):**

Soil Texture	Willowood Ethofumesate 4SC/Acre			PYRAMIN FL/Acre		
	Broadcast	7-inch Band Width <sup>1</sup>		Broadcast	7-inch Band Width <sup>1</sup>	
		22" Row	28" Row		22" Row	28" Row
<b>Coarse Textured Soils:</b> Sandy loams only	3 Pints	1 Pint	3/4 Pint	2 1/4 Qts.	3/4 Qt.	1/2 Qt.
<b>Medium Textured Soils:</b> Silt loams, clay loams which contain less than 3% organic matter	4 Pints	1 1/4 Pints	1 Pint	3 Qts.	1 Qt.	3/4 Qt.
<b>Fine Textured Soils:</b> Clay loams which contain more than 3% organic matter and clays	5 Pints	1 1/2 Pints	1 1/4 Pints	3 Qts.	1 Qt.	3/4 Qt.

<sup>1</sup> For other band or row widths, adjust the rate in proportion to the area actually being treated.

**Preplant and Preemergence Use Precautions**

Willowood Ethofumesate 4SC applied alone or in tank mixes according to label directions and under normal growing conditions may cause temporary leaf fusion, distortion and stunting. Crop injury may occur during early growth when crop is stressed due to herbicide residue carryover, highly saline or alkaline soils, unusually cold and wet weather or improperly placed fertilizers or soil insecticides.

Unusually dry, windy weather, which dries the upper soil layer, following application of Willowood Ethofumesate 4SC, may reduce effectiveness.

DO NOT OVERTREAT: The use of higher than label-listed rates may cause beet injury and/or carry over problems.

**Crop Planting Precautions:** If crop is lost due to unfavorable growth conditions following treatment, do not replant with crops other than sugar beets or ryegrass in treated land during the same season. If fields are replanted to sugar beets, reseed into treated band. Do not retreat field with conventional rates of Willowood Ethofumesate 4SC in the same season.

**Postemergence Application**

**Product Information**

The tank mixes of Willowood Ethofumesate 4SC plus Betamix® or Betanex® Herbicides applied postemergence broaden and enhance the control of weeds. The choice of tank mixes is dependent upon weed species present. Willowood Ethofumesate 4SC alone is not recommended for postemergent use.

Tank mixes of Willowood Ethofumesate 4SC plus Betamix® or Betanex® applied postemergence control the following weeds:

Annual Broadleaf Weeds	
Annual sowthistle	<i>Sonchus oleraceus</i>
Black nightshade	<i>Solanum nigrum</i>
Hairy nightshade	<i>Solanum sarrachoides</i>
Coast fiddleneck	<i>Amsinckia intermedia</i>



Annual Broadleaf Weeds	
Common chickweed	<i>Stellaria media</i>
Common lambsquarters	<i>Chenopodium album</i>
Common ragweed	<i>Ambrosia artemisiifolia</i>
Groundcherry	<i>Physalis lanceifolia</i>
Kochia*	<i>Kochia scoparia</i>
Ladysthumb	<i>Polygonum persicaria</i>
London rocket	<i>Sisymbrium irio</i>
Nettleleaf goosefoot	<i>Chenopodium murale</i>
Pennsylvania smartweed	<i>Polygonum pennsylvanicum</i>
Prostrate pigweed	<i>Amaranthus gracizans</i>
Redroot pigweed	<i>Amaranthus retroflexus</i>
Purslane	<i>Portulaca oleraceus</i>
Shepherdspurse	<i>Capsella bursa-pastoris</i>
Wild buckwheat	<i>Polygonum convolvulus</i>
Wild mustard	<i>Brassica kaber</i>

\*Spray kochia while in the rosette stage, less than one inch in diameter.

Annual Grass Weeds	
Annual bluegrass	<i>Poa annua</i>
Canarygrass	<i>Phalaris canariensis</i>
Additionally, a tank mix of Willowood Ethofumesate 4SC plus Betamix® applied postemergence also controls the following annual grass weeds:	
Green foxtail	<i>Setaria viridis</i>
Pigeon grass (Yellow foxtail)	<i>Setaria glauca</i>

**Mixing the Spray:** Add Willowood Ethofumesate 4SC to the water in the spray tank followed by Betamix® or Betanex® while agitating the spray solution thoroughly. Refer to the Betamix® or Betanex® labels for additional precautions and information on mixing.

**Spray Equipment:** Apply the mixture using standard low pressure (20-60 psi) spray equipment. Ensure that the sprayer is thoroughly clean. Spray equipment should be carefully calibrated before use and checked frequently during application to see that it is functioning properly. Uniformly apply the label-listed rate in 20-60 gallons of water per acre on a broadcast basis or 5-10 gallons of water per acre in a band. Avoid overlaps, since crop injury may result. When applying in a band, check to make certain that the band width is accurate for the dosage rate being applied. Do not use strainer smaller than 50-mesh.

**Moisture Following Application/Residual Weed Control:** Rainfall or sprinkler irrigation within 6 hours of spraying may reduce weed control; however, with conventional rates, moisture after this period of time is advantageous for moving Willowood Ethofumesate 4SC into the top layer of soil where it can be absorbed by the roots of sprayed and germinating weeds to provide optimum control. One-half inch or more of sprinkler irrigation is required to activate Willowood Ethofumesate 4SC on most soil types.



Residual control of weeds is dependent upon soil moisture conditions; rate of herbicide used, and soil texture. The activity of Willowood Ethofumesate 4SC in the soil is reduced as the soil texture becomes finer and organic matter increases.

**Precautions/Restrictions**

Following a preemergence treatment of Willowood Ethofumesate 4SC, do not apply conventional rates of Willowood Ethofumesate 4SC postemergence where more than 6 pints were applied preplant or preemergence. Do not apply more than 3.75 lbs. a.i. (7.5 pints of product) per acre per season for sugar beets. See Use Precautions for additional information on proper use.

**Split (Low Rate) Applications**

Split (low rate) applications of Willowood Ethofumesate 4SC + Betamix® or Betnex® Herbicides may be applied to sugar beets to control early germinating weeds (the tank mix of Willowood Ethofumesate 4SC + Betanex® may be used in all sugar beet areas except California). The first spray must be applied when the earliest emerging weeds have reached cotyledon size. See Dosage Table 5 for broadcast rates. See Dosage Table 6 and 7 for equivalent band rates. For band applications, apply in 5-10 gallons of water per acre. Any weeds which are not completely controlled by the first treatment will usually be checked and controlled by repeat applications. The repeat application should be made 5 to 7 days after the preceding application or when another flush of weeds germinates. If second application is delayed, conventional applications as described below will be necessary.

**DOSAGE TABLE 5  
DOSAGE CHART FOR BROADCAST APPLICATION**

Sugar Beet Stage	Pints/Acre Broadcast	
	WILLOWOOD ETHOFUMESATE 4SC + BETAMIX® BETANEX®	WILLOWOOD ETHOFUMESATE 4SC + BETANEX®
Cotyledon	0.25 + 1.50	0.25 + 1.50
2 Leaf	0.33 + 2.00	0.33 + 2.00
4 Leaf	0.50 + 3.00	0.50 + 3.00

**DOSAGE TABLE 6  
BETAMIX® OR BETANEX® DOSAGE CHART FOR BAND APPLICATION**

Broadcast Equivalent	Band Width	BAND RATE – ROW SPACING		
		22"	28"	30"
1.5 pints/acre	5"	5.5 fl.oz.	4.3 fl. oz.	4.0 fl. oz.
	7"	7.6 fl.oz.	6.0 fl. oz.	5.6 fl. oz.
2.0 pints/acre	5"	7.3 fl.oz.	5.7 fl.oz.	5.3 fl.oz.
	7"	10.2 fl.oz.	8.0 fl.oz.	7.5 fl.oz.
3.0 pints/acre	5"	10.9 fl.oz.	8.6 fl.oz.	8.0 fl.oz.
	7"	15.3 fl.oz.	12.0 fl.oz.	11.2 fl.oz.

**DOSAGE TABLE 7  
WILLOWOOD ETHOFUMESATE 4SC DOSAGE CHART FOR BAND APPLICATION**

Broadcast Equivalent	Band Width	BAND RATE – ROW SPACING		
		22"	28"	30"
0.25 pints/acre	5"	0.9 fl.oz.	0.7 fl. oz.	0.7 fl. oz.
	7"	1.3 fl.oz.	1.0 fl. oz.	0.9 fl. oz.
0.33 pints/acre	5"	1.2 fl.oz.	0.9 fl.oz.	0.9 fl.oz.
	7"	1.7 fl.oz.	1.3 fl.oz.	1.2 fl.oz.
0.5 pints/acre	5"	1.8 fl.oz.	1.4 fl.oz.	1.3 fl.oz.
	7"	2.5 fl.oz.	2.0 fl.oz.	1.9 fl.oz.



**Conventional Applications**

**Timing of Application:** Apply the tank mix Willowood Ethofumesate 4SC + Betanex® or Willowood Ethofumesate 4SC + Betamix® when sugar beets have at least 4 fully expanded true leaves. Apply at rates specified in the Dosage Tables. Use the higher rate of Willowood Ethofumesate 4SC where increased residual weed control is desired. Where Eptam® has been applied preplant (fall or spring applied); do not apply Willowood Ethofumesate 4SC + Betamix® or Betanex® tank mix before the sugar beets have 6 expanded true leaves.

See Postemergence Use Precautions for additional information on proper use.

**WILLOWOOD ETHOFUMESATE 4SC + BETAMIX® (TANK MIX)**

Willowood Ethofumesate 4SC applied postemergence in a tank mix with Betamix® Herbicide broadens and enhances the control of troublesome weeds. Furthermore, preemergence control of susceptible weeds which may germinate following treatment can be obtained provided overhead moisture is sufficient to activate Willowood Ethofumesate 4SC.

<b>WEED SPECIES CONTROLLED</b>	
<b>Group I: Weeds controlled up to the 6-leaf stage.</b>	
Redroot Pigweed	<i>Amaranthus retroflexus</i>
Wild mustard	<i>Brassica kaber</i>
Nettleleaf goosefoot	<i>Chenopodium murale</i>
London rocket	<i>Sisymbrium irio</i>
Common lambsquarters	<i>Chenopodium album</i>
<b>Group II: Weeds controlled up to the 4-leaf stage.</b>	
Common chickweed	<i>Stellaria media</i>
Black nightshade	<i>Solanum nigrum</i>
Common ragweed	<i>Ambrosia artemisiifolia</i>
Shepherdspurse	<i>Capsella bursa-pastoris</i>
Groundcherry	<i>Physalis lanceifolia</i>
Pennsylvania smartweed	<i>Polygonum pennsylvanicum</i>
Ladysthumb	<i>Polygonum persicaria</i>
Prostrate pigweed	<i>Amaranthus blitoides</i>
Coast fiddleneck	<i>Amsinckia intermedia</i>
<b>Group III: Weeds controlled up to the 2-leaf stage</b>	
Annual sowthistle	<i>Sonchus oleraceus</i>
Kochia*	<i>Kochia scoparia</i>
Common purslane**	<i>Portulaca oleracea</i>
Prostrate knotweed	<i>Polygonum aviculare</i>
Wild buckwheat	<i>Polygonum convolvulus</i>
Green foxtail***	<i>Setaria viridis</i>
Yellow foxtail (pigeongrass)***	<i>Setaria glauca</i>
Annual bluegrass***	<i>Poa annua</i>
Canarygrass***	<i>Phalaris canariensis</i>



\* Spray kochia while in the rosette stage, less than 1" in diameter.

\*\*Group II weed in California

\*\*\*For best control, overhead moisture required.

**DOSAGE TABLE 8**

Rate of Willowood Ethofumesate 4SC Per Acre <sup>1</sup>					Rate of Betamix® Per Acre <sup>1</sup>				
Broadcast Rate	Band <sup>2</sup> Width (in.)	Row Spacing			Broadcast Rate	Band <sup>2</sup> Width (in.)	Row Spacing		
		22"	28"	30"			22"	28"	30"
2 1/4 – 3 Pints	7	3/4–1 Pint	1/2–3/4 Pint	1/2–2/3 Pint	4 1/2 – 6 Pints	7	1 1/2-2 Pints	1-1 1/2 Pints	1 1/3 Pints

<sup>1</sup> Use the higher rate on larger weeds and sugar beets.

<sup>2</sup> For other band or row widths, adjust rates in proportion to the area actually treated.

**WILLOWOOD ETHOFUMESATE 4SC + BETANEX® (TANK MIX)**

**ALL AREAS EXCEPT CALIFORNIA:** Willowood Ethofumesate 4SC applied postemergence in a tank mix with Betanex® Herbicide broadens and enhances control of troublesome weeds. Furthermore, preemergence control of susceptible weeds which may germinate following treatment can be obtained provided overhead moisture is sufficient to activate Willowood Ethofumesate 4SC.

WEED SPECIES CONTROLLED	
<b>Group I: Weeds controlled up to the 6-leaf stage.</b>	
Redroot pigweed	<i>Amaranthus retroflexus</i>
Wild mustard	<i>Brassica kaber</i>
Nettleleaf goosefoot	<i>Chenopodium murale</i>
London rocket	<i>Sisymbrium irio</i>
Common lambsquarters	<i>Chenopodium album</i>
<b>Group II: Weeds controlled up to the 4-leaf stage</b>	
Common chickweed	<i>Stellaria media</i>
Black nightshade	<i>Solanum nigrum</i>
Common ragweed	<i>Ambrosia artemisiifolia</i>
Shepherdspurse	<i>Capsella bursa-pastoris</i>
Groundcherry	<i>Physalis lanceifolia</i>
Pennsylvania smartweed	<i>Polygonum pennsylvanicum</i>
Ladysthumb	<i>Polygonum persicaria</i>
<b>Group III: Weeds controlled up to the 2-leaf stage</b>	
Annual sowthistle	<i>Sonchus oleraceus</i>
Common purslane	<i>Portulaca oleracea</i>
Wild buckwheat	<i>Polygonum convolvulus</i>
Kochia*	<i>Kochia scoparia</i>

\* Spray Kochia while in the rosette stage, less than 1" in diameter



**DOSAGE TABLE 9**  
(All areas except California)

Rate of Willowood Ethofumesate 4SC Per Acre <sup>1</sup>					Rate of Betanex® Per Acre <sup>1</sup>				
Broadcast Rate	Band <sup>2</sup> Width (in.)	Row Spacing			Broadcast Rate	Band <sup>2</sup> Width (in.)	Row Spacing		
		22"	28"	30"			22"	28"	30"
2 1/4 – 3 Pints	7	3/4–1 Pint	1/2–3/4 Pint	1/2–2/3 Pint	4 1/2 – 6 Pints	7	1 1/2-2 Pints	1 1/8 - 1 1/2 Pints	1-1 1/3 Pints

<sup>1</sup>Use the higher rate on larger weeds and sugar beets

<sup>2</sup> For other band or row widths, adjust rates in proportion to the area actually treated.

**Postemergence Use Precautions:** Make only one conventional application of Willowood Ethofumesate 4SC + Betanex® or Betamix® tank mix during each growing season.

Do not apply Willowood Ethofumesate 4SC + Betanex® or Betamix® tank mix to sugar beets later than 90 days prior to harvest.

**Crop Planting Precautions:** If crop is lost due to unfavorable growth conditions following treatment, do not replant with crops other than sugar beets or ryegrass in treated land during the same season. If fields are replanted to sugar beets, reseed into treated band. Do not retreat field with conventional rates of Willowood Ethofumesate 4SC in the same season.

WILLOWOOD ETHOFUMESATE 4SC + BETANEX® OR BETAMIX® MAY CAUSE SUGAR BEET INJURY OR STAND LOSS IF THE CROP IS UNDER STRESS FROM ONE OR MORE OF THE FOLLOWING CONDITIONS:

- Rapid climatic changes from cool, overcast days, to hot (80°F or over), bright days. When the air temperature is, or is likely to be above 80°F on the day of spraying, application should be made in the evening when the temperature is lower.
- Frost within seven days following treatment
- Windy or drought conditions
- Use of a preplant or preemergence herbicide or other chemicals
- Insect or disease injury
- Close cultivation

If stress conditions are present, delay application until crop has recovered.

**DO NOT OVERTREAT:** The use of higher-than-specified rates may cause beet injury and/or carry over problems.

Do not spray while dew is present.

Rainfall or sprinkler irrigation within 6 hours of application may reduce weed kill.

If Willowood Ethofumesate 4SC is applied on fields with heavy crop residue, such as from a previous corn crop, reduced weed control may occur.

Do not allow spray drift to contact adjacent crops which may be injured by spray drift.

**IMPORTANT:** This tank mix may cause temporary growth retardation and/or chlorosis or tip-burn on sugar beets. Sugar beets usually resume normal growth within 10 days.

**WILLOWOOD ETHOFUMESATE 4SC MIXTURES WITH FERTILIZERS**

**WILLOWOOD ETHOFUMESATE 4SC Impregnation on Dry Bulk Fertilizers**

Willowood Ethofumesate 4SC may be impregnated on many dry bulk fertilizers (See "1" below) and applied and incorporated into the soil before planting for the control of labeled grasses and broadleaf weeds in sugar beets. See instructions for impregnation on dry bulk fertilizers at end of label.



All Willowood Ethofumesate 4SC label and supplementary literature instructions and precautions regarding rates per acre, soil type and soil incorporation, application, and other directions must be followed.

All individual State regulations relating to dry bulk fertilizer blending, registration, labeling and application are the responsibility of the individual and/or company selling the Willowood Ethofumesate 4SC/fertilizer mixtures.

A minimum of 200 pounds and a maximum of 700 pounds of approved fertilizer ingredients (See "2" below) impregnated with the appropriate amount of Willowood Ethofumesate 4SC must be applied per acre.

For impregnating the pesticide on dry fertilizers, use a closed rotary drum type mixer equipped with suitable spraying equipment. The spray nozzles should be positioned inside of the mixer to provide uniform spray coverage of the tumbling fertilizer. The Willowood Ethofumesate 4SC should be sprayed uniformly onto the fertilizer using a fine spray pattern.

The physical properties of fertilizers vary, particularly in liquid absorptive capacity. When absorptivity is sufficient, simple spray impregnation of the fertilizer with Willowood Ethofumesate 4SC provides a satisfactory dry mixture.

If the absorptivity is not adequate, use of a highly absorptive powder is required to provide a dry, free-flowing mixture. Microcel E (Johns-Manville Products Corporation) is the recommended absorbent powder. It should be added separately and uniformly to the prepared pesticide/fertilizer mixture in a quantity that is sufficient to provide a suitably free-flowing mixture. Generally, less than 2% by weight of Microcel E is required.

The amount of Willowood Ethofumesate 4SC actually required in the formulation of specific fertilizer mixtures should be calibrated carefully for each production operation. This is necessary to ensure that the amount of Willowood Ethofumesate 4SC actually contained in the fertilizer mixture applied to the soil represents the correct dosage rate.

Bulk fertilizers impregnated with Willowood Ethofumesate 4SC should be applied immediately, NOT STORED.

**WILLOWOOD ETHOFUMESATE 4SC IMPREGNATION ON DRY BULK FERTILIZERS**

**1. Approved dry fertilizer ingredients for use with Willowood Ethofumesate 4SC:**

	<b>N</b>	<b>P</b>	<b>K</b>
Ammonium nitrate	34	0	0
Ammonium sulfate	21	0	0
Ammonium phosphate-sulfate	16	20	0
Diammonium phosphate	18	46	0
Monoammonium phosphate	11	56	0
Potassium chloride	0	0	60
Potassium sulfate	0	0	52
Single superphosphate	0	20	0
Triple superphosphate	0	46	0
Urea	45	0	0

**Willowood Ethofumesate 4SC Physical Data**

Density \_\_\_\_\_ 1.15 g/cm<sup>3</sup>  
Pounds/gallon \_\_\_\_\_ 9.60  
Flashpoint \_\_\_\_\_ Noncombustible

**2. Rate Chart for the Impregnation of Dry Bulk Fertilizers with Willowood Ethofumesate 4SC:**



Gallons of Willowood Ethofumesate 4SC per Ton of Dry Bulk Fertilizer

Fertilizer Rate lb/acre	2.25 pt./acre	Impregnation Rate 3 pt./acre	4.5 pt./acre
200	2.80	3.75	5.63
250	2.25	3.00	4.50
300	1.88	2.50	3.75
350	1.59	2.16	3.19
400	1.41	1.88	2.81
450	1.25	1.69	2.50
500	1.13	1.50	2.25
550	1.03	1.38	2.06
600	0.94	1.25	1.88
650	0.87	1.13	1.75
700	0.80	1.08	1.62

WILLOWOOD ETHOFUMESATE 4SC with Liquid Fertilizer

Directions for mixing Willowood Ethofumesate 4SC with liquid fertilizers for spray tank applications, and testing physical compatibility of liquid fertilizer – Willowood Ethofumesate 4SC mixture can be found at the end of the label

The following procedure is suggested for evaluation of physical compatibility of Willowood Ethofumesate 4SC with liquid fertilizers for spray tank applications.

Material Required

1. Willowood Ethofumesate 4SC – components of tank mixes if intended for use
2. Liquid fertilizer to be used
3. Adjuvant for fertilizer tank mix: Compex\* or E-Z Mix\*\*.
4. Two (or more) one quart, wide mouth containers with lids or stoppers
5. Measuring spoons (25 ml pipette or graduated cylinder provides more accurate measurement)
6. Measuring cup, 8 fl. oz. (237 ml)

\* Compex – Kalo Laboratories, Inc., Kansas City, MO

\*\* E-Z Mix – United Agri Products, Greeley, CO

PROCEDURE

1. Pour one pint (473 ml) of the liquid fertilizer into each of the quart containers.
2. Add adjuvant(s) to one or more of the containers and mix; follow label directions of adjuvant.
3. Add the Willowood Ethofumesate 4SC and tank mix components to the containers (see rate table below).
4. Close the containers with lids or stoppers and mix contents by inverting the containers ten times.
5. Inspect the surface and body of the mixture:
  - a. immediately after mixing;
  - b. after allowing mixtures to stand quietly for 30 minutes;
  - c. immediately after mixing again (invert the containers ten more times).

If a uniform mixture does not occur, the spray tank mixture should not be used. If any of the mixtures remain uniform for 30 minutes, that mixture may be used in spray tank applications. Should any of the mixtures separate after 30 minutes but remix readily into a uniform mixture with inversion of the container, the mixture may be used provided that adequate agitation is maintained in the spray tank. If a Willowood Ethofumesate 4SC + fertilizer mixture utilizing an adjuvant is satisfactory, but the one without the adjuvant is not, be sure to use the adjuvant in the spray tank at the rate specified on the label which was used in this test.

If non-dispersible oil, sludge, or clumps of solids form in the mixtures, those combinations should not be used for spray tank application.

RATE TABLE FOR WILLOWOOD ETHOFUMESATE 4SC MIXTURES WITH LIQUID FERTILIZERS



Gal. of Liquid Fertilizer to be applied per acre	*ml or tsp. of Willowood Ethofumesate 4SC to be added to 1 pint of fertilizer	
	ml	tsp.
20	17.6	3.6
30	12.0	2.4
40	9.0	1.9
50	7.1	1.5
60	6.0	1.2

\*Based on field use rate of 3.0 lb. ai/acre (3/4 gal/acre) in the fertilizer volumes indicated. Adjust amount of Willowood Ethofumesate 4SC added proportionately to correspond with intended field use rate specified on Willowood Ethofumesate 4SC label for soil type. Add the proportionate amount of tank mix component (e.g., Pyramin) if intended for use, based on volume of Willowood Ethofumesate 4SC used in the test.

**BEETS, TABLE (GARDEN)**

**PRODUCT INFORMATION**

Willowood Ethofumesate 4SC is a selective herbicide for use in table beets for the control of the weed species listed below.

Residual control of weeds is dependent upon soil moisture conditions; rate of herbicide used, and soil texture. The activity of Willowood Ethofumesate 4SC in the soil is reduced as the soil texture becomes finer and organic matter increases.

**WEED SPECIES CONTROLLED**

Annual Broadleaf Weeds	
Black nightshade	<i>Solanum nigrum</i>
Common chickweed	<i>Stellaria media</i>
Common lambsquarters	<i>Chenopodium album</i>
Common purslane	<i>Portulaca oleracea</i>
Eastern black nightshade	<i>Solanum ptycanthum</i>
Kochia	<i>Kochia scoparia</i>
Ladysthumb	<i>Polygonum persicaria</i>
Pennsylvania smartweed	<i>Polygonum pennsylvanicum</i>
Redroot pigweed	<i>Amaranthus retroflexus</i>
Russian thistle	<i>Salsola kali var. tenuifolia</i>
Wild buckwheat	<i>Polygonum convolvulus</i>

Annual Grass Weeds	
Annual bluegrass	<i>Poa annua</i>
Barnyardgrass	<i>Echinochloa crus-galli</i>
Canarygrass	<i>Phalaris canariensis</i>
Green foxtail	<i>Setaria viridis</i>
Large crabgrass	<i>Digitaria sanguinalis</i>



Annual Grass Weeds	
Volunteer barley	<i>Hordeum</i> sp.
Volunteer wheat	<i>Triticum</i> sp.
Wild oats**	<i>Avena fatua</i>
Yellow foxtail	<i>Setaria glauca</i>

\*\* Control of wild oats has been inconsistent in Minnesota and North Dakota

Willowood Ethofumesate 4SC alone will also reduce competition from these HARD-TO-CONTROL weeds:	
Annual Sowthistle	<i>Sonchus loeraceus</i>
Puncturevine	<i>Tribulus terrestris</i>
Shepherdspurse	<i>Capsella bursa-pastoris</i>
Purple nutsedge	<i>Cyperus rotundus</i>
Yellow nutsedge	<i>Cyperus esculentus</i>

Apply tank mixes only in specified regions or States and in accordance with directions on label.

**APPLICATION INSTRUCTIONS**

**Table Beets Grown Under Rainfall:** Apply Willowood Ethofumesate 4SC alone or in a tank mix preemergence at time of planting or shortly after, but prior to weed germination. Willowood Ethofumesate 4SC or tank mix does not require mechanical soil incorporation provided that sufficient rainfall occurs shortly following application to activate the chemical. One-half inch of rainfall is usually adequate for activation. In areas where rainfall can be marginal for activation, it is recommended that Willowood Ethofumesate 4SC be applied before or at the time of planting and incorporated into the soil.

**Table Beets Grown Under Furrow Irrigation:** Apply Willowood Ethofumesate 4SC alone or in a tank mix to the soil surface preplant or at time of planting, but prior to weed germination. Where table beets are grown in beds, apply Willowood Ethofumesate 4SC or tank mix after bedding and incorporate. Since Willowood Ethofumesate 4SC must have moisture to control weeds effectively, irrigate until tops of beds are thoroughly wetted.

**Table Beets Grown Under Sprinkler Irrigation:** Apply Willowood Ethofumesate 4SC alone or in tank mix preemergence at time of planting or shortly after, and irrigate prior to crop and weed germination. Repeat irrigation as necessary to maintain good moisture in upper soil layer. Apply at least one-half inch of water during first irrigation. Do not mechanically incorporate Willowood Ethofumesate 4SC into the soil under sprinkler irrigation.

**Cultural Practices Following Application:** When properly applied, Willowood Ethofumesate 4SC alone can provide up to 6 weeks control of susceptible species. When cultivating fields in which Willowood Ethofumesate 4SC has been banded, care should be exercised to minimize the movement of untreated soil into the treated band. Where a broadcast application has been made, do not cultivate deeper than two inches, as this reduces the effectiveness of Willowood Ethofumesate 4SC.

**WILLOWOOD ETHOFUMESATE 4SC ALONE  
DOSAGE FOR BROADCAST APPLICATIONS**

Table Beet Stage	WILLOWOOD ETHOFUMESATE 4SC FLUID OUNCES/ACRE BROADCAST
Preemergence	60
Postemergence:	
2-Leaf	5.25



4-Leaf	5.25
6-Leaf to 8-Leaf	10.5

Do not exceed 2.6 lbs. a.i. (80 ounces of product) per acre per season.

**PREPLANT AND PREEMERGENCE USE PRECAUTIONS**

Willowood Ethofumesate 4SC applied alone or in tank mixes according to label directions and under normal growing conditions may cause temporary leaf fusion, distortion and stunting. Crop injury may occur during early growth when crop is stressed due to herbicide residue carryover, highly saline or alkaline soils, unusually cold and wet weather or improperly placed fertilizers or soil insecticides.

Unusually dry, windy weather, which dries the upper soil layer, following application of Willowood Ethofumesate 4SC, may reduce effectiveness.

DO NOT OVERTREAT: The use of higher than label-listed rates may cause beet injury and/or carry over problems.

**Crop Planting Precautions:** If crop is lost due to unfavorable growth conditions following treatment, do not replant with crops other than sugar beets, table beets, garlic, onions, shallots or ryegrass in treated land during the same season. If fields are replanted to sugar beets, reseed into treated band. Do not retreat field with preemergence rates of Willowood Ethofumesate 4SC in the same season.

**RATE RESTRICTION**

Do not apply more than 1.9 lbs. a.i. (3 pints of product) per acre per pre-emergent application to table beets. See Use Precautions for additional information on proper use.

**PREPLANT AND PREEMERGENCE APPLICATIONS**

**Soil Preparation:** The soil should be prepared according to good agricultural practices. Large clods can reduce the effectiveness of Willowood Ethofumesate 4SC and tank mixes. All existing vegetative growth should be thoroughly worked into the soil before treatment.

**Spray Equipment:** Apply Willowood Ethofumesate 4SC alone or in tank mixes to the soil using standard low pressure (20 to 50 psi) spray equipment. Spray equipment should be carefully calibrated before use and checked frequently during application to see that it is functioning properly. Do not use smaller than 50-mesh strainer. Uniformly apply the specified rates of Willowood Ethofumesate 4SC or tank mixes in 10 to 60 gallons of water per acre on a broadcast basis. Avoid overlaps since crop injury may result. When applying Willowood Ethofumesate 4SC or tank mixes in a band, check to make certain that the band width is accurate for the dosage rate being applied.

The spray tank and lines should be thoroughly cleaned and rinsed prior to using Willowood Ethofumesate 4SC.

**POSTEMERGENCE APPLICATION**

**Product Information**

Willowood Ethofumesate 4SC applied postemergence broadens and enhances the control of weeds.

**Post-emergent application Rate Restriction:** Do not apply more than 0.33 lb. a.i. per acre per application.

**Mixing the Spray:** Add Willowood Ethofumesate 4SC to the water in the spray while agitating the spray solution thoroughly.

**Spray Equipment:** Apply the mixture using standard low pressure (20-60 psi) spray equipment. Ensure that the sprayer is thoroughly clean. Spray equipment should be carefully calibrated before use and checked frequently during application to see that it is functioning properly. Uniformly apply the specified rate in 10-40 gallons of water per acre on a broadcast basis or 5-10 gallons of water per acre in a band. Avoid overlaps, since crop injury may result. When applying in a band, check to make certain that the band width is accurate for the dosage rate being applied. Do not use strainer smaller than 50-mesh.

**Moisture Following Application/Residual Weed Control:** Rainfall or sprinkler irrigation within 6 hours of spraying may reduce weed control; however, with preemergence rates, moisture after this period of



time is advantageous for moving Willowood Ethofumesate 4SC into the top layer of soil where it can be absorbed by the roots of sprayed and germinating weeds to provide optimum control. One-half inch or more of sprinkler irrigation is required to activate Willowood Ethofumesate 4SC on most soil types.

Residual control of weeds is dependent upon soil moisture conditions; rate of herbicide used, and soil texture. The activity of Willowood Ethofumesate 4SC in the soil is reduced as the soil texture becomes finer and organic matter increases.

**WILLOWOOD ETHOFUMESATE 4SC MAY CAUSE CROP INJURY OR STAND LOSS IF THE CROP IS UNDER STRESS FROM ONE OR MORE OF THE FOLLOWING CONDITIONS:**

- Rapid climatic changes from cool, overcast days, to hot (80°F or over), bright days. When the air temperature is, or is likely to be, above 80°F on the day of spraying, application should be made in the evening when the temperature is lower.
- Frost within seven days following treatment
- Windy or drought conditions
- Use of a preplant or preemergence herbicide or other chemicals
- Insect or disease injury
- Close cultivation

If stress conditions are present, delay application until crop has recovered.

DO NOT OVERTREAT: The use of higher-than-specified rates may cause beet injury and/or carry over problems.

Do not spray while dew is present.

Rainfall or sprinkler irrigation within 6 hours of application may reduce weed kill.

If Willowood Ethofumesate 4SC is applied on fields with heavy crop residue, such as from a previous corn crop, reduced weed control may occur.

Do not allow spray drift to contact adjacent crops which may be injured by spray drift.

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**ONION, DRY BULB; GARLIC, BULB; SHALLOT, BULB**

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**PRODUCT INFORMATION**

Willowood Ethofumesate 4SC is a selective herbicide for use in onion, garlic and shallot for the control of the weed species listed below.

Residual control of weeds is dependent upon soil moisture conditions; rate of herbicide used, and soil texture. The activity of Willowood Ethofumesate 4SC in the soil is reduced as the soil texture becomes finer and organic matter increases.

**WEED SPECIES CONTROLLED**

<b>Annual Broadleaf Weeds</b>	
Black nightshade	<i>Solanum nigrum</i>
Common chickweed	<i>Stellaria media</i>
Common lambsquarters	<i>Chenopodium album</i>
Common purslane	<i>Portulaca oleracea</i>
Eastern black nightshade	<i>Solanum ptycanthum</i>
Kochia	<i>Kochia scoparia</i>
Ladysthumb	<i>Polygonum persicaria</i>
Pennsylvania smartweed	<i>Polygonum pennsylvanicum</i>
Redroot pigweed	<i>Amaranthus retroflexus</i>



Annual Broadleaf Weeds	
Russian thistle	<i>Salsola kali var. tenuifolia</i>
Wild buckwheat	<i>Polygonum convolvulus</i>

Annual Grass Weeds	
Annual bluegrass	<i>Poa annua</i>
Barnyardgrass	<i>Echinochloa crus-galli</i>
Canarygrass	<i>Phalaris canariensis</i>
Green foxtail	<i>Setaria viridis</i>
Large crabgrass	<i>Digitaria sanguinalis</i>
Volunteer barley	<i>Hordeum sp.</i>
Volunteer wheat	<i>Triticum sp.</i>
Wild oats**	<i>Avena fatua</i>
Yellow foxtail	<i>Setaria glauca</i>

\*\*Control of wild oats has been inconsistent in Minnesota and North Dakota

**Willowood Ethofumesate 4SC alone will also reduce competition from these HARD-TO-CONTROL weeds:**

Annual sowthistle	<i>Sonchus oleraceus</i>
Puncturevine	<i>Tribulus terrestris</i>
Shepherdspurse	<i>Capsella bursa-pastoris</i>
Purple netsedge	<i>Cyperus rotundus</i>
Volunteer potato	<i>Solanum tuberosum</i>
Yellow nutsedge	<i>Cyperus esculentus</i>

Apply tank mixes only in specified regions or States and in accordance with directions on label.

**APPLICATION INSTRUCTIONS**

**Onion, garlic and shallot grown under rainfall:** Apply Willowood Ethofumesate 4SC alone or in a tank mix preemergence at time of planting or shortly after, but prior to weed germination. Willowood Ethofumesate 4SC or tank mix does not require mechanical soil incorporation provided that sufficient rainfall occurs shortly following application to activate the chemical. One-half inch of rainfall is usually adequate for activation. In areas where rainfall can be marginal for activation, it is recommended that Willowood Ethofumesate 4SC be applied before or at time of planting and incorporated into the soil.

**Onion, garlic and shallot grown under furrow irrigation:** Apply Willowood Ethofumesate 4SC alone or in a tank mix to the soil surface preplant or at time of planting, but prior to weed germination. Where these crops are grown in beds, apply Willowood Ethofumesate 4SC or tank mix after bedding and incorporate. Since Willowood Ethofumesate 4SC must have moisture to control weeds effectively, irrigate until tops of beds are thoroughly wetted.

**Onion, garlic and shallot grown under sprinkler irrigation:** Apply Willowood Ethofumesate 4SC alone or in tank mix preemergence at time of planting or shortly after, and irrigate prior to crop and weed germination. Repeat irrigation as necessary to maintain good moisture in upper soil layer. Apply at least one-half inch of water during first irrigation. Do not mechanically incorporate Willowood Ethofumesate 4SC into the soil under sprinkler irrigation.



**CULTURAL PRACTICES FOLLOWING APPLICATION:** When properly applied, Willowood Ethofumesate 4SC alone can provide up to 6 weeks of control of susceptible weed species. When cultivating fields in which Willowood Ethofumesate 4SC has been banded, care should be exercised to minimize the movement of untreated soil into the treated band. Where a broadcast application has been made, do not cultivate deeper than two inches, as this reduces the effectiveness of Willowood Ethofumesate 4SC.

**WILLOWOOD ETHOFUMESATE 4SC ALONE  
DOSAGE FOR BROADCAST APPLICATIONS TO ONION, GARLIC AND SHALLOT**

Use Pattern	WILLOWOOD ETHOFUMESATE 4SC FLUID OUNCES/ACRE BROADCAST
Preemergence, soil surface Coarse Soils (sand, loamy sand, sandy loam)* Medium and Fine Soils**	16 32
Postemergence Up to 4 foliar applications at evenly spaced intervals, with last application 30 (+/- 2) days before harvest	16

\* On coarse soils: Do not exceed 48 fluid ounces (0.375 gallon) of product per season.

\*\* On medium and fine textured soils: Do not exceed 96 fluid ounces (0.75 gallon) of product per season.

**PREPLANT AND PREEMERGENCE USE PRECAUTIONS**

Willowood Ethofumesate 4SC applied alone or in tank mixes according to label directions and under normal growing conditions may cause temporary leaf fusion, distortion and stunting. Crop injury may occur during early growth when crop is stressed due to herbicide residue carryover, high saline or alkaline soils, unusually cold and wet weather or improperly placed fertilizers or soil insecticides.

Unusually dry, windy weather, which dries the upper soil layer, following application of Willowood Ethofumesate 4SC, may reduce effectiveness.

**DO NOT OVERTREAT:** The use of higher than label-listed rates may cause crop injury and/or carry over problems.

**Crop Planting Precautions:** If crop is lost due to unfavorable growth conditions following treatment, do not replant with crops other than sugar beets, table beets, garlic, onions, shallots or ryegrass in treated land during the same season. If fields are replanted to sugar beets, reseed into treated band. Do not retreat field with preemergence rates of Willowood Ethofumesate 4SC in the same season.

**PRECAUTIONS**

No more than a total of 0.75 gallon of Willowood Ethofumesate 4SC should be applied in a single growing season. See *Use Precautions* for additional information on proper use.

**PREPLANT AND PREEMERGENCE APPLICATIONS**

**Soil Preparation:** The soil should be prepared according to good agricultural practices. Large clods can reduce the effectiveness of Willowood Ethofumesate 4SC and tank mixes. All existing vegetative growth should be thoroughly worked into the soil before treatment.

**Spray Equipment:** Apply Willowood Ethofumesate 4SC alone or in tank mixes to the soil using standard low pressure (20 to 50 psi) spray equipment. Spray equipment should be carefully calibrated before use and checked frequently during application to see that it is functioning properly. Do not use smaller than 50-mesh strainer. Uniformly apply the specified rates of Willowood Ethofumesate 4SC or tank mixes in 10 to 60 gallons of water per acre on a broadcast basis. Avoid overlaps since crop injury may result. When applying Willowood Ethofumesate 4SC or tank mixes in a band, check to make certain that the band width is accurate for the dosage rate being applied.

The spray tank and lines should be thoroughly cleaned and rinsed prior to using Willowood Ethofumesate 4SC.



## POSTEMERGENCE APPLICATION

### Product Information

Willowood Ethofumesate 4SC applied postemergence broadens and enhances the control of weeds.

**Mixing the spray:** Add Willowood Ethofumesate 4SC to the water in the spray tank while agitating the spray solution thoroughly.

**Spray Equipment:** Apply the mixture using standard low pressure (20-60 psi) spray equipment. Ensure that the sprayer is thoroughly clean. Spray equipment should be carefully calibrated before use and checked frequently during application to see that it is functioning properly. Uniformly apply the specified rate in 10-40 gallons of water per acre on a broadcast basis or 5-10 gallons of water per acre in a band. Avoid overlaps, since crop injury may result. When applying in a band, check to make certain that the band width is accurate for the dosage rate being applied. Do not use strainer smaller than 50-mesh.

**Moisture following Application/Residual Weed Control:** Rainfall or sprinkler irrigation within 6 hours of spraying may reduce weed control; however, with preemergence rates, moisture after this period of time is advantageous for moving Willowood Ethofumesate 4SC into the top layer of soil where it can be absorbed by the roots of sprayed and germinating weeds to provide optimum control. One-half inch or more of sprinkler irrigation is required to activate Willowood Ethofumesate 4SC on most soil types.

Residual control of weeds is dependent upon soil moisture conditions, rate of herbicide used, and texture. The activity of Willowood Ethofumesate 4SC in the soil is reduced as the soil texture becomes finer and organic matter increases.

WILLOWOOD ETHOFUMESATE 4SC MAY CAUSE CROP INJURY OR STAND LOSS IF THE CROP IS UNDER STRESS FROM ONE OR MORE OF THE FOLLOWING CONDITIONS:

- Rapid climatic changes from cool, overcast days, to hot (80°F or over), bright days. When the air temperature is, or is likely to be, above 80°F on the day of spraying, application should be made in the evening when the temperature is lower.
- Frost within seven days following treatment
- Windy or drought conditions
- Use of preplant or preemergence herbicide or other chemicals
- Insect or disease injury
- Close cultivation

If stress conditions are present, delay application until crop has recovered.

**DO NOT OVERTREAT:** The use of higher-than-specified rates may cause crop injury and/or carry over problems.

Do not spray while dew is present.

Rainfall or sprinkler irrigation within 6 hours of application may reduce weed kill.

If Willowood Ethofumesate 4SC is applied on fields with heavy crop residue, such as from a previous corn crop, reduced weed control may occur.

Do not allow spray drift to contact adjacent crops which may be injured by spray drift.

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**CARROT**  
**(For Use in Washington and Oregon Only)**

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### PRODUCT INFORMATION

Willowood Ethofumesate 4SC is a selective herbicide for use in carrot for the control of volunteer potatoes and the weed species listed below.

Residual control of weeds is dependent upon soil moisture conditions; rate of herbicide used, and soil texture. The activity of Willowood Ethofumesate 4SC in the soil is reduced as the soil texture becomes finer and organic matter increases.



**WEED SPECIES CONTROLLED**

<b>Annual Broadleaf Weeds</b>	
Black nightshade	<i>Solanum nigrum</i>
Common chickweed	<i>Stellaria media</i>
Common lambsquarters	<i>Chenopodium album</i>
Common purslane	<i>Portulaca oleracea</i>
Kochia	<i>Kochia scoparia</i>
Ladysthumb	<i>Polygonum persicaria</i>
Pennsylvania smartweed	<i>Polygonum pennsylvanicum</i>
Redroot pigweed	<i>Amaranthus retroflexus</i>
Russian thistle	<i>Salsola kali var. tenuifolia</i>
Wild buckwheat	<i>Polygonum convolvulus</i>
<b>Annual Grass Weeds</b>	
Annual bluegrass	<i>Poa annua</i>
Barnyardgrass	<i>Echinochloa crus-galli</i>
Canarygrass	<i>Phalaris canariensis</i>
Green foxtail	<i>Setaria viridis</i>
Large crabgrass	<i>Digitaria sanguinalis</i>
Volunteer barley	<i>Hordeum sp.</i>
Volunteer wheat	<i>Triticum sp.</i>
Wild oats	<i>Avena fatua</i>
Yellow foxtail	<i>Setaria glauca</i>
<b>Willowood Ethofumesate 4SC alone will also reduce competition from these HARD-TO-CONTROL weeds:</b>	
Annual Sowthistle	<i>Sonchus oleraceus</i>
Puncturevine	<i>Tribulus terrestris</i>
Shepherdspurse	<i>Capsella bursa-pastoris</i>
Purple nutsedge	<i>Cyperus rotundus</i>
Volunteer potato	<i>Solanum tuberosum</i>
Yellow nutsedge	<i>Cyperus esculentus</i>

Apply tank mixes only in specified regions or States and in accordance with directions on label.

**APPLICATION INSTRUCTIONS**

**Carrot grown under rainfall:** Apply Willowood Ethofumesate 4SC alone or in a tank mix preemergence at time of planting or shortly after, but prior to weed germination. Willowood Ethofumesate 4SC or tank mix does not require mechanical soil incorporation provided that sufficient rainfall occurs shortly following application to activate the chemical. One-half inch of rainfall is usually adequate for activation. In areas where rainfall can be marginal for activation, it is recommended that Willowood Ethofumesate 4SC be applied before or at the time of planting and incorporated into the soil.

**Carrot grown under furrow irrigation:** Apply Willowood Ethofumesate 4SC alone or in a tank mix to the soil surface preplant or at time of planting, but prior to weed germination. Where carrots are grown in beds, apply Willowood Ethofumesate 4SC or tank mix after bedding and incorporate. Since Willowood



Ethofumesate 4SC must have moisture to control weeds effectively, irrigate until tops of beds are thoroughly wetted.

**Carrot grown under sprinkler irrigation:** Apply Willowood Ethofumesate 4SC alone or in tank mix preemergence at time of planting or shortly after, and irrigate prior to crop and weed germination. Repeat irrigation as necessary to maintain good moisture in upper soil layer. Apply at least one-half inch of water during first irrigation. Do not mechanically incorporate Willowood Ethofumesate 4SC into the soil under sprinkler irrigation.

**Cultural practices following application:** When properly applied, Willowood Ethofumesate 4SC alone can provide up to 6 weeks control of susceptible weed species. When cultivating fields in which Willowood Ethofumesate 4SC has been banded, care should be exercised to minimize the movement of untreated soil into the treated band. Where a broadcast application has been made, do not cultivate deeper than two inches, as this reduces the effectiveness of Willowood Ethofumesate 4SC.

**WILLOWOOD ETHOFUMESATE 4SC**

**DOSAGE FOR BROADCAST APPLICATIONS TO CARROT**

Use Pattern	WILLOWOOD ETHOFUMESATE 4SC FLUID OUNCES/ACRE BROADCAST
Preemergence, soil surface Coarse Soils (sand, loamy sand, sandy loam) Medium and Fine soils	48 64
Postemergence 2-Leaf to 4 Leaf Stage	64

Do not exceed 128 fluid ounces (1 gallon) of product per season.

**PREPLANT AND PREEMERGENCE USE PRECAUTIONS**

Willowood Ethofumesate 4SC applied alone or in tank mixes according to label directions and under normal growing conditions may cause temporary leaf fusion, distortion and stunting. Crop injury may occur during early growth when crop is stressed due to herbicide residue carryover, highly saline or alkaline soils, unusually cold and wet weather or improperly placed fertilizers or soil insecticides.

Unusually dry, windy weather, which dries the upper soil layer, following application of Willowood Ethofumesate 4SC, may reduce effectiveness.

**DO NOT OVERTREAT:** The use of higher than label-listed rates may cause crop injury and/or carry over problems.

**Crop Planting Precautions:** If crop is lost due to unfavorable growth conditions following treatment, do not replant with crops other than sugar beets, table beets, carrots, garlic, onions, shallots, or ryegrass in treated land during the same season. If fields are replanted to sugar beets, reseed into treated band. Do not retreat field with preemergence rates of Willowood Ethofumesate 4SC in the same season.

**PRECAUTIONS**

No more than a total of 1 gallon of Willowood Ethofumesate 4SC should be applied in a single growing season. See Use Precautions for additional information on proper use.

**PREPLANT AND PREEMERGENCE APPLICATIONS**

**Soil Preparation:** The soil should be prepared according to good agricultural practices. Large clods can reduce the effectiveness of Willowood Ethofumesate 4SC and tank mixes. All existing vegetative growth should be thoroughly worked into the soil before treatment.

**Spray Equipment:** Apply Willowood Ethofumesate 4SC alone or in tank mixes to the soil using standard low pressure (20 to 50 psi) spray equipment. Spray equipment should be carefully calibrated before use and checked frequently during application to see that it is functioning properly. Do not use smaller than 50 mesh strainer. Uniformly apply the specified rates of Willowood Ethofumesate 4SC or tank mixes in 10 to 60 gallons of water per acre on a broadcast basis. Avoid overlaps since crop injury may result. When



applying Willowood Ethofumesate 4SC or tank mixes in a band, check to make certain that the band width is accurate for the dosage rate being applied.

The spray tank and lines should be thoroughly cleaned and rinsed prior to using Willowood Ethofumesate 4SC.

**POSTEMERGENCE APPLICATION**

**Product Information**

Willowood Ethofumesate 4SC applied postemergence broadens and enhances the control of weeds.

**Mixing the Spray:** Add Willowood Ethofumesate 4SC to the water in the spray while agitating the spray solution thoroughly.

**Spray Equipment:** Apply the mixture using standard low pressure (20-60 psi) spray equipment. Ensure that the sprayer is thoroughly clean. Spray equipment should be carefully calibrated before use and checked frequently during application to see that it is functioning properly. Uniformly apply the specified rate in 10-40 gallons of water per acre on a broadcast basis or 5-10 gallons of water per acre in a band. Avoid overlaps, since crop injury may result. When applying in a band, check to make certain that the band width is accurate for the dosage rate being applied. Do not use strainer smaller than 50-mesh.

**Moisture Following Application/Residual Weed Control:** Rainfall or sprinkler irrigation within 6 hours of spraying may reduce weed control, however, with preemergence rates, moisture after this period of time is advantageous for moving Willowood Ethofumesate 4SC into the top layer of soil where it can be absorbed by the roots of sprayed and germinating weeds to provide optimum control. One-half inch or more of sprinkler irrigation is required to activate Willowood Ethofumesate 4SC on most soil types.

Residual control of weeds is dependent upon soil moisture conditions; rate of herbicide used, and soil texture. The activity of Willowood Ethofumesate 4SC in the soil is reduced as the soil texture becomes finer and organic matter increases.

WILLOWOOD ETHOFUMESATE 4SC MAY CAUSE CROP INJURY OR STAND LOSS IF THE CROP IS UNDER STRESS FROM ONE OR MORE OF THE FOLLOWING CONDITIONS:

- Rapid climatic changes from cool, overcast days, to hot (80°F or over), bright days. When the air temperature is, or is likely to be, above 80°F on the day of spraying, application should be made in the evening when the temperature is lower.
- Frost within seven days following treatment
- Windy or drought conditions
- Use of preplant or preemergence herbicide or other chemicals
- Insect or disease injury
- Close cultivation

If stress conditions are present, delay application until crop has recovered.

**DO NOT OVERTREAT:** The use of higher-than-specified rates may cause beet injury and/or carry over problems.

Do not spray while dew is present.

Rainfall or sprinkler irrigation within 6 hours of application may reduce weed kill.

If Willowood Ethofumesate 4SC is applied on fields with heavy crop residue, such as from a previous corn crop, reduced weed control may occur.

Do not allow spray drift to contact adjacent crops which may be injured by spray drift.

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**RYEGRASS, TALL FESCUE, BENTGRASS, AND KENTUCKY BLUEGRASS SEED CROPS**  
**(For use in California, Idaho, Nevada, Oregon, and Washington only)**

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**PRODUCT INFORMATION**

Willowood Ethofumesate 4SC is a selective herbicide for use in ryegrass, tall fescue, and bentgrass seed crops in California, Idaho, Nevada, Oregon, and Washington. It effectively controls or reduces competition



from those weed species listed below. Willowood Ethofumesate 4SC may be applied preemergence to new seedlings of annual or perennial ryegrass or postemergence to perennial ryegrass, tall fescue, or bentgrass. Application to bentgrass is restricted to plantings which have been established for one year or longer. Soil should be moist at time of application. Willowood Ethofumesate 4SC is less effective when applied to dry soil. Rainfall or overhead irrigation shortly after application is necessary for activation.

Residual control of weeds is dependent upon soil moisture conditions; rates of herbicide used, and soil texture. The activity of Willowood Ethofumesate 4SC in the soil is reduced as the soil texture becomes finer and organic matter/thatch increases.

**WEEDS CONTROLLED**

Annual bluegrass	<i>Poa annua</i>
Seedling Rattail fescue	<i>Festuca myuros</i>
Seedling volunteer wheat	<i>Triticum</i> spp.
Seedling volunteer barley	<i>Hordeum</i> spp.
Soft chess	<i>Bromus mollis</i>
Seedling Wild oats	<i>Avena fatua</i>
Downy brome	<i>Bromus tectorum</i>
Common chickweed	<i>Stellaria media</i>
Common vetch	<i>Vicia sativa</i>
Common velvetgrass	<i>Holcus lanatus</i>
Mannagrass	<i>Glyceria</i> spp.
Barnyardgrass	<i>Echinochloa crus-galli</i>
Canarygrass	<i>Phalaris canariensis</i>
Green foxtail	<i>Setaria viridis</i>
Large crabgrass	<i>Digitaria sanguinalis</i>
Yellow foxtail	<i>Setaria glauca</i>

**Spray equipment:** Use a fixed-boom power sprayer properly calibrated to a constant speed and rate of delivery. Do not use smaller than 50-mesh strainer. Avoid overlapping of spray swath. Shut off boom while starting, turning or stopping to avoid overlapping. Apply in 10 to 50 gallons of water per acre at low pressure (20 to 50 psi).

**Soil preparation:** A firm, fine and level seedbed free of trash and vegetative matter will provide best results from preemergence applications. Large clods can reduce effectiveness of Willowood Ethofumesate 4SC. All existing vegetative growth should be thoroughly worked into the soil before treatment.

**NEW SEEDINGS OF ANNUAL OR PERENNIAL RYEGRASS**

**Before weed emergence:** Apply Willowood Ethofumesate 4SC after seeding and prior to weed emergence. For best results apply to moist soil. Apply 1 1/2 to 3 pints per acre. Use the lower rate for control of common chickweed. For control of rattail fescue, wild oats, and volunteer cereals and other weeds listed, use 2 1/4 to 3 pints per acre.

**After weed emergence:** Apply Willowood Ethofumesate 4SC at earliest possible weed growth stage but not later than the 4-leaf stage. Rattail fescue, wild oats, and volunteer cereals which are more difficult to control, must be treated no later than the 2-leaf stage. Apply 2 1/4 to 3 pints per acre. Use the highest rate where rattail fescue, wild oats, and volunteer cereals are present and where weed infestation is heavy.



**NEW SEEDINGS OF FALL-PLANTED PERENNIAL RYEGRASS AND TALL FESCUE TREATED WITH DIURON PLUS CHARCOAL**

**Timing of application:** Apply Willowood Ethofumesate 4SC following crop emergence and after sufficient rainfall and/or overhead irrigation has occurred to dissipate the charcoal band (approximately 4 inches). Use dosage rates listed in Dosage Table 10. Surface debris may result in reduced weed control. Failure to allow for complete dissipation of the charcoal band may result in reduced weed control within the crop row. For best results, apply Willowood Ethofumesate 4SC to a moist soil surface.

Before using diuron, read the diuron label for rate recommendations, timing of applications, directions for use, and precautionary statements. Do not exceed maximum dosage rates for either herbicide.

NOTE: Do not apply Willowood Ethofumesate 4SC when crop shows diuron injury.

**DOSAGE TABLE 10**

Crop	Rate Per Acre	Remarks
Perennial ryegrass and tall fescue	1 1/2 to 3 pints	For effective control, annual bluegrass must be treated before the 4-leaf stage; rattail fescue, wild oats, and volunteer wheat must be treated before the 2-leaf stage. Use the lower rate for control of annual bluegrass and common chickweed; use the higher rate for control of rattail fescue, wild oats, and other weeds listed.

**After weed emergence:** Apply Willowood Ethofumesate 4SC at earliest possible weed growth stage but not later than the 4-leaf stage. Rattail fescue, wild oats, and volunteer cereals which are more difficult to control, must be treated no later than the 2-leaf stage. Apply 2 1/4 to 3 pints per acre. Use the highest rate where rattail fescue, wild oats, and volunteer cereals are present and where weed infestation is heavy.

**ESTABLISHED STANDS OF PERENNIAL RYEGRASS AND TALL FESCUE**

**Before weed emergence:** Apply Willowood Ethofumesate 4SC at 2 1/4 to 3 pints per acre prior to weed emergence. Use higher rate where rattail fescue, wild oats, and volunteer cereals are expected to be a problem. For best results, apply to moist soil. Crop residue and debris will reduce effectiveness of treatment and should be removed or destroyed.

**After weed emergence:** Apply Willowood Ethofumesate 4SC at earliest possible weed growth stage but not later than the 4-leaf stage. Rattail fescue, wild oats, and volunteer cereals which are more difficult to control, must be treated no later than the 2-leaf stage. Apply 2 1/4 to 3 pints per acre. Use the higher rate where rattail fescue, wild oats, and volunteer cereals are present. Where weed pressure is very heavy and rattail fescue is at the maximum stage of growth for treating, a rate of 3 pints of Willowood Ethofumesate 4SC is recommended.

**ESTABLISHED STANDS OF BENTGRASS**

Apply only to well-established stands which have been seeded for not less than 12 months. Straw from previous crop must be removed or destroyed. Failure to do so may result in reduced weed control.

**Before weed emergence:** Apply Willowood Ethofumesate 4SC at 1 1/2 to 3 pints per acre prior to weed emergence. Use higher rate where rattail fescue, wild oats, and volunteer cereals are expected to be a problem. For best results, apply to moist soil.

**After weed emergence:** Apply Willowood Ethofumesate 4SC at earliest possible weed growth stage, but not later than the 4-leaf stage. Rattail fescue, wild oats, and volunteer cereals which are more difficult to control, must be treated no later than the 2-leaf stage. Apply at the rate of 1 1/2 to 3 pints per acre. Use higher rate when rattail fescue, wild oats, and volunteer cereals are a problem. Do not apply more than 3 pints of Willowood Ethofumesate 4SC per acre on bentgrass.



**ESTABLISHED STANDS OF KENTUCKY BLUEGRASS (UNDER IRRIGATION ONLY)**

Apply only to established stands which have been seeded for at least 12 months. Crop residues, carbon, and debris should be removed. Failure to do so may result in reduced weed control. Willowood Ethofumesate 4SC is compatible with currently labeled grass seed herbicides. Consult your local fieldman for recommended uses.

**Before weed emergence:** Apply Willowood Ethofumesate 4SC at 2 pints per acre prior to weed emergence. For best results, apply to moist soil. Apply at least 1/2 inch irrigation within 2 to 3 days after treatment to incorporate Willowood Ethofumesate 4SC.

**After weed emergence:** Apply Willowood Ethofumesate 4SC at 2 pints per acre at the earliest possible weed growth stage, but no later than the 4-leaf stage. For best results, apply to moist soil. Apply at least 1/2 inch irrigation within 2 to 3 days after treatment to incorporate Willowood Ethofumesate 4SC.

**USE PRECAUTIONS**

Willowood Ethofumesate 4SC may cause stunting and stand reduction of newly seeded perennial ryegrass and tall fescue if the crop is planted late in the fall and subjected to adverse climatic conditions or pesticides which restrict normal growth.

If vegetative matter or stover from previous crop was burned, sufficient rainfall or overhead irrigation must have occurred to dissipate the charcoal residue remaining after burning prior to Willowood Ethofumesate 4SC treatment. Failure to allow for dissipation of charcoal residue may result in reduced weed control.

**COMMERCIAL SOD PRODUCTION**

**(For use in California, Idaho, Nevada, Oregon, and Washington only)**

**PRODUCT INFORMATION**

Willowood Ethofumesate 4SC is a selective herbicide for use in established and newly planted tall fescue and perennial ryegrass grown for sod in California, Idaho, Nevada, Oregon, and Washington. Willowood Ethofumesate 4SC may be applied preemergence or postemergence for the control of weed species listed below. Overhead irrigation or rainfall shortly after application is necessary for activation.

Do not harvest treated sod for 16 days following application.

Residual control of weeds is dependent upon soil moisture conditions; rate of herbicide used, and soil texture. The activity of Willowood Ethofumesate 4SC in the soil is reduced as soil texture becomes finer and organic matter/thatch increases.

**WEEDS CONTROLLED**

Annual bluegrass	<i>Poa annua</i>
Large crabgrass	<i>Digitaria sanguinalis</i>
Green foxtail	<i>Setaria viridis</i>
Yellow foxtail	<i>Setaria glauca</i>
Canarygrass	<i>Phalaris canariensis</i>
Volunteer barley	<i>Hordeum sp.</i>
Volunteer wheat	<i>Triticum sp.</i>
Wild oats	<i>Avena fatua</i>
Rattail fescue	<i>Festuca myuros</i>
Common velvetgrass	<i>Holcus lanatus</i>
Mannagrass	<i>Glyceria sp.</i>
Downy brome	<i>Bromus tectorum</i>
Soft chess	<i>Bromus mollis</i>



**Spray equipment:** Use a fixed-boom power sprayer properly calibrated to a constant speed and rate of delivery. Do not use smaller than a 50-mesh strainer. Avoid overlapping of spray swath. Shut off boom while starting, turning, or stopping to avoid over-application. Make applications in 10 to 50 gallons of water per acre at low pressure (20 to 50 psi).

**Soil preparation:** All existing vegetative matter should be thoroughly worked into the soil surface before planting. Large clods, trash, or vegetative matter left on the soil surface will reduce effectiveness of the Willowood Ethofumesate 4SC treatment.

**NEWLY PLANTED PERENNIAL RYEGRASS AND TALL FESCUE GROWN FOR SOD**

Apply Willowood Ethofumesate 4SC to newly planted areas when crop reaches the 2-to 3-leaf stage of growth. For best results, apply to moist soils.

**Before weed emergence:** Apply Willowood Ethofumesate 4SC at 2 1/4 to 3 pints per acre prior to weed emergence. Use the higher rate where rattail fescue, wild oats, and volunteer cereals are expected to be a problem.

**After weed emergence:** Apply Willowood Ethofumesate 4SC at earliest possible weed growth stage but no later than the 4-leaf stage. Rattail fescue, wild oats, and volunteer cereals which are more difficult to control, must be treated no later than the 2-leaf stage. Apply Willowood Ethofumesate 4SC at 2 1/4 to 3 pints per acre.

**ESTABLISHED PERENNIAL RYEGRASS AND TALL FESCUE SOD**

For preemergence and/or postemergence control of susceptible weeds, apply Willowood Ethofumesate 4SC prior to weed emergence or at the earliest possible weed growth stage, but not later than the 4-leaf stage. For best results, apply to moist soils. Apply Willowood Ethofumesate 4SC at 2 1/4 to 3 pints per acre. Repeat applications at 4 to 8 week intervals may be needed to maintain weed control. Do not apply more than 1.5 lbs. a.i. (3 pints of product) per acre per season for perennial ryegrass and tall fescue sod.

**USE PRECAUTIONS**

Willowood Ethofumesate 4SC may cause stunting, and stand reduction of newly seeded perennial ryegrass and tall fescue, if the crop is planted late in the fall and subjected to adverse climatic conditions or pesticides which restrict normal growth.

If vegetative matter or stover from previous crop was burned, sufficient rainfall or overhead irrigation must have occurred to dissipate the charcoal residue remaining after burning prior to Willowood Ethofumesate 4SC treatment. Failure to allow for dissipation of charcoal residue may result in reduced weed control.

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**ORNAMENTAL TURF USE**  
**(Not for use on Commercial Sod Farms in AZ)**

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Willowood Ethofumesate 4SC is a herbicide intended for use on ornamental turf such as golf courses, ~~sod farms~~, parks, cemeteries and homeowner or commercial lawns, and after overseeding specific grasses. It may be used on established perennial ryegrass, Kentucky bluegrass, creeping bentgrass, turf-type tall fescue, St. Augustinegrass, and dormant bermudagrass for the control and/or suppression of the annual grasses and broadleaf weeds listed in the tables below. Willowood Ethofumesate 4SC is intended for professional use only.

Willowood Ethofumesate 4SC has both preemergent and early (two-leaf stage) postemergence activity and works best in programs emphasizing both approaches. Willowood Ethofumesate 4SC application is most effective on healthy, vigorously growing turf.

**WEED SPECIES CONTROLLED**

**PREEMERGENCE**

**Annual Grasses**

- Barnyardgrass (*Echinochloa crus-galli*)
- Bluegrass, annual (*Poa annua*)
- Canarygrass (*Phalaris canariensis*)
- Crabgrass, large (*Digitaria sanguinalis*)



Crabgrass, smooth (*Digitaria ischaemum*)  
Foxtail, green (*Setaria viridis*)  
Foxtail, yellow (*Setaria glauca*)

**Annual Broadleaves**

Burclover (*Medicago sp.*)  
Chickweed, common (*Stellaria media*)  
Purslane, common (*Portulaca oleracea*)  
Pigweed, redroot (*Amaranthus retroflexus*)

Willowood Ethofumesate 4SC will also reduce competition from:

Nutsedge, purple (*Cyperus rotundus*)  
Nutsedge, yellow (*Cyperus esculentus*)

**POSTEMERGENCE**

**Annual Grasses**

Bluegrass, annual (*Poa annua*)

**Annual Broadleaves**

Chickweed, common (*Stellaria media*)  
Clover, white (*Trifolium repens*)

**PREEMERGENCE/EARLY POSTEMERGENCE**

**Annual Grasses**

Crabgrass, large (*Digitaria sanguinalis*)  
Crabgrass, smooth (*Digitaria ischaemum*)

**USE PRECAUTIONS and RESTRICTIONS**

- Willowood Ethofumesate 4SC is not intended for use by homeowners and should be applied to homeowner lawns by licensed or certified applicators.
- DO NOT OVER APPLY Willowood Ethofumesate 4SC. Follow the instructions in this label or damage to non-target turf may result.
- Do not apply more than 1.5 lbs. ai (48 oz. product/A or 1.1 oz. product/1,000 sq. ft.) per year.
- ~~Do not harvest treated sod for 16 days following application.~~
- Spray overlap can cause turf injury due to over application. Use of a spray colorant or indicator is recommended so that spray overlap can be avoided.
- Do not apply with hand-held or flood jet nozzles because treatments may not be uniform.
- Do not apply this product through any type of irrigation system.
- When using Willowood Ethofumesate 4SC, overseed to prevent stand thinning as a result of loss of annual bluegrass. Use the rate of Willowood Ethofumesate 4SC listed for the overseeded species when overseeding. In mixed stands of established turfgrasses, use the rate listed for the *least* tolerant species.
- Delay application of Willowood Ethofumesate 4SC at least 8 weeks after application of a Plant Growth Regulator although an Willowood Ethofumesate 4SC program may be initiated on creeping bentgrass 3 weeks after a single application of PRIMO\* has been applied.
- Do not apply Willowood Ethofumesate 4SC to putting greens.
- Do not apply Willowood Ethofumesate 4SC to zoysiagrass and hard or fine fescue to avoid serious injury.

**Spray Equipment, Application, and Precautions**

Use standard, low-pressure (20 to 50 psi) spray equipment to apply Willowood Ethofumesate 4SC. Calibrate spray equipment prior to use and frequently check the equipment during application. Use a spray indicator to aid in even application. Prior to and after applying Willowood Ethofumesate 4SC, thoroughly clean and rinse the spray tank and line.

**Varietal Tolerance**

Ethofumesate (the active ingredient in Willowood Ethofumesate 4SC) has been used on the following turfgrass cultivars. However, Willowood Ethofumesate 4SC can be used on other cultivars. Prior to large-



scale use of Willowood Ethofumesate 4SC on cultivars other than those listed below, test a small area for tolerance.

- **CREEPING BENTGRASS-** The following cultivars have shown good to excellent tolerance to Willowood Ethofumesate 4SC: Carmen, Cobra, Highland, Lopez, Mariner, National, Penncross, Providence, Putter, Southshore, SR1020, and Viper.  
Injury has been occasionally noted on Emerald, Penneagle, and Pennilinks cultivars.  
Willowood Ethofumesate 4SC may cause serious injury to Cohansey, Colonial, south German varieties, Egmont, Bardot, Tracenta, Allure, Astoria, and SR7100.
- **DORMANT BERMUDAGRASS-** Tifgreen, Tidwarf and Common bermudagrass are more susceptible to Willowood Ethofumesate 4SC than hybrid bermudagrass.
- **KENTUCKY BLUEGRASS-** Adelphi, American, Aspen, Asset, Challenger, Classic, Emundi, Huntsville, Georgetown, Glade, Haga, Julic, Liberty, Merit, Midnight, Monopoly, Mystic, Parade, Rugby, Sydsport, Touchdown. NOTE: DO NOT APPLY to Explorer, Limousine, Northstar, RAN I and Total Eclipse.
- **PERENNIAL RYEGRASS-** Acclaim, Blazer, Dasker, Derby, Elka, Fiesta, Goalie, Hunter, Linn, Loretta, Manhattan II, Palmer, Pennfine, Regal, Yorktown.
- **ST. AUGUSTINEGRASS-** Raleigh
- **TURF-TYPE FALL FESCUE-** America, Arid, Mustang

**Recommendations**

- For fall control of annual bluegrass, begin applications of Willowood Ethofumesate 4SC during the period of maximum weed germination and end as close to the first killing freeze as possible.
- Spring applications should be made during the period of maximum weed germination. Consult your weed science specialist or university extension service for the recommended application timing in your area. Spring applications are most effective following fall applications.

**SEE CHART BELOW FOR USE RATES AND TIMINGS AND READ TEXT BELOW FOR SPECIFIC DIRECTIONS FOR EACH TYPE OF GRASS.**

**Application Rates and Timings**

Turf Type	Primary Targets	Application Timing	Use Rate <sup>1</sup>		# of Apps <sup>5</sup>	Application Interval (Days)	Overseeding Safety Interval <sup>3</sup> (Weeks After Treatment)	Application Safety Interval <sup>4</sup> (Weeks After Emergence)
			Oz./Acre	Oz./1,000 Sq. Ft.				
Creeping Bentgrass	Annual Bluegrass	Fall	24	9/16	0-2	21-28	4	4
	Bluegrass	Spring <sup>2</sup>	24	9/16	0-2	21-28		
Kentucky Bluegrass	Annual Bluegrass	Fall	24	9/16	2	21-28	6	8
Ryegrass	Annual Bluegrass	Fall	32-48	3/4-1.1	0-1	N/A	1-2	1-2
		Spring			0-1	N/A		
St. Augustinegrass (Est. Turf)	Bermudagrass Suppression	Spring	24	9/16	2	21-28	N/A	N/A
Turf-Type Tall Fescue	Annual Bluegrass	Fall	24-48	3/4-1.1	1-2	21-28	0	2-3
Overseeded (ryegrass)	Annual Bluegrass	Fall	24-48	9/16 – 1.1	1-2	21-28	N/A	N/A
Bermudagrass: Dormant								
Bermudagrass	Annual Bluegrass	Fall	32-36	3/4-7/8	1	N/A	N/A	N/A

N/A= Not applicable.

<sup>1</sup> Apply Willowood Ethofumesate 4SC in 20 to 60 gallons of water per acre or 1 to 3 gallons of water per 1000 sq. ft.

<sup>2</sup> Only make spring applications after previous fall treatments.

<sup>3</sup> After the last treatment of Willowood Ethofumesate 4SC, the interval provided applies to overseeding of the specific grass on same type of grass to which Willowood Ethofumesate 4SC was applied.

<sup>4</sup> Willowood Ethofumesate 4SC may be applied to specific grass following seed emergence after the recommended time interval.

<sup>5</sup> Do not exceed the maximum single application rate or yearly maximum application rate of 48 oz./acre (i.e. a split application of 24 oz./A once in the spring and once in the fall OR a single application of 48 oz./A in either the spring or the fall).



## INSTRUCTIONS FOR SPECIFIC GRASS TYPES

### COOL SEASON TURFGRASSES

#### Creeping Bentgrass

Apply Willowood Ethofumesate 4SC to bentgrass as long as the turf is at a length typically found on fairways (or longer). When applying to bent-grass, use the following guidelines.

- Avoid using Willowood Ethofumesate 4SC in areas that are heavily shaded and/or poorly drained.
- Creeping bentgrass tolerance to Willowood Ethofumesate 4SC may be improved by tank mixing Willowood Ethofumesate 4SC with nitrogen fertilizer (controlled release or soluble) at a rate of 0.1 to 0.25 lb N per 10,000 ft<sup>2</sup>. This may also improve creeping bentgrass conversion in the areas treated.
- Control of annual bluegrass is best achieved by making two applications of Willowood Ethofumesate 4SC; one in the fall followed by one in the spring.
- Willowood Ethofumesate 4SC works best in the spring if applied after creeping bentgrass has resumed active growth and is fully green.

When overseeding with creeping bentgrass, use the following guidelines:

- After applying Willowood Ethofumesate 4SC, wait a minimum of 3-4 weeks before overseeding with bentgrass.
- When an area has been renovated or overseeded with bentgrass, do not apply Willowood Ethofumesate 4SC until 3-4 weeks after seedling emergence.

#### Kentucky Bluegrass

- Delay application of Willowood Ethofumesate 4SC to bluegrass until at least 8 weeks after emergence.
- Bluegrass overseeded with ryegrass may be treated with Willowood Ethofumesate 4SC 1-2 weeks after ryegrass emergence.

When overseeding with Kentucky Bluegrass use the following guidelines:

- Wait at least six weeks after the last Willowood Ethofumesate 4SC application before reseeding with Kentucky bluegrass.
- Note that sod quality during the spring may be diminished following the fall applications of Willowood Ethofumesate 4SC. Alternatives to fall application of Willowood Ethofumesate 4SC include seeding with dormant bluegrass in the late fall or to delay reseeding until the spring.

#### Perennial Ryegrass

Control of annual bluegrass in perennial ryegrass is easiest when it is newly emerged, and application of Willowood Ethofumesate 4SC is made during the primary period of annual bluegrass germination (and up to 30 days after annual bluegrass emergence) in the fall and/or spring. Consult your local Extension Service or university weed specialist for the date(s) that annual bluegrass germinates in your area.

- For best results, apply Willowood Ethofumesate 4SC at 24 oz./A (0.5 oz./1,000 sq. ft.) once in the fall and once in the spring.
- Application in the fall or spring will also reduce competition from selected broadleaf weeds and crabgrass.

When overseeding with perennial ryegrass, use the following guidelines:

- Wait 1-2 weeks (or until the seedlings are approximately 1" tall) before applying Willowood Ethofumesate 4SC to the seeded area.
- To the extent possible, thatch should be removed from the area being seeded as it can diminish the effectiveness of the Willowood Ethofumesate 4SC treatment.
- Do not apply mulch or straw to the seeded areas until after Willowood Ethofumesate 4SC has been applied.

#### Turf-Type Tall Fescue

Make Willowood Ethofumesate 4SC applications to turf-type tall fescue in the fall. If overseeding with turf-type tall fescue, application of Willowood Ethofumesate 4SC may be done at the same time as seeding.



**WARM SEASON TURFGRASSES**

**St. Augustinegrass (Established Turf)**

Willowood Ethofumesate 4SC suppresses the development of actively growing Bermudagrass in established St. Augustine sod. Apply Willowood Ethofumesate 4SC to St. Augustinegrass in the spring and early summer to suppress Bermudagrass and Bermudagrass seedhead formation and/or for control of annual bluegrass.

Notes regarding applications to St. Augustinegrass:

- Do not treat St. Augustinegrass in the first six months after germination.
- Do not treat St. Augustinegrass that is under stress or injury to the turf may result.
- Temporary stunting and minor discoloration of St. Augustinegrass may occur after application. If the St. Augustinegrass shows signs of severe yellowing or stunting, discontinue applications.

Use the following guidelines when applying Willowood Ethofumesate 4SC to St. Augustinegrass:

- Begin Willowood Ethofumesate 4SC applications when Bermudagrass first breaks dormancy in the spring. Application timing is critical to achieve optimum results and will vary depending on location and temperature.
- For best results, make two applications of Willowood Ethofumesate 4SC at 24 oz./A (0.5 oz./1,000 sq. ft.) with the second application being made 21-28 days after the first application.
- To improve suppression, each application of Willowood Ethofumesate 4SC may be tank-mixed with (Atrazine at up to 2 lb ai/A for first application and 0.75 lb-1 lb ai/A triazine for second or third application).

**Overseeded Dormant Bermudagrass**

Notes regarding applications to Bermudagrass:

- Do not make more than two applications at 24 oz./A (0.5 oz./1,000 sq. ft.) OR one application at 48 oz./A (1.0 oz./1,000 sq. ft) of Willowood Ethofumesate 4SC when treating nondormant bermudagrass. Treatment to turf that is not fully dormant may cause early injury and/or delayed spring green-up.
- Application of Willowood Ethofumesate 4SC to bermudagrass that is stressed due to shade, poorly drained soils, and high traffic may result in increased turf injury. Avoid use of Willowood Ethofumesate 4SC or use lower rates under these conditions.

Use the following guidelines when applying Willowood Ethofumesate 4SC to Bermudagrass:

- To control annual bluegrass, make applications of Willowood Ethofumesate 4SC in late fall (ideally 1-2 weeks after emergence of overseeded perennial ryegrass) on overseeded bermudagrass.
- When Willowood Ethofumesate 4SC is applied in late November or early December, applications of 32-36 oz. per acre have shown acceptable control of annual bluegrass with minimum injury to nondormant (or predormant) bermudagrass. If lower rates are used, reduced annual bluegrass control should be expected. If higher rates are used, increased injury to Bermudagrass may occur.
- Willowood Ethofumesate 4SC should not be applied to Bermudagrass in the 4 weeks prior to breaking winter dormancy. Applications made to Bermudagrass in the 4 weeks prior to breaking dormancy may temporarily delay the normal start of active growth.

When overseeding bermudagrass, use the following guidelines:

- Common bermudagrass in fairways or roughs may be more susceptible to herbicide injury than hybrid bermudagrass.
- When making applications to nondormant bermudagrass, Willowood Ethofumesate 4SC should be kept within areas that are overseeded so that the ryegrass will mask any early injury or late transition in the spring that may occur.
- Using a higher than normal seeding rate may be desirable in order to minimize the appearance of thin turf.



**Willowood Ethofumesate 4SC Mixtures with Fertilizers**

**Willowood Ethofumesate 4SC Impregnation on Dry Bulk Fertilizers**

Willowood Ethofumesate 4SC may be impregnated on many dry bulk fertilizers (See "1" below) and applied for the control of labeled grasses and broadleaf weeds on turf, and applied and incorporated into the soil before planting in sugar beets.

All Willowood Ethofumesate 4SC label and supplementary literature instructions and precautions regarding rates per acre, soil type, application, and other directions must be followed. All individual State regulations relating to dry bulk fertilizer blending, registration, labeling and application are the responsibility of the individual and/or company selling the Willowood Ethofumesate 4SC fertilizer mixtures. A minimum of 200 pounds and a maximum of 700 pounds of approved fertilizer ingredients (See "2" below) impregnated with the appropriate amount of Willowood Ethofumesate 4SC must be applied per acre. For impregnating the pesticide on dry fertilizers, use a closed rotary drum type mixer equipped with suitable spraying equipment. The spray nozzles should be positioned inside of the mixer to provide uniform spray coverage of the tumbling fertilizer. The Willowood Ethofumesate 4SC should be sprayed uniformly onto the fertilizer using a fine spray pattern.

The physical properties of fertilizers vary, particularly in liquid absorptive capacity. When absorptivity is sufficient, simple spray impregnation of the fertilizer with Willowood Ethofumesate 4SC provides a satisfactory dry mixture. If the absorptivity is not adequate, use of a highly absorptive powder is required to provide a dry, free-flowing mixture. Microcel E (Johns-Manville Products Corporation) is the recommended absorbent powder. It should be added separately and uniformly to the prepared pesticide/fertilizer mixture in a quantity that is sufficient to provide a suitably free-flowing mixture. Generally, less than 2% by weight of Microcel E is required.

The amount of Willowood Ethofumesate 4SC actually required in the formulation of specific fertilizer mixtures should be calibrated carefully for each production operation, This is necessary to ensure that the amount of Willowood Ethofumesate 4SC actually contained in the fertilizer mixture applied to the soil represents the correct dosage rate.

Bulk fertilizers impregnated with Willowood Ethofumesate 4SC should be applied immediately, NOT STORED.

**1. Approved dry fertilizer ingredients for use with Willowood Ethofumesate 4SC.**

**Willowood Ethofumesate 4SC Impregnation on Dry Bulk Fertilizers**

	<b>N</b>	<b>P</b>	<b>K</b>
Ammonium nitrate	34	0	0
Ammonium sulfate	21	0	0
Ammonium phosphate-sulfate	16	20	0
Diammonium phosphate	18	46	0
Monoammonium phosphate	11	56	0
Potassium chloride	0	0	60
Potassium sulfate	0	0	52
Single superphosphate	0	20	0
Triple superphosphate	0	46	0
Urea	45	0	0

<b>Willowood Ethofumesate 4SC Physical Data</b>	
Density	1.15 g/cm <sup>3</sup>
Pounds/gallon	9.60
Flashpoint	Non-combustible

**2. Rate Chart for the Impregnation of Dry Bulk Fertilizers with Willowood Ethofumesate 4SC:  
Gallons of Willowood Ethofumesate 4SC per Ton of Dry Bulk Fertilizer**



Fertilizer Rate lb/acre	2.25 pt./acre	Impregnation Rate 3 pt./acre	4.5 pt./acre
200	2.80	3.75	5.63
250	2.25	3.00	4.50
300	1.88	2.50	3.75
350	1.59	2.16	3.19
400	1.41	1.88	2.81
450	1.25	1.69	2.50
500	1.13	1.50	2.25
550	1.03	1.38	2.06
600	0.94	1.25	1.88
650	0.87	1.13	1.75
700	0.80	1.08	1.62

**Willowood Ethofumesate 4SC with Liquid Fertilizer**

The following procedure is suggested for evaluation of physical compatibility of Willowood Ethofumesate 4SC in mixtures with liquid fertilizers for spray tank applications.

**Material Required**

1. Willowood Ethofumesate 4SC - components of tank sizes if intended for use
2. Liquid fertilizer to be used.
3. Adjuvant for fertilizer tank mix: Compex\* or E-Z Mix\*\*
4. Two (or more) one quart wide mouth containers with lids or stoppers
5. Measuring spoons (25 ml pipette or graduated cylinder provides more accurate measurement)
6. Measuring cup, 8 fl. oz. (237 ml)

\*Compex, Kalo Baloratories, Inc., Kansas City, MO

\*\*E-Z Mix, United Agri-Products, Greeley, CO

**Procedure**

1. Pour one pint (473 ml) of the liquid fertilizer into each of the quart containers.
2. Add adjuvant(s) to one or more of the containers and mix; follow label directs of adjuvant.
3. Add the Willowood Ethofumesate 4SC and tank mix components to the containers (see rate table below).
4. Close the containers with lids or stoppers and mix contents by inverting the containers ten times.
5. Inspect the surface and body of mixture:
  - a. immediately after mixing
  - b. after allowing mixtures to stand quietly for 30 minutes,
  - c. immediately after mixing again (invert the containers ten more times).

If uniform mixture does not occur, the spray tank mixture should not be used. If any of the mixtures remain uniform for 30 minutes, that mixture may be used in spray tank applications. Should any of the mixtures separate after 30 minutes but remix readily into a uniform mixture with inversion of the container, the mixture may be used provided that the adequate agitation is maintained in the spray tank. If a Willowood Ethofumesate 4SC plus fertilizer mixture utilizing an adjuvant is satisfactory, but the one without adjuvant is not, be sure to use the adjuvant in the spray tank at the rate recommended on the label which was used in the test.

If non-dispersible oil, sludge, or clumps of solids form in the mixtures, those combinations should not be used for spray tank application.

**Rate Table for Willowood Ethofumesate 4SC Mixtures with Liquid Fertilizers**

Gal. of Liquid Fertilizer to be applied per acre	ml or tsp of Willowood Ethofumesate 4SC to be added to 1 pint of fertilizer	
	ml	tsp.
20	17.6	3.6
30	12.0	2.4



Gal. of Liquid Fertilizer to be applied per acre	ml or tsp of Willowood Ethofumesate 4SC to be added to 1 pint of fertilizer	
	gal	ml
40	9.0	1.9
50	7.1	1.5
60	6.0	1.2

\* Based on field rate of 3.0 lb. ai/acre (3/4 gal/acre) in the fertilizer volumes indicated. Adjust amount of Willowood Ethofumesate 4SC added proportionately to correspond with intended field use rate listed on Willowood Ethofumesate 4SC label (taking into account soil type when using on sugar beets). Add the proportionate amount of tank mix component (e.g., Pyramin) if intended for use, based on volume of Willowood Ethofumesate 4SC used in the test.

### STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage or disposal.

**PESTICIDE STORAGE:** Protect product from freezing temperatures.

**PESTICIDE DISPOSAL:** Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

**CONTAINER DISPOSAL:** Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying.

(Nonrefillable container ≤ 5 gallons): Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

(Nonrefillable > 5 gallons): Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

### CONDITION OF SALE AND LIMITATION OF WARRANTY AND LIABILITY

**NOTICE:** Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

The Directions for Use of this product must be followed carefully. It is impossible to eliminate all risks inherently associated with the use of this product. Ineffectiveness or other unintended consequences may result because of such factors as manner of use or application, weather, presence of other materials or other influencing factors in the use of the product, which are beyond the control of Willowood, LLC or Seller. To the extent consistent with applicable law, all such risks shall be assumed by Buyer and User,



and Buyer and User agree to hold Willowood, LLC and Seller harmless for any claims relating to such factors.

Willowood, LLC warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the Directions for Use, subject to the inherent risks referred to above, when used in accordance with directions under normal use conditions. This warranty does not extend to the use of this product contrary to label instructions, or under abnormal conditions or under conditions not reasonably foreseeable to or beyond the control of Seller or Willowood, LLC, and Buyer and User assume the risk of any such use. **TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, WILLOWOOD, LLC MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ABOVE.**

To the extent consistent with applicable law, neither Willowood, LLC nor Seller shall be liable for any incidental, consequential or special damages resulting from the use or handling of this product. **TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF WILLOWOOD, LLC AND SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, SHALL BE THE RETURN OF THE PURCHASE PRICE OF THE PRODUCT OR, AT THE ELECTION OF WILLOWOOD, LLC OR SELLER, THE REPLACEMENT OF THE PRODUCT.**

Willowood, LLC and Seller offer this product, and Buyer and User accept it, subject to the foregoing Conditions of Sale and Limitation of Warranty and Liability, which may not be modified except by written agreement signed by a duly authorized representative of Willowood, LLC.

EPA Pending