

# Willowood THIOBEN 8EC

THIOBENCARB

GROUP

8

HERBICIDE

For Use on Rice except in California.

Not for Use in California.

**Active Ingredient:**

Thiobencarb (S-[(4-chlorophenyl)methyl]

N,N-diethylcarbamothioate) ..... 84.0%

**Other Ingredients:** ..... 16.0%

**TOTAL:** ..... 100.0%

**Willowood Thioben 8EC** is an emulsifiable concentrate containing 8 lbs. thiobencarb per gallon.

Contains petroleum distillate

**By Weight**

**KEEP OUT OF REACH OF CHILDREN  
CAUTION**

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle.

(If you do not understand the label, find someone to explain it to you in detail.)

## FIRST AID

**If Swallowed:** Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person. **If in Eyes:** Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice. **If on Skin or Clothing:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15 to 20 minutes. Call a poison control center or doctor for treatment advice. **If Inhaled:** Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.

## HOTLINE NUMBER

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. For 24-Hour Medical Emergency Assistance (Human or Animal), call: **1-800-222-1222**. For Chemical Emergency Assistance (Spill, Leak, Fire, or Accident), call CHEMTREC: **1-800-424-9300**.

**Note To Physician:** Thiobencarb is a cholinesterase inhibitor. If signs of cholinesterase inhibition appear, atropine is antidotal.

See label booklet for complete Precautionary Statements, Directions For Use, and Storage and Disposal.

EPA Reg. No. 87290-75

**Manufactured For:**

Willowood, LLC

1887 Whitney Mesa Drive, #9740

Henderson, NV 89014-2069

20191220

## **PRECAUTIONARY STATEMENTS**

### **HAZARDS TO HUMANS AND DOMESTIC ANIMALS**

#### **CAUTION**

Harmful if swallowed. Causes moderate eye irritation. Avoid contact with skin, eyes, or clothing. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove and wash contaminated clothing before reuse.

#### **PERSONAL PROTECTIVE EQUIPMENT (PPE)**

##### **Mixers and Loaders must wear:**

- Long-sleeved shirt and long pants
- Chemical-resistant gloves, such as Barrier Laminate, Butyl Rubber  $\geq 14$  mils, Nitrile Rubber  $\geq 14$  mils, or Viton  $\geq 14$  mils
- Chemical-resistant apron
- Shoes plus socks

##### **Applicators and Flaggers using enclosed cabs or enclosed cockpits must wear:**

- Long-sleeved shirt and long pants
- Shoes plus socks

##### **For other handling activities and in case of a spill or other emergency exposure, handlers must wear:**

- Coveralls over long-sleeved shirt and long pants
- Chemical-resistant gloves, such as Barrier Laminate, Butyl Rubber  $\geq 14$  mils, Nitrile Rubber  $\geq 14$  mils, or Viton  $\geq 14$  mils
- Chemical-resistant footwear
- Chemical-resistant apron, when cleaning equipment.

See **ENGINEERING CONTROLS** for additional requirements.

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product. Do not reuse them. 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.

**All workers must wear:** Waterproof footwear plus socks when entering flooded fields following treatment.

## ENGINEERING CONTROLS

### Mixers and loaders must either:

When making application of **Willowood Thioben 8EC** using aerial application equipment, mixers and loaders are required to use closed systems. The closed system must be used in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4)]. Applicators and flaggers are required to use enclosed cabs or enclosed cockpits. The closed system must be used in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(5-6)].

## USER SAFETY RECOMMENDATIONS

### Users should:

- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling the product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

## ENVIRONMENTAL HAZARDS

This product is toxic to shrimp. For terrestrial uses, do not apply directly to water except as directed on this label, to areas where surface water is present or to intertidal areas below the mean high-water mark. Do not contaminate water when disposing of equipment washwaters.

The use of this product on rice is restricted to protect the endangered fat pocketbook pearly mussel (*Potamilus capax*) and its habitat. See '**RESTRICTIONS**' under the '**PRODUCT INFORMATION**' section of this label.

## PHYSICAL/CHEMICAL HAZARDS

Combustible. Do not store near heat or open flame.

Do not mix or allow coming in contact with oxidizing agents, hazardous chemical reaction may occur.

### **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 7 days.**

PPE required for entry within 24 hours after application 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 waterproof materials
- Waterproof footwear plus socks

PPE required for entry from 24 hours until 7 days following application 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:

- Long-sleeved shirt and long pants
- Waterproof footwear plus socks

## DIRECTIONS FOR USE

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

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.

## PRODUCT INFORMATION

**Willowood Thioben 8EC** is an herbicide to be applied for pre-plant, late pre-emergence or post-emergence control of labeled weeds in rice. **Willowood Thioben 8EC** provides residual control of some listed weeds for up to 5 weeks. Temporary injury to seedling rice may result under certain conditions.

## RESTRICTIONS:

- Not registered for use or sale in California.
- DO NOT make application of this product through any type of irrigation system.
- **Arkansas:** The below use prohibitions apply in the counties of Cross, Lee, Mississippi, Poinsett and St. Frances:
  - 1) Do not apply **Willowood Thioben 8EC** aerially within one mile of the St. Francis Floodway (west branch of St. Francis River) where the fat pocketbook pearly mussel is known to exist;
  - 2) Do not apply **Willowood Thioben 8EC** by ground within 1,000 feet of the St. Francis Floodway where the fat pocketbook pearly mussel is known to exist;
  - 3) Do not flood rice fields for at least 3 days following application, and do not drain fields for at least 7 days after flooding a treated field in areas where waters drain into the St. Francis Floodway where the fat pocketbook pearly mussel is known to exist; and
  - 4) There are on-going distributional surveys of the fat pocketbook pearly mussel habitat. If these surveys find additional populations in the St. Francis Floodway, or other waters, the same restrictions would apply to these waters.
- **Louisiana:** DO NOT make application of this product south of the Intracoastal Waterway.
- **Texas:** DO NOT make application of this product within two (2) miles from the shorelines of Matagorda Bay.
- **Texas:** DO NOT make application of this product within two (2) miles from the shorelines of Galveston Bay.
- DO NOT make application of **Willowood Thioben 8EC** to fields with exposed seed as exposed seed will be killed.
- DO NOT make application to stressed rice.
- DO NOT make application of **Willowood Thioben 8EC** as a pre-emergence treatment to cracked soil.

- DO NOT make application of more than 2.5 pts. of **Willowood Thioben 8EC** per acre when making application by air east of the Rocky Mountains.
- DO NOT make application of more than 4 lbs. active ingredient per acre per year.
- Refer to the '**ENGINEERING CONTROLS**' section when making application of **Willowood Thioben 8EC** by air.
- DO NOT make application to rice paddies where commercial catfish or crayfish farming is practiced.
- DO NOT make application of this product on rice fields adjacent to catfish or crayfish ponds.
- DO NOT allow product to drift into catfish, crayfish, shrimp or minnow ponds.
- DO NOT release permanent flood water within 14 days of application of this product (where weather permits) when making application to rice fields.
- DO NOT make application of this product within 24 hours of rainfall, or when heavy rain is expected to occur within 24 hours of application.
- DO NOT mix/load or otherwise handle **Willowood Thioben 8EC** within 100 feet of aquatic habitat.
- DO NOT make application under conditions that could result in possible drift to food, forage or other plantings that might damage the crops or render the crops unfit for sale, use or consumption.
- Avoid drift to non-target areas.
- DO NOT make application when temperatures exceed 95°F.
- DO NOT double spray the ends of the field or allow spray overlap.
- Use of liquid nitrogen, zinc, surfactants, or other spray additives with **Willowood Thioben 8EC** is done at the sole risk of the applicator.
- DO NOT make application to a second stubble rice crop.
- DO NOT use water that has been drained directly from treated fields to irrigate other crops.
- DO NOT make application of **Willowood Thioben 8EC** in combination with propanil within 14 days prior to or after organophosphate or carbamate insecticide application.
- DO NOT use **Willowood Thioben 8EC** in rice fields that have been land leveled in the past 18 months where there are severe cuts and heavily filled areas (this does not apply to normal maintenance leveling).
- DO NOT use **Willowood Thioben 8EC** on fields that have been water seeded where chicken litter has been applied or had large amounts of green vegetative residue incorporated in the past 10 months.
- DO NOT mix with any product containing a label prohibition against such mixing.

## PRECAUTIONS:

- Applying this product to rice that is stressed can lead to reduction in crop stand, chlorosis, inhibition of growth, delayed maturity and/or leaf desiccation. Stress conditions include, but are not limited to: daily temperatures below 65°F or above 95°F, soils with identified issues, (for example, Zn deficiency, high salt content, high pH), excessive moisture above field capacity while rice seed is germinating, drought conditions, fields that are poorly drained, or deep water following application or application of herbicide(s) either before or after **Willowood Thioben 8EC** application. Practices to manage stress include determining rice plant vigor by inspecting both top growth and root growth before applying herbicides.

## RESISTANCE MANAGEMENT

**Willowood Thioben 8EC** contains thiobencarb and is classified in the thiocarbamate chemical class as a Group 8 herbicide, lipid synthesis inhibitor.

Herbicide resistance is defined as the inherited ability of a plant to survive and reproduce following exposure to a dose of herbicide normally lethal to the wild type. In a plant, resistance may be naturally occurring or induced by such techniques as genetic engineering or selection of variants produced by tissue culture or mutagenesis. Any weed population may contain or develop plants that are naturally resistant to **Willowood Thioben 8EC** and other Group 8 herbicides. Weed species with acquired resistance to Group 8 herbicides may eventually dominate the weed population if Group 8 herbicides are used repeatedly in the same field or in successive years as the primary method of control for targeted species. This may result in partial or total loss of control of those species by **Willowood Thioben 8EC** or other Group 8 herbicides.

To delay herbicide resistance, consider the below best practices for resistance management:

- Plant into weed-free fields and keep fields as weed-free as possible.
- To the extent possible, use a diversified approach toward weed management. Whenever possible, incorporate multiple weed-control practices such as mechanical cultivation, biological management practices, and crop rotation.
- Fields with difficult to control weeds should be rotated to crops that allow the use of herbicides with alternative mechanisms of action or different management practices.
- To the extent possible, do not allow weed escapes to produce seeds, roots or tubers. Manage weed seeds at harvest and post-harvest to prevent a buildup of the weed seed-bank.
- Prevent field-to-field and within-field movement of weed seed or vegetative propagules. Thoroughly clean plant residues from equipment before leaving fields.
- Prevent an influx of weeds into the field by managing field borders.
- Identify weeds present in the field through scouting and field history and understand their biology. The weed-control program should consider all of the weeds present.
- Difficult to control weeds may require sequential applications of herbicides with differing

mechanisms of action.

- Apply this herbicide at the correct timing and rate needed to control the most difficult weed in the field.
- Use a broad-spectrum soil-applied herbicide with a mechanism of action that differs from this product as a foundation in a weed-control program. Do not use more than one application of this or any other herbicide with the same mechanism of action within a single growing season unless mixed with an herbicide with another mechanism of action with an overlapping spectrum for the difficult-to-control weeds.
- If resistance is suspected, treat weed escapes with an herbicide with a different MOA or use non-chemical methods to remove escapes.
- Monitor treated weed populations for loss of field efficacy.
- Scout field(s) before and after application.
- Report lack of performance to registrant or their representative.

Indicators of possible herbicide resistance include: (1) failure to control a weed species normally controlled by the herbicide at the dose applied, especially if control is achieved on adjacent weeds; (2) a spreading patch of non-controlled plants of a particular weed species; (3) surviving plants mixed with controlled individuals of the same species.

Contact your local sales representative, extension agent, or certified crop advisors to find out if suspected resistant weeds to this MOA have been found in your region. If resistant biotypes of target weeds have been reported, use the application rates of this product specified for your local conditions. Tank mix products so that there are multiple effective mechanisms of action for each target weed.

### **Integrated Pest Management**

Integrate **Willowood Thioben 8EC** into an overall pest management strategy whenever the use of an herbicide is required. Practices known to aid in pest management include scouting, proper weed identification and proper application timing and should be followed wherever possible. Consult local agricultural or weed control experts for additional IPM strategies established for your area and to understand treatment thresholds and application timing for your area.

### **ENVIRONMENTAL CONDITIONS AND BIOLOGICAL PERFORMANCE**

**Willowood Thioben 8EC** may be used in a comprehensive weed control program in conjunction with resistance management and integrated pest management strategies. **Willowood Thioben 8EC** works by inhibiting lipid synthesis. If applied to a clean, well-prepared seedbed, **Willowood Thioben 8EC** will prevent the emergence of most susceptible weeds. Rainfall or irrigation is needed to move **Willowood Thioben 8EC** into the soil for best results from an application made before susceptible weeds have emerged.



## ROTATIONAL CROP RESTRICTIONS

Do not plant subsequent crops within 6 months of last application in fields that have been treated.

## SPRAY DRIFT MANAGEMENT

Avoiding spray drift at the application is the responsibility of the applicator and the grower. The interaction of many equipment- and weather-related factors determines the potential for spray drift. The applicator and the grower are responsible for considering these factors when making application decisions. Where states have more stringent regulations, they must be observed.

### Droplet Size Information

Reduce drift potential by applying droplets of size >150 - 200 microns. The optimum drift management strategy is to apply the largest droplets that will provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift when applications are made improperly, or under unfavorable environmental conditions (see **Wind, Temperature and Humidity**, and **Temperature Inversions**).

### Controlling Spray Droplet Size

**Volume** – Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows usually produce larger droplets.

**Pressure** – Do not exceed the nozzle manufacturer's recommended pressures. For many nozzle types, lower pressure produces larger droplets. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.

**Nozzle Type** – Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift.

**Number of Nozzles** – Use the minimum number of nozzles that provide uniform coverage.

**Nozzle Orientation** – The recommended practice is to orient nozzles so that the spray is released parallel to the airstream. This orientation usually produces larger droplets as compared to other nozzle orientations. Significant nozzle deflection from horizontal will reduce droplet size and increase drift potential.

**Maintenance of Nozzles** – Periodic inspection and subsequent replacement of nozzles to ensure proper chemical application is recommended.

### Boom Length

For some use patterns, reducing the effective boom length to less than 75% of the wingspan or rotor length may further reduce drift without reducing swath width.

## **Application Height**

Applications should not be made at a height greater than 10 feet above the top of the largest plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

## **Swath Adjustment**

When applications are made with a crosswind, the swath will be displaced downwind. Therefore, on the upwind and downwind edges of the field, the applicator must compensate for this displacement by the path of the aircraft upwind. Swath adjustment or offset distance should increase when conditions favor increased drift potential (higher winds, smaller droplets etc.).

## **Wind**

Variable wind speeds with changing directions pose the potential for drift damage if crops other than rice are adjacent to the field to be sprayed. Drift potentials are lowest between wind speeds of 2 to 10 miles per hour. However, many factors, including droplet size and equipment type determine drift potential at any given wind speed. Do not apply when wind speed is below 2 mph due to variable wind direction and high inversion potential. Note that local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

## **Temperature and Humidity**

When making applications in conditions of low relative humidity set-up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

## **Temperature Inversions**

Do not spray at times when spray particles may be entrained into a temperature inversion layer. If inversion conditions are suspected, consult with local weather services before making an application. Applications should not occur during a temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversion. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversion can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

## Sensitive Areas

The pesticide must only be applied when the wind is blowing away from sensitive areas (e.g., residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops). For additional information on sensitive areas, please see the “**ENVIRONMENTAL HAZARDS**” section of this label.

## MIXING & SPRAYING EQUIPMENT PREPARATION

**DO NOT MIX** chlorine bleach with ammonia. All liquid fertilizers that contain ammonia, ammonium nitrate or ammonium sulphate residues must be rinsed from the mixing and application equipment with water prior to adding chlorine bleach solution. Mixing chlorine bleach with ammonia will release a gas with a musty chlorine odor that may cause eye, nose, and throat and lung irritation. Do not clean equipment in an enclosed area.

Before using **Willowood Thioben 8EC** thoroughly drain, clean and rinse all tank mix and spray equipment that will be used in **Willowood Thioben 8EC** application. Follow the clean-up procedures that are recommended by the manufacturer of the product that was used previously. If all deposits are not removed this may lead to residue build up, inhibit spray equipment clean up following application with **Willowood Thioben 8EC** and could also result in reduced efficacy and/or crop injury.

## Mixing Instructions:

1. Fill the tank  $\frac{1}{2}$  full with clean water as the carrier and start agitation.
2. Add a defoamer before adding the surfactant if foaming is expected. Add the specified amount of **Willowood Thioben 8EC**.
3. Then add tank mix partner(s) in the order below:
  - a) Water soluble packets (WSP) - add prior to the surfactant if possible
  - b) Water dispersible granules (WDG)/wetable powders (WP)
  - c) Soluble powders/UAN
  - d) Suspension concentrates (SC)
  - e) Emulsifiable concentrate (EC)
4. Fill the remainder of the tank with water.
5. Only mix the amount of spray volume that can be applied the same day of mixing. Apply **Willowood Thioben 8EC** within 12 hours of mixing.

## Application Equipment

Application equipment must be clean and functioning properly. Calibrate the sprayer properly prior to use and check frequently for accuracy. It is important to adjust spray nozzles and space them evenly for complete coverage. Use spray nozzles that deliver the recommended volume. Use the manufacturer's recommended pressure range for the selected nozzle.

## SPRAY EQUIPMENT CLEAN-OUT

Adverse crop response or effects could result on crops that are sprayed subsequently if herbicide residues remain in or on spray equipment. Thoroughly drain, clean and rinse all mixing and spray application equipment (including tanks, booms, hoses, strainers, screens and nozzles) immediately following use with the procedure below:

1. Remove all physical residue.
2. Thoroughly drain equipment and rinse tanks, booms and hoses with clean water.
3. Fill the tank half full with clean water and use a tank cleaner that does not contain chlorine. Turn on agitator and allow to circulate according to the directions of the cleaner manufacturer. Thoroughly flush the boom and hoses prior to draining.
4. Thoroughly rinse all hoses, tanks, nozzles, strainers and booms with clean water to remove the tank cleaner following the directions provided by the tank cleaner manufacturer.
5. Remove the strainers, nozzles and screens, and clean and rinse separately.
6. Rinse the tank thoroughly with clean water and flush water through the boom, nozzles, and hoses.
7. Dispose of the rinsate on site or at an approved waste disposal facility according to local regulation.

### Soil Characteristics and Application Rates

Soil Texture	Willowood Thioben 8EC Use Rates Pts./Acre
<b>Coarse:</b> Sandy Loam	2.5 - 3
<b>Medium:</b> Loam, Silt Loam, Silt, Sandy Clay Loam	3 - 4
<b>Fine:</b> Clay, Clay Loam, Sandy Clay, Silty Clay, Silty Clay Loam	3 - 4

**LIST OF PRE-EMERGENCE WEEDS CONTROLLED & SUPPRESSED**

<b>Common Name</b>	<b>Scientific Name</b>	<b>Willowood Thioben 8EC Use Rate Pts./Acre</b>
Barnyardgrass	<i>Echinochloa crus-galli</i>	4 (4.0 lbs. a.i./A)
Crabgrass, Large	<i>Digitaria sanguinalis</i>	
Dayflower	<i>Commelina communis</i>	
Ducksalad	<i>Heteranthera limosa</i>	
Eclipta	<i>Eclipta alba</i>	
False Pimpernel	<i>Lindernia dubia</i>	
Flatsedge		
Redroot	<i>Cyperus erythrorhizos</i>	
Rice	<i>Cyperus iria</i>	
Goosegrass	<i>Eleusine indica</i>	
Gooseweed	<i>Sphenoclea zeylanica</i>	
Hoorahgrass	<i>Fimbristylis</i> spp.	
Junglerice	<i>Echinochloa colona</i>	
Panicum, Fall	<i>Panicum dichotomiflorum</i>	
Red Rice*	<i>Oryza sativa</i>	
Redstem (Purple Ammannia)	<i>Ammannia coccinea</i>	
Signalgrass, Broadleaf	<i>Urochloa platyphylla</i>	
Spikerush		
Amazon	<i>Leptochloa panicoides</i>	
Bearded	<i>Leptochloa fascicularis</i>	
Waterhyssop	<i>Bacopa rotundifolia</i>	

\*Suppression only – See “APPLICATION USE RATES AND TIMING”.

**WILLOWOOD THIOBEN 8EC APPLICATION INSTRUCTIONS, RATES, AND TIMING TO RICE Water-Seeded Rice - Red Rice Suppression and Sprangletop Control (Pre-Plant, Non-Incorporated):** Make application of **Willowood Thioben 8EC** at 4 pts./A (4.0 lbs. a.i./A) to seedbeds that are well prepared and preferably have been mechanically ridged where the drains have been plowed. Apply immediately after soil preparation (prior to any weed germination). If rain should happen after soil preparation, delay application of **Willowood Thioben 8EC** until the soil has been allowed to dry enough to support tillage operations and there is no standing water. Red Rice or Sprangletop plants that are not killed by seedbed preparation and Red Rice or Sprangletop seed that have germinated prior to **Willowood Thioben 8EC** application will not be controlled. Flood the field between 2 and 3 days following the **Willowood Thioben 8EC** application. Do not drag the field or disturb the treated seedbeds after flooding. Wait at least 24 hours after the field has been brought to flood level before seeding. Consult and follow the State Extension Service recommendations regarding seeding rate, seeding time post flood and drainage of seeding flood. For season-long weed control, supplemental herbicide applications may be required.

Rice plants may be injured or killed in areas that do not completely drain when the seeding flood is removed. See the “**PRODUCT INFORMATION**” section for additional restrictions, precautions and information. Start draining the field when the first leaf is about ¼ to ½ inch long. For Red Rice suppression, normal pin-point flood cultural practices (not flush or continuous flood culture) should be followed with the post-seeding drainage period not to exceed 3 to 5 days. A pre-plant nitrogen application enhances the program by promoting fast growth. For an integrated approach and best long-term management of Red Rice, Sprangletop and other rice weeds, the planting of early season varieties of rice as soon as possible after soil temperatures are favorable; fall preparation of rice land involving deep-plowing and subsequent shallow cultivations; and rotational schemes involving fallow, pasture and/or other non-crops are essential. Rice injury and/or stand thinning may result, especially when germinating rice plants are subjected to conditions of stress.

**Drill Seeded Rice Only (Delayed Pre-Emergence):** Make application of **Willowood Thioben 8EC** at 4 pts./A (4.0 lbs. a.i./A) to a well-prepared moist seedbed. Seal the soil by flushing or rainfall before making application of **Willowood Thioben 8EC**. **Note:** For delayed pre-emergence application to drill seeded rice, rice seed must germinate (have a primary root at least ½ inch long) before applying **Willowood Thioben 8EC**.

**Dry Seeded Rice (Post-Emergence):** Make application of **Willowood Thioben 8EC** at 4 pts./A (4.0 lbs. a.i./A) to moist soil or fields that have been flooded. Post-emergence application to rice that has been drill seeded may be made after emergence. If tank mixing, follow tank mix partner’s timing and adjuvant recommendations. It is the pesticide user’s responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions

and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

**Water-Seeded Rice (Post-Emergence):** Make application of **Willowood Thioben 8EC** to moist soil or flooded fields at 4 pts./A (4.0 lbs. a.i./A). An application made post-emergence may be applied to rice that is in at least the 2-leaf (second leaf fully expanded) stage of growth.

**Sequential Application Program (Delayed Pre-Emergence Application Followed by Post-Emergence Application):** **Willowood Thioben 8EC** may be applied in sequential application at 4 pts./A (4.0 lbs. a.i./A) if the total annual use rate does not exceed 4.0 lbs./A of thiobencarb.

**Tank Mix Application:** Application of **Willowood Thioben 8EC** at 4 pts./A (4.0 lbs. a.i./A) may be made in tank mix combination with labeled use rates of the products listed in the “**Pre-Emergence Tank Mix Partners**” and “**Post-Emergence Tank Mix Partners**” tables. It is the pesticide user’s responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

#### **RESTRICTIONS:**

- Do not apply more than one application per acre per year.
- Do not apply more than 4 pts./A (4.0 lbs. a.i./A) per year.

#### **PRECAUTIONS:**

Making application to rice plants that are stressed may result in stand reduction, chlorosis, growth inhibition, delayed maturity and/or leaf desiccation. Stress factors include, but are not limited to the following: Daily temperature below 65°F or above 95°F, problem soils, (i.e., Zn deficiency, high salt content, high pH), excessive moisture, (i.e., above field capacity while rice seed is germinating), drought conditions, poor field drainage, deep water after application, or application of herbicide(s) either before or after **Willowood Thioben 8EC** application.

### **WATER MANAGEMENT**

Flush the fields as needed following application to prevent crusting and drying of the soil. Fields should be flooded as soon as the rice plants will tolerate permanent flooding. Do not release permanent flood water within 14 days following application.

### **APPLICATION EQUIPMENT**

**Aerial Application:** Make application of **Willowood Thioben 8EC** in a minimum of 10 gals. spray volume per acre. Do not make application of more than 2 ½ pts. of **Willowood Thioben 8EC** per acre when making application by air east of the Rocky Mountains.

**Ground Application:** Make application in a minimum of 10 gallons of total spray volume per acre.

### Pre-Emergence Tank Mix Partners

Always read and follow label instructions for all products tank mixed with **Willowood Thioben 8EC**. It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture. The following herbicide products may be tank mixed with **Willowood Thioben 8EC** for delayed pre-emergence use in rice:

clomazone	imazethapyr	quinclorac
glyphosate	clomazone + quinclorac	
imazosulfuron	pendimethalin	

### Post-Emergence Tank Mix Partners

Always read and follow label instructions for all products tank mixed with **Willowood Thioben 8EC**. The following herbicide products may be tank mixed with **Willowood Thioben 8EC** for post-emergence use in rice:

2,4-D	triclopyr	clomazone + quinclorac
carfentrazone-ethyl	penoxsulam	propanil <sup>1,2</sup>
quinclorac + carfentrazone-ethyl	imazosulfuron	bispyribac-sodium
quinclorac + imazethapyr	bensulfuron methyl	propanil + thiobencarb
cyhalofop	imazethapyr	fenoxaprop-p-ethyl
clomazone		

<sup>1</sup>Rice seedlings that have succulent growth may exhibit temporary foliar burn that may be greater than conventional propanil treatments, but the plants usually recover after 10 to 14 days.

<sup>2</sup>Do not mix **Willowood Thioben 8EC** with liquid nitrogen or surfactants when applied alone or when tank mixed with propanil.



## DELAYED PHYTOTOXICITY SYNDROME (DPS)

Use of **Willowood Thioben 8EC** in rice fields that develop anaerobic (low oxygen content) soil conditions after planting, in the presence of certain fungi that dechlorinate benzene rings (ex. **Willowood Thioben 8EC**, propanil, 2,4-D, etc.), may reduce plant stand and/or yield. Anaerobic soil conditions are likely to result when:

- green matter and/or crop residue is plowed or worked into the soil before planting,
- there is poor field percolation and internal soil drainage is slow,
- there is a continuous flood,
- there are areas in the field that retain water during periods of prescribed flood removal.

Delayed Phytotoxic Syndrome (DPS), that results under low oxygen soil conditions, is associated with the following symptoms in rice plants:

- dark green foliage and/or
- reduced plant height and/or
- plant deformation

To allow for soil oxygenation at the first symptoms of DPS, be prepared to drain the treated field(s).

The following is a list of management practices that will help to reduce these situations and promote good soil conditions for the production of healthy rice plants when using **Willowood Thioben 8EC**:

- Destroy residues of previous crop and weed by:
  - Burning where allowed by State regulations.
  - Fall and winter plowing.
  - Applying a “burndown” herbicide to prevent vegetation buildup following initial ground preparation and before final seedbed preparation (such as glyphosate or paraquat).
- Apply fertilizer according to soil test results.
- Do not apply phosphorous in excess.
- Implement uniform leveling practices that eliminate low spots in the field and drain the field in its entirety for prescribed flood removal periods. When contour levees are used, this is far more difficult. Fields that have been precision leveled for perimeter ditches or straight levees are more suited to the intense water management practices required for the red rice suppression, pinpoint flood program.
- Maintain uniform flood depth of 2” to 4”.
- Accurately calibrate application equipment, eliminating application overlap and do not exceed labeled use rates.

Rice fields that are water-seeded and treated with **Willowood Thioben 8EC** pre-plant or post-flood should be inspected on a regular schedule through the stand establishment and seedling

growth stages. If there are signs of the Delayed Phytotoxicity Syndrome symptoms resulting from low oxygen soil conditions (refer to section above), drain the flood immediately and allow the soil to oxygenate with no standing water for 3 to 5 days. Then reflood the field. Low spots where water is not drained completely may continue to display phytotoxic symptoms.

SPECIMEN

## STORAGE AND DISPOSAL

**DO NOT** contaminate water, food, or feed by storage or disposal.

**PESTICIDE STORAGE:** Keep pesticide in original container. Do not put concentrate or dilute into food or drink containers. Store in cool, dry place. Protect from excessive heat.

**PESTICIDE DISPOSAL:** Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

### **CONTAINER HANDLING:**

**Non-refillable containers (5 gallons or less):** Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. 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  $\frac{1}{4}$  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 reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

**Non-refillable containers (greater than 5 gallons):** Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container  $\frac{1}{4}$  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. 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 reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

**Returnable/Refillable Containers:** Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents into application equipment or mix tank. Fill the container about 10% full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

## **IMPORTANT: READ BEFORE USE**

### **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 unopened product container at once. By using the product, user or buyer accepts the following Conditions, Disclaimer of Warranties and Limitations of Liability.

**CONDITIONS:** The directions for use of this product are believed to be adequate and must be followed carefully. However, it is impossible to eliminate all risks associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or the manner of use or application, all of which are beyond the control of Willowood, LLC. To the extent consistent with applicable law, such risks shall be assumed by the user or buyer.

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