

ZEMBU™

HERBICIDE

For use as a selective herbicide for weed control in water-seeded rice in California only.

ACTIVE INGREDIENT:

Pyraclonil: 1-(3-Chloro-4,5,6,7-tetrahydropyrazolo[1,5-a]pyridin-2-yl)-5-(methyl-2-propyn-1-ylamino)-1H-pyrazole-4-carbonitrile **1.80%**

OTHER INGREDIENTS: **98.2%**

TOTAL **100.0%**

Contains 0.018 lb pyraclonil per pound of product

EPA Reg. No. 71711-63

EPA Est. No. 39578-TX-1 ^(E) 70815-GA-002 ^(CB)
 superscript corresponds to lot number

KEEP OUT OF REACH OF CHILDREN WARNING - AVISO

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 in eyes	<ul style="list-style-type: none"> • Hold eye open, and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes; then continue rinsing eye. • Call a poison control center or doctor for further treatment advice.
If on skin or clothing	<ul style="list-style-type: none"> • Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for further treatment advice.
If swallowed	<ul style="list-style-type: none"> • Call 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 the poison control center or doctor. • DO NOT give anything by mouth to an unconscious person.
If inhaled	<ul style="list-style-type: none"> • Move person to fresh air. • If person is not breathing, call 911 or an ambulance; then give artificial respiration, preferably by mouth-to-mouth, if possible. • Call a poison control center or doctor for further treatment advice.

HOTLINE NUMBER

Have the product container or label with you when calling a poison control center (1-800-222-1222) or doctor or going for treatment. For additional information on this pesticide product, including human health concerns and medical emergencies, call 1-800-348-5832. For general information on this product, contact the National Pesticides Information Center (NPIC) at 1-800-858-7378, Monday through Friday, 8:00 am to 12:00 pm PST or at <http://npic.orst.edu>.

See inside booklet for Precautionary Statements and Directions for Use

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

WARNING – AVISO

Causes substantial but temporary eye injury. **DO NOT** get in eyes or on clothing. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Avoid contact with skin. Harmful if swallowed, absorbed through skin, or inhaled. Wear protective eyewear (goggles, face shield, or safety glasses). 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.

HANDLER PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear the following:

- Protective eyewear
- Long-sleeved shirt and long pants
- Shoes plus socks
- Waterproof gloves

See **Engineering Controls** for additional requirements.

User Safety Requirements

Follow the 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

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.

User Safety Recommendations

Users should:

- Wash hands thoroughly with soap and water before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing/PPE immediately if pesticide gets inside. Then wash skin 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 wildlife. With the exception of treating rice fields as specified in this label, **DO NOT** apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. **DO NOT** apply where runoff is likely to occur. **DO NOT** contaminate arable land and/or water when cleaning equipment or disposing of equipment washwaters or rinsate.

DIRECTIONS FOR USE

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

ENDANGERED AND THREATENED SPECIES PROTECTION REQUIREMENTS

Before using this product, you must obtain any applicable Endangered Species Protection Bulletins ('Bulletins') within six months prior to or on the day of application. To obtain Bulletins, go to Bulletins Live! Two (BLT) at <https://www.epa.gov/pesticides/bulletins>. When using this product, you must follow all directions and restrictions contained in any applicable Bulletin(s) for the area where you are applying the product, including any restrictions on application timing if applicable. It is a violation of federal law to use this product in a manner inconsistent with its labeling, including this labeling instruction to follow all directions and restrictions contained in any applicable Bulletin(s). For general questions or technical help, call 1-844-447-3813, or email ESPP@epa.gov.

USE STRICTLY IN ACCORDANCE WITH PRECAUTIONARY STATEMENTS AND DIRECTIONS FOR USE.

DO NOT apply this product in a way that will contact workers or other people, 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 state or tribal agency responsible for pesticide regulation.

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), restricted-entry interval, and notifications to workers.

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

For early entry into 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, wear:

- Protective eyewear
- Coveralls
- Shoes plus socks
- Waterproof gloves

PRODUCT INFORMATION

ZEMBU™ Herbicide is a contact herbicide formulated as a granule suitable for selective pre- and early postemergence weed control. When applied according to label directions, it is effective in the control of susceptible grass, sedge, and broadleaf weeds in water-seeded rice. **ZEMBU** Herbicide is formulated using dust-free inert carrier granules (dust index <0.3).

To achieve optimal weed control, apply **ZEMBU** Herbicide to water-seeded rice prior to or at day of seeding (DOS). Apply **ZEMBU** Herbicide by air using fixed-wing or rotary aircraft. Calibrate equipment to ensure uniform distribution of granules.

Efficacy may depend on the following parameters:

- Weed stage of growth
- Growing and environmental conditions (e.g., excess soil moisture, rain, and temperature) prior to and following treatment
- Water management

Pyraclonil, the active ingredient in **ZEMBU** Herbicide, is a Group 14 herbicide based on the mode of action classification system of the Weed Science Society of America. Pyraclonil inhibits the plant enzyme protoporphyrinogen oxidase (PPO), leading to cell membrane disruption and ultimately plant death.

WEED RESISTANCE MANAGEMENT

For resistance management, **ZEMBU** Herbicide is a Group 14 herbicide. Any weed population may contain or develop plants naturally resistant to **ZEMBU** Herbicide and other Group 14 (PPO) herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Appropriate resistance management strategies should be followed.

ZEMBU Herbicide and other pesticides should be incorporated into an Integrated Pest Management (IPM) program that can include the use of cultural, biological, and other chemical practices to prevent economical pest damage. Effective IPM practices include the use of weed-free seed, proper scouting and identification of weeds within each paddy, optimum water management, pesticide treatment at the appropriate target stage, and mechanical weed control when appropriate. This list is not inclusive and should be used in conjunction with other practices to further prevent resistance development.

To delay herbicide resistance, take one or more of the following steps:

- Always apply **ZEMBU** Herbicide at its intended use rate of 14.9 lb formulated product per acre per year (0.268 lb pyraclonil active ingredient per acre per year).
- Avoid following a PPO-inhibiting herbicide application with another herbicide application of the same mode of action unless in tank mixture with a product with a different mode of action.
- The use of PPO herbicides in consecutive years should be done in conjunction with herbicides containing other modes of action.

- Monitor escaped weeds and control them before they can produce seed.
- Rotate the use of **ZEMBU** Herbicide or other Group 14 herbicides within a growing season sequence or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group if such use is permitted; where information on resistance in target weed species is available, use the less resistance-prone partner at a rate that will control the target weed(s) equally as well as the more resistance-prone partner. Consult your local extension service or certified crop advisor if you are unsure as to which active ingredient is currently less prone to resistance.
- Adopt an integrated weed management program for herbicide use that includes scouting and uses historical information related to herbicide use and crop rotation and that considers tillage (or other mechanical control methods), cultural (e.g., higher crop seeding rates; precision fertilizer application method and timing to favor the crop and not the weeds), biological (weed-competitive crops or varieties), and other management practices.
- Users should scout before and after application.
- If a weed pest population continues to progress after treatment with this product, discontinue use of this product, and switch to another management strategy or herbicide with a different mode of action, if available.
- Users should report lack of performance to registrant or their representative.

Suspected herbicide-resistant weeds may be identified by these indicators:

- Failure to control a weed species normally controlled by the herbicide at the dose applied, especially if control is achieved on adjacent weeds;
- A spreading patch of noncontrolled plants of a particular weed species; and
- Surviving plants mixed with controlled individuals of the same species.

Contact your local sales representative, crop advisor, or extension agent to find out if suspected resistant weeds to this MOA has been found in your region.

MANDATORY SPRAY DRIFT REQUIREMENTS

DO NOT apply when wind speeds exceed 10 miles per hour at the application site.

BEST MANAGEMENT PRACTICES

For Levee Management

- Refer to the Rice Production Manual from the University of California for best management practices to minimize perennial weeds, which may attract rodents, and to optimize construction and maintenance of levees to minimize seepage. <https://rice.ucanr.edu/files/288575.pdf> (pages 11.15-11.16).
- Restrictions
 - **DO NOT** apply pyraclonil to rice fields exhibiting visible water seepage that moves offsite into drains that are considered state waters during the water holding period. Seepage is defined as lateral movement of irrigation water through a rice field levee or border to an area outside the normally flooded production area. Seepage can occur through levees into adjacent dry fields or into adjacent drains and canals.
 - Users must ensure the borders surrounding each rice field be compacted before water is allowed to fill the field; the degree of compaction must be sufficient to prevent water from seeping through the border. This requirement applies to new or reworked existing borders for the current rice season. A common border between two existing rice fields does not need to be compacted.

For Water Management

Refer to University of California for best practices for water and irrigation canal management. https://rice.ucanr.edu/Guidelines/Water_Use_Management/.

APPLICATION CHART FOR ZEMBU HERBICIDE

Weeds Controlled		Rate/Acre
Barnyardgrass ¹	<i>Echinochloa crus-galli</i>	14.9 lb (0.268 lb ai)
California arrowhead	<i>Sagittaria montevidensis</i> ssp. <i>Calycina</i>	
Ducksalad	<i>Heteranthera limosa</i>	
Gregg arrowhead	<i>Sagittaria longiloba</i>	
Monochoria	<i>Monochoria</i> spp.	
Redstem	<i>Ammannia</i> spp.	
Smallflower umbrella sedge	<i>Cyperus difformis</i>	
Watergrass, early ¹	<i>Echinochloa oryzoides</i>	
Watergrass, late ¹	<i>Echinochloa phyllopogon</i>	
Water hyssop	<i>Bacopa</i> spp.	
Weeds Suppressed		
Barnyardgrass ²	<i>Echinochloa crus-galli</i>	
Ricefield bulrush	<i>Schoenoplectiella mucronata</i>	
Watergrass, early ²	<i>Echinochloa oryzoides</i>	
Watergrass, late ²	<i>Echinochloa phyllopogon</i>	
Use Directions		
<ul style="list-style-type: none"> • Apply to flooded field prior to or at seeding (DOS). • For application prior to seeding, water must be at a minimum of one-inch deep. • For application at DOS, follow local advice to determine depth of flood. 		
USE RESTRICTIONS		
<ul style="list-style-type: none"> • For Use Only in California. • Overspray to berms/levees should be minimized. • DO NOT apply to wild rice. • DO NOT apply directly or indirectly to crops other than rice. • DO NOT apply where runoff or irrigation water may flow directly onto agricultural land other than rice fields. • DO NOT use treated rice fields for the aquaculture of edible fish and crustaceans. • DO NOT use water directly from treated fields to irrigate other crops. • DO NOT rotate rice treated with ZEMBU Herbicide with any other crop. • DO NOT drain fields for a minimum of 30 days after application. • Users must release waters slowly, not more than 2 inches of water over a drain box weir for seven additional days after the 30-day holding period. • DO NOT apply more than 14.9 lb (0.268 lb ai) per acre in a single application. • DO NOT make more than 1 application per year. • DO NOT apply more than 14.9 lb (0.268 lb ai) per acre per year. • Reentry Interval (REI): 12 hours 		
Notes		
<ul style="list-style-type: none"> • If soil is exposed after application, a reduction in efficacy, weed regrowth, and additional weed emergence may occur. • Occasionally, transient symptoms of chlorosis and slight reduction in vigor may appear on rice, but the crop recovers within a few days without any adverse effect on yield. • Under heavy grass pressure, subsequent applications of grass herbicides may be necessary to achieve optimal control. 		
<p>¹ Control of barnyardgrass, early watergrass, and late watergrass if application of ZEMBU Herbicide is made prior to weed emergence and postemergence to the 1-true leaf weed stage.</p>		
<p>² Suppression only of barnyardgrass, early watergrass, and late watergrass if application of ZEMBU Herbicide is made at the 2-true leaf weed stage or later.</p>		

STORAGE AND DISPOSAL

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

PESTICIDE STORAGE: Store under well-vented, cool, and dry storage conditions.

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

CONTAINER HANDLING: Nonrefillable container. **DO NOT** reuse or refill this container. Completely empty bag into application equipment; then offer for recycling if available or dispose of in a sanitary landfill or by other procedures approved by state and local authorities.

In case of fire or spills, information may be obtained by calling 1-800-424-9300.

IMPORTANT: READ BEFORE USE

By using this product, user or buyer accepts the following conditions, warranty, disclaimer of warranties, and limitations of liability.

CONDITIONS: The directions for use of this product are believed to be accurate and must be followed carefully. However, because of extreme weather and soil conditions, use methods and other factors beyond the control of Nichino America, Inc. (NAI), it is impossible for NAI to eliminate all risks associated with the use of this product. As a result, crop injury or ineffectiveness is always possible. To the extent consistent with applicable law, all such risks are assumed by the user or buyer.

DISCLAIMER OF WARRANTIES: TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED, OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE, WHICH EXTEND BEYOND THE STATEMENTS MADE ON THIS LABEL. No agent of NAI is authorized to make any warranties beyond those contained herein or to modify the warranties contained herein. To the extent consistent with applicable law, NAI disclaims any liability whatsoever for incidental or consequential damages, including, but not limited to, liability arising out of breach of contract, express or implied warranty (including warranties of merchantability and fitness for a particular purpose), tort, negligence, strict liability, or otherwise.

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Nichino America, Inc.
4550 Linden Hill Road, Suite 501
Wilmington, DE 19808
888-740-7700