



Harbinger™

Herbicide

FOR USE IN RICE

Active Ingredient:

pendimethalin: N-(1-ethylpropyl)-3,4-dimethyl-2,6-dinitrobenzenamine 37.4%
Other Ingredients*: 62.6%
Total: 100.0%

(1 gallon contains 3.3 pounds of pendimethalin)

*Contains aromatic naphtha.

EPA Reg. No. 241-337-11656

EPA Est. No. 11656-CA-002

EPA Est. No. 11656-CA-037

KEEP OUT OF REACH OF CHILDREN CAUTION/PRECAUCIÓN

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.)

See inside for complete **First Aid, Precautionary Statements, Directions For Use, Conditions of Sale and Warranty**, and state-specific crop and/or use site restrictions.

In case of an emergency endangering life or property involving this product, call day or night 1-800-832-HELP (4357).

Net Contents: _____

Manufactured for:
Western Farm Service Inc.
P.O. Box 1168
Fresno, CA 93715

FIRST AID

If swallowed	<ul style="list-style-type: none">• Call a poison control center or doctor immediately for treatment advice.• DO NOT give any liquid to person.• 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	<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 first 5 minutes, then continue rinsing eyes.• Call a poison control center or doctor for treatment advice.
If on skin	<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 treatment advice.
NOTE TO PHYSICIAN	
Because of increased risk of chemical pneumonia or pulmonary edema caused by aspiration of the hydrocarbon solvent, vomiting should be induced only under professional supervision.	
HOT LINE NUMBER	
Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact BASF Corporation for emergency medical treatment information: 1-800-832-HELP (4357).	

Precautionary Statements

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION. Causes moderate eye irritation. Harmful if swallowed or absorbed through the skin. Avoid contact with skin, eyes or clothing.

Personal Protective Equipment (PPE)

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for **Category F** on an EPA chemical resistance category selection chart.

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Chemical-resistant gloves made of waterproof materials, such as barrier laminate, butyl rubber \geq 14 mils, nitrile rubber \geq 14 mils, neoprene rubber \geq 14 mils, or viton \geq 14 mils
- Shoes plus socks

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, 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 before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing immediately if pesticide gets inside. 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 product 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 from treated areas may be hazardous to aquatic organisms in adjacent aquatic sites. **DO NOT** contaminate water when disposing of equipment washwaters or rinsate.

Endangered Species Protection

If endangered plant species occur in proximity to the application

site, the following mitigation measures are required:

- If applied by ground, leave an untreated buffer zone of 200 feet. The product must be applied using a low boom (20 inches above the ground) and ASAE fine to medium/coarse nozzles.
- If applied by air, leave an untreated buffer zone of 170 feet. Must use straight-stream nozzles (D-6 or larger); wind can be no more than 8 mph; and release height must be 15 feet or less.

To determine whether your county has an endangered species, consult the website

<http://www.epa.gov/espp/usa-map.htm>.

Endangered Species Bulletins may also be obtained from extension offices or state pesticide agencies. If the bulletin is not available for your specific area, check with the appropriate local state agency to determine if known populations of endangered species occur in the area to be treated.

Directions For Use

It is a violation of federal law to use this product in a manner inconsistent with its labeling. This label must be in the possession of the user at the time of pesticide application.

Observe all cautions and limitations in this label and the labels of products used in combination with **Harbinger™ herbicide**. The use of **Harbinger** not consistent with this label can result in injury to crops, animals, or persons. Keep containers closed to avoid spills and contamination.

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 protection.

DO NOT allow spray to drift from the application site and contact people, structures people occupy at any time and the associated property, parks and recreation areas, nontarget crops, aquatic and wetland areas, woodlands, pastures, rangelands, or animals.

DO NOT enter or allow other people (or pets) to enter the treated area until sprays have dried.

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 **24 hours**.

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 waterproof materials, such as barrier laminate, butyl rubber \geq 14 mils, nitrile rubber \geq 14 mils, neoprene rubber \geq 14 mils, or viton \geq 14 mils
- Shoes plus socks

STORAGE AND DISPOSAL

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

PESTICIDE STORAGE: DO NOT STORE BELOW 40° F.

Extended storage at temperatures below 40° F can result in the formation of crystals on the bottom of the container. If crystallization does occur, store the container on its side at room temperature (70° F) and rock occasionally until crystals redissolve.

PESTICIDE DISPOSAL: Pesticide wastes are toxic. 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 directions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

CONTAINER DISPOSAL:

For Five Gallons and Under: Triple rinse (or equivalent). Then offer for recycling or reconditioning, 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.

For Bulk and Mini-bulk Containers: This container must only be refilled with a pesticide product. **DO NOT Reuse the Container for Any Other Purpose.**

DO NOT transport if the container is damaged, leaking or obsolete. When the container is empty, replace the cap and seal all openings that have been opened during use. Return this container to point of purchase or to a designated location named at the time of the purchase of this product. If not returned to the point of purchase or to a designated location, triple rinse or pressure rinse the empty container and offer for recycling if available.

Cleaning is not necessary prior to refilling with the same product. **However, if the container is refilled with another pesticide product, the container must be cleaned prior to refilling.** Prior to refilling, inspect carefully for damage such as cracks, punctures, abrasions, worn-out threads and closure devices. Check for leaks after refilling and before transporting. If container cannot be refilled, then triple rinse or pressure rinse the empty container and offer for recycling, if available, or disposal.

Clean container before final disposal. Cleaning and disposal of this container must be in compliance with state and local regulations.

General Information

Harbinger™ herbicide is a selective herbicide for controlling most annual grasses and certain broadleaf weeds as they germinate. Refer to **Table 1** for a complete list of controlled weeds. **Harbinger** will not control established weeds.

Unusually cold, excessively wet, or hot and dry conditions that delay germination or extend germination over a long period of time can reduce weed control.

Overapplication can result in crop-stand loss, crop injury, or soil residues.

Uneven application or improper soil incorporation can decrease weed control or cause crop injury. Soil incorporation deeper than recommended can reduce weed control.

Seedling diseases, cold weather, excessive moisture, shallow or deep planting, low or high soil pH, high soil salt concentration, or drought can weaken seedlings and plants and increase the possibility of crop damage from **Harbinger**. Under these conditions, crop yields can be reduced.

Table 1. Weeds Controlled

(see crop sections for additional weeds controlled)

Weeds controlled with Harbinger applied up to 4.8 pts/A	
Grasses	
Annual ryegrass	Italian ryegrass*
Barnyardgrass	Japanese brome*
Canarygrass*	Johnsongrass (seedling)
Cheat*	Jointed goatgrass*
Crabgrass	Oat, wild*
Crowfootgrass	Panicum, fall
Downy brome* (Cheatgrass)	Panicum, Texas
Foxtail, giant	Sandbur, field
Foxtail, green	Shattercane*
Foxtail, yellow	Signalgrass*
Goosegrass	Wild proso millet*
Hairy chess*	Witchgrass
Itchgrass*	Woolly cupgrass*
Broadleaves	
Amaranth, Palmer	Mustard, black
Bugloss, small	Pigweed species
Carpetweed	Purslane
Chickweed, common*	Pusley, Florida
Henbit	Shepherdspurse*
Kochia	Smartweed, Pennsylvania*
Lady's thumb	Spurge, annual
Lambsquarters, common	Velvetleaf*
Lambsquarters, slimleaf	Waterhemp species
London rocket*	
*Suppression.	

Mode of Action

Harbinger is a meristematic inhibitor that interferes with the plant's cellular division or mitosis. This and/or other products with the meristematic inhibiting mode of action may not effectively control naturally occurring biotypes of some of the weeds listed on this label. A weed biotype is a naturally occurring plant within a given species that has a slightly different, but distinct, genetic makeup from other plants. Other herbicides with the meristematic inhibiting mode of action include other dinitroaniline herbicides, such as trifluralin. If naturally occurring meristematic inhibiting resistant biotypes are present in a field, **Harbinger** and/or any other meristematic inhibiting mode of action herbicide should be tank mixed or applied sequentially with an appropriate registered herbicide having a different mode of action to ensure control.

Application Rate

Use rates for **Harbinger™ herbicide** when used alone, in tank mix, or sequential applications are given in **Cropspecific Information**. Use rates of this product vary by soil texture and organic matter. See **Table 2** for soil texture groupings used in this label.

Table 2. Soil Texture Groups

COARSE	MEDIUM	FINE
sands loamy sands sandy loams	sandy clay loams* sandy clays loams silt loams silts	silty clay loams* silty clays clay loams clays
* Sometimes considered transitional soils and may be classified as either medium- or fine-textured soils.		
Peat and Muck soils: Harbinger may be used on peat and muck soils, but weed control may be inconsistent and/or reduced. Use maximum labeled use rate allowed in the specific crop.		

Application Timings

Harbinger will provide most effective weed control when applied by ground or aerial equipment and subsequently incorporated into soil within 7 days after application by rainfall, sprinkler irrigation, or mechanical tillage prior to weed seedling emergence from soil. **Harbinger** is recommended for preemergence or early postemergence treatment. See **Crop-specific Information** for specific application directions.

Preemergence Surface Applications: Broadcast treatment uniformly to the soil surface at planting and up to 2 days after planting. Rainfall, sprinkler irrigation, or shallow mechanical incorporation within 7 days after application is required to move this product into the upper soil surface where weed seeds germinate. If adequate rainfall or irrigation does not occur and weed seedling emergence begins, a shallow cultivation or rotary hoeing will improve performance.

Early Postemergence Applications: **Harbinger** must be applied prior to weed seedling emergence or in a tank mix with products that control the emerged weeds. Refer to **Crop-specific Information** for specific postemergence application recommendations by crop.

Spraying Instructions

Harbinger may be applied using either water or sprayable fluid fertilizer (such as straight 32-0-0 or 28-0-0) as the spray carrier. Sprayable fluid fertilizer as a carrier is **NOT** recommended for use after crop emergence unless the typical fertilizer burn symptoms on the crop are acceptable.

Aerial Applications

Uniformly apply in 5 or more gallons of water per acre. Exercise caution to minimize drift. **DO NOT** apply during periods of gusty winds or when wind conditions favor drifting. Spray drift can cause injury to sensitive crops. It is recommended that a flagman or an automatic mechanical flagging unit on the aircraft be used to avoid overlapping and possible crop injury.

Ground Applications (Broadcast)

Uniformly apply with properly calibrated ground equipment in 10 or more gallons of water per acre or 20 or more gallons of liquid fertilizer per acre. Use sprayers equipped with appropriate nozzles that provide uniform and accurate spray distribution and minimize drift. Keep the bypass line on or near the bottom of the tank to minimize foaming. Nozzle and in-line screens must be no finer than 50 mesh. Application of **Harbinger** during periods of gusty winds may result in uneven applications. **DO NOT** apply **Harbinger** postemergence in liquid fertilizers.

If liquid fertilizer/herbicide(s) mixture separates in the spray tank, clogged equipment and uneven application can result. Always predetermine the compatibility of **Harbinger** alone or with other herbicides based on the following compatibility "jar test":

1. Add 1 pint of fertilizer to a quart jar.
2. Add 1 to 4 teaspoon(s) of the Dry Flowable (DF), Wettable Powder (WP), Aqueous Solution (AS), Flowable (F) or Liquid (L) formulation (depending on mixing ratio required) to the liquid fertilizer. The number of teaspoons of the formulation to add can be determined by the following formula:

$$\frac{\text{lbs or pts of product/acre}}{\text{gallons of fertilizer/acre}} \times 11.4 = \frac{\text{number of teaspoons of herbicide to add to}}{1 \text{ pint of fertilizer}}$$

3. Close the jar and agitate until the herbicide(s) are evenly dispersed in the liquid fertilizer. If the materials **DO NOT** disperse well, it may be necessary to slurry the chemicals in water before adding to the fertilizer.
4. After dispersing the materials, add appropriate number of teaspoons of **Harbinger** to the jar and shake well. Add water soluble concentrate herbicides to the mixture last and agitate. Let the mixture stand for 30 minutes and then observe the results. Look for signs of separation: an oily layer or globules, sludge, flakes or other precipitates.
5. Evaluate compatibility.
 - (a) If the herbicide(s) and liquid fertilizer mixture does not separate, use this mixture in your spray tank.
 - (b) If the mixture separates but mixes readily with shaking, the mixture can be used provided that good agitation is maintained in the spray tank.
 - (c) If separation of the mixture occurs and agitation does not correct this problem, a compatibility agent is needed.
6. If the need for a compatibility agent is demonstrated, the following procedure is recommended: Using a clean quart jar, repeat step 1 above and add ½ teaspoon of the compatibility agent to the liquid fertilizer. Mix well and repeat steps 2, 3 and 4. If separation or precipitation occurs with the compatibility agent, **DO NOT** use **Harbinger™ herbicide** with that specific liquid fertilizer.

Managing Off-Target Movement

SPRAY DRIFT

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment and weather-related factors determines the potential for spray drift. The applicator and grower are responsible for considering all these factors when making decisions. It is the responsibility of the applicator to avoid spray drift onto nontarget areas.

The following drift management requirements must be followed to avoid off-target drift movement from aerial applications to agricultural field crops:

1. The distance of the outermost nozzles on the boom must not exceed $\frac{3}{4}$ the length of the wingspan or rotor.
2. Nozzles must always point backward parallel with the air stream and never be pointed downwards more than 45 degrees.

Where states have more stringent regulations, they should be observed.

The applicator should be familiar with and take into account the information covered in the [Spray Drift Reduction Advisory Information](#) presented below.

INFORMATION ON DROPLET SIZE

The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential but will not prevent drift if applications are made improperly or under unfavorable environmental conditions (see **WIND, TEMPERATURE AND HUMIDITY, and TEMPERATURE INVERSIONS**).

CONTROLLING DROPLET SIZE

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

Pressure - DO NOT exceed the nozzle manufacturer's recommended pressures. For many nozzle types, lower pressure produces larger droplets. When high flow rates are needed, use higher flow rate nozzles instead of increasing pressure.

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

Nozzle Orientation - Orienting nozzles so that the spray is released parallel to the airstream produces larger droplets than other orientations and is recommended practice. Significant deflection from the horizontal will reduce droplet size and increase drift potential.

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- or straight-stream nozzles oriented straight back produce the largest droplets and the lowest drift.

BOOM LENGTH

For some use patterns, reducing the effective boom length to less than $\frac{3}{4}$ 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 up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase with increasing drift potential (higher wind, smaller droplets, etc.).

WIND

Drift potential is lowest between wind speeds of 2 to 10 mph. However, many factors, including droplet size and equipment type, determine drift potential at any given speed. Application should be avoided below 2 mph due to variable wind direction and high inversion potential. **NOTE:** 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 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

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 inversions. 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, inversions 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

This pesticide should only be applied when the potential for drift to adjacent sensitive areas (e.g. residential areas, bodies of water, known habitat for threatened or endangered species, or nontarget crops or plants) is minimal (e.g. when wind is blowing away from the sensitive areas).

General Tank Mixing Information

Harbinger™ herbicide may be applied in a tank mix or a sequential application with other herbicides registered for use in a given crop. Refer to the companion label for weeds controlled in addition to **Harbinger** alone.

When using tank mixtures or sequential applications with **Harbinger**, always read the companion product label(s) to determine the specific use rates by soil types, weed species, and weed or crop growth stage. In addition, follow all precautions and restrictions including state and local use restrictions that may apply to specific products. Always follow the most restrictive label.

Uses with Other Products (Tank Mixes)

If this product is used in combination with any other product except as specifically recommended in writing by WFS, then WFS shall have no liability for any loss, damage, or injury arising out of its use in any such combination not so specifically recommended. If used in combination recommended by WFS, the liability of WFS shall in no manner extend to any damage, loss, or injury not directly caused by the inclusion of the WFS product in such combination use, and in any event shall be limited to return of the amount of

the purchase price of the product. Always perform a mixing test to check the compatibility of **Harbinger** with all potential tank mix partners.

Mixing Instructions

1. Fill tank $\frac{1}{2}$ to $\frac{3}{4}$ full with clean water or liquid fertilizer and agitate. Prior to mixing **Harbinger** or **Harbinger** tank mixtures in liquid fertilizer, refer to appropriate label sections for recommended uses in liquid fertilizer, application instructions, and compatibility determinations. **NOTE: Harbinger will NOT mix in high salt formulation fertilizers, such as 10-34-0. When utilizing high salt formulation fertilizers as the spray carrier, use one of the following:**
 - (a) Pre-slurry **Harbinger** in water prior to adding to tank; use 1:1 ratio of water to **Harbinger**.
 - (b) Add water to fertilizer solution prior to adding **Harbinger**. The amount of water should be equal to or greater than the amount of **Harbinger** to be used.
2. **Harbinger Alone**
When using **Harbinger** alone, add **Harbinger** to the partially filled tank while agitating and then fill the remainder of the tank with water or liquid fertilizer.
3. **Harbinger Tank Mixes**
Add the tank mixture ingredients in the order listed below prior to adding **Harbinger**.
 - (a) **Wettable Powder (WP) formulations** - Make a slurry of the WP in water (1:2 ratio). Add the slurry slowly into the partially filled tank while agitating.
 - (b) **Dry Flowable (DF)/Water Dispersible Granule (WDG) formulations** - Add the granules to the partially filled tank while agitating. Make a slurry of the granules in water before adding to liquid fertilizer.
 - (c) **Flowable (F) formulations** - Add the F formulation to the partially filled tank while agitating.
 - (d) **Water Soluble Concentrate (WSC) formulations** - Add the WSC formulation to the partially filled tank while agitating.
 - (e) **Emulsifiable Concentrate (EC) formulations** - Add the EC formulation to the partially filled tank while agitating.After complete mixing, add **Harbinger** to the tank. Fill the remainder of the tank with water or liquid fertilizer while agitating.
4. Thorough and continuous sprayer-tank agitation **MUST** be maintained during mixing and spraying of **Harbinger**. If the spray mixture is allowed to settle for any period of time, thorough agitation is essential to resuspend the mixture before spraying is resumed. Continue agitation while spraying.

Cleaning Spray Equipment

Clean application equipment thoroughly by using a strong detergent or commercial spray cleaner according to the manufacturer's directions, and then triple rinsing the equipment before and after applying this product.

Restrictions and Limitations

- **DO NOT** exceed the maximum labeled rate for any soil type.
- **Harbinger** will not control established weeds. Destroy emerged weeds prior to application.
- **Harbinger** is most effective in controlling weeds mechanically incorporated or when incorporated into the weed germination zone by adequate rainfall or overhead irrigation after application.
- When using tank mixtures with **Harbinger**, always read the companion product label(s) to determine the specific use rates by soil types, weed species, and weed or crop growth stage. In addition, follow all precautions and

restrictions including state and local use restrictions that may apply to specific products. Always follow the most restrictive label.

- In the event of a crop loss due to adverse weather conditions or other reasons, any crop registered for a preplant incorporated application of **Harbinger** can be replanted without adverse effects the same year (see **Crop-specific Information** for exceptions). If replanting is necessary, **DO NOT** work the soil deeper than the treated zone.
- Refer to **Crop-specific Information** for crop-specific preharvest intervals and feeding and grazing restrictions.

CROP ROTATION RESTRICTIONS

- Use of **Harbinger™ herbicide** in accordance with label directions is expected to result in normal growth of rotational crops in most situations; however, various environmental and agronomic factors, such as arid conditions, make it impossible to eliminate all risks associated with the use of this product and, therefore, rotational crop injury is always possible. Soil characteristics and environmental conditions which may contribute to crop stress that may be accentuated by the use of **Harbinger** include: coarse soils, compaction, high salinity, eroded knolls/hilltops, cold and/or wet soils, drought, and heavy rainfall soon after application.
- When **Harbinger** is used in tank mix or sequential combinations, refer to labels of other herbicides for additional rotational crop restrictions.
- **Restrictions for rotational cropping after the use of Harbinger are dependent on the application use rate of Harbinger in the primary crop. The user should thoroughly read the following restrictions to determine the rotational crops for their specific situation, according to application use rate.**

I. Rotational Crop Restrictions Following

Applications of Harbinger to Field and Row Crops

1. Application Rate less than or equal to 4.8 pts/A (2.0 lb ai/A):

- (a) Crops which are labeled for preplant incorporated application may be planted the same season in which **Harbinger** was applied.

(b) Sugar beets, Red beets and Spinach

To avoid crop injury, **DO NOT** plant sugar beets, red beets or spinach for 12 months following a spring application of **Harbinger** or 14 months following a fall application of **Harbinger**.

These crops should not be planted for 18 months following a spring application of **Harbinger** or 20 months following a fall application of **Harbinger** if rainfall or irrigation was not sufficient to produce a crop.

To ensure thorough mixing of soil prior to planting sugar beets, red beets and spinach, land should be plowed using a moldboard plow to a depth of 12 inches.

(c) Proso millet, Sorghum (milo), and Annual or Perennial grass crops or mixtures

Proso millet, sorghum (milo), and annual or perennial grass crops or mixtures should not be planted for 10 months after a spring application of **Harbinger** or 12 months after a fall application of **Harbinger** except in the following conditions:

In the states of **Minnesota, North Dakota** and **South Dakota**, these crops should not be planted for 18 months following a spring application of **Harbinger** or 21 months following a fall application of **Harbinger**.

To avoid the possibility of crop injury in areas that receive less than 20" of rainfall or irrigation to produce a crop, these crops should not be planted for 18 months following a spring application of **Harbinger** or 20 months following a fall application of **Harbinger** if rainfall or irrigation was not sufficient to produce a field or row crop.

(d) Wheat and Barley

Wheat and barley may be planted 4 months after an application of **Harbinger**, except under the following conditions:

If less than 12" of rainfall or overhead irrigation was received between application and rotational crop planting, wheat should not be planted before 12 months after a spring application of **Harbinger** or 14 months after a fall application of **Harbinger**.

In dryland areas and/or areas where irrigation is necessary to produce the crop treated with **Harbinger**, plant winter wheat or barley as a follow crop if crop failure/destruction occurs and land is fallowed during the summer.

(e) All Other Rotational Crops Not Specifically Addressed Above

Crops, other than those to which **Harbinger** may be applied as a preplant incorporated treatment, may be planted the year following application of **Harbinger**, except under the following condition: If rainfall or irrigation was not sufficient to produce a crop, delay planting for 18 months following a spring application of **Harbinger** or 20 months following a fall application of **Harbinger**.

Crop-specific Information

Crop Injury Disclaimer: **Harbinger** use may result in crop injury, loss or damage to certain crops under a number of conditions, including but not limited to agronomic, cultural, mechanical, and environmental. Numerous risks of loss or damage to certain crops may be associated with the use of **Harbinger** even when directions for use are followed completely. The user or grower should take all such risks into consideration before deciding to apply the product. **WFS recommends testing on a small portion of the target crop to determine if damage is likely to occur.** Each grower who is considering the product for such use should test **Harbinger** in order to determine its suitability. A grower should use **Harbinger** only to the extent that in his sole opinion the benefit of **Harbinger** use outweighs the potential injury to the grower's crop.

In addition, many factors can affect crop growth and/or yield, including but not limited to, insects, diseases, weed competition, poor seed quality, improper planting depth, mechanical cultivation, poor weather (such as freezing or excessive wind, rain, heat, or cold), lack of or excessive moisture, crusting, fertility, or hardpans. Risk of loss or damage to crops may be associated with the use of **Harbinger** and contribute to poor stands due to failure of crop to emerge, swelling of roots or other below-ground plant parts, less vigorous plant growth and development, and reduction in yield potential. **Harbinger™ herbicide** may also cause injury to sensitive rotational crops.

RICE

Harbinger may be applied as a pre-flood, preemergence application in dry-seeded or drilled rice or as a delayed preemergence application in drilled dry-seeded rice or as an early postemergence application in dry-seeded rice.

Treatments may be applied to conventional, reduced or minimum tillage, and no-till (stale seedbed) rice. The seedbed should be firm and free of clods and must be prepared to allow for good seed coverage. The use of a planter under conditions that do not allow good soil coverage of the rice seed can result in reduced stand or stunting if **Harbinger** contacts germinating rice seed.

Additional Weeds Controlled: In addition to the weeds listed in **Table 1**, **Harbinger** will control the following weeds in rice: junglerice and sprangletop.

Use Methods and Timings

Pre-Flood, Preemergence - Harbinger may be applied for preemergence weed control as a pre-flood, pre-rice germination herbicide in lightly incorporated dry-seeded rice or on drilled rice.

SEEDING DIRECTIONS: For all rice seed incorporation methods, seed must be incorporated shallowly or no more than 1 inch below soil surface. Seed left on the surface may be injured or killed by **Harbinger**. **However, it is recommended that 15 to 20% of seed total be visible at surface in order to ensure that seed is not covered too deeply.** Seeding rates should be increased by a percentage corresponding to the amount of seed left on the surface. Adjust seeding ratios to meet individual practices, incorporation depths and field conditions.

EXAMPLE: Target seeding rate is 150 lbs per acre. If approximately 15% of seed is left on soil surface, seeding rate should then be increased 22.5 lbs per acre to 177.5 lbs per acre.

Seeding depths can be affected by soil textures, tillage practices, irrigation, and methods of mechanical incorporation. Seed that is incorporated either mechanically and/or by irrigation flush must remain at a shallow depth of no more than 1 inch below the soil surface. Fields where rice seed is incorporated too deeply will experience reduced crop stands.

Following are examples of typical implements that can be used for rice seed incorporation: rice roller/ridger, ring roller, light harrow, or flat roller. Regardless of the implement or method of incorporation used, seed incorporation must be less than 1 inch below the soil surface.

After rice seed is incorporated, uniformly apply to soil surface as broadcast spray the tank mixture of **Harbinger** at 2.4 pints per acre plus **FirstChoice® SafeGuard™ spray adjuvant** at 1.6 pints per acre. Use of **Harbinger** without tank mixing with **FirstChoice SafeGuard spray adjuvant** can result in crop injury and loss of rice stand.

After herbicide application, flush field with irrigation water with method best employed to facilitate a thorough soaking of field and a rapid drain. Tail water (runoff water) from flood irrigation that contains **Harbinger** should be recirculated and contained in the field of initial application or used only on adjacent crops for which **Harbinger** (or other pendimethalin-based products) is registered for use.

Rice seed covered with water for longer than 8 days may result in reduced stand and weed control.

Early Postemergence - Apply **Harbinger** as a tank mix partner. Base applications on weed and crop size guidelines of the tank mix partner. **DO NOT** apply to fields with standing water. If necessary, fields may be flushed prior to treatment to produce vigorous rice and weed growth. Since soil and weeds must be completely exposed to spray coverage, no flood water should be on the field at the time of application. Cloddy soil, standing water (puddles) at the time of application, or cracks in the soil that form after application may result

in reduced weed control. Because of residual activity of **Harbinger**, this treatment may be applied if rice is too small to maintain a flood on the field for weed control. However, proper water management practices must be followed for normal rice growth and activity of **Harbinger™ herbicide**.

Since the residual activity of **Harbinger** is activated by moisture, **Harbinger** is most effective in controlling emerging weeds when adequate rainfall or irrigation (flush) is received within 7 days after application.

Early Postemergence Application

Soil Texture	Rate (pts/A)
Coarse	1.8
Medium	2.4
Fine	2.4

Restrictions and Limitations

- **DO NOT** apply **Harbinger** as a pre-flood, preemergence treatment in rice unless tank mixed with **FirstChoice® SafeGuard™ spray adjuvant**.
- **DO NOT** apply **Harbinger** through any type of irrigation system.
- **DO NOT** apply in liquid fertilizer.
- **DO NOT** use on water-seeded rice except as specified in other WFS labeling.
- **DO NOT** apply to rice fields if fields are used for fish production, especially catfish or crayfish farming.
- **DO NOT** bale or use rice straw from treated fields for feed or bedding.
- **DO NOT** use water containing **Harbinger** residues from rice cultivation to irrigate food or feed crops that are not registered for use with **Harbinger**.
- In case of a crop failure due to weather conditions or disease following treatment with **Harbinger** alone or in a tank mixture, only drilled dry-seeded rice may be immediately replanted; however, the grower assumes all risks and consequences associated with replanting of rice because there is the potential for stand reduction or stunting. A 10 percent increase in seeding rate is recommended. Replant seed below the herbicide layer because reduced stand or stunting may occur if **Harbinger** contacts germinating rice seed. **DO NOT** replant with gibberellic acid-treated seed. **DO NOT** reapply **Harbinger** alone or in a tank mixture.
- **DO NOT** apply **Harbinger** and then flush for germination.
- **DO NOT** apply to stressed rice. Stress factors include cold or hot temperature extremes, excessive moisture or drought, problem soils, poor field drainage, or deep water after application.
- **DO NOT** apply early preemergence nor preplant incorporated as severe rice injury is possible.
- **DO NOT** feed forage or graze livestock in treated fields.

Conditions of Sale and Warranty

The **Directions For Use** of this product reflect the opinion of experts based on field use and tests. The directions are believed to be reliable and must be followed carefully. However, it is impossible to eliminate all risks inherently 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 use of the product in a manner inconsistent with its labeling, all of which are beyond the control of BASF CORPORATION (“BASF”) or the Seller. To the extent consistent with applicable law, all such risks shall be assumed by the Buyer.

BASF warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes referred to in the **Directions For Use**, subject to the inherent risks, referred to above.

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, BASF MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF FITNESS OR MERCHANTABILITY OR ANY OTHER EXPRESS OR IMPLIED WARRANTY. BUYER’S EXCLUSIVE REMEDY AND BASF’S EXCLUSIVE LIABILITY, WHETHER IN CONTRACT, TORT, NEGLIGENCE, STRICT LIABILITY, OR OTHERWISE, SHALL BE LIMITED, TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, TO REPAYMENT OF THE PURCHASE PRICE OF THE PRODUCT. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, BASF AND THE SELLER DISCLAIM ANY LIABILITY FOR CONSEQUENTIAL, SPECIAL OR INDIRECT DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT. BASF and the Seller offer this product, and the Buyer and User accept it, subject to the foregoing **Conditions of Sale and Warranty** which may be varied only by agreement in writing signed by a duly authorized representative of BASF. 807

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