



**OFFICE OF CHEMICAL SAFETY AND POLLUTION PREVENTION**

WASHINGTON, D.C. 20460

July 24, 2024

Rebecca Willis  
Product Registration Manager  
BASF Corporation, Agricultural Products  
P.O. Box 13528  
Research Triangle Park, NC 27709

Subject: Notification per PRN 98-10 – Revision of FRAC category for metrafenone.  
Product Name: Vivando M Fungicide  
EPA Registration Number: 7969-412  
Application Date: June 15, 2021  
Case Number: 482100

Dear Rebecca Willis:

The Agency is in receipt of your Application for Pesticide Notification under Pesticide Registration Notice (PRN) 98-10 for the above referenced product. The Registration Division (RD) has conducted a review of this request for its applicability under PRN 98-10 and finds that the action requested falls within the scope of PRN 98-10.

The label submitted with the application has been stamped “NOTIFICATION” and placed in our records.

Should you wish to add/retain a reference to the company’s website on your label, then please be aware that the website becomes labeling under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and is subject to review by the Agency. If the website is false or misleading, the product would be misbranded and unlawful to sell or distribute under FIFRA section 12(a)(1)(E). 40 CFR 156.10(a)(5) lists examples of statements EPA may consider false or misleading. In addition, regardless of whether a website is referenced on your product’s label, claims made on the website may not substantially differ from those claims approved through

the registration process. Therefore, should the Agency find or if it is brought to our attention that a website contains false or misleading statements or claims substantially differing from the EPA approved registration, the website will be referred to the EPA's Office of Enforcement and Compliance.

If you have any questions, please contact James Orrock by phone at 202-566-2862 or by email at [orrock.james@epa.gov](mailto:orrock.james@epa.gov).

A handwritten signature in black ink that reads "James M. Orrock". The signature is written in a cursive, flowing style.

James Orrock, PhD  
Plant Pathologist/Risk Manager  
Fungicide Branch/Registration Division  
Office of Pesticide Programs 7505T  
US Environmental Protection Agency



We create chemistry

Group

50

Fungicide

# Vivando<sup>®</sup> M

## Fungicide

### NOTIFICATION

7969-412

The applicant has certified that no changes, other than those reported to the Agency have been made to the labeling. The Agency acknowledges this notification by letter dated:

07/24/2024

### For disease control in cultivated mushrooms

#### Active Ingredient\*:

metrafenone: (3-bromo-6-methoxy-2-methylphenyl)(2,3,4-trimethoxy-6-methylphenyl)methanone. . . . . 25.20%

**Other Ingredients:** . . . . . 74.80%

**Total:** . . . . . 100.00%

\* This product contains 2.5 lbs active ingredient per gallon

EPA Reg. No. 7969-412

EPA Est. No.

**KEEP OUT OF REACH OF CHILDREN**

**CAUTION/PRECAUCION**

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand this label, find someone to explain it to you in detail.)

See full label for complete **First Aid**, **Precautionary Statements**, **Directions For Use**, and **Conditions of Sale and Warranty**, and state-specific 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:

BASF Corporation  
26 Davis Drive, Research Triangle Park, NC 27709

<b>FIRST AID</b>	
<b>If in eyes</b>	<ul style="list-style-type: none"> <li>• Hold eyes open and rinse slowly and gently with water for 15 to 20 minutes.</li> <li>• Remove contact lenses, if present, after first 5 minutes; then continue rinsing.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If on skin or clothing</b>	<ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Rinse skin immediately with plenty of water for 15 to 20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If swallowed</b>	<ul style="list-style-type: none"> <li>• Call a poison control center or doctor immediately for treatment advice.</li> <li>• Have person sip a glass of water if able to swallow.</li> <li>• <b>DO NOT</b> induce vomiting unless told to do so by a poison control center or doctor.</li> <li>• <b>DO NOT</b> give anything by mouth to an unconscious person.</li> </ul>
<b>If inhaled</b>	<ul style="list-style-type: none"> <li>• Move person to fresh air.</li> <li>• If person is not breathing, call 911 or an ambulance; then give artificial respiration, preferably by mouth to mouth, if possible.</li> <li>• Call a poison control center or doctor for further treatment advice.</li> </ul>
<b>HOTLINE NUMBER</b>	
<p>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 at 1-800-832-HELP (4357).</p>	

## Precautionary Statements

### Hazards to Humans and Domestic Animals

**Caution.** Causes moderate eye irritation. Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco.

### Personal Protective Equipment (PPE)

**Applicators and other handlers must wear:**

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

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

### Engineering Controls Statement

When handlers use closed systems and enclosed cabs 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.

## Environmental Hazards

**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** contaminate water when disposing of equipment washwaters or rinsate. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas. This pesticide is toxic to fish and aquatic invertebrates.

## 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.

## USER SAFETY RECOMMENDATIONS

**Users should:**

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

## AGRICULTURAL USE REQUIREMENTS

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

**DO NOT** enter or allow worker entry into treated areas during the restricted-entry interval (REI) of **12 hours**. 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
- Socks and shoes
- Chemical-resistant gloves made of any waterproof material

## STORAGE AND DISPOSAL

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

### Pesticide Storage

Store in original containers only. Keep container closed when not in use. **DO NOT** store near food or feed.

### Pesticide Disposal

Wastes resulting from the use of this product may be disposed of on-site or at an approved waste disposal facility. If these wastes cannot be disposed of according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

### Container Handling

**Nonrefillable Container. DO NOT** reuse or refill this container. Triple rinse or pressure rinse container (or equivalent) promptly after emptying; then offer for recycling, if available, or reconditioning, if appropriate, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures approved by state and local authorities.

(continued)

## STORAGE AND DISPOSAL (continued)

### Container Handling (continued)

#### Triple rinse containers small enough to shake

**(capacity ≤ 5 gallons) as follows:** Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank, or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times.

#### Triple rinse containers too large to shake

**(capacity > 5 gallons) as follows:** Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank, or store rinsate for later use or disposal. Repeat this procedure two more times.

**Pressure rinse as follows:** Empty the remaining contents into application equipment or mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank, or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

## In Case of Emergency

In case of large-scale spillage regarding this product, call:

- CHEMTREC 1-800-424-9300
- BASF Corporation 1-800-832-HELP (4357)

In case of medical emergency regarding this product, call:

- Your local doctor for immediate treatment
- Your local poison control center (hospital)
- BASF Corporation: 1-800-832-HELP (4357)

### Steps to be taken in case this material is released or spilled:

- In case of spill on floor or paved surfaces, mop and remove to chemical waste storage area until proper disposal can be made if product cannot be used according to label.
- Dike and contain spill with inert material (sand, earth, etc.) and transfer liquid and solid diking material to separate containers for disposal.
- Remove contaminated clothing and wash affected skin areas with water.
- Wash clothing before reuse.
- Keep spill out of all sewers and open bodies of water.

---

## Product Information

---

**Vivando® M fungicide** is formulated as a suspension concentrate (SC). **Vivando M** provides control of cobweb disease on mushrooms. To maximize disease control, apply **Vivando M** in a regularly scheduled protective fungicide program and use in a rotation program with other fungicides.

### Mode of Action

Metrafenone, the active ingredient in **Vivando M**, affects several stages in the infection process of the cobweb disease pathogen. It has a different mode of action than that of other fungicides registered for use against cobweb disease. Metrafenone affects normal development and growth processes of the cobweb disease pathogen. It inhibits spore germination, infection, and subsequent mycelial growth. It also reduces sporulation by preventing normal development of conidiophores and conidia.

### Resistance Management

For resistance management, **Vivando M** contains a **Group 50** fungicide. Any fungal population may contain individuals naturally resistant to **Vivando M** and other **Group 50** fungicides. A gradual or total loss of pest control may occur over time if these fungicides are used repeatedly in the same treatment areas. Appropriate resistance-management strategies should be followed.

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

- Rotate the use of **Vivando M** or other **Group 50** fungicides within a growing season sequence with different groups that control the same pathogens.
- Use tank mixtures with fungicides from a different group that are equally effective on the target pest when such use is permitted. Use at least the minimum application rate as labeled by the manufacturer.
- Adopt an integrated disease management program for fungicide use that includes scouting, uses historical information related to pesticide use, and crop rotation, and which considers host plant resistance, impact of environmental conditions on disease development, disease thresholds, as well as cultural, biological and other chemical control practices.
- Where possible, make use of predictive disease models to effectively time fungicide applications. Note that using predictive models alone is not sufficient to manage resistance.
- Monitor treatment area for lack of biological efficacy that might indicate possible resistance development.
- Contact your local extension specialist or certified crop advisor for any additional pesticide resistance management and/or **Integrated Pest Management (IPM)** recommendations for specific crops and pathogens.
- For further information or to report suspected resistance consult your local BASF representative, extension specialist, or certified crop advisor.

**Vivando M** contains metrafenone, a fungicide with a mode of action different from that of other fungicides currently registered for use against cobweb disease.

**Vivando M** is effective against pathogens resistant to other fungicides with a mode of action different than that of metrafenone. However, isolates of the cobweb disease pathogen may dominate the fungal population if metrafenone is used predominantly and repeatedly in the same treatment area in successive years as the primary method of control for the targeted cobweb disease pathogen species. This may result in reduction of disease control by **Vivando M**.

### Resistance Management Advisory

The following recommendations may be considered to delay the development of fungicide resistance:

1. **Tank mixtures** - Use tank mixtures with fungicides from different target site of action groups that are registered/permitted for the same use and that are effective against the pathogens of concern. BASF recommends that no less than the minimum labeled rates of each fungicide in the tank mix be used.
2. **Integrated Pest Management (IPM)** - Integrate **Vivando M** into an overall disease and pest management program. Follow cultural practices known to reduce disease development. Consult your local extension specialist, certified crop advisor and/or BASF representative for additional IPM strategies established for your area. **Vivando M** can be used in agricultural extension advisory (disease forecasting) programs that recommend application timing based on environmental factors favorable for disease development.
3. **Monitoring** - Monitor efficacy of all fungicides used in the disease management program against the targeted pathogen and record other factors that may influence fungicide performance and/or disease development. If **Vivando M** appears to be less effective against a pathogen that it previously controlled or suppressed, contact a BASF representative, local extension specialist, or certified crop advisor for further investigation.

## Application Instructions

**Vivando® M fungicide** can be applied with hand-held, hand-guided, or fixed spray/irrigation equipment.

Use **Vivando M** in sufficient water to ensure thorough coverage of the surface of the casing soil at the start of fruit yield. Refer to the **Crop-specific Requirements** table for specific application rates and application intervals.

## Additives and General Tank Mixing Information

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.

**Vivando M** can be tank mixed with most recommended fungicides, insecticides, liquid fertilizers, biological control products, adjuvants, and additives.

Under some conditions, the use of additives or adjuvants may improve the performance of **Vivando M**. However, all varieties and cultivars have not been tested with possible tank mix combinations. Local conditions can also influence crop tolerance and may not match those under which BASF has conducted testing. Physical incompatibility, reduced disease control, or crop injury may result from mixing **Vivando M** with other products. Therefore, before using any tank mix, test the combination on a small portion of the crop to be treated to ensure that a phytotoxic response will not occur as a result of application.

Consult a BASF representative or local agricultural authorities for more information concerning additives.

## Mixing Order

1. **Water.** Begin by agitating a thoroughly clean sprayer tank 3/4 full of clean water.
2. **Agitation.** Maintain constant agitation throughout mixing and application.
3. **Inductor.** If an inductor is used, rinse it thoroughly after each component has been added.
4. **Products in PVA bags.** Place any product contained in water-soluble PVA bags into the mixing tank. Wait until water-soluble PVA bags have fully dissolved and the product is evenly mixed in the spray tank before continuing.
5. **Water-dispersible products** (dry flowables, wettable powders, suspension concentrates such as **Vivando M**, or suspo-emulsions).
6. **Water-soluble products.**
7. **Emulsifiable concentrates** (such as oil concentrates when applicable).
8. **Water-soluble additives** (such as ammonium sulfate [AMS] or urea ammonium nitrate [UAN] when applicable).
9. Remaining quantity of water.

Make sure that each component is thoroughly mixed and suspended before adding tank mix partners. Maintain constant agitation during application.

## Restrictions and Limitations

- **DO NOT** exceed the maximum product rate per year, the maximum rate per application, or the total number of applications of **Vivando M** per year as stated in the **Crop-specific Requirements** table. Preharvest interval (PHI) restrictions are also included in these tables and must be followed.
- Follow the most restrictive of the labeling limitations and precautions of all products used in mixtures.
- For Indoor Use Only.
- **DO NOT** apply by chemigation.

## Crop-specific Requirements

Crop	Target Disease	Product Use Rate per Application (fl ozs/1000 sq feet)	Maximum Number of Applications per Crop Cycle	Minimum Time from Application to Harvest (PHI) (days)
<b>Cultivated mushroom (<i>Agaricus bisporus</i>)</b>	Cobweb disease <i>Dactylium dendroides</i>	5	1	10
<b>Application Directions.</b> For control of cobweb disease, apply <b>Vivando M</b> to the surface of the casing soil at the start of fruit yield. Apply in 150 gallon spray volume for 8000 sq feet (18.75 gallons for 1000 sq ft).				



## 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.**

**TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, BUYER'S EXCLUSIVE REMEDY AND BASF'S EXCLUSIVE LIABILITY, WHETHER IN CONTRACT, TORT, NEGLIGENCE, STRICT LIABILITY, OR OTHERWISE, SHALL BE LIMITED 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, EXEMPLARY, 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.

1108

*Vivando is a registered trademark of BASF.*

© 2021 BASF Corporation  
All rights reserved.

007969-00412.20210608.**NVA 2021-04-583-0117**  
Supersedes: NVA 2018-04-583-0121

BASF Corporation  
26 Davis Drive  
Research Triangle Park, NC 27709

  
We create chemistry