Group	U8	Fungicide

Supplemental Label

Vivando®

Fungicide

For use on apricot; cherry subgroup 12-12A; cucurbit vegetables, group 9; hops; and peach subgroup 12-12B to control powdery mildew

This supplemental label expires December 31, 2017 and must not be used or distributed after this date.

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. 7969-284

Directions For Use

- It is a violation of federal law to use this product in a manner inconsistent with its labeling.
- The supplemental labeling and the entire **Vivando® fungicide** container label, EPA Reg. No. 7969-284, must be in possession of the user at the time of application.
- Read the label affixed to the container for **Vivando** before applying.
- Use of **Vivando** according to this labeling is subject to the use precautions and limitations imposed by the label affixed to the container for **Vivando**.

Product Information

Mode of Action

Metrafenone, the active ingredient in **Vivando**, affects several stages in the infection process of the powdery mildew pathogen. It has a different mode of action than that of other fungicides registered for use against peach subgroup 12-12B; apricot; cherry subgroup 12-12A; hops; and cucurbit vegetables, group 9 powdery mildew.

Resistance Management

Vivando contains metrafenone, a fungicide with a mode of action different from that of other fungicides currently registered for use against powdery mildew. Refer to the **Vivando** container label for additional fungicide resistance recommendations.

Application Instructions

Refer to the **Vivando® fungicide Crop-specific Requirements** table on this label for specific application rates and application intervals for crops listed on this label. **Vivando** can be applied with ground sprayer, hand-held sprayer or aerial equipment. **DO NOT** apply **Vivando** by chemigation. Refer to the **Vivando** container label for additional instructions and restrictions.

Aerial Application

DO NOT apply by air to hops. For all other crops listed on this label, aerial application can be made where applications are not possible using ground application. Thorough coverage is required to obtain optimum disease control. Avoid applications under conditions when uniform coverage cannot be obtained or when

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spray drift may occur. For aerial applications to cucurbit vegetables, group 9, **DO NOT** use less than 5 gallons of spray solution per acre. For aerial applications to apricot; cherry subgroup 12-12A; and peach subgroup 12-12B, **DO NOT** use less than 10 gallons of spray solution per acre. Thorough coverage is required for optimum disease control. The reduced spray volumes used in aerial applications may result in physical incompatibility, reduced disease control, or crop injury from **Vivando® fungicide** applications, particularly when tank mixed with other products. Therefore, before making aerial applications test the spray on a small portion of the crop to be treated to ensure that a phytotoxic response will not occur as a result of application.

Spray Drift Management

DO NOT spray when conditions favor drift beyond area intended for application. Conditions that may contribute to drift include thermal inversion, wind speed and direction, spray nozzle/pressure combinations, spray droplet size, temperature/humidity, etc. Contact your state extension agent for spray drift prevention guidelines in your area. All aerial and ground application equipment must be properly maintained and calibrated using appropriate carriers. Avoiding spray drift at the application site is the responsibility of the applicator.

Aerial Application Methods and Equipment

The interaction of many equipment-related and weather-related factors determines the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions.

DO NOT apply under circumstances where possible drift to unprotected persons, to food, forage, or other plantings that might be damaged, or crops thereof rendered unfit for sale, use or consumption can occur.

DO NOT release spray at a height greater than 10 feet above the crop canopy unless a greater height is required for aircraft safety or special weather conditions.

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 3/4 the length of the fixed wingspan or 90% of rotor blade diameter.
2. Nozzles must always point backward parallel with the airstream and never be pointed downward more than 45 degrees.

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

Information on Droplet Size

The most effective way to reduce drift potential is to apply large droplets. Use the largest droplet size consistent with acceptable efficacy. 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 higher 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 unless inconsistent with product efficacy. 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-stream nozzles oriented straight back produce the largest droplets and the lowest drift.

Wind

DO NOT apply at wind speeds greater than 15 mph. Drift potential is lowest when wind speed does not exceed 10 mph. However, many factors, including droplet size and equipment type, determine drift potential at any given speed. Application should be avoided when wind speed is below 2 mph due to variable wind direction and high inversion potential. Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

Temperature and Humidity

Low humidity and high temperatures increase the evaporation of spray droplets and, therefore, the likelihood of increased spray drift. Avoid spraying during conditions of low humidity and/or high temperatures. When making applications in low relative humidity, set up equipment to produce larger droplets in order 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

The pesticide should only be applied when the potential for drift to adjacent sensitive areas (e.g. bodies of water or non-target crops) is minimal and when wind is blowing away from the sensitive areas.

Additives and General Tank Mixing Information

Vivando® fungicide can be tank mixed with most recommended fungicides, insecticides, liquid fertilizers, biological control products, adjuvants, and additives as specified in the **Vivando® fungicide Crop-specific Requirements** table on this label. **DO NOT** mix **Vivando** with horticultural oils. Refer to the **Vivando® fungicide Crop-specific Requirements** table on this label for more details.

Under some conditions, the use of additives or adjuvants may improve the performance of **Vivando**. However, all varieties and cultivars have not been tested with all 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** 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

Make sure that each component is thoroughly mixed and suspended before adding tank mix partners. Maintain constant agitation during application. Refer to the **Vivando® fungicide Crop-specific Requirements** table on this label for additional details. Refer to the **Vivando** container label for additional mixing instructions.

Restrictions and Limitations

- **DO NOT** exceed the maximum product rate (fl ozs/A) per year, the maximum rate per application, or the total number of applications of **Vivando** per year as stated in the **Vivando® fungicide Crop-specific Requirements** table on this label. Preharvest interval (PHI) restrictions are also included in these tables.
- **Restricted-entry Interval - DO NOT** enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.
- **DO NOT** mix **Vivando** with horticultural oils.
- **DO NOT** apply by chemigation.
- **Plantback Restrictions** – Crops with registered uses may be replanted at any time. All other crops grown for food or feed may be planted after 365 days.

Vivando® fungicide Crop-specific Requirements

Crop	Target Disease	Product Use Rate per Application (fl ozs/A)	Maximum Number of Applications per Year	Maximum Product Rate per Year (fl ozs/A)	Minimum Time from Application to Harvest (PHI) (days)
Apricot	Powdery mildew *Podosphaera* spp., *Sphaerotheca* spp.	15.4 (0.3 lb ai)	2	30.8 (0.6 lb ai)	7

Application Directions. For control of powdery mildew, begin **Vivando** applications at pink bud or white bud or prior to disease development using 15.4 fl ozs/A (0.3 lb ai) and continue on a 7 to 14 day interval.

Use the shorter interval when disease pressure is high.

Vivando must be applied before visual symptoms of powdery mildew appear. **Vivando** has no curative properties and will not control latent or established infections of powdery mildew. If powdery mildew infection is established, **Vivando** should be applied in a tank mix combination or following application of a curative fungicide.

DO NOT apply at rates higher than 15.4 fl ozs product (0.3 lb ai). **DO NOT** apply more than 30.8 fl ozs/A (0.6 lb ai) per year. The minimum interval between sprays is 7 days.

DO NOT mix **Vivando** with horticultural oils when making applications to apricots.

Resistance Management. To limit the potential for development of resistance, **DO NOT** make more than two (2) applications of **Vivando** per year.

DO NOT make more than two (2) sequential **Vivando** applications before alternating to a labeled fungicide with a different mode of action.

(continued)

Vivando® fungicide Crop-specific Requirements *(continued)*

Crop	Target Disease	Product Use Rate per Application (fl ozs/A)	Maximum Number of Applications per Year	Maximum Product Rate per Year (fl ozs/A)	Minimum Time from Application to Harvest (PHI) (days)
Cherry subgroup 12-12A Capulin Cherry, black Cherry, Nanking Cherry, sweet Cherry, tart Cultivars, varieties, and/or hybrids of these	Powdery mildew *Podosphaera* spp., *Sphaerotheca* spp.	15.4 (0.3 lb ai)	2	30.8 (0.6 lb ai)	7

Application Directions. For control of powdery mildew, begin **Vivando** applications at pink bud or white bud or prior to disease development using 15.4 fl ozs/A (0.3 lb ai) and continue on a 7 to 14 day interval.

Use the shorter interval when disease pressure is high.

Vivando must be applied before visual symptoms of powdery mildew appear. **Vivando** has no curative properties and will not control latent or established infections of powdery mildew. If powdery mildew infection is established, **Vivando** should be applied in a tank mix combination or following application of a curative fungicide.

DO NOT apply at rates higher than 15.4 fl ozs product (0.3 lb ai). **DO NOT** apply more than 30.8 fl ozs/A (0.6 lb ai) per year. The minimum interval between sprays is 7 days.

DO NOT mix **Vivando** with horticultural oils when making applications to cherries.

Resistance Management. To limit the potential for development of resistance, **DO NOT** make more than two (2) applications of **Vivando** per year.

DO NOT make more than two (2) sequential **Vivando** applications before alternating to a labeled fungicide with a different mode of action.

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Vivando® fungicide Crop-specific Requirements *(continued)*

Crop	Target Disease	Product Use Rate per Application (fl ozs/A)	Maximum Number of Applications per Year	Maximum Product Rate per Year (fl ozs/A)	Minimum Time from Application to Harvest (PHI) (days)
Cucurbit vegetables, group 9 Chayote Chinese waxgourd Citron melon Cucumber Gherkin Pumpkin Watermelon **Edible gourd** Hechima Hyotan Cucuzza Chinese okra ***Momordica* spp.** Balsam apple Balsam pear Bitter melon Chinese cucumber **Muskmelon** Cantaloupe Casaba Crenshaw melon Golden pershaw melon Honeydew melon Honey balls Mango melon Persian melon Pineapple melon Santaclaus melon Snake melon **Summer squash** Crookneck squash Scallop squash Straightneck squash Vegetable marrow Zucchini **Winter squash** Butternut squash Calabaza Hubbard squash Acorn squash Spaghetti squash	Powdery mildew *Sphaerotheca* spp., *Erysiphe* spp.	15.4 (0.3 lb ai)	3	46.2 (0.9 lb ai)	0

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Vivando® fungicide Crop-specific Requirements *(continued)*

Cucurbit vegetables, group 9 *(continued)*

Application Directions. For control of powdery mildew, begin **Vivando** applications prior to disease development using 15.4 fl ozs/A (0.3 lb ai) and continue on a 7 to 14 day interval.

Use the shorter interval when disease pressure is high.

Vivando must be applied before visual symptoms of powdery mildew appear. **Vivando** has no curative properties and will not control latent or established infections of powdery mildew. If powdery mildew infection is established, **Vivando** should be applied in a tank mix combination or following application of a curative fungicide.

DO NOT apply at rates higher than 15.4 fl ozs product (0.3 lb ai). **DO NOT** apply more than 46.2 fl ozs/A (0.9 lb ai) per year. The minimum interval between sprays is 7 days.

DO NOT mix **Vivando** with horticultural oils when making applications to crops in the cucurbit vegetables group.

Resistance Management. To limit the potential for development of resistance, **DO NOT** make more than three (3) applications of **Vivando** per year.

DO NOT make more than two (2) sequential **Vivando** applications before alternating to a labeled fungicide with a different mode of action.

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Vivando® fungicide Crop-specific Requirements *(continued)*

Crop	Target Disease	Product Use Rate per Application (fl ozs/A)	Maximum Number of Applications per Year	Maximum Product Rate per Year (fl ozs/A)	Minimum Time from Application to Harvest (PHI) (days)
Hops	Powdery mildew *Podosphaera* spp., *Sphaerotheca* spp.	15.4 (0.3 lb ai)	2	30.8 (0.6 lb ai)	3

Application Directions. For control of powdery mildew, begin **Vivando** applications prior to disease development using 15.4 fl ozs/A (0.3 lb ai) and continue on a 7 to 14 day interval.

Use the shorter interval when disease pressure is high.

DO NOT apply by air.

Vivando must be applied before visual symptoms of powdery mildew appear. **Vivando** has no curative properties and will not control latent or established infections of powdery mildew. If powdery mildew infection is established, **Vivando** should be applied in a tank mix combination or following application of a curative fungicide.

DO NOT apply at rates higher than 15.4 fl ozs product (0.3 lb ai). **DO NOT** apply more than 30.8 fl ozs/A (0.6 lb ai) per year. The minimum interval between sprays is 7 days.

DO NOT mix **Vivando** with horticultural oils when making applications to hops.

Resistance Management. To limit the potential for development of resistance, **DO NOT** make more than two (2) applications of **Vivando** per year.

DO NOT make more than two (2) sequential **Vivando** applications before alternating to a labeled fungicide with a different mode of action.

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Vivando® fungicide Crop-specific Requirements *(continued)*

Crop	Target Disease	Product Use Rate per Application (fl ozs/A)	Maximum Number of Applications per Year	Maximum Product Rate per Year (fl ozs/A)	Minimum Time from Application to Harvest (PHI) (days)
Peach subgroup 12-12B Nectarine Peach Cultivars, varieties, and/or hybrids of these	Powdery mildew *Podosphaera* spp., *Sphaerotheca* spp.	15.4 (0.3 lb ai)	2	30.8 (0.6 lb ai)	7

Application Directions. For control of powdery mildew, begin **Vivando** applications at pink bud or white bud or prior to disease development using 15.4 fl ozs/A (0.3 lb ai) and continue on a 7 to 14 day interval.

Use the shorter interval when disease pressure is high.

Vivando must be applied before visual symptoms of powdery mildew appear. **Vivando** has no curative properties and will not control latent or established infections of powdery mildew. If powdery mildew infection is established, **Vivando** should be applied in a tank mix combination or following application of a curative fungicide.

DO NOT apply at rates higher than 15.4 fl ozs product (0.3 lb ai). **DO NOT** apply more than 30.8 fl ozs/A (0.6 lb ai) per year. The minimum interval between sprays is 7 days.

DO NOT mix **Vivando** with horticultural oils when making applications to crops in the peach subgroup.

Resistance Management. To limit the potential for development of resistance, **DO NOT** make more than two (2) applications of **Vivando** per year.

DO NOT make more than two (2) sequential **Vivando** applications before alternating to a labeled fungicide with a different mode of action.

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.

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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

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