



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

OFFICE OF
PREVENTION, PESTICIDES
AND TOXIC SUBSTANCES

NOV 18 1997

Michele Schulz
Zeneca Ag Products
1800 Concord Pike
P.O. Box 15458
Wilmington, Delaware 19850-5458

Subject: Abound Flowable Fungicide
EPA Registration Number 10182-415
Your amended labeling dated October 22, 1997

Dear Ms. Schulz,

We have reviewed the subject amended labeling, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended. The amended labeling is acceptable, provided that:

1. You make the following change in the label:

In the "DIRECTIONS FOR USE" section, on Page 5, following the heading "AGRICULTURAL USES:", either add all of the food uses or else delete the sentence "Commercial Turf farms (Not for use in California)." As it now stands, this sentence makes it appear as if Commercial Turf Farms are the only agricultural use.

2. Submit one copy of your final printed label before you release product bearing this amended labeling for shipment.

If you have any questions about this letter, please contact John Bazuin at (703)305-7381.

Sincerely yours,

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Cynthia L. Giles-Parker
Product Manager (22)
Fungicide Branch
Registration Division (7505C)

Attachment: Label stamped "ACCEPTED with COMMENTS"

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ABOUND™ Flowable
Fungicide

~~For use to control certain diseases of bananas, grapes, peaches, peanuts, pecans, tomatoes and turf.~~

~~Broad spectrum fungicide for control of plant diseases:~~

ACTIVE INGREDIENT:

Azoxystrobin: methyl (E)-2-{2-[6-(2-cyanophenoxy)
pyrimidin-4-yloxy]phenyl}-3-methoxyacrylate* 22.9%

INERT INGREDIENTS: 77.1%

TOTAL 100.0%

Contains 2.08 lbs of active ingredient per gallon

*IUPAC

EPA REG NO. 10182-415
EPA EST. NO.

NET WT.:

KEEP OUT OF REACH OF CHILDREN

CAUTION

**SEE INSIDE FOR STATEMENT OF PRACTICAL TREATMENT
AND PRECAUTIONARY STATEMENTS**

Zeneca Ag Products
Zeneca Inc.
Wilmington DE 19850-5458

**ACCEPTED
with COMMENTS
In EPA Letter Dated
NOV 18 1997**

**Under the Federal Insecticide,
Fungicide, and Rodenticide Act
as amended, for the pesticide
registered under EPA Reg. No.
10182-415**

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STATEMENT OF PRACTICAL TREATMENT

IF ON SKIN: Wash with plenty of soap and water. If symptoms persist, get medical attention.

FOR 24-HOUR EMERGENCY MEDICAL ASSISTANCE, CALL 1-800-F-A-S-T-M-E-D (327-8633).

FOR CHEMICAL EMERGENCY: Spill, leak, fire, exposure, or accident, call CHEMTREC, 1-800-424-9300.

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION

HARMFUL IF ABSORBED THROUGH SKIN. Avoid contact with eyes, skin, or clothing. Wear long-sleeved shirt and long pants, socks and shoes and waterproof gloves. Wash thoroughly with soap and water after handling.

PERSONAL PROTECTIVE EQUIPMENT

Applicators and other handlers must wear:

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

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. Then 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.
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ENVIRONMENTAL HAZARDS

The active ingredient, azoxystrobin, in this product can be persistent for several months or longer. Azoxystrobin has degradation products which have properties similar to chemicals which are known to leach through soil to ground water under certain conditions as a result of agricultural use. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow may result in ground water contamination.

This pesticide is toxic to freshwater and estuarine/marine fish and aquatic invertebrates. 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 may be hazardous to aquatic organisms in neighboring areas. Do not contaminate water when disposing of equipment washwater or rinsate.

Notify state and/or federal authorities and Zeneca Inc. immediately if you observe any adverse environmental effects due to use of this product.

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**CONDITIONS OF SALE
AND LIMITATION OF WARRANTY AND LIABILITY**

NOTICE: Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

The Directions for Use of this product should be followed carefully. 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 manner of use or application, weather or crop conditions, presence of other materials or other influencing factors in the use of the product, which are beyond the control of ZENECA or Seller. All such risks shall be assumed by Buyer and User, and Buyer and User agree to hold ZENECA and Seller harmless for any claims relating to such factors.

ZENECA warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the Directions for Use, subject to the inherent risks referred to above, when used in accordance with directions under normal use conditions. This warranty does not extend to the use of this product contrary to label instructions, or under abnormal conditions or under conditions not reasonably foreseeable to or beyond the control of Seller or ZENECA, and Buyer and User assume the risk of any such use. ZENECA MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ABOVE.

In no event shall ZENECA or Seller be liable for any incidental, consequential or special damages resulting from the use or handling of this product. **THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF ZENECA AND SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, SHALL BE THE RETURN OF THE PURCHASE PRICE OF THE PRODUCT OR, AT THE ELECTION OF ZENECA OR SELLER, THE REPLACEMENT OF THE PRODUCT.**

ZENECA and Seller offer this product, and Buyer and User accept it, subject to the foregoing conditions of sale and limitations of warranty and of liability, which may not be modified except by written agreement signed by a duly authorized representative of ZENECA;

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DIRECTIONS FOR USE

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

FAILURE TO FOLLOW THE USE DIRECTIONS AND PRECAUTIONS ON THIS LABEL MAY RESULT IN PLANT INJURY OR POOR DISEASE CONTROL.

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.

AGRICULTURAL USES:

Commercial Turf farms (Not for use in California).

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), notification to workers, 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
- Waterproof gloves
- Shoes plus socks

NON-AGRICULTURAL USES: Golf Courses (Not for use in California)

NON-AGRICULTURAL USE REQUIREMENTS

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The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses. The area being treated must be vacated by unprotected persons.

Do not treat areas while unprotected humans or domestic animals are present in the treatment areas. Because certain states may require more restrictive reentry intervals, consult your State Department of Agriculture for further information.

Do not allow entry into treatment area until area that was treated with ABOUND Flowable is dry.

STORAGE AND DISPOSAL

PROHIBITIONS: Do not contaminate water, food or feed by storage or disposal. Open dumping is prohibited.

STORAGE: Store in original containers only. Keep container closed when not in use. Do not store near food or feed. In case of spill on floor or paved surfaces, sweep and remove to chemical waste storage area until proper disposal can be made if product cannot be used according to the label.

PESTICIDE DISPOSAL: Pesticide wastes are acutely hazardous. 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 instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative of the nearest EPA Regional Office for guidance.

CONTAINER DISPOSAL:

Plastic Containers: Triple rinse (or equivalent); then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill or alternatives allowed by State and local authorities.

FOR BULK AND MINIBULK CONTAINERS:

CONTAINER DISPOSAL: Reseal container and offer for reconditioning, or triple rinse (or equivalent) and offer for recycling or reconditioning, or clean in accordance with manufacturer's instructions.

CONTAINER PRECAUTIONS: Before refilling, inspect thoroughly for damage, such as cracks, punctures, bulges, dents, abrasions and damaged or worn threads on closure devices.

REFILL ONLY WITH ABOUND™ FLOWABLE FUNGICIDE. The contents of this container cannot be completely removed by cleaning. Refilling with materials other than ABOUND Flowable will result in contamination and may weaken container.

After filling and before transporting, check for leaks.

Do not refill or transport damaged or leaking container.

CONTAINER IS NOT SAFE FOR FOOD, FEED OR DRINKING WATER.

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GENERAL INFORMATION

ABOUND™ Flowable is a broad spectrum, preventative fungicide with systemic and curative properties recommended for the control of many important plant diseases on bananas, grapes, peaches, peanuts, pecans, tomatoes and turf. ABOUND Flowable may be applied as a foliar spray in alternating spray programs or in tank mixes with other registered, crop protection products. ABOUND Flowable may be applied with all types of spray equipment commonly used for making ground and aerial applications. For ground applications apply ABOUND Flowable in sufficient water volume for adequate coverage and canopy penetration. For aerial applications to non-orchard crops apply ABOUND Flowable in a minimum of three gallons of water per acre. For aerial applications in orchard crops apply ABOUND Flowable in a minimum of ten gallons of water per acre. All applications should be made according to the use directions that follow.

GENERAL USE PRECAUTIONS

Do not apply ABOUND Flowable through any type of irrigation system or through any ultra low volume (ULV) spray system. Do not graze or feed clippings from treated turf areas to animals. Crops in this label may be planted immediately after last treatment. Do not plant other crops within 45 days after last application. ABOUND has been shown to be extremely phytotoxic to certain apple varieties. ABOUND should not be applied where there is the possibility of spray drift reaching apple trees. Sprayers used to apply ABOUND should not be used to spray apples.

INTEGRATED PEST (DISEASE) MANAGEMENT

ABOUND Flowable should be integrated into an overall disease and pest management strategy whenever the use of a fungicide is required. Practices known to reduce disease development should be followed. The SPECIFIC USE DIRECTIONS section in this label identifies specific IPM recommendations for each crop. Consult your local agricultural and turf authorities for additional IPM strategies established for your area. ABOUND Flowable may be used in State Agricultural Extension advisory (disease forecasting) programs which recommend application timing based on environmental factors favorable for disease development.

RESISTANCE MANAGEMENT

Some plant pathogens are known to develop resistance to products used repeatedly for disease control. In order to maintain ABOUND Flowable as a valuable disease control tool and because the development of resistance cannot be predicted, the SPECIFIC USE DIRECTIONS section of this label provides use directions to implement resistance management strategies for each crop. Consult your local or state agricultural or turf authorities for resistant management strategies that are complimentary to those in this label. ABOUND Flowable is not cross resistant to other classes of fungicides which have different modes of action.

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MIXING

ABOUND Flowable is intended for dilution with water for spray application and may be used in all types of spray equipment commonly used for making ground and aerial applications. Partially fill the spray tank with clean water and begin agitation. Add the specified amount of ABOUND Flowable to the tank, allowing time for good dispersion, then add an adjuvant if required recommended. Finish filling the tank to the desired volume to obtain the proper spray concentration. Maintain agitation throughout the spraying operation. Do not allow spray mixture to stand overnight or for prolonged periods. Make up only the amount of spray required for immediate use.

TANK MIXES/COMPATIBILITY

ABOUND Flowable is compatible with many commonly used fungicides, liquid fertilizers, herbicides, insecticides and biological control products. If tank mixes are desired, observe all directions, precautions, and limitations on labeling of all products used. Consult compatibility charts or your local or state agricultural or turf authorities for compatibility information. Do not combine ABOUND Flowable in the spray tank with pesticides, surfactants or fertilizers, unless compatibility charts or your own prior use has shown that the combination is physically compatible, effective and non-injurious under your conditions of use. If physical compatibility is unknown, the following procedure should be followed: Pour the recommended proportions of the products into a suitable container of water, mix thoroughly and allow to stand at least twenty (20) minutes. If the combination remains mixed or can be re-mixed readily, the mixture is considered physically compatible. Products should be added to the spray tank in the following order: WG or dry flowable formulations, wettable powders, and flowable (aqueous suspensions) products such as ABOUND Flowable.

SPRAY DRIFT MANAGEMENT

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

AVOIDING SPRAY DRIFT IS THE RESPONSIBILITY OF THE APPLICATOR.

SPECIFIC USE DIRECTIONS

BANANAS

ABOUND Flowable fungicide is recommended for the control of black and yellow sigatoka on bananas.

Integrated Pest (Disease) Management: ABOUND Flowable should be integrated into an overall disease management strategy for each plantation. Practices known to reduce disease development should be followed. These include canopy management through removal of suckers and proper plant spacing, proper selection of varieties with tolerance or resistance to;

disease, removal of plant debris in which inoculum overwinters, good surface water drainage, and the use of fungicides when required.

Resistance Management: A disease management program that includes alternation between ABOUND Flowable and other labeled fungicides that have a different mode of action is essential to prevent pathogen populations from ~~becoming resistant~~ developing resistance to ABOUND Flowable. This resistance management strategy should NOT include alternation or tank mixes with products to which resistance has already developed. Do not apply more than two sequential sprays of ABOUND Flowable before alternating with a fungicide that has a different mode of action. Do not make more than eight (8) applications of ABOUND Flowable per acre in a 12 month period.

Application Directions: ABOUND Flowable should be applied prior to or in the early stages of disease development. Applications may be made by ground or by air. Proper adjustment and calibration of spraying equipment to give good canopy penetration and coverage is essential for good disease control. Use sufficient volumes of water to ensure adequate coverage of plant parts to be protected. An adjuvant may be added at recommended rates to improve coverage. The higher rates in the rate range and/or shorter spray intervals may be required under conditions of heavy infection pressure, highly susceptible varieties, or when disease conducive environmental conditions exist.

May be applied the day of harvest.

Do not apply more than 2.08 quarts product/acre/year (1.08 lb ai/A).

GRAPES

ABOUND Flowable fungicide is recommended for the control of powdery mildew, downy mildew, black rot and Phomopsis cane and leafspot on grapes.

Integrated Pest (Disease) Management: ABOUND Flowable should be integrated into an overall disease management strategy for each vineyard. Practices known to reduce disease development should be followed. These include canopy management through pruning and thinning, proper selection of varieties with tolerance or resistance to disease, proper timing and placement of irrigation, removal of plant debris in which inoculum overwinters and the use of fungicides when required.

Resistance Management: A disease management program that includes alternation between ABOUND Flowable and other labeled fungicides that have a different mode of action is essential to prevent pathogen populations from ~~becoming resistant~~ developing resistance to ABOUND Flowable. This resistance management strategy should NOT include alternation or tank mixes with products to which resistance has already developed. Do not apply more than two sequential sprays of ABOUND Flowable before alternating with a fungicide that has a different mode of action. Do not make more than six (6) applications of ABOUND Flowable per acre per year.

Application Directions: ABOUND Flowable should be applied prior to or in the early stages of disease development. Applications may be made by ground or by air. Proper adjustment and

calibration of spraying equipment to give good canopy penetration and coverage is essential for good disease control. Use sufficient volumes of water to ensure adequate coverage of plant parts to be protected. ~~The addition of a nonionic surfactant at 0.05 % V/V may~~ An adjuvant may be added at recommended use rates to improve coverage. The higher rates in the rate range and/or shorter spray intervals may be required under conditions of heavy infection pressure, highly susceptible varieties, or when disease conducive environmental conditions exist. ~~In vineyards where control of more than one disease is required, always use the rate range recommended for the disease requiring the highest rate of ABOUND Flowable.~~

Do not apply within 14 days of harvest.

Do not apply more than 2.88 quarts product/acre/year (1.5 lb ai/A).

PEACHES

ABOUND Flowable fungicide is recommended for the control of blossom blight, fruit brown rot and scab on peaches.

Integrated Pest (Disease) Management: ABOUND Flowable should be integrated into an overall disease management strategy for each orchard. Practices known to reduce disease development should be followed. These include selection of varieties with tolerance to disease, removal of plant debris in which inoculum overwinters, proper pruning to provide sunlight and aeration and the use of fungicides when required.

Resistance Management: A disease management program that includes alternation between ABOUND Flowable and other labeled fungicides that have a different mode of action is essential to prevent pathogen populations from becoming resistant to ABOUND Flowable. When ABOUND Flowable is being applied for the control of blossom blight no more than two (2) sequential applications of ABOUND Flowable should be made before alternating with a fungicide that has a different mode of action. ~~In orchards where ABOUND Flowable is applied for brown rot do not apply more than one application of ABOUND Flowable before alternating with other chemistry.~~ When ABOUND is being applied for the control of scab, no more than four (4) sequential applications of ABOUND should be made before alternating with a fungicide that has a different mode of action. Do not make more than eight (8) applications per acre per year

Application Directions: ABOUND Flowable should be applied prior to or in the early stages of disease development. Applications may be made by ground or by air. Proper adjustment and calibration of spraying equipment to give good tree penetration and coverage is essential for good disease control. Use sufficient volumes of water to ensure adequate coverage of plant parts to be protected. The addition of a nonionic surfactant at 0.5 pint/100 gallons of water may improve coverage. The higher rates in the rate range and/or shorter spray intervals may be required under conditions of heavy infection pressure, highly susceptible varieties, or when disease conducive environmental conditions exist.

Do not apply within 14 days of harvest.

Do not apply more than 2.31 quarts product/acre/year (1.2 lb ai/A).

PEANUTS

ABOUND Flowable fungicide is recommended for the control of early leafspot and late leafspot, Rhizoctonia peg and pod rot and stem rot/white mold (*Sclerotium rolfsii*) on peanuts.

Integrated Pest (Disease) Management: ABOUND Flowable should be integrated into an overall disease management strategy for each peanut field. Practices known to reduce disease development should be followed. These include proper selection of varieties with tolerance or resistance to disease, proper timing and placement of irrigation, crop rotation, removal of plant debris in which inoculum overwinters, crop residue management and the use of fungicides when required.

Resistance Management: Do not make more than two (2) applications of ABOUND Flowable per acre per year.

Application Directions: ABOUND Flowable should be applied at approximately 60 and 90 days after planting as a foliar application and in a sufficient volume of water for good coverage. Applications may be made by ground or by air. The higher rates in the rate range may be required under conditions of heavy infection pressure, highly susceptible varieties, or when disease conducive environmental conditions exist. These two applications of ABOUND Flowable will provide season-long protection against the soil borne diseases labeled and will also provide control of early and late leafspot for a 10-14 day period after each spray. Additional applications of other labeled fungicides on a leafspot application schedule will be required to provide season-long disease control of the leafspot diseases. Adjuvants may be added to the spray tank at recommended use rates to improve coverage.

Do not apply within 50 days of harvest.

Do not feed peanut hay.

Do not apply more than 1.54 quarts product/acre/year (0.8 lbs ai/acre/year).

PECANS

ABOUND Flowable fungicide is recommended for the control of anthracnose (*Glomerella shuck* and kernel rot) and scab on pecans.

Integrated Pest (Disease) Management: ABOUND Flowable should be integrated into an overall disease management strategy for each orchard. Practices known to reduce disease development should be followed. These include selection of varieties with tolerance to disease, removal of plant debris in which inoculum overwinters and the use of fungicides when required.

Resistance Management: A disease management program that includes an alternating seasonal spray program or a full-season alternating block spray program between ABOUND Flowable and other labeled fungicides that have a different mode of action is essential to prevent pathogen populations from becoming resistant to ABOUND Flowable. Use of the alternating seasonal program requires applications of ABOUND Flowable either early season (from bud break through pollination) or as cover sprays after pollination, but not full season use.

If ABOUND Flowable is applied in the cover spray period, do not spray ABOUND Flowable as early season sprays the following year. The full-season alternating block spray program requires alternation of blocks of no more than four ABOUND Flowable sprays with other labeled fungicides in a season long alternating pattern beginning at budbreak. Do not make more than six (6) applications per acre per year.

Application Directions: ABOUND Flowable should be applied prior to or in the early stages of disease development. Applications may be made by ground or by air. Proper adjustment and calibration of spraying equipment to give good tree penetration and coverage is essential for good disease control. Use sufficient volumes of water to ensure adequate coverage of plant parts to be protected. The addition of a nonionic surfactant at 1 pint/100 gallons of water may improve coverage. The higher rates in the rate range and/or shorter spray intervals may be required under conditions of heavy infection pressure, highly susceptible varieties, or when disease conducive environmental conditions exist.

Do not apply within 45 days of harvest.

Do not apply more than 2.31 quarts product/acre/year (1.2 lb ai/A).

TOMATOES

ABOUND Flowable fungicide is recommended for the control of anthracnose, early blight, late blight and Septoria leafspot in tomatoes.

Integrated Pest (Disease) Management: ABOUND Flowable should be integrated into an overall disease management strategy for each field. Practices known to reduce disease development should be followed. These include proper selection of varieties with tolerance to disease, removal of plant debris in which inoculum overwinters, plant residue management, crop rotation, irrigation management and the use of fungicides when required.

Resistance Management: A disease management program that includes alternation between ABOUND Flowable and other labeled fungicides that have a different mode of action is essential to prevent pathogen populations from becoming resistant developing resistance to ABOUND Flowable. When ABOUND Flowable is being applied for the control of early blight, Septoria leafspot and/or anthracnose, no more than four sequential applications of ABOUND Flowable should be made before alternating with a fungicide with a different mode of action. When ABOUND Flowable is being applied for the control of late blight, no more than two sequential applications of ABOUND Flowable should be made before alternation with a fungicide with a different mode of action. If late blight should occur during an early blight spray program, switch immediately to the late blight spray program beginning with a fungicide that has a different mode of action. Do not make more than eight (8) applications per acre per year.

Application Directions: ABOUND Flowable should be applied prior to or in the early stages of disease development. Applications may be made by ground or by air. Proper adjustment and calibration of spraying equipment is essential to ensure proper coverage for good disease control. Use sufficient volumes of water to ensure adequate coverage of plant parts to be protected. The higher rates in the rate range and/or shorter spray intervals may be required

under conditions of heavy infection pressure, highly susceptible varieties, or when disease conducive environmental conditions exist.

Do not apply with a surfactant or crop oil concentrate an adjuvant due to the potential for phytotoxicity.

Do not apply within 7 days of harvest.

Do not apply more than 1.54 quarts product/acre/year (0.8 lb ai/A)

DIRECTIONS FOR APPLICATION

Crop	Target Diseases	Use Rate oz product/A (lb a/A)	Remarks
Bananas	Black Sigatoka (<i>Mycosphaerella fijiensis</i>)	5.5-8.3 (0.09- 0.135)	ABOUND should be applied in an alternating block spray program. Begin applications prior to disease development and continue applications throughout the season every 12-14 days, alternating blocks of no more than two ABOUND sprays with other fungicides that have a different mode of action. Do not alternate or tank mix with fungicides to which resistance has developed in the pathogen population. Do not apply more than two sequential sprays of ABOUND. Do not make more than eight (8) applications per acre during any 12 month period. May be applied the day of harvest.
	Yellow Sigatoka (<i>Mycosphaerella musicola</i>)		
Grapes	Downy Mildew (<i>Plasmopara viticola</i>)	9.8-15.4 (0.16- 0.25)	ABOUND should be applied in an alternating block spray program. Begin ABOUND applications at budbreak and continue applications throughout the season every 10-14 days, alternating between blocks of no more than two ABOUND sprays and other fungicides which have a different mode of action. Do not alternate or tank mix with fungicides to which resistance has developed in the pathogen population. Do not apply more than two sequential sprays of ABOUND. Do not make more than six (6) applications per acre per year. Do not apply within 14 days of harvest.
	Phomopsis Cane and Leaf Spot (<i>Phomopsis viticola</i>)		
Peaches	Powdery Mildew (<i>Uncinula necator</i>)	6.8-15.4 (0.11-0.25)	Blossom Blight: Begin applications at early bloom and continue through petal fall. Do not apply more than two applications of ABOUND before alternating with fungicides that have a different mode of action. Do not alternate or tank mix with fungicides to which resistance has developed in the pathogen population.
	Black Rot (<i>Guignardia bidwellii</i>)		
	Brown Rot (<i>Monilinia fructicola</i> , <i>M. laxa</i>)	6.2-9.2 (0.10- 0.15)	Brown Rot: Do not make more than one application of ABOUND for brown rot control. ABOUND may be applied up to 14 days before harvest. If severe disease conditions persist, additional sprays at or near harvest with alternative fungicides may be necessary.
	Scab (<i>Cladosporium carpophilum</i>)	4.3-9.2 (0.07- 0.15)	Scab: Begin applications at petal fall and continue on 12-14 day intervals. Do not apply more than four (4) sequential applications before alternating with fungicides with a different mode of action. Do not make more than eight (8) applications on peaches per acre per year for all diseases. Do not apply within 14 days of harvest.

Crop	Target Diseases	Use Rate oz product/A (lb a/A)	Remarks
Peanuts	Early Leafspot (<i>Cercospora arachidicola</i>) Late Leafspot (<i>Cercosporidium personatum</i>) Rhizoctonia Peg and Pod Rot (<i>Rhizoctonia solani</i>) Stem Rot/White Mold (<i>Sclerotium rolfsii</i>)	6.2-24.6 (0.10-0.40)	Apply ABOUND as a foliar application at approximately 60 and 90 days after planting for control of soil borne diseases. These two applications of ABOUND will provide season-long protection against the soil borne diseases labeled and will also provide control of early and late leafspot for a 10-14 day period after each spray. Additional foliar sprays with other fungicides on a normal leafspot schedule will be required for season-long control of early and late leafspot. Do not make more than two (2) applications per acre per year. Do not apply within 50 days of harvest. Do not feed peanut hay.
Pecans	Anthracnose (<i>Glomerella cingulata</i>) Scab (<i>Cladosporium caryigenum</i>)	6.2-12.3 (0.10-0.20)	Alternating Seasonal Spray Program - Apply ABOUND either early season or as cover sprays, but not both. For early season applications, begin sprays at bud break and continue on a 2 week schedule through pollination. For cover spray applications, begin 3 weeks after the final early season application and continue on a 3 week schedule for the remainder of the season. Alternating Block Spray Program - Apply ABOUND season long in an alternating block program with other fungicides with different modes of action. Do not apply more than four sequential sprays of ABOUND in the alternating block spray program. Blocks of no more than four ABOUND sprays should be applied in alternation. Do not alternate with other fungicides to which resistance has not developed in the pathogen population. Prepollination applications should begin at budbreak and continue on 2 week intervals. Cover sprays should continue season long on 3 week intervals. Do not make more than six (6) applications per acre per year. Do not apply within 45 days of harvest.
Tomatoes	Anthracnose (<i>Colletotrichum coccodes</i>) Black Mold (<i>Alternaria alternata</i>) Buckeye Rot (<i>Phytophthora spp.</i>) Early Blight (<i>Alternaria solani</i>) Powdery Mildew (<i>Oidiopsis sicula</i>) Septoria Leafspot (<i>Septoria lycopersici</i>) Target spot (<i>Corynespora cassicola</i>) Late Blight (<i>Phytophthora infestans</i>)	1.5-6.2 (0.025-0.10) 3.1-6.2 (0.05 - 0.10)	ABOUND should be applied on 7-21 day intervals. No more than four sequential applications of ABOUND should be made before alternating with fungicides that have a different mode of action. Do not alternate or tank mix with fungicides to which resistance has developed in the pathogen population. Late Blight: ABOUND should be applied at 5-10 day intervals. No more than two sequential applications of ABOUND should be made before alternating with fungicides that have a different mode of action. Do not alternate or tank mix with fungicides to which resistance has developed in the pathogen population. Do not apply with adjuvants. Do not make more than eight (8) applications on tomatoes per acre per year for all diseases. Do not apply within 7 days of harvest.

ABOUND Flowable Rate Conversion Chart

Fluid Ounces Product/A	Lb ai/A	Treated Acres/Gal Product
2	0.03	64.0
3	0.05	42.7
4	0.07	32.0
5	0.08	25.6
6	0.10	21.3
7	0.11	18.3
8	0.13	16.0
9	0.15	14.2
10	0.16	12.8
11	0.18	11.6
12	0.20	10.7
13	0.21	9.8
14	0.23	9.1
15	0.24	8.5
16	0.26	8.0
17	0.28	7.5
18	0.29	7.1
19	0.31	6.7
20	0.33	6.4
21	0.34	6.1
22	0.36	5.8
23	0.37	5.6
24	0.39	5.3

TURF:

Golf Course turf (Not for use in California)

Commercial Turf farms (Not for use in California)

ABOUND Flowable fungicide is recommended for control of brown patch, Pythium blight (including metalaxyl-resistant populations), anthracnose, melting out, leafspot, necrotic ring spot, red thread, summer patch, gray snow mold (Typhula blight), pink snow mold, gray leaf spot, spring dead spot, zoysia patch, Fusarium patch and take-all patch on golf courses and commercial turf farms (not for use in California).

ABOUND fungicide is recommended for control of anthracnose, brown patch, C&C Weather, Brown Patch (yellow patch), Fusarium patch, gray leaf spot, gray snow mold (Typhula blight), leafspot, melting out, necrotic ring spot, pink patch, pink snow mold, Pythium blight, Pythium root rot, red thread, Rhizoctonia large patch, southern blight, spring dead spot, summer patch, take-all patch, and zoysia patch on golf courses and commercial turf farms.

Integrated Pest (Disease) Management: Sound turf management resulting in healthy, vigorous turf is the foundation of a good IPM program. Cultural practices such as proper choice of turf

variety, nutrient management, proper cutting height, thatch management, and proper watering, drainage, and moisture stress management should be integrated with the use of fungicides to increase turf vigor and reduce the susceptibility to disease. Immunoassay detection kits and extension service diagnostic services can assist in the early and accurate identification of causal organisms and corresponding selection of the proper fungicide when required.

Resistance Management: Some turf disease pathogens are known to have developed resistance to products used repeatedly for their control. ABOUND Flowable should be applied in a tank mix or alternation program with other registered fungicides that have a different mode of action and to which pathogen resistance has not developed. Do not apply more than two sequential ABOUND Flowable applications for *Pythium* spp. control. Do not apply more than four sequential applications of ABOUND Flowable for all other diseases.

Application Directions: Mix ABOUND Flowable with the required amount of water and apply as a dilute spray application in 2-4 gallons of water per 1000 square feet (87-174 gallons per acre). Repeat applications at specified intervals for as long as required. Use the shorter specified application interval and/or use the higher specified rate when prolonged favorable disease conditions exist. For spot treatments, use 0.4 fl. oz. ABOUND Flowable per 1 to 2 gallons of water. Do not apply more than 9.6 quarts product/acre/year (7.1 fl. oz product/1000 square feet/year).

Dollar Spot: ABOUND Flowable does not control dollar spot. ABOUND Flowable is compatible in tank mixes with many other fungicides that control dollar spot. Always tank mix ABOUND Flowable with another fungicide that controls dollar spot when this disease is present. Follow directions under TANK MIXES/COMPATIBILITY above.

DIRECTIONS FOR APPLICATION FOR TURF DISEASES

Target Diseases	Use Rate (oz product per 1000 sq ft)	Application Interval (days)	Remarks*
Anthrachnose (<i>Colletotrichum graminicola</i>)	0.38-0.77	14-28	Apply when conditions are favorable for disease development.
Brown Patch (<i>Rhizoctonia solani</i>)	0.38-0.77	14-28	Apply when conditions are favorable for disease development.
Cool Weather Brown Patch Yellow Patch (<i>Rhizoctonia cerealis</i>)	0.38-0.77	28	Make one or two applications in <u>late fall</u> <u>before snow cover</u> , or when conditions are favorable for disease development. <u>Do not apply on top of snow.</u>
Fusarium Patch (<i>Microdochium nivale</i>)	0.38-0.77	14-28	Apply when conditions are favorable for disease development.
Gray Leaf Spot (<i>Pyricularia grisea</i>)	0.38-0.77	14-28	Begin applications before disease is present and continue applications while conditions are favorable for disease development.
Gray Snow Mold Typhula blight (<i>Typhula incarnata</i> , <i>T. ishikariensis</i>)	0.77	14	Make two applications spaced 14 days apart. Tankmixing with another snow mold fungicide(s) may enhance control under severe disease pressure. Apply in late fall before snow cover. Do not apply on top of snow. Make two applications spaced 14 days apart in late fall just before snow cover. Tankmixing with another snow mold fungicide may enhance control under severe disease pressure.
Leafspot (<i>Drechslera</i> spp. and/or <i>Bipolaris</i> spp. <i>sorokiniana</i>)	0.38-0.77	14-21	Apply when conditions are favorable for disease development.
Melting Out (<i>Drechslera poae</i> spp. and/or <i>Bipolaris</i> spp.)	0.38-0.77	14-21	Apply when conditions are favorable for disease development
Necrotic Ring Spot (<i>Leptosphaeria korrae</i>)	0.38-0.77	14-28	Apply when conditions are favorable for disease development.
Pink Patch (<i>Limonomyces roseipellis</i>)	0.38-0.77	14-28	Apply when conditions are favorable for disease development.
Pink Snow Mold (<i>Microdochium nivale</i>)	1.35 0.77	single application 14	Make two applications spaced 14 days apart. Tankmixing with another snow mold fungicide(s) may enhance control under severe disease pressure. Apply in late fall before snow cover. Do not apply on top of snow. Make a single application of 0.7 oz or two applications spaced 14 days apart in late fall just before snow cover. Tankmixing with another snow mold fungicide may enhance control under severe disease pressure.
Pythium Blight Pythium Root Rot (<i>Pythium aphanidermatum</i> , <i>Pythium</i> spp.)	0.38-0.77	10-14	Begin applications before disease is present. During periods of prolonged favorable conditions; treat on the 10 day application interval. For use on newly seeded as well as established turf.
Red Thread (<i>Laetisaria fuciformis</i>)	0.38-0.77	14-28	Apply when conditions are favorable for disease development.

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Target Diseases	Use Rate (oz product per 1000 sq ft)	Application Interval (days)	Remarks*
Rhizoctonia Large Patch (<i>Rhizoctonia solani</i>)	0.38-0.77	28	Make one or two applications in late fall before snow cover or when conditions are favorable for disease development. Do not apply on top of snow.
Southern Blight (<i>Sclerotium rolfsii</i>)	0.38-0.77	14-28	Apply when conditions are favorable for disease development.
Spring Dead Spot (<i>Leptosphaeria korrae</i>) or (<i>Gaeumannomyces graminis</i> var. <i>graminis</i>) or (<i>Ophiosphaerella</i> <i>herpotricha</i>)	0.38-0.77	28	Make one or two applications in late fall before snow cover , or when conditions are favorable for disease development. Do not apply on top of snow.
Summer Patch (<i>Magnaporthe poae</i>)	0.38-0.77	14-28	Apply when conditions are favorable for disease development.
Take-all patch (<i>Gaeumannomyces graminis</i> var. <i>avenae</i>)	0.38-0.77	28	Make two applications, 28 days apart in the spring and two applications 28 days apart in the fall.
Zoysia Patch (<i>Rhizoctonia solani</i> and/or <i>Gaeumannomyces crustacea</i>)	0.38-0.77	28	Make one or two applications in late fall before snow cover or when conditions are favorable for disease development. Do not apply on top of snow.

* Do not apply more than two sequential applications of ABOUND for control of Pythium spp. For all other diseases, do not apply more than four sequential applications of ABOUND.

ABOUND Flowable Rate Conversion Chart for Turf

Fluid Ounces Product Per 1000 Sq. Ft.	Ounces A.I. Per 1000 Sq. Ft.	Fluid Ounces Product Per Acre	Pints of Product Per Acre
0.4	0.104	17.4	1.1
0.5	0.130	21.8	1.4
0.6	0.156	26.1	1.6
0.7	0.182	30.5	1.9
0.77	0.200	33.5	2.1
1.35	0.35	58.8	3.7

Amount of ABOUND Flowable to Mix 100 Gallons for Turf Applications

ABOUND Flowable Use Rate	Spray Volume (gallons/1000 square feet)		
	2.0 gals	3.0 gals	4.0 gals
0.4 oz	20 oz	13 oz	10 oz
0.5 oz	25 oz	17 oz	13 oz
0.6 oz	30 oz	20 oz	15 oz
0.7 oz	35 oz	23 oz	18 oz
0.77 oz	38.5 oz	25.7 oz	19.3 oz
1.35 oz	67.5 oz	45 oz	33.75 oz

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