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5-575404

February 17, 2000

Novartis Crop Protection, Inc.
P.O. Box 18300
Greensboro, NC 27419-8300

Attention: Robert Wurz

Subject: Fulfill®
EPA Reg. No. 100-912
Your amended application of January 28, 2000

The labeling submitted with the above letter is acceptable, provided that you submit one (1) copy of final printed labeling before you release the product for shipment.

This registration will be subject to cancellation in accordance with FIFRA sec. 6(e) if you do not comply with these conditions. Your release for shipment of the product bearing the amended labeling constitutes acceptance of these conditions.

A stamped copy of the labeling is enclosed for your records.

Sincerely,



Daniel B. Peacock, Biologist
Insecticide-Rodenticide Branch
Registration Division (7504C)

Enclosures: 1. Stamped Label
2. Minimum Type Sizes for Final Printed Labels

C:\Pymetrozine\100-912 Fulfill Label.wpdFebruary 17, 2000

(Attached Booklet)

(1/24/00 = chemigation removed)

Fulfill®

INSECTICIDE

For control of certain aphids in potatoes (and other tuberous and corn vegetables) and tobacco

Active Ingredient:	
Pymetrozine (CAS No. 123312-89-0)	50.0%
Other Ingredients:	50.0%
Total:	100.0%

Fulfill is a water-dispersible granule containing 50% active ingredient by weight.

EPA Reg. No. 100-912

EPA Est. 67545-AZ-1

ACCEPTED
with COMMENTS
in EPA Letter Dated:

FEB 17 2000

KEEP OUT OF REACH OF CHILDREN.

CAUTION

Under the Federal Insecticide, Fungicide, and Plant Growth Regulator Act, as amended, for the pesticide registered under EPA Reg. No. 100-912

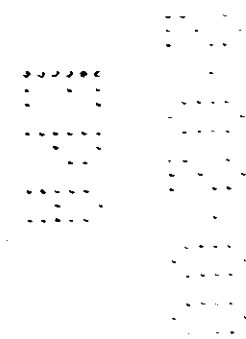
See additional precautionary statements inside booklet. See Directions for Use before applying.

27.5 OUNCES (1 POUND, 11.5 OUNCES)
NET WEIGHT

NCP 912A-L4B 0200

Product of Switzerland

Formulated in the USA



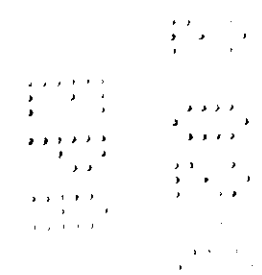
DIRECTIONS FOR USE AND CONDITIONS OF SALE AND WARRANTY

IMPORTANT: Read the entire **Directions for Use** and the **Conditions of Sale and Warranty** before using this product. If terms are not acceptable, return the unopened product container at once.

CONDITIONS OF SALE AND WARRANTY

The **Directions for Use** of this product reflect the opinion of experts based on laboratory and field trials. The directions are believed to be reliable and should be followed carefully. However, it is impossible to eliminate all risks inherently associated with 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 the manner of use or application all of which are beyond the control of Novartis Crop Protection, Inc. or the Seller. All such risks shall be assumed by the Buyer.

Novartis 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. **Novartis makes no other express or implied warranty of Fitness or Merchantability or any other express or implied warranty. In no case shall Novartis or the Seller be liable for consequential, special, or indirect damages resulting from the use or handling of this product.** Novartis 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 Novartis.



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.

AGRICULTURAL USE REQUIREMENTS

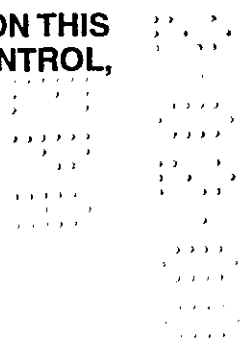
Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements 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:

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

FAILURE TO FOLLOW DIRECTIONS AND PRECAUTIONS ON THIS LABEL MAY RESULT IN CROP INJURY, POOR INSECT CONTROL, AND/OR ILLEGAL RESIDUES.



GENERAL INFORMATION

Fulfill is an insecticide for the control of certain aphid species in potatoes (and other tuberous and corm vegetables) and tobacco.

Apply Fulfill to plant foliage when aphids first appear, before populations build to damaging levels.

Thorough spray coverage is essential for best performance. Apply Fulfill in sufficient water to ensure good coverage of all plant surfaces. The use of greater water volumes will generally result in better coverage, especially under adverse conditions (e.g., hot, dry) or where a dense plant canopy exists. See the **Recommended Applications** section of this label for specific recommendation on spray volumes for different crops.

The use of a penetrating type spray adjuvant, at the manufacturer's suggested rate, is recommended for all applications of Fulfill. The use of a surfactant typically improves coverage and results in optimum insect control, especially in hard-to-wet crops.

Fulfill exhibits excellent translaminar movement (movement across the leaf surface and into plant tissue) and is rainfast as soon as the spray solution has dried.

Mode of Action

Fulfill works primarily by ingestion, but also has some contact activity. Affected aphids stop feeding shortly after exposure, but may remain on the plant foliage until they die, which is usually within 2-4 days. Fulfill has residual activity in the plant and will control aphids that move onto the plant after spraying.

Suitability for Integrated Pest Management Programs

Fulfill is suitable for Integrated Pest Management (IPM) programs as it has a low toxicity to beneficial insects (including honeybees and bumblebees) and mites. It can be used in IPM programs using beneficial insects and during periods of pollination, when bees are actively foraging.

Phytotoxicity

Fulfill has been tested for phytotoxicity at the label rates and has shown no effects on the crops listed on this label.

Use Restrictions

Do not apply more than 2.75 oz. of Fulfill per acre per application

Do not apply more than 5.50 oz. of Fulfill per acre per year.

Allow 7 days between applications and 14 days between last application and harvest (preharvest interval).

Do not use Fulfill in nurseries or in plant propagation houses, or on any plants grown for use as transplants.

Resistance Management

Fulfill belongs to a class of chemicals not previously used as pesticides and is not known to be cross-resistant to other classes of insecticides. However, because of the inherent risks of resistance development to any product, it is strongly advised that Fulfill be used in a sound resistance management program that includes rotation with other products with different modes of action.

Aphids Controlled¹

<u>Common Name</u>	<u>Scientific Name</u>
Bean aphid	<i>Aphis fabae</i>
Bird cherry-oat aphid	<i>Rhopalosiphum padi</i>
Buckthorn aphid	<i>Aphis nasturtii</i>
Cabbage aphid	<i>Brevicoryne brassicae</i>
Corn leaf aphid	<i>Rhopalosiphum maidis</i>
English grain aphid	<i>Sitobion avenae</i>
Green peach aphid	<i>Myzus persicae</i>
Hop aphid	<i>Phorodn humuli</i>
Melon/cotton aphid	<i>Aphis gossypii</i>
Pea aphid	<i>Acyrtosiphon pisum</i>
Potato aphid	<i>Macrosiphum euphorbiae</i>
Red lettuce aphid	<i>Uroleucon pseudambrosiae</i>
Tobacco aphid	<i>Myzus nicotianae</i>
Turnip aphid	<i>Lipaphis erysimi</i>

¹See individual crop sections for information on which aphid species most typically infest a particular crop.

APPLICATION PROCEDURES

Ground Spray Equipment

Use sufficient water to provide thorough, uniform coverage.

Use sprayer nozzles that provide accurate, uniform application and medium-sized droplets.

Calibrate sprayer from manufacturer's instructions or state's recommendations to ensure delivery of adequate spray volume per unit area.

Applications using sufficient water volume to provide thorough and uniform coverage generally provide the most effective aphid pest control. For ground applications, use a minimum of 10 gals./A unless otherwise indicated in the **Recommended Applications** section of this label. In situations where a dense canopy exists and/or aphid infestations are high, use greater water volumes (i.e., at least 20 gals./A).

Mixing Instructions

Prepare no more spray mixture than is needed for the immediate application. Thoroughly clean spray equipment before using this product. Agitate the spray solution before and during application. Do not let the spray mixture stand overnight in the spray tank. Flush the spray equipment thoroughly following each use and apply the rinsate to a previously treated area. Keep product container tightly closed when not in use.

Fulfill Alone: Add 1/2 of the required amount of water to the mix tank. With the agitator running, add the Fulfill to the tank. Continue agitation while adding the remainder of the water. Begin application of the solution after the Fulfill has completely and uniformly dispersed into the mix water. Maintain agitation until all of the mixture has been applied.

Note: Do not use liquid fertilizer as a carrier for Fulfill.

Fulfill + Tank Mixtures: Add 1/2 of the required amount of water to the mix tank. Start the agitator running before adding any tank mix partners. In general, tank mix partners should be added in this order: products packaged in water-soluble packaging, wettable powders, wettable granules (dry flowables) such as Fulfill, liquid flowables, liquids and emulsifiable concentrates. **Always allow each tank mix partner to become fully dispersed before adding the next product.** Provide sufficient agitation while adding the remainder of the water. Maintain agitation until all of the mixture has been applied.

Note: When using Fulfill in tank mixtures, all products in water-soluble packaging should be added to the tank before any other tank mix partner, including Fulfill. Allow the water-soluble packaging to completely dissolve and the product(s) to completely disperse before adding any other tank mix partner to the tank.

If using Fulfill in a tank mixture, observe all directions for use, crop/sites, use rates, dilution ratios, precautions, and limitations which appear on the tank mix product label. No label dosage rate should be exceeded, and the most restrictive label precautions and limitations should be followed. This product should not be mixed with any product which prohibits such

mixing. Tank mixtures or other applications of products referenced on this label are permitted only in those states in which the referenced products are labeled.

Compatibility: Fulfill is compatible with most insecticide, fungicide, fertilizers, and micronutrient products. However, the physical compatibility of Fulfill with tank mix partners should be tested before use. To determine the physical compatibility of Fulfill with other products, use a jar test, as described below.

Using a 1½ quart jar, add the proportionate amounts of the products to 1 qt. of water. Add wettable powders and water-dispersible granular products first, then liquid flowables, and emulsifiable concentrates last. After thoroughly mixing, let stand for at least 5 minutes. If the combination remains mixed or can be remixed readily, it is physically compatible. Once compatibility has been proven acceptable, use the same procedure for adding required ingredients to the spray tank. If the combination proves not to be physically compatible, do not use these products in a tank mix.

The crop safety of all potential tank mixes on all crops may not have been tested. Before applying any tank mixture not specifically recommended on this label, the safety to the target crop should be confirmed.

Aerial Application

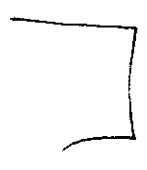
Apply Fulfill in water, using a minimum spray volume of 5 gals./A as indicated in the **Recommended Applications** section of this label. Increase spray volume to 10-20 gals./A under adverse conditions (i.e., high temperature, low relative humidity, dense plant canopy). Avoid application under conditions where uniform coverage cannot be obtained or where excessive spray drift or inversion may occur. Do not apply directly to humans or animals.

Recommendations to Avoid Spray Drift

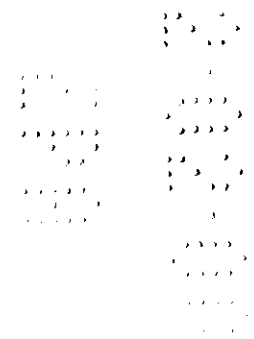
As with all crop protection products, it is important to avoid off-target movement. Do not allow spray to drift onto adjacent land or crops. Follow these recommendations to avoid spray drift.

- Do not apply when wind velocity exceeds 15 mph. Avoid applications when wind gusts approach 15 mph.
- Avoid spraying when conditions are favorable for drift (high temperatures, low relative humidity, drought). Do not apply during temperature inversions. If an inversion condition is suspected, consult with local weather services before making an application.

- Use the largest droplet size consistent with good pest control. Small droplets are more prone to spray drift, and can be minimized by appropriate nozzle selection, by orienting nozzles away from the air stream as much as possible, and by avoiding excessive spray boom pressure.
- Apply as close to target plants as practical to obtain a good spray pattern for adequate coverage. Applications more than 10 ft. above the crop canopy should be avoided.
- For aerial applications, the spray boom should be mounted on the aircraft so as to minimize drift caused by wing tip vortices. The minimum practical boom length should be used and must not exceed 75% of wing span or rotor diameter.



Do not apply Fulfill through chemigation.



RECOMMENDED APPLICATIONS

According to the following table, Fulfill may be used for the sites and pests at the indicated rates and limitations.

Crop	Pest	Rate Per Acre Per Application	Remarks
Potatoes (and other Tuberous and Corm Vegetables) Potato Sweet potato True yam Bean yam Jerusalem artichoke Chinese artichoke Edible canna Chayote root Arracacha Arrowroot Bitter cassava Sweet cassava Chufa Dasheen Ginger Leren Tanier Tumeric	Green peach aphid		Apply when aphids first appear, before populations build to damaging levels.
	Potato aphid	Foliar application: 2.75 oz./A	Additional applications may be needed to control persistent aphid populations.
	Melon aphid		
	Buckthorn aphid		

Thorough spray coverage of plant foliage is essential for optimum control. Apply in sufficient water to ensure good coverage; use a minimum of 5 gals./A when applied by air and a minimum of 10 gals./A when applied by ground. The addition of a penetrating type spray adjuvant at the manufacturer's suggested rate, is recommended to provide optimum coverage and insect control.

Do not apply more than 2.75 oz./A per application. Do not exceed a total of 5.5 oz./A per crop per season.

Allow a minimum of 7 days between applications. Allow 14 days (PHI) between the last application and harvest.

Note: Fulfill causes cessation of insect feeding shortly after application. However, aphids may remain on the plant for 2-4 days before they die.

Crop	Pest	Rate Per Acre Per Application	Remarks
Tobacco	Green peach aphid Tobacco aphid	Foliar application: 2.75 oz./A	Apply when aphids first appear, before populations build to damaging levels.

Do not apply at rates lower than those recommended on this label. Two applications may be needed to control heavy aphid infestations.

Thorough spray coverage of plant foliage is essential for optimum control. Apply in sufficient water to ensure good coverage; use a minimum of 20 gals./A when applied by ground. Do not apply by air. The addition of a nonionic surfactant or organosilicone-based surfactant, at the manufacturer's suggested rate, is recommended to provide optimum coverage and insect control.

Do not apply more than 2.75 oz./A per application. Do not make more than two applications per crop per season; do not exceed a total of 5.5 oz./A per crop per season.

Allow a minimum of 7 days between applications. Allow 14 days (PHI) between the last application and harvest.

Note: Fulfill causes cessation of insect feeding shortly after application. However, aphids may remain on the plant for 2-4 days before they die.

ROTATIONAL RESTRICTIONS

The rotational (plantback) restrictions for Fulfill are 30-days for all crops.

STORAGE AND DISPOSAL

Storage

Store in a cool, dry place.

For minor spills, leaks, etc., follow all precautions indicated on this label and clean up immediately. Take special care to avoid contamination of equipment and facilities during cleanup procedures and disposal of wastes. In the event of a major spill, fire, or other emergency, call 1-800-888-8372, day or night.

Pesticide Disposal

Do not contaminate water, food, or feed by storage or disposal. Pesticide wastes may be toxic. Improper disposal of unused pesticide, spray mixture, or rinse water is a violation of federal law. If these wastes cannot be used according to label instruction, contact your State Pesticide or

Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance in proper disposal methods.

Container Disposal

Triple rinse container. Then offer for recycling or reconditioning, or puncture and dispose of using one of the following methods: (1) depositing in a sanitary landfill, (2) incineration, or (3) burning, if allowed by state and local ordinances. Stay out of smoke from burning containers.

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

CAUTION

Harmful if absorbed through skin. Avoid contact with eyes, skin, or clothing. Wash thoroughly with soap and water after handling.

FIRST AID	
Have container or label when seeking treatment advice.	
If product:	Then:
Gets 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, doctor, or 1-800-888-8372 for treatment advice.
Gets in eyes	<ul style="list-style-type: none"> • Hold eye open and rinse slowly and gently with water for 5 minutes. • Remove contact lenses, if present. • Continue to rinse eyes for 10-15 minutes. • Call a poison control center, doctor, or 1-800-888-8372 for treatment advice.

Note to Doctor	<ul style="list-style-type: none"> • If ingested, induce emesis or lavage stomach. Treat symptomatically.
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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 Control Statements

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.

<p>User Safety Recommendations</p> <p>Users should:</p> <ul style="list-style-type: none"> • 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.

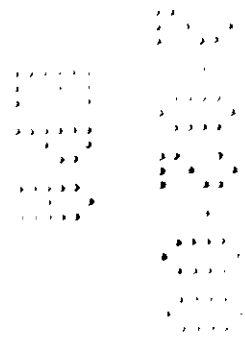
Environmental Hazards

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 cleaning equipment or disposing of equipment wash water.

Do not use, pour, spill, or store near heat or open flame.

Fulfill® trademark of Novartis
 U.S. Patent No. 5,153,200

©2000 Novartis



(Nondetachable Container Label)

Fulfil®

INSECTICIDE

For control of certain aphids in potatoes (and other tuberous and corn vegetables) and tobacco

Active Ingredient:

Pymetrozine (CAS No. 123312-89-0) 50.0%

Other Ingredients: 50.0%

Total: 100.0%

ACCEPTED
with COMMENTS
in EPA Letter D-100

FEB 17 2000

Fulfil is a water-dispersible granule.

See directions for use in attached booklet.

Under the Federal Insecticide, Fungicide, and Rodenticide Act as amended, for the pesticide registered under EPA Reg. No. 100-912

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. Refer to supplemental labeling under "Agricultural Use Requirements" in the Directions for Use section for information about this standard.

EPA Reg. No. 100-912

EPA Est. 67545-AZ-1

Fulfil® trademark of Novartis
U.S. Patent No. 5,153,200

27.5 OUNCES (1 POUND, 11.5 OUNCES)
NET WEIGHT

KEEP OUT OF REACH OF CHILDREN.

CAUTION

Precautionary Statements

Hazards to Humans and Domestic Animals

Harmful if absorbed through skin. Avoid contact with eyes, skin, or clothing. Wash thoroughly with soap and water after handling.

FIRST AID	
Have container or label when seeking treatment advice.	
If product:	Then:
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Note to Doctor	<ul style="list-style-type: none"> • If ingested, induce emesis or lavage stomach. Treat symptomatically.
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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 cleaning equipment or disposing of equipment wash water.

Storage

Store in a cool, dry place.

For minor spills, leaks, etc., follow all precautions indicated on this label and clean up immediately. Take special care to avoid contamination of equipment and facilities during cleanup procedures and disposal of

wastes. In the event of a major spill, fire, or other emergency, call 1-800-888-8372, day or night.

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Novartis Crop Protection, Inc.
Greensboro, North Carolina 27419
www.cp.us.novartis.com

NCP 912A-L4B 0200

Product ID.

[QUARK/FULFILL/FULFILL-B] - ccg - 1/27/00