



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

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MAY 28 1991

OFFICE OF
PESTICIDES AND TOXIC
SUBSTANCES

Novo Nordisk A/S
c/o Ms. Janet M. Overholt
Novo Nordisk Bioindustrials, Inc.
33 Turner Road
Danbury, Ct. 06813

Dear Ms. Overholt:

Subject: Biobit Wettable Powder
EPA Registration No. 58998-1

The labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act is acceptable.

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

Sincerely,

Phil Hutton
Product Manager 17
Insecticide-Rodenticide Branch
Registration Division (H7505C)

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Printed on Recycled Paper

ACTIVE INGREDIENT

Bacillus thuringiensis Berliner subspecies *kurstaki*

16,000 International Units (IU)

per mg of product (equivalent to 7.3 billion IU/lb.) 3.2%

INERT INGREDIENTS 96.8%

KEEP OUT OF REACH OF CHILDREN

CAUTION

STATEMENT OF PRACTICAL TREATMENT

If in eyes, flush with plenty of water. Get medical attention if irritation persists.

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

May cause eye irritation. Avoid contact with skin, eyes, or clothing. Wash thoroughly with soap and water after handling.

ENVIRONMENTAL HAZARDS

Do not contaminate water when disposing of equipment washwaters.

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 through any type of irrigation system.

Refer to the Directions For Use Booklet attached to this container for further directions.

EPA Reg. No. 58998-1

EPA Est. No. 58998-DN-001

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal of waste.

Storage: Store in a cool, dry place. Keep containers tightly closed when not in use. Store at temperatures above freezing and below 90 degrees F.

Pesticide Disposal: Pesticide waste resulting from the use of this product may be disposed of on site or at an approved waste disposal facility in accordance with federal and local regulations.

Container Disposal: Completely empty bag into application equipment then dispose of empty bag in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

HOME GARDEN USE DISPOSAL INSTRUCTIONS

Pesticide Disposal: Securely wrap original container in several layers of newspaper and discard in trash.

Container Disposal: Do not reuse bag. Discard bag in trash.

NOTICE OF WARRANTY

NOVO NORDISK MAKES NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PURPOSE, OR OTHERWISE, EXPRESS OR IMPLIED, concerning this product or its uses which extend beyond the use of the product under normal conditions in accord with the statements made on this label.

In no case shall the seller be liable for consequential or indirect damages resulting from the use or handling of this product. All such risks shall be assumed by the buyer.

Novo Nordisk holds U.S. registrations for the active ingredient Biorin. Biorin is manufactured by Novo Nordisk.

Biorin is the Registered Trademark of Novo Nordisk.

Manufactured For
Novo Nordisk
33 Turner Road
Danbury, CT 06813-1907

NET CONTENTS _____ Pounds

ACCEPTED

MAR 25 1981

NOVO NORDISK

58998-1

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Do not enter treated areas without protective clothing until sprays have dried.

Because certain states may require more restrictive reentry intervals for various crops treated with this product, consult your State Department of Agriculture for further information.

Do not apply this product in such a manner as to directly or through drift expose workers or other persons. The area being treated must be vacated by unprotected persons.

Written or oral warnings must be given to workers who are expected to be in a treated area or in an area about to be treated with this product. Oral warnings must include the following information:

Inform workers of area of fields that must not be entered without appropriate protective clothing until sprays have dried. In case of accidental exposure, wash thoroughly with soap and water. If in eyes, flush with plenty of water. Get medical attention if eye irritation persists.

When oral warnings are given, warnings shall be given in a language customarily understood by workers. Written warnings must include the following information:

CAUTION: Area treated with Biobit Wettable Powder on (date of application). Do not enter without appropriate protective clothing until sprays have dried. In case of accidental exposure, wash thoroughly with soap and water. If in eyes, flush with plenty of water. Get medical attention if eye irritation persists.

APPLICATION

Biobit may be applied by ground and aerial equipment with quantities of water sufficient to provide thorough coverage of plant parts to be protected. The amount of water needed per acre will depend upon crop size, weather, spray equipment, and local experience.

MIXING

Fill spray or mixing tank half full of water. Begin agitation and pour Biobit into water while maintaining continuous agitation. Add other spray material (if any) and balance of water. Agitate as necessary to maintain suspension. Do not allow diluted mixture to remain in the tank for more than 48 hours.

The use of a spreader-sticker is recommended for hard to wet crops such as cole crops or to improve weather-fastness of the spray deposits. Combinations with commonly used spray tank adjuvants are generally not deleterious to Biobit, if the mix is used promptly. Before mixing in the spray tank, it is advisable to test physical compatibility by mixing all components in a small container in proportionate quantities.

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For smaller spray volumes, mix the proper number of teaspoons of Biobit from the following chart to attain the desired rates:

If the rate is:

Add this amount per gallon of mix:

0.5 lb/acre
1.0 lb/acre
2.0 lb/acre

2 teaspoons
4 teaspoons
8 teaspoons

SPRAY VOLUMES

Aerial Application: Use recommended amount of Biobit in a minimum of 5 gallons of water per acre. Apply early morning or evening when air is calm.

Ground Application: Use recommended amount of Biobit in a minimum of 20 gallons of water per acre.

Ground applications to trees and vines: Apply specific dosage per acre of Biobit in a minimum of 100 gallons of water per acre for dilute applications. Wet foliage thoroughly with spray, but not to the point of excessive runoff. For mist blowers, use recommended amount of Biobit (per acre rate) in a minimum of 20 gallons of water per acre.

GENERAL USE INSTRUCTIONS

Biobit is a highly selective biological insecticide specific for the control of lepidopterous larvae. Biobit must be ingested by the larvae to be effective. For consistent control, apply at first sign of newly hatched larvae (1st and 2nd instar larvae). Susceptible larvae that ingest Biobit cease feeding within a few hours and die within 2-5 days.

Biobit may be applied up to and on the day of harvest.

For maximum effectiveness the following is recommended:

Monitor fields to detect early infestations.

Apply Biobit when eggs start hatching and larvae are small (early instars) and before significant crop damage occurs. Larvae must be actively feeding to be affected.

Repeat applications every 3 to 14 days to maintain control and protect new plant growth. Factors affecting spray interval include rate of plant growth, weather conditions, and reinfestation. Monitor populations of pests and beneficials to determine proper timing of applications.

Under conditions of heavy pest pressures or when large worms are present, use the higher rate, shorten the application interval, and/or improve spray coverage to enhance control. When these conditions are present, a contact insecticide should be used to enhance control.

Thorough coverage is essential for optimum performance. Ground applicators equipped with directed drop nozzles can improve coverage.

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CROP GROUP

FORAGE, FODDER, HAY

	<u>Crop</u>	<u>Pests</u>	<u>Rate (lbs./acre)</u>	<u>Special Instructions</u>
	Alfalfa (Hay & Seed) and Other Non-grass Animal Feeds,	Alfalfa Caterpillar Loopers	0.5-2.0	
		Armyworms	1.0-4.0	*
	Grasses Grown For Feed (pasture, ranges, hay or silage)	European Skipper (Essex Skipper)	1.0-2.0	

54

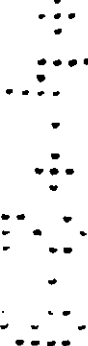

CROP GROUP				
FRUITS & NUTS				
	Crop	Pests	Rate (pts./acre)	Special Instructions
	<p>Pome and Stone Fruit Trees such as: Apples, Pears, Quince, Apricots, Cherries, Nectarines, Peaches, Plums, Prunes.</p> <p>Nut Trees such as: Almonds, Filbert, Chestnuts, Walnuts, Pecans.</p>	<p>Redhumped Caterpillar Tent Caterpillars Omnivorous Leafroller Tortrix Moths Cankerworms Fruitree Leafroller Gypsy Moth Tufted Apple Budmoth Fall Webworm Variegated Leafroller Redbanded Leafroller Walnut Caterpillar Codling Moth Cutworms Filbert Leafroller Oblique Banded Leafroller</p>	2.0-7.0	
		Filbert Webworm	2.0-3.5	
		Citrus Cutworm	2.0-4.5	
		Roughskinned Cutworm	1.0-2.0	
	Citrus	Orangedog	1.0-3.5	
		Fruitree Leafroller Citrus Cutworm	2.0-7.0	
		Amorbia	3.5-5.5	**See Below
	<p>Small Fruit and Berries such as: Blackberries, Blueberries, Currants, Raspberries, Strawberries, Cranberries.</p> <p>Grapes</p>	<p>Gypsy Moth Blueberry Leafroller Loopers Fruitree Leafroller Grape Berry Moth Oblique Banded Leafroller Achema Sphinx Moth (Hornworm)</p>	2.0-3.5	
		Armyworms	2.0-7.0	
		Tobacco Budworm	7.0	**See Below
		Cherry Fruitworm Green Fruitworm	1.0-2.0	
		Grape LeafFolder Grapeleaf Skeletonizer Omnivorous Leafroller Orange Tortrix Saltmarsh Caterpillar	2.0-4.5	

CROP GROUP				
OTHER FRUITS				
	Crop	Pests	Rate (pts./acre)	Special Instructions
	Bananas	Banana Skipper	2.0-3.5	
	Tropical Fruits	Hornworms Leafrollers Loopers Omnivorous Looper	2.0-7.0	
	Kiwi	Omnivorous Leafroller	2.0-7.0	
	Pineapple	Gummosos-Batrachedra commosae (Hodges) Thecla-Thecla basilides (Geyr)	1.0-2.0	
	Melons	(See Vegetable Crops, Cucurbits)		

942

CROP GROUPS				
VEGETABLES AND COLE CROPS				
	Crop	Pests	Rate (pts./acre)	Special Instruction
	Root & Tuber Vegetables, and leaves of Root and Tuber vegetables such as: Beets, Carrot, Horseradish, Radish, Potato, Sweet Potato, Turnip and Turnip Greens, Sugarbeets.	Imported Cabbageworm Green Cloverworm	1.0-3.5	
		Hornworms	0.50-3.5	
		Cutworms Loopers Webworms Saltmarsh Caterpillar Omnivorous Leafroller	2.0-3.5	
		Armyworms	2.0-7.0	*
		Diamondback Moth	1.0-3.5	
		European Corn Borer	3.5-5.5	
		Alfalfa Caterpillar	0.50-1.0	
	Bulb Vegetables such as: Garlic, Leeks, Onions, Shallot	Saltmarsh Caterpillar Omnivorous Leafroller Webworms	2.0-3.5	
		Hornworms	0.50-3.5	
		Imported Cabbageworm Green Cloverworm Loopers	1.0-3.5	
		Cutworms	2.0-3.5	
		Armyworms	2.0-7.0	*
		Diamondback Moth	1.0-2.0	
		European Corn Borer	3.5-5.5	
		<i>Heliothis</i> spp.	3.5	Suppression Only **

	Crop	Pests	Rate (pts./acre)	Special Instructions
	Leafy vegetables such as: Celery, Lettuce (Head and Leaf), Parsley, Endive, Spinach, Kale	Imported Cabbageworm Green Cloverworm	1.0-3.5	
		Hornworms	0.50-3.5	
		Cutworms Webworms	2.0-3.5	
		Loopers Diamondback Moth	1.0-3.5	
		Saltmarsh Caterpillar Omnivorous Leafroller	2.0-3.5	
		Armyworms	2.0-7.0	*
		European Corn Borer	3.5-5.5	
	Legume and foliage of Legume vegetables, such as: Lentils, Peas, Beans, Soybeans	Loopers	1.0-3.5	
		Hornworms	0.50-2.0	
		Podworms Imported Cabbageworm Green Cloverworm Saltmarsh Caterpillar Soybean Loopers Velvetbean Caterpillar	2.0-3.5	
		Armyworms	2.0-7.0	*
		Diamondback Moth	1.0-3.5	•••
		European Corn Borer	3.5-5.5	•••
		Cutworms	2.0-5.5	•••

	Crop	Pests	Rate (pts./acre)	Special Instructions
	Fruiting Vegetables such as: Eggplant, Peppers, Tomatoes.	Imported Cabbageworm Diamondback Moth Green Cloverworm	1.0-2.0	
		Hornworms	0.50-3.5	
		Tomato Fruitworm (<i>Heliothis</i>) Variegated Cutworm Saltmarsh Caterpillar Loopers	2.0-3.5	
		Armyworms	2.0-7.0	*
		European Corn Borer	3.5-5.5	
	Brassica (cole) vegetables such as: Broccoli, Brussels Sprouts, Cabbage, Cauliflower, Collards, Kohlrabi.	Hornworms	0.50-3.5	
		Webworms Loopers Cutworms Saltmarsh Caterpillar Omnivorous Leafroller	2.0-3.5	
		Diamondback Moth Imported Cabbageworm Green Cloverworm	1.0-3.5	
		Armyworms	2.0-7.0	*
		European Corn Borer	3.5-5.5	
	Cucurbit vegetables such as: Cucumbers, Melons, Pumpkins, Squash, Watermelon.	Imported Cabbageworm Green Cloverworm Diamondback Moth Loopers Saltmarsh Caterpillar Melonworm Pickleworm Rindworm Complex	1.0-3.5	
		Armyworms	2.0-7.0	
		European Corn Borer	3.5-5.5	
		Hornworms	0.50-2.0	

CROP GROUP**OTHER VEGETABLES**

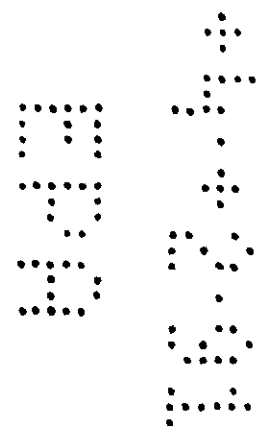
	<u>Crop</u>	<u>Pests</u>	<u>Rate (pts./acre)</u>	<u>Special Instruction</u>
	Artichokes	Artichoke Plume Moth	2.0-4.5	
		Armyworms	2.0-5.5	*
		Loopers	1.0-4.5	
	Asparagus	Armyworms	2.0-7.0	*
		Diamondback Moth Green Cloverworm Imported Cabbageworm	1.0-2.0	
		Loopers	1.0-3.5	
	Malanga	Armyworms	2.0-7.0	*
		Saltmarsh Caterpillar	2.0-3.5	
	Watercress	Loopers Diamondback Moth	1.0-3.5	
		Armyworms	2.0-7.0	*
		Green Cloverworm Imported Cabbageworm	1.0-2.0	
		Saltmarsh Caterpillar	2.0-3.5	
		European Corn Borer	3.5-4.5	
	Sweet Corn	(see Other Crops, Corn)		

12 63 18

CROP GROUP				
HERBS, SPICES, MINTS				
	Crop	Pests	Rate (pts./acre)	Special Instructions
	Such as: Basil, Dill, Oregano, Thyme, Peppermint.	Loopers	1.0-3.5	
		Diamondback Moth Green Cloverworm Imported Cabbageworm	1.0-2.0	
		Armyworms	2.0-7.0	*
		European Corn Borer	3.5-5.5	

CROP GROUP				
OTHER CROPS				
	Crop	Pests	Rate (pts./acre)	Special Instructions
	Avocadoes	Loopers	3.5-4.5	
		Orange Tortrix Omnivorous Leafroller Omnivorous Looper Spanworm	2.0-7.0	
		Amorbia	2.0-7.0	Suppression Only **
	Rice	Armyworms	2.0-5.5	*
		Loopers Saltmarsh Caterpillar	2.0-3.5	
		Cutworms	2.0-5.5	
		Green Cloverworm Velvetbean Caterpillar	1.0-2.0	
		Heliothis spp.	3.5	Suppression Only **

	Crop	Pests	Rate (pts./acre)	Special Instructions
	Cotton (Except CA & AZ)	Loopers	2.0-3.5	
		Armyworms	2.0-7.0	*
		Cotton Bollworm Tobacco Budworm	1.0-7.0	See Below
		<u>Special Instructions:</u> For early season management of <i>Heliothis</i> species. Initiate applications when 50% of plants are at pinhead square cotton stage independent of <i>Heliothis</i> egg and larval counts or at first egg lay, whichever occurs earlier. Continue applications on a five day spray interval up to the pyrethroid spray window.		
	Cotton (CA & AZ)	Armyworms	2.0-7.0	*
		Cotton Leaf Perforator Cotton Leafworm Saltmarsh Caterpillar	2.0-3.5	
		Loopers	2.0-3.5	
		Cotton Bollworm Tobacco Budworm	2.0-7.0	See Below
		<u>Special Instructions:</u> Repeat as necessary throughout the season to maintain control. If egg laying frequency indicates future moderate to heavy larval populations, time application spray to coincide with the second instar larvae. During periods of high temperatures, larvae will progress through first to third instars very rapidly and early application timing is necessary for control. When plant cover is dense and larvae are feeding in the lower 2/3 portion of the plant, aerial application of Biobit may not provide adequate control.		



	Crop	Pests	Rate (pts./acre)	Special Instructions
	Canola/Rape Seed	Armyworms	2.0-7.0	*
		Diamondback Moth	1.0-2.0	
		Loopers	2.0-3.5	
		Heliothis spp.	2.0-7.0	
	Corn such as: Field, Sweet, Popcorn.	Armyworms	2.0-7.0	*
		European Corn Borer (Whorl Stage Only)	2.0-5.5	
		Southwestern Corn Borer	3.5-5.5	Aids in Control
	Hops	Armyworms	2.0-7.0	*
		Loopers	1.0-3.5	
		Omnivorous Leaf-tier Spotted Cutworm Oblique Banded Leafroller	2.0-3.5	
	Jojoba	Looper (Anacamptodes spp.)	2.0-3.5	
	Peanuts	Green Cloverworm Loopers Velvetbean Caterpillar Podworms	2.0-3.5	
		Heliothis spp.	3.5	Suppression Only **
	Persimmons, Pomegranate	Fall Webworm Filbert Webworm Omnivorous Leafroller Redhumped Caterpillar Tent Caterpillars	2.0-3.5	
		Citrus Cutworm	2.0-4.5	

	<u>Crop</u>	<u>Pests</u>	<u>Rate (pts./acre)</u>	<u>Special Instructions</u>
	Safflower	Armyworms	2.0-7.0	*
		Loopers Saltmarsh Caterpillar	2.0-3.5	
	Sorghum	Headworm	2.0-3.5	
	Soybeans	(see Vegetable Crops, Legumes)		
	Sunflowers	Headmoth Loopers	2.0-3.5	
	Small Grains	Armyworms	2.0-7.0	*
		Loopers	2.0-3.5	
	Tobacco	Tobacco Hornworm	0.50-2.0	
		Loopers	1.0-3.5	
		Tobacco Budworm	3.5	Suppression Only **

**FLOWERS, BEDDING
PLANTS, AND
ORNAMENTALS**

	Crop	Pests	Rate (pts./acre)	Special Instructions
	Ornamentals, Flowers, Bedding Plants	Armyworms	2.0-7.0	*
		Azalea Moth Diamondback Moth Ello Moth (Hornworm) Io Moth Loopers Oleander Moth Omnivorous Leafroller Omnivorous Looper Tobacco Budworm	1.0-2.0	

CROP GROUP

**GREENHOUSE, AND
OUTDOOR NURSERY
CROPS**

	Crop	Pests	Rate (pts./acre)	Special Instructions
	Such as: Flowers, Brassica, Fruiting Groups, Herbs, and Leafy	Armyworms <i>Heliothis</i> spp.	2.0-7.0	*
		Loopers	2.0-3.5	

CROP GROUP

TURF

	Crop	Pests	Rate (pts./acre)	Special Instructions
	Turf	Sod Webworm	3.5-7.0	
		Tropical Sod Webworm	3.5	*
		Armyworms		

CROP GROUP				
	Crop	Pests	Rate (pts./acre)	Instructions
	Home Garden Use	Biobit may be used for any labeled pest and crop using the rates, mixing, and general use instructions specified on this label.		

17 of 18

CROP GROUP				
Forests, Shade Trees, Ornamentals, Shrubs, Sugar Maple Trees				
	Crop	Pests	Rate (pts./acre)	Special Instructions
	Forests, Shade Trees, Ornamentals, Shrubs, Sugar Maple Trees	Gypsy Moth Spruce Budworm Browntail Moth	2.0-4.5	
		Tussock Moths Pine Butterfly Bagworm Leafrollers Tortrix Moths Mimosa Webworm Tent Caterpillars Jackpine Budworm Blackheaded Budworm Elm Spanworm Saddled Prominent Saddleback Caterpillars	1.5-3.5	
		Redhumped Caterpillar Spring Cankerworm Fall Cankerworm California Oakworm Fall Webworm	1.0-2.0	

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SPECIAL INSTRUCTIONS

- * **Armyworm Control:** Biobit may be used to control small armyworms (first and second instar) when populations are light and full coverage sprays are applied. Repeat treatment as necessary. If mature larvae or heavy populations are present, a contact insecticide should be used to enhance control.
- ** **Suppression Only:** Use to aid in control of light to moderate populations of first and second instars in Integrated Pest Management conditions. Repeat treatments at four to five day interval.. The use of additional ovicidal or larvicidal insecticide will aid in control.

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