

BACTEC BERNAN I BIOLOGICAL LARVICIDE

DRY FLOWABLE

| | | |
|---------------------------|---|--------|
| ACTIVE INGREDIENT: | <i>Bacillus thuringiensis, var. kurstaki</i> , BACTEC BERNAN I, 32,000 International Units of potency per milligram - 14.52 Billion International Units per pound | 6.4%* |
| INERT INGREDIENTS: | | 93.6% |
| TOTAL: | | 100.0% |

* Potency units should not be used to adjust use rates beyond those specified in the Directions for Use section.

KEEP OUT OF REACH OF CHILDREN

WARNING / AVISO

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

PRECAUTIONARY STATEMENTS - HAZARDS TO HUMANS AND DOMESTIC ANIMALS: Causes substantial but temporary eye injury. Causes skin irritation. Harmful if absorbed through skin. Harmful if inhaled. Avoid breathing dust or spray mist. Do not get on skin, eyes, or clothing.

PERSONAL PROTECTIVE EQUIPMENT (PPE): Applicators and other handlers must wear long-sleeved shirt and long pants, waterproof gloves, shoes plus socks and protective eyewear. Follow manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry. Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.

STATEMENT OF PRACTICAL TREATMENT: If in eyes: hold eyelids open and flush with a steady, gentle stream of water for 15 minutes. Get medical attention. If on skin: wash with plenty of soap and water. Get medical attention. If swallowed: drink promptly a large quantity of milk, egg white, gelatin solution, or if these are not available, large quantities of water. Avoid alcohol. If inhaled: remove victim to fresh air. If not breathing, give artificial respiration, preferable mouth-to-mouth. Get medical attention.

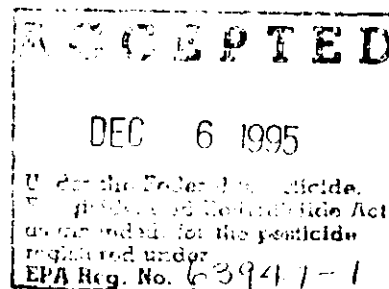
ENVIRONMENTAL HAZARDS: Do not contaminate water when disposing of equipment wash waters.

EPA Registration No. 63947-1

EPA Establishment No. 62171-MS-001

US Patent No. 4,950,471

NET WEIGHT:



DIRECTIONS FOR USE:

IT IS A VIOLATION OF FEDERAL LAW TO USE THIS PRODUCT IN A MANNER INCONSISTENT WITH ITS LABELING.

REFER TO ATTACHED DETAILED INSTRUCTIONS FOR SPECIFIC CROP USE AND APPLICATION RATES. NOT FOR HOUSEHOLD USE.

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.

Do not apply this product through any type of irrigation system.

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 (REI). 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 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 and protective eyewear.

GENERAL:

Apply BACTEC BERNAN at first sign of infestation when larvae are small and repeat at 3 to 7 day intervals as needed to maintain control below damage levels. BACTEC BERNAN destroys the larval gut and as such must be ingested by the insect to provide mortality. Thorough foliage/fruit coverage is needed to achieve maximum results. Shortly after eating a lethal dose of BACTEC BERNAN, the larvae become paralyzed, stop eating and die within 1-3 days. BACTEC BERNAN may be applied up to and including the day of harvest.

MIXING:

Use standard dry-product mixing procedures for knapsack, tractor and aerial spray applications. Apply where there is at least one (1) hour of drying time free of rain and/or heavy dews. When possible, apply early morning or evening in calm air conditions.

CROP APPLICATION:

Specific instructions are attached for each crop and insect.

STORAGE & DISPOSAL:

Do not contaminate feed, food, or water by storage or disposal. **STORAGE:** Tightly reclose containers of unused BACTEC BERNAN and store in a dry, well-ventilated, cool place. **PRODUCT/CONTAINER DISPOSAL:** Wastes resulting from the use of the product may be disposed of on site or at an approved waste disposal facility. Completely empty bag into application equipment. Then dispose of empty bag in a sanitary landfill, by incineration, or if allowed by state and local authorities, by burning (if burned, stay out of smoke).

(insert label)

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DAYS TO HARVEST:

BACTEC BERNAN may be applied up to and including the day of harvest.

SITES:

BACTEC BERNAN may be applied for control of any labeled pest in both field and greenhouse uses. BACTEC BERNAN is a highly specific larvicide to be evaluated against listed caterpillars (larvae) of lepidopterous insects. Close observation and attention to insect infestations is strongly recommended. Larvae must eat spray deposits of BACTEC BERNAN to be affected and induce mortality.

ALWAYS FOLLOW THESE GUIDELINES:

- * Treat when larvae are young (early instars) before the crop is extensively damaged.
- * Larvae must be actively feeding on treated, exposed plant parts.
- * Thorough spray coverage is needed to provide a uniform deposit of BACTEC BERNAN on the sites of larval feeding. For certain crops, directed spray nozzles by ground machine are required.
- * Under heavy pest population pressure, use the higher label rates, shorten the spray intervals, and/or raise the gallonage to improve spray coverage.
- * Repeat applications at intervals sufficient to maintain control, usually 3 to 14 days depending on plant growth rate, moth activity, rainfall after treating, and other factors. If attempting to control a pest with a single spray, make the treatment when egg hatch is essentially complete, but before extensive crop damage occurs.
- * The pH of the spray solution should be held within a range of 6.6 to 6.9. Use a buffering agent when spray water has a pH exceeding 8.0.
- * A spreader-sticker which has been approved for use on growing and harvested crops may be added for hard-to-wet crops, such as cole crops, or to improve weather-fastness of the spray deposits.

After eating a lethal dose of BACTEC BERNAN, larvae usually stop feeding, develop paralysis, and die within 1 to 3 days. Dying larvae move slowly, discolor, and eventually shrivel, and die.

MIXING & APPLICATION:

BACTEC BERNAN may be applied in conventional knapsack, tractor or aerial spray equipment with quantities of water sufficient to provide thorough coverage of infested plant parts. The amount of water needed per acre (hectare) will depend on crop size, weather, spray equipment, and local experience. Unless otherwise indicated by local instructions, use the following chart for spray volumes. When possible, apply early morning or evening in calm air conditions. Add water to the spray or mixing tank at the level that provides maximum agitation. With the agitator running, sprinkle BACTEC BERNAN into the tank and continue agitation. Then, add other spray materials, if any (a sticker, adhesive or deposit builder may be added when a heavy dew or rain is encountered). Add the balance of the water and agitate until mixed. Be sure to maintain the suspension while loading and spraying. For applications to trees, use the recommended amount of BACTEC BERNAN in 100 gallons/acre (1000 liters/hectare) of water in high-pressure, high-gallonage, hydraulic sprayers, wetting the foliage thoroughly but avoiding excessive run-off. For mist blowers, use recommended amount in 10 gallons/acre (100 liters/hectare) of water. Do not mix more BACTEC BERNAN than can be used in a 12-hour period.

| SUGGESTED SPRAY VOLUMES | | | |
|-------------------------|-----------|-----------|---------------|
| VOLUME | GALLON/AC | LITER/HA | DILUTION RATE |
| Aerial | 3 to 5 | 30 to 50 | 1 : 100 |
| Ground | 5 to 10 | 50 to 100 | 1 : 200 |
| Knapsack | 40 | 400 | 1 :1000 |
| Orchard | 100 | 1000 | 1 :3000 |

STORAGE AND DISPOSAL:

Do not contaminate feed, food, or water by storage or disposal of this product or its container. **STORAGE:** Tightly reclose containers of unused BACTEC BERNAN and store in a dry, well-ventilated, cool place. **PRODUCT-CONTAINER DISPOSAL:** Wastes resulting from the use of the product may be disposed of on site or at an approved waste disposal facility. Completely empty bag into application equipment. Then dispose of empty bag in a sanitary landfill, by incineration, or if allowed by state and local authorities, by burning (if burned, stay out of smoke).

APPLICATION RATES

| CROP | PEST (Common Name) | LBS/ACRE | GMS/HECTARE* |
|--|--|------------------|------------------|
| ALFALFA/HAY | Alfalfa Caterpillar | 1/2 - 1 | 600 - 900 - 1200 |
| | Loopers | 1/2 - 1 | 600 - 900 - 1200 |
| | Armyworms | 1/2 - 1 | 600 - 900 - 1200 |
| ALMONDS and WALNUTS | Redhumped Caterpillar | 1/2 - 1 | 600 - 900 - 1200 |
| | Tent Caterpillar | 1/2 - 1 | 600 - 900 - 1200 |
| | Walnut Caterpillar | 1/2 - 1 | 600 - 900 - 1200 |
| | Filbert Leafroller | 1/2 - 1 | 600 - 900 - 1200 |
| | Fall Webworm | 1/2 - 1 | 600 - 900 - 1200 |
| | Leafrollers Cankerworms | 1/2 - 1 | 600 - 900 - 1200 |
| AVOCADOS | Amorbia Moth | 1/2 - 1 | 600 - 900 - 1200 |
| | Omnivorous Leafroller | 1/2 - 1 | 600 - 900 - 1200 |
| | Omnivorous Looper | 1/2 - 1 | 600 - 900 - 1200 |
| | Orange Tortix | 1/2 - 1 | 600 - 900 - 1200 |
| | Spanworm | 1/2 - 1 | 600 - 900 - 1200 |
| BROCCOLI, CABBAGE, CANOLA/RAPE, CAULIFLOWER, COLLARD, MUSTARD GREENS, and TURNIP GREENS | Cabbage Looper | 1/2 - 1 | 600 - 900 - 1200 |
| | Imp. Cabbageworm | 1/2 - 1 | 500 - 900 - 1200 |
| | Diamondback Moth | 1/2 - 1 | 600 - 900 - 1200 |
| | Green Cloverworm | 1/2 - 1 | 600 - 900 - 1200 |
| | Loopers | 1/2 - 1 | 600 - 900 - 1200 |
| | Omnivorous Leafroller | 1/2 - 1 | 600 - 900 - 1200 |
| CELERY, LETTUCE, CHINESE CABBAGE, (Choysum) and POTATOES | Cabbage Looper | 1/2 - 1 | 600 - 900 - 1200 |
| | Hornworms | 1/2 - 1 | 600 - 900 - 1200 |
| | Webworm | 1/2 - 1 | 600 - 900 - 1200 |
| | Potato Beetle | 1/2 - 1 | 600 - 900 - 1200 |
| | Armyworms | 1/2 - 1 | 600 - 900 - 1200 |
| | Diamondback Moth | 1/2 - 1 | 600 - 900 - 1200 |
| | Green Cloverworm | 1/2 - 1 | 600 - 900 - 1200 |
| | Saltmarsh Caterpillar | 1/2 - 1 | 600 - 900 - 1200 |
| | Cutworms | 1/2 - 1 | 600 - 900 - 1200 |
| | Loopers | 1/2 - 1 | 600 - 900 - 1200 |
| | Omnivorous Leafroller | 1/2 - 1 | 600 - 900 - 1200 |
| | Heliothis spp. | 1/2 - 1 | 600 - 900 - 1200 |
| | Navel Orangeworm | 1/2 - 1 | 600 - 900 - 1200 |
| Leaf Miner | 1/2 - 1 | 600 - 900 - 1200 | |
| BEANS, SOYBEANS, PEAS, and PEANUTS | Velvetbean Caterpillar | 1/2 - 1 | 600 - 900 - 1200 |
| | Soybean Looper | 1/2 - 1 | 600 - 900 - 1200 |
| | Loopers | 1/2 - 1 | 600 - 900 - 1200 |
| | Head Moth | 1/2 - 1 | 600 - 900 - 1200 |
| | Green Cloverworm Saltmarsh Caterpillar Armyworms | 1/2 - 1 | 600 - 900 - 1200 |
| CUCUMBERS, WATERMELONS, and SQUASH | Rindworm Complex | 1/2 - 1 | 600 - 900 - 1200 |
| | Melonworms | 1/2 - 1 | 600 - 900 - 1200 |
| | Cabbage Looper | 1/2 - 1 | 600 - 900 - 1200 |
| | Armyworms | 1/2 - 1 | 600 - 900 - 1200 |
| CITRUS | Fruittree Leafroller | 1/2 - 1 | 600 - 900 - 1200 |
| | Orangedog | 1/4 - 1 | 300 - 750 - 1200 |
| | Citrus Cutworm | 1/2 - 1 | 600 - 900 - 1200 |

* Easy - Moderate - Hard to control larvae

APPLICATION RATES, CONT.

| CROP | PEST (Common Name) | LBS/ACRE | GMS/HECTARE* |
|--|-------------------------------|------------------|------------------|
| GRAPES | Omnivorous Leafroller | 1/2 - 1 | 600 - 900 - 1200 |
| | Grapeleaf Skeletonizer | 1/2 - 1 | 600 - 900 - 1200 |
| | Roughskinned Cutworm | 1/2 - 1 | 600 - 900 - 1200 |
| | Grapeleaf Folder | 1/2 - 1 | 600 - 900 - 1200 |
| | Grape Leafroller | 1/2 - 1 | 600 - 900 - 1200 |
| | Saltmarsh Caterpillar | 1/2 - 1 | 600 - 900 - 1200 |
| | Achema Sphinx Moth (Hornworm) | 1/2 - 1 | 600 - 900 - 1200 |
| | Orange Tortix | 1/2 - 1 | 600 - 900 - 1200 |
| | Obliquebanded Leafroller | 1/2 - 1 | 600 - 900 - 1200 |
| | Tobacco Budworm | 1/2 - 1 | 600 - 900 - 1200 |
| | Loopers | 1/2 - 1 | 600 - 900 - 1200 |
| Armyworms | 1/2 - 1 | 600 - 900 - 1200 | |
| EGGPLANT, TOMATOES, and PEPPERS | Tomato Fruitworm | 1/2 - 1 | 600 - 900 - 1200 |
| | Tomato Hornworm | 1/2 - 1 | 600 - 900 - 1200 |
| | Variogated Cutworm | 1/2 - 1 | 600 - 900 - 1200 |
| | Saltmarsh Caterpillar | 1/2 - 1 | 600 - 900 - 1200 |
| | Loopers | 1/2 - 1 | 600 - 900 - 1200 |
| | Tomato Pinworm | 1/2 - 1 | 600 - 900 - 1200 |
| Armyworms | 1/2 - 1 | 600 - 900 - 1200 | |
| FIELD CORN, SWEET CORN, and SORGHUM | Corn Earworm | 1/2 - 1 | 600 - 900 - 1200 |
| | Headworms | 1/2 - 1 | 600 - 900 - 1200 |
| | Armyworms | 1/2 - 1 | 600 - 900 - 1200 |
| | Corn Borer | 1/2 - 1 | 600 - 900 - 1200 |
| COTTON | Tobacco Budworm | 1/2 - 1 | 600 - 900 - 1200 |
| | Cotton Bollworm | 1/2 - 1 | 600 - 900 - 1200 |
| | Saltmarsh Caterpillar | 1/2 - 1 | 600 - 900 - 1200 |
| | Loopers | 1/2 - 1 | 600 - 900 - 1200 |
| | Armyworms | 1/2 - 1 | 600 - 900 - 1200 |
| TOBACCO | Tobacco Budworm | 1/2 - 1 | 600 - 900 - 1200 |
| | Tobacco Hornworm | 1/4 - 1/2 | 300 - 450 - 600 |
| | Loopers | 1/2 - 1 | 600 - 900 - 1200 |
| TURF | Sod Webworm | 1/2 - 1 | 600 - 900 - 1200 |

* Easy - Moderate - Hard to control larvae

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STORED AGRICULTURAL COMMODITIES

APPLICATION RATES

| CROP | PEST (Common Name) | LBS | GMS |
|--------------------------------------|--------------------|---|-----------|
| | | per 100 bushels (diluted and undiluted) | |
| GRAINS, SOYBEANS and CROP SEED | Indian Meal Moth | 3/8 - 1/2 | 175 - 250 |
| | Almond Moth | 3/8 - 1/2 | 175 - 250 |

To control and prevent these pests, apply BACTEC BERNAN in a constantly agitated water suspension to the top four-inch surface layer of grain in the bin. Use a sprinkler can or sprayer to apply the dosage into the grain stream as the last (top) four-inch layer is augered into the bin, applying 0.6 pint of mixture per bushel. The dosage can also be sprinkled onto the surface of the grain in the bin and mixed thoroughly with a scoop or rake to a depth of four inches. More thorough coverage may be achieved by dividing the suggested dosage into three applications and mixing the grain between applications. As a surface treatment, apply 1/2 pound or 250 grams in 5 to 10 gallons of water per 500 square feet of grain surface area; mix into top four inches. For commodities coarser than shelled corn, increase depth of treatment according to the habit of the pest.

| CROP | PEST (Common Name) | LBS/TON | GMS/TON |
|---------|--------------------|---------|---------|
| PEANUTS | Indian Meal Moth | 1/4 | 125 |
| | Almond Moth | 1/4 | 125 |

Apply this rate to the top four to eight feet of nuts when filling the warehouse.

To prevent and control these pests, spray an even coating of BACTEC BERNAN on the farmer stock peanuts while filling the warehouse. To make the spray solution, mix 3.75 pounds or 1700 grams per 5 gallons of water; this amount should treat 15 tons of commodity. Keep the spray suspension agitated during application and use pressures and nozzles sufficient to handle this suspension. For bagged peanuts, treat the whole mass of commodity at the suggested rate before bagging. Before a warehouse is filled, the cleaned interior can be sprayed using 1/2 pound or 250 grams per 100 gallons of water; apply to interior and spray into cracks.

| CROP | PEST (Common Name) | SUGGESTED RATE/COMMODITY |
|--------------------|--------------------|--------------------------|
| FLUE-CURED TOBACCO | Tobacco Moth | 0.2 ounces per 100 lbs |

NOTE: 0.2 ounce is equivalent to approximately 2.5 teaspoons; mix this amount in one quart of water per 100 pounds of tobacco.

TOBACCO TO BE STORED UP TO 12 MONTHS: Spray loose leaves as the tobacco is being bundled from the curing barn. For tobacco sticks, treat both sides of the leaves.

STORED TOBACCO: For tobacco which is to be carried over, rebundle or restack sticks, fluff up tobacco and spray loose leaves. For tobacco that has been stored over three weeks, apply at first signs of infestations; promptly open bundles, spray loose leaves, and then rebundle.

TREATMENT OF STORAGE BARNs: If tobacco has been treated, or is going to be treated, treatment of the floors and walls may be made to aid in control. Sweep out the area, especially cracks and corners, and remove all of the loose tobacco pieces where the moth might breed. Make a spray mixture containing 1/2 ounce per 2.5 gallons of water and apply at a rate of 1/2 gallon per 1000 square feet of surface area. Be sure to spray into cracks and floorboards.

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