

2009-1403
07-MAY-2009

Low Volume Aqueous Concentrate

Group 11 Insecticide

Foray® 48B

For Use in Forests, Woodlands, and Other Treed Areas

RESTRICTED
READ THE LABEL BEFORE USING

GUARANTEE: Active Ingredient: *Bacillus thuringiensis* sub-species *kurstaki*, Strain HD-1.
Potency: 10,600 International Units per mg. equivalent to 12.7 Billion International Units (BIU) per litre.

[Warning, contains the allergen sulfite.]

REGISTRATION NO. 24977 PEST CONTROL PRODUCTS ACT

PRECAUTIONS

POTENTIAL SENSITIZER

KEEP OUT OF REACH OF CHILDREN

READ THE LABEL BEFORE USING

Net contents:

Lot No.

Best Before:

Registrant:

Valent BioSciences Corporation
870 Technology Way
Libertyville, Illinois 60048 - 800-323-9597
USA

Canadian Agent:

Valent BioSciences Canada, Ltd.
40 King Street West, Suite 2100
Toronto, Ontario M5H3C2

DIRECTIONS FOR USE:

Foray 48B contains the spores and insecticidal crystals of a naturally occurring strain of *Bacillus thuringiensis* sub-species *kurstaki*.

Foray 48B is highly specific to some lepidopteran larvae. It is a stomach poison only and therefore must be ingested by the larvae to be effective. After ingestion of a sufficient dose, feeding ceases and death will follow in 2 - 5 days.

In general, larvae should be treated when they are newly hatched. Young larvae (early instars) are most susceptible to the effects of *Bacillus thuringiensis* sub-species *kurstaki* and less damage will have been caused by larval feeding. Thorough spray coverage with well-distributed deposits of Foray 48B is necessary to assure that the feeding larvae ingest a toxic dose.

Foray 48B is a water based formulation which may be applied undiluted or diluted with clean water. Dilute with minimal quantities of water only when required to improve deposit. Do not use petroleum-based solvents. Foray 48B does not settle out rapidly, so continual agitation is not recommended and should be avoided. Use diluted mixture of Foray 48B within 12 hours of mixing and recirculate mixture before loading and/or application.

Even though Foray 48B deposits are relatively resistant to wash-off, avoid application when significant rainfall is imminent. For early morning applications, foliage should not be wet with dew to the point of runoff.

Consult with recognized forest pest control authority or Valent BioSciences Corporation representative regarding appropriate timing and method of application. The timing and number of applications required for effective control will depend upon foliage development and larval activity. For effective control, applications should coincide with sufficient foliage development (shoot elongation or leaf expansion) to ensure maximum spray deposit.

To the extent possible, apply treatments after egg hatch has been completed to assure that the maximum number of larvae are present during the treatment period. If Foray 48B is applied in later larval instars and/or extremely high larval populations, use the higher label rates and/or additional applications.

To control eastern spruce budworm, treat prior to 5th instar larval development and when bud flush/shoot development is sufficient to allow good deposit on emerging needles.

For consistently acceptable control of western spruce budworm, higher rates and volumes of spray may be required to achieve satisfactory deposit in mountainous terrain.

Treat against gypsy moth when larvae are in 2nd and 3rd instar and when leaf expansion is 40-50%; when egg hatch is extended, 2 or more applications, 7-10 days apart, may be required.

For best control of eastern or western hemlock looper, apply when larvae are young (early instars) before extensive damage occurs and/or when a majority of buds have flushed or shed bud caps. Repeat applications at intervals to maintain control, usually 3-14 days depending on larval growth and weather. If control is sought with a single spray, wait until egg hatch is essentially complete.

To control Whitemarked Tussock Moth in conifers, apply first at peak second instar, then make a second application 2-5 days later.

For control of Jackpine budworms, apply undiluted at 20-30 BIU/ha to early larval instars; double applications several days apart may be considered. For consistent control of very high larval populations, one single application at higher rates up to 60 BIU/ha may be required.

To control pale-winged gray, make one application of Foray 48B Insecticide at close to 100% egg hatch.

GROUND APPLICATION:

With ground equipment, provide thorough coverage while minimizing runoff. Dilute Foray 48B only to provide sufficient volume for thorough coverage.

For mist blower applications, add the recommended volume of Foray 48B to water, at a mix ratio ranging from 1:20 to 1:50. Do not exceed 150 litres/hectare total mixture.

For high volume hydraulic sprayers, add the recommended volume of Foray 48B to water at a mix ratio ranging from 1:50 to 1:500. Do not exceed 1500 litres/hectare total mixture.

AERIAL APPLICATION:

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.

Label rates, conditions and precautions are product specific. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for specific use, this product cannot be applied by any type of aerial equipment.

Ensure uniform application by employing appropriate marking devices.

Use Precautions:

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage.

Operator Precautions:

Do not allow the pilot to mix product to be loaded onto the aircraft. Loading of premixed product with a closed system is permitted.

It is desirable that the pilot has communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear the personal protective equipment described in the PRECAUTIONS section of this label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

Product Specific Precautions:

Read and understand the entire label before opening this product. If you have questions, call the manufacturer at 1-800-323-9597 or obtain technical advice from the distributor or from your provincial agricultural or forestry representative. Application of this specific product must meet and/or conform to the RESTRICTED USES and DOSE RATES sections of this label.

RESTRICTED USES:

FORESTS, WOODLANDS AND RESIDENTIAL AREAS

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the Pest Control Products Act to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

NATURE OF RESTRICTION: This product is to be used only in the manner authorized; contact local pesticide regulatory authorities about use permits which may be required.

Forestry Use: Ground/Aerial Application for sites greater than 500 ha.

Woodlands Use: Aerial Application for sites 500 ha or less.

Residential Use: Aerial Application.

Consult local Transport Canada office regarding air regulations for urban and/or forestry applications. Foray 48B may be used for aerial application in urban areas for treatment of residential areas and municipal recreational areas (including parks, parkland, vacant lots, shelterbelts, and rights of way under municipal jurisdiction).

Undiluted applications are recommended for most labeled pests; however, Foray 48B may be diluted with water and applied at the rates indicated in the dose rate table. Total volume of spray material to be applied per hectare depends upon target pest, target foliage, weather, spray equipment and droplet size.

Recommended droplet size spectra are from 30-80 microns for coniferous foliage and 50-150 microns for broadleaf foliage.

**DOSE RATES: AERIAL AND GROUND APPLICATION¹
FORESTS, WOODLANDS, ORNAMENTALS AND
OTHER TREED AREAS**

Target Insect	RATE Litres/ha	DOSE BIU/ha
Eastern Spruce Budworm	1.6 - 2.4	20 - 30
Western Spruce Budworm	2.4 - 3.1	30 - 40
Gypsy Moth	2.4 - 4.0	30 - 50
Jackpine Budworm ²	1.6 - 4.8	20 - 60
Forest Tent Caterpillar	1.0 - 1.6	12 - 20
Spring & Fall Cankerworm	1.0 - 1.6	12 - 20
Eastern Hemlock Looper	2.4 - 3.2	30 - 40
Western Hemlock Looper	2.4 - 3.2	30 - 40
Satin Moth	4.0	50
Whitemarked Tussock Moth	4.0	50
Pale-winged Gray	3.1	40
Douglas-fir Tussock Moth ³	4.0	50

¹ See the restricted uses for aerial application to forests, woodlands, and residential areas, and ground application to forests.

² For control of Jackpine budworms, apply undiluted at 20-30 BIU/ha to early larval instars; double applications several days apart may be considered. For consistent control of very high larval populations, one single application at higher rates up to 60 BIU/ha may be required.

³ For control of Douglas-fir tussock moth, target application at the peak of second instar and make a second application 2-5 days later.

RESISTANCE MANAGEMENT:

For resistance management, please note that FORAY 48B contains a Group 11 insecticide. Any insect population may contain individuals naturally resistant to FORAY 76B and other Group 11 insecticides. The resistant individuals may dominate the insect population if this group of insecticides are used repeatedly in the same fields. Other resistance mechanisms that are not linked to site of action but are specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay insecticide resistance:

- Where possible, rotate the use of FORAY 48B or other Group 11 insecticides with different groups that control the same pests in a field.
- Use tank mixtures with insecticides from a different group when such use is permitted.
- Insecticide use should be based on an IPM program that includes scouting, record keeping, and considers cultural, biological and other chemical control practices.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or IPM recommendations for the specific site and pest problems in your area.

- **Monitor:** Monitor efficacy of FORAY 48B and other Group 11 insecticides used against the targeted pest(s) and record other factors that may influence insecticide performance and/or pest development.
- **Reporting:** If a Group 11 target site insecticide, such as FORAY 48B, appears to be less or no longer effective against a pest that it previously controlled or suppressed, contact a Valent BioSciences Corporation representative at 1-800-323-9597 or at www.valentbiosciences.com to assist in determining the cause of reduced performance.

PRECAUTIONS:

KEEP OUT OF REACH OF CHILDREN

May cause sensitization. Avoid contact with skin, eyes, and clothing. Wear a long sleeved shirt, long pants, waterproof –proof gloves when handling, mixing, loading or applying the product and during all clean-up/repair activities. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse.

FIRST AID:

- IF SWALLOWED:** Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.
- IF ON SKIN/CLOTHING:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.
- IF INHALED:** Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for treatment advice.
- IF IN EYES** Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION:

Treat symptomatically.

STORAGE:

Store at temperatures at or below 25EC. Store container upright and keep tightly closed when not in use. After extended storage, vigorously shake or stir contents to assure a uniform suspension. This product should be used prior to the best before date indicated on this label.

DISPOSAL:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site.

Before taking the container to the collection site:

Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.

Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER:

This pest control product is to be used only in accordance with the directions on this label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

2010-1227 13-APR-2010

FOR EMERGENCY USE ONLY

For use to control *Gypsy moth* on ships until August 31, 2010.

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Net contents:

Lot No.

Best Before:

Registrant:
Valent BioSciences Corporation
870 Technology Way
Libertyville, Illinois 60048
USA

Canadian Agent:
Valent Canada, Inc.
107 Woodlawn Road West, Suite 502-B
Guelph, Ontario, N1H 1B4

DIRECTION FOR USE:

Foray 48B contains the spores and insecticidal crystals of a naturally occurring strain of *Bacillus thuringiensis* sub-species *kurstaki*.

Foray 48B is highly specific to some lepidopteran larvae. It is a stomach poison only and therefore must be ingested by the larvae to be effective. After ingestion of a sufficient dose, feeding ceases and death will follow in 2 - 5 days.

In general, larvae should be treated when they are newly hatched. Young larvae (early instars) are most susceptible to the effects of *Bacillus thuringiensis* sub-species *kurstaki* and less damage will have been caused by larval feeding. Thorough spray coverage with well-distributed deposits of Foray 48B is necessary to assure that the feeding larvae ingest a toxic dose.

DIRECTIONS FOR USE: FORAY 48B ON EARLIEST INSTARS, GYPSY MOTH

Foray 48B may be applied to larvae as they emerge from the egg mass. Monitor egg masses to detect the earliest hatch. Foray 48B has no ovicidal effect, but it can be used to help control emerging larvae. Foray 48B must be ingested by the larvae to be effective.

Use the required amount of Foray 48B, mixed with water, and apply thoroughly to the egg mass, once hatching has started and larvae are present on and near the egg mass. Repeat applications every 2-3 days to emergent larvae; the number and timing of applications will depend upon the length of the hatch period.

Application rates: Gypsy Moth only

Mix Foray 48B with clean water to yield a 1-2% mixture (10-20 ml of Foray 48B, 980-990 ml of water). Agitate thoroughly and apply with a pressurized sprayer: pump action, hydraulic or motorized backpack style sprayer. Thorough coverage of the egg masses and the emergent larvae is essential.

Efficacy may be improved in some conditions with the addition of vegetable oil (canola or corn oil, do not use soybean or peanut oil) and mild dishwashing liquid to the diluted spray mixture. Vegetable oil and liquid dishwashing soap, added to the Foray 48B spray mixture at 0.5-1.0% total volume (5 to 10 ml each, per litre of spray mixture) may help ensure that the spray mixture adheres to smooth surfaces in order to help control emerging larvae.

Once egg hatch is complete larvae may have migrated to nearby vegetation on shore to feed. Any larvae on vegetation on land must be treated by conventional foliar application techniques.

As this product is not registered for the control of pests in aquatic systems. DO NOT use to control aquatic pests.

DO NOT apply by air.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of waste.

PRECAUTIONS:

KEEP OUT OF REACH OF UNAUTHORIZED PERSONNEL. POTENTIAL SENSITIZER. Avoid contact with skin, eyes, or clothing. Avoid breathing spray mist. Wear a long-sleeved shirt, long pants, waterproof gloves, and shoes and socks when handling, mixing/loading or applying the product and during all clean-up/repair activities. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse.

FIRST AID:

IF ON SKIN/CLOTHING: Rinse skin immediately with plenty of water. Remove contaminated clothing and wash separately before reuse. If irritation occurs and persists or is severe, seek medical attention.

IF IN EYES: Hold eye open and rinse slowly and gently with water. Remove contact lenses, if present, then continue rinsing eye. If irritation occurs and persists or is severe, seek medical attention.

IF INHALED: Move to fresh air, apply respiration if needed and seek medical attention.

IF SWALLOWED: Rinse mouth and throat with copious amounts of water. **DO NOT** induce vomiting. Promptly contact a physician or call a poison control centre. **DO NOT** give anything by mouth to an unconscious person.

GENERAL: Seek medical attention if irritation or signs of toxicity occur and persist or is severe. Take container label or product name and Pest Control Product Registration Number with you when seeking medical attention.

Toxicological Information: Treat symptomatically.

STORAGE:

Store at temperatures below 25°C. Store container upright and keep tightly closed when not in use. After extended storage, vigorously shake or stir contents to assure a uniform suspension. This product should be used prior to the best before date indicated on this label.

DISPOSAL:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

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