

Biological Insecticide

# Foray® 48B

Flowable Concentrate

**ACTIVE INGREDIENT:**

<i>Bacillus thuringiensis</i> , subsp. <i>kurstaki</i> , strain ABTS-351, fermentation solids and solubles	17.19%
<b>OTHER INGREDIENTS</b>	82.81%
<b>TOTAL</b>	100.00%

Potency: 10,600 Cabbage Looper Units (CLU/mg) of product (equivalent to 48 billion CLU/GAL).

The % active ingredient does not indicate product performance and potency measurements are not federally standardized.

EPA Reg. No. 73049-46  
EPA Est. No. 33762-IA-001

List No. 60178

**INDEX:**

- 1.0 First Aid
- 2.0 Precautionary Statements
  - 2.1 Hazards to Humans and Domestic Animals
  - 2.2 Personal Protective Equipment (PPE)
  - 2.3 Agricultural Use Requirements
  - 2.4 User Safety Recommendations
  - 2.5 Environmental Hazards
- 3.0 Directions for Use
- 4.0 Directions for Use Booklet
- 5.0 Agricultural Use Requirements
- 6.0 Non-Agricultural Use Requirements
- 7.0 Application
- 8.0 Handling & Mixing
- 9.0 Spray Volumes
- 10.0 General Agricultural Use Instructions
  - 10.1 Application rates
- 11.0 Directions for Use for Non-Agricultural Applications
  - 11.1 Application
- 12.0 Storage and Disposal
- 13.0 Notice of Warranty

**KEEP OUT OF REACH OF CHILDREN  
CAUTION**

1.0

FIRST AID	
<b>If on skin or clothing</b>	<ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If in eyes</b>	<ul style="list-style-type: none"> <li>• Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li> <li>• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
HOT LINE NUMBER	
<p>Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-877-315-9819 (24 hours) for emergency medical treatment and/or transport emergency information. For all other information, call 1-800-323-9597.</p>	

2.0

**PRECAUTIONARY STATEMENTS**

2.1

**HAZARDS TO HUMANS AND DOMESTIC ANIMALS  
CAUTION**

Causes moderate eye irritation. Avoid contact with skin, eyes, open wounds or clothing. Wash thoroughly with soap and water after handling.

2.2

**Personal Protective Equipment (PPE)**

Applicators and other handlers must wear:

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

2.3

**Agricultural Use Requirements:**

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.

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.

2.4

**User Safety Recommendations**

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Users should remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Users should 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.

2.5

**Environmental Hazards**

Do not contaminate water when cleaning equipment or disposing of equipment washwaters.

### 3.0 DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

### 4.0 DIRECTIONS FOR USE BOOKLET

Apply this product only through aerial application.

### 5.0 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 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.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 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

### 6.0 NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses 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.

### 7.0 APPLICATION

Foray 48B may be only applied by aerial equipment undiluted or 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.

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment-and-weather-related factors determine the potential for spray drift. The applicator and the grower/treatment coordinator are responsible for considering all of these factors when making decisions.

### 8.0 HANDLING & MIXING

Foray 48B may be applied undiluted, but the operator must ensure that the bulk quantity is well agitated and homogenous. When Foray 48B is shipped by bulk tankers, and transferred via a 'closed-loop' mixing/loading system, the material is measured by passing through in-line flow meters directly into the aircraft, minimizing exposure to ground handling personnel.

In a similar manner, smaller containers of Foray 48B are also to be used with a 'closed-loop' mixing/loading system to minimize the potential for accidental spills and exposure of ground handling personnel.

If dilution with water is needed for full crop coverage, fill tank with approximately 3/4 of the water required for dilution. Begin agitation and pump Foray 48B into the water while maintaining continuous agitation. Agitate as necessary to maintain suspension. Do not allow diluted mixture to remain in the tank for more than 72 hours.

When applying a diluted spray mixture, the use of a spreader-sticker approved for use on growing crops will improve the weather-fastness of the spray deposits. The spray adjuvant is to be added to the tank after the Foray 48B has been added, and before the final volume of water is added to complete the mixture. Reduce or momentarily halt tank agitation and then add the required amount of adjuvant to the diluted mix. You may use your 'closed-loop' system to siphon the required quantity of adjuvant or you may pour the adjuvant into the top hatch of the tank. Once added, close tank opening, and resume agitation; add the rest of the water to complete the spray mix.

Combinations with commonly used spray tank adjuvants are generally not deleterious to Foray 48B, if the mix is used promptly. Before mixing in the spray tank, the testing of physical compatibility by mixing all components in a small container in proportionate quantities will identify possible problems. Checking with an adjuvant supplier for advice on spray adjuvants that are compatible with biological pesticides such as Foray 48B, will help avoid incompatibilities.

### 9.0 SPRAY VOLUMES

**Aerial Application:** Use appropriate amount of Foray 48B in aerial equipment undiluted or with quantities of water sufficient to provide thorough coverage of plant parts to be protected. In the western U.S. 5-10 gallons per acre is the normal minimum; in the eastern regions a minimum of 2-3 gallons is normally used. The minimum amount of water needed per acre will depend upon crop size, weather conditions, spray equipment used and local experience.

### 10.0 GENERAL AGRICULTURAL USE INSTRUCTIONS

Foray 48B is a biological insecticide for the control of lepidopterous larvae. It contains the spores and endotoxin crystals of *Bacillus thuringiensis kurstaki*. Foray 48B 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 Foray 48B cease feeding within a few hours and die within 2-5 days.

Foray 48B may be applied up to and on the day of harvest. For maximum effectiveness follow the instructions listed below:

Monitor fields to detect early infestations.

Apply Foray 48B 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, greater control can be achieved by a contact insecticide. Thorough coverage is essential for optimum performance.

## 10.1 Application Rates

Crop	Pests	Rate <sup>1</sup> (oz./ acre)	Dosage <sup>1</sup> (BIU/ acre)
Forests, Shade Trees, Ornamentals, Shrubs, Sugar Maple Trees,	Gypsy Moth & Asian Gypsy Moth, Elm Spanworm	21 - 107	8 - 40
Seed Orchards, Ornamental Fruit, Nut and Citrus Trees <sup>2</sup>	Spruce Budworm, Browntail Moth, Douglas Fir Tussock Moth, Coneworm, Buck Moth	21 - 80	8 - 30
	Tussock Moths, Pine Butterfly, Bagworm, Leafrollers, Tortrix, Mimosa Webworm, Tent Caterpillar, Jackpine Budworm, Blackheaded Budworm, Saddled Prominent, Saddleback Caterpillar, Eastern and Western Hemlock Looper, Orangestriped Oakworm, Satin Moth	16 - 43	6 - 16
	Redhumped Caterpillars, Spring and Fall Cankerworm, California Oakworm, Fall Webworm	11 - 21	4 - 8

### Special Instructions

<sup>1</sup> Use the higher recommended rates on advanced larval stages or under high density larval populations.

<sup>2</sup> In treating Gypsy Moth and Asian Gypsy Moth infected trees and shrubs in urban, rural, and semi-rural areas, exposure of non-target vegetation including, but not limited to, native and ornamental species and food or feed crops is permitted.

This product can be mixed and used with other pesticides only in accordance with the most restrictive of label limitations and precautions. This product cannot be mixed with any product containing a label prohibition against such mixing. No label dosage rates may be exceeded.

## 11.0 DIRECTIONS FOR USE FOR NON-AGRICULTURAL APPLICATIONS

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

Not for use on plants being grown for sale or other commercial use, or for commercial seed production, or for research purposes. For use on plants intended for aesthetic purposes or climactic modification and being grown in ornamental gardens or parks, or on golf courses or lawns and grounds.

Not for use on trees being grown for sale or other commercial use, or for commercial seed production, or for the production of timber or wood products, or for research purposes except wide-area public pest control programs sponsored by government entities, such as mosquito abatement, gypsy moth control, and Mediterranean fruit fly eradication.

Foray 48B contains the spores and endotoxin crystals of *Bacillus thuringiensis kurstaki*. Foray 48B is a stomach poison and is effective against lepidopterous larvae. After ingestion, larvae stop feeding within hours and die 2-5 days later. Maximum activity is exhibited against early instar larvae. Foray 48B is to be used for aerial application.

Foray 48B is used with a 'closed-loop' mixing/loading system that will minimize the potential for accidental spills and exposure of ground handling personnel. If dilution with water is needed for full crop coverage, fill tank with approximately 3/4 of the water required for dilution. Begin agitation and pump Foray 48B into the water while maintaining continuous agitation. Agitate as necessary to maintain suspension. Do not allow diluted mixture to remain in the tank for more than 72 hours.

## 11.1 Application

**Aerial Application:** Foray 48B may be applied aerially, either alone or diluted with water at the dosages shown in the application rates table. Spray volumes of 32-128 ounces per acre give optimum coverage. Best results are expected when Foray 48B is applied to dry foliage.

For smaller spray volumes mix the proper number of teaspoons of Foray 48B from the following chart to attain the desired rates:

If the rate is:	Add this amount per gallon of mix:
0.5 pts./acre	1/2 teaspoon
1.0 pts./acre	1 teaspoon
1.5 pts./acre	1-1/2 teaspoons
2.0 pts./acre	2 teaspoons
3.0 pts./acre	3 teaspoons
4.0 pts./acre	4 teaspoons

## 12.0 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 in temperatures above freezing and below 32°C (90°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:** Triple rinse (or equivalent). Then offer for recycling or reconditioning or puncture and dispose of in a sanitary landfill or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

## 13.0 NOTICE OF WARRANTY

Seller makes no warranty, express or implied, of merchantability, fitness or otherwise concerning the use of this product other than as indicated on the label. User assumes all risks of use, storage or handling not in strict accordance with accompanying directions.

