

NEW YORK STATE INTEGRATED PEST MANAGEMENT

Biopesticide Profile

Theia

Active ingredient

Bacillus subtilis strain AFS032321 (alive)

This information is not meant to be a substitute for reading the label. Always read and follow all pesticide labels. Ensure the pesticide is currently registered in your state.

PRODUCT

Formulations: 100DF

Pests: Plant diseases

FRAC Code (Fungicide Resistance Action Committee): BM 02

Modes of Action (see next page): Poison; Keep Out; Turn on resistance

APPLICATION

Where to apply: Agricultural (including field, greenhouse, shadehouse, nursery, forest); Can be applied pre-harvest via foliar spray, chemigation, soil drench, drip, banded spray, broadcast, in-furrow treatment, transplant water, bare root dip or tray drench (depending on crop); seed treatment (follow label directions)

When to start applying: Preventatively, prior to or at the first sign of disease

How to apply: Ensure thorough coverage; mix with a surfactant to improve product spreading and retention for foliar applications; maintain agitation during application

Tank mix & application compatibility: Compatible with many chemical fungicides, insecticides, and fertilizers, but not all combinations have been tested; check with manufacturer

ENVIRONMENT

Temperature tolerance in field: Performance not impacted by environmental temperatures

Rainfastness: Within 1 hour

UV tolerance: No negative interaction with UV light

STORAGE

How to store: Cool, dry place; avoid excessive heat

Shelf life: 2 years

RISK

Signal word: Caution

REI (Restricted-entry interval): 4 hrs

PHI (Pre-harvest interval): 0 days

Impacts on beneficial insects: Label states that it may be harmful to bees and other pollinating insects directly exposed; do not apply while bees or other pollinating insects are actively visiting treatment area. EPA document notes some mortality (~30% or less) on mealybug destroyer and lady beetles, but not green lacewings. Risk to insects in the soil is expected to be low.

**Cornell
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IPM New York State
Integrated Pest Management
Program

About biopesticides

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USING BIOPESTICIDES

- Apply preventatively.
- Use as part of an IPM strategy, including cultural management practices, other pesticides, etc.
- Mix only what you need; don't leave in spray tank overnight.
- Don't expose to excessive heat in storage.
- When tank mixing, follow label instructions for all products. Check with company rep or distributor if you have questions. Do a "jar test" to determine physical compatibility if you want to mix two products for which you cannot find information on their compatibility.
- Proper cleaning of spray tanks after any pesticide application is always important. Pay special attention to tank cleaning when a biopesticide is applied after another incompatible product.

HOW BIOPESTICIDES WORK

Modes of action (MOAs)



Eat	Live microbe grows on/in pest	 	
Poison	Biopesticide (or its products) kills the pest directly	 	
Keep out	Live microbe grows on plant, leaving no room for pests		
Turn on resistance	Turns on the plant's defenses before pest attacks		
Grow strong plants	Makes plant stronger, healthier, more resilient		
Repel	Pest avoids plants treated with biopesticide		
Stop feeding	Stops pest from feeding; pest eventually starves		
Stop growth	Stops pest from growing or molting; pest eventually dies		
Stop reproduction	Hampers pests' ability to find a mate, lay eggs		

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NYS Department of Agriculture & Markets



LEARN MORE

Efficacy of biopesticides

go.nysipm.org/biopesticide-efficacy

Biocontrol Bytes blog

blogs.cornell.edu/biocontrolbytes/

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