



Organic Pest Management Inputs *A Practical Guide for Farmers*

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TRANSITION TO ORGANIC PARTNERSHIP PROGRAM

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Organic Pest Management Inputs

A Practical Guide for Farmers

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INTRODUCTION

Organic farmers must evaluate every pest management input before it goes into the field. Under USDA National Organic Program (NOP) rules, you must rely first on **cultural, mechanical, and biological practices** to prevent and manage pests, weeds, and diseases. Only when these practices are used and documented, and shown to be insufficient, may you turn to commercial pest control products. This guide is intended as a practical starting point for comparing organic pest management inputs. For every product you consider, double-check:

- Active ingredient
- Approved crops or sites
- Target pest or disease
- Application timing
- Restricted-entry interval (Reentry Interval)
- Pre-harvest interval (Post-harvest Interval)
- Required personal protective equipment
- Any certifier-specific restrictions or conditions

Before applying any pest control product, always confirm approval with your organic certifier. A label that says *organic*, *OMRI Listed®*, *WSDA Registered Material*, or *for organic production* does **not** guarantee approval for every farm, crop, or use.



→ Understanding Allowed vs. Prohibited Substances

Synthetic substances are **prohibited** unless they are on the National List of Allowed and Prohibited Substances. **Nonsynthetic (natural) substances** are generally **allowed**, unless the National List specifically prohibits them.

Several organizations review whether a product meets NOP criteria, including the **Organic Material Review Institute** and the **Washington State Department of Agriculture (WSDA)**. These reviews help farmers understand compliance, but **only your certifier can approve a product for use on your farm**.



→ Your Organic System Plan's Materials List

Your Organic System Plan's (OSP) Materials List is a complete inventory of all inputs used in organic production and is required for USDA Organic certification. It ensures every input complies with the National List (7 CFR §§ 205.601–205.606). The materials list typically includes:

- **Crop Production Inputs:** Fertilizers, composts, potting mixes, foliar feeds, side-dressings, soil inoculants.
- **Pest & Disease Control:** Insecticides, fungicides, biological controls (predators, parasites), disinfectants.
- **Livestock Inputs:** Health-care products, feed additives, sanitizers.
- **Handling & Processing Aids:** Post-harvest materials, ingredients, facility sanitizers.

Keeping this list accurate and up-to-date helps prevent compliance issues and speeds up certifier approval when new inputs are needed.

→ Safety Data Sheets: What Farmers Need to Know

A **Safety Data Sheet (SDS)**—formerly called a Material Safety Data Sheet (MSDS)—is a document created by the manufacturer that explains the hazards, safe handling, and emergency procedures for a pesticide or other farm input. Even materials allowed in organic production can harm applicators, workers, beneficial insects, livestock, or the environment if they are not used correctly. Every pesticide or farm input on your operation should have an SDS available.

What a Safety Data Sheet Tells You

An SDS provides essential information, including:

- Product identification and ingredients.
- Health hazards for people and animals.
- Required personal protective equipment.
- Safe handling, storage, and transport instructions.
- First aid steps for accidental exposure.
- Spill cleanup and emergency response procedures.
- Environmental hazards and proper disposal methods.

Why Reviewing the Safety Data Sheet Matters

Reading the SDS before using a product helps you:

- Protect the health and safety of workers and applicators.
- Identify the correct Personal Protective Equipment required for mixing, loading, and application.
- Know how to respond to spills, splashes, or accidental exposure.
- Store and dispose of products safely to prevent contamination.
- Comply with worker safety laws, including OSHA Hazard Communication rules and the EPA Worker Protection Standard (WPS).

Label + Safety Data Sheet: Use Both

Always read **both** the product label and the SDS before using any pesticide or farm input.



- **The product label is the law**—it tells you what you *must* do.
- **The SDS provides additional safety and emergency information** to help you use the product responsibly.

Together, they give you the full picture needed to protect your workers, your farm, and your organic certification.

→ Understanding Pesticide Product Labels

A pesticide product label is one of the most important tools for using pest management products safely and effectively. The label explains how to handle, mix, apply, store, and dispose of the product—and these instructions are legal requirements, not suggestions.

Always read the label every time you use a product, even if you've used it for years. Labels change, and updated directions can affect when, where, and how the product may be applied. Remember: the label is the law.

Organic certification does not exempt farmers from following pesticide label requirements. All pesticides, including those approved for organic production, must be used exactly as the label directs.

Key Information Found on a Pesticide Label

- **Active and Inert Ingredients:** Lists the active ingredient(s) that control the pest, along with the other ingredients in the formulation.
- **Target Pests and Approved Uses:** Identifies the pests the product controls and the crops, livestock, or sites where it may be used. *You may only use a product on crops or sites listed on the label.*
- **Application Rates and Timing:** Provides instructions on how much to apply, when to apply, and how often to apply. Applying more than the labeled rate does not improve control and can harm crops, beneficial organisms, or violate regulations.
- **Personal Protective Equipment:** Specifies required safety gear such as gloves, eye protection, respirators, or protective clothing.
- **Restricted-Entry Interval:** The amount of time workers must wait before entering a treated area without Personal Protective Equipment.
- **Pre-Harvest Interval:** The minimum time that must pass between the last application and harvest.
- **Storage and Disposal Instructions:** Directions for storing the product safely and disposing of unused material or empty containers to protect people and the environment.



Image from: Alam, T. and S. Rustgi. *Organic Pesticide Labels: What You Need to Know*. [Online]. eXtension Foundation, eOrganic Community of Practice. Available at: <https://eorganic.org/node/35008> (Verified 14 August 2026).

PEST CONTROL PRODUCTS

→ Section Notes

Before using any commercially available pesticide, it's important to document your efforts to use preventive, mechanical, physical, and other pest management strategies. These methods should be your first line of defense, and you must demonstrate that they were insufficient for controlling the pest before using commercially available pesticides.

The products featured in this resource were gathered from growers who participated in a survey. CFSA does not endorse or recommend any specific product; these are included solely for reference.

Product labels change frequently. Information in this guide was accurate at the time of publication (September 2026), but does not replace pesticide labels, Safety Data Sheets, or guidance from your organic certifier. Always verify product registration, use directions, restrictions, and organic compliance before application.

All figures in this section that compare product efficacy are sourced from the Cornell Cooperative Extension's [Resource Guide for Organic Insect and Disease Management](#)¹. This

¹ Caldwell, Brian, et al. *Resource Guide for Organic Insect and Disease Management*. 2nd ed., Geneva, Cornell University, 2013. Cornell Cooperative Extension, <https://cyp.cce.cornell.edu/submission.php?id=37>. Accessed 25 August 2026.

resource is excellent, providing extensive information on crop-specific cultural practices for pest control, materials approved for use in organic production, and detailed fact sheets on these materials.

These figures summarize the number of field trials in which product efficacy was evaluated, based on research data from trials reported in Arthropod Management Tests (Entomology Society of America), Plant Disease Management Reports (American Phytopathological Society), and other sources. Product ratings for the figures below are based on the following criteria:

- **Good Control:** Statistically significant reductions in pest numbers or damage of 75% or more compared to an untreated control.
- **Fair Control:** Significant reductions of 50-74%, along with any non-significant reductions that exceed 50%.
- **Poor Control:** Results indicating less than a 50% reduction.

→ Fungicides

Actinovate®

Active Ingredient: *Streptomyces lydicus*

Material Type: Microbial (Bacterium)

Restricted-Entry Interval: 4 hours

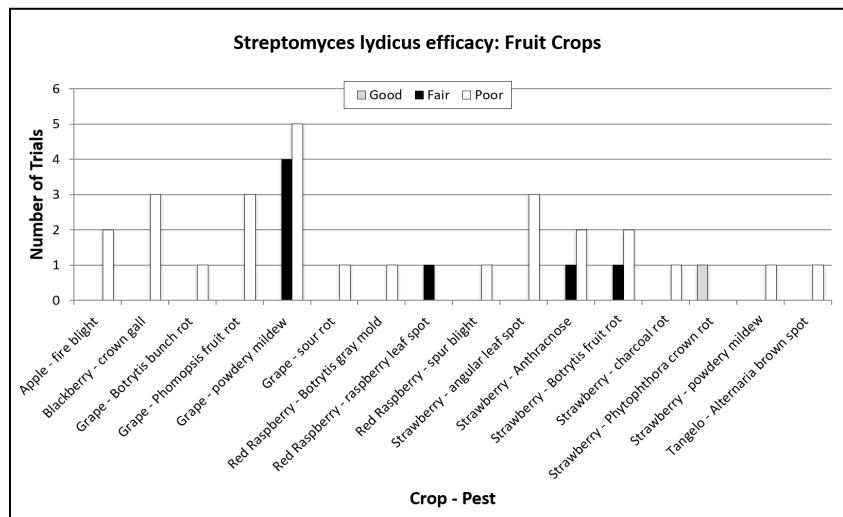
Pre-Harvest Interval: 0 - day

What Is It

Actinovate is a biological fungicide and bactericide that uses beneficial bacteria to help prevent and suppress many common foliar and soil-borne diseases. It works best as a preventative treatment rather than a rescue treatment.

What It Controls

- Alternaria
- Botrytis
- Downy Mildew
- Powdery mildew
- *Fusarium*
- *Pythium*
- *Phytophthora*
- *Rhizoctonia*
- *Verticillium*



Restrictions & Important Notes

- Do not use in areas treated with soil fumigants.
- Follow the most restrictive label when tank mixing.
- Works best when temperatures are above 45°F.

**WATCH OUT: Concentrated formulations can cause serious eye and skin irritation.
 Always follow PPE requirements during mixing and handling.**

Personal Protective Equipment

- Long-sleeved shirt and long pants
- Shoes and socks
- NIOSH-approved N95, R95, or P95 respirator when mixing and loading

Bacillus subtilis: Serenade® • Rhapsody®

Active Ingredient: *Bacillus subtilis*

Material Type: Microbial (Bacterium)

Restricted-Entry Interval: 4 hours

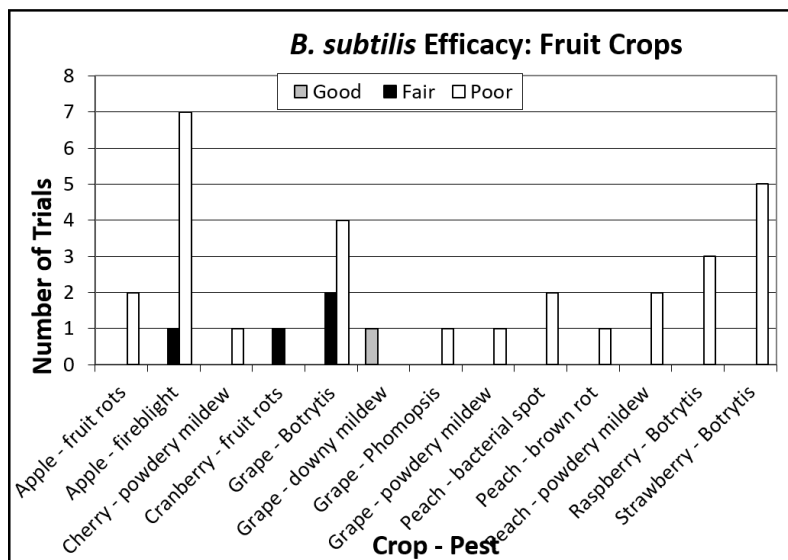
Pre-Harvest Interval: 0 - day

What It Is

A bacterium that naturally occurs in soil and on plants. Certain strains produce antibiotics that either kill other microorganisms or inhibit their growth.

What It Controls

- Anthracnose
- Bacterial Spot and Speck
- Black Rot
- Botrytis/Gray Mold
- Downy and Powdery mildew
- Early and Late Blight
- Fire blight
- Fusarium
- Gummy Stem Blight
- Phytophthora
- Pythium
- Rhizoctonia
- Rust, Scab
- Southern Blight
- Verticillium
- White Mold



Restrictions & Important Notes

- Harmful if inhaled.
- Avoid breathing spray mist.
- Remove and wash contaminated clothing before reuse.

Personal Protective Equipment

- Long-sleeved shirt and long pants
- Shoes plus socks
- Waterproof or Chemical-resistant Gloves
- NIOSH-approved particulate filtering facepiece respirator with any N, R, or P filter; OR a NIOSH-approved elastomeric particulate respirator with any N, R, or P filter; OR a NIOSH-approved powered air- purifying respirator with an HE filter.

Carb-O-Nator® • Kaligreen®

Active Ingredient: Potassium Bicarbonate

Material Type: Mineral / Inorganic

Restricted-Entry Interval: 1 to 4 hours

Pre-Harvest Interval: 0 - day

What It Is

Potassium bicarbonate is a fast-acting contact fungicide used in fruit, vegetable, ornamental, greenhouse, and turf production. It works by disrupting fungal cells on contact, helping stop disease development before it spreads. It is commonly used as part of a preventative disease management program.

What It Controls

- Alternaria
- Anthracnose
- Apple scab
- Botrytis
- Powdery mildew
- Septoria leaf spot

Restrictions & Important Notes

- Do not exceed a mix rate of 5 pounds per 100 gallons of water.
- Under normal disease pressure, apply every 10 to 14 days. During periods of high disease pressure, applications may be needed every 5 to 7 days.
- For best results, apply to dry foliage.
- Do not store unused spray solution. Dispose of leftover material according to label directions.

WATCH OUT: Some crops may be sensitive to potassium bicarbonate applications.
Test a small area before treating large plantings.

Personal Protective Equipment

- Long-sleeved shirt and long pants
- Closed-toe shoes and socks
- Safety glasses or goggles
- Nitrile or rubber gloves

Copper Products: Badge® • Champ® • Cueva® • Kocide® • Nordox 75®

Active Ingredient: Copper compounds

Material Type: Mineral / Inorganic

Restricted-Entry Interval: Varies by product

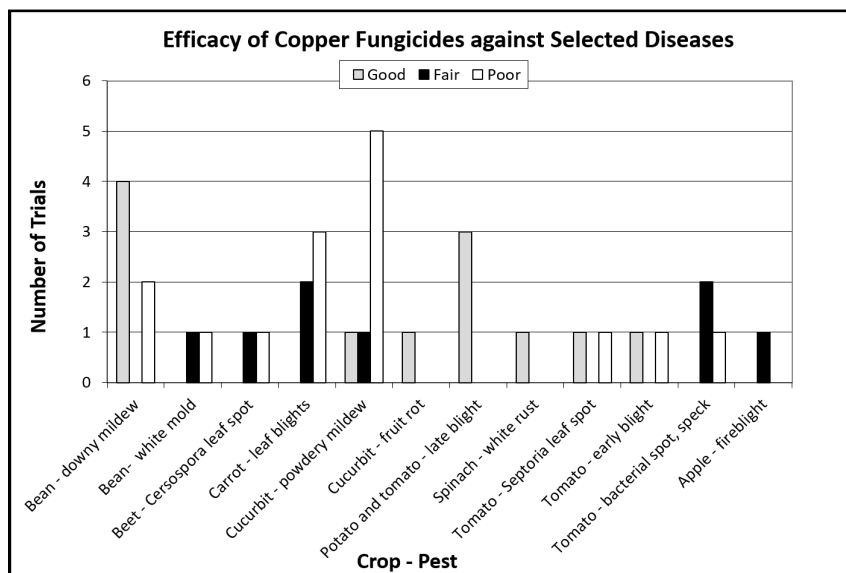
Pre-Harvest Interval: Varies by product

What It Is

Copper products are broad-spectrum fungicides and bactericides used to prevent many fungal and bacterial diseases. They work as protectants and should be applied before infection occurs.

What It Controls

- Black spot
- Blight
- Downy mildew
- Powdery mildew
- Rust



Restrictions & Important Notes

- Stay within annual metallic copper application limits.
- Maintain spray solution pH above 6.5.
- Do not tank mix with products that may cause crop injury.
- Excess copper can damage crops and accumulate in soils.

WATCH OUT: Applying copper products to heat- or drought-stressed crops may increase the risk of crop injury.

Personal Protective Equipment

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

Double Nickel™

Active Ingredient: *Bacillus amyloliquefaciens*

Material Type: Microbial (Bacterium)

Restricted-Entry Interval: 4 hours

Pre-Harvest Interval: 0 - day

What It Is

A biological fungicide and bactericide used to control or suppress over 90 different fungal and bacterial diseases. It also helps suppress some plant-parasitic nematodes.

GROWER EXPERIENCE: Often considered a cost-effective biological fungicide option for farms incorporating preventative disease management programs.

What It Controls

- Alternaria
- Bacterial leaf spot
- Botrytis
- Fire blight
- Fusarium
- Phytophthora
- Powdery mildew
- Pythium
- Root-knot nematodes
- Sclerotinia

Restrictions & Important Notes

- Do not allow runoff into waterways.
- Use water with a pH between 6 and 8.
- Do not leave mixed product in the spray tank overnight.

Personal Protective Equipment

- Long-sleeved shirt and long pants
- Shoes and socks
- Waterproof gloves
- NIOSH-approved respirator

Howler[®]

Active Ingredient: *Pseudomonas chlororaphis*

Material Type: Microbial (Bacterium)

Restricted-Entry Interval: 4 hours

Pre-Harvest Interval: 0 - day

What It Is

A biological fungicide that helps prevent and suppress both soil-borne and foliar diseases.

What It Controls

- Anthracnose
- Botrytis
- Downy mildew
- Fusarium
- Powdery mildew
- Pythium
- Rhizoctonia

FARMER TIP: Early-season applications may help reduce anthracnose pressure before the disease becomes widespread.

Restrictions & Important Notes

- Avoid applications when bees are actively foraging.
- Prevent spray drift.
- Do not contaminate water sources.
- Conduct a compatibility test before tank mixing.

Personal Protective Equipment

- Long-sleeved shirt and long pants
- Waterproof gloves

- Eye protection
- Respirator

Regalia®

Active Ingredient: *Reynoutria sachalinensis*

Material Type: Botanical / Plant Extract

Restricted-Entry Interval: 4 hours

Pre-Harvest Interval: 4 hours

What It Is

A plant-based fungicide that activates the plant's natural defense system.

What It Controls

- Anthracnose
- Bacterial diseases
- Botrytis
- Downy mildew
- Early blight
- Late blight
- Powdery mildew

GROWER EXPERIENCE: Commonly used by berry growers as part of an in-season disease management program.

Restrictions & Important Notes

- Most effective when used preventively.
- Do not exceed six applications per crop.
- Thorough spray coverage is critical.
- Avoid contamination of water sources.

Personal Protective Equipment

- Long-sleeved shirt and long pants
- Shoes and socks
- Waterproof gloves
- Eye protection

RootShield®

Active Ingredient: *Trichoderma harzianum*/*Trichoderma virens*

Material Type: Microbial (Fungus)

Restricted-Entry Interval: 4 hours

Pre-Harvest Interval: 0 - day

What It Is

A biological fungicide that helps protect roots from common soil-borne diseases before they become a problem. It contains beneficial fungi that colonize the root zone and create a protective barrier around developing roots. This natural defense helps reduce disease pressure from pathogens such as *Pythium*, *Fusarium*, *Rhizoctonia*, and *Phytophthora* while supporting healthy root development and overall plant vigor.

FARMER TIP: RootShield works by establishing beneficial fungi around plant roots, creating a protective barrier against soil-borne pathogens.

What It Controls

- Pythium
- Fusarium
- Rhizoctonia
- Phytophthora

Restrictions & Important Notes

- Compatible with many fertilizers, insecticides, and biological products. When tank mixing, always follow the most restrictive directions and precautions listed on any product label.
- Do not use on sugarcane, bok choy (pechay), rice, mushrooms, kiwi, tobacco, barley, oats, lemon, apple, or chickpea.
- Not approved for use on aquatic crops.
- Do not apply through overhead irrigation.
- Do not apply directly to ponds, streams, wetlands, or other bodies of water. Avoid applications near aquatic habitats, on steep slopes, or before heavy rainfall to reduce the risk of runoff.
- Aerial application is not allowed.
- Contains live beneficial organisms and should be stored in its original container under refrigerated conditions. Extended storage at room temperature can reduce product effectiveness and shelf life.

Personal Protective Equipment

- Long-sleeved shirt and long pants
- Shoes and socks
- Waterproof gloves
- Protective eyewear or goggles
- NIOSH-approved N95, R95, or P95 dust/mist respirator

Sanidate® • Oxidate® • Zeritol®

Active Ingredient: Hydrogen Peroxide/Peracetic Acid

Material Type: Mineral / Inorganic

Restricted-Entry Interval: 0 - 1 hour

Pre-Harvest Interval: 0 days

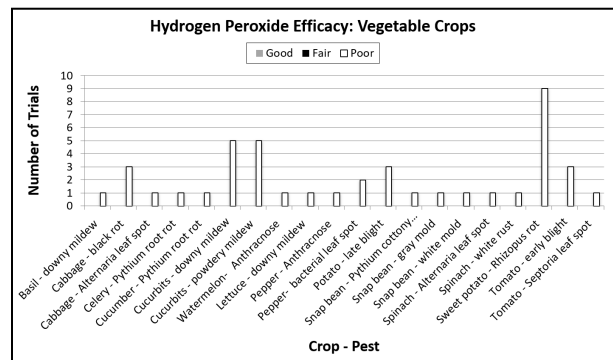
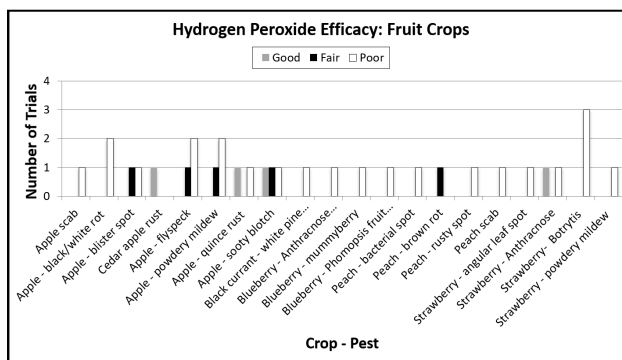
What It Is

Fast-acting contact fungicides and bactericides that control many plant pathogens on contact. These products use hydrogen peroxide and peracetic acid to rapidly break down and destroy fungal spores, bacteria, and other disease-causing organisms.

FARMER TIP: These products can serve both sanitation and disease-management roles, making them useful tools for greenhouse and field production systems.

What It Controls

- Alternaria
- Bacterial leaf spots and blights
- Botrytis (gray mold)
- Downy mildew
- Powdery mildew



Restrictions & Important Notes

- Never add the concentrate directly to other pesticides or fertilizers. Fill the spray tank with water first, then dilute according to the label directions before adding any additional products.
- Do not apply immediately after using copper or other metal-based products. Wait at least 24 hours, or until foliage is completely dry, before making an application.
- Do not tank mix with biological pesticides containing beneficial organisms such as *Bt*, *Beauveria*, or *Gliricladium*. These products can kill the beneficial microbes.
- Use only approved non-ionic surfactants and follow the product compatibility guide before adding adjuvants or tank-mix partners.

- Avoid applying to crops that are drought- or heat-stressed or otherwise under stress, as crop injury may occur.
- Do not apply during hot conditions above 86°F (30°C), before rainfall, or during windy conditions that may cause drift.
- Do not apply directly to ponds, streams, lakes, or other water sources.

Personal Protective Equipment

Mixing or Handling:

- Coveralls over a long-sleeved shirt and long pants
- Chemical-resistant footwear and socks
- Chemical-resistant goggles or a face shield
- Waterproof or rubber gloves (nitrile, neoprene, or latex)

WATCH OUT: Concentrated formulations can cause serious eye and skin irritation. Always follow PPE requirements during mixing and handling.

Application:

- Long-sleeved shirt and long pants
- Shoes and socks
- Waterproof or rubber gloves
- NIOSH-approved respirator if mist or vapor exposure is likely

→ Herbicides

Axxe® • Miramichi Green®

Active Ingredient: Ammonium Nonanoate

Material Type: Biochemical (Fatty Acid)

Restricted-Entry Interval: 4 hours

Pre-Harvest Interval: 0-day

What It Is

Non-selective, post-emergence weed control product.

WATCH OUT: This non-selective herbicide can injure or kill nearly all green plant tissue it contacts. Use care to avoid drift and overspray.

What It Controls

- Broadleaf Weeds
- Grasses

- Lichens
- Mosses

Restrictions & Important Notes

- Avoid all contact with the green foliage or stems of desirable plants, crops, or turf, as Axxe will cause contact "burn" on anything it touches.
- Apply only when the potential for drift to areas of human habitation is minimal.
- Toxic to fish and aquatic invertebrates. Do not apply directly to water or areas where surface water is present.
- Do not allow spray drift or runoff to enter lakes, streams, ponds, or sewage systems.
- It is a contact herbicide (it does not travel down to the root). Perennial weeds or those with deep taproots may require re-treatment every two to three weeks to suppress re-growth

Personal Protective Equipment

- Long-sleeved shirt and long pants
- Chemical-resistant footwear or boots
- Chemical-resistant gloves
- Protective eyewear

Eco Blend®

Active Ingredient: Soybean Oil

Material Type: Botanical / Plant-Derived Oil

Restricted-Entry Interval: 0 hours

Pre-Harvest Interval: 0-day harvest

What It Is

Non-systemic, post-emergent herbicide made from organic and food-grade ingredients. It quickly burns down unwanted vegetation, poison ivy, and grasses upon contact. As a patented formula, it breaks down plant mass into beneficial soil nutrients, making it safe for humans, pets, and the environment.

What It Controls

Designed to safely control general weeds, grasses, and tough woody vegetation without leaving harmful chemical residues

Restrictions & Important Note

- Performs best on sunny days with temperatures consistently above 60°F.
- Once dry, the product is largely rainproof. However, heavy rainfall immediately after application may reduce efficacy.

ENVIRONMENTAL NOTE: When used according to label directions, this product poses minimal risk to pollinators and many non-target organisms.

Personal Protective Equipment

- Long-sleeved shirt and long pants
- Chemical-resistant footwear or boots
- Chemical-resistant gloves
- Protective eyewear

HomePlate® • Fireworx™ • Suppress®

Active Ingredient: Caprylic Acid/Capric Acid

Material Type: Biochemical (Fatty Acid)

Restricted-Entry Interval: 24 hours

Pre-Harvest Interval: 0-day harvest

What It Is

Non-selective organic herbicide used to control broadleaf weeds, grasses, algae, and moss. Powered by a specialized blend of naturally occurring fatty acids (caprylic and capric acids), it acts as a contact burndown spray that quickly ruptures plant cell walls and halts photosynthesis.

What It Controls

- General weed control in and around vegetable gardens, landscaped areas, buildings, and driveways.
- Pre-plant, post-harvest, and directed/shielded sprays on all outdoor and protected crops.
- Highly effective for sucker control, vine pruning, and harvest aid desiccation.
- Highly biodegradable, allowing you to spray around the base of trees without damaging woody plant parts.

Restrictions & Important Notes

- Do not apply directly to water or areas where surface water is present. Avoid runoff into storm drains or surface waters.
- Apply in calm weather to prevent wind drift. Avoid spraying desirable plants and crops, as this is a non-selective contact herbicide.
- Hardscapes:
- Do not apply directly to hardscape areas like driveways, sidewalks, or patios.

Personal Protective Equipment

- Long-sleeved shirt and long pants
- Chemical-resistant footwear or boots
- Chemical-resistant gloves

- Protective eyewear

SAFETY NOTE: Avoid skin contact during handling and application.
Wash exposed skin thoroughly after use.

→ Insecticides

Bacillus thuringiensis (Bt) Products: Agree WG® • Deliver® • Dipel® • Javelin® • XenTari®

Active Ingredient: *Bacillus Thuringiensis/kurstaki/aizawai*

Material Type: Microbial (Bacterium)

Restricted-Entry Interval: Varies by product

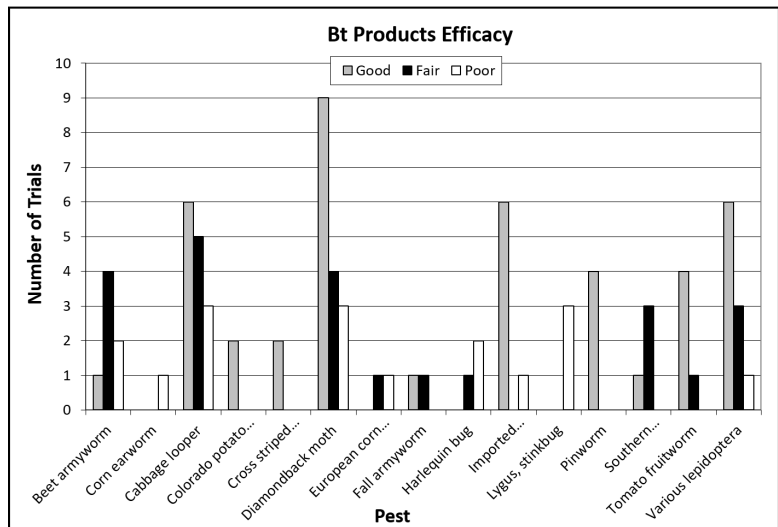
Pre-Harvest Interval: Varies by product

What It Is

A naturally occurring, soil-dwelling bacterium used as a selective, environmentally friendly biological insecticide (biopesticide) to control specific larval pests like caterpillars, beetles, and mosquitoes. It works by releasing toxic proteins upon consumption, causing pests to stop feeding within hours and die within days, without harming beneficial insects, humans, or wildlife.

What It Controls

- Armyworms
- Beetle larvae
- Caterpillars
- Codling moths
- Cutworms
- Diamondback moth
- Fruitworms
- Gypsy moths
- Hornworms
- Imported cabbageworm
- Leafrollers
- Loopers
- Mosquito/fly larvae
- Peach Twig Borers



FARMER TIP: Bt products are most effective when applied to young larvae before significant feeding damage occurs.

Restrictions & Important Notes

- You must not apply it directly to water, to intertidal areas, or where surface water is present.
- Do not dispose of equipment wash water in a way that contaminates bodies of water.
- Applications, especially aerial spraying, are prohibited near the habitats of threatened or endangered butterfly and moth species.

Personal Protective Equipment

- Waterproof gloves
- Long sleeves
- Safety goggles
- A dust/mist-filtering respirator (NIOSH-approved, N-95 or higher)

SAFETY NOTE: Avoid contact with eyes and skin, and wear all PPE required by the product label.

Des-X® • M-Pede®

Active Ingredient: Insecticidal Soap

Material Type: Synthetic

Restricted-Entry Interval: Varies by product

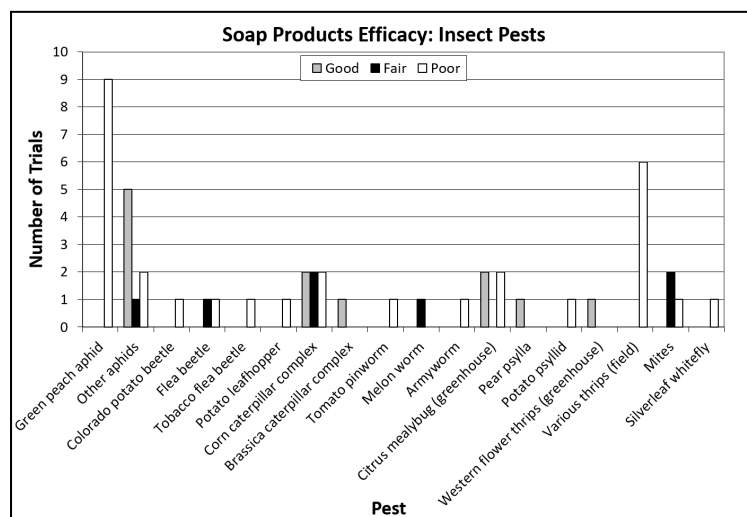
Pre-Harvest Interval: Varies by product

What It Is

This product is a liquid insecticidal soap made from fatty acids. It works by directly contacting the pest and breaking down its outer layer, quickly killing the insect.

What It Controls

- Aphids
- Mealybugs
- Spider mites
- Thrips
- Whiteflies



Restrictions & Important Notes

- Do not spray above 90°F
- Spray early morning or late evening
- Avoid spraying in direct sun or wind
- Harmful to fish—avoid water areas
- Some plants are sensitive
- Do not spray stressed or wilted plants
- Avoid mixing with certain fungicides
- Hard water reduces effectiveness

WATCH OUT: Certain crops may be sensitive to insecticidal soaps.
Test a small area before broad application when crop sensitivity is uncertain.

Personal Protective Equipment

- Long-sleeved shirt and long pants
- Closed-toe shoes
- Chemical-resistant gloves
- Safety glasses

Diatomaceous Earth

Active Ingredient: Diatomaceous Earth

Material Type: Mineral

Restricted-Entry Interval: Varies by product

Pre-Harvest Interval: Varies by product

What It Is

Diatomaceous earth is a natural powder made from fossilized shells. When insects crawl through it, the tiny sharp particles scratch their outer coating and dry them out. This causes them to dehydrate and die within a couple of days.

What It Controls

- Ants
- Cockroaches
- Earwigs
- Silverfish
- Slugs

Restrictions & Important Notes

- Use only food-grade products indoors; never use pool-grade products
- Keep away from flowers to protect bees
- Keep away from water sources

- Keep kids and pets away while dusting
- Do not apply to blooming plants or weeds
- Some brands restrict use on hard surfaces

SAFETY NOTE: Avoid inhaling dust during application.
An N95 respirator is recommended when handling dry materials.

Personal Protective Equipment

- N95 dust mask
- Safety glasses
- Gloves

Grandevo®

Active Ingredient: *Chromobacterium subtsugae*

Material Type: Microbial (Bacterium-derived)

Restricted-Entry Interval: 4 hours

Pre-Harvest Interval: 0-day harvest

What It Is

A natural insect and mite control product made from beneficial bacteria. These bacteria produce compounds that disrupt feeding and development in many pests, helping protect crops without harsh chemicals.

What It Controls

- Aphids
- Caterpillars
- Mealybugs
- Spider mites
- Spotted wing drosophila
- Thrips
- Whiteflies

Restrictions & Important Notes

- Toxic to aquatic life
- Repels bees—avoid blooming crops
- Keep the tank agitated
- Maintain neutral pH
- Use mixed spray within 24 hours

ENVIRONMENTAL NOTE: Prevent runoff or drift into waterways,
as exposure may harm aquatic invertebrates.

Personal Protective Equipment

- Long sleeves
- Long pants
- Waterproof gloves
- Eye protection
- Particulate respirator

JMS Stylet® • SuffOil-X®

Active Ingredient: Paraffinic Oil (Mineral Oil)

Material Type: Oil

Restricted-Entry Interval: 4 hours

Pre-Harvest Interval: 0-day harvest

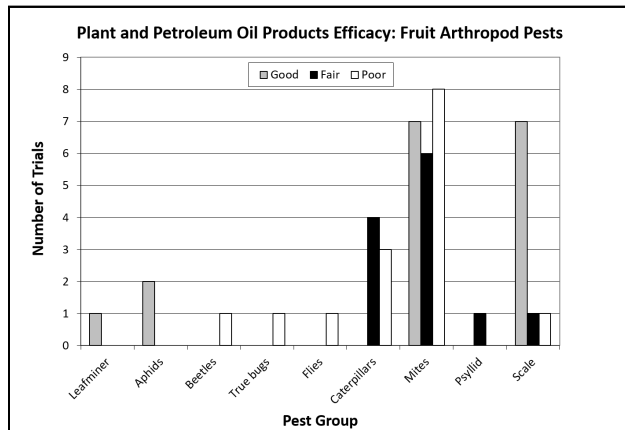
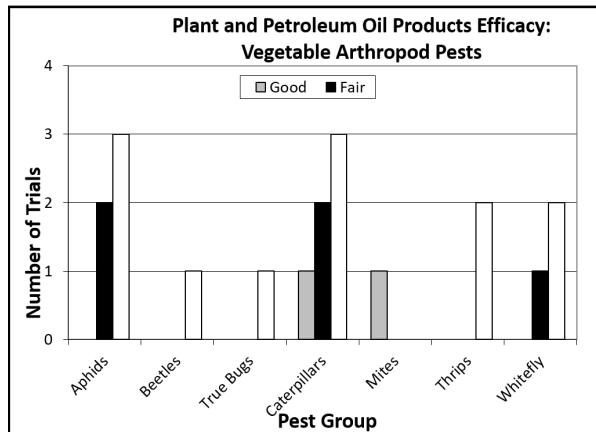
What It Is

This product is a highly refined mineral oil used to smother insects, mites, and certain plant diseases. It works by coating pests and blocking their ability to breathe or feed. It's approved for organic use and is gentle on beneficial insects when applied correctly.

What It Controls

- Leafhoppers
- Leafminers
- Mealybugs
- Psyllids
- Scale
- Spider mites
- Powdery mildew
- Rust
- Botrytis
- Black spot
- Several plant viruses

FARMER TIP: These oils can be an effective component of integrated mite management programs when used according to label directions.



Restrictions & Important Notes

- Do not spray above 90°F (85°F for sensitive crops)
- Do not spray below 50°F
- Avoid stressed or wet plants
- Avoid high winds
- Spray to coat leaves but not drip
- Do not mix with sulfur

Personal Protective Equipment

- Long-sleeved shirt and long pants
- Shoes and socks
- Chemical-resistant gloves
- Eye protection
- Respirator

Neem Products: Neemix® • Rango® • Trilogy®

Active Ingredient: *Azadirachtin indica*

Material Type: Botanical / Plant Extract

Restricted-Entry Interval: 4 hours

Pre-Harvest Interval: 0 - day

What It Is

Neem products come from the neem tree and act as natural insecticides, miticides, and fungicides. They disrupt insect growth, feeding, and mating, while also reducing pest activity on contact.

What It Controls

- Black spot
- Mealybugs
- Whiteflies
- Powdery mildew
- Rust
- Scab

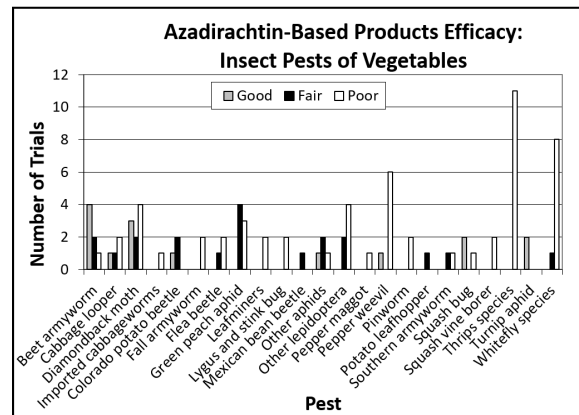
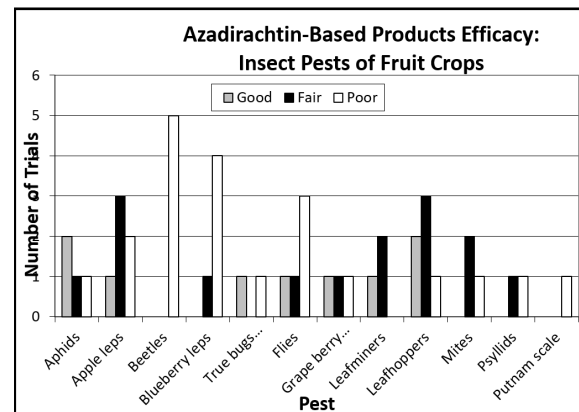
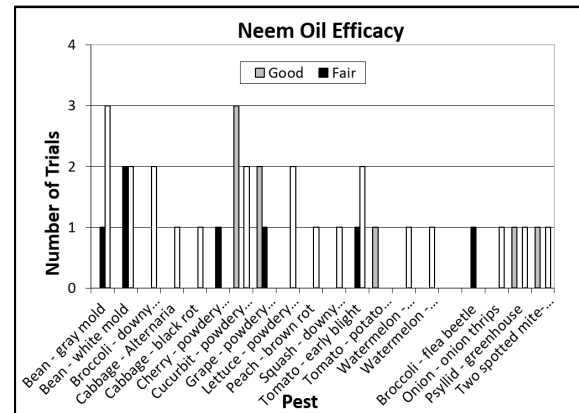
Restrictions & Important Notes

- EPA limits azadirachtin per acre
- Most products allow around seven applications
- Best applied late evening or at night

WATCH OUT: Exceeding labeled rates or applying during stressful growing conditions may result in crop injury.

Personal Protective Equipment

- Long-sleeved shirt and long pants
- Closed-toe shoes
- Waterproof gloves
- Safety glasses
- N95 mask



Pyganic® • Evergreen®

Active Ingredient: Pyrethrins

Material Type: Botanical / Plant Extract

Restricted-Entry Interval: 12 hours

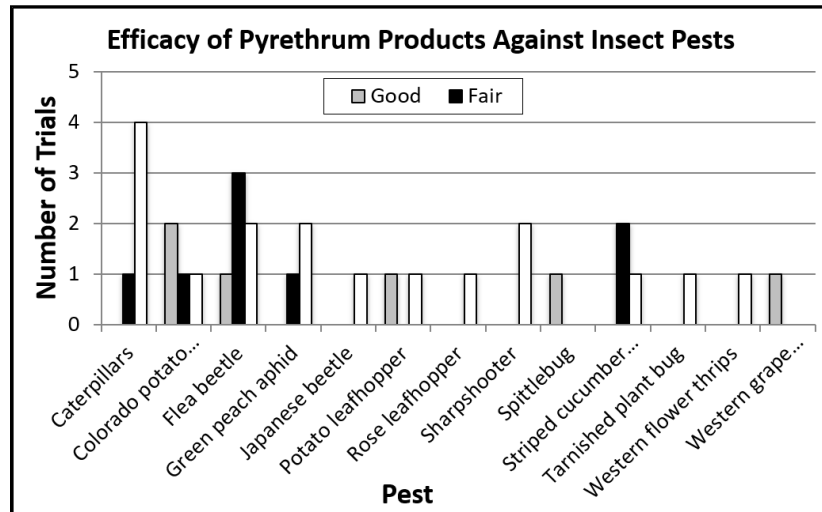
Pre-Harvest Interval: 0-day day

What It Is

Pyganic and Evergreen are natural insecticides made from chrysanthemum flowers. They attack the nervous system of insects as soon as they come into contact with the spray, providing a quick knockdown of many pest species.

What It Controls

- Ants
- Aphids
- Cockroaches
- Cucumber beetles
- Fleas
- Flies
- Gnats
- Japanese beetles
- Leafhoppers
- Mosquitoes
- Moths
- Spider mites
- Thrips
- Wasps
- Weevils
- Whiteflies



POLLINATOR & WATER QUALITY NOTE: Avoid applications when bees are active and prevent drift or runoff into aquatic habitats.

Restrictions & Important Notes

- Highly toxic to fish
- No aerial spraying
- Do not spray during rain
- Cats are sensitive
- Highly toxic to bees

WATCH OUT: Keep domestic animals, particularly cats, away from concentrated products and recently treated areas until sprays have dried.

Personal Protective Equipment

- Long-sleeved shirt and long pants
 - Shoes and socks
 - Waterproof coveralls
 - Chemical-resistant gloves
 - Eye protection
 - Respirator
-

Sil- Matrix® LC

Active Ingredient: Potassium Silicate

Material Type: Mineral

Restricted-Entry Interval: 4 hours

Pre-Harvest Interval: 0 - day

What It Is

Sil Matrix LC is an organic spray made from potassium silicate. It helps protect plants by strengthening their surfaces and making them less prone to fungus, mites, and certain insects. It works best as a preventative treatment.

What It Controls

- Spider mites
- Whiteflies
- Powdery mildew
- Botrytis

Restrictions & Important Notes

- Wait at least 7 days between sprays
- Follow per-acre limits
- Avoid spraying sensitive blooms
- Avoid drift
- Keep pH at 4–5 or 7–8
- Dilute in water before mixing
- Do not store or mix in metal or fiberglass

Personal Protective Equipment

- Long-sleeved shirt and long pants
 - Shoes and socks
 - Chemical-resistant gloves
 - Goggles or a face shield
 - NIOSH-approved mask
-

Sluggo®

Active Ingredient: Iron Phosphate

Material Type: Mineral

Restricted-Entry Interval: 0 hours

Pre-Harvest Interval: 0 - day

What It Is

Sluggo is an organic bait made with iron phosphate. It attracts slugs and snails, and once they eat it, they stop feeding and die shortly afterward.

What It Controls

- Snails and slugs

Restrictions & Important Notes

- Scatter evenly, do not pile.
- Apply no more than 3 times in 30 days.
- Apply in the evening.
- Reapply after heavy rain.
- Keep out of water.

FARMER TIP: Apply bait in the evening or during periods of high moisture when slugs and snails are most active.

Personal Protective Equipment

- Long-sleeved shirt and long pants
- Shoes and socks
- Waterproof gloves
- Safety glasses

Spinosad: Entrust SC® • Conserve® • Monterey Garden Insect Spray®

Active Ingredient: Spinosad

Material Type: Microbial Derived

Restricted-Entry Interval: Varies by product

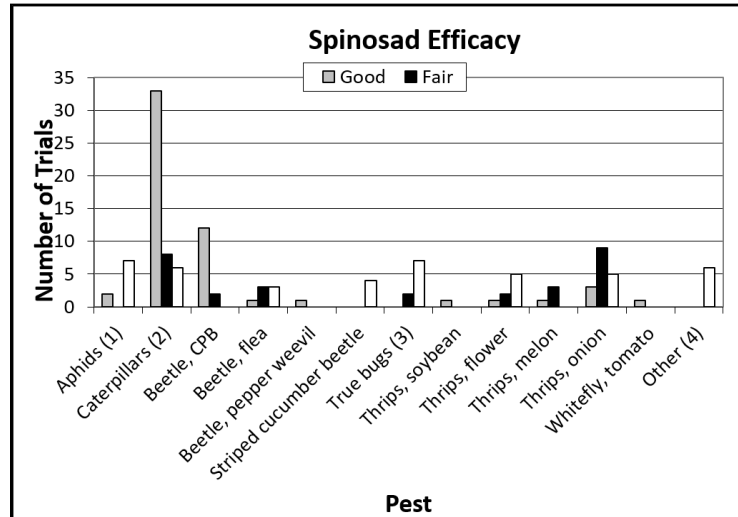
Pre-Harvest Interval: Varies by product

What It Is

Spinosad is a natural insecticide derived from the bacterium *Saccharopolyspora spinosa* from the soil. It works by affecting the insect's nervous system after they ingest or touch it, making it effective against many soft-bodied and surface-feeding pests.

What It Controls

- Armyworms
- Bagworms
- Borers
- Codling moths
- Colorado potato beetle
- Cutworms
- Fire ants
- Fruit flies
- Leafminers
- Mites
- Mosquitoes
- Sod webworms
- Tent caterpillars
- Thrips



Restrictions & Important Notes

- Highly toxic to bees
- Do not apply back-to-back.
- Apply no more than 3 times per season.

RESISTANCE MANAGEMENT: Rotate Spinosad with products that have different modes of action to reduce the risk of insect resistance.

Personal Protective Equipment

- Long-sleeved shirt and long pants
- Splash goggles or a face shield
- Waterproof gloves
- Chemical-resistant apron

Surround® • Kaolin Clay

Active Ingredient: Aluminum Silicate

Material Type: Mineral

Restricted-Entry Interval: 4 hours

Pre-Harvest Interval: 0 - day

What It Is

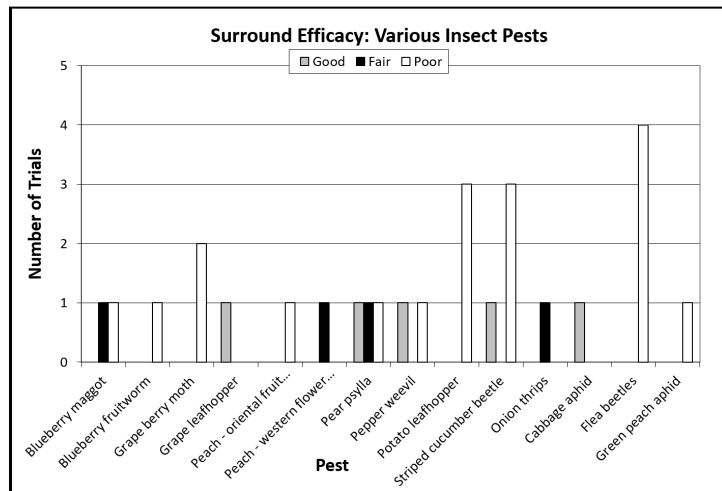
Surround is a clay-based spray that coats plants with a white film. This film repels insects, reduces sunburn, and helps cool the plant's canopy during hot weather.

What It Controls

- Beetles
- Codling moths
- Leafhoppers
- Sunburn protection
- Heat protection

Restrictions & Important Notes

- Do not apply through irrigation
- Full coverage needed
- Rain washes it off
- Avoid surfaces where white film is undesirable
- Washable on crops



WATCH OUT: Surround forms a visible white coating on leaves and fruit, which may remain until washed off by rain or post-harvest cleaning.

Personal Protective Equipment

- Long-sleeved shirt and long pants
- Chemical-resistant gloves
- Safety goggles
- N95 respirator

Venerate®

Active Ingredient: *Burkholderia rinojensis*

Material Type: Microbial (Bacterium-derived)

Restricted-Entry Interval: 4 hours

Pre-Harvest Interval: 0 - day

What It Is

Venerate is a natural insect spray made from beneficial microbes. It uses enzymes from these microbes to break down a bug's outer shell and interfere with its molting process. Because it works in several ways at once, pests are much less likely to develop resistance to it.

What It Controls

- Aphids
- Caterpillars
- Mealybugs
- Spider mites

- Stink bugs
- Thrips
- Whiteflies

Restrictions & Important Notes

- Avoid spraying when beneficial insects are active
- Keep out of water
- Do not spray blooming crops when bees are active
- Test mixes before combining with other products
- No seasonal limits

BENEFICIAL INSECT NOTE: Allow at least 48 hours between applications and the release of beneficial insects whenever possible.

Personal Protective Equipment

- Long-sleeved shirt and long pants
- Shoes and socks
- Waterproof gloves
- Eye protection
- N95/R95/P95 respirator