

A large, well-lit greenhouse with a high, arched metal frame and translucent panels. The interior is filled with rows of cannabis plants in black pots, stretching into the distance. The plants are lush green and appear to be in various stages of growth. The lighting is bright, suggesting natural light coming through the translucent panels.

BMPs for Medical Marijuana Pest Management

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Maine Department of Agriculture, Conservation
and Forestry

contact: hillary.peterson@maine.gov
www.Maine.gov/ipm

The Problem Pests!

Pathogens



Photo: Whitney Cranshaw



Insects

Photo: Whitney Cranshaw

Mites



Photo: Whitney Cranshaw

Pesticides are Also Problematic

- \$
- Labor
- Worker and patient health risks
- Pest resistance to pesticides
- Pest resurgence
- Regulatory & marketplace restrictions

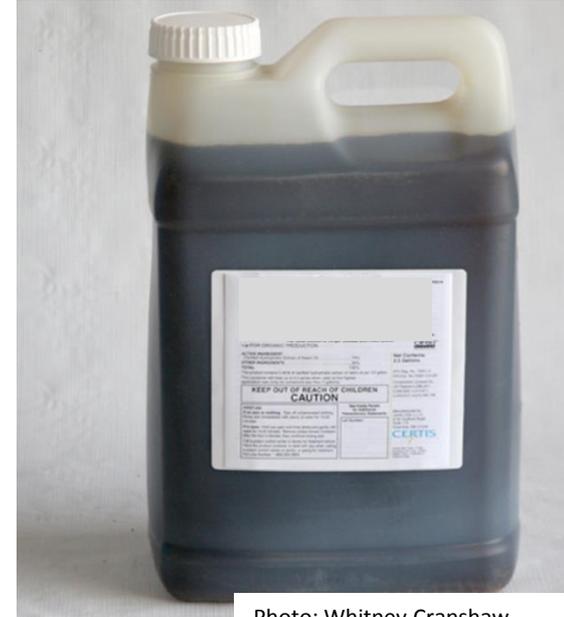
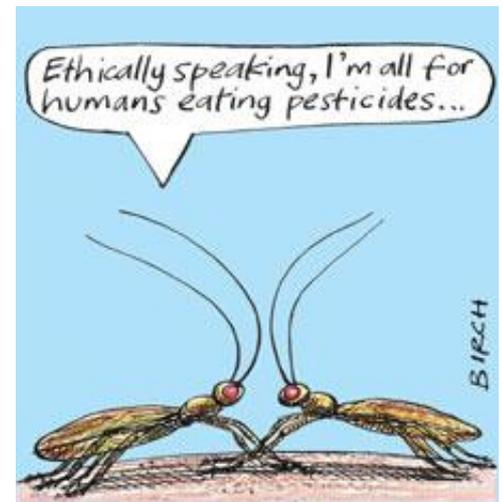


Photo: Whitney Cranshaw

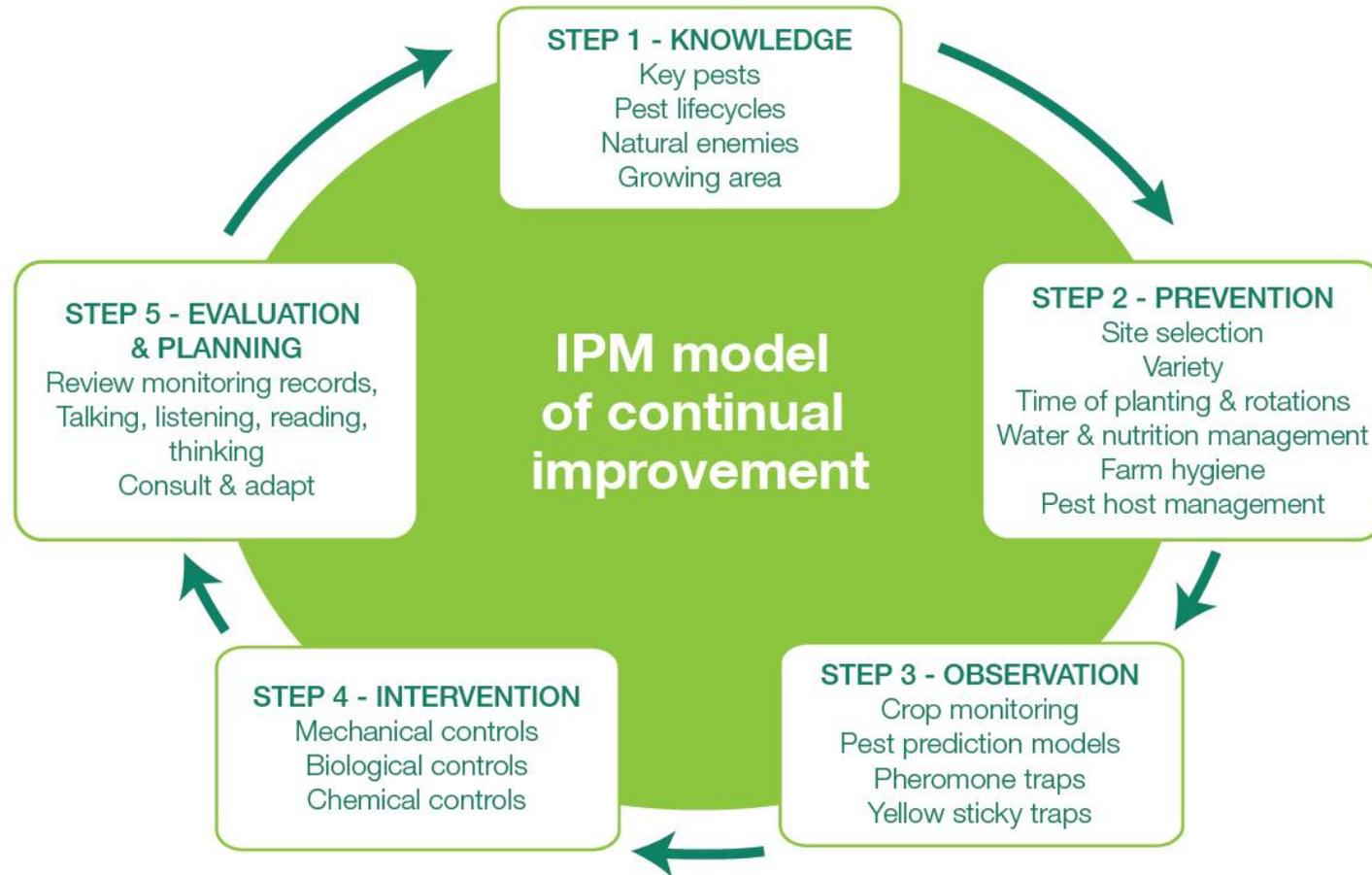


IPM is the Answer!

- Integrated Pest Management
 - Organized and systematic approach to preventing and managing **all** pests
- IPM Offers
 - Minimized risks (health, \$, disruption)
 - Effective, long-term pest control
 - Improved crop quality/quantity



Integrated Pest Management



State of Maine



Best Management Practices for Pest Prevention and Management in Maine Medical Marijuana Cultivation

BMP 1: Design and operate facilities to prevent introduction and spread of pests

- Keep plants healthy
- Design spaces and processes to permit excellent sanitation and quarantine.
- Indoors: keep pests out and don't give them shelter. Install and maintain air filters. Seal pest entryways, cracks, crevices and voids.
- Outdoors: maintain space around plants, control weeds, install barriers



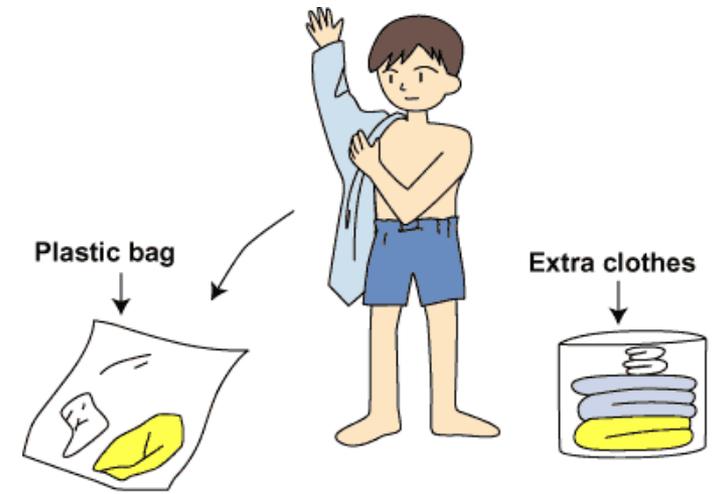
BMP 2: Use, Store and Dispose Pesticides in Accordance with Regulations

- Know and follow all regulations
- Read and follow product label directions for use, storage and disposal.
- Ensure worker protection standards are met.
- Pesticides only used by licensed applicator unless growing only for self and household patients.
- Ensure any product used is registered and not prohibited for use on *Cannabis* in Maine.



BMP 3: Establish and Utilize Sanitation Protocols to Prevent the Spread of Pests and Contaminants by Workers

- Establish protocols to prevent pests from hitchhiking on workers' clothing, shoes or equipment.
 - Start clean. Keep clean.
 - Work in infested areas last



Take off contaminated clothes and wear extra ones

- Provide training and verify pest preventive procedures are being followed.

BMP 4: Provide Optimal Growing Conditions to Promote Healthy Plants, Encourage Natural Enemies and Minimize Pest Conducive Conditions





Keep Weeds Out! Insect Pests Thrive in weeds!

BMP 5: Implement Effective Procedures to Regularly and Systematically Monitor for Pests



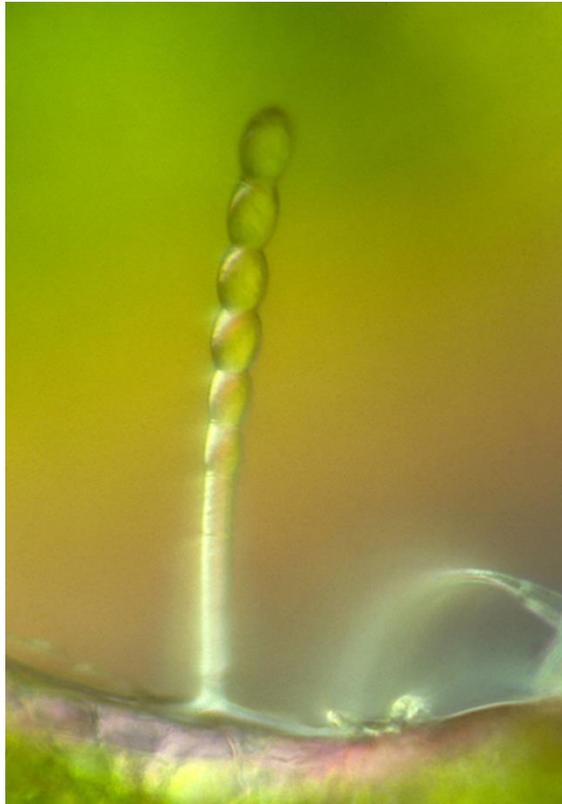
BMP 6: Develop and Utilize an Integrated Pest Management Plan that includes Least-Risk Protocols for Preventing and Managing Common Pests



Powdery mildew of *Cannabis*

Podosphaera macularis

Also infects hops,
strawberry, delphinium,
phlox, potentilla, geranium



Photos: Whitney Cranshaw

Conditions that Promote Powdery Mildew

- High humidity
- Moderate temperature
- Still air



Powdery Mildew Prevention

- Quarantine new plant material
- Maintain humidity at or below 70%
- Maintain good air circulation among plants
- Maintain positive airflow at entrances/exits
- Use strict sanitation protocols for workers and equipment
 - Wear clean dedicated clothing/shoes or protective coverings to prevent intro
 - of spores into growing areas
 - Sterilize pots or don't reuse.
 - Sterilize cutting tools before each cut.



Powdery Mildew Management

- Isolate, bag, and remove infected plants
- Apply approved, registered pesticides when/where/if needed



Bacillus amyloliquifaciens
Strain D747

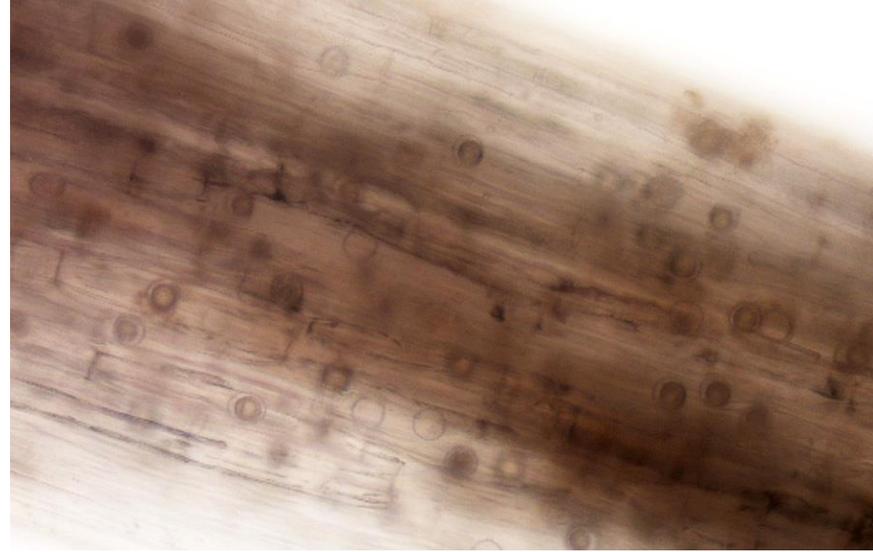
NOTE: No endorsement or approval indicated. Products shown for example only. Check with Maine Board Pesticides Control or read product label before using any pesticide



Streptomyces lydicus
WYEC 108 strain

Home Made Pest Control Products NOT Allowed

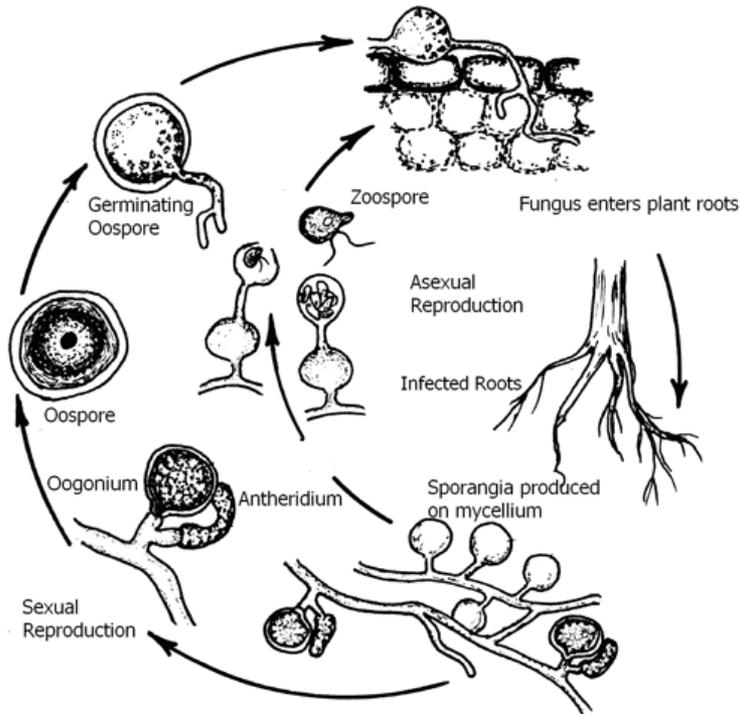




Pythium root rot fungi
Pythium spp.



Zoospores can easily spread through a hydroponic system



Prevent Pythium

- Start with clean plants and sterilized pots, flats, trays, tools
- Avoid practices that allow spores to spread between plants
- Disinfect floors, equipment, hard surfaces between growing cycles with an approved/registered product.
- Place disinfectant foot bath mats at entry points



NOTE: No endorsement or approval indicated.

Products shown for example only. Check with Maine Board Pesticides Control or read product label before using any pesticide



**Two-spotted
spider mite**
Tetranychus urticae





Hemp russet mite
Aculops cannabicola



Photo credit: Karl Hillig

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Constantly Monitor Plants for signs of mite presence/activity



**Catch early signs
such as this...**



...Take action well before it gets like this!



Photos: Whitney Cranshaw

Avoid conditions that allow “steamrolling” of mite populations

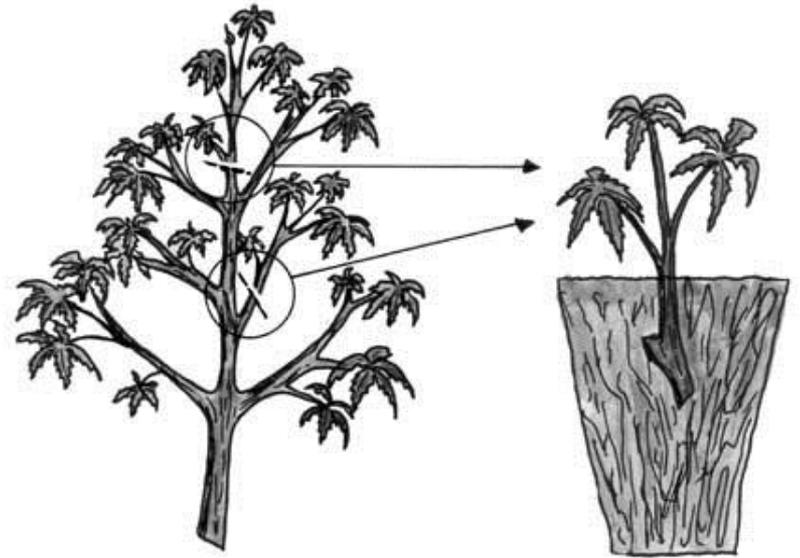


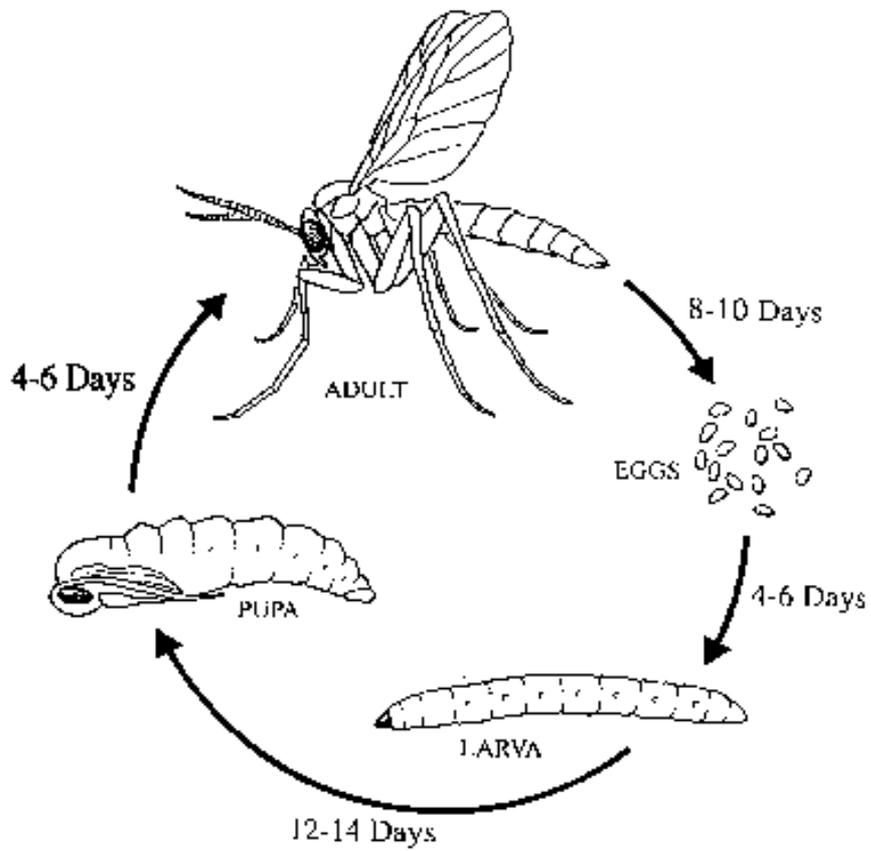
Photo: Whitney Cranshaw

Spider Mite Management

- **Start with clean plants**
- **Quarantine new plant material to avoid bringing mites into facility**
- **Train workers in sanitation protocol to prevent transfer of mites to clean areas**
- **Maintain humidity closer to 50% when possible**
- **Release predatory mites and/or beneficial nematodes in indoor grows.**
- **Avoid pesticides that kill natural enemies indoors and outdoors.**

Cuttings, if used, must be disinfested of all living stages of mites before introduction into a growing area





Photos: Whitney Cranshaw

Dark-winged fungus gnat, *Bradysia* spp.

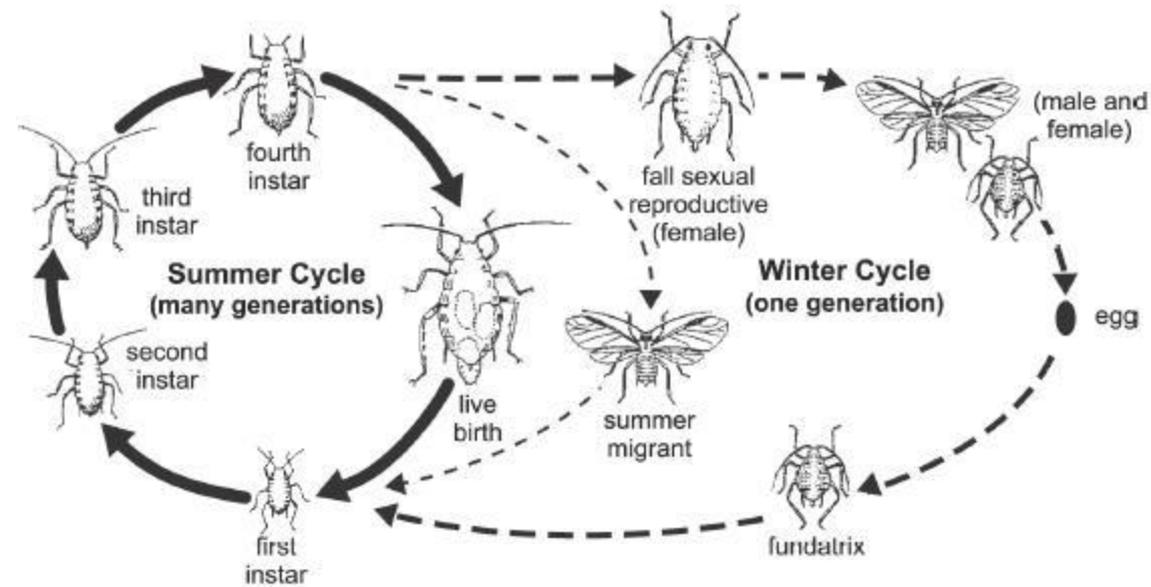


Fungus Gnat Trapping



Some IPM Tools for Fungus Gnats

- **Avoid overwatering. Let potting media dry out on top before watering.**
- **Sticky Traps**
- **Biological control agents**
 - **Soil-dwelling predatory mites**
 - **Entomopathogenic nematodes**



Aphids

- Complex life cycle
- Sucks plant sap from roots, stems, or leaves
- Parthenogenetic: reproduces without mating
- Viviparous: live birth

Figure 2. General life cycle of aphids. Asexual reproduction occurs during most of the year (summer cycle). Some aphid species produce a generation of sexual individuals that produce overwintering eggs as shown in the winter cycle.

All aphids have a pair of cornicles



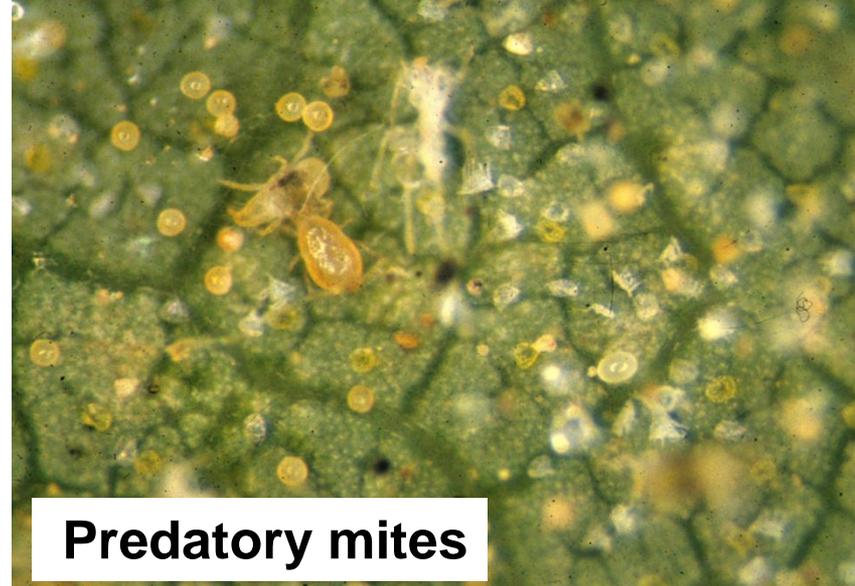


**Rice root
aphid**
*Rhopalosiphum
rufiabdominalis*



Biological Control

Use (or augment) natural enemies to prevent and manage pests.



Predatory mites



Beneficial nematodes



Property of Biobest



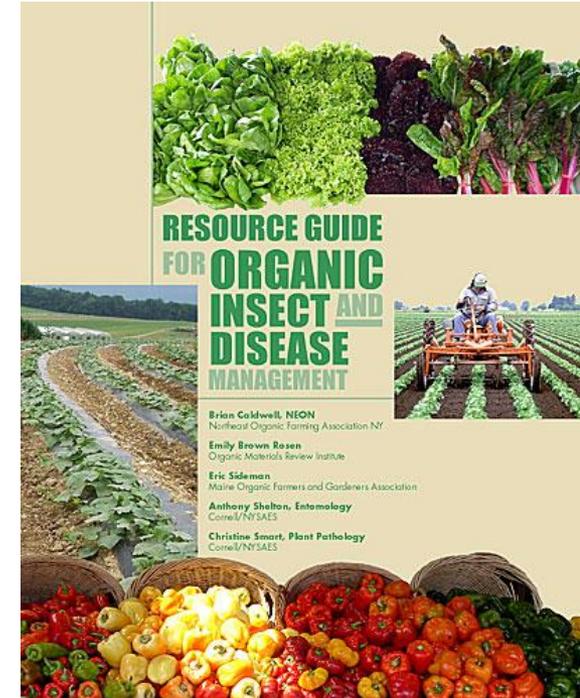
©Marlon E. Rice

**Insect
predators and
parasites**

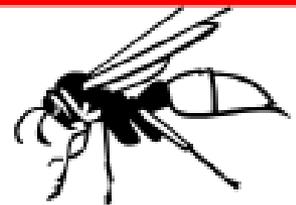


Conservation Strategies

- Minimize pesticide impact on natural enemies
 - Product selection (ai, formulation)
 - Application methods
 - Timing
 - Spot treating



“When we kill off the natural enemies of a pest we inherit their work” — Carl Huffaker



Farmscape to Attract and Support Natural Enemies

- Create diverse plantings
 - Provides shelter and alternate food for natural enemies
 - Insectary plantings
- Plant strips, borders or banks of flowering plant
 - provides nectar and pollen for beneficial insects



 eXtension

articles.extension.org
<http://articles.extension.org/pages/18573/farmscaping:-making-use-of-natures-pest-management-services>

Farmscaping: Making Use of Nature's Pest Management Services

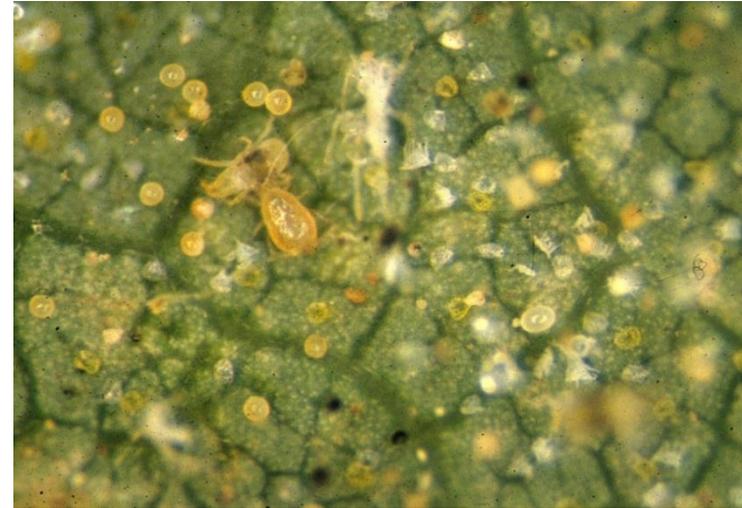
Organic Agriculture July 05, 2013

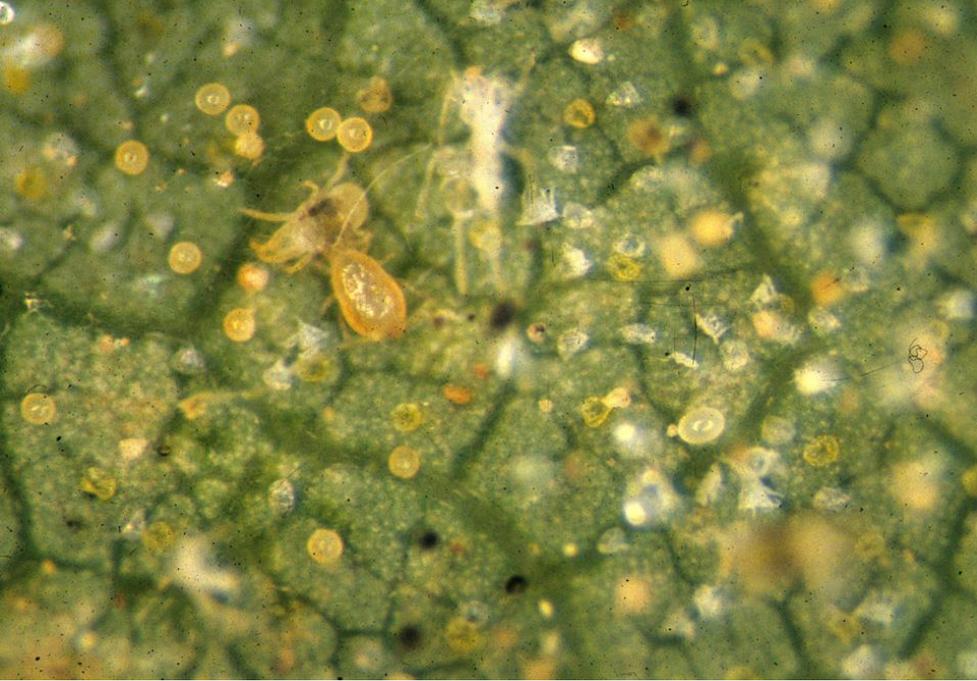
eOrganic author:
Geoff Zehnder, Clemson University

Extension.org.
Search for
'Farmscaping'

Predatory Mites for Control of Spider Mites and Fungus Gnats

- ***Mesoseiulus longipes***
 - Can tolerate 70°F, 40% RH, but needs higher humidity with increasing temperature
- ***Galendromus occidentalis***
 - Best in hot, humid conditions (80-100 F, > 50% RH)
- ***Neoseiulus californicus***
 - Best at temps up to 100 F, >50% RH





Spider Mite Predators



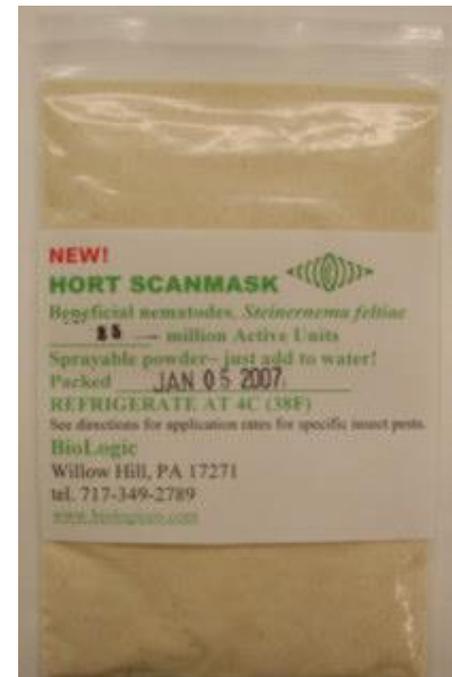
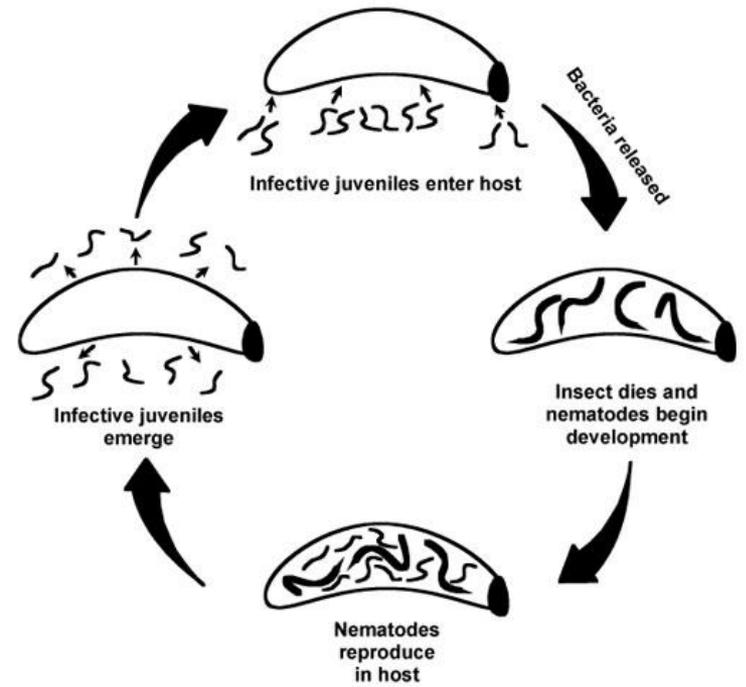


PEST
Fungus Gnat



Hypoaspis miles
(aka Stratiolaelaps
scimitus)

Biocontrol of Fungus Gnats



Aphid Biocontrol



Whitney Cranshaw, Colo State Univ. Bugwood.org

Predatory Midge

Aphidoletes aphidimyza:

- Very mobile, generalist predator
- Adults attracted to aphid honeydew → lays eggs
- Larva kill up to 80 aphids per day
- Kill by paralyzing toxin
- Larva are sneaking up onto their prey, paralyze it, and then suck the aphid dry
- Works best in aphid 'hot spots'





Property of Biobest

Aphid Biocontrol

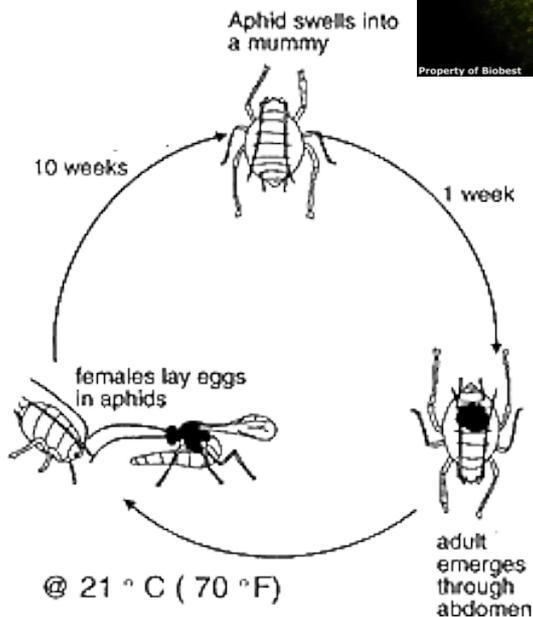
Parasitic Wasps

Aphidius colemani

- Good mobile searcher
- Effective against green peach and melon aphids
- Suitable with aphid banker plants



Property of Biobest



Aphidius ervi

- Good mobile searcher
- Effective on potato and foxglove aphids

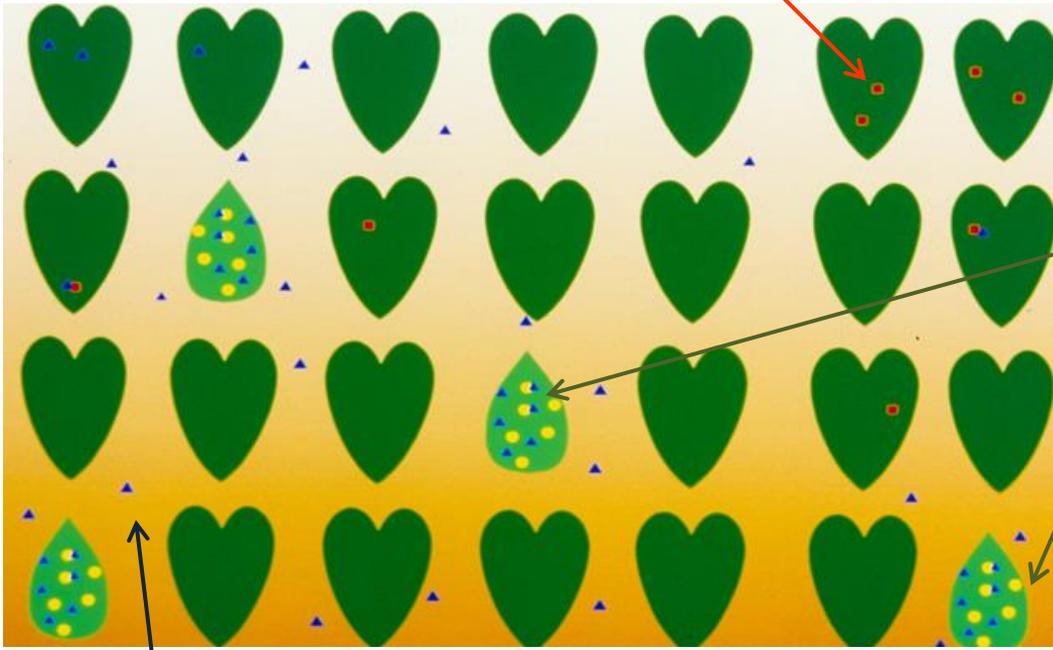
Phelinus abdominalis

- Effective for potato and foxglove aphids

Banker Plants

Provide Pollen or Alternative Hosts to Increase Beneficial Insect Population

Crop **pests** on crop plant



Banker plants infested with alternative host for beneficial insect

Beneficial insects migrate from banker plant to crop plants to control pests

Aphid Banker Plant System



1. Plant cereal, keep in insect-proof cage to keep beneficials out. Repeat weekly for steady supply through season

2. Infest with cereal aphids. Keep covered



3. Uncover and distribute infested banker plants throughout greenhouse.



6. Scout for Mummies



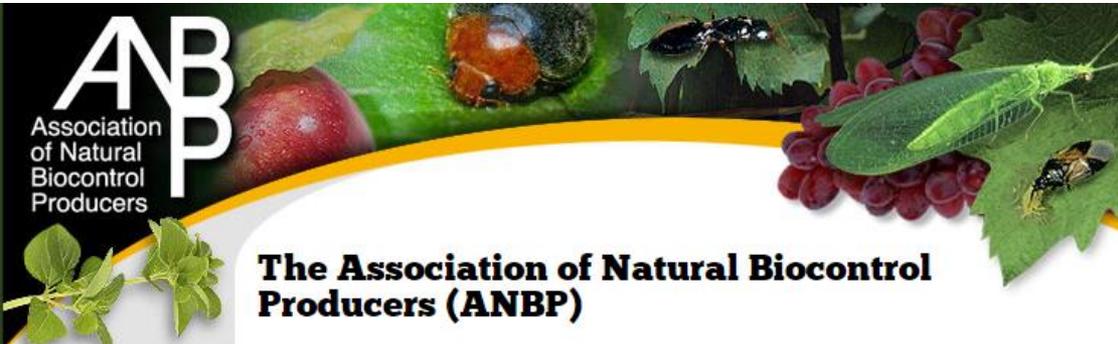
4. Release aphid parasitoid throughout greenhouse



Final Thoughts on Biological Control

- Do your Homework
 - Get good research-based information.
 - Has effectiveness been demonstrated in the field?
- Plan Well in Advance
 - Contact suppliers. Get technical recommendations specific to your system. Compare prices, shipping costs.
- Don't kill your good bugs!
 - Store and release according to directions. Details are critical!
 - Avoid pesticide impacts (if you have to spray, check compatibility charts, spot treat, time application to avoid direct impact on beneficials)
 - Protect them from the elements (heat, cold, rain, etc)
 - Put the good bugs where the pests are!

Shop Smart



The Association of Natural Biocontrol Producers (ANBP)

UF | IFAS Extension
UNIVERSITY of FLORIDA

IPM-146

Guidelines for Purchasing and Using Commercial Natural Enemies and Biopesticides in North America¹

Lynn M. LeBeck and Norman C. Leppla²

Grower Guide: Quality Assurance of Biocontrol Products

Compiled by Rose Buitenhuis, PhD, Research Scientist, Biological Control,
Vineland Research and Innovation Centre, 2014

Find resources
and suppliers at
www.anbp.org

Greenhouse Scout Mobile App

Find it at your favorite app store:

[Greenhouse Scout on the App Store on iTunes](#)

[Greenhouse Scout—Android Apps on Google Play](#)

For more information contact:

Betsy Lamb, eml38@cornell.edu



If you really need to use a pesticide

- Applicator must have 'Agricultural Basic' applicators license unless growing only for self or other household members
- Use must be consistent with Maine Best Management Practices for Pests
- Product must be registered for use in Maine
- Product must be 'not prohibited' for use on cannabis by Board of Pesticide regulations

How to Determine if a Pesticide Product Can be Used on Cannabis in Maine

- 1) Read the product label carefully
- 2) Use the Pesticide Decision Flow Charts to determine if product can be used
 - Flow Charts dated 1-8-2016 or later must be used (older versions are outdated)
 - Current Flow Charts are at: www.thinkfirstspraylast.org and www.maine.gov/IPM
 - Active and inert ingredients referred to in the Flow Charts are at:
 - <http://www.epa.gov/sites/production/files/2015-12/documents/minrisk-active-ingredients-tolerances-2015-12-15.pdf>the EPA 25
 - http://www.epa.gov/sites/production/files/2015-01/documents/section25b_inerts.pdf
- 3) Contact ME Board of Pesticides Control (207-287-2731) if have any questions

Important Info About Maine's Pesticide Regulations

- Pesticides may only be used on cannabis by a person with the proper, valid pesticide applicator's license
- In Maine, all cannabis must be considered 'edible' therefore **any pesticide prohibited on food crops is NOT ALLOWED on any cannabis.**
- Any pesticide used **must not be prohibited for use in a greenhouse** even if it is grown outdoors
- Pesticides may only be used:
 - In accordance with all pesticide regulations,
 - In a manner consistent with the 'Best Management Practices for Pest Management' (see www.maine.gov/ipm), and
 - Worker Protection Standards must be followed.

EcoSmart Organic Fungicide

Is this product
OK for use on
Cannabis?



ECOSMART
ORGANIC™ FUNGICIDE

SAFE
Around Children
& Pets
NON-TOXIC

SEGURO Cerca de niños y mascotas. No es tóxico

**ORGANIC
GARDEN
FUNGICIDE²**

**DISEASE CONTROL FOR ROSES, FLOWERS,
SHRUBS, FRUITS & VEGETABLES**
ORGÁNICO FUNGICIDA PARA JARDÍN

**PREVENTS AND CONTROLS
BLACK SPOT, RUST, POWDERY
MILDEW, BLIGHT & OTHER
COMMON PLANT DISEASES**

**SPRAY AND HARVEST ON
SAME DAY**

READY-TO-USE

ENVIRONMENTALLY SAFE

NET CONTENTS: 24 FL. OZ. (1 PT. 8 FL. OZ. / 709 ml)

NOTE: No endorsement or approval indicated. Products shown for example only. Check with Maine Board Pesticides Control or read product label before using any pesticide

- No!
- Specific Use Sites are Listed
- Does not say can be used on ‘any plant’



NOTE: No endorsement or approval indicated. Products shown for example only. Check with Maine Board Pesticides Control or read product label before using any pesticide

Can this Product be Used?

NOTE: No endorsement or approval indicated. Products shown for example only. Check with Maine Board Pesticides Control or read product label before using any pesticide

Liquid Ladybug V™ is formulated for use on plants in vegetative growth.

- Can be used Daily
- Can be used under Lights
- For all Plants and Food Crops
- Leaves No Residue
- All Natural Ingredients
- Ready to use spray

For Mite Shield information & helpful treatment advice visit:

www.LiquidLadybug.com

Eco Organics

PO Box 202191 • Austin TX 78720

877.596-2727

Liquid Ladybug V™ is exempt from registration with the US Environmental Protection Agency since it qualifies as a minimum risk pesticide under FIFRA section 25(b).



Liquid Ladybug™



Extra Strength

All Natural Spider Mite Spray

32 fl oz (1 Qt) 946mL

Directions for Use

Shake Bottle Well Before Use.

Spray thoroughly to saturate all plant surfaces. Complete coverage of all plant tissue is necessary for effective control.

Application Instructions:

Spray plants on days 1, 2 and 7 (or daily if desired).

Use a Mite Shield during treatment to prevent re-infestation.

Allow the plant to completely *air dry* with room fans off after treatment.

Active Ingredients:

Peppermint Oil	0.80%
Rosemary Oil	0.80%
Clove Oil	0.20%
Citric Acid	0.10%
Other Ingredients*	98.10%
Total	100.00%

*Other Ingredients: Water, Soap, Lauric Acid.

Caution: Keep out of eyes. If contacted, flush eyes well with water to remove.

KEEP OUT OF REACH OF CHILDREN

Buyer assumes all responsibility for proper use of this product.

Liquid Ladybug V™ is formulated for use on plants in vegetative growth.

Yes! But only on non-flowering plants

- Can be used Daily
- Can be used under Lights
- For all Plants and Food Crops
- Leaves No Residue
- All Natural Ingredients
- Ready to use spray

Liquid Ladybug™

V



For Mite Shield information & helpful treatment advice visit:

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KEEP OUT OF REACH OF CHILDREN

Buyer assumes all responsibility for proper use of this product.

Is this an 'EPA-Registered' Product or is it a '25-B Exempt' Product?

Can this product be used?

NOTE: No endorsement or approval indicated. Products shown for example only. Check with Maine Board Pesticides Control or read product label before using any pesticide



FOR ORGANIC GARDENING

- Kills listed pests on contact or by ingestion
- Contains Pyrethrins, a botanical insecticide derived from chrysanthemums
- Kills a broad spectrum of listed insects including aphids, whiteflies, leafminers and caterpillars
- Quick knock-down, and kill
- Kills larval, pupae, and adult stages of listed insects
- For use on ornamentals, and in greenhouses
- One pint makes up to 16 gallons

ACTIVE INGREDIENTS:

Azadirachtin	1.20%
Pyrethrins	1.40%
OTHER INGREDIENTS	97.40%
	100.00%

MGK® - Registered trademark of McLaughlin Gormley King Company
Contains: 0.10 lbs. of azadirachtin and 0.11 lbs. of pyrethrins per gallon.

**KEEP OUT OF REACH OF CHILDREN
CAUTION
PRECAUCIÓN**

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle.

(If you do not understand the label, find someone to explain it to you in detail).

FIRST AID

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 center or doctor for treatment advice.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

IF SWALLOWED: Call poison control center 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 the poison control center or doctor. Do not give anything by mouth to an unconscious person.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. For information regarding medical emergencies or pesticide incidents, call 1-888-740-8712.

**PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS
CAUTION**

Causes moderate eye irritation. Avoid contact with skin, eyes or clothing. Wash hands thoroughly with plenty of soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Wear protective eye-wear. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Wear long-sleeved shirt and long pants, socks, shoes and safety gloves (such as barrier laminate, nitrile rubber, neoprene rubber or Viton).

ENVIRONMENTAL HAZARDS

This product is toxic to aquatic organisms, including fish and invertebrates. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas. This product may contaminate water through runoff. This product has a potential for runoff for several weeks after application. Poorly draining soils and soils with shallow water tables are more prone to produce runoff that contains this product.

This product is highly toxic to bees exposed to direct treatment on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds while bees are actively visiting the treatment area.

Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment wash-waters or rinsate. See Directions for Use for additional precautions and restrictions.

PHYSICAL OR CHEMICAL HAZARDS

Combustible: Do not use or store near heat or open flame.

DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling.

SEE INSIDE BOOKLET FOR DIRECTIONS FOR USE

Manufactured by:



8810 Tenth Avenue North
Minneapolis, MN 55427

EPA Reg. No. 1021-1872
Rev. 0515-0715

EPA Est. No. 1021-MN-2
F2905-107MGK

**NET CONTENTS
1 GALLON**

Yes, it can be used



FOR ORGANIC GARDENING

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■ For use on ornamentals, and in greenhouses
■ One pint makes up to 16 gallons

ACTIVE INGREDIENTS:

Table with 2 columns: Ingredient name and percentage. Azadirachtin 1.20%, Pyrethrins 1.40%

OTHER INGREDIENTS 97.40%
100.00%

MGK® - Registered trademark of McLaughlin Gormley King Company
Contains: 0.10 lbs. of azadirachtin and 0.11 lbs. of pyrethrins per gallon.

KEEP OUT OF REACH OF CHILDREN CAUTION PRECAUCIÓN

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

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Causes moderate eye irritation. Avoid contact with skin, eyes or clothing. Wash hands thoroughly with plenty of soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Wear protective eye-wear. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Wear long-sleeved shirt and long pants, socks, shoes and safety gloves (such as barrier laminate, nitrile rubber, neoprene rubber or Viton).

ENVIRONMENTAL HAZARDS

This product is toxic to aquatic organisms, including fish and invertebrates. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas. This product may contaminate water through runoff. This product has a potential for runoff for several weeks after application. Poorly draining soils and soils with shallow water tables are more prone to produce runoff that contains this product.

This product is highly toxic to bees exposed to direct treatment on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds while bees are actively visiting the treatment area.

Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment wash-waters or rinsate. See Directions for Use for additional precautions and restrictions.

PHYSICAL OR CHEMICAL HAZARDS

Combustible: Do not use or store near heat or open flame.

DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling.

SEE INSIDE BOOKLET FOR DIRECTIONS FOR USE

Manufactured by:



8810 Tenth Avenue North Minneapolis, MN 55427

EPA Reg. No. 1021-1872 Rev. 0515-0715

EPA Est. No. 1021-MN-2 F2905-107MGK

NET CONTENTS 1 GALLON

NOTE: No endorsement or approval indicated. Products shown for example only. Check with Maine Board Pesticides Control or read product label before using any pesticide

EPA Reg. No indicates this is an EPA Registered Pesticide

FORAGE, FODDER AND STRAW OF CEREAL GRAINS: Including: barley; buckwheat; corn (sweet and field); millet; proso; oats; pearl; popcorn; rice; rye; sorghum (milo); teosinte; triticale; wheat; wild rice.

GRASSES FOR SEED, FORAGE, FODDER AND HAY: Including: any grass (all Gramineae), (green or cured), except sugarcane and those listed in the cereal grains group) that will be fed to or grazed by livestock, all Pasture and Range Grasses and Grasses grown for hay and silage, Sudan Grass, Bermuda Grass, Bluegrass, Bromegrass, Fescue, Orchard, Timothy.

NON-GRASS ANIMAL FEEDS: Including: Alfalfa, Velvet Bean, Clover (White, Ladino, Red), Kudzu, Lespedeza, Lupine, Sainfoin, Trefoil, Crown Vetch, Milk Vetch.

HERBS AND SPICES: Including: Allspice, Angelica, Anise (anise seed), Anise [star], Annatto (seed), Balm (lemon balm), Basil, Borage, Burnet, Camomile, Caper buds, Caraway, Caraway [black], Cardamom, Cassia bark, Cassia buds, Catnip, Celery seed, Chervil (dried), Chicory, Chive, Chive [Chinese], Cinnamon, Clary, Clove buds, Coriander (cilantro or Chinese parsley) (leaf), Coriander (cilantro) (seed), Costmary, Culantro (leaf), Culantro (seed), Cumin, Curry (leaf), Dandelion, Dill (dill weed), Dill (seed), Fennel (common), Fennel [Florence] (seed), Fenugreek, Grains of paradise, Horehound, Hyssop, Juniper berry, Lavender, Lemongrass, Lovage (leaf), Lovage (seed), Mace, Marigold, Marjoram (includes sweet or annual marjoram, wild marjoram or oregano, and pot marjoram), Mint, Mustard (seed), Nasturtium, Nutmeg, Oregano, Mint, Paprika, Parsley (dried), Pennyroyal, Pepper [black], Pepper [white], Peppermint, Poppy (seed), Rosemary, Rue, Saffron, Sage, Savory [summer and winter], Sweet bay (bay leaf), Tansy, Tarragon, Thyme, Vanilla, Wintergreen, Woodruff, Wormwood.

OIL SEED GROUP: Cottonseed, ~~Jojoba~~

Does not limit to listed crops

ADDITIONAL CROPS: Including: Acerola, Artichoke, Asparagus, Avocado, Atemoya, Bananas, Barbados Cherry, Birdseed, Cacao, Canistel, Carob, Cherimoya, Cocoa, Coffee, Custard Apple, Dates, Durian (Jackfruit), Edible Flowers, Feijoa, Figs, Globe Artichoke, Guayule, Hops, Jaboticaba, Llama, Longan, Lychee, Mangoes, Mamey Sapote, Mushroom, Okra, Olives, Palm, Papaya, Passion fruit, Peanuts, Persimmon, Pineapple, Pomegranate, Pulasan, Rambutan, Safflowers, Sapodilla, Sesame, Soursop and Biriba, Spanish Lime, Star Apple Sugar Cane, Star Fruit, Sugar Apple, Sunflower, Tamarillo, Tea, Water chestnut and Wax Jambu.

FOR USE ON GROWING PLANTS (OUTDOORS AND IN GREENHOUSES):

BEDDING PLANTS, **FLOWERS**, **POTTED PLANTS AND FOLIAGE** Including: Actinopt, rian Ivy, Alocasia, Anthurium, Aphelandra, Artemisia, Aster, Aucuba, ~~Ilex, Kalea~~, Baby Boston Fern, Boxwood, Brachycome, Cacti, Calabrese, Caladium, Calla, Calathea, Calli mum, Coleus, Columbine, Dahlia, Daisy, Daylily, Delphinium, Dianthus, Dieffenbachia, Ivy, Euphorbia, Fern, Ficus, Foxglove, Freesia, Fuchsia, Gaillardia, Gardenia, Geranium, ~~Gerard~~, Hedera, Hibiscus, Impatiens, Iris, Lily, Mandevilla, Marigold, Nasturtium, Pansy, Pelargonium, Peony, Peperomia, Petunia, Philodendron, Phlox, Photinia, Pittosporum, Pinks, Poinsettia, Pothos, Portulaca, Rosemary, Rose, Rubber plant, Salvia, Schefflera, Sedum, Sempervivum, Snapdragon, Spathiphyllum, Stock, Syngonium, Verbena, Vinca, Wandering Jew, Zinnia.

These terms do not prohibit use on cannabis.

Can this Product be Used?

NOTE: No endorsement or approval indicated. Products shown for example only. Check with Maine Board Pesticides Control or read product label before using any pesticide



FOR ORGANIC GARDENING



Produced For:
H & I AGRITECH, INC.
95 BROWN RD BOX 1030
ITHACA, NY 14850 -1257

EPA REG. NO. 70870-1
EPA EST. NO. 67187-NY-001

NET 8 oz (227 g)



A fungicide for the control of powdery mildew and other diseases on terrestrial and indoor ornamental plants, greenhouse and garden crops, and turf



ACTIVE INGREDIENT:	
Potassium Bicarbonate.....	85.00%
OTHER INGREDIENTS.....	15.00%
TOTAL.....	100.00%

CAUTION
KEEP OUT OF REACH OF CHILDREN
See inside panel for the First Aid Information.

MIXING INSTRUCTIONS: Dilute GreenCure with water before applying. Carefully measure and mix the stated amounts of product and water. Mix 1 to 2 level tablespoons of GreenCure per gallon of water. Do not exceed this use rate. Mix the solution thoroughly before use. One gallon of this solution is sufficient to treat approximately 450 square feet. Apply the solution to all exposed surfaces of the plant. Do not apply to the underside of leaves. Do not apply to the soil. Do not apply to the coverage of all foliage and stems.

No! Label lists specific food and ornamental crops. The word 'including' is not here, therefore this product **cannot be used.**

Uniform and complete coverage is required. Do not use unused spray solutions. Do not mix with fertilizers or other pesticides. Do not use on plants that are sensitive to spray adjuvants. Do not use on plants that are sensitive to spray adjuvants. Do not use on plants that are sensitive to spray adjuvants. Do not use on plants that are sensitive to spray adjuvants.

APPLICATION TIMING: Start application at first sign of disease. For best protection, repeat at one to two week intervals until conditions are no longer favorable for disease development. Shorten the interval during rainy weather or during periods of high relative humidity. For appropriate crops, apply GreenCure as a post-harvest treatment to remaining foliage to decrease overwintering inoculum.

ORNAMENTAL APPLICATIONS: (California registered uses are listed in a separate section.)

**limited to
ornamentals**

PLANT TYPES: GreenCure is for: Woody and Ornamental Shade Trees, Woody and Herbaceous Nut and Fruit Trees, Annual and Perennial Flowers, Foliage Plants, Ground Covers and Bedding Plants.

FOR USE ON: Ageratum, Ajuga, Almond-Ornamental, Alyssum, Andromeda, Aphelandra, Apple-Ornamental, Apricot-Ornamental, Artemisia, Aster, Azalea, Begonia, Boxwood, Calendula, Carnation, Centaurea montana,

GARDEN APPLICATIONS: (California registered uses are listed in a separate section.)

**limited to listed
fruits & vegetables**

FOR USE ON: Acorn squash, Almonds, Apples, Apricots, Avocado, Basil, Blueberries, Broccoli, Cabbage, Caneberries, Cantaloupe, Cauliflower, Celery, Cherries, Chicory, Citrus, Crabapple, Crenshaw melon, Cucumber, Dry beans, Eggplant, Endive, Escarole, Grapes, Honeydew, Hops, Kale, Lettuce, Lima bean, Mango, Muskmelon, Mustard greens, Okra, Onion, Oregano, Peaches, Pears, Peas, Pecans, Peppers, Pistachio, Plums, Potatoes, Prunes, Pumpkin, Radicchio, Rosemary, Sage,

NOT OK for USE ON CANNABIS



 FOR ORGANIC GARDENING



Produced For:
H & I AGRITECH, INC.
95 BROWN RD BOX 1030
ITHACA, NY 14850 -1257

EPA REG. NO. 70870-1
EPA EST. NO. 67187-NY-001

NET 8 oz (227 g)

A fungicide for the control of powdery mildew and other diseases on terrestrial and indoor ornamental plants, greenhouse and garden crops, and turf



ACTIVE INGREDIENT:	
Potassium Bicarbonate.....	85.00%
OTHER INGREDIENTS.....	15.00%
TOTAL.....	100.00%

CAUTION
KEEP OUT OF REACH OF CHILDREN
See inside panel for the First Aid Information.

Is this Product a Pesticide? Can it be Used?

NOTE: No endorsement or approval indicated. Products shown for example only. Check with Maine Board Pesticides Control or read product label before using any pesticide

Growth Technology

CLONEX[®]

Rooting Gel



Net contents:
0.5 fl oz (15 ml)

ACTIVE INGREDIENT:	
Indole-3-Butyric Acid.....	0.31%
OTHER INGREDIENTS:.....	99.69%
TOTAL:.....	100.00%

Keep Out of Reach of Children
CAUTION
See Inside Panel for Additional
Precautionary Statements

CLONEX[®]

Rooting Gel



1



2



3



4

PEEL BACK

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

CLONEX Rooting Gel is used to ensure root production on cuttings of plants by supplying essential hormones needed for accelerated root development. CLONEX Rooting Gel may be used on all types of cuttings, including woody, herbaceous, and flowering ornamental species, vegetables, fruit trees and small fruits.

Dip cutting in Clonex Rooting Gel to desired depth. Insert cutting into rooting medium. Mist cuttings and place in propagator or a warm, clean, moist and humid environment. Look for root development in 1 to 2 weeks.

Keep Out of Reach of Children
CAUTION
See Inside Panel for Additional
Precautionary Statements

EPA Reg. No. 79664-1
EPA Est. No. 79463-MI-001

Manufactured for:
Growth Technology Ltd.
Great Western Way, Taunton,
Somerset TA2 6BX, UK

Growth Technology
Focus on plants

www.growthtechnology.com



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Growth Technology

CLONEX[®]

Rooting Gel



NOTE: No endorsement or approval indicated. Products shown for example only. Check with Maine Board Pesticides Control or read product label before using any pesticide

Net contents:
0.5 fl oz (15 ml)

ACTIVE INGREDIENT:
Indole-3-Butyric Acid..... 0.31%
OTHER INGREDIENTS:..... 99.69%
TOTAL:..... 100.00%

Keep Out of Reach of Children
CAUTION
See Inside Panel for Additional
Precautionary Statements

- This product has an EPA Reg. No. indicating that it is an 'EPA-Registered' Pesticide. Plant hormones and growth regulators are pesticides.
- Yes, it can be used on cannabis – it says 'including' therefore is not limited to specific crops.



root production on cuttings of plants by supplying essential hormones needed for accelerated root development. CLONEX Rooting Gel may be used on all types of cuttings, including woody, herbaceous, and flowering ornamental species, vegetables, fruit trees and small fruits.

Dip cutting in Clonex Rooting Gel to desired depth. Insert cutting into rooting medium. Mist cuttings and place in propagator or a warm, clean, moist and humid environment. Look for root development in 1 to 2 weeks.

Keep Out of Reach of Children

CAUTION

See Inside Panel for Additional
Precautionary Statements

EPA Reg. No. 79664-1

EPA Est. No. 79463-MI-001

Manufactured for:
Growth Technology Ltd.
Great Western Way, Taunton,
Somerset TA2 6BX, UK

Growth Technology
Focus on plants
www.growthtechnology.com



Resources

- Insect and plant disease help (insects or photos only. Do not bring or send plant material):
 - Cooperative Extension County Offices
 - UM Pest Management Office
(<http://extension.umaine.edu/ipm>, 800-287-0279)
- Pesticide questions:
 - ME Board of Pesticides Control (www.thinkfirstspraylast.org, 207-287-2731)
- ‘Best Management Practices for Pests’ questions:
 - ME Department of Agriculture, Conservation and Forestry IPM Program (www.maine.gov/ipm, hillary.peterson@maine.gov)