Diagnosing and Managing Common Garden Problems -Organically

Dunwoody Community Garden Workshop April 9, 2022

> Cyndi McGill DeKalb County Master Gardener Extension Volunteer



What We'll Cover

- Plant for the Best Plan for the Not-So-Great
- The Basics of Integrated Pest Management
- The Usual Suspects in Dunwoody Gardens
 - Who/What They Are
 - How to Manage Them Organically
- Resources

DCGO.org > Resources > Master Gardener Talks



Starting Strong...

- Good Soil
- Healthy Plants
- Right Plant/Right Place/Right Time
- Keep it Clean!
- Food and Beverage



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Crud



What to Look For



What did your soil test say?



What has the recent weather pattern been?



How often are you watering?



What's going on in your neighbor's yard?



Is it a problem with one plant or many?



What's been sprayed? Applied?



Have drainage conditions changed?



Are pollinators present?



Brenda Kennedy, University of Kentucky, bugwood.org

Blossom End Rot

Calcium Issue Uneven/inadequate watering



Catfacing

Excessive Nitrogen, Excess Water



Poor/incomplete pollination Extreme heat Not enough water

Good Guys





Citybugs.tamu.edu



Aggie-horticulture.tamu.edu





MULTICOLORED ASIAN LADY BEETLE



Good Bugs	Bad Bugs	
Hunters (other insects and pollen)	Gatherers	
Loners	Large Groups	
Not Plant Picky	Very Plant Picky	
No Plant Damage	Evidence is Clear	

Integrated Pest Management (IPM)



IPM Treatment Methods



Basic Organic Pesticides: An Introduction

Pesticide/ Brands	How It Works	Pros	Cons
Insecticidal Soap: Safer, Bonide, Nature's Care	Suffocates Removes Waxes	Low impact to beneficials Effective on soft bodied insects	Must come in direct contact No residual effect Don't use in high temps
Neem Oil: Bonide, Monterey, Natria	Reduces feeding Affects insect growth and reproduction	Low impact to beneficials Safe for use on edibles	Takes 3-4 days to work Must be reapplied
Pyrethrins: Dr. Earth	Affects the nervous system	Quick knock-down	Unsafe for beneficial pollinators, aquatic life and cats
Spinosad: Captain Jack's Deadbug Brew	Affects the nervous system	Effective on caterpillars and thrips	Toxic to all caterpillars! Toxic to bees when wet
Bacillus thuringiensis kurstaki (Bt)	Creates toxins in larvae and caterpillar digestive systems	Non-toxic to beneficials Good mosquito control	Very target-specific
Horticultural Oil	Suffocates	Only effective when wet	Timing is key Toxic to fish and bees



The Label is the Law!





Soft-bodied Insects: Small but Fierce

Aphids



Aleksandr Rybalko | Adobe





Missouri Botanical Garden

Aphids



Ronald S. Kelley, Vermont Department of Forests, Parks and Recreation, Bugwood.org



David B. Langston, University of Georgia, Bugwood.org

Whitefly

Thrips and Thrip Damage







Photos: University of California IPM



Cyndi McGill

Sooty Mold

Scale Insects



Lesley Ingram, Bugwood.org



Lorraine Graney, Bartlett Tree Experts, Bugwood.org



Eric R. Day, Virginia Polytechnic Institute and State University, Bugwood.org

Mealybugs



Soft-bodied Insect Predators



UKY.edu



UKY.edu

Lady Beetle Larvae

Lacewings



Wikipedia



UKY.edu

Hoverflies (Syrphid flies)

Organic Treatments: Soft-Bodied Insects

Insect	Method	Treatment (s)
All	Cultural	Weekly inspections! Companion Plants: marigolds, nasturtium, garlic, onion
Aphids	Mechanical	water hose blast
	Biologic	Lady Beetles, Lacewings, Syrphid Flies
	Chemical*	insecticidal soap, neem oil, pyrethrins
Scale & Mealybug	Mechanical	hand pick, prune infected branches
	Biologic	Lady Beetles, Lacewings
	Chemical*	horticultural oil
Whitefly	Mechanical	yellow sticky-traps, water hose
	Chemical*	insecticidal soap, neem oil
Thrips	Chemical*	neem oil, spinosad

*Avoid using if beneficial insects are present!







Gerald Holmes, California Polytechnic State University at San Luis Obispo, **Bugwood.org**

Clemson University - USDA Cooperative Extension Slide Series, Bugwood.org

Spotted Squash Lady Beetle Mexican Bean Beetle



Whitney Cranshaw, Colorado State University, Bugwood.org

Flea Beetles

Controlling Mexican Bean Beetles/ Squash Beetles/Flea Beetles

- Daily inspection is best!!!
- Sanitation: Get rid of badly infected plants and plant debris at end of season
- Cultural: Interplant with nasturtium, garlic, potatoes
- Mechanical: hand pick with gloved hands and drop in soapy water or rubbing alcohol
- Chemical: Spray with neem or spinosad





Lyle J. Buss, University of Florida

James Castner, University of Florida

Squash Vine Borer

Controlling Squash Vine Borers

- Prevention: Inspect for adults. Use yellow bowl with soapy water to attract and kill.
- Cultural: Plant resistant types such as butternut squash
- Sanitation: Remove and dispose of affected plants and plants that have finished producing ASAP!!!
- Mechanical: Use floating row covers to prevent adults from laying eggs on the soil
- Mechanical: Wrap seedling stems with aluminum foil
- Mechanical: Remove larvae ASAP and cover stem with soil/water regularly



UGA Extension

Japanese Beetles

Controlling Japanese Beetles

- Prevention/Mechanical: Inspect plants for adults. Hand pick and drop in a jar of soapy water or rubbing alcohol.
- Prevention: Inspect lawn for signs of grubs. Treat with biologic or organic pesticides (milky spore).
- Don't use Japanese Beetle traps!!!

Tomato Hornworm



Whitney Cranshaw, Colorado State University, Bugwood.org



Michigan State University Extension



Michigan State University Extension



Michigan State University Extension

Tomato Fruitworm



Clemson University, Bugwood.org



bugwood.org



bugwood.org



bugwood.org

Controlling Tomato Worms

- Cultural: Remove and dispose of affected fruit
- Cultural: Regularly inspect leaves for eggs and destroy
- Mechanical: Hand-pick and dispose of hornworms (unless they're parasitized)
- Biologic/Chemical: bT, neem oil, or pyrethrins





John L. Capinera, University of Florida

Ward Upham, Kansas State University, Bugwood.org



University of Minnesota Extension

Cabbage Looper



Whitney Cranshaw, Colorado State University, Bugwood.org



James Castner, University of Florida

Cabbage Worm

Controlling Cabbage Worms

- Prevention: Remove all old plant material at the end of the growing season and closely monitor plants for eggs or signs of caterpillars (frass)
- Cultural: Plant in different areas each year
- Physical: Use floating row covers to prevent adult moths from laying eggs
- Biological: bT





Missouri Botanical Garden



Missouri Botanical Garden



Garden Myths - Robert Pavlis

Plant Disease Probability





University of Missouri Extension



Rebecca A. Melanson, Mississippi State University Extension, Bugwood.org

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Early Blight on Tomatoes

Managing Fungi on Tomatoes

- Plant in different areas
- Plant in sterilized pots with fresh soil
- Plant disease-resistant hybrids
- Trim bottom leaves
- Use ground covers (landscape fabric, newspaper) to prevent backsplash
- Spray with organic fungicides: neem, copper



Colorado State University Extension

Powdery Mildew

May be treated with neem or copper



John Hartman, University of Kentucky, Bugwood.org

Black Spot

May be treated with neem or copper



Robert L. Anderson, USDA Forest Service, Bugwood.org

Rust

May be treated with neem or copper



Tomato Viruses



University of Missouri Extension



Missouri Botanical Garden

Rose Rosette

Resources

- University of Minnesota Extension: unm.extension.edu > Solve a Problem > Insects
- "Organic Strategies for the Garden and Home Landscape", UGA Extension
 - <u>https://extension.uga.edu/content/dam/extension/p</u> <u>rograms-and-services/integrated-pest-</u> <u>management/documents/handbooks/2020-pmh-</u> <u>home-</u> <u>chapters/Organic%20Strategies%20for%20the%2</u>

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