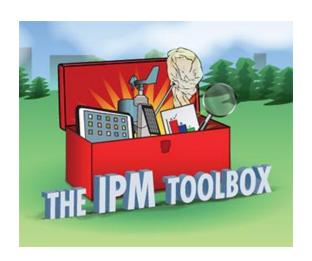


## Pesticides in the IPM Toolbox

March 30, 2022



**Cornell Cooperative Extension Pesticide Safety Education Program** 



#### Welcome

### Webinar Details

A recording of this webinar will be available within a week at

http://www.neipmc.org/go/ipmtoolbox

Please submit a question at any time using the Q&A feature to your right at any time

We Welcome Your Questions

If you'd like to ask a question anonymously, please indicate that at the beginning of your query.

#### Webinar Presenters

Dr. Mary Centrella

<del>-</del> &

Dan Wixted

Cornell Cooperative Extension Pesticide Safety Education Program





Some
Questions
for You

- NEIPM IPM Toolbox Series, March 30, 2022
- Mary Centrella and Dan Wixted
- Cornell Cooperative Extension Pesticide Safety Education Program
- (CCE-PSEP)
- © 2022 Cornell University

# Pesticides in the IPM Toolbox

#### **Cornell Cooperative Extension**

#### **Pesticide Management Education Program**



#### PSUR - Pesticide Sales and Use Reporting



The Pesticide Sales and Use
Reporting (PSUR) Database Group
was formed to manage the pesticide
data reported to the New York State
Department of Environmental
Conservation (NYSDEC) under the

Pesticide Reporting Law (PRL) of 1996. The group maintains a repository of all the data collected since 1997 and also operates the Pesticide Reporting Service Bureau, which collects and processes pesticide reports from over 7000 pesticide businesses around the state. Summaries of the data are available for searching on the PSUR website. (Please keep the existing link on the group's name and also link "PSUR website".)

View Website

#### **Cornell Cooperative Extension**

#### **Pesticide Management Education Program**



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View Website

#### PSEP - Pesticide Safety Education Program



The Pesticide Safety Education
Program or PSEP is a federally
mandated program and our primary
mission is to provide unbiased
information about pests and
pesticides and to promote sound

decision making and safe handling practices to people who choose to use pesticides.

View Website

#### Wood Preservation



A Pesticide Applicator Certification Training Manual for Wood Treaters

#### Wood Preservation

#### **PMEP Distance Learning Center**

A partnership between PMEP and the NYS Integrated Pest Management Program

Cornell Cooperative Extension
Pesticide Management Education Program









#### Wood Preservation

#### **PMEP Distance Learning Center**

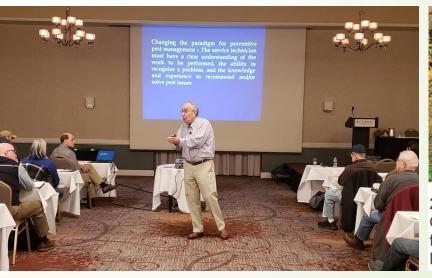
A partnership between PMEP and the NYS Integrated Pest Management Program

Cornell Cooperative Extension
Pesticide Management Education Program











2021
Cornell Pest Management Guide
for Commercial Production and
Maintenance of Trees and Shrubs

#### Wood Preservation



A Pesticide Applicator Certification Training Manual for Wood Treaters

#### **PMEP Distance Learning Center**

A partnership between PMEP and the NYS Integrated Pest Management Program





Cornell Pest Management Guide for Commercial Production and Maintenance of Trees and Shrubs

#### What Is a Pest?

Any living thing that has an undesirable impact on something that is important to us

#### What Is a Pest?

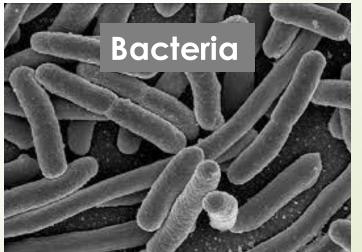






Photo credit: Dr. Margery Daughtrey







#### What Is a Pesticide?







Photo credit: Dr. Margery Daughtrey







#### What Is a Pesticide?

 Any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest



#### Which of these products are pesticides?







☑ 2. Bayer Home Insect Killer ☑ 3. Tilen Mold & Mildew Remover





☑ 4. Ace Green Turf Weed & Feed





☑ 6. Safer Insect Killing Soap







☑ 8. Ortho Rose & Flower Disease ☑ 9. Scrubbing Bubbles Bathroom



☑ 10. Lysol Disinfecting Wipes



☑ 11. Off! Mosquito Repellent



☑ 12. GreenCure Fungicide

**Cornell Cooperative Extension Pesticide Safety Education Program** 

# Pesticides in IPM

#### IPM

"Integrated pest management (IPM) is a sound, sensible approach to dealing with pests—insects, plant diseases, weeds, and more—with methods that protect human health and the environment while saving money."

#### Pesticide Safety Education

"Our mission is to promote the safe use of pesticides to help reduce risks to applicators, consumers, and the environment."

#### Steps to IPM

- Prepare
- Prevent
- Monitor
- Analyze
- Manage
- Apply
- Reevaluate

#### Prepare

■ Be aware of the potential problems and opportunities at your site. Know your pests—and keep good records





#### Prepare

■ Be aware of the potential problems and opportunities at your site. Know your pests—and keep good records



#### **DIRECTIONS FOR USE**

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

PESTS CONTROLLED: Ants, including foraging ants, sweetfeeding ants, pavement ants, moisture ants, little black ants, argentine ants, crazy ants, acrobat ants, bigheaded ants, cornfield ants, ghost ants, odorous house ants, thief ants, Texas leafcutting ants, field ants, and other common ants (excluding fire ants, harvester ants, Pharaoh ants and carpenter ants), earwigs, cutworms, sowbugs, pillbugs crickets, slugs, snails.

#### Prevent

Protect your landscape and buildings for the long term





#### Monitor

Scout your landscape and buildings to find out which pests are on your site or in your space



#### Analyze

Your threshold data will tell you if it's time to act





#### Manage

Choose among tactics that provide the best balance of economic and environmental cost and effectiveness while reducing risk

#### Apply

When management is justified, do it right

**ENVIRONMENTAL HAZARDS:** This pesticide is extremely toxic to aquatic organisms, including fish and invertebrates. To protect the environment, do not allow pesticide to enter or run off into storm drains, drainage ditches, gutters or surface waters. Applying this product in calm weather when rain is not predicted for the next 24 hours will help to ensure that wind or rain does not blow or wash pesticide off the treatment area. Rinsing application equipment over the treated area will help avoid run off to water bodies or drainage systems.

#### Reevaluate

Look at your results, fine-tune your response—and make proactive plans for next time









United States
Department o
Agriculture

National Institute of Food and Agriculture

#### Questions

#### Pesticide Registration

Registration, Hazard vs Risk, and the Label

## Grouping Pesticides by Registration Status

- Registered
- Exempt from registration
- Home remedies

#### Registered Pesticides

- Registered by EPA
- Undergo extensive testing for health and environmental risk assessments
- Efficacy testing if protect against disease
- Undergo registration review every 15 years

#### Registered Pesticides

S.C. Johnson & Son, Inc. Racine, WI 53403-2236 USA.
All Rights Reserved EPA Reg. No. 4822-537
EPA Est. No. 4822-WI-1 Made in Germany 1089737

- Must also be registered by your state
- Search by product name and EPA Reg. No. at www.dec.ny.gov/nyspad/products

Registration standard: Product will not pose unreasonable risk to people and the environment when used according to label directions

Registration standard: Product will not pose unreasonable risk to people and the environment when used according to label directions



Hazard
CAN it cause harm?
Inherent, immutable

Hazard
CAN it cause harm?
Inherent, immutable

Risk
WILL it cause harm?
Can be managed

Hazard
CAN it cause harm?
Inherent, immutable

Risk
WILL it cause harm?
Can be managed

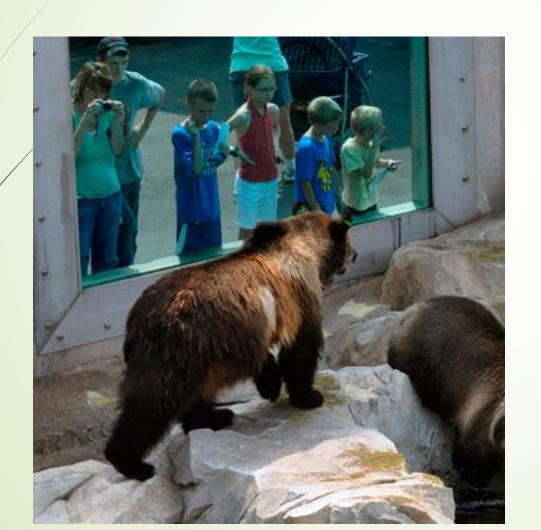
Risk = Hazard x Exposure

# Which Poses the Greater HAZARD? (i.e., which CAN cause more harm?)





# Which Poses the Greater RISK? (i.e., which is MORE LIKELY to cause harm?)









Registration standard: Product will not pose unreasonable risk to people and the environment when used according to label directions

#### No Unreasonable Risk



#### No Unreasonable Risk





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Registration standard: Product will not pose unreasonable risk to people and the environment when used according to label directions.

# The Pesticide Label

Available in NYSPAD





#### The Label is the Law

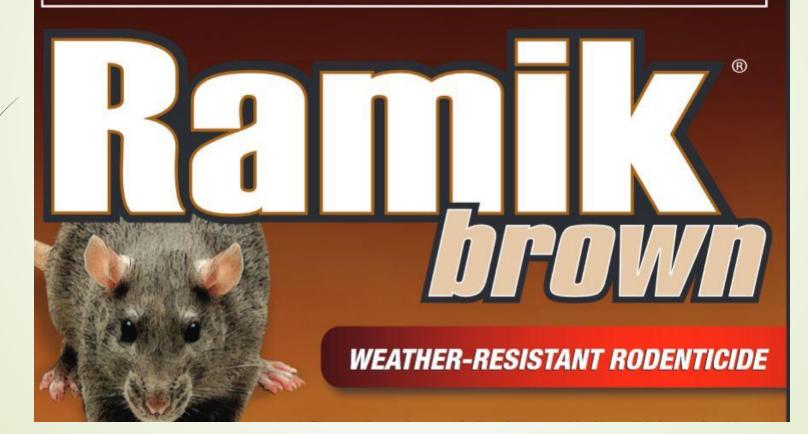
# DIRECTIONS FOR USE

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

#### **RESTRICTED USE PESTICIDE**

**DUE TO HAZARD TO NON-TARGET SPECIES** 

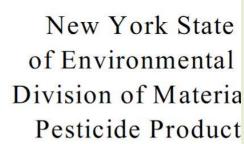
For retail sale to and use only by certified applicators or persons under their direct supervision and only for those uses covered by the certified applicator's certification.



Classified for
"RESTRICTED USE"
in New York State
under 6NYCRR Part 326

LADLL HOLD

JULY 29 20



INTENDED FOR SALE TO AND USE BY PEST MANAGEMENT PROFESSIONALS ONLY

**PROSTRIPS®** 

NUŴN®

## Registered Pesticides and IPM

- Good fit within IPM:
  - Risks assessed and mitigation steps stated on label
  - Can judge whether use meets goal of minimizing risk

#### Pesticides Exempt from Registration

- → 25(b) or so-called "minimum-risk" pesticides
- Do NOT undergo testing for health and environmental risk assessments
- Difficult to distinguish legal from illegal product
- Labels NOT available in NYSPAD

#### Pesticides Exempt from Registration

- Relatively few allowable active and inert ingredients
- All ingredients must be listed on label
- Company name & contact information must be on label
- Cannot claim to control disease-causing microorganisms nor mention any that may be transmitted by target pests
- Label cannot include any false or misleading claims

## Pesticides Exempt from Registration

- Label cannot say "It is a violation of federal law to use this product in a manner inconsistent with its labeling"
  - But not following directions might violate state law

## 25(b) Pesticides and IPM

- May or may not fit within IPM:
  - Risks not fully assessed
  - Seek reliable source to judge whether use meets goal of minimizing risk



#### Home Remedies

#### Claim

Chemical-free

Pesticide-free

Nontoxic

All-natural

Effective

Safe

#### Home Remedies

Claim	Reality
Chemical-free	Everything is made of chemicals
Pesticide-free	A chemical that controls pests is a pesticide
Nontoxic	Chemicals must be toxic to kill things
All-natural	Most use man-made products
Effective	Untested
Safe	Untested; often NOT safe

# Home Remedies: Illegal to Use in NYS

Claim	Reality
Chemical-free	Everything is made of chemicals
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#### Home Remedies and IPM

- Do not fit within IPM
  - Risks are unknown
  - Impossible to determine if meet goal of minimizing risk



# Questions

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United States Department of Agriculture National Institute of Food and Agriculture

Risk/Benefit Analysis



**Purdue Extension, PPP-70** 





**Purdue Extension, PPP-70** 







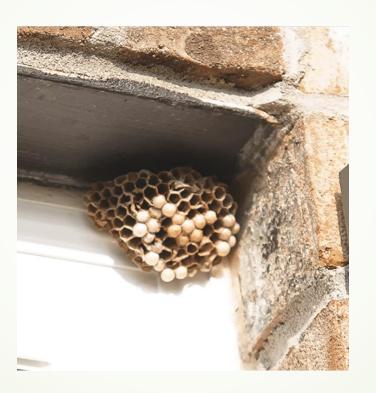
**Purdue Extension, PPP-70** 



## Risk/Benefit Analysis

- Identify pest and evaluate pest pressure
- Know the management tools in your toolbox
- Risk benefit analysis

# Risk/Benefit Analysis



### Risk/Benefit Analysis





### All Management Options can Pose Risk





### All Management Options can Pose Risk







### Hazards of Using String Trimmers along

Highway Guardrails



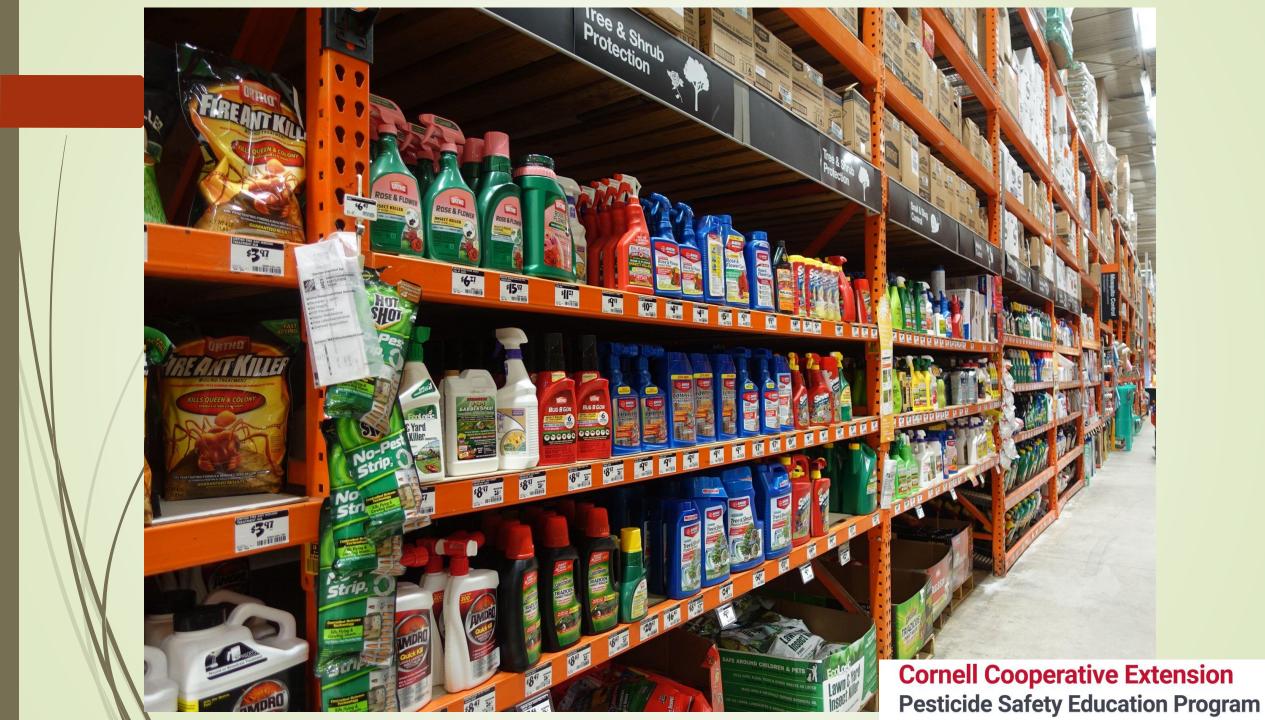


# Hazards of Using String Trimmers along Highway Guardrails

HAZARD	RISK
Loud	Hearing loss
Vibration	Nerve damage
Whipping action	Rocks thrown at workers/vehicles
Engine exhaust (possible human carcinogen)	Illness from inhaling toxic chemicals
Traffic	More staff hours in shoulder increases risk of being struck by vehicle
Work zone traffic pattern changes	Vehicle accidents more likely in work zones, and trimmers take more time
Plastic pollution	Small pieces of string could contribute to harming aquatic ecosystems

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# Making a Recommendation: A Better Approach

Teach your client to select an acceptable product

Step 1: Consider Buying Product ONLY if You Answer "Yes" to 7 Questions

# Question 1: Is the target pest on the label for intended site of application?

#### **LAWN PESTS**

#### HOW TO APPLY

- Use this hose-end sprayer. The goal is to have large droplets and enough spray to penetrate the lawn and reach the soil.
- Do not mow for one day after application.
- For severe infestation, repeat every 7 to 14 days; not to exceed 9 applications per year.

#### **PESTS**

Ants, Armyworms, Bluegrass Billbugs (adults), Chiggers, Chinch bugs, Crickets, Cutworms, Earwigs, Fire Ants, Fleas, Grasshoppers, Hyperodes weevils (adults), Japanese Beetles (adults) Mole Crickets, Sod webworms (lawn moths), Stink bugs (including Brown Marmorated Stink Bugs), Ticks (including deer ticks)

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# Question 2: Will the pesticide control the right life stage of the pest?

Crop	Pest	Rate (tsp./gal. water)
Apples, Pears Apply when eggs or newly hatched larvae first appear	redbanded leafroller, tufted apple budmoth, variegated leafroller, tent caterpillar, fruit tree leafroller, gypsy moth	2 - 4

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# Question 3: Can you apply the pesticide when you need it?

#### **VEGETABLE DISEASES**

**Note:** Do not spray plants during extremely hot and sunny weather. Do not apply to wilted plants. Do not graze treated areas or feed treated plant parts to livestock.

PHI = the number of days to wait between the last application and harvest.

Crop(s)	Disease(s)	Area to Cover	PHI	Comments
Beans (Green)	Rust, Botrytis Blight (Gray Mold)	37.5 sq. ft.	7	Begin applications during early bloom stage or when disease first threatens. Repeat at weekly intervals.

# Question 4: Are you willing and able to abide by all application restrictions?

#### **USE RESTRICTIONS**

Before spraying:

- Remove pets and birds and cover aquariums.
- Remove exposed food, beverages, dishes, and utensils.
- Cover food preparation surfaces.

Do not allow adults, children, or pets to enter the treated area until sprays have dried.

Question 5: Do you have, or will you buy, the necessary application and personal protective equipment?







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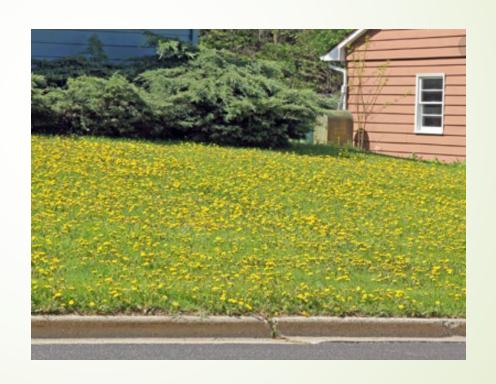
## Question 6: Is the product practical to use?





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## Question 6: Is the product practical to use?

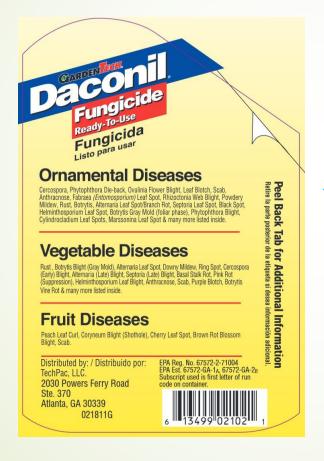
#### TO CLEAN AND DISINFECT/VIRUCIDAL\* DIRECTIONS:

Wipe hard, nonporous surface with wipe until surface is visibly wet. Allow surface to remain wet for 10 minutes. Let air dry.

### CLEANING AND DISINFECTION / VIRUCIDAL\* DIRECTIONS:

Wipe hard nonporous surface with wipe until surface is visibly wet. Allow surface to remain wet for 4 minutes. Let air dry.

## Question 7: Did you read the entire label?





Don't be afraid to "peel back tab" before you buy



















































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**Pesticide Safety Education Program** 

Step 2: To Choose Between Products
That Passed Step 1...

### Consider Which One: Has an EPA Registration Number

Located near ingredient statement or company information

S.C. Johnson & Son, Inc. Racine, WI 53403-2236 USA.
All Rights Reserved EPA Reg. No. 4822-537
EPA Est. No. 4822-WI-1 Made in Germany 1089737

## Consider Which One: Poses Less Risk

## Consider Which One: Poses Less Risk

Risk = Hazard (toxicity) x Exposure

Least Toxic ≠ Least Risk

#### Assess Risk to People: Consider Toxicity



Signal Word indicates relative toxicity to

people:

Danger Highly Toxic or Corrosive

Warning Moderately Toxic

Caution Slightly Toxic

None Relatively nontoxic

KEEP OUT OF REACH OF CHILDREN CAUTION
See booklet for First Aid and additional Precautionary Statements.

### Assess Risk to People: Consider Toxicity

#### **HAZARDS TO HUMANS & DOMESTIC ANIMALS**

Keep Out of Reach of Children



CAUTION. Causes moderate eye irritation. Avoid contact with eyes or clothing.

People and pets may enter treated area after spray has dried.

#### Assess Risk to People: Consider Exposure

LESS EXPOSURE

**MORE EXPOSURE** 

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### Assess Risk to People: Consider Exposure

LESS EXPOSURE	MORE EXPOSURE
Ready-to-use spray	Liquid concentrate

### Assess Risk to People: Consider Exposure

LESS EXPOSURE	MORE EXPOSURE
Ready-to-use spray	Liquid concentrate
Bait or crack & crevice spray	Apply to exposed surfaces

# Assess Risk to People: Consider Exposure

	LESS EXPOSURE	MORE EXPOSURE
	Ready-to-use spray	Liquid concentrate
	Bait or crack & crevice spray	Apply to exposed surfaces
/	Needs one or two applications	Needs frequent re-application

# Assess Risk to People: Consider Exposure

	LESS EXPOSURE	MORE EXPOSURE
	Ready-to-use spray	Liquid concentrate
	Bait or crack & crevice spray	Apply to exposed surfaces
/	Needs one or two applications	Needs frequent re-application
	Follow label precautions	Ignore label precautions

# Consider Which One: Poses Less Risk to the Environment

#### **Environmental Hazards**

This product is toxic to plants. Drift and runoff may be hazardous to plants in water adjacent to treated areas.

# Consider Which One: Poses Less Risk to the Environment

#### RESTRICTIONS

- Do not apply near bodies of water including, fish pools, ponds, lakes or streams.
- Do not apply over the roots systems of desirable plants.
   For trees and shrubs, do not apply closer than twice the distance from the trunk to the drip line as roots may be within this area.

# Consider Which One: Works for the Necessary Length of Time

Mosquito repellents vary

For continued protection from listed insects, reapply every 2 hours

Reapply every 3-4 hours.



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# Consider Which One: Is Available in a Reasonable Amount

# Consider Which One: Is Available in a Reasonable Amount

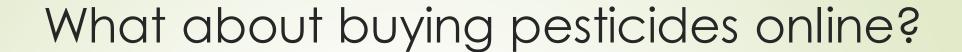
■ \$10 / one quart



■ \$17 / one gallon



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## What about buying pesticides online?



EPA orders Amazon to stop illegal pesticide sales, again

# What about buying pesticides online?

https://www.dec.ny.gov/nyspad/products

Search product name be sure it is registered in NYS

#### For More Information

- CCE-PSEP Fact Sheets at <a href="https://psep.cce.cornell.edu/facts-slides-self/Factsheets.aspx">https://psep.cce.cornell.edu/facts-slides-self/Factsheets.aspx</a>
  - How To Select a Pesticide Product
  - What Is a Pesticide?
  - Hazard vs Risk
  - Pesticide Registration
  - Home Remedies for Pest Control
- How to Select a Pesticide Product presentation at <a href="https://youtu.be/5-Z3t5f6X80">https://youtu.be/5-Z3t5f6X80</a>
- Dan Wixted <u>djw47@cornell.edu</u>
- Mary Centrella <u>mlc344@cornell.edu</u>



# Questions

# Northeastern IDIVICenter



United States Department of Agriculture National Institute of Food and Agriculture



Some
Questions
for You

## Find a Colleague

To post a profile about yourself and your work:
<a href="http://neipmc.org/go/APra">http://neipmc.org/go/APra</a>

"Find a Colleague" site <a href="http://neipmc.org/go/colleagues">http://neipmc.org/go/colleagues</a>

# Recording of IPM Toolbox Webinar Series



PAST RECORDINGS AND TODAY'S WEBINAR WILL BE AVAILABLE TO VIEW ON DEMAND IN A FEW BUSINESS DAYS.



HTTP://WWW.NEIPMC.ORG/GO/IPMTO OLBOX



YOU CAN WATCH AS OFTEN AS YOU LIKE.

## Upcoming Toolbox Webinars

#### Combatting Slugs as Pests of Soybeans and Corn, April 6, 11am ET

Slugs pose a significant pest problem for growers of seedling grain crops—particularly corn and soybeans—in the Mid-Atlantic region. David Owens, Extension Specialist at the University of Delaware, presenter.

## <u>Taking a Closer Look: How Strawberry Disease Risk Varies with Microclimates at the Canopy Level</u>, May 4, 11am ET

Weather stations in strawberry fields might seem like good sources of highly local environmental data, but this assumes sun, wind, and shade affect an area evenly. There can be microclimate variations at the canopy level, especially when row covers are used for plasticulture strawberry production. Mengjun Hu, assistant professor of plant pathology in the Department of Plant Science and Landscape Architecture at the University of Maryland, Presenter.

### Land Acknowledgment

- The Northeastern IPM Center is based at Cornell University in Ithaca, New York.
- Cornell University is located on the traditional homelands of the Gayogohó:no' (the Cayuga Nation). The Gayogohó:no' are members of the Haudenosaunee Confederacy, an alliance of six sovereign Nations with a historic and contemporary presence on this land. The Confederacy precedes the establishment of Cornell University, New York state, and the United States of America. We acknowledge the painful history of Gayogohó:no' dispossession, and honor the ongoing connection of Gayogohó:no' people, past and present, to these lands and waters.
- This land acknowledgment has been reviewed and approved by the traditional Gayogohó:no' leadership.

# Northeastern IDIVICenter



United States Department of Agriculture

National Institute of Food and Agriculture

### Funding Acknowledgment

This presentation was funded in part by the Northeastern IPM Center through Grant #2018-70006-28882 from the National Institute of Food and Agriculture, Crop Protection and Pest Management, Regional Coordination Program.

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