



FLORIDA-FRIENDLY
BEST MANAGEMENT PRACTICES
FOR PROTECTION OF WATER RESOURCES
BY THE GREEN INDUSTRIES

GREEN INDUSTRIES BEST MANAGEMENT PRACTICES (GI-BMP)

MODULE 6: PESTICIDES

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TRAINING OBJECTIVES

At the end of this module you will be able to:

1. Describe the laws and licenses that regulate pesticide application.
2. Explain Integrated Pest Management concepts.
3. Explain the environmental hazards involved with pesticide application.
4. Interpret and implement the information on a pesticide label.
5. Minimize personal exposure when using pesticides.



LAWS AND LICENSES THAT REGULATE
PESTICIDE APPLICATION



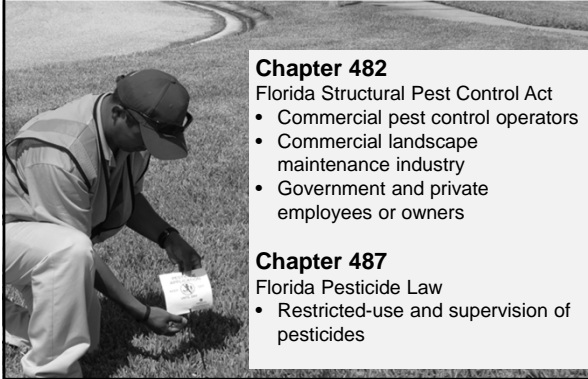
FLORIDA DEPARTMENT OF AGRICULTURE & CONSUMER SERVICES

FDACS

This is the state regulatory agency responsible for administering the state laws that govern pesticide and fertilizer licensing in Florida.



FDACS: STATUTORY AUTHORITY



Chapter 482

- Florida Structural Pest Control Act
- Commercial pest control operators
- Commercial landscape maintenance industry
- Government and private employees or owners

Chapter 487

- Florida Pesticide Law
- Restricted-use and supervision of pesticides




FDACS: BUREAU ADMINISTRATION


**Bureau of Licensing and Enforcement
(Chapter 482) Urban Related Areas**



- Pest Control Operators (PCO)
- Limited Commercial Landscape Maintenance
- Limited Lawn and Ornamental
- Limited Urban Commercial Fertilizer Applicator

(Chapter 487) "Restricted Use Pesticides"

- Private – Farmers and nursery growers
- Commercial – Contract or for hire applications
- Public – government or institutional employees

 PESTICIDE LICENSES: APPLICATOR	
Pest Control Operator (Lawn and Ornamental)	<ul style="list-style-type: none"> • Perform pest control on ornamentals and lawns. • ID Cardholder
Limited Commercial Landscape Maintenance	<ul style="list-style-type: none"> • Commercial landscape maintenance personnel who apply certain pesticides to plant beds and ornamentals only, e.g. Glyphosate.
Limited Lawn and Ornamental (Institutional Employees)	<ul style="list-style-type: none"> • Government, school employees and personnel in condos, businesses who apply pesticides on their business property.
Ornamental and Turf (Chapter 487)	<ul style="list-style-type: none"> • Persons who apply or supervise use of RUP pesticides; non urban pesticide use.

 APPLICATION SUPERVISION	
Pest Control Operator (Business Operation)	<ul style="list-style-type: none"> • Supervises unlimited number of non-certified employees with identification cards.
Limited Commercial Landscape Maintenance	<ul style="list-style-type: none"> • May not supervise the application of pesticides made by non-certified, unlicensed employees.
Limited Lawn and Ornamental	<ul style="list-style-type: none"> • May not supervise the application of pesticides made by non-certified, unlicensed employees.
Ornamental and Turf (Chapter 487)	<ul style="list-style-type: none"> • Supervision up to 15 applicators • Must be immediately available by voice, phone or radio.

 FAILURE TO BE LICENSED. . .	
<p>It is illegal to apply any pesticide commercially to a lawn, residential site, or other structural site without a license</p> <p>Commercial applicators:</p> <ul style="list-style-type: none"> - Civil up to \$5,000 fine - Criminal up to \$25,000 fine - Possible prison time <p>Including the application:</p> <ul style="list-style-type: none"> ✓ "weed and feed" ✓ "insect-control" 	



PEST MANAGEMENT



WHAT IS A PEST?

Less than 1% of all insects are harmful to plants!



1



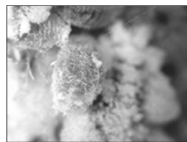
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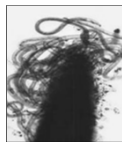
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INTEGRATED PEST MANAGEMENT

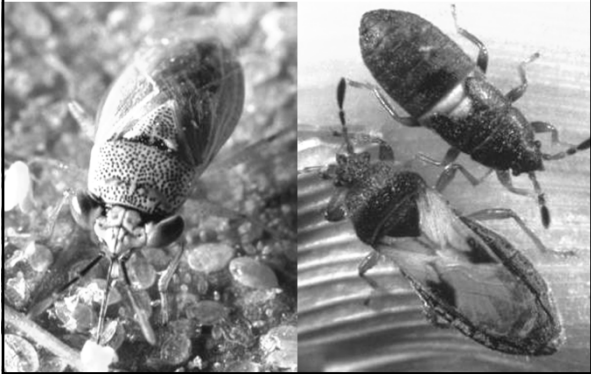
Integrated Pest Management is the coordinated use of pest and environmental information and available pest control methods:



- Prevention: keep pest from becoming a problem.
- Suppression: reduce pest and damage by the most economical means with the least possible hazard to people, property and the environment

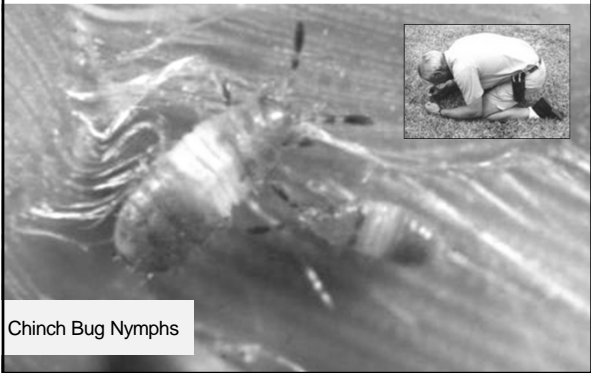


STEP 1. ACCURATE IDENTIFICATION





2. MONITOR THE PEST POPULATION



Chinch Bug Nymphs

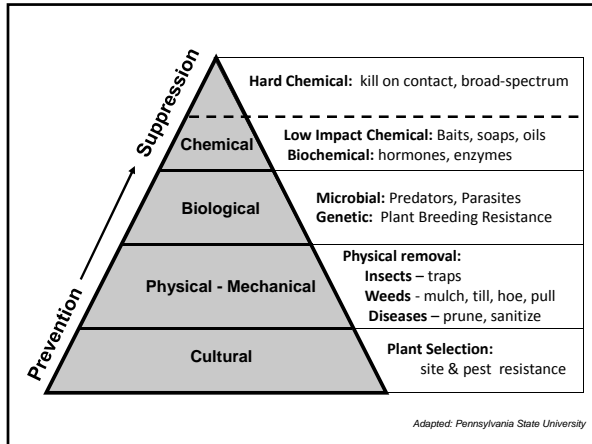



3. EDUCATE CLIENTS ABOUT TREATMENT

Realistic threshold of injury:


- ✓ Aesthetics
- ✓ Plant health
- ✓ Timing
- ✓ Control strategy






 FOLLOW-UP MONITORING CHECKLIST

- Was the pest **identification** correct?
- Was the pest control **method** effective?
- Was the type of **application** correct?
- Was the **rate** appropriate?
- Was the **timing** correct?
- Were the pests **resistant**?

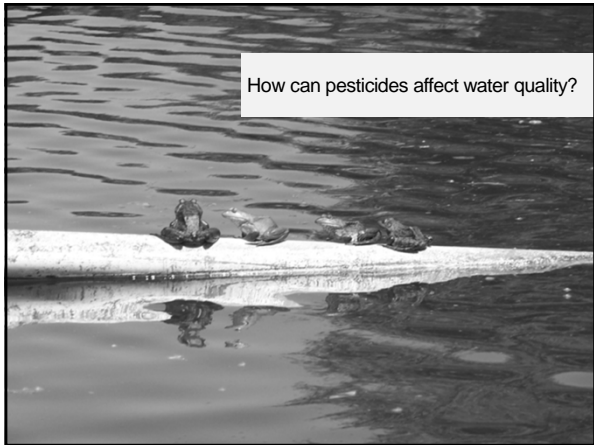
 HOW ROUTE-BASED BUSINESSES USE IPM

- Educate customer on acceptable imperfections
- Monitor yard and neighborhood for potential problems
- Keep records – note problems in the last few years
- Identify special cases





 ENVIRONMENTAL CONCERNS



How can pesticides affect water quality?

 PROTECT SURFACE AND GROUNDWATER

- Identify the soil type and area geology
- Do not apply pesticides to paved surfaces or near storm drains
- Water in products per label instructions, but **DO NOT** overwater
- **DO NOT** apply pesticides before a heavy rain



Photo: G. Hochmuth (Gainesville, FL)

 PROTECT NON-TARGET ORGANISMS

- Children
- Pets
- Hypersensitive individuals
- Beneficial insects
- Wildlife
- Desirable plants



 DRIFT IN AIR: PESTICIDE MOVEMENT

Droplet diameter in microns	Droplet called	Time required to fall 10 ft. in still air	Distance covered falling 10 ft. in 3 mph breeze
5	Fog	66 minutes	3 miles
100	Mist	10 seconds	409 feet
500	Light rain	1.5 seconds	7 feet
1000	Moderate rain	1 second	4.7 feet



 PESTICIDE LABELING



THE PESTICIDE LABEL

THE LABEL IS THE LAW!





PESTICIDE LABEL INFORMATION

- Ingredients and formulation
- Directions for use
- Storage and disposal information
- Safety information
- Personal protective equipment (PPE)





SERVICE CONTAINERS

Pesticide Concentrate

- Name, address, and phone number of pest control firm
- Product name
- EPA registration number (from product label)
- Name and percentage of active ingredients
- Signal word from registered label

Use-Dilution Preparations (Ready to Use)

- Name, address, and phone number of pest control firm
- Product name, preceded by the word "Diluted"
- EPA registration number preceded by the word "Derived From"
- Name and percentage of active ingredient as diluted
- Signal word from registered label




LABEL INFORMATION: SIGNAL WORDS

Signal Word	Category	Oral Lethal Dose*
Danger, Poison/Peligro (Skull and Crossbones)	I. Highly Toxic	- Few drops to 1 teaspoon - LD50 Trace to 50 mg/kg
Warning/Aviso	II. Moderately Toxic	- 1 teaspoon to 1 oz. - LD50 50 to 500 mg/kg
Caution	III. Slightly Toxic	- 1 oz. to more than a pint/pound - LD50 > 500 to 5,000 mg/kg
Caution (or no signal word)	IV. Relatively Toxic	- Over one pint/pound - LD50 > 5,000+ mg/kg

*Based on a 150-pound person



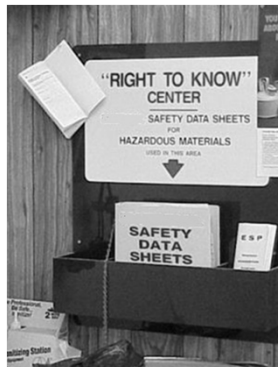
STATEMENTS: ACUTE DERMAL TOXICITY

Signal word	Typical Statements
DANGER-POISON (Skull and Crossbones Required) 	Fatal if absorbed through skin. Do not get in eyes, on skin, or on clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco.
WARNING	May be fatal if absorbed through skin. Do not get in eyes, on skin, or on clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco.
CAUTION	Harmful if absorbed through skin. Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco.
CAUTION (optional)	No statements are required. However, manufacturers may choose to use category III labeling.



SAFETY DATA SHEETS (SDS)

- Proper procedures for handling/working with chemical
- SDS must be accessible to ALL employees
- Keep SDS organized and accessible in case of emergency
- A master copy should be at hand for office management



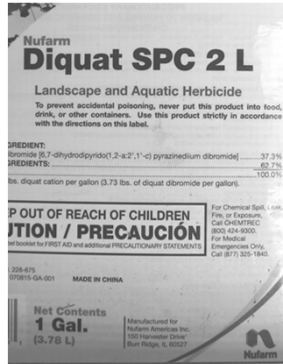
 **GLOBALLY HARMONIZED SYSTEM (GHS)**

- As of March 2012
- New system for classification of hazardous substances
- Hazardous Communication System (HCS)
- Workplaces that manufacture, transport or store chemicals
- Emergency responders, poison control centers and transporters of dangerous goods



 **LABEL RESTRICTIONS**

- Violation of Federal law to use a pesticide in a manner inconsistent with its labeling.
- Do not apply products at:
 - Higher dosage
 - Higher concentration
 - Extra applications
- Pesticides may only be used on the plants, animals or sites listed on the label.



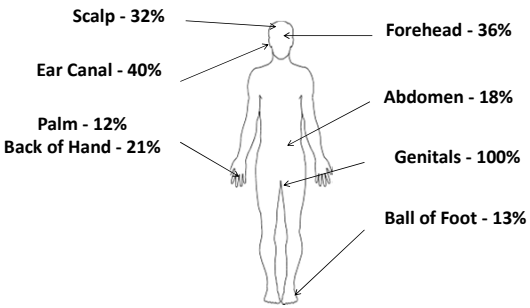
 **EXCEPTIONS TO THE LABEL**

Unless label prohibits, it is ok to...
1. Use more personal protective equipment than required
2. Use equipment that is not label prohibited
3. Mix with another pesticide
4. Mix with fertilizer
5. Apply less than the labeled rate



**REDUCE EXPOSURE
PESTICIDE CONTACT OF UNPROTECTED AREAS**





Hands and feet are the most often exposed, followed by head & neck



PPE VIDEO



 **MINIMIZE STORAGE/HANDLING RISKS**

- Minimize amounts on hand
- First in - first out
- Keep secure and isolated
- Lockable door
- Do not smoke in area
- Restrict access to unauthorized persons



 **CHEMICAL HANDLING**

- 3 commandments:
- Anticipate the worst
 - Be prepared for the worst
 - Prevent problems before they occur



 **EMERGENCIES**
PESTICIDE SPILL MANAGEMENT

- Control the situation
- Contain the spill
- Clean up the spill
- Store waste properly until disposed of





STORAGE/HANDLING VIDEO



REVIEW

1. What licenses and laws regulate pesticide application in Florida?
2. What is IPM?
3. What are the health and environmental hazards involved with pesticide application and handling?
4. What information may be found on a label?
5. How can we minimize health and environmental risks when using pesticides?



This program is funded in part by FDEP with a Section 319 Nonpoint Source Management Program Grant from the U.S. Environmental Protection Agency.

Mention of trade names in this presentation is solely for providing specific information. It is not a guarantee or warranty of the products named, and does not signify that they are approved to the exclusion of others of suitable composition. Use pesticides safely. Read and follow directions on the manufacturer's label.

THANK YOU!



Florida-Friendly
Landscaping PROGRAM 
