

# UF UNIVERSITY of FLORIDA

## IFAS Extension

### Integrated Pest Management (IPM)

By Terry Brite DelValle & Linda Landrum

2012

Of all the insect species in the world, less than 1% is considered to be pests. Integrated Pest Management or IPM is an environmentally friendly method of controlling pests. IPM is the coordinated use of pest and environmental information and available pest control methods to prevent unacceptable levels of pest damage using the most economical means with the least possible hazard to people, property and environment.

#### Benefits of IPM:

- Prevents pest and disease problems
- Through scouting, detects pests and diseases early
- Avoids/reduces use of chemicals
- Minimizes pest resistance to pesticides
- Provides long-term economical pest management



#### Five Practices Common to All IPM Programs:

1. Scout for pests
  - a. Look for signs/symptoms of pests/disease at regular intervals
  - b. Look for presence of natural enemies
  - c. You will need: hand lens, white cardstock paper, pest ID cards, bags to collect unknown pests
  - d. Keep records – pest outbreaks and weather conditions
2. Identify pests correctly
  - a. Identify key plants/key pests (oleander/oleander caterpillar, roses/black spot, azalea/lace bugs, citrus/leaf miner, tomatoes/stink bugs, etc.)
  - b. Determine what kind of insects or diseases are active seasonally
  - c. Identify their natural enemies
3. Setting Action Thresholds
  - a. How many pests and how much damage is OK?
  - b. Aesthetic injury levels – may depend on location
4. Apply IPM Methods
  - a. Integrate the four methods of pest management: cultural, physical, biological and chemical control
  - b. Time pesticides when they work best on pests/diseases
5. Evaluate the IPM Program
  - a. Analyze pest identification and scouting methods
  - b. Review management methods and effectiveness



- c. Determine which methods are most effective and economical

### IPM Practices:

1. Cultural Control
  - a. Avoid problems through proper design, installation and maintenance
  - b. Start with healthy plants
  - c. Right plant/right place
  - d. Water wisely
  - e. Environmental stresses: drought, nutrient, excess water, cold damage
2. Biological Control: releasing or conserving a pest's natural enemies
  - a. Predators: lady beetles, spiders, predatory mites, lacewings, etc.
    - i. Attract "good guys" with dill, fennel, gaillardia, clover, cilantro, mustards, sunflowers, Echinacea, milkweeds, crape myrtle, parsley, goldenrod and southern larraflower
    - ii. Crape myrtles attract crape myrtle aphids; aphids excrete honeydew that serves as food for 20 to 30 beneficial insect predators, many bees and wasps.
  - b. Parasites: wasps, phorid fly
  - c. Pathogens: *Baccillus* species, Milky Spore disease, nematodes for mole crickets
3. Physical Methods: pruning, hand removal, exclusion, traps
4. Chemical Control: last resort, select bio-rational insecticides



### Types of Bio-rational Insecticides:

- Botanicals
  - Neem, rotenone, sabadilla, pyrethrin/pyrethrum, nicotine
- Microbials
  - Bacteria, fungi, nematodes
- Others
  - Insect growth regulators, molt accelerating compounds, soaps, oils



### For more detailed information:

- Beneficial Insects, go to these websites: <http://edis.ifas.ufl.edu/IN078> or <http://edis.ifas.ufl.edu/IN120>
- IPM Florida: <http://ipm.ifas.ufl.edu/applying/index.shtml>
- Natural Products for Insect Pest Management: <http://edis.ifas.ufl.edu/in197>

The Institute of Food and Agricultural Sciences (IFAS) is an Equal Opportunity Institution authorized to provide research, educational information, and other services only to individuals and institutions that function without discrimination with respect to race, creed, color, religion, age, disability, sex, sexual orientation, marital status, national origin, political opinions, or affiliations. USDA, UF/IFAS Extension, FAMU and Boards of County Commissioners Cooperating.