Blending the IPM Program with your Ag Science Program

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Today’s topics

• What’s required and what’s Best Management Practices
• Where is the Ag Science program located
  - In close proximity to what and what is coming
• Does the Ag Science teacher need a license?
• The role of the coordinator
• Types of settings
• Best Management Practices
What's required

- Teacher
- Location
- Students
- Funding
- Generally has School Board approval
- The benefit – making the next generation aware of agricultural science type programs.
Locations

• **Existing**
  - Once rural now urban
  - Stand alone away from others
  - Greenhouse - gardens

• **New (moving)**
  - New location has new development
  - What to construct - eco friendly
  - Greenhouse or new garden placement
Ag Science Teacher

• To License or not to license that is a question?
  o What type of class are they teaching
  o What is their background
  o Can they aid with other duties within the IPM program?
  o What type of license – TDA noncommercial, TDA private applicator, TDA research
Ag Science Teachers role?

- Could be you?
- Could be the science lab person for chemicals
- Assist with pesticide applications
- Assist with insect identification
  - Ability to identify certain species to assist coordinator in relaying information to pest control company
Teacher keep good records

- Maintain copies of inspections and monitoring reports
- Plant or animal information
- Maintenance records
  - Weeding, pruning, etc
- Pesticide purchases and storage
- Pesticide applications
  - Trade name, AI, EPA reg, % used, solution, etc.
Texas Department of Agriculture  
Todd Staples, Commissioner  
Pesticide Applicator Record

<table>
<thead>
<tr>
<th>Business Name</th>
<th>Address</th>
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<table>
<thead>
<tr>
<th>Application Date</th>
<th>Time Started</th>
<th>Name of the person for whom the application was made</th>
<th>Location of Land Treated</th>
<th>Site Treated</th>
<th>Wind Direction</th>
<th>Wind Velocity</th>
<th>Air Temp</th>
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<thead>
<tr>
<th>Product Trade Name</th>
<th>EPA Registration Number</th>
<th>Target Pest</th>
<th>Rate of Product Per Unit</th>
<th>Equipment ID #</th>
<th>Spray Permit Number</th>
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<tr>
<th>Licensed Applicator’s Name and License Number</th>
<th>Unlicensed Applicator’s Name, if applicable</th>
<th>Total Acres or Volume of Area Treated</th>
<th>Total Volume of Spray Mix, Dust, Granules or Other Materials Applied Per Unit</th>
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IPM Coordinator – Program Role

- Know Your Ag Science Teacher(s)
- Identify all areas of use for the Ag program
  - Routinely inspect these areas like school buildings to ensure pest free conditions
  - Keep up with known pest issues
  - Randomly check for pesticides, quantity and storage
- Ensure waivers for parents are being used if students are to be present during applications
Real life examples – using School IPM

• Ag Barn classroom with mice
• Greenhouse with tomatoes with white flies
• Ag barn stable area with flies and mosquitoes
Reminders about Ag Barns

- Manure management is essential
- Storage of food products
  - Keep in airtight containers
  - Watch for spillage
  - Keep water troughs clean and free of debris
  - Store hay and other bedding material away from water
IPM for Greenhouses

- Scouting
- Thresholds
- Understanding life cycle & insect behavior
Scouting

- Cornerstone of successful IPM program
- Regular intervals
  - Insects, diseases, and cultural problems
- Uses sticky traps, pheromone traps, baits and visually inspecting plants
- Report forms, sample vials, forceps, pH meter
Know your thresholds!

- **Health / stress threshold**
  - Threshold reached when pest damage causes a perceived health threat to humans or significant stress to plant (landscape)

- **Aesthetic threshold**
  - Threshold reached when aesthetic pleasure is affected by damage
Know your thresholds

• Economic
  o Number of pests whose injury to the plants cause a crop loss in dollars greater than the amount of money managing the pest would cost.
  o The level that actually produces damage that is more expensive than intervention
  o When this threshold is met, it’s time to treat.
IPM Techniques - Prevention

- Clean transplants
  - #1 problem comes from infected plants
  - Know your grower and know your plants
  - Inspect plants immediately prior to planting
  - Ensure that greenhouse floors are not soil
  - Use insect screens on doors and ventilating systems
  - Keep outside doors closed at all times
IPM Techniques - Prevention

- Cultural controls
  - Manipulates the greenhouse environment
  - Varying time of planting or harvesting, applying water and fertilizer, and rotating crops can all aid in healthy plants
  - Proper growing medium, controlling temperature & humidity, maintain nutrients at appropriate levels
IPM Techniques - Prevention

• Sanitation
  o Weed management is essential - weeds hide pests
  o Maintain a weed-free zone surrounding the greenhouse
  o End of year clean-up in and around the house will help keep the area pest free
    • Pressure wash inside with disinfectant
    • Increase temp to over 80F - back them out
IPM Techniques - Prevention

• Sanitation
  o Eliminate standing water
  o Remove areas of algae
    • Good source for fungus gnats & flies
  o Consider installing screens over vents
  o Soil or growth medium should be treated for pests and diseases through crop rotation and/or steaming
    • Will reduce carryover of pests like thrips or spider mites
Between seasons

- Place yellow sticky cards in empty greenhouse to monitor for flying pests
- If pesticides are needed
  - Choose insect specific
  - Have short residual
    - pyrethrins
    - Insecticidal soap
    - Horticultural oils
    - Insect growth regulators
Types of sticky cards

- Bright yellow cards most common
  - Trap majority of insects
- Blue cards to monitor for thrips
- Change every other week
- One card for 1,000 sq ft
- Reduce # of cards if using winged beneficials
- Place cards 1 to 2 inches above plant canopy and move as plants grow
Insect Identification

• Correct identification aids in correct control techniques
• Will need hand lens with 10x magnification