An Introduction to Integrated Pest Management

Nebraska Extension
Why worry about managing pests?

❖ Health Issues

➢ Asthma triggers in sensitive environments include:

✓ Cockroaches
✓ Dust mites
✓ Mold
✓ Pets & rodents
Why worry about managing pests?

- **Health Issues**
  
  - **Disease transmission**
    
    - Rodents — Hantavirus, food poisoning, rat bite fever, typhus, Well’s disease, & plague
    - Cockroaches — Food poisoning, gastroenteritis, & diarrhea
    - Mosquitoes — West Nile virus, encephalitis, & malaria
Concerns about pesticides:

- Routine, unnecessary pesticide applications in schools and other sensitive environments
- Untrained pesticide applicators
- Possible hazards to children

Solution — Integrated Pest Management (IPM)
Goals of IPM....

- Reduce human exposure to pesticides
- Reduce environmental damage
- Reduce the long-term cost of managing pests

Photo: University of Florida
Excess exposure to pesticides can cause:

- **Acute Effects**: Harmful or fatal if swallowed or inhaled.
- **Delayed Effects**: Tumors, cancer, birth defects, blood, and nervous system disorders.
- **Allergic Effects**: Asthma and skin, eye, and nose irritation.
What is IPM?

Integrated Pest Management is an effective and environmentally sensitive approach to pest management that takes advantage of all appropriate pest management options including:

- Sanitation controls
- Physical/mechanical controls
- Biological controls
- Cultural controls
- Chemical controls
What is IPM?

- **Sanitation controls**
  - Remove food residues, prune out diseased twigs, reduce available water, eliminate harborage

- **Physical/mechanical controls**
  - Trap insects & rodents, hand-pull weeds, screen out insects & rodents, seal cracks, vacuum insects, use heat & cold treatments
What is IPM?

- **Biological controls**
  - Natural enemies: ladybugs eat aphids, parasites kill insects, goats eat weeds

- **Cultural controls**
  - Cultivate, mow at proper height, remove thatch, use mulch

- **Chemical controls**
  - Pesticides: insecticides kill insects, herbicides kill weeds, fungicides kill plant diseases, rodenticides kill rodents
Implement IPM

- Monitor for pests
  - Sticky traps, visual inspections
- Accurate identification of pests
  - Education, appropriate reference materials
- Determine pest levels that trigger action
  - Norway rats need immediate attention vs. Boxelder bugs may be tolerated without control measures
- Select control tactics that have reduced hazard and are less disruptive
  - Choose non-toxic or less toxic pesticides
  - Use light traps instead of space sprays for flies
Implement IPM

- Time control tactics to the best advantage
  - Apply herbicides at proper weed growth stage, use insect growth regulators at correct time

- Target pesticides to reduce exposure to humans, pets and wildlife
  - Put baits in areas away from children, apply insecticides into cracks & crevices

- Evaluate effectiveness of tactics
  - Keep accurate records, on-going monitoring for pests, adjust as indicated

- Educate everyone involved including students, staff, residents, patients, and parents
Your facility may already be implementing IPM

- For example, a survey of Nebraska schools showed:
  - 57% use vacuuming to control pests
  - 54% reduce water/food residues
  - 52% exclude pests
  - 44% use trapping

However...
61% reported routine applications scheduled!

- Scheduled sprays are not as effective as other control tactics
- Increases residues and exposures

Photo: University of Florida
IPM Key Points

- Prevents pest populations
- Apply pesticides only as needed
- Select control tactics that have reduced hazard and are less disruptive
- Target pesticides to areas not contacted by or accessible to people, pets, and wildlife
Deny Pest Entry

To prevent pests from entering...

- Inspect incoming foodstuffs
- Screen windows and vents
- Fill holes around pipes
- Seal cracks in floors and walls

Photo: University of Florida
Deny Pest Entry

To prevent pests, use proper...

- Plant selection, location, and planting depth
- Pruning/mowing
- Fertilization/irrigation
- Cultivation, thatch removal, and mulching
- Timing of practices and chemical controls

Photo: Purdue University
Use pesticides only as needed...

- **Inspect**
  - Results in early detection

- **Monitor**
  - Sticky traps good tool
Select Lower Toxic Pesticides

- Baits and Granules
- Insect Growth Regulators
  - Prevents normal growth by insects
- Lower toxicities

Photo: University of Florida
Target Pesticides Properly

- Crack and crevice
- Gel baits
- Drastically reduces exposure potential

- Avoid targeting surfaces where children, residents, patients, or staff may be exposed

Photo: University of Florida
Benefits of IPM

- Reduces pesticide use
- Limits exposure of people to pesticides
- Protects the environment
- Protects human health
- Helps create healthier living, working, and learning environment
Benefits of IPM

- Prevents pests and provides better long-term control of pests
- Reduced liability of facilities
- Reduces long-term cost of control
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