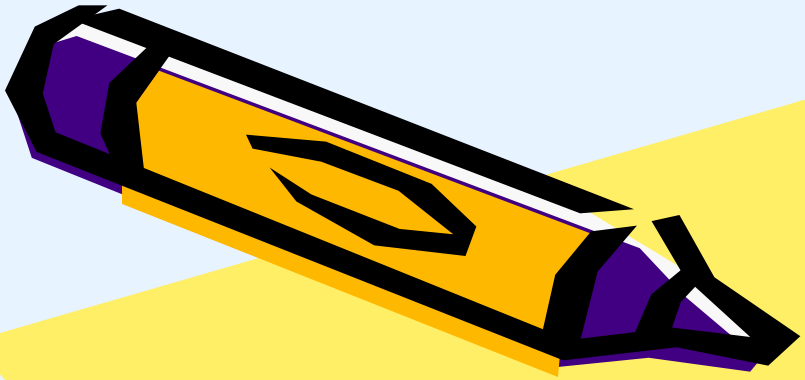

An Introduction to Integrated Pest Management

Nebraska Extension

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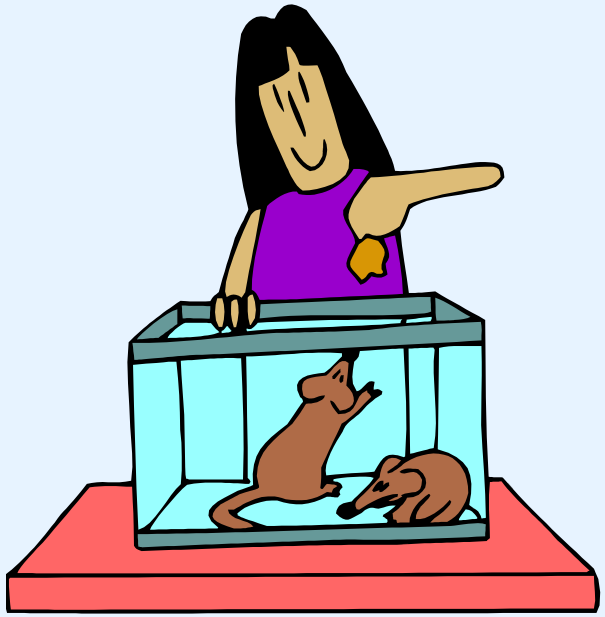
University of Nebraska Lincoln

Why worry about managing pests?

- Health Issues
  - Asthma triggers in sensitive environments include:
    - ✓ Cockroaches
    - ✓ Dust mites
    - ✓ Mold
    - ✓ Pets & rodents



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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

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- 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)

Photo: University of Nebraska–Lincoln

Goals of IPM….

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

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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.

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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

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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

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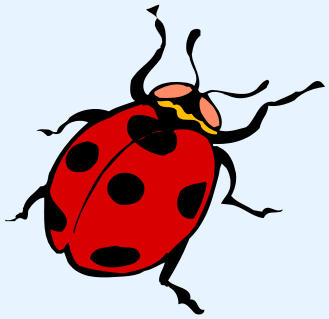
What is IPM?



- 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

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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

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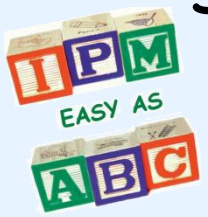
Implement IPM

- 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



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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…

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61% reported routine applications scheduled!

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

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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

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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

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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

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Use pesticides only as needed…

- Inspect
  - Results in early detection
- Monitor
  - Sticky traps good tool

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Select Lower Toxic Pesticides

Photo: University of Florida

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

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Target Pesticides Properly

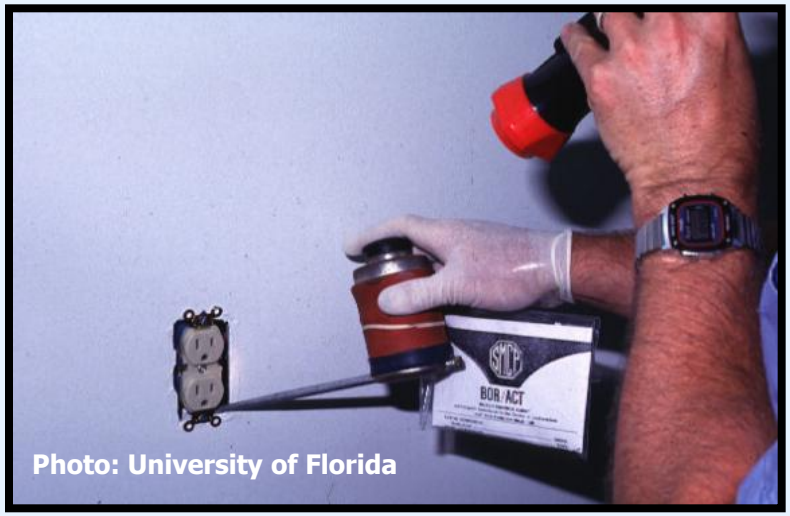

Photo: University of Florida

- 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

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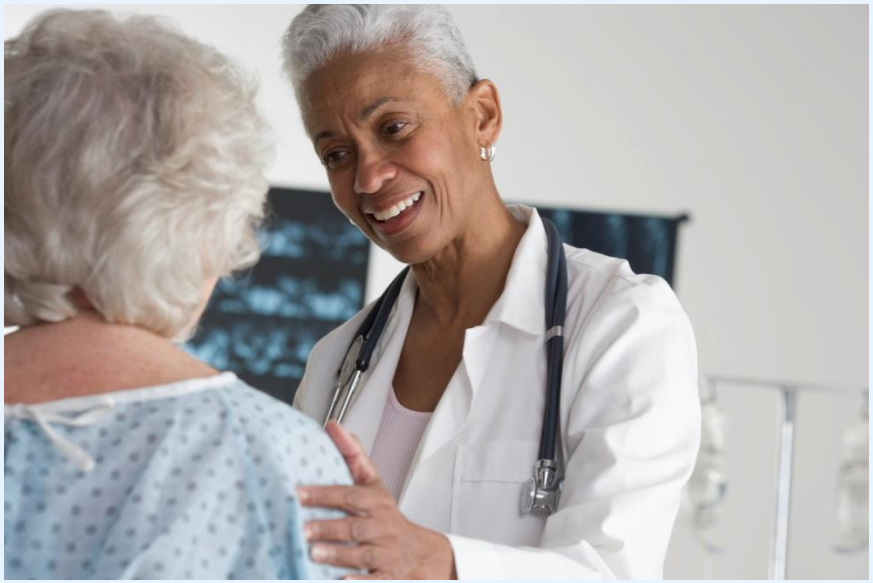
Benefits of IPM

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



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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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