U.S. Department of the Interior
Bureau of Indian Education

INTEGRATED PEST MANAGEMENT

OBJECTIVE

To gain a general understanding of Integrated Pest Management (IPM) and to ensure the safety of individuals involved in pest management activities, including school staff and students. To provide essential knowledge and skills to mitigate risks associated with pesticide use and pest management practices.

MEETING TIPS FOR ONLINE TRAINING

- 1). Place yourself on “Mute” to prevent background noise.
- 2). Use the “Chat with all” feature to ask questions.
  - Note: All participants will be able to see your comments or questions.
- 3). Every participant will receive a certificate of completion.

INSTRUCTOR INTRODUCTION

BIE BRANCH OF ENVIRONMENTAL MANAGEMENT (BIE BEM) WHO WE ARE…

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AGENDA

- Common Definitions
- Significance of Pests and Pesticides
- Chemical Safety
- Best Management Practices (BMPs)
- Toolbox
- Conclusion

BACKGROUND AND HISTORY

- 1950s: Emergence of Integrated Pest Management (IPM) as a response to pesticide-related environmental and health concerns.
- 1960s-1970s: Development and refinement of IPM principles and practices.
- 1980s-Present: Evolution of IPM to incorporate integrated pest control strategies and sustainable practices.
- Recognition of IPM as a preferred approach to pest management in various sectors.

https://www.lsuagcenter.com/portals/communications/publications/agmag/archive/2014/spring/integrated-pest-management-springs-forth-after-1960

COMMON DEFINITIONS

- Integrated Pest Management
- Pest
- Pesticide
- Hazard Communication
- Restricted Use Pesticides
- General Use Pesticides

COMMON DEFINITIONS

❖ Integrated Pest Management:

Integrated Pest Management (IPM) is an effective and environmentally sensitive approach to pest management that relies on a combination of common-sense practices.

IPM programs use current, comprehensive information on the life cycles of pests and their interaction with the environment.

This information, in combination with available pest control methods, is used to manage pest damage by the most economical means, and with the least possible hazard to people, property, and the environment.

COMMON DEFINITIONS

❖ Pest:

A pest refers to any organism that poses a threat or nuisance to human health, property, or the environment. This can include insects, rodents, weeds, fungi, and other organisms that cause damage, transmit diseases, or compete with desired plants or animals.

❖ Pesticide:

Any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest. Any substance or mixture of substances intended for use as a plant regulator, defoliant, or desiccant. Any nitrogen stabilizer.

COMMON DEFINITIONS

❖ Hazard Communication:

Hazard Communication, or HazCom, is a set of processes and procedures that aims to keep people safe by providing information about potential sources of injury in the workplace, particularly hazardous chemicals. The goal of HazCom is to ensure that employees are aware of the chemicals they may be exposed to and understand the risks associated with them.

❖ Restricted Use Pesticide:

The product has potential to cause unreasonable adverse effects on human health or the environment when used according to label directions and without additional regulatory restrictions.

COMMON DEFINITIONS

❖ General Use Pesticides:

A chemical or biological agent that deters, incapacitates, kills, or discourages pests. It is considered safe enough to be used by the general public.

SIGNIFICANCE OF PESTS AND PESTICIDES

❖ Sanitation

Facilities with good sanitation programs can expect to have lower pest numbers. Not having a good sanitation program can result in attracting more pests and require a longer period to suppress them. Sanitation is incredibly important for the efficiency of IPM tactics. Having a routine sanitation schedule is simple yet effective method to control pests.

❖ Building Damage

Pests can be more than just a nuisance; they can cause considerable property and structural damage if their activities go undetected for any length of time. Termites are a prime example of causing building damage, resulting in instances of thousands of dollars in damages.

Bobvila.com

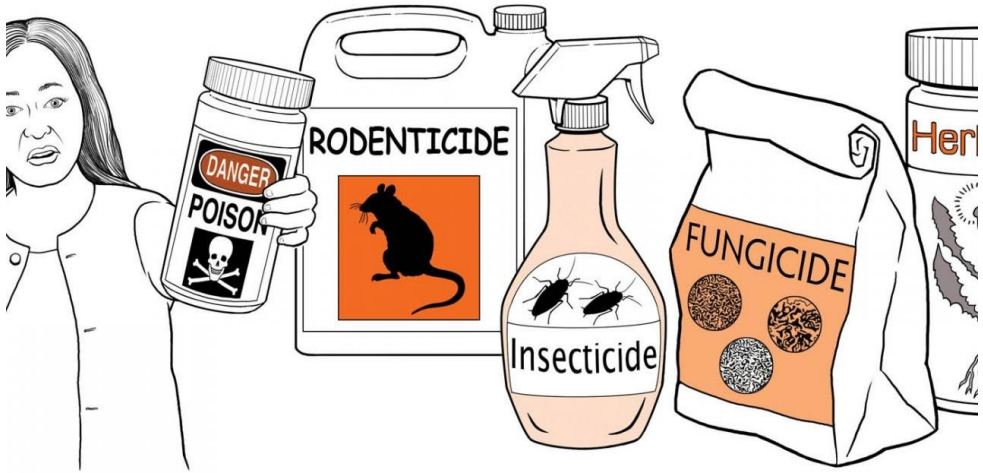
OVERUSE / INCORRECT USE OF PESTICIDES

- Overusing and/or using pesticides incorrectly can be harmful to people and the environment.
- The use of pesticides also triggers requirements under the Federal Insecticide, Fungicide, and Rodenticide Act and other state, local, and tribal regulations.
  - Increases regulatory compliance risk.
  - Increases potential exposure of students and staff to harmful chemicals.
  - Increases potential impacts to non-target plant and animal species.
    - Increases potential impacts to threatened and endangered (T&E) species protected under the Endangered Species Act and other state and tribal T&E programs.
- The use of pesticides can also be costly.

- **By using IPM instead of solely relying on extensive pesticide applications, schools can reduce pest populations and reduce the use of pesticides, making schools safer for students and school personnel.**
- **Preventive measures can easily be implemented at schools to maintain effective IPM.**

HEALTH ISSUES ASSOCIATED WITH PESTICIDE USE

Efforts to minimize pesticide exposure in schools are crucial. Exposure to pesticides can result in negative health effects like skin and eye irritation, respiratory ailments, and neurological effects. Protective measures should be prioritized to ensure the well-being of the school kids and staff.



Hygeia-analytics.com

IPM IN SCHOOLS

❖ Identifying and Understanding Pests

You will need to know exactly what pests you are facing before deciding on the best method to control them.

Knowing what the pest is (species), where it's at, and why it's there is all critical information.

You also need to know if the pest is a protected species.

Once you have this information, you can determine appropriate monitoring methods and evaluate whether a pesticide application is actually needed to address the pests or if IPM can take care of the issue.

MONITORING FOR PESTS

IPM reduces the use of pesticides by first monitoring pest populations to determine where, when, and what kind of controls should be applied.

Monitoring pests in schools is essential for maintaining a healthy and safe environment for students and staff.

Pests can be found in various areas inside and around schools. Be thorough in your monitoring efforts.

Monitoring Techniques:

- Know your pests
- Schedule regular inspections to visually check for evidence of pests
- Maintain monitoring records

REMOVE CONDITIONS FOR INFESTATIONS

If left uncontrolled, pests can infest areas of your school and pose a nuisance, health hazard, or economic threat.

To prevent infestation from occurring apply these measures:

- Repair water leaks
- Seal gaps, holes, vents, and other entry points
- Maintain vegetation
- Place dumpsters away from school buildings
- Perform regular sanitation and pest monitoring

ACTION THRESHOLDS

Set Action Thresholds for Key Pests

An action threshold is the pest population level at which the pest's presence becomes a nuisance, health hazard, or economic threat. Setting an action threshold is critical to guiding pest control decisions. A defined threshold will focus the size, scope, and intensity of an IPM plan.

Identify Pests: Recognize which pests are present and understand their behavior and impact on the school environment.

Monitor Populations: Regularly inspect and document pest levels to identify trends and potential infestations

ACTION THRESHOLDS

Establish Thresholds: Decide on the pest levels that can be tolerated and at what point action should be taken. This may vary depending on the pest and the area within the school.

Implement Control: When thresholds are exceeded, apply appropriate pest management strategies to reduce the pest population to acceptable levels.

CONTROL PESTS

- IPM is a strategy based on preventing pest issues before the arise.
- Reduce pest presence through preventive measures.
- Control pest populations by removing their basic survival elements
  - Food
  - Water
  - Shelter
- Control pest populations by blocking access to your facilities
- In some cases, pesticides might be necessary, but it should be a last resort

IPM STRATEGIES

- U.S. Environmental Protection Agency provides the following IPM strategies:
  - Regular inspection and monitoring for pests
  - Accurate pest identification
  - Maintaining pest records on each building
  - Repairs to facilities to exclude pests
  - Weatherizing buildings and sealing pest entryways
  - Traps and baits
  - Targeted application of pesticides
  - Decreasing the presence of pests and eliminating the unnecessary use of pesticides
  - Education of school staff, teachers, and students on steps to prevent pests

RECORDKEEPING

- Keep accurate records of pest identification, monitoring, and control methods used for each pest.
- Document changes in the site environment, physical changes (new construction and repairs), pest population changes (increased or reduced numbers), or changes in the amount of damage or loss
  - Supports better decision-making and more efficient procurement of pest control services and materials.
- A complete and accurate pest management log can be maintained by the school. A link to examples is provided in the Resources.

CHEMICAL SAFETY

- **Proper Storage – If pesticide use is necessary…**

Proper storage of pesticides prevents accidental contamination to people and the environment. It is extremely important for the safety of everyone at the school to have the right type of storage container as well as the storage location for pesticides.

Prolonging Shelf Life: Proper storage helps prolong the shelf life of pesticides. Shelf life refers to the period during which a pesticide remains effective. By storing pesticides correctly, you ensure that they maintain their potency and efficacy over time.

pesticidestewardship.org

ar.inspiredpencil.com

CHEMICAL SAFETY

- Here are some key guidelines for proper pesticide storage:
  - Locked Cabinets: Store pesticides in locked cabinets, preferably made of metal. This keeps them out of reach of children, school staff and visitors.
  - Avoid Flooding Areas: Do not store pesticides where flooding is possible, or water damage is likely. Also, avoid areas where spills could contaminate wells, groundwater, or surface water.
  - Original Containers: Always store pesticides in their original containers with tightly closed tops. If the label is damaged, write down essential information (trade name, active ingredient, EPA registration number, etc.) to keep with the product.
  - Avoid Food or Drink Containers: Never store pesticides in containers meant for food or drink. People, especially children, might mistake them for something safe to consume, leading to accidental poisoning.
  - Separate from Other Items: Keep pesticides away from cabinets containing food, potable water, medical supplies, protective clothing, fertilizers, or gasoline. This prevents contamination and reduces the risk of exposure.

READ LABELS

- Reading pesticide labels is important for safe and effective use in schools.
- Pesticide labels, along with safety data sheets, serve as an important part of your school's hazard communication program.
- Pesticide labels contain detailed information on how to use the product correctly, safely, and legally.
- Labels also contain information on potential hazards associated with the product and instructions you should follow in the event of a poisoning or spill.
- Following label instructions will allow you to minimize the risks and maximize the benefits.

READ LABELS

Helpful Tips:

- Always read the label carefully before using it and make sure the product is intended for your specific use.
- Use the appropriate amount of pesticide for your job. Applying more pesticide than the directions indicate may harm people or the environment.
- Do not assume a pesticide can be used for one type of treatment and then be used in another setting without first checking the label.
- Acquire only what you need. Storing and disposing of leftover pesticides can lead to unnecessary risks. Do not use pesticides in any manner other than those specifically listed on the label.
- Never remove a pesticide label from the container or use unlabeled pesticides.
- Follow the label directions on the proper storage and dispose of pesticides. Also, keep out of reach from children and pets.

The label is the law…

https://www.epa.gov/earthday/epa-explainshow-read-pesticide-product-label

PROPER APPLICATION

Using IPM to reduce pest populations will also help reduce the risk of pesticide exposure risks for the environment, students, and school staff.

If pesticide use is necessary, here are some good recommendations to consider:

- Read and follow all label instructions for mixing, handling, storing, applying, and disposing of pesticides.
- Remove any items of value from the area before applying pesticides.
- Wear appropriate personal protective equipment, clothing/eye protection.
- Use only appropriate containers for mixing and applying pesticides.
- Never smoke, drink, or eat while applying pesticides.

EPA CERTIFIED PESTICIDE APPLICATOR

Pesticide Applicator - means any individual using a **restricted-use pesticide**. An applicator may be certified as a commercial or private applicator as defined in the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).

The federal regulations require commercial applicators to show practical knowledge of:

- Pesticide label and labeling comprehension.
- Safety, including pesticide hazards, first aid, personal protective equipment and emergency response.
- Pesticides in the environment.
- Pest identification and management.
- Pesticide formulations.
- Pesticide application equipment and application techniques.
- Laws and regulations.

https://www.aces.edu/blog/topics/pesticides/alabama-private-applicator-permit-and-training-information/

PROPER DISPOSAL

Reading the label is of **great importance** when determining how to properly dispose of the pesticide and the container. Look for the "Storage and Disposal" statement on your pesticide label. That is where the instructions will be for proper disposal.

NEVER pour leftover pesticide products down the sink, into the toilet, on the ground, or down a storm drain. If there is going to be left over pesticide and there is no need to store it, it's always a good idea to dispose of it as soon as possible.

BEM can provide guidance on how to dispose of waste or excess pesticides.

Storage and Disposal

Storage: Store in a cool, dry, well-ventilated area, but not below 32°F.
Pesticide Disposal: Do not contaminate water, food or feed by storage or disposal. Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA regional office for guidance.
Container Disposal: Triple rinse (or equivalent). Then puncture and dispose of in a sanitary landfill, by incineration or, if allowed by State and local authorities, by burning. If burned stay out of smoke.

OUTDOOR VS. INDOOR

Certain pesticides are rated for indoor or outdoor use.

Outdoor pesticides are often much stronger in concentration and can have a strong odor.

Using an outdoor-rated pesticide indoors may expose a health risk to those individuals inside.

Indoor pesticides use less toxic chemicals and are safer around children and pets.

READ THE LABEL - Follow the label's directions. The label will specifically state whether the product is suitable for indoor or outdoor use, and gives directions on where, how. and when to use the product.

BEST MANAGEMENT PRACTICES

❖ Eliminate Moisture and Clutter

- ❖ A common IPM approach is to eliminate wet areas and remove clutter no longer being used. Make the habitat unfavorable for the targeted pests.
- ❖ Look around your school and see what could be harboring pests.
  - ❖ Stack lumber, metal products, bricks, and other materials away from buildings and off the ground.
  - ❖ Maintain overgrown vegetation and do not leave trash out.
  - ❖ Keep basements, crawl spaces, and foundations dry and reduce moisture in areas prone to high humidity.
  - ❖ Eliminate standing water (especially in and around dumpsters), deteriorating wood, and other pest attractants.
  - ❖ Use dumpsters with drain holes.

https://clutterflyinc.com/showcase/before-and-after/

BEST MANAGEMENT PRACTICES

Waste Management

- Pests need food, water, and shelter to thrive. Having an IPM program may require repair and maintenance activities to prevent pest entry by eliminating sources of shelter, food, and moisture.
- Improve waste management by moving trash or garbage containers away from school buildings to reduce the opportunity for pest invasion. This will result in fewer pest problems and reduce the need for other pest control procedures, like using pesticides.
- Regularly empty garbage bins to remove potential food sources for pests. Clean up spills promptly to prevent pests from being attracted to the mess. Cleaning your trash bins regularly with disinfectants can help remove any remaining food residue that might attract pests.

BEST MANAGEMENT PRACTICES

Waste Management

- Monitor Waste Disposal Practices: Keep an eye on how waste is being disposed of in your surroundings to identify any areas where improvements can be made to prevent pest infestations.
- Ensure dumpster lids close tightly. Tight lids make garbage less available to pests including scavenging birds, pets, rodents, raccoons, and other pests.
- Place dumpsters and other garbage receptacles on a concrete pad or other non-absorbent surface.

BEST MANAGEMENT PRACTICES

reminetwork.com

Wastetechdisposal.com

BEST MANAGEMENT PRACTICES

❖ Drains and Landscaping

- ❖ Monitor drains, ensure that drains are not being clogged or blocked with debris. Blocked drains can create an area for water to accumulate and then become stagnant, which attracts pests. Regularly check these areas and especially after a rainfall.
- ❖ Maintain the landscape around buildings to discourage pests. This includes vegetation management - trimming plants/trees, ground slope- directing water away from buildings and not letting it accumulate in an unwanted area. Certain plants and trees can attract unwanted insects and some also repel unwanted insects. So before doing any planting check to see on what type of insects and animals the plants may attract.

DRAINS AND LANDSCAPING EXAMPLES

https://www.dcla.net/schools

https://www.drain-tech.com/blog/how-to-prevent-restaurant-drain-line-emergencies/

https://replaceyourgarbagedisposal.com/why-you-need-it-restaurant-garbage-disposal/no-more-blocked-drains-commercial-garbage-disposal/

BEST MANAGEMENT PRACTICES

Building Inspections

- Routine building inspections and identifying pests are vital steps in IPM to ensure control methods will be effective. Once the pest has been identified and the source of its activity pinpointed, making modifications to that source may greatly reduce the pest's existence. Keep in mind to inspect on the outside of buildings and around them. Routine inspections are essential to prevent potential pest friendly areas.
- Write down notes and findings during inspections and keep records of those inspections. Refer back to previous records to compare new and old findings. Inspecting and monitoring not only allow for identification of pests being present, but also provides insight to the extent and severity of the infestation.
- Be sure to check on fixtures like faucets and toilets and ensure they are working as they should be. Check to see if there are any leaks or moisture around them. Repair and replace fixtures when needed.
- Once pests are found an extreme action may not be necessary. For example, how big is the infestation? Is it large, small, or just a couple ants on the floor? Determine pest action thresholds for the school with school administrators. Establishing pest thresholds will help determine what level and type of action is necessary.

POSSIBLE ENTRY POINTS

https://www.cowleys.com/commercial-pest-services/photo-gallery/24061-album-multiple-mice-entry-points-in-south-amboy-nj.html

https://www.cowleys.com/commercial-pest-services/photo-gallery/24061-album-multiple-mice-entry-points-in-south-amboy-nj.html

https://www.extermpro.com/where-do-pests-get-in-a-guide-for-where-to-look-for-pest-entrances/

BEST MANAGEMENT PRACTICES

❖Pest Prevention

- By using IPM, schools can reduce pest populations and reduce the use of pesticides, overall making schools safer for children, school personnel, and the environment. IPM reduces the use of pesticides by first inspecting and monitoring pest populations to determine where, when, and what kind of controls should be applied.
- Schools can reduce pest infestations by identifying and removing conditions that will attract pests, rather than using pesticides.
- We have discussed simple but effective control methods to help reduce pests. Preventive measures are not difficult to implement, and involving other people can help benefit the process of creating those preventive measures for your school. Educating students and staff about how their actions can affect pest management and control can also be beneficial.

CONCLUSION

- Preparation of a site-specific IPM Plan will provide a framework for pest prevention and control for your school.
- You can develop your plan in house or hire a contractor to assist.
- Tons of resources are available with guidance related to IPM.
- Several resources are linked in the following slides.
- We encourage you to explore these resources and determine what IPM strategies work best for your school to reduce the use of chemical pesticides.

RESOURCES

Model Pesticide Safety and IPM Guidance Policy for School Districts –
https://www.epa.gov/ipm/ipm-schools-model-pesticide-safety-and-ipm-guidance-policy-school-districts

Making Pests a Thing of the Past Integrated Pest Management for Healthier Schools and Students:
https://www.epa.gov/ipm/health-benefits-integrated-pest-management-schools

Integrated Pest Management (IPM) Principles:
https://www.epa.gov/safepestcontrol/integrated-pest-management-ipm-principles

Pest control in the school environment implementing integrated pest management (ipm)
https://www.epa.gov/sites/default/files/2017-08/documents/pest_control_management_in_school_environments_735-f-17-004.pdf

RESOURCES

What is a Pesticide?

https://www.epa.gov/minimum-risk-pesticides/what-pesticide

Information on Pests in Schools and Their Control

https://www.epa.gov/ipm/information-pests-schools-and-their-control

Health Benefits of Integrated Pest Management in Schools

https://www.epa.gov/ipm/health-benefits-integrated-pest-management-schools

School IPM Program Bid and Contract Guidance

https://www.epa.gov/ipm/school-ipm-program-bid-and-contract-guidance

RESOURCES

Federal Certification Standards for Pesticide Applicators
https://www.epa.gov/pesticide-worker-safety/federal-certification-standards-pesticide-applicators

Hazard Communication
https://www.osha.gov/hazcom

Implementing an IPM Program for Schools and Child Care Facilities
https://schoolipm.ncsu.edu/files/2016/05/Manual-Chapter2.pdf

Importance of Following Pesticide Label Directions
https://ipm.missouri.edu/MPG/2019/6/labelImportance/

IPM Inspection, Monitoring and Sighting Logs
https://schoolipm.tamu.edu/forms/ipm-inspection-monitoring-and-sighting-logs/

QUESTIONS?

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Wawaenon
Pinangigi
Wimblahoho
Quyana
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Ahéhee
AnaaBasee
HiriweTudahe
Pilamiya
Nya:Weh Aho
Tansi
Thank You