Wild World of Pest Management: IPM For Youth

Larry Schulze
Pesticide Education Specialist
University of Nebraska – Lincoln Extension

2006 National IPM Symposium, St. Louis, MO
Wild World of Pest Management

- An IPM program for youth
  - Audience: 4th through 7th grades
  - Primary audience
    - 5th and 6th graders
- Very receptive age and learning level
- “Wild World” content closely coincides with school programming
  - In natural science and resources
  - In history of U.S.
Wild World of Pest Management

- The why and how it came to be
- Two simultaneous events
  - 1. Daughter’s school experience
  - 2. Extension request for programming
The why and how it came to be

1. My daughter’s experience at junior high
   - Discussed parents’ careers
   - Dad – “worked with pesticides, taught pesticide safety”
   - Teacher reacted with visible horror
     - “Pesticides killed everything, caused un-needed health risks”

Conclusion: objectivity in pest management needed
Wild World of Pest Management

- The why and how it came to be
- 2. Outdoor day camp: Water Works
  - Completed first year of programming
  - An instructor discussed pests and controls
  - Discussed “bio-accumulation”
  - Used DDT example - - “DDT applied liberally, killed insects, active ingredient accumulated in food chain”
  - “Killed eagles”
  - No reference to IPM
  - Extension colleague (program planner of Water Works) requested an objective program about pests and controls
“Wild World”
Program Goals

- Content is science-based
- A silent, but strong Integrated Pest Management approach is delivered
  - “Integrated Pest Management” not said aloud to students, but the concept is strongly portrayed
- Objective in nature
  - Not anti-pesticides, not pro-pesticides
Wild World of Pest Management

- 20 to 25 minutes in length
  - If longer, attention span taxed
  - If shorter, message not delivered

- Delivery Settings
  - Outdoor day camps, earth festivals sponsored by UNL Extension
  - Elementary classrooms
Delivery Setting:
Outdoor Day Camp / Shade Tree
Delivery Setting:
Outdoor Day Camp: Parking Lot
Delivery Setting:
4-H Cabin
Delivery Setting:
Classroom
Presentation Approach / Delivery

- Interactive with audience
  - Student participation in delivery
    - Adds to the excitement of learning
- Incorporation of lots of visual aids
  - Including live Corn snake
  - Live Hissing Madagascar Cockroaches
- Includes “Lesson Plan”
  - To allow re-enforcement of lessons learned later in the classroom
  - A/Vs identified in the lesson plan for teacher
- Adaptable to adults and youth
The IPM Approach

- Straightforward and basic
- Begins with underlying IPM principle
  - Identify the pest involved
  - Recognize that nature controls pests
  - Optional methods of control (IPM) are available, they are our selections to help nature control pests
    - Use least toxic approach first
    - Pesticides is one of these tools
    - Pesticides is deliberately considered last if other IPM methods do not work
The IPM Approach

- Entire “Wild World of Pest Management” program is based upon Pesticide Education Program core manual for licensed private and commercial applicators.
Includes points about…

- We live in a chemical world
  - Soil, plants, water, air are made of chemicals
  - So are clothes, shoes, eye glasses, etc.
- Pesticides do occur naturally in nature
- Strikes at myth that “natural is good, synthetic is bad”
- Cavalier attitude about pesticides is not part of this presentation
  - Responsible use of pesticides is important
Topics Covered: Wild World of Pest Management

- What are pests?
- Types or groups of pests (4)
- Nature’s pest controls (4)
- Optional methods (IPM – 6 methods) of pest management (includes pesticides)
- Pesticide types – be responsible user
  - Naturally occurring
  - Synthetics
Preparing For the Class

- Audio/visuals
Preparing For the Class

Audio/visuals
Preparing For the Class

- A/Vs: hidden from student view
Preparing For the Class

Lesson Plans provided to teachers

Wild World of Pest Management
Larry Schulze, Pesticide Education Specialist
University of Nebraska - Lincoln

1. What are pests? A living thing that injures / annoys people or damages their property or environment.
2. Types of Pests:
   - Insects - grasshoppers, wasps
   - Animals - mice, rats, dogs?
3. Methods of Pest Control:
   - Naturally Occurring Methods:
     - Climate - Coconut (as a crop) is not native to NE, influenced by climate
     - Hissing Cockroaches are not native to Nebraska
     - Rainfall, cold winters, etc. influences which weeds are common in various regions
     - Natural Enemies - Snakes, owls, insects eat insects
     - Land and Oceans - Atlantic Ocean example with Hessian soldiers & Hessian Fly during the Revolutionary War
   - Optional Methods we can use:
     - Host resistance - grass seed box showing "disease resistance"
     - Biological control - lady beetles, lacewings, praying mantis
     - Cultural control - garden hoe (tillage), mulch, fertilization
     - Mechanical control - fly swatter, mouse traps
     - Sanitation - grass seed box showing "disease resistance"
     - Pesticides - chemicals (pesticides)
     - Chemicals (pesticides)
Wild World Lesson Plans

- Encourages re-enforcement of major points in the classroom
- Encourages classroom discussion by teacher
- Encourages student interaction & feedback with teacher
- Enhances learning of student
Preparing For the Class

All set for the "Earth Wellness Festival"
About this presentation: a bit of a risk?
  • I’m speaking to adults about how I visit with youth
  • Approaches are very different

Today’s Discussion
  • About my techniques in delivery
  • About content / subject matter About audio / visuals to teach and deliver
  • All to aid your potential Wild World of Pest Management presentation with your audiences

My goal – encourage you to develop a similar program
  • My multiplier effect
Poster Boards: 24” x 30”

- To increase students’ understanding and learning
  - They see, hear, do, read
- To guide my presentation
  - Keeps me on track

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Wild World of Pest Management
Setting the Stage: The Program Begins

- Today: Our visit is about pests…
  - About the management of pests
  - If we are to control pests, then we must know about them
- Acknowledge that people can be pests
  - You may say, “Larry, I know all about pests”
  - “Because, my teacher, a classmate, brother or sister is a pest.”
  - “That may be true, but, today, we won’t consider people as pests.”
  - “We’ll just consider pests other than people in this discussion”
- Why do this?
  - Otherwise, students will continually identify their classmates as examples of “pests” and class disruption may occur
First, a question

Are pests dead or alive? Yes, alive.

A pest is a pest because it does something that we do not like.

Please give me some actions that a pest does that we do not like. Don’t name a pest.

Can you describe a pest?
Typical Pest Descriptions

- Something that bites or stings
- They bother me
- Eat things
  - Like what?
    - Crops, garden
- Can pests eat holes in your house?
You have given me a scientific definition of a pest.

“A pest is a living thing that injures or annoys people, damages their property, or damages the environment.”

See Lesson Plan.
Types of Pests

Today, we’ll talk about four large groups or types of pests

What would be the name of one of these groups?
First person to name a pest group, is invited to the front.
Insects is identified

Student is handed lid and cardboard pieces from insect container
Instructor’s hand hides roach on shirt
Insects: sometimes tiny, sometimes quite large
Discussion points about insects. Body parts: Head, Thorax, Abdomen

Let’s give a hand to our insect lady
Re-Enforce The Answers

- After each pest group is named and discussed
  - The class is asked to name the pest group in unison
    - In order of their discussion
    - “What is pest group number 1?”
    - “Number 2?” Etc., etc.
  - Re-enforces the learning point
- Helps me keep track of what pest types that have been discussed
What’s the second large pest group? Animals
Mouse is kept in shirt pocket
“It’s been a cool day”
With a bit of flair, the mouse jumps out of my pocket among the students.

We all laugh and all feel a bit silly about getting surprised of a little, leather, fake mouse.
How is a mouse a pest?

- Messy droppings
- Chews holes in house
Re-enforcement of Points

- First pest group?
  - Students reply “Insects”

- Second pest group?
  - Students reply “Animals”
Another Pest Group

- **Weeds: Often easily overlooked**
- **Clues....**
  - This pest has chlorophyll in it
  - Gets energy from the sun
  - Has roots, leaves
- "Plants" is a quick response
- "So, if you’re a pest in the large plant kingdom, what are you called?"
“There’s an answer in there (his head), I’ll describe a weed, you give me it’s name. Class, you may know the name, too, but you’re not going to tell him.”

A dandelion is described.
Student Solicits Classmates To Name Other Weeds

Do you accept that weed for an answer?

What about corn? Growing in a soybean field?
Re-enforcement of Points

- First pest group?
  - Students reply “Insects”

- Second pest group?
  - Students reply “Animals”

- Third pest group?
  - Students reply “Weeds”
Fourth Pest Group

- Something attacks plants, people
  - Plants – leaves become yellow, brown, die
  - People – we can get sick, too
- What am I referring to?
- Worms commonly mentioned
Worms?

Yes, but we’ve already covered that when we talked about insects.

Worms are the young stage of insects.
Diseases - caused by three types of germs
Student Solicits Classmates To Name Types of Germs

- Students know these
  - Bacteria
  - Viruses
  - Fungi
Natural Methods of Pest Control

1. Climate
2. Natural Enemies
3. Land and Oceans
4. Food Supply
What’s this? Yes, a coconut.
Where do coconuts grow?
In Nebraska? No!
Too cold in the winter? Yes!
Climate influences where crops can grow.
Likewise, climate influences where pests can grow, too.
Natural Enemies

- Do you know “Prey / predators”
- Something living is attacking the pest
- Let’s look at examples
The owl is hidden from view. It swoops out in a “rush” as if its flying.
I need help with another example of natural enemies.
Student holds the cloth sack. Not the snake
What does this snake eat?
--- mice

Let’s give a hand for our snake man
Nature Helps to Control Pests

Natural Methods of Pest Control

1. Climate
2. Natural Enemies
3. Land and Oceans
4. Food Supply
Let’s go back to the 1700s, the Revolutionary War:
We were a group of colonists fighting for our independence against what country?
Hessian soldiers from Germany helped British fight against the colonists
Soldiers carried insect to North America in straw bedding (horses) on their ships, insect named after them - Hessian Fly
Pest in winter wheat in NE, KS, CO, OK, TX, etc.
Atlantic Ocean: a barrier until insect was carried over it
Nature Helps to Control Pests

Natural Methods of Pest Control

1. Climate
2. Natural Enemies
3. Land and Oceans
4. Food Supply
Lunch Box
- Represents “food supply” ….something inside influences pests
- Student: to peak inside and inform classmates of contents
- It contains… it contains…
- NOTHING!!
- If there is no food or water for pests, pests will die
- Nature changes the quantity of food for pests
- Sometimes lots of food, then many pests
- Sometimes very little food, then fewer pests

Let’s give a hand for our lunch box lady
Methods That People Can Use To Control Pests

Optional Methods of Pest Control

1. Host Resistance
2. Biological Control
3. Cultural Control
4. Mechanical Control
5. Sanitation
6. Pesticides
The host (grass) resists the pests (fungi, etc.)

Students read this portion of the seed label
Methods That People Can Use To Control Pests

Optional Methods of Pest Control

1. Host Resistance
2. Biological Control
3. Cultural Control
4. Mechanical Control
5. Sanitation
6. Pesticides
Biological Control

- This control is similar to “natural enemies”
  - But, we don’t manage natural enemies like owls or snakes
- What do you have at home that may control mice?
  - Hold up the leather mouse
  - Here, if we “manage” the prey / predator relationship, that’s biological control
  - Cat / mouse example
Biological Control

- Purchase, release ladybugs to eat insect pests in your garden

Catches & eats lots of insects.. because it has very fast yellow wheels
Optional Methods of Pest Control

1. Host Resistance
2. Biological Control
3. Cultural Control
4. Mechanical Control
5. Sanitation
6. Pesticides
Cultural Control

- Identify the pest
- Then, change the culture or environment around the pest
  - Ex. Tillage – hand hoe or tillage implement, it stirs the soil, exposes roots to sunlight, changes the environment around the weed
Cultural Control:
- Mulch – to control weeds
- This mulch – a special type
- Listen very carefully
- WOOF!!
- It’s “bark mulch”
Methods That People Can Use To Control Pests

Optional Methods of Pest Control

1. Host Resistance
2. Biological Control
3. Cultural Control
4. Mechanical Control
5. Sanitation
6. Pesticides
Mechanical Control
Mechanical Control
Methods That People Can Use To Control Pests

Optional Methods of Pest Control

1. Host Resistance
2. Biological Control
3. Cultural Control
4. Mechanical Control
5. Sanitation
6. Pesticides
It’s “clean” seed. Few weed seeds.
Plant good quality grass seed.
Don’t plant the weeds.
Methods That People Can Use To Control Pests

Optional Methods of Pest Control

1. Host Resistance
2. Biological Control
3. Cultural Control
4. Mechanical Control
5. Sanitation
6. Pesticides
Pesticides

- Used only after the first five methods are considered
- If they don’t work, then pesticides may be considered
  - (The IPM approach is then presented)
- If a pesticide is used. Always use it according to the label
Naturally Occurring Pesticides

Mention those that are available on the market.
Wild World of Pest Management

- Important program goal
  - Some pesticides are very common and are accepted for their pest control properties

- Examples
  - Clorox disinfectant bleach
  - Pine-Sol cleaner
  - Comet cleanser
  - Chlorine disinfectant in pools & spas
Pesticides Made in Factories

-- All of these pesticides have been approved by the Environmental Protection Agency (said for the benefit of the teachers / adult sponsors)
-- Ask students to name each one as shown
When I go swimming…
I don’t want to swim with your germs in the water
And, you don’t want to swim with my germs in the water
So, this pesticide (chlorine) is placed in the swimming pool (according to the label) so that you and I will have safe water to swim in
Then, we won’t get sick from each other’s germs
If you use a pesticide, read and follow the label. The label may tell you to use certain types of gloves or protective equipment when using a pesticide.
Wild World Summary

- Four types of pests
  - Name them
- Nature controls pests
- We sometimes control pests
  - (Reference made to IPM controls)
- If we use a pesticide...
  - Always follow the label
Wild World Stickers

Sticker distributed to each student at end of session. Helps promote the program and lessons to others.
### Wild World of Pest Management Audience

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Now, four Extension Educators also assist in conduct of some of the sessions.
Wild World of Pest Management

- What about impact?
- Do the students learn?
  - Yes! It’s shown...
    - In pre and post tests
1. Are pests living or dead? Circle one for your answer.
   - [ ] Living
   - [x] Dead

2. Name four general groups or types of pests that are in our world.
   - Bugs
   - Mosquitoes
   - Rodents
   - Cockroaches

3. If you would decide to control a pest, what are some methods or things that you may use?
   - Poison
   - Traps
   - Stepping on them
   - Catch them
   - Kill them
Wild World of Pest Management
Pre-test
Cathedral of the Risen Christ School - 7th grade

1. Are pests living or dead? Circle one for your answer.
   Living  Dead

2. Name four general groups or types of pests that are in our world.
   mice       spiders   2
   cockroaches   crickets

3. If you would decide to control a pest, what are some methods or things that you may use?
   set traps  Step on them with your shoe
   gas         call arch in man
   call the local police

Sean Campbell
Wild World of Pest Management

Post-test

Cathedral of the Risen Christ School - 7th grade

1. Are pests living or dead? Circle one for your answer.
   - Living  
   - Dead

2. Name four general groups or types of pests that are in our world.
   - Animal
   - Insect
   - Weed
   - Disease

3. If you would decide to control a pest, what are some methods or things that you may use?
   - Cultural
   - Mechanical
   - Biological
   - Pesticide
   - Weather
Wild World of Pest Management
Post-test
Cathedral of the Risen Christ School - 7th grade

1. Are pests living or dead? Circle one for your answer.
   - [Living]
   - [Dead]

2. Name four general groups or types of pests that are in our world.
   - Animals
   - Viruses
   - Insects
   - Weed

3. If you would decide to control a pest, what are some methods or things that you may use?
   - Pesticides
   - Enemies
   - Environment
   - Stomping on Them
   - Sanitation
   - Lawn Care
# Learning via Wild World of Pest Management

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Teachers’ Evaluations

❖ “Lesson plans very helpful”
❖ “Hands-on activities, all tied in very well”
❖ “Kept students’ attention”
❖ “Use of charts and models really helps with teaching the concepts of pest control”
❖ “Entertaining, with high energy”
Online Reference: PestEd.unl.edu
Community Attitudes: An Approach to Dealing with Chemophobia

Larry Schulze, Pesticide Education Specialist

It has been felt or seen by most Cooperative Extension workers. It initially appears quite innocently. Maybe it's a casual comment from a client, or it could be an expression of substantial concern or fear.

Whatever the original source, expressed apprehension concerning the broad spectrum of chemicals, their purpose, their use or misuse, their impact (real or imagined), is felt in our communities.

One may wince when a comment is heard that "all chemicals should be eliminated." If ever there is a "teachable moment", that's one. Our entire world is make up of chemicals, either elements or compounds. Water, the most
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Thank You

2006 National IPM Symposium, St. Louis, MO