

NATIONAL SCIENCE STANDARD

- Personal and Social Perspectives: Science and technology in local challenges

OBJECTIVE

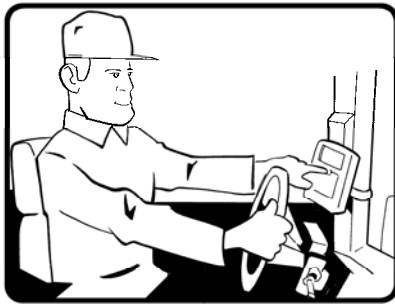
The student will chart the process of pest management using a flow chart.

BACKGROUND

Pesticides were introduced in the 1950s. In the past 50 plus years, many advances have been made to make the use of pesticides safer and more environmentally sound. A farmer will benefit only from conscientious use of pesticides. A healthy environment sustains agricultural production and the livestock and humans living there. A degraded environment with depleted soil resources, poor water and air quality, and destroyed wildlife habitat does not.

Integrated Pest Management

Farmers use Integrated Pest Management (IPM). This is a systematic approach that combines several different practices to control pests.



Before treatment is deemed necessary, IPM looks at many factors.

Proper Identification

Not all insects are pests; some are natural predators that help control pest species. Farmers treat only pests that damage crops.

Monitoring

Rather than routine administration of

insecticides, IPM uses scouting practices to detect pests and determine if action is needed. A farmer will actually walk the fields and determine the number of pests per determined area.

Pest Threshold Levels

To justify treatment, pest damage has to exceed a threshold. Thresholds have been developed as the result of many years of research.



WORD POWER

pest *n.* Any insect or animal that causes damage to a crop that will result in a significant decrease in yield to cause a monetary loss.

integrated pest management *n.* A systematic approach to pest control that uses a combination of multiple different practices.

BACKGROUND, CONTINUED...

Once a pest problem is identified, IPM treatment involves balancing treatment with effects on beneficial organisms, the environment with crop yields. The process involves tactics like these.



Biological

Introduce natural pest predators (ladybugs are an example)

Physical

Use barriers or traps.

Chemical

Use pesticides specifically for the pest identified and apply at the lowest effective rate. The pesticide should be short lived in the environment, least toxic to good organisms, and alternated with other chemical agents to prevent development of resistant pest populations.

To prevent a reoccurrence of a pest infestation IPM involves considering changes for the next year's planting to prevent a repeat of the problem.

Varying Planting Time

Plant a crop so that it does not coincide with the pest's lifecycle.

Crop Rotation

Plant a different crop that is not susceptible to the same pests.

Genetic Options

Choose a plant resistant to the pest if one is available.

INSTRUCTIONAL PROCEDURE

Integrated Pest Management is a process. A flow chart makes it easier to follow and understand a process or a sequence of events. Have the student flow chart the process for IPM.

ASSESSMENT

Do the students understand the sequence of events and how one choice leads to another?

NAME _____

ACTIVITY 1: GO WITH THE FLOW TO MANAGE PESTS

Is pest resistant plant material available?

Can you plant a different crop in the field?

Plant crop

Monitor for pests

Has pest population exceeded threshold?

YES

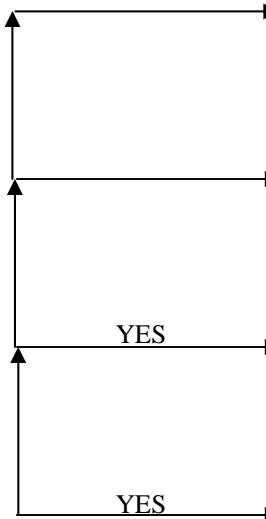
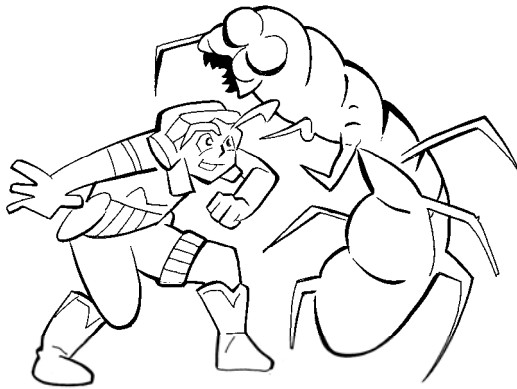
Is there a natural predator to introduce?

NO

Can the pest be trapped?

NO

Administer a pesticide targeted to identified pest at minimum dose.



**INTEGRATED
PEST
MANAGEMENT
ORGANIZATIONAL
CHART**

