Integrated Pest Management Program at FAMU

The College of Agriculture and Food Sciences at Florida A&M University in collaboration with the United States Department of Agriculture (Agricultural Research Service) has initiated an Integrated Pest Management Program as an effort to reduce the amount of pesticides application in agricultural production, nursery, lawn and greenhouse management.

What is IPM?

Integrated Pest Management (IPM) is the implementation of diverse methods of pest controls, paired with monitoring to reduce unnecessary pesticide applications (EPA).

Instead of trying to eradicate a pest, an IPM approach considers all of the information and experience available, accounts for multiple objectives, and considers all available preventive and curative options. Based on that foundation, informed decisions are implemented to achieve optimum results. What those optimum results are varies with each user's individual preferences. The general goal of IPM is to provide safe, effective, economical, environmentally sound, and socially sensitive outcomes.

IPM can be used wherever pest damage occurs. Among the more common types of pests are insects, mites, rodents, viruses, fungi, bacteria, and weeds.

Why IPM?

Health and environmental concerns associated with pesticide use have motivated the development of integrated pest management (IPM) programs around the world.

Fundamental principles of IPM

The specific techniques used for IPM vary with each situation, but there are fundamental principles that define IPM.

1. Identify the pest(s) that are the source of the problem. This is not always as simple as it may seem. Correct pest identification is required to identify optimum solutions.

2. Understand the biology, ecology and economics of the pest and the system in which the pest exists.

3. Monitor pests and natural controls. Use standardized, tested monitoring methods rather than basing decisions on haphazard observation.

4. Establish economic or aesthetic injury thresholds. Pest management decisions are based on the potential damage from pest infestations, status of natural enemies, sensitivity of the protected site (such as the stage of development of a crop), and the weather. Actions are taken only when the potential damage is sufficient to justify action.

5. Select an appropriate strategy of cultural, mechanical, biological, and/or chemical prevention or control techniques.

5a. Cultural practices include habitat modification and adapting operating procedures so that pest damage is reduced and natural control is enhanced. Sanitation is the removal or cleaning of sources of pest infestation. Choosing plant varieties that are resistant to pest injury is a cultural control. Other agricultural examples are adjusting planting time, fertilization, tillage, and harvest operations to have the most beneficial or least detrimental affect on the pest management situation.

5b. Biological controls are predators, parasites, and diseases that attack pests. Measures can be taken to conserve naturally occurring populations. In some situations where naturally occurring biological controls are not effective, they can be introduced from outside sources.

5c. Chemical control involves selecting a pesticide with the lowest toxicity to humans and non-target organisms (including biological controls), and using it in such a way as to prevent or minimize undesirable environmental effects. The lowest effective amount of pesticide is applied from carefully calibrated spray equipment.

6. Evaluate the pest management program and improve it when possible. This requires keeping records and reviewing them on a regular basis.

How does an IPM program work?

IPM is not a single pest control method but, a series of pest management evaluations, decisions and controls. In practicing IPM, growers who are aware of the potential for pest infestation follow a four-tiered approach. The four steps include:

Set Action Thresholds

Before taking any pest control action, IPM first sets an action threshold, a point at which pest populations or environmental conditions indicate that pest control action must be taken. Sighting a single pest does not always mean control is needed. The level at which pests will either become an economic threat is critical to guide future pest control decisions.

Monitor and Identify Pests

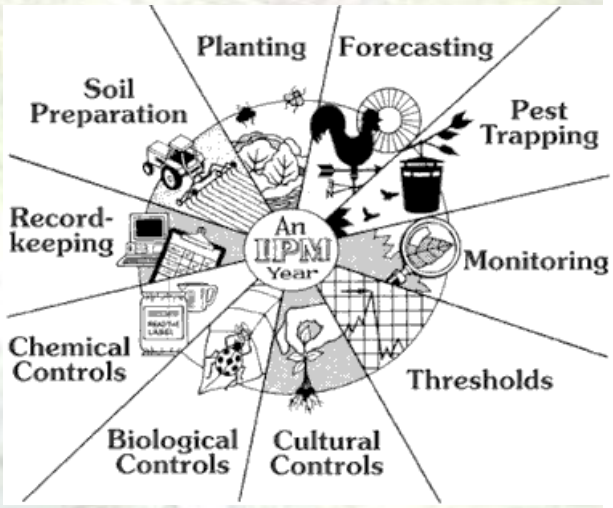
Not all insects, weeds, and other living organisms require control. Many organisms are innocuous, and some are even beneficial. IPM programs work to monitor for pests and identify them accurately, so that appropriate control decisions can be made in conjunction with action thresholds. This monitoring and identification removes the possibility that pesticides will be used when they are not really needed or that the wrong kind of pesticide will be used.

Prevention

As a first line of pest control, IPM programs work to manage the crop, lawn, or indoor space to prevent pests from becoming a threat. In an agricultural crop, this may mean using cultural methods, such as rotating between different crops, selecting pest-resistant varieties, and planting pest-free rootstock. These control methods can be very effective and cost-efficient and present little to no risk to people or the environment.

Control

Once monitoring, identification, and action thresholds indicate that pest control is required, and preventive methods are no longer effective or available, IPM programs then evaluate the proper control method both for effectiveness and risk. Effective, less *risky* pest controls are chosen first, including highly targeted chemicals, such as pheromones to disrupt pest mating, or mechanical control, such as trapping or weeding. If further monitoring, identifications and action thresholds indicate that less risky controls are not working, then additional pest control methods would be employed, such as targeted spraying of pesticides. Broadcast spraying of non-specific pesticides is a last resort.



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