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University of Kentucky
College of Agriculture,
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Cooperative Extension Service

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HORTICULTURE EDUCATION

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Use Integrated Pest Management for Dealing with Insect Pests and Diseases on Plants

Walking around and observing plants in the landscape, flower garden, and vegetable garden begins the management process of insect pests and plant diseases during the growing season. This process is called scouting, part of a science-based technology called integrated pest management (IPM) used by farmers and gardeners.

IPM uses information about the plants, pests, and the environment to manage insect pests or diseases. It uses cultural practices first and minimal pesticides if needed in a safe, economical, and socially responsible way. IPM involves various tools such as scouting for pests, correct identification of pests, cultural practices, and biological methods. The goal is to determine the number of insect pests present and control them before economic damage to the plant occurs, not eliminating the pest entirely. IPM is not strictly organic gardening. Synthetic and organic pesticides are used judiciously when necessary.

Scouting is a key component of IPM. Are insect pests and diseases present? If not, then a management method or an insecticide is not necessary. By scouting, time and money are saved.

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After scouting, the identification of the insect pest or disease is necessary. Once identified, the life cycle of the pest is examined to determine when the most effective and appropriate management methods should be applied. These methods may be cultural, biological, and as the last choice a synthetic or organic chemical. Timing of the control measure is critical. If the critical time has passed, then a control measure with an insecticide or fungicide would not be effective and would be wasted. For example, the insect called scale, which may be found on fruit trees and ornamentals, spends most of its life cycle under a waxy scale, which protects it from insecticides. The best time to control scale is during the crawler stage. By scouting once or twice a week, the appearance of the crawlers will be detected and the appropriate measures taken.

With IPM techniques, the level of pest infestation may be low enough that control is not required. Science-based economic thresholds for insect pests have been determined in commercial crops. A control measure may not be needed if the number of insects found is below the threshold. If the number of insects is above this level, economic damage may occur, and control is necessary. The level of control is determined by each person. If blemishes or insect damage on fruits and vegetables is acceptable, you may not worry about controlling the pest.

Consider picking off and smashing low numbers of insects instead of using an insecticide. Hand removal saves time and money when the number of insect pests is small. Some pests can be managed by removing the infected plant or plant parts. For example, rake up and remove leaves fallen from crabapple trees infected with the disease called apple scab. The leaves are a source of the disease, which can re-infect the crabapple tree.

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Cultural practices are helpful. These would be considered as "going green" or "sustainable" practices. Rotating between the vegetable crops which are not from the same family in the garden prevents a buildup of pests. Another cultural practice is to provide enough space between plants to allow them to dry off after watering before nightfall. Water on the leaves in the late evening and at night creates the perfect environment for certain diseases to develop on the leaves.

One biological tool is the use of pest-specific pesticides. *Bacillus thuringiensis* is a bacteria that controls caterpillars of various insects. Only the larval stage of specific families are killed. *Bacillus thuringiensis* is also easier and safer to handle compared to some of the other organic and synthetic pesticides.

The Daviess County Cooperative Extension Service continues to take an active role in educating local growers about IPM and in implementing IPM practices in field crops, orchards, and fresh market vegetable production. The use of IPM in some instances may reduce the amount of crop protectant materials needed. IPM can be used in home vegetable gardens and landscapes too.

If you have an insect that seems to be causing a problem in the landscape or garden and cannot identify it, place it into a small container with white vinegar and bring it to the Extension Service office for identification. If it is a moth, bring it in a container without vinegar, because the liquid removes the scales on the wings that are used for identification.

Plants with disease problems can be brought in as well. For trees and shrubs, make sure to bring in three branches, about 1 foot long, if possible, that have the affected leaves on them.

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For smaller plants, dig up several of them, including the roots, keeping the soil with them. Also, include a healthy branch or plant for comparison. No fee is charged. Please do not bring in plants that are already dead. Secondary pathogens that live on dead tissue make it almost impossible to determine which organism caused the problem.

For more questions about using IPM, contact the Daviess County Cooperative Extension Service Office at 270-685-8480 or annette.heisdorffer@uky.edu.

Annette's Tip and Event:

Join us at the University of Kentucky Cooperative Extension Service in Daviess County at 4800A New Hartford Rd., on the OCTC main campus, for our Open House event on May 21 from 5:00 to 7:00 p.m. Learn more about our programs for youth and adults, enjoy free food, and receive free science-based information on many topics.