

Integrated Pest Management: Cultural Control

By Wes Walker, Master Gardener

This is part two of a multi-part series on Integrated Pest Management (IPM).

As mentioned in the Introduction to Integrated Pest Management article (6/17/24), there are several tools that the home gardener has to manage pests. This article will address the first—cultural control.

Cultural control, within the context of IPM, refers to the use of cultural techniques to reduce pest populations and their damage. Unlike chemical or biological control methods, cultural control focuses on altering the habitat or behavior of the pest or crop to make it less favorable for pest development.

One method of cultural control is crop rotation. Crop rotation is a method used to disrupt the life cycle of pests and pathogens, thus reducing their ability to cause harm to our gardens. *Sclerotium rolfsii*, or Southern Blight, is a soilborne pathogen that can persist in soils for several growing seasons, making it tough to eliminate once established. It is particularly harsh on tomatoes but has also been found to reservoir in other garden plants such as peppers, potatoes, and beans.

Although the pathogen may be present in the soil, alternating the types of crops grown in a particular area from season to season removes the plant host required to continue the lifecycle. When using crop rotation to control for Southern Blight, you'll also need to remove any "volunteer" plants that emerge from last season's crop, as these plants may be harboring the pathogen from the prior year. Without a suitable plant host, the pathogen's life cycle is disrupted and its ability to cause damage to crops is reduced.

Another cultural control method is increased sanitation practices. Sanitation can be considered "housekeeping" in the garden, as it involves the removal of crop residues, weeds, and other plant debris where pests may harbor. Using the tomato blight example above, you can see how leaving last year's plants to decompose in your garden or putting them in your compost pile, may actually contribute to the seasonal persistence of blight.

Weeds and leaf-litter can create micro-environments within your garden, where pests can reside and overwinter. While there are beneficial insects and pollinators that live in these environments, the gardener should consider the risk/benefit of creating a habitat that can be used by destructive pests as well.

The Japanese beetle (*Popillia japonica*) is an invasive pest and is difficult to eliminate once established. These beetles can be attracted to damaged and diseased fruit, which can lead to them attacking sound fruit nearby. By removing damaged and diseased fruit from the trees and ground, the attractant is removed, lessening the risk of infestation.

Another cultural control method is trap cropping. Trap cropping is the practice of planting crops or plants that are more attractive or preferred by the pest than your crop plants. These attractive

plants pull the pest away from the crop you're trying to protect, thus reducing the pressure on your desired crop.

Lincoln University discovered that Blue Hubbard squash is very attractive to squash bugs and to squash vine borers, and therefore it is an excellent trap crop plant. In addition, Blue Hubbard squash is also very attractive to spotted and striped cucumber beetles. So, backyard gardeners can actually control four insect pests using Blue Hubbard as a trap crop.

Research has shown that for a small garden of 100 or so cucurbit plants (cucumber, melons and squash), you can control squash bugs and cucumber beetles using 6-8 Blue Hubbard plants. The trap crop plants can be planted at the corners, at a short distance (3-8 ft.) from the protected crop. Some gardeners have sprayed insecticide onto the trap crop only, so that the pest is killed, while their gardens remain "chemical free."

So that's an overview of a few cultural control methods available for the home gardener. Cultural control methods are often sustainable and reduce reliance on chemical pesticides, promoting long-term pest management strategies that are environmentally friendly and cost effective. Until next time, keep workin' th' dirt!

Resources

"Early Blight Management in Fresh Market Tomatoes," <https://ipm.cahn.uconn.edu/early-blight-management-in-fresh-market-tomatoes/>

"Crop Rotation." <https://hgic.clemson.edu/factsheet/crop-rotation/>

"An Overview of Southern Blight, Caused by *Sclerotium rolfsii*," https://www.pubs.ext.vt.edu/content/dam/pubs_ext_vt_edu/spes/spes-325/SPES-325.pdf

"Integrated Pest Management (IPM)," https://content.ces.ncsu.edu/extension-gardener-handbook/8-integrated-pest-management-ipm#section_heading_5177

USDA. (2015). "*Managing the Japanese Beetle: A Homeowner's Handbook*," <https://www.aphis.usda.gov/sites/default/files/JBhandbook.pdf>

"Trap Cropping: A simple, effective and affordable Integrated Pest Management strategy to control squash bugs and squash," https://ipm.missouri.edu/MEG/2017/3/Trap_cropping/

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