

24 Article for The Bristol Herald Courier Agriculture Page
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Print Date: July 25, 2005

“ORGANIC INSECT CONTROL”

Bugs! From aphids to spotted cucumber beetles, insects are a frustrating part of gardening and small-scale commercial farming. Many people unfamiliar with organic farming think that organic control means doing nothing. Nothing could be further from the truth. There are four basic steps to organic pest control, each of which is available to the gardener and commercial farmer.

The first level involves good growing practices such as crop rotation, weed control and good sanitation (and in some cases use of physical barriers such as floating row covers). Crop rotation helps to avoid buildups of pests. It is particularly effective on crop-specific insects such as Colorado potato beetles, but less effective with highly mobile pests such as Japanese beetles. The use of floating row covers is an effective way to largely eliminate damage from flea beetles and cucumber beetles on newly planted crops. Other important cultural methods include use of thick mulches which can delay or interrupt the movement of beetle pests from the soil to the plants.

The second level of control is ecological control -- practices that minimize pest damage by utilizing their natural enemies. This involves no harm to other species and very little work on the part of the farmer. On my own farm, I recently had a small outbreak of aphids on eggplant. Nearby flowering plants, such as sweet clovers, alfalfa and cilantro provided habitat for numerous lady beetles. These lady beetles migrated from this “beneficial insect habitat” and began devouring the aphids. Within a week of spotting the outbreak, lady beetle adults and larvae had eliminated the aphids.

The third tier involves biological controls. These products use living microorganisms to attack crop pests. Often they are very pest specific and have little, or no, impact on honeybees and beneficial insects. One example is *Bacillus thuringiensis* (Bt), which is a bacterium that is very effective for controlling caterpillar pests such as cabbageworm and tomato hornworm. Another that we are trialing on several farms this year is called Mycotrol, which is a living fungus that attacks Japanese beetles, cucumber beetles, and other pests. This is an exciting potential control for a wide range of difficult bugs.

The final level in organic control involves the use of botanical, or plant-based insecticides such as rotenone, pyrethrins and neem oil. Pyrethrins have proven particularly effective in controlling a wide range of difficult pests while neem oil also shows promising control of certain insects and fungal diseases. Botanical insecticides are a necessary tool for most farmers and are generally quite affordable. However they should be used in a

limited fashion, as most are toxic to honey bees, ladybeetles, fish and other living creatures as well.

Used properly, these four levels of control can give farmers and gardeners excellent management tools to raise beautiful crops with minimal pest damage. If you would like more information on these practices and products, or would like to keep abreast of ongoing research into new controls, contact ASD at 276.623.1121 or asd@eva.org.