

MANAGING PESTS IN OUR ORCHARD

MEET THE ENEMY

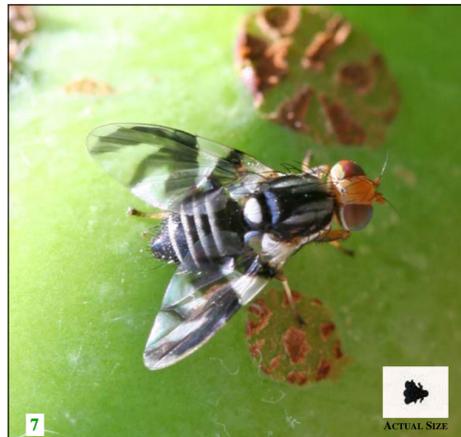


Codling Moth

Codling moths have two life cycles a year beginning at petal fall. Female moths lay eggs on or near developing apples. After hatching, larvae continue their development as they tunnel into the center of the apple. As the larvae feed, "frass", or fecal matter, is pushed out and may accumulate around the entry hole. The larval entrance holes, called



stings, allow bacteria and fungi to enter the apple, resulting in fruit rot during storage.



Apple Maggot

Apple maggot flies emerge from June to September. The female fly deposits eggs just under the skin of the apple, causing the fruit to take on a dimpled, lumpy appearance. Maggots hatching from these eggs feed on the fruit, leaving brown trails through the



flesh of the apple. As the maggots mature, the tunnels begin to decay, causing the apple to soften and rot. If left uncontrolled, the apple maggot will build up to large populations, devastating an orchard.



Plum Curculio

Adult plum curculio beetles, pictured above, emerge in the spring, around apple



bloom, to feed on apple buds, flowers, leaves and young fruit. Female beetles cut



holes in the young fruit and deposit one egg in each cavity. These sites are easily identified by their crescent shaped cuts. Unlike codling moth, the larvae of plum curculio rarely cause damage to the fruit. The fruit is primarily damaged superficially by the egg-laying and feeding by the adults.

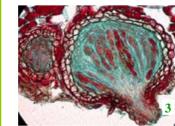


Apple Scab

Apple scab is the most common and economically damaging apple disease in the Midwest. In the spring, apple scab fungal spores germinate in water on the surface of apple fruits and leaves. Brown to olive green



spots appear at the site of infection. If left untreated, these 'scabs' will mature, produce more spores and likely re-infect the tree. With enough moisture, the cycle will continue through the growing season, with the potential to destroy an entire crop.



THE GREEN SOLUTION

INTEGRATED PEST MANAGEMENT

Everyone likes to eat apples... including over 70 insects and a long list of fungi and bacteria. To produce good-looking tasty apples, we have to control pests.

Integrated Pest Management (IPM) is a system of pest control that uses a wide range of techniques to control pests while minimizing economic, health and environmental hazards.

The Wisconsin Eco-Apple Project is a team effort to help apple growers learn and implement IPM strategies. Our orchard is a member of the Lake Superior Eco-Apple Network.

Biological Control

Some organisms benefit the orchard by killing and reducing the number of harmful pests. Growers can identify and protect these beneficial organisms to reduce pest populations.

Live with It

Apple trees can tolerate a certain amount of damage from pests without a serious impact on crop yields. Determining these thresholds is an important aspect of IPM.

Cultural Controls

These are preventative measures to minimize infestations. They include, but are not limited to:

- pruning trees to remove infected branches and increase air flow
- provide trees with adequate fertility
- fruit thinning
- removal of weeds and alternate pest hosts

Pest Monitoring

Growers determine the presence and populations of pests through close observation. A number of methods are used for pest monitoring, including:

- trapping insects to estimate their population size
- sampling leaves for the presence of disease
- monitoring rainfall and temperature to predict when an outbreak may occur

Responsible Chemical Use

We spray only when necessary—when the economic loss of damaged apples or trees exceeds the cost of spraying.

Pest Resistant Varieties

Some apple varieties are resistant to certain pests or disease. Planting these trees can prevent or minimize an infestation.

