

# Down the Garden Path

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## YARD

### Scab of Apples and Crabapples

Karen K. Rane, Plant Disease Diagnostician

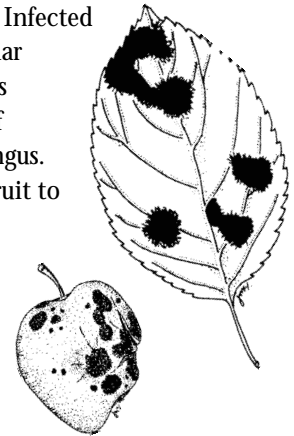
Flowering crabapples are among the most popular small trees for home landscapes. Their spring flower display, colorful fruit, and compact growth habit make crabapples a desirable addition to any landscape design. However, many crabapple trees are susceptible to a fungal disease which can transform this attractive tree to a mass of virtually leafless branches. The disease is called apple scab, and it is one of the most common diseases in the United States. Scab is also a serious disease of apples in home and commercial orchards.

The first indication of infection is the development of circular, velvet-like spots on the leaf surface. The spots are black or olive-green in color, and are often arranged along the veins of the leaf. As infection progresses, the margins of the spots develop a fringed appearance. Infected leaves will turn yellow and drop from the tree. Foliar symptoms are first observed in mid-spring, and trees can be defoliated by early to mid-summer. Fruits of apple and crabapple can also be infected by this fungus. Fruit symptoms are black, scabby spots that cause fruit to be misshapen, cracked, or dwarfed.

Apple scab is caused by the fungus *Venturia inaequalis*. The fungus survives the winter months in fallen infected leaves. Spores are produced in the leaf debris in the early spring and are carried by air currents to newly developing leaves and fruit where infection occurs. Spores are then produced from these leaf and fruit spots, enabling the fungus to cause new leaf spots throughout the summer and fall. Water is a critical requirement for infection; the spores need a film of water on leaves or fruit to be able to germinate and penetrate the host tissue. Therefore, scab is more severe in wet weather, and is less damaging when spring weather is dry.

Management of apple scab involves a combination of steps. Resistance is the most effective means of avoiding this disease. Many newer cultivars of apples and crabapples are highly resistant to scab. Under favorable environmental conditions, even resistant trees will develop some scab infections, but the severity of disease symptoms will be much less than in susceptible cultivars. Unfortunately, many older cultivars planted in landscapes are very susceptible to this disease.

Raking and destroying fallen leaves infected with the scab fungus will help to reduce the amount of spores produced the following spring. Be sure to rake leaves before they become dry and brittle; raking dry leaves only breaks them



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into smaller pieces and does not significantly reduce the amount of fungus that will overwinter. Prune apple trees in late winter to “open” the canopy. This encourages air circulation and rapid drying of leaf surfaces after rain events, reducing the amount of time in which conditions are favorable for infection.

Fungicide sprays are recommended for susceptible apple and crabapple cultivars. The most important time to apply fungicides for scab control is from April to early June. Since many fungicides are protectants, it is important to maintain adequate coverage of expanding leaves to significantly reduce spring infections. Three or four sprays every 7 to 10 days may be needed to provide this protection. There are a number of general purpose fruit sprays that contain fungicides effective against apple scab in home orchards; however, these must not be used during bloom since insecticides harmful to bees are components of these general purpose products.

For more information on apple scab and resistant apple and crabapple cultivars, please refer to the following Purdue Cooperative Extension Service Publications: BP-1 *Apple Scab*, BP-39 *Scab of Flowering Crabapples*, BP-40 *Crabapples for the Home Landscape*, and ID-146 *Controlling Pests in Home Fruit Plantings*. These publications are available from your county extension office or the Media Distribution Center (301 S. 2nd St., Lafayette, IN 47901-1232; 317-494-6794). ©

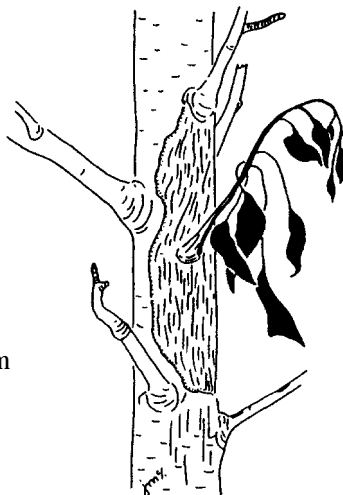
## Fire Blight

Gail Ruhl, Plant Disease Diagnostician

Fire blight is a serious bacterial disease that is most damaging in years when above normal spring temperatures are coupled with frequent rains during the blossoming period. The bacterial pathogen, *Erwinia amylovora*, infects about 75 different plant species, all in the Rosaceae family. Trees most severely affected in Indiana include many varieties of apple and pear, susceptible crabapples, mountain ash, hawthorn, cotoneaster, and pyracantha. Fire blight was also recently confirmed on a blackberry sample that came into the Plant and Pest Diagnostic Lab. This disease may appear as a blossom blight, shoot blight, or branch and trunk canker. Infected blossoms wilt and turn brown to black. The bacteria may move from the blossoms, down the pedicel, and into the fruit spur. Leaves then wilt, die, turn brown to black, and usually remain attached to the tree for the summer. Shoot blight is easily recognized by the rapid dieback of shoots. Often the tip of the shoot bends over to resemble a shepherd's crook. If the infection continues down a shoot or flower spur into a larger branch, then a canker may form. The canker is often sunken, with darkly colored bark.

The pathogen overwinters in cankers on the trunk and branches. In the spring, droplets of sticky, amber-colored bacterial ooze form from these cankers. Insects and splashing rain spread the bacteria from the droplets to blossoms and twigs. Warm weather and rain during the flowering period are optimal for infection to occur.

Dead wood and cankers should be pruned from the trees during the dormant season. The bacterium prefers to infect young, succulent tissue; and pruning while the tree is actively



growing encourages an abundance of succulent tissue. When pruning and removing infected wood, make pruning cuts at least 10 inches beyond the last point of visible infection. After each pruning cut, it is important to sterilize the pruning shears to prevent spreading the bacteria from limb to limb. You can disinfect your tools by dipping them in a freshly made solution of 1 part liquid bleach added to 9 parts of water. However, be sure to rinse your tools thoroughly with water before putting them away to prevent corrosion from the bleach. Pruning shears may also be dipped in a solution of 70% denatured alcohol or 5% Lysol. For the same reason, avoid heavy applications of fertilizer, which also promote succulent growth. Fruit trees susceptible to fire blight should not be stimulated to develop excessive new growth.

For effective chemical control, sprays must be applied during bloom. The following control measures are provided as information for next season.

Streptomycin is a bactericide that must be applied every 4 days during the blossoming period. It is labeled for use by the homeowner on apple, pear, and crabapple, starting when 10 to 20 percent of the blossoms are open.

The preferred management practices for homeowners are proper pruning, balanced fertilization, and planting resistant varieties. Good control of sucking insects is also important if blight is a problem. ©

## OVER THE BACK FENCE

**Q:** What is wrong with my white oak trees? Many leaves are deformed and appear to be shredded. The tops of the trees appear thin and I can see through the canopy. Are my trees going to die?

**A:** We have received quite a few white oak samples this spring which exhibit the symptoms you have

described. The name of this problem, which periodically appears on white oaks is "tatters". It appears to be more severe following a cool, wet spring. Upon initial inspection the leaves look as if they have been shredded or severely fed upon by insects. However, a closer observation of the leaves will reveal that the leaf tissue has not been removed; rather, it appears to have been injured in the bud, preventing normal leaf development. Second flushes of growth should appear normal.

As of this date, the cause for this malady is unknown. Feeding injury by insects (most likely leafhoppers or plant bugs) during the bud stage, as well as the possibility of cold temperature or frost damage, have been implicated, but not proven. The effect on tree vigor has not been substantiated. It is possible that yearly reoccurrence on oaks may cause eventual tree decline. --Gail Ruhl ☺

## HOME

### Who is Getting Zapped by Bug Zappers? Us or them?

Linda J. Mason and Tom Turpin,  
*Extension Entomologists*

All across America the signs of summer are evident. Birds are busy building nests while homeowners are engaged in another suburban ritual known as "hanging the bug light." Illuminating the bug light heralds the onset of summer as surely as lighting the tree signals the Christmas season.

Although they vary in size and shape, all bug lights have a singular purpose... insect incineration! The device functions by using ultraviolet light to attract insects. Many night-flying insects are lured to light, but ultraviolet is the most attractive of all wavelengths. Modern technology has combined this light with open electric wires to form bug killing devices known as bug zappers, bug lights (not to be confused with that popular beverage Bud Lite), or bug killers.



Humans flock to these devices as moths circle a flame because bug lights kill insects. However, research has shown that the insects most homeowners are trying to avoid are not affected by these electrifying devices. Most female mosquitoes (the ones that bite) are not attracted to the light. Many junebugs are killed, but many more miss the trap. Subsequently, they land on vegetation in the area and lay eggs in the soil. These hatch into grubs that will feed in the lawn.

Generally, most insects killed in the light traps would not have been there if the light had not been hung in the first place. By using light traps we attract insects. So why do we buy these devices? Because we like to kill insects. There just is something pleasurable about the snap, crackle, and pop of an insect being fried on the wires.

For many folks, nothing compares to sitting in a porch swing on a summer evening listening to insects commit suicide in a bug light. However, this summer, give your neighbor the bug zapper. That way you know your insects are being attracted to the neighbor's house and they (the insects - not your neighbor) won't be bugging you! ☺

## THE GRAPE VINE

### Castor Oil for Mole Control

*Bobby Corrigan, Vertebrate Pest Specialist*

Recently, there has been some publicity regarding the use of castor oil and detergent for use as a repellent against moles. One product, Mole-Med, has been tested in field trials by Michigan State University. They report mole repellency in 26 out of 27 trials. However, it should be kept in mind that although field trials can provide us with helpful insight from time to time, formal efficacy tests, subject to peer review and acceptance in the scientific literature is the most reliable means by which to evaluate new technology. This is especially true when we consider chemicals that will be added to our environment that may affect animal behavior. The formal scientific process also helps to prevent us from wasting money, time, or causing unintended damage to the environment.

Several questions and considerations are important regarding the use of castor oil and detergent in the turf grass environment where people, companion animals, wildlife, and important soil organisms reside.

#### Regarding the turf environment:

1. Repellents are in fact, one type of pesticide. What are the negative effects of castor oil/soap on the earthworms, insects, and other invertebrates and microbes present in the soil?
2. Are there any adverse consequences on plant life? Horticulturalists, turf specialists, and agronomists should be consulted.
3. The field studies of MSU also report that Mole-Med caused the local wildlife to stop interacting with the treated area. Is the treated turf safe for children, wildlife, and pets? Is the local, desirable song bird community affected?
4. Does the yard smell like castor oil?

## WHAT'S NEW

The Plant and Pest Diagnostic Lab at Purdue University now has a "place to visit" on the World Wide Web! For those of you who have access to a World Wide Web viewer, visit the new "Virtual Plant and Pest Diagnostic Laboratory" at the following location:

<http://www.aes.purdue.edu/ppdl/p&pdlwww.html>

--Terry McCain ☺

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### Regarding mole repellency:

1. All the scientific literature to date regarding moles does not support the use of repellents against moles.
2. Mole-Med claims to repel moles and prevent damage. Does this include deep tunneling as well, and does it eliminate the mounding from deep tunnel construction? Does the mole evacuate the area, or simply stop using the upper portions of the soil temporarily?
3. The treatment is said to last only 30 to 70 days, and may need to be reapplied after rain. Consider that moles may live for 3 to 5 years. Is the homeowner to consider applying the oil once a month, March-October, and after every rain storm in the spring and summer? Is this practical? Considering the spring of 1995, how many re-applications might be required?
4. The MSU report states that it may take 3 to 7 days for repellency to occur. Thus, this is three to seven days of damage while waiting for something to happen. One or two months later, will the property owner have to sustain another 3 to 7 days of damage before repellency takes affect?
5. If the time spent making applications of this liquid results at best in a repellency effect, then this same amount of time (or less) could be used to trap or live capture the mole and eliminate the source of the problem. If for example, pregnant females are only repelled, the population grows. Therefore, the trapping or removal of pregnant females is certainly the most cost-beneficial on a long-term basis.
6. One professional mole trapper, who has trapped thousands of moles over the past 8 to 10 years claims to have been repeatedly hired to trap moles by people who tried unsuccessfully to repel the moles with castor oil treatments.
7. The new EPA registration for the Mole-Med product is currently good for only one year. Perhaps it would be prudent to be patient and see if the product survives a registration renewal.

Personally, after having worked with moles for the past 15 years, and after having studied all the literature on mole behavior, damage, and control, I still believe traps or live-removal are the most cost-effective approaches to mole control. For homeowners, who do not have the time or interest in this approach, many wildlife control companies now offer mole trapping services at reasonable costs. Consult the yellow pages. ☺

