Horticulture 2011 Newsletter
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Video of the Week:  Peppers: Hot to Mild

FRUIT

The Peach Crop

Several weeks ago I wrote about using Freeze-Pruf to protect fruit blossoms from frost, but we did not have a frost to test the effectiveness of the product. We will have to wait until next year to see how well it works.

Even though we did not have a frost during bloom, we had some extremely cold temperatures (5 to 10 degrees F below zero) during the winter. Those temperatures are cold enough to damage peach buds. Though both my Redhaven and Intrepid peaches bloomed well this year, only the Intrepid set peaches. I believe the Redhaven suffered enough cold damage to the fruit buds during the winter that it was unable to set fruit. Intrepid is touted as being tolerant of spring frosts during bloom. It appears that the buds are also resistant to low winter temperatures. (WU)

ORNAMENTALS

Dothistroma Needle Blight on Pines

If you are having problems with the needles on pines turning yellow, check for Dothistroma Needle Blight (Mycosphaerella pini). This fungal disease causes the tips of needles to turn yellow, and yellow to tan bands to form along the needle. The black fruiting bodies have erupted through the surface of the needle. Needle blight is most serious on Austrian and Ponderosa pines and also can affect Mugo pines. Scots pine is considered resistant.
Unfortunately, there can be other causes of yellowing needles. Brown spot (Scirrhia acicula) looks a lot like Dothistroma but affects primarily Scots pine. Ponderosa pine also is susceptible to brown spot, but Austrian pine is resistant.

Winter desiccation can cause these same needle-yellowing symptoms, including banding, but does not exhibit the black fruiting bodies.

Tip blight can affect Austrian, Ponderosa, Scots, and Mugo pines, but Austrians are most susceptible. This disease normally kills tips of branches when the needles are about half grown in the spring. This disease results in the death of the entire needle, not just the tips. If the tips of branches are dead and the needles on these branches are shorter than normal, suspect this disease.

Some copper-containing fungicides can be used for control of Dothistroma needle blight. A single fungicide application in early June normally will protect foliage from infection. There is some risk in a single application because susceptible older needles are not protected in late May. Two fungicide applications in mid-May and mid- to late-June provide a more complete and dependable control.

Make sure all needles are covered thoroughly covered with the fungicide. It is a good idea to spray adjacent susceptible pines. It may take multiple years of application to bring the disease under control. Copper fungicides are suggested for control such as Junction, Kocide, Camelot, Bordeaux mix, Bonide Liquid Copper Concentrate, and Monterey Liqui-Cop. Collection and removal of diseased needles on the ground around individual trees may reduce the severity of infection the following year. Nevertheless, sanitation probably will not eliminate the disease because diseased needles bearing fruiting structures of the fungus sometimes remain attached to the tree. Removal of dead needles is impractical in windbreak plantings.

If you are unsure which problem you have, now would be a good time to take a sample to your local K-State Research and Extension office so they can send it to the K-State Plant Pathology Lab for positive identification. Copper fungicides are recommended for control. (WU)

**PESTS**

**Maple Bladder Gall Mite**

Bright red bladder-shaped growths on the top of maple leaves are evidence of the maple bladder gall mite. Adult mites that have overwintered beneath bark and bud scales on host trees move to newly developing leaves and begin feeding. The pouch-like galls develop in response to this feeding activity. Initially, the galls are green but gradually turn red and then black. Adults deposit eggs in the galls as they feed. Eventually, the adults and their
progeny will leave the gall in search of newly forming leaves so they can continue the cycle. Mite activities decrease as summer heat arrives.

The galls may be unsightly but do not damage the maple trees. Therefore, the need for control is questionable. Also, spraying must start before the galls are formed to be effective. If control is still desired, use a dormant spray before the leaves open in the spring. Alternatively, use insecticidal soaps as the first leaves unfurl with a follow-up treatment 10 days later. (WU)

**Soon to Come Miller Moths**

Over the past couple of weeks, I have noticed an occasional miller moth scooting about seeking cover or captured in a blacklight trap. Moth activity should increase soon.

Miller moth is an umbrella term used to describe various moth species with powdery/dusty wings. Because nearly all moth species have wings covered with scales, what moth, then, could not be categorized as a miller moth? Miller moths active now are army cutworm moths. Although often described as plain-looking brown moths, they actually have intricate and distinctive wing markings.

There is considerable variation in the appearance of army cutworm moths. Five morphological forms exist. To add to the variety of appearances, female moths appear somewhat gray, while males tend to be more brown.

Each year in the central plain states, overwintered army cutworms complete feeding activities in early spring, and then pupate toward the end of April and beginning of May. By mid-May, most moths have emerged and become a nuisance. They seek cover in any conceivable space. Getting into a car with windows left open overnight, opening a trash dumpster, or passing a line of shrubs, one might encounter a flurry of excited moths. In homes they leave wing scales behind curtains or sheers.

Because moths can exploit very small openings, it is almost impossible to exclude them from homes or buildings. But they are a nuisance for a short time. As if by magic, moths quickly disappear. On an unknown cue, moths from the entire central plains region form massive westward flights to the Rocky Mountains. There they feed throughout the summer at cooler higher elevations, mature, and accumulate fat reserves. By fall, moths migrate back to the central plains. Each female moth is capable of producing between 1,000 and 3,000 eggs. Larvae emerge and begin feeding. Partially grown larvae are the overwintering stage of the species.

Another interesting tidbit about army cutworm moths: Grizzly bears love them. During summer
months, bears move to the higher elevations to feast on army cutworm moths. A single moth possesses ½ calorie of fat content. It has been estimated that bears obtain 20,000 calories of fat daily by consuming 40,000 moths per day. (BB)

MISCELLANEOUS

Insecticides: What’s New in the Market Place?

Two new insecticide products were released by Bayer Advanced (Research Triangle Park, NC) this year for use by homeowners in gardens and landscapes; these are All-In-One Rose and Flower Care, and 12-Month Tree and Shrub Protect and Feed. The All-In-One Rose and Flower Care product contains three active ingredients: tebuconazole (1.06%), imidacloprid (0.11%), and clothianidin (0.05%). Tebuconazole is a systemic fungicide with activity against foliar fungi including black spot, powdery mildew, and rust. The other two active ingredients are systemic insecticides. The product is a granule that once applied to the soil/growing medium needs to be irrigated so that the active ingredients can move through the soil/growing medium profile where they can be absorbed by plant roots. After the active ingredients are absorbed and translocated throughout the plant, the product claims six weeks of protection against certain foliar fungi and a variety of insect pests including aphids, caterpillars, leaf beetles, leafhoppers, leafminers, mealybugs, scales (soft), thrips, and whiteflies. It is important to apply this product when plants are actively growing and remove any mulch because mulch and organic matter may bind to imidacloprid and clothianidin thus inhibiting absorption by the roots.

The 12-Month Tree and Shrub Protect and Feed contains two systemic insecticide active ingredients: imidacloprid (0.55%) and clothianidin (0.275%). In addition, the product contains a fertilizer [2-1-1 (N-P205-K20)]. This insecticide is labeled for “control” of aphids, borers, caterpillars, leafhoppers, leafminers, mealybugs, scales (soft), thrips, and whiteflies with claims of 12 months of protection. The product is a granule so that once applied, irrigation is required in order to move the active ingredients through the soil or growing medium profile where they can be absorbed by the roots. As with All-In-One Rose and Flower Care, it is important to apply this product when plants are actively growing and remove any mulch because mulch and organic matter may bind to imidacloprid and clothianidin, inhibiting root absorption.

The two insecticide active ingredients, imidacloprid and clothianidin, contained in both products, are neonicotinoid-based systemic insecticides. Of the two, imidacloprid is well-known because it has been around since 1995 (sold commercially under the trade name Merit®), and the patent has expired, which means that imidacloprid may be present in many different generic products. Imidacloprid, like all neonicotinoid-based insecticides, is primarily active against phloem-feeding insects, certain leaf-chewing beetles, and wood-boring insects. But it has minimal activity on caterpillars and mites. The other neonicotinoid-based insecticide, clothianidin, is less known having been around since 2002; however, this active ingredient, depending on the rate applied and concentration in leaf tissue, has activity on caterpillars, which is the main reason certain caterpillar pests are included on the labels of both products. Although clothianidin is less water-soluble than imidacloprid (0.32 vs. 0.61 g/L at 20°C) it has a higher binding affinity to the nicotinic acetylcholine receptors, which are the target sites of the
neonicotinoid-based insecticides. Clothianidin is rapidly absorbed by plant roots because of the lipophilicity of this active ingredient. Lipophilicity refers to the ability of compounds to dissolve in fats, oils, and lipids. Compounds that are highly lipophilic are generally not systemic, whereas compounds that are either moderate or intermediate in lipophilicity are able to move through the xylem (water-conducting tissues) to plant shoots. Also, root absorption is greater when compounds are more lipophilic. Clothianidin is taken up rapidly in the transpiration stream, which is responsible for water movement through plants, and may accumulate at higher concentrations in plant parts and tissues than other neonicotinoid-based insecticides. Clothianidin also has been shown to be evenly distributed within the entire leaf lamina. All of these factors may be associated with the activity of clothianidin against caterpillars and other insect pests. As always, read the label of both pesticides before making an application to determine recommended rates and understand what procedures are required in order to enhance the efficacy of these products in preventing and alleviating infestations of insect pests.

Walnut Wilt

Tomato, potato, blackberry, apple, lilac, asparagus, chrysanthemum, peony, and other herbaceous and woody plants can be afflicted with a disorder known as walnut wilt. Other plants such as black raspberry, corn, bean, carrot, dandelion, and zinnia are resistant. This malady is associated with root uptake of a chemical called juglone that is produced by several species of trees in the walnut family, including black walnut, Persian walnut, butternut, and pecan. Juglone is formed in the leaves, fruit hulls, inner bark, and roots of the walnut and is leached or released into the soil. This chemical has fungicidal and insecticidal properties. It also is quite toxic to many plant species and induces wilting and stunting. The ability of plants to produce and release chemicals that are toxic to other plants is called allelopathy. The severity of the juglone toxicity partly depends on the proximity of the plants to a walnut tree.

Generally, tomatoes growing next to a walnut tree abruptly wilt and die in early to mid-summer. Those plants growing a short distance away may not be killed but become flaccid and stunted. The woody stem tissue of affected plants turns brown. The symptoms of walnut wilt closely resemble those of Fusarium and Verticillium wilt, but the disorder may be distinguished from the other wilts by the constant association of walnut trees with the wilting symptoms.

Juglone may be leached from leaves and nuts into the soil during rain or released from roots. The chemical is highly reactive and quickly inactivated in the soil. The major uptake of the toxin occurs when tomato roots make contact with the roots of the walnut.

Tomatoes or other susceptible plants should not be grown near black walnut or other trees that produce juglone. The removal of walnut trees may not have an immediate effect because the toxin can persist in the inner bark of roots for several years. Do not plant tomatoes for at least two years after removing walnuts. (WU)
Moving Houseplants Outside for the Summer

It is often helpful to set many houseplants outside for the summer so they can recover from the low light levels endured during the winter months. As soon as night temperatures stay consistently above 55 degrees F, houseplants can be moved to their summer home. Choose a spot that has dappled shade, is protected from the wind and is close to water. A porch or a spot that receives shade from trees or buildings will work well. Putting houseplants in full sun will cause the leaves to photooxidize or sunburn because the leaves have become adapted to low light levels inside the house. Where possible, sink the pots into the ground to help moderate root temperatures and reduce watering frequency.

If you have a number of plants, dig a trench 6 to 8 inches deep (or deeper if you have larger pots) and long enough to accommodate all of your plants without crowding. Place peat moss under and around the pots. Peat moss holds water, helps keep the pots cool and reduces evaporation from clay pots. About every two weeks, rotate the pots a quarter turn to break off any roots that have penetrated the peat moss surrounding the pot and to equalize the light received on all sides of the pot. Water as needed. If the potting soil is dry a half-inch deep in the pot, it is time to water. (WU)

Rabbits in the Garden

Rabbits in gardens are a perennial problem because of the wide variety of plants they can feed on. This time of year, they gravitate to young vegetables and flowers. But there are some vegetables that are rarely bothered including potatoes, tomatoes, corn, squash, cucumbers, and some peppers. The question is how do you protect other, more susceptible plants? Fencing provides a quick and effective control method. The fence does not need to be tall; 2 feet is sufficient. But the mesh must be sufficiently fine (1 inch or less) so young rabbits will not be able to go through it. Support for the fence can be supplied by a number of products, but electric fence posts work well.

Often fencing is not an acceptable choice because it affects the attractiveness of the garden. Other ways to control rabbits including repellents, trapping and shooting. Repellents are often suggested for control but often do not last long and require frequent reapplication. Also, many are poisonous and cannot be used on plants or plant parts destined for human consumption.

Live traps can be used to collect and move the rabbits to a rural area several miles from where they were trapped. A number of baits can be used to entice the rabbit to enter the trap including a tightly rolled cabbage leaf held together with a toothpick. However, rabbits often avoid baits if
other attractive food is available.

Another possibility is to use a motion-activated sprinkler. These are attached to a garden hose and release a short burst of water when motion is detected. Contech and Havahart are suppliers and both are advertised as protecting up to 1,000 square feet.

Shooting is another possibility when it is safe and legal to do so. (WU)

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