UNIVERSITY OF ILLINOIS EXTENSION
HOME, YARD & GARDEN PEST NEWSLETTER
College of Agricultural, Consumer and Environmental Sciences, University of Illinois at Urbana-Champaign
Illinois Natural History Survey, Champaign

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# INSECTS

## Cool-Season Mite Complex

About now, a complex of mites attacks conifers and broadleaf plants. These mites prefer the cooler weather of spring and late fall. Though feeding occurs in spring, symptoms may be expressed in summer when plants are stressed. Mites normally remove chlorophyll (green pigment) from leaves or needles, resulting in flecking/stippling or browning. Webbing may be present. The most destructive conifer-feeding mite is the spruce spider mite, *Oligonychus ununguis*, which feeds on conifers such as spruce, arborvitae, hemlock, juniper, Douglas fir, and some pines. Their piercing–sucking mouthparts remove chlorophyll from leaves or needles. Injured foliage generally looks bronzed to brownish.

Adults are oval, about 1/60-inch long, and black, red, or tan; nymphs, light gray–green. Round, brown eggs are laid under bud scales or in axils of needles. Overwintering eggs are laid on plants September to November. Eggs hatch into nymphs. Spruce spider mites are present in high numbers from April to mid-May; they may be present in June in northern Illinois. It takes about 3 to 6 days to go from egg to nymph. All active stages primarily feed on needles, preferring older ones. There can be three generations per year.

Presence of spruce spider mite can be verified by knocking them off branches onto white paper, where they are easily visible. They produce a green streak when smeared. Red streaks indicate predatory mites.

Managing spruce spider mite involves proper cultural practices, such as watering and fertilizing to minimize stress, and using pest-control materials. These include bifenthrin (Talstar), dicofol (Kelthane), dimethoate (Cygon), summer oil, or insecticidal soap. Each works only by contact, so thorough coverage is important. Improper use can lead to mite outbreaks because it may kill the mites' natural enemies. If feasible, use a hard stream of water to remove mites from plants as this approach is less harmful to natural enemies. Be careful when using summer oils because they may discolor blue-needled conifers.

Another group of mites, eriophyids, damages plants early although they are not restricted to the cooler times of year. Eriophyid mites, also known as blister, bud, gall, and rust mites, are extremely tiny (less than 0.3 mm long), microscopic worm- or spindle-shaped mites, resembling cigars, with head and legs on one end. Eriophyids have two pairs of legs, a unique characteristic among mites (all other adults have four pairs). They cannot be detected with the unaided eye.

Eriophyid mites are a specialized group of plant feeders. Many feed on a few closely related species or genera. An attachment on their hind end allows them to hold on to the plant. They feed deep within the plant tissues, sucking out juices with their styletlike mouthparts and transferring a substance that deforms plant growth. Feeding generally results in densely packed or distorted growth that looks rough. However, it can result in galling, clustering or witches'-broom, swollen or thickened growth, leaf blistering, and russeting or bronzing of leaves.

Eriophyid mites tend to live together in large numbers and reproduce within the folds of plant tissues. Spherical eggs are generally laid in groups but can be laid individually. They hatch in under 2 weeks into young mites that take about 2 weeks to a month to mature into adults. Reproductive potential of eriophyid mites is very similar to twospotted spider mite. A female lays up to 100 eggs.

Eriophyid mites may be classified into either foliar-feeders or gallmakers. Hemlock rust mite is a foliar-feeding mite, *Nalepella tsugifoliae*. It feeds on pine and hemlock needles. High mite populations can cause leaves to turn blue, then yellow-brown before they drop. It is primarily a pest in the spring, less so in summer. An example of a gall-making eriophyid mite is ash flower gall. Feeding by ash flower gall, *Eriophyes fraxiniflora*, causes a proliferation of flower buds, disfiguring male flowers with galls that turn brown in late summer. Mites overwinter as adults in the bud scales. Ash flower gall is normally a springtime pest.

Managing eriophyid mites is hard, as they usually go undetected until too late to prevent damage. Once noticed, they are established within the plant. As a result, preventive miticide sprays are needed. However, the number of effective miticides for controlling

eriophyids is limited. Pest-control materials that may be effective include endosulfan (Endosulfan), dicofol (Kelthane), and abamectin (Avid).

An important management strategy, even if applying pest-control materials, is to dispose of plants or prune portions showing symptoms. *(Raymond Cloyd)*

### Scouting Watch

There are a number of early spring pests that you should be scouting for. Many appear on deciduous hosts as soon as leaves start to appear.

Eastern tent caterpillar appears as small, dark larvae grouped in silk tents in twig crotches when crabapple, wild cherry, hawthorn, and other host leaves are about half expanded. As larvae grow, they develop a broad, light stripe down the back and other markings but are dark overall. On cool or rainy days, they will be inside the silk tent and are removed when the tent is removed by hand or pruning. *Bacillus thuringiensis kurstaki (B.t.k.,* Dipel, Thuricide) and other insecticides applied to the foliage are also effective.

Cankerworms hatch from eggs as leaves emerge on crabapple, honey locust, elm, hackberry, and other hosts. They have fewer prolegs than other caterpillars, causing a looping or inchworm-like movement. Attacked trees appear slow to leaf out because the larvae eat the leaves as they expand. Detect cankerworms by sharply striking the branch. This dislodges many of the green to brown larvae, and they will hang from the branch on silk threads. *B.t.k.* and other insecticides sprayed on the foliage control them.

European pine sawfly larvae appear early in the spring in groups on the needles of scotch, mugo, and other pines. They eat the second- and third-year needles but do not feed on the developing candle. Heavily attacked branches are not killed but have only a tuft of the current year's needles at the end of the branch. Although the dark- and light-green striped larvae look like caterpillars, they are not. Therefore, *B.t.k.* (as noted) is not effective; but carbaryl (Sevin), acephate (Orthene), and other chemical insecticides provide control. Hand removal of larvae also works.

Hemlock rust mite, discussed in the mite article, has been found in northern Illinois by Don Orton, Illinois Department of Agriculture. Thus, they will be present throughout the state.

Northern pine weevil and Pales weevil can still be treated in northern Illinois with trunk drenches and seedling sprays of chlorpyrifos (Dursban). In central and southern Illinois, some control can still be obtained by spraying seedlings. *(Phil Nixon)*

## PLANT DISEASES

### Maybe the Plant Clinic Can Help!

Most larger land-grant universities have plant clinics, which have evolved to handle most plant problems or to refer clients to specialty labs. Services at the University of Illinois Plant Clinic in Urbana include plant and insect identification; diagnosis of disease, insect, weed and chemical-injury symptoms (no chemical-residue testing); nematode assays, and help with nutrient-related problems, as well as management recommendations involving these diagnoses. The clinic cannot handle herbicide-injury problems on ornamental plants nor can it assess nutrient levels in tissue or soil samples. For specific needs, call first, and we can determine if we can help or if you should use another lab. The purpose of the Plant Clinic is to provide an unbiased analysis at an affordable price.

The UI Plant Clinic operates from May 1 to September 15. The budget is supported in part by user fees, which have not changed since 1999. A check made payable to the University of Illinois must accompany each sample. There is no discount or free service for University employees or alumni.

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| General diagnosis (including cultures) | $12.50 |
| Specialty tests (SCN, PWN, ELISA)* | $18.75 |
| Other nematodes (usually corn) | $40.00 |

*SCN indicates the test for soybean cyst nematode. PWN indicates pinewood nematode analysis. ELISA is a technique used to obtain quick and accurate assays for a few specific pathogens. If you are in doubt as to the charge, call the clinic at (217)333-0519. Forwarding samples to other labs requires client approval.

Send a specimen data form or equivalent information with a plant sample. In a few cases, the exact cause of the problem may be obvious; but usually it is necessary to perform microscopic work, culturing, and consulting with specialists to complete a diagnosis. A thorough diagnosis is directly related to quality of the sample and type of information provided. Take the time to include as much information as possible to avoid additional sampling. Each UI Extension office should have the clinic specimen data form. It is in the *Master Gardener Manual* (at the back of the disease section) and the *Field Crop Scouting Manual*, and at **http://www.cropsci.uiuc.edu/research/clinic/clinic.html.** Pictures (either tangible photos or electronic versions) are helpful.

The most limiting factor in accurate diagnosis is probably sample quality. Imagine what happens to a plant sealed in moist toweling, wrapped in plastic, and incubated in a mail truck at 100°F. It can be a moldy mess. When sending whole plants, wrap as if you intended them to be planted on arrival. Wrap soil and roots in plastic to keep them moist and foliage clean. **Do not wrap foliage in plastic**. If only leaves are sent, keep them dry and between cardboard. We can rehydrate dry material but cannot remove mold from rotted tissue. Send as much of the plant as possible, including affected as well as healthy tissue, carefully labeled. When in doubt, call (217)333-0519 or consult the "how to submit a sample" section of the Web page. Business hours are 8 a.m. to noon and 1 to 4:30 p.m., weekdays. By arrangement, you can drop off samples at other times. The mailing address is

Plant Clinic
1401 W. St. Mary's Rd.
Urbana, IL 61802

If you have a diagnostic need that we do not offer, call and discuss this with me or send a message to **npataky@uiuc.edu.** *(Nancy Pataky)*

## Pine Woes?

Recent warming has many enjoying gardening and the fresh outdoors. After clean-up and pruning chores are done, we often find ourselves waiting for danger of frost to lessen to start planting. I suggest that you take this time to inspect your pines. Two common disease problems should be addressed now, but be aware that they can be confused with other problems.

**Sphaeropsis blight** was discussed in the last issue. By now, you should have removed dead branches, dead branch tips, and fallen needles and pine cones. Be sure to keep those trees from drought stress. Another pine disease obvious now is **pine wilt**. It causes an entire, mature tree to die within a season. You may have noticed a favorite Scotch or Austrian pine turning pale green and then brown in a matter of months, and for no apparent reason: This is typical of pine wilt. The disease is caused by a nematode (microscopic round worm) introduced into the tree by the feeding of infested Sawyer beetles. The nematode remains in the wood, not in the roots as with field crops. It would be wonderful to stop this disease by controlling the beetle or injecting a miracle cure into the vascular system, but nothing is effective. We must remove pines as soon as they die to prevent spread of the pathogen to healthy trees. If you want to be sure these nematodes are present, sample the tree as you remove it, send the sample to the clinic with the appropriate fee, but get rid of the tree while you wait for results. This test is relatively quick (24 hours). Keeping the tree in the landscape lets the vector spread the nematode pathogen. Details can be found in *Report on Plant Disease* no. 1104, available in Extension offices or at **http://www.ag.uiuc.edu/~vista/horticul.htm.**

White pines are not affected by pine wilt; so if they are dying, it's something else. They have suffered in Illinois for many years due to hot, exposed, clay sites. Root rot may be involved with their decline: This is not an infectious disease but a problem of site and environmental stress.

If needles exhibit brown spots or brown tips, especially near the bottom of the tree, **Dothistroma blight** or **brown spot diseases** may be present. These are last year's infection. New needles should be protected from infection this spring. Watch for information about these diseases in the next issue.

Many pines along roadways have been showing browning of needles, usually only on the side facing the road. Such injury is usually attributed to **salt injury** from salty mist blowing on the foliage. New growth should have a healthy green color.

Some insect problems can cause pine injury too, so look for evidence of insect feeding, tunneling, or insects themselves in affected tissues. *(Nancy Pataky)*

## Peony Problems in the Past? Act Now!

About midsummer I get complaints of diseased peonies. Although cultural measures can help plant vitality then, that's too late to apply fungicides for leaf diseases of peony. Now is the time to apply them. I am not advocating that all peony plants should be sprayed. Read on and determine if your plants are candidates for this type of help.

Peony leaf spots, leaf blotches, or measles start as small, circular, red or purple spots on the upper surface of young leaves just before the peony blooms. Later, the underside of leaves turns dull chestnut brown, while the upper surface appears glossy dark purple. With time, the lesions enlarge rapidly and may form large, irregular blotches, making affected plants unsightly. Stem and petiole lesions are initially short, reddish brown streaks. Stem lesions near the soil line become somewhat sunken or pitted and tend to merge and darken. Spots on all plant parts remain purplish or brownish red through the season. The disease occurs to some extent every year and is caused by the fungus *Cladosporium paeoniae.* It is most serious in large plantings, where plants are dense and grown closely together, and where old tops are not destroyed in late autumn or early spring.

Each fall (or in the spring before new growth starts), remove all old tops to ground level and

destroy, bury, or remove them from the garden. Mark your calendar now or you will likely forget to do this task. If you still see these symptoms every year on your peony and are tired of the weak, ragged appearance that results, then try a fungicide. Applications should begin when new shoot growth is 2 to 4 inches tall (**now)** and should be repeated per label instructions until flowers begin to open. Fungicide options are listed in either the *Home, Yard, and Garden Pest Guide* (new name for *Illinois Homeowners' Guide to Pest Management)* or the *2001 Illinois Commercial Landscape and Turfgrass Pest Management Handbook.* Since the homeowners' revision is not yet available, I will list those options. Homeowners can use thiophanate-methyl, a systemic fungicide sold as Bonide Bonomyl (not benomyl), Dragon 3336, or Ferti-lome Halt. They could also use mancozeb, which is a protective-contact fungicide, or copper sulfate (bordeaux), also a protective-contact type of fungicide. For more information on this disease, consult *RPD* no. 631, "Red Spot, Leaf Blotch of Peonies." Although some references list resistant varieties as an option, I could not find a list of such plants. Possibly nurseries have offerings. *(Nancy Pataky)*

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*Home, Yard, and Garden Pest Newsletter* is prepared by Extension specialists from the University of Illinois at Urbana-Champaign and the Illinois Natural History Survey. Information for this newsletter is gathered with the help of staff members, Extension field staff, and others. Karel Jacobs and Donna Danielson of The Morton Arboretum also provide information and articles.

Major authors are Phil Nixon, (217)333-6650, Fredric Miller, (708)352-0109, and Raymond Cloyd, (217)244-7218, entomologists; Nancy Pataky, (217)333-0519, plant pathologist; Bruce Paulsrud, (217)244-9646, pesticide applicator training; and Tom Voigt and David Williams, (217)333-0350, horticulturists. Phil Nixon is the executive editor of the *Home, Yard, and Garden Pest Newsletter*. This newsletter is written by faculty in the Department of Natural Resources and Environmental Sciences and the Department of Crop Sciences. The newsletter is edited by Mary Overmier, typeset by Oneda VanDyke, and proofread by Phyllis Picklesimer, all of Information Technology and Communication Services.

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