

INSECTS

Winter Educational Opportunities

The following educational meetings are available in November and December in and near Illinois. Meetings held after January 1 will be publicized in our November newsletter. Contact your local University of Illinois Extension office for other programs that may be useful to you. (*Phil Nixon*)

Turfgrass Conference—St. Charles, Illinois

The North Central Turfgrass Exposition will be held November 28 to 30, 2000, at Pheasant Run Resort in St. Charles, Illinois. Registration fee is \$95 for Illinois Turfgrass Foundation members and \$120 for non-members until November 14. After that date, fees are higher. One-day passes and trade show only passes are available as well. Contact the Illinois Turfgrass Foundation by fax at (312)201-0214.

Fruit and Vegetable Conference—Davenport, Iowa

On December 5, 2000, the Illinois-Iowa Fruit and Vegetable Conference will be held at the Holiday Inn in Davenport, Iowa. For more information, contact the Rock Island Unit Extension office at (309)796-0512.

Horticulture Conference—Davenport, Iowa

On December 6, 2000, the Bi-State Horticulture Conference will be held at the Holiday Inn in Davenport, Iowa. For more information, contact the Rock Island Unit Extension office at (309)796-0512.

Pesticide Applicator Training

University of Illinois Extension and the Illinois Department of Agriculture (IDOA) released both the commercial and private pesticide applicator training (PAT) schedules during the first week of November. All commercial, commercial-not-for-hire, and public operators and applicators should receive a renewal (one-year license) or retest notification letter and training clinic schedule from IDOA. In addition, all private applicators up for retest (three-year license)

should receive a retest letter from IDOA. In each case, exams are valid for three years.

This season, there are 28 commercial clinics and 146 private clinics statewide. Both clinic schedules (and much more!) can be viewed at the University of Illinois Extension Pesticide Safety Education Web site at <http://www.aces.uiuc.edu/~pse>. Private applicators, please contact your local University of Illinois Extension office to register for a clinic and to order study materials. All other operators and applicators should call the University of Illinois PAT Program at (800)644-2123 or (217)244-2123 to register for a clinic and to order study materials.

If you have never held a license or if you allowed your license to lapse, simply contact the appropriate office and register for a training and testing clinic. If you have questions about licensing, contact the IDOA at (800)641-3934. (*Bruce E. Paulsrud*)

2000–2001 Commercial PAT Clinics

Nov. 27–28: Springfield (GS, FC, GF, S, MOS)
Dec. 14–15: Urbana (GS, FC, S, GF)
Dec. 18–19: Peoria (GS, FC)
Dec. 20–21: Mt. Vernon (GS, FC, S, GF)
Jan. 3: Urbana (GS, D&R)
Jan. 4–5: Rockford (GS, T, O, ROW, MOS)
Jan. 16: DeKalb (GS, D&R)
Jan. 17–18: Peoria (GS, T, O, AQ)
Jan. 23–24: Collinsville (GS, T, O, ROW, AQ, MOS)
Jan. 25–26: Mt. Vernon (GS, T, O, MOS, ROW)
Jan. 29–30: Springfield (GS, T, O, ROW)
Jan. 31–Feb. 1: LaSalle (GS, FC, S, GF)
Feb. 8–9: Urbana (GS, T, O, ROW)
Feb. 15–16: Matteson (GS, T, O, ROW, MOS)
Feb. 22–23: Jacksonville (GS, FC)
Feb. 27–28: Willowbrook (GS, T, O)
Mar. 6–7: Streamwood (GS, T, O, ROW)
Mar. 12: Mt. Vernon (test only)
Mar. 13: Collinsville (test only)
Mar. 14: Peoria (test only)
Mar. 20–21: Willowbrook (GS, T, O, ROW, AQ)
Mar. 22–23: Crystal Lake (GS, T, O)
Mar. 26–27: Moline (GS, T, O, ROW)
April 2–3: Willowbrook (GS, T, O, ROW)
April 4: Skokie (GS only)

April 11: Mt. Vernon (GS only)

April 18-19: Hillside (GS, T, O, ROW, PM)

May 9: Springfield (GS only)

Key to Training Codes

AQ = Aquatic, D&R = Demonstration and Research, FC = Field Crops, GF = Grain Facility, GS = General Standards, MOS = Mosquito, O = Ornamental, PM = Plant Management, ROW = Right-of-Way, S = Seed Treatment, T = Turf

Dormant Oils: Their Role in IPM

Insects and mites normally survive the cool winter months as some type of overwintering stage, which may be an egg or mature female, and then emerge in the spring. Instead of waiting until spring to initiate control measures, it is possible to make applications of a dormant oil. The advantages of dormant oil include (1) wide range of activity against most species of mites and scales, including effectiveness on eggs; (2) minimal probability of insects or mites developing resistance; (3) tendency to be less harmful to beneficial insects and predatory mites compared to other insecticides with long residual activity; and (4) relatively harmless to humans, other mammals, and birds. The disadvantages of dormant oils are (1) phytotoxicity during the growing season and (2) less persistence and minimal residual activity.

Dormant oils, which are derived from paraffinic crude oil, are the heaviest of the petroleum oil sprays and have a low unsulfonated residue (UR). Unsulfonated residue is a measure of the level of phytotoxic compounds remaining after distillation and refining. A high UR (>92%) indicates a highly refined product with less probability of phytotoxicity. Dormant oils have a UR value below 92%.

Dormant oil sprays are directed primarily at killing the overwintering stages of pests such as mites and scales before they become active in the spring and can injure plants. Applications are made during the winter months to minimize phytotoxicity to plants. Generally a 2% to 4% rate is used in the late fall to early spring for killing insect and mite pests. Dormant oils suffocate insects or mites by blocking their breathing pores (spiracles). These are contact materials with minimal residual activity, so thorough coverage is essential.

Dormant oil sprays are generally applied to plant parts, which means that the pest overwintering stage is located on the plant. However, not all insect and mite pests overwinter on plants. For example, dormant oil will not work on the two-spotted spider mite, *Tetranychus urticae*, because the mite overwinters as

a female in plant debris, mulch, or other nonplant protected places. In contrast, the spruce spider mite, *Oligonychus ununguis*, does overwinter as an egg on plants, especially evergreens such as arborvitae, juniper, hemlock, and pine. As a result, this mite is susceptible to dormant oil sprays.

Dormant oils are highly effective in killing the overwintering stages of scale, primarily the first and second instar nymphs (for example, cottony maple scale, *Pulvinaria innumerabilis*). Similarly, euonymus scale, *Unaspis euonymi*, overwinters as second instars or mature females and is relatively easy to control with dormant oil sprays. However, those that overwinter as eggs such as oystershell scale (*Lepidosaphes ulmi*) and pine needle scale (*Chionaspis pinifoliae*) may be difficult to control. The eggs are generally stacked on top of each other, and the dormant oil may not contact the bottom layer. This means that additional sprays after egg hatch are generally required.

A concern with the use of dormant oils is phytotoxicity. Some plants such as arborvitae, beech, and certain maple species are very sensitive to dormant oil sprays. The needles of Colorado blue spruce can be discolored (change from blue to green temporarily) by dormant oil applications. Phytotoxicity is generally prevalent when higher rates (over 4%) are used and when applications are made in early fall (before dormancy) or late spring (at budbreak). Fewer problems occur when applications are made in later October through February when plants are completely dormant. A way to minimize potential phytotoxicity is to make sure that the spray solution is continually agitated. Dormant oils should not be applied to plants when there is a danger of freezing. In addition, dormant oils should not be applied to stressed plants. Stressed plants are susceptible to phytotoxicity. Lack of moisture, extreme temperatures, sudden change in temperature after spraying, prolonged winds, or poor conditions due to disease or insect infestation will predispose plants to phytotoxicity.

It is generally thought (or assumed) that using dormant oils is less likely to result in resistance. However, this may not necessarily be true. For example, a Christmas tree plantation of Scots pines was sprayed with dormant oils for over 10 years to control pine needle scale. Eventually the scales became more difficult to control. It was discovered that the scale covers were thicker than normal thus making it harder for the dormant oil to penetrate the covering.

Preventive dormant oil sprays can save time later on as treatments may not be needed in early spring, or the number of applications may be reduced. In

addition, this minimizes spraying with pest-control materials that are harmful to natural enemies of mites and scales. (*Raymond Cloyd*)

PLANT DISEASES

Horticulture Inspectors Are on Our Side!

The term “inspector” often illicit a fear response. On the home front, we think of house inspectors, termite inspectors, or inspectors looking for building code violations. All of these inspectors are looking for ways to protect the public from danger, fraud, and such, but we still wish them away.

Recently I attended a meeting of agriculture horticulture inspectors. These inspectors have annual regional meetings and meet by state on a more frequent schedule. The topics of discussion were very similar to topics discussed at the professional arborists associations, professional landscapers meetings, or even at some of the master gardener advanced meetings. All of us are trying to stay abreast of new developments in pest problems such as insects, diseases, chemical injuries, and environmental problems. The give and take of information at the horticulture inspectors meetings was superior to any I have seen in some time. These inspectors try very hard to identify situations that will cause future plant problems, to identify situations that are not problems, and to know the difference. I suppose they can share information of findings more readily because there is no competition for business among inspectors.

Because it is rare for someone to speak up for the inspectors, I thought I would let our readers know that we have a good thing going for us. This group works hard at finding plant problems that should be eliminated before they get into the public sales arena. Don't run when you see an inspector, unless you have something to hide. (*Nancy Pataky*)

Oak Problem Response

In issue no. 17 of this newsletter, I discussed a problem the clinic has been seeing on red oaks. I asked for reader response and eventually got quite a diversity of responses. It does not appear that there is any pattern to the red oak group problem. Most of the reports were from central and northern Illinois, but a few reports of similar oak problems came from out of state. One fact is certain: not all oak problems are easy to diagnose with accuracy. Here are some of the oak problems we have seen at the Plant Clinic in recent years.

Oak wilt is at the top of the list. This disease will kill trees in the red oak group in one season, while trees in the white oak group may survive for many years. Consult issue no. 6 for details, but look for sudden decline starting at the top of the tree, with distinct leaf scorch and bronzing. Vascular discoloration is the most diagnostic feature of this disease. Positive identification is attained by isolating the causal fungus from live, infected wood. Early summer is the best time to prepare cultures.

Bacterial scorch is an up-and-coming problem on oaks. In Kentucky there are reports of tree death by this bacterial pathogen on red oak, shingle oak, bur oak, and particularly pin oak. The disease causes marginal leaf burn, early defoliation, and reduced growth of branches. Initial symptoms show in summer on one branch. Each year more branches are affected, and each year new leaves emerge normally only to drop early. Dieback and decline follow until the tree dies. Details about bacterial scorch are found in issue no. 6. We cannot test for this bacterium at the Plant Clinic, so we send our samples to a private lab in Indiana called AGDIA. The lab has a serological test for the bacterium that can be done on young twigs and leaves. There is a fee. Call ahead to be certain you have prepared the correct sample and avoid resampling at your expense. Consult AGDIA at <http://www.agdia.com> or call them at (219)264-2014 or (800)62-AGDIA. Only one of the oaks that I have sent from the Plant Clinic tested positive for this bacterium. The disease is present in Illinois but has not been confirmed as a common problem at this time.

Oak tatters is another problem we have on oaks and one for which we do not have a known cause. You can learn more about this problem by referring to issue no. 5 and the article on oak skeletonizing. The symptoms are leaves that appear to have been eaten by some voracious pest that did not like to eat the veins. This problem is difficult to miss. A very good fact sheet on the problem can be found by going to the forest service web site http://willow.ncfes.umn.edu/ft_h_pub.htm. There you will find forest insect and disease leaflets as well as pest alerts. Tatters is found under the pest alerts.

The final problem we see on oaks is our catchall: oak decline. This is quite real as you can read in Sinclair, Lyon, and Johnson's book, *Diseases of Trees and Shrubs*, but once again we cannot pinpoint one particular cause for the decline. Look for slow growth; sparse, undersized, discolored leaves; death of small branches throughout the year; branch die-

back; and sometimes growth of sprouts along the trunk or major branches. This is the category in which our current red oak problem falls. Drainage, temperature, site stress, root rot, wood rot, and even a few pathogens can be associated with this problem. We have seen this on pin oaks, red oaks, and some shingle oaks. What is the treatment? We don't really know. It is helpful to remove dead wood but only if you do so when sap movement is slow. It may help to water the trees. Fertilization has been suggested but at low levels and in a slow release form. I think you will find a wide range of recommendations in that regard.

Maybe you have read about sudden oak death. This is a decline problem currently raging in California on tanoak, coast live oak, and black oak. It appears that a *Phytophthora* fungus is associated with that decline. You can find out more at <http://phytosphere.com/tanoak.html>. There is no evidence of this problem on oaks in Illinois.

Besides all the problems listed, many of you have seen cupping of new growth on white oaks each season. What is the cause of this symptom? Chemicals have been blamed and may be the true cause. Affected trees usually develop healthy, unaffected leaves in the second flush of growth. The problem does not always return but may recur annually.

The point of this article is not to confuse but to list some of the major problems we have seen on oaks the past two decades. The distinction between problems is not always clear, and diagnosis can be very uncertain. Keep an eye on problems with oaks, and take notes of

the facts. List species, time of symptom expression, change over time, and diagnosis (if that is certain). It is much easier to help with a diagnosis when we have the facts as opposed to generalities. I hope this helps with your oak problems, and I look forward to looking at your oak samples (and facts) next May when the clinic opens for the year 2001. (Nancy Pataky)

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.

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