



UNIVERSITY OF ILLINOIS EXTENSION

HOME, YARD & GARDEN PEST

College of Agricultural, Consumer and Environmental Sciences, University of Illinois at Urbana-Champaign
Illinois Natural History Survey, Champaign

NEWSLETTER

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First Issue for 2001

Welcome to the *Home, Yard, and Garden Pest Newsletter* for 2001. We plan to provide you with timely information throughout the growing season on insect pests, diseases, and weeds associated with turf, trees, shrubs, flowers, and other landscape plants. Up-to-date control information will be provided that is appropriate for the professional horticulturist.

Issues will be biweekly during April, followed by weekly issues in May and June. In July, August, and September, pest impacts become less intense, so we will drop back to biweekly issues. The October and November issues will be monthly and focus not only on pest issues for that time of year but also on winter educational meetings and an index to the year's topics. There will be 20 issues. (*Phil Nixon*)

Pest Handbook

The *2001 Commercial Landscape and Turfgrass Pest Management Handbook* is now available. This 150-page book provides suggestions for control of weed, disease, and insect pests of woody ornamentals, flowers, and turf. Management options are written to be appropriate for the professional horticulturist. This book is a good way to stay up-to-date with changes in pesticide availability as well as new biological and practical nonchemical options. The handbook is offered in two forms: paper copy at \$15 and searchable CD at \$25. You can buy the set for \$32 (plus shipping). Call (800)345-6087 to order. (*Phil Nixon*)

INSECTS

Microinjection

Various means are available to apply pesticides to trees for protecting them from insect and mite pests. These techniques include foliar and soil applications and microinjection or trunk injection.

Microinjection involves placing or injecting small amounts of a pesticide into the sapwood and cambium tissues of a tree. Holes are drilled, or the bark is punctured, about 4 to 6 inches apart. These openings

are placed near the base of the tree or root flare with the Maugé system or within the lower few feet of the trunk with the Wedge system. Material is then injected into the sapwood via low pressure. The tree then takes up the material through the vascular (water-conducting) system, whereby it is distributed throughout the tree. The small holes or punctures eventually compartmentalize or heal during the growing season.

Microinjection works because pressure in the xylem is lower than atmospheric pressure outside the tree (negative pressure)—primarily due to transpiration, or water loss from the leaves. Liquids injected into the xylem tissue under negative pressure are taken up and distributed within the tree's sap stream.

This technique is best done in the fall or spring, when movement of the liquid within the tree's water-conducting tissues is highest. Microinjection is used to place insecticides, fungicides, and fertilizers into trees. In general, uptake takes about 2 to 4 hours; however, this period depends on weather, tree age, tree health, and soil temperatures. The uptake of the material occurs best when the soil temperature is above 45°F. However, the material may take longer to move in stressed trees or in locations with inadequate soil moisture. This application technique is best performed by professionals trained in its use.

Although this technique may be used on many types of trees, some do not accept it. For example, American elms, which don't have a porous xylem, are unable to take up large volumes of liquid this way.

The advantages of microinjection are essentially elimination of spray drift, reduced risk of spills or leaks, minimal exposure to the public, prevention of wash off (because the material is placed inside the tree), prevention of direct contact of pesticide to applicator (because it's a closed system), prevention of loss due to volatilization, and minimal impact on beneficial insects and mites.

Some concerns with microinjection include that (1) wounds need to be small and as shallow as possible, (2) the proper number of capsules are used and placed at the proper depth, (3) injection holes should never align vertically, (4) tree health can be compromised due to wounding, and (5) there is a possibility of uneven distribution within the tree crown.

The primary insecticide injected into trees is imidacloprid (Merit, Imicide, or Pointer). This systemic insecticide affects sucking insects (aphids, soft scales, and mealybugs), leafminers, and woodboring insects (bronze birch borer). Timing is important, as the material must be applied before insects start feeding.

This technique is currently being used to deal with the Asian longhorned beetle in Chicago. Imidacloprid is injected into trees to protect them using compressed canisters (Mauget system). Imidacloprid is readily transported within the xylem into stems, twigs, and leaves, where newly emerged adult beetles feed before females lay their eggs beneath the bark. In addition, research has demonstrated that the eggs and early instar larvae are killed.

Due to environmental concerns with foliar or spray applications, microinjection is gaining acceptance as a method that poses minimal impact on the environment while still providing effective control of plant-feeding insects. (*Raymond Cloyd*)

Dormant Oil

It is still early enough to control scale and some other insects with dormant oil spray, particularly in central and northern Illinois. In this approach, a highly refined petroleum oil is applied to a dormant tree or shrub. If sprayed once, buds begin to break; leaves on both deciduous and evergreen ornamentals will likely turn black or have black edges. Dormant oil is applied to deciduous plants when the temperature will stay above freezing for the next 24 hours. Evergreens are more susceptible to damage, so application is safest when temperatures stay above 40°F for the next 24 hours. Mixing at the lowest recommended rate is also a good idea when spraying evergreens.

The oil covers and suffocates or penetrates and destroys cells of exposed insects and mites. It kills scales that overwinter as nymphs or adults but is not effective against scale eggs. Of the common Illinois scales, only oystershell scale and pine needle scale spend the winter in the egg stage. Honeylocust mite, European red mite, and other mites that overwinter as exposed eggs on the plant will also be killed. Two-spotted spider mite typically spends the winter on the ground and is not controlled with dormant oil.

Petroleum oil is phytotoxic to some ornamentals. Japanese red maple, amur maple, black walnut, sugar maple, and redbud can be damaged by the spray. Petroleum oil spray can remove the blue bloom on Colorado blue spruce and Koster spruce. Be sure to check the label for warnings of phytotoxicity before applying a dormant oil. (*Phil Nixon*)

New Pesticides for Greenhouses

Pylon. Pylon miticide–insecticide, distributed by Olympic Horticultural Products, recently received approval for use in greenhouses. Pylon is in a new chemical class referred to as pyrroles. The active ingredient is chlorfenapyr. Pylon works as a contact and ingestion miticide by interrupting energy production. The material has translaminar activity. Pylon is labeled for mites (two-spotted spider mite, broad mite, and cyclamen mite), caterpillars, and fungus gnats. Pylon can be applied with conventional as well as low-volume application equipment. The rate range is 2.0 to 5.0 fl oz/100 gallons. The reentry interval (REI) is 12 hours. Pylon cannot be applied to vegetable transplants, and it is suggested to avoid applying it to plants in bloom. In addition, do not apply Pylon more than two times during a crop cycle.

Akari. Akari miticide from SePRO Corporation has been approved by the EPA for use in greenhouses. The active ingredient is fenpyroximate, in the phenoxypyrazole chemical family. Akari works by contact; it has no translaminar activity, which means thorough coverage is essential. The material paralyzes mites by blocking respiration. Akari is labeled for two-spotted spider mite, as well as broad, cyclamen, and eriophyid mite. It has activity on the larvae, nymphs, and adults. Akari provides quick knockdown of adults and has 21 to 28 days of residual activity.

The rate range is 16.0 to 24.0 oz/100 gallons. Akari has a 12-hour REI. It is recommended that only two applications per growing season or crop cycle be made. Research at the University of Illinois has demonstrated that Akari is effective on whiteflies; however, they are not on the current label.

Marathon II. Marathon II is a new formulation of imidacloprid that can be applied directly to foliage. It has 14 to 21 days of residual activity, less than the granular and drench applications. Marathon II has activity on aphids, whiteflies, and mealybugs. It can be used on greenhouse-grown vegetable transplants. Marathon II has a 12-hour REI. (*Raymond Cloyd*)

PLANT DISEASES

Plant Clinic Opens May 1

With the warm weather of late and predictions for more to come, we will watch flower and leaf buds opening in profusion this week. As plants begin to develop and grow, so do pathogens, insects, and weeds. Fortunately, most will not cause serious plant injury for another month. We will try to keep you informed as they occur.

If you have plant problems and need advice, consult your local Extension office. The Plant Clinic is beginning to gear up for summer but is not operational until May 1. Please do not send samples before then because they will sit in the mail waiting for “opening day.” Look for more about the Plant Clinic services in the next newsletter. (*Nancy Pataky*)

Crabapple Curse!

If you have a crabapple variety susceptible to scab and you live in Illinois, you most likely see this disease every year. You can count on a flowery show and a nice flush of foliage, followed by spotting, blighting, and yellowing of leaves and 80% defoliation by mid-June. I still have not determined why these trees don't die from scab! Instead, they may repeat this early defoliation for decades and exhibit a slow decline. Details about scab can be found in the plant disease fact sheet, “Apple and Crabapple Scab,” RPD no. 803, available in local Extension offices or on the Web at <http://www.ag.uiuc.edu/~vista/horticul.htm>.

Most of you know the management options. Numerous crabapple varieties have resistance to scab. You can even pick ones with tolerance to scab, cedar apple rust, and fire blight and still have some choices in flower color. An excellent source of such information is a paper, *Recommended Crabapples for Illinois Landscapes*, by horticulture specialists David Williams and Gary Kling. It can be downloaded from <http://www.extension.uiuc.edu/IPLANT/>. Also, an international ornamental crabapple society has a Web site that might be helpful: www.malus.net.

Many crabapple growers do not want to replace their trees but do want to control the disease. Pruning out dead wood and opening the center of the tree to allow better air flow in the tree helps some. Watering in drought, fertilizing in the fall, and raking fallen leaves are also helpful in reducing disease severity, but the disease still occurs.

Fungicide applications are available and control the disease for one season. If you go this route, apply when leaves begin to emerge from the buds and continue with sprays at labeled intervals (varies with product) until frequent and prolonged wetting periods are uncommon. Leaves are emerging from the buds (April 6) in Champaign. If you have not applied the first fungicide application, do so as soon as possible.

Most questions concerning scab involve what chemicals to use and why sprays have not been effective. Sprays protect the foliage from infection. If you are late for the first application, spores may have already germinated and penetrated the young leaf

tissue. Using a systemic product for the first application may help with some “kickback” activity. You need to consider chemical mode of action—whether the chemical is classified as contact, protective contact, or systemic. Spray intervals vary with the mode of action, so read the labels of chemical options. Rains shorten those intervals, especially if you are using a protective–contact type of product.

Chemical options for homeowners are listed in the *Illinois Homeowners' Guide to Pest Management* (1997). The new version, renamed the *Home, Yard, and Garden Pest Guide*, should be hot off the press by the end of the month. Chemical options for commercial applicators can be found in the *2001 Commercial Landscape and Turfgrass Pest Management Handbook*. Both publications are available in Extension offices for a fee, or call (800)345-6087 to order.

Another concern of applicators is the development of resistance to chemicals. When the same chemical is used repeatedly, year after year, the target fungus may develop resistance to the chemical, making sprays useless. For this reason, commercial growers usually rotate fungicides from different chemical families. There are nine systemic products listed in the commercial handbook to control scab. To avoid development of fungal resistance, growers can alternate between products containing propiconazole (demethylation inhibitor), thiophanate-methyl (mitotic poisons), and oxystrobin (mitochondria disrupters). The only systemic fungicide marketed for homeowner scab control is thiophanate-methyl. (*Nancy Pataky*)

Sphaeropsis Blight of Pine

In most cases, plant diseases cannot be managed with curative sprays. Rather, when fungicides are used, they are applied to protect new growth from infection. Management with fungicides is usually focused on preventing infection of new growth on hosts where there has been a chronic problem in the past. Such a disease is Sphaeropsis blight of pine. If you have seen this problem in the past and want to use a fungicide, get ready now because the first application should be made when pine buds begin to swell and elongate.

The disease infects buds and new needles, causing them to die each year. The newest growth in the spring is most susceptible, and growth in the summer often escapes infection. The result is death of branch tips. This perennial tip blight causes zigzag branch growth. Fungicides are applied to protect the new growth as it emerges. Applications are recommended when buds begin to elongate and swell, just before new needles emerge from the sheath, and 10 to 14 days later. These spray application times may also be

described as budbreak, half candle, and full candle.

Sphaeropsis also causes a canker on stems. Cankers are caused by a pathotype of the same Sphaeropsis fungus that causes tip blight. We've been seeing the canker phase in Illinois for the past 7 or 8 years. The canker phase causes oozing sap on the stems. If the canker girdles the stem, all growth beyond that point dies. Fungicides have not been shown to be effective against the canker phase. I have not seen the disease kill a tree, but it can become very unsightly.

This is a tough disease to get under control. Management of Sphaeropsis blight should include removing dead branch tips now, before buds open. Preferably the pruning should occur in dry weather. Also, remove fallen cones and needles, which serve as overwintering sites for the fungus. Because drought-stressed trees are more susceptible to this disease, water your pines in times of extended drought. Fungicide options are listed in the *Illinois Homeowners' Guide to Pest Management* (upcoming *Home, Yard, and Garden Pest Guide*) and the *2001 Commercial Landscape and Turfgrass Pest Management Handbook*. Refer to the tables at the end of the disease chapters. Bruce Paulsrud (pathology pesticide applicator training specialist) has prepared information on trade names, common names, mobility, and producing companies for fungicides listed in the chapters. Reports from several Illinois applicators suggest that

chloro-thalonil or thiophanate-methyl works well if three sprays are used. If you decide to use fungicides, all three applications are necessary with any of the product selections. Spraying only once is of little or no benefit. For details about Sphaeropsis blight and how to confirm disease presence, consult *Report on Plant Disease (RPD)* no. 625, "Sphaeropsis Blight or Diplodia Tipblight of Pines," available in Extension offices or on the Web at <http://www.ag.uiuc.edu/~vista/horticul.htm>. (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.

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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