



KENTUCKY PEST NEWS

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Number 810

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ANNOUNCEMENTS

- Entfacts now available on web-site as pdf's
- SpinTor insecticide receives federal registration

CORN

- Aphids in corn

FORAGES- Alfalfa

- Pea aphids and spittlebugs

SMALL GRAIN - Wheat

- Cereal leaf beetle
- Current disease situation

TOBACCO

- "Bugs in the float system"
- Blue mold control plan for Kentucky
- Current blue mold status

FRUIT

- Watch for plum curculio on fruits
- Control strawberry fruit rots now
- Can rust and downy mildew of mock-strawberry threaten domestic strawberries?

LAWN AND TURF

- Tick bite (continued)

SHADE TREES AND ORNAMENTALS

- Ornamental pest alert

PESTICIDE NEWS AND VIEWS

- EPA's office of prevention, pesticides and toxic substances annual reports for 1997 available
- Chemical company to pay \$225,000 penalty for wps mislabeling
- EPA and Canadian PMRA complete joint review to register new reduced risk fungicide
- Respirators undergoing changes

DIAGNOSTIC LAB HIGHLIGHTS

INSECT TRAP COUNTS

ANNOUNCEMENTS

ENTFACTS NOW AVAILABLE ON WEB-SITE AS PDF'S

By Ric Bessin

All of the most current versions of the Entomology fact sheets are now available on the Entomology Department's Web page. This is a significant change in that camera-ready copies will no longer be mailed to county offices. A problem with the previous system was that agent needed to keep track of all of the fact sheets and replace out-dated versions as necessary. Now that they are available on the Web, extension personnel can be assured that they are using most current copies of the fact sheets. Revision dates are listed for each of the fact sheets. Currently, there are about 160 entomology fact sheets. The address of the ENTFACT PDF Web page is:

<http://www.uky.edu/Agriculture/Entomology/entfacts/efpdlst.htm>

SPINTOR INSECTICIDE RECEIVES FEDERAL REGISTRATION

By Ric Bessin

Dow AgroSciences has just received federal registration for SpinTor 2 SC. This product belongs to a new class of insecticides. It contains the active ingredient spinosad, which is produced commercially by fermentation of the soil actinomycete *Saccharopolyspora spinosa*. Spinosad acts as a nerve poison attacking the nicotinic acetylcholine receptors. SpinTor is used for control of lepidoptera larvae and Colorado potato beetle larvae on apples, cole crops, eggplant, leafy vegetables, peppers, and tomato.

SpinTor, a general use insecticide, bears the signal

word of CAUTION, and has a 4 hour Restricted Entry Interval after application. There is a 7 day Pre-Harvest Interval with apples, but on vegetables the Pre-Harvest Interval is only one day. Because this is the first in a new class of chemistry, SpinTor provides us with an additional tool to combat insecticide resistance and can be used in rotation with insecticides from other classes. Insecticide resistance has been a serious problem with the control of Colorado potato beetle and some of the pests attacking cole crops.

CORN

APHIDS IN CORN

By Ric Bessin

There have been several reports of aphids infesting seedling corn in some western counties. It is unusual to see this so early in the season. We believe that there are several factors which may be contributing to this unusual problem. This has been a cool, wet, and mild spring that favors the development of large aphid populations. High numbers of aphids have been seen on small grains for several weeks. Some producers have replanted some freeze-damaged wheat fields with corn which encouraged aphid movement.

While aphids infesting seedling corn is unusual, light to moderate infestations should not cause a problem as long as growing conditions remain favorable. The exception to this would be if the insects were greenbug or yellow sugarcane aphids because these species inject a toxin into their host plants as they feed. However, the reports I have heard indicate that these two aphid species are not involved. With other aphid species, producers should use an insecticide for control if aphid number exceed an average of 25 wingless aphids per plant.

FORAGES- ALFALFA

APHIDS AND SPITTLEBUGS ON ALFALFA- RARELY A PROBLEM

By Lee Townsend

Pea aphids and spittlebugs are common spring insects on alfalfa. These sap feeders can be abundant, especially during cool, wet springs but rarely have a significant impact on first cutting yield

or quality. If anything, they provide some early season food for beneficials and help them to increase some in numbers.

The pea aphid does best during cooler periods and is common on alfalfa in the spring and again in the fall. These light green aphids occur in clusters on plant stems and terminal buds. Yellowed, wilted foliage and an average of 50 to 75 aphids per stem would be needed to justify a control measure. If many aphids are present, you can often see bloated, straw-colored aphid mummies that have been parasitized by a tiny wasp. The wasps and hotter weather will reduce aphid numbers naturally.

Spittlebugs overwinter as eggs inserted between the sheath and stem of grasses. They are most common in mixed grass and alfalfa stands. The nymphs, or immature stages, excrete a frothy liquid that covers them completely, providing protection from drying out and may provide some protection against natural enemies that prefer to look for food that isn't covered with spit. Several spittlebugs per stem are generally necessary to justify concern. Even then, the spittle probably provides protection against and insecticide spray.

WHEAT

CEREAL LEAF BEETLE

by Doug Johnson

Cereal leaf beetle (CLB) are out and active. Whether or not this will be a problem year for CLB is hard to tell. Generally the most active areas for CLB are in the wheat growing areas west of I-65 and south of Elizabethtown. However the distribution is state wide. So keep a watch on your crop.

This pest will occur from about mid-April until wheat maturity. The beetles over-winter as adults, and re-enter fields when warm-up occurs. After mating, females deposit small clusters of eggs usually on the upper surface of the leaf. These eggs are bright yellow just after they are laid but darken to almost black, just before hatch. They are shaped like cylinders with rounded ends.

The larvae are pale yellow in body with a brown-black head and legs and may appear wet or shiny. However, because of their habit of covering themselves with pieces of feces and plant material they appear more like bird dropping.

After the larvae are full grown they will drop off the plants and pupate in earthen cells, usually in the top 2 inches of soil. In about 20-25 days adults will emerge from the cells. The entire life cycle takes about 46 days.

Perhaps the easiest way to detect CLB is through their damage. Both the adults and the larvae remove the upper surface of the leaf in long narrow strips between leaf veins. This feeding pattern leaves long whitish scars on the leaves, and is very indicative of CLB.

Cereal leaf beetles are the food source for a number of parasites and predators. CLB eggs are eaten by lady beetles and several wasp parasites prey on the larvae. Additionally, a fungal disease also reduces the populations. As a result the presence of CLB in a field does not necessarily mean that economic populations exist. In general, populations must reach at least one adult or larvae per head bearing stem before control is required, and this is a very conservative threshold.

To determine if a CLB population has reached the economic threshold examine ten plants per location in about 1 location for every 10 acres of field size. Locations should be spread out and reflect the nature of the field. Do not pick particularly bad or good areas and avoid field edges. Count the number of CLB per stem and, if on average, the population exceeds 1 per stem a control may be required.

Insecticidal control of CLB is not particularly difficult. Any of the insecticides listed in ENT-47, "Insecticide Recommendations of Small Grains", should do an adequate job.

CURRENT DISEASE SITUATION

by Donald Hershman

Currently the crop in west and south-central Kentucky is in the heading to flowering stages. In north-central and northeast Kentucky, the wheat ranges from late flag leaf emergence to the boot stage.

Overall, diseases state-wide are at fairly low levels. The only surprise is the higher-than-normal levels of powdery mildew. If you recall, I predicted that powdery mildew levels would be below normal because of the early March freezes. This, apparently, has been the case for leaf rust, which is

basically non-existent in the state at this time, but somehow powdery mildew escaped being killed by the cold. The only likely reason for this is that the powdery mildew fungus must have been mostly dormant at the time the freezes occurred.

In addition to powdery mildew, there is a fair amount of Speckled leaf blotch, caused by *Septoria tritici*. This situation is typical, though, and was expected because of the propensity of *S. tritici* to attack freeze-damaged leaf tissue. Finally, there are some strikes of barley yellow dwarf (BYD) around the state at this time, but it appears as though we will not have a BYD epidemic, at least not state-wide. Also, *Stagonospora nodorum* leaf blotch is present in some fields in west Kentucky, but levels have progressed very little.

At this stage in the game, the only thing that can be done to alter the course of disease in a wheat crop is to spray a foliar fungicide. The key to using fungicides properly is to use them if needed, but only when needed. The new 24C and 2ee labels which allow Tilt to be applied up to , but before crop flowering, provides growers with the tool needed to effectively manage key fungal diseases in the best possible way. You've heard of the general telling his troops to "wait to fire until you see the whites of their eyes". Well, the same principal applies to using fungicides. You want to make the application at the most appropriate time; applying a fungicide too early or too late will not yield the best results. I recommend you use our disease threshold system to determine if and when you need to apply a fungicide. This information is available through your local county Extension office. At the very least, you need to base your application decisions on crop scouting for disease levels and crop stage. Also, do not forget that low yield potential crops are unlikely to benefit much from a fungicide application.

TOBACCO

"BUGS" IN THE FLOAT SYSTEM

By Lee Townsend

Regular inspections, preferably twice a week, will help to catch important pest problems early and keep losses to a minimum. Variegated cutworms are the greatest concern now. Small larvae are dark brown to black, they lighten to a dingy gray as they grow. The distinctive feature is a single row of small light spots (1 per body segment) down the center of the back. Variegated cutworms feed on seedling

leaves and burrow down into the media when not feeding. They are among the largest of our cutworms, reaching a length of just over 1-1/2 inches when full-grown. Most of the feeding is done in the last stages of the 3-1/2 week larval period so a lot of damage can occur over a short period of time.

Watch for rounded holes in the leaves and search around damaged plants for the cutworms. Moths lay clusters of about 60 eggs on low-growing plants. This means that there will be "hot spots" on particular trays or groups of trays, rather than a general widespread infestation over the entire area. A single moth can enter the greenhouse or float area and lay several clusters of eggs. Some outdoor lighting systems may attract moths to the area and subsequently lead to infestation. Usually the moths are active at night and rest in hidden areas during the day.

Shore flies are showing up in samples now. Shore fly larvae are small, dingy gray, headless creatures with a short, forked tail. They feed on algae growing on the media surface but also can scrape holes in plant leaves. Damage is usually limited to leaves in contact with the media, however, the larvae can tunnel into plant stems. The adults are small, clear-winged gnats that can be seen crawling over the plants and media.

Variegated cutworms and exposed shore fly larvae and adults can be controlled by foliar sprays of Orthene. Larvae inside stems are not affected by the treatment.

Waterfleas are among the more unusual things that can be found in float water. About the size, shape, and color of an alfalfa seed, these small creatures zip along in the water and can be abundant enough to make it seem alive with them. They pose no threat to tobacco plants. Waterfleas feed on small particles in the water and do not damage tobacco root systems.

BLUE MOLD CONTROL PLAN FOR KENTUCKY

By William Nesmith

The North American Blue Mold Task Force, chaired by Dr. Paul Shoemaker of North Carolina State University, developed a national blue mold control plan in February 1997. The consensus of the task

force members was that this plan should be used to guide state, regional, and community efforts to control blue mold in the US and to serve as a starting point for control efforts in North America. The framework for this control program evolved from the 1997 Blue Mold Control Plan For Burley developed at the Burley Tobacco Farmer Blue Mold Meeting held in Lexington, Ky on January 21-22, 1997 and co-sponsored by R. J. Reynolds Tobacco Company and the University of Kentucky College of Agriculture.

Below is a modified version of that plan more suited to the diverse tobacco production situations found in Kentucky. This plan gives general control strategies followed by more specifics for transplant production and field plantings.

General strategies for disease control

- Realize that the biology of the blue mold disease requires action by a cooperative community rather than only actions by some individuals in the community.
- Incorporate respect for blue mold into short-term and long-term crop management decisions. Manage all steps in production to make the environment and tobacco plant less favorable for the blue mold fungus to survive and infect your tobacco and to minimize the crop's exposure and damage to blue mold.
- Accept the risk that certain cultural practices will increase the potential for blue mold, and modify practices to reduce the potential for blue mold and its impact where feasible in plant beds, greenhouses, and fields.
- Concentrate controls on preventing overwintering of the blue mold pathogen in Kentucky and its introduction into the state, as well as preventing and delaying secondary buildup of the parasite once it is present.
- Accept that blue mold is a transplant-borne disease and keep the fungus out of Kentucky and your community for as long as possible by producing your own transplants or obtaining them from well-managed local sources.
- Recognize that blue mold is also a wind-borne disease, so respond to Blue Mold Advisories from the Kentucky Blue Mold Warning System by cooperating fully in efforts to prevent the disease and to slow its development once present.
- Keep County Extension Offices informed of the status of blue mold in your community and County Extension Offices need to keep the Plant

Pathology Department, University of Kentucky informed of the current blue mold status in their county.

- Use more than one control method (options include fungicides, cultural practices, and varieties), to reduce fungicide use and improve the effectiveness of fungicides.
- Become prepared to spray foliar fungicides preventively for blue mold control in transplant and field production.
- Recognize the value and risk associated with blue mold-tolerant varieties.
- Protect tobacco plants when they are most vulnerable, rather than trying to rescue them.
- Don't forget about other diseases and other production objectives while considering blue mold management plans.

Plan to protect transplants from blue mold

- Grow your own plants, or buy them from a reputable, local source
- Follow recommended greenhouse hygiene and sanitation practices
- Never over-winter live tobacco in your greenhouse to avoid over-wintering blue mold!
- Reduce the exposure period to blue mold by seeding no earlier than 7-9 weeks before transplanting!
- Manage temperature and ventilation systems in greenhouses to minimize leaf-surface moisture by reducing relative humidity and condensation.
- Remove plant bed covers when weather permits to aid drying of the foliage in outdoor transplant production during blue mold advisories.
- During dry periods, irrigate beds early enough to dry before nightfall.
- Follow a recommended clipping schedule for greenhouse and float plants (remove clippings from trays and dispose of them far from transplants).
- Use a regular, preventative-fungicide spray program (5-7 day intervals or closer if advisories are issued) in ALL transplant production to control a range of fungal diseases.
- Promptly destroy ALL plants within the system, should blue mold develop in beds or greenhouses.
- Do not set any plants from a blue mold infested source.
- Never abandon transplants - maintain disease control programs until the plants are used or destroyed - promptly destroy all seedlings once transplanting is done.

Preventative spray programs for tobacco transplants

- Use one of the following fungicides: Ferbam or Dithane;
- Begin as soon as plants can tolerate the chemical;
- Apply every 5-7 days until plants are set or destroyed;
- Start with 3 gal/1,000 sq. ft. of spray solution for small plants increasing to 6-12 gal/1,000 sq. ft. as plants grow;
- Obtain complete coverage (high pressure and hollow cone nozzles will improve coverage);
- Clip before spraying if clipping is needed;
- Continue sprays until plants go to the field

Blue mold control recommendations for the field

- Select a blue mold management plan BEFORE you transplant that considers cultural practices, varieties and fungicides, but make adjustments as needed to react to a changing disease situation.

Cultural practices to improve blue mold control

- Field Selection: Recognize that the highest disease potential exists with shady, moist locations with poor air drainage, for example: sites near streams or in fog pockets. Avoid such sites where possible and be prepared to use an aggressive control approach when such disease-prone sites are used. Rotated sites and fumigated sites often experience more serious blue mold damage because of improved growth potential, so prepare accordingly.
- Variety Selection: None of the currently available varieties has a high-level of resistance to blue mold. However, some varieties tolerate the disease with less loss than others, such as: Tn 90, Tn 86, R-610, and 14xL8. These varieties can also sustain serious losses if over-fertilized or infected while young. All varieties show some tolerance to blue mold damage if stunted from other diseases or stresses. In general, dark tobaccos experience much less damage from blue mold than does burley.
- Row and Plant Spacing: close plant spacing (especially close row spacing) favors disease development. Recognize that open row spacing can reduce blue mold, improve spray application, save labor, and reduce barn space requirements.
- Fertilization: avoid excess N-fertilization, follow recommended rates.

- Topping and Sucker Control: early topping and improved sucker control slow disease progress by removing young tissues.
- Harvest: early harvesting to avoid blue mold losses is seldom warranted in properly fertilized crops, because blue mold susceptibility declines rapidly as leaves mature after topping while yield and quality are improved. It may be advisable to destroy or early-harvest part or all of a field with blue mold to reduce the threat to nearby tobacco or where strong activity is accompanied by secondary leaf diseases, such as frog-eye, brown spot, or bacterial infections.

Fungicide use recommendations for the field

Become Prepared:

- Be prepared to spray foliar fungicides weekly from transplanting to topping, should the situation warrant it. Timely sprays with complete coverage are keys to good control! Best results against strong disease pressure can be expected when growers do the following:
- Use plenty of water when spraying a foliar fungicide,
- Use high pressure (100-250 psi), hydraulic sprayers: piston or diaphragm pump, equipped with hollow cone nozzles on drops so that leaves at the bottom and middle of the plant get sprayed as well.
- To obtain good coverage with a tractor-mounted boom sprayer, you need skip rows in the crop, wide enough for your tractor, and all rows being sprayed in the same pass need to be parallel (set with by carefully following row markers). A common mistake is growers attempt to spray too many rows in one pass.
- With air blast sprayers: mix fungicide at 2X concentration. Apply 1/2 the gal/acre used with the hydraulic sprayer, be careful to spray all plant surfaces.

What and When to Spray:

- Use labeled Protectant Fungicides (contact local County Extension Offices for approved materials and follow the labeled rates).
- DON'T WAIT UNTIL YOU SEE BLUE MOLD ON YOUR FARM!
- Start spraying early and adjust spray schedules according to local advisories and weather conditions.
- Use Kentucky Blue Mold Warning System and

Local Extension Advisories to keep you informed throughout the season.

- FOR RIDOMIL-SENSITIVE BLUE MOLD: Use Ridomil Gold applied broadcast preplant and at layby. These Ridomil treatments will not control all types of blue mold but are also of great value as controls for Pythium diseases and Black Shank.

CURRENT BLUE MOLD STATUS

By William Nesmith

Laboratory tests have confirmed that the blue mold associated with the outbreaks in pre-finished plants growing in southwestern Kentucky and west central Tennessee is metalaxyl-resistant. This information has been forwarded to EPA and the Kentucky Department of Agriculture. Florida pathologists reported similar results with isolates collected in Florida.

Active blue mold has been confirmed in three counties in southwestern Kentucky (Logan, Simpson and Todd) and three in west central Tennessee (Cheatham, Robertson, and Trousdale). Thus far, all confirmed cases have involved pre-finished plants shipped from Florida. Although some farmers with confirmed blue mold cases have destroyed the plants, others with diseased lots have not destroyed them, so spread of blue mold to other farms nearby may have occurred.

Blue mold is well established in Florida and Georgia and recent weather events have favored increased activity in the area. Any transplants moving from or through these areas may have been exposed to blue mold and thus present some level of risk to northern areas.

Kentucky's tobacco industry should assume that blue mold-infected transplants are moving in the trade and that storm systems may have moved the spores over much of the state at low levels. Greatest risk are to those communities north or northeast of the confirmed outbreaks. Growers are urged to keep fungicide sprays in place in ALL transplant production systems in Kentucky and to operate them as dry as possible through correct use of heat and ventilation systems. With outdoor sites, remove the covers during wet events to allow the system to dry more rapidly. Do not transplant infested/infected plants to the field.

FRUIT

WATCH FOR PLUM CURCULIO ON FRUITS

By Ric Bessin

The plum curculio is potentially the most destructive insect pest of apples, peaches, plums and cherries in Kentucky. Left uncontrolled, it can ruin as much as 60% of a crop in the course of several days. Currently, we have no effective means to predict or monitor effectively for this pest. However, plum curculio usually begins to attack for a two to three week period just after petal fall. That is why using an insecticide for plum curculio at petal-fall and two weeks after petal fall is so important.

CONTROL STRAWBERRY FRUIT ROTS NOW

By John Hartman

Strawberries are in bloom statewide; should we be concerned now about decay of ripe berries next month? Yes, now is the time to do something about strawberry fruit rot. Wet weather, typically found in springtime, favors two important strawberry fruit rot diseases, leather rot and gray mold. The following will help to prevent fruit rots.

- 1) Mulch. Straw mulch keeps berries from contacting the soil where the gray mold fungus and the leather rot fungus live. In addition, it aids in preventing infested soil from splashing up onto the berries.
- Control weeds. Weeds in the planting reduce sunlight penetration and reduces air circulation that result in fruit and foliage staying wet for longer periods making gray mold more serious.
- Sanitation. Gray mold can live on dead plant debris. Remove old leaves and other plant debris from the planting to reduce the amount of gray mold inoculum. Removal of rotted fruit from the planting is probably not practical, but could be highly beneficial.
- Irrigation Practices. Schedule irrigation so that foliage and fruit will dry as soon as possible. For leather rot, avoid standing water in the field; improve drainage if water stands after it rains.
- Fertility. Avoid the use of excess nitrogen fertilizer. Excess nitrogen causes dense foliage that stays wetter longer and also results in softer berries more susceptible to fruit rots.
- Fungicides. When the cultural practices listed above are followed carefully, fungicide sprays are

usually not needed, especially in backyard gardens. Fungicides applied for gray mold control need to go on during bloom. Sprays applied to the fruit after bloom have relatively little effect, since infections occur through the flowers. Suggested fungicides are listed in ID-94, *Kentucky Commercial Small Fruit & Grape Spray Guide*.

- During and after harvest. Because strawberry fruits are very perishable, a) Pick fruit frequently and early in the day. b) Handle berries with care during harvest to avoid bruising. c) If possible, pick and remove rotted fruits from the field. d) Get the berries out of the sun as soon as possible. e) Refrigerate berries immediately (inform your customers). f) Market the berries as rapidly as possible.

CAN RUST AND DOWNY MILDEW OF MOCK-STRAWBERRY THREATEN DOMESTIC STRAWBERRIES?

By John Hartman

There are several weeds and wild plants that resemble strawberries in their growth habit. One of them, mock-strawberry, also called false strawberry or Indian strawberry, *Duchesnea indica* is common in Kentucky gardens and cultivated areas. Its foliage is similar to, but smaller than domestic strawberries and it produces a yellow flower. Strawberry growers and gardeners may now be noticing the bright orange rust pustules found on the undersides of mock-strawberry leaves. Less noticeable, but widely present is a downy mildew, also on the leaves.

The rust fungus of mock-strawberry is *Frommeella duchesneae*, which does not infect garden strawberries. The downy mildew is *Peronospora potentillae* which is a pathogen of strawberries. Despite its susceptibility, we rarely see downy mildew causing problems with garden strawberries. Strawberry growers and gardeners in Kentucky do not need to be concerned that these two diseases of mock-strawberries will cause serious problems of commercial or garden strawberries.

LAWN AND TURF

TICK BITE! (Continued)

By Mike Potter

Due to space constraints, the following three 'Q&As' were omitted from last week's article on tick bites. Most tick-borne diseases are readily treatable during the early stages of infection. The most valuable

advice you can give a tick-bite victim is to make them aware of these symptoms:

Q: What are the symptoms of Lyme disease?

A: Lyme disease is difficult to diagnose clinically because early symptoms mimic the flu, e.g., fatigue, headache, fever, or swollen glands, pain or stiffness in the neck, muscles or joints. The most definitive early symptom is a gradually expanding, circular or oval-shaped red rash, often (but not always) at the site of the bite. This rash only develops in about 70% of infected individuals, however, and may be overlooked. Persons who experience any of the above symptoms after being bitten by a tick, or after spending time in an area where ticks are abundant, should see a physician immediately. In the earliest stages, Lyme disease can be successfully treated with antibiotics.

Q: What are the symptoms of Rocky Mountain spotted fever?

A: Symptoms of RMSF are flu-like, accompanied by headaches and a very high fever (104-106 degrees F), two to 12 days after being bitten by a tick. The most characteristic sign of RMSF is a rash that appears on about the second to fifth day on wrists and ankles, later spreading to other parts of the body. When promptly diagnosed, RMSF can be successfully treated with antibiotics. In the absence of treatment, victims may die.

Q: I don't have a rash but still feel "crummy" — are there other tick-borne diseases I should be concerned about?

A: Tick bites can result in diseases other than Lyme disease and Rocky Mountain spotted fever. *Human ehrlichiosis* is one important emerging disease complex, believed to be transmitted by the species of ticks (e.g., lone star tick) common in Kentucky. Symptoms of ehrlichiosis in humans include fever, headache, chills, muscle aches, nausea, and vomiting. *There is usually no rash.* Early treatment with antibiotics is prescribed.

It is rather common to experience localized itching and irritation at the site of a tick bite. When in doubt, it's probably advisable to see your physician.

SHADE TREES AND ORNAMENTALS

ORNAMENTAL PEST ALERT

by Mike Potter

Warm weather is triggering emergence of several key horticultural pests. If control is warranted, the time for action is now when pest life stages are most vulnerable. These timely recommendations have been made possible by the phenological management schedule developed by the UK Horticultural Entomology Research Lab. A copy of the table can be found in the new extension publication ENT-66, *Timing Control Actions for Landscape Insect Pests*.

Honeylocust plant bug - Eggs have hatched and the young nymphs are feeding on the expanding leaves of honeylocust. Feeding by the small, pale green insects causes distortion, stunting and discoloration of the foliage. Leaf damage persists throughout the season. Nymphs transform into adults by mid-May, and lay eggs in woody tissues. Winter is passed in the egg stage.

Damage from honeylocust plant bug rarely endangers tree health, but can be a concern in terms of cosmetics. Early activity is often overlooked and infestations are not recognized until symptoms appear. *By this time, control efforts are no longer effective.* Nurseries who want to avoid cosmetic damage should examine expanding leaflets for the small, green nymphs and treat while the insects are still active. Insecticidal soap, 2% horticultural oil, or conventional insecticides (e.g., Sevin, Dursban, Tempo, Talstar, Scimitar) are effective. Check the foliage 7 to 10 days after the first treatment to determine whether or not another application is needed. There is only one generation each year.

Hawthorn Lace Bug - Egg hatch has begun and nymphs are feeding on the undersides of hawthorn leaves. Lace bugs suck plant sap and cell contents, producing yellowish stippling on the upper leaf surface. In addition, dark, shiny spots of excrement are excreted on the leaf undersurface. The injury, in addition to being unsightly, can reduce plant vigor. Lace bugs may have two or more generations each year, each requiring about 30 days. Insecticides such as Orthene, malathion, Dursban, and synthetic pyrethroids (e.g., Tempo, Talstar, Scimitar) may be used for control. Thorough coverage of leaf under sides is important.

Pine Needle Scale- These white, shell-like scales infest the needles of various species of pine. Two-

needle varieties (e.g., Red, Mugo, Scots, Austrian) are especially vulnerable. Heavy infestations cause yellowing, stunting and premature needle drop. This insect overwinters as eggs beneath the white shell of the dead adult scale.

Control of pine needle scale can best be accomplished by timing treatments to coincide with the vulnerable "crawler" stage, which has now begun to emerge. The easiest way to spot them is to tap infested twigs over a sheet of white paper. The small reddish-orange crawlers are easily seen with a 10x hand lens. Treat with 2 percent horticultural oil, insecticidal soap, or a conventional insecticide when crawlers are first noticed. Repeat the application after 7-10 days.

Oystershell Scale - Crawlers of the oystershell scale also have begun to hatch. Susceptible hosts include lilac, willow, maple, ash, apple, dogwood and others. Infested limbs and twigs are encrusted with 1/8-inch long curved scales that resemble miniature oystershells. Crawlers are susceptible to sprays of 2% horticultural oil, insecticidal soap, Tempo, malathion, and a variety of other conventional insecticides.

Lilac borer/Lesser peachtree borer- Adults of both species are delicate, day-flying moths that resemble wasps. Principal hosts for lilac borer include lilac, ash and privet; for lesser peachtree borer, peach, plum, and flowering cherry. Wood borers are among the most destructive and difficult to control pests of landscape plants. The larvae tunnel and feed under the bark of trees and shrubs, destroying water and sap-conducting tissues. This causes a loss of vigor and overall weakening that can eventually kill the tree. Infestation sites also provide entry points for disease organisms. Symptoms include dieback, cankers or cracked bark, and accumulations of sawdust-like frass on the bark or at the base of the tree.

Controlling borers is difficult because there is only a narrow window of opportunity for treatment. Eggs are laid on the bark of preferred hosts, and within 1 to 2 weeks the young borer larvae emerge and quickly tunnel inward. Once inside the tree, the larvae are protected from insecticide sprays. Therefore the key to control is having a lethal residue of insecticide on the bark to intercept newly-hatched borers *before* they burrow into the tree. *The optimum treatment window for lilac and peachtree borers this year is about now (late April).* Lindane and chlorpyrifos (Dursban) are registered for borer control. The trunk and major limbs of susceptible trees should be sprayed to runoff as

specified on the label.

Holly Leafminer- Adult holly leafminers are beginning to fly and lay eggs in newly-expanding holly leaves. The small, pin prick feeding punctures and oviposition scars of the tiny adult flies do not harm the tree, but subsequent mining by the larvae is cosmetically unappealing. Control of the egg laying adults can be accomplished by applying insecticides such as Orthene, Dursban, Sevin or Talstar just as the newly expanding leaves are unfurling. Control of larvae already in the leaves (mid- to late May) can be attempted with one of the systemic materials, e.g., Cygon, Dimethoate, or Di-Syston. Blue holly is relatively resistant to leafminer injury.

PESTICIDE NEWS AND VIEWS

EPA'S OFFICE OF PREVENTION, PESTICIDES AND TOXIC SUBSTANCES ANNUAL REPORTS FOR 1997 AVAILABLE by Monte Johnson

EPA's Office of Prevention, Pesticides and Toxic Substances (OPPTS) has recently published two new annual reports highlighting the initiatives and accomplishments achieved during 1997 by its two key program offices, the Office of Pollution Prevention and Toxics (OPPT) and the Office of Pesticide Programs (OPP). The 1997 annual report for OPPT discusses progress towards the four major objectives of its mission: preventing pollution, promoting the use of safer chemicals and risk reduction measures, and improving the public's understanding of risks. The OPP Annual Report outlines several significant actions taken to implement the Food Quality Protection Act of 1996 (FQPA). For example, during 1997, OPP published a 10-year schedule to reassess 9,700 tolerances (maximum residue limits) for pesticides used on food crops, and has drafted plans to apply aggregate and cumulative risks in its tolerance reassessment process, as required by the FQPA. The OPP report also discusses the expansion of its Pesticide Environmental Stewardship Program and other efforts to increase its support for strategies that reduce pesticide risks on farms, in homes and schools -- another key goal under FQPA. Both the OPP and OPPT 1997 Annual Reports will be available on EPA's Home Page at: <http://www.epa.gov.oppt>, or <http://www.epa.gov.opp>. The public and other parties can obtain hardcopies of the 1997 OPP Annual Report by calling the Office of Pesticide Programs Communications Services Branch at 703-305-5017; copies of the 1997 OPPT Annual

Report can be requested by calling the TSCA Information Service at (202) 554-1404. (EPA Press Release, March 20, 1998)

CHEMICAL COMPANY TO PAY \$225,000 PENALTY FOR WPS MISLABELING **by Monte Johnson**

The Environmental Protection Agency said that Monsanto Company has agreed to pay a \$225,000 penalty for mislabeling some Roundup herbicide products. The EPA also said it was the largest settlement ever paid for violation of the Worker Protection Standards (WPS). Monsanto distributed mislabeled Roundup containers on at least 75 occasions, the EPA said. The label for the herbicide restricts entry into a treated area for 12 hours. Monsanto notified the EPA that it had distributed the herbicide with labels that incorrectly stated a restricted entry interval of four hours. The EPA said that exposure to this particular form of Roundup herbicide can cause eye irritation, and the herbicide is harmful if swallowed or inhaled. Monsanto spokeswoman Lisa Drake said the error happened in July 1997. "We took immediate action and cooperated fully to ensure full compliance," she said. She also said that the error concerned only a small number of customers and did not involve Roundup Ultra, the agricultural herbicide, or Roundup Ready-to-Use. (WPS-Forum, March 28, 1998)

EPA AND CANADIAN PMRA COMPLETE JOINT REVIEW TO REGISTER NEW REDUCED RISK FUNGICIDE **by Monte Johnson**

A new reduced risk fungicide has been registered by EPA and the Canadian Pest Management Regulatory Agency (PMRA) that have been working together on their first joint review conducted under the North American Free Trade Agreement. EPA has approved the product for use in the U.S. on a broad range of fruit and nut crops, including almonds, grapes, apples, pears, peaches, cherries, nectarines, plums, prunes and other crops. The new product was developed by Novartis, Greensboro, N.C., and will be marketed by its trade name, Vanguard. The active ingredient of Vanguard is a chemical known as cyprodinil. The review of cyprodinil was expedited under NAFTA because it is a reduced risk product that is less toxic to humans than several fungicides currently used on fruit and nut crops. Under NAFTA, EPA and Canada are seeking to jointly review and register reduced risk pesticides on an expedited basis, and

to provide regulatory consistency across borders. EPA and the Canadian PMRA accomplished their review and registered cyprodinil in less one year. More information on cyprodinil is available on EPA's website at:
©<http://www.epa.gov/oppfead1/international/naftaturg>©. (EPA Press Release, April 22, 1998)

RESPIRATORS UNDERGOING CHANGES **by Monte Johnson**

In July 1995, NIOSH upgraded the certification tests for particulate respirators. Current pesticide labels reference dust/mist filtering respirators (MSHA/NIOSH approval number prefix TC-21C) and organic vapor-removing cartridge respirators with prefilters approved for pesticides (MSHA/NIOSH approval number prefix TC-23C). These respirators are certified under NIOSH's Part 11 regulations; new particulate filters will be certified under NIOSH's Part 84 regulations. As of July 10, 1998, respirator manufacturers will cease to make Part 11 respirators; users can continue to use Part 11 respirators until the supply is depleted. Part 84 filters are more resistive to oils in terms of maintaining electrostatic charges. They also have a better collection efficiency in the 0.3 micron range (this is the particle size that is most penetrating in terms of respirator filters). The dust/mist filtering respirator will now be called a "filtering facepiece respirator." They are designated as N(no oil), R (oil resistant), or P (oilproof) and have an efficiency designation (95, 99, or 100%). Organic vapor cartridges are now called "NIOSH approved respirator with organic vapor (OV) cartridge or cannister with any N, P, R or HE filter." The "N" type cannot be used if the material being applied contains oil. The OV cartridge color coding remains unchanged; OV cartridges have a black background with white lettering. EPA plans on issuing a Federal Register Notice on these changes in the near future. (WPS-Forum, April 22, 1998)

DIAGNOSTIC LAB - HIGHLIGHTS **by Julie Beale and Paul Bachi**

Powdery mildew on **wheat** was seen in the diagnostic lab last week. Also reported were **cold injury** symptoms on wheat and oats.

Tobacco transplants are showing frequent damping-off from **Rhizoctonia**, as well as some development of **target spot**. We are also beginning to see **Sclerotinia collar rot**. **Blue mold** has been confirmed in two Kentucky counties, Todd and Simpson, as of 4/27. The Todd county sample has

been confirmed as metalaxyl resistant. Injuries from chemicals, cold and heat are also common problems at this time.

Freeze injury on many **ornamentals** is very common, and we expect to see this for some time. Samples of **peach leaf curl** have been frequent. **Geranium** samples from greenhouse growers have been seen with **oedema** from insufficient transpiration and also with symptoms of iron toxicity due to low pH.

Vegetable problems are mostly environmental/cultural at this time of year; in particular are **greenhouse tomatoes** with **nutrient deficiencies, chemical injury and stretching from low light**. The only vegetable sample received last week with an infectious disease were **peas** with **Rhizoctonia stem rot**.

INSECT TRAP COUNTS

Princeton

April 20-24

Black Cutworm	6
True Armyworm	72

Lee Townsend, Extension Entomologist