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KENTUCKY PEST NEWS

ENTOMOLOGY • PLANT PATHOLOGY • WEED SCIENCE
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WATCH FOR:

COMMON OAK MOTH caterpillars and MAY beetles feeding on oaks; PAPER WASPS establishing nests under eaves; CEREAL LEAF BEETLES begin to feed; COLORADO POTATO BEETLES will be leaving overwintering sites; EUROPEAN PINE SAWFLY larvae may be found feeding on conifers.

ARMYWORMS

ARMYWORM MOTH FLIGHT CONTINUES TO CONFUSE THE FORECAST

by Doug Johnson, Extension Entomologist

Armyworm moth flight continues to provide a somewhat confusing picture. The traps in Princeton and Lexington appear to be indicating two different things but perhaps that is what we should expect.

PRINCETON

The peak first generation trap capture for 2007 appears to have been on April 20 at 224; counts dropped to 188 and 108, respectively for April 27 and May 4. We also have a second set of traps in Princeton, which due to location, usually produce smaller numbers. Counts from this trap increased from 148 on April 27 to 349 on May 4. It is difficult to know what to make of this major difference. It may be attributed to field work done around the trap that caught fewer moths on May 4 but I cannot be sure. Nevertheless, several important factors are known.

First, we know that 2007 trap counts in western Kentucky are greater than the five year average by a considerable margin. Second, the peak moth counts of the trap that has the lesser peak capture is very close to the numbers of moths captured in two known armyworm outbreak years. So, it is prudent to assume that armyworm problems are possible in west Kentucky crops. Our only question is when the major risk will occur.

I do know that armyworms are active in some fields. While not present in large numbers, armyworms have been observed in wheat fields by crop consultants. These caterpillars are described as about 3/8" long, indicating that they are still young. So we know the damaging stage is present and the population is probably still increasing. So, there is little reason to speculate on the beginning of the caterpillar infestation.

If April 27 was the first generation peak, then the peak of the caterpillar population should be around May 8. If May 4 is the peak of the moth flight, then the peak population of caterpillars should appear around May 16. This time frame is probably (thought not absolutely) a good estimate for when noticeable damage is done. You need to keep your fields scouted during this time period.

LEXINGTON

The counts in Lexington are more straightforward. They continue to increase and are currently (May 4) at 297 moths per trap week. While we do not have historical data for Lexington, these counts are certainly similar to

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counts that have indicated problems in west Kentucky. We cannot know for sure that we have reached the peak of moth flight but we are probably near that point.

If we assume that April 20 was the "real" beginning of the first generation moth flight and that May 4 is the peak moth flight of the first generation, then we can estimate the first appearance of caterpillars as May 5 with a peak occurrence about May 19. The Lexington moth flight is later than that for Princeton. This is expected because of the difference in temperatures between the two locations.

REMEMBER!! These are just estimations. There is error associated with any model, and temperatures at your locations will vary from those used to provide these estimates. You must examine your fields!

TOBACCO

BLUE MOLD STATUS REPORT & DISEASE UPDATE
by Kenny Seebold

The U.S. continues to be blue mold-free as of May 7, 2007. Active blue mold is present in western Cuba (Pinar del Rio). The North American Plant Disease Forecast Center (www.ces.ncsu.edu/depts/pp/bluemold/) predicts a low level of risk to the disease at this time.

Levels of other diseases on tobacco transplants remain relatively low. The major diseases being reported are Pythium root rot and Rhizoctonia damping-off. It is likely that the incidence of Pythium root rot will increase as temperatures rise, so growers should make sure that preventive measures (i.e. sanitary production practices and application of Terramaster at 1 fl oz per 100 gallons of float-bed water) are in place to avoid serious losses or delays in transplant production.

Updates on the status of blue mold and other diseases in Kentucky and surrounding states can be found on the KY Tobacco Disease Information page at www.uky.edu/Ag/kpn/kyblue/kyblue.htm.

WHEAT

CRISIS EXEMPTION FOR USING WHEAT AS A FORAGE CROP
by James Martin, J. D. Green, and James Herbek

The Division of Environmental Services in the Kentucky Department of Agriculture has approved a Crisis Exemption for the use of wheat that had been treated with Harmony or Express herbicide as a forage feed for livestock. Current Federal label restrictions for Harmony Extra, Harmony GT, and Express prohibit grazing or feeding forage or hay; however, the special exemption will allow Kentucky growers to use the wheat for grazing, hay, or haylage.

The need for this exemption developed as a result of the freezing temperatures in early April that severely injured wheat and limited the use of the crop for grain. In addition to the damage to wheat, the freezing temperatures also limited the amount of forage available for first cutting in hayfields and grazing. This left many livestock producers searching for an alternative feed stuff for their animals. The crisis exemption will help utilize the damaged wheat and alleviate some of the shortage in forage.

Ernest Collins, Technical Branch Manager, coordinated the development of the Crisis Exemption. He indicated the approved period for the exemption in Kentucky will be May 7 through May 22 of this season.

VEGETABLES

WATCH THOSE YOUNG SEEDLINGS CAREFULLY
by Ric Bessin

There are several early season insect pests that vegetable growers need to be cautious of. Newly emerged seedlings and young transplants are vulnerable to several early season pests such as seedcorn maggot, cutworms, flea beetles, slugs and cucumber beetles. Delayed planting may predispose some vegetables to more pest damage.

Growers that are not using an insecticide at planting should consider the use of treated seed to prevent stand loss from seed corn maggots. Seedcorn maggots attack corn, beans, melon and pea seeds. They can be particularly serious in low, wet areas of a field with high amounts of decaying organic matter. Delaying planting until conditions favor rapid seed germination will also reduce losses to seedcorn maggots.

Striped and spotted cucumber beetles are serious pests of cucumbers and melons. The beetles are about 1/5" long and have a pale green body with a black head. The striped cucumber beetle has three black stripes on its back, while the spotted cucumber beetle has 11 black spots on its back. Cucumber beetles feed on foliage and stems of the plants, and can devour cotyledons and girdle the stems of seedlings.

Much more importantly, the adult beetles harbor the bacterial wilt organism during the winter and transmit it to the young seedlings in the spring. Effective control of the disease can only be achieved through early control of cu-

cumber beetles. Adult beetles are active prior to planting, so protective insecticide sprays should begin at plant emergence and be maintained weekly until first harvest.

In early June, the squash bug will become active in cucurbit crops. While it can cause wilting and in some instances death of small seedlings, it transmits a bacterium that cause yellow vine decline in cucurbits. Some squashes, pumpkins, and watermelon are particularly susceptible.

With delayed planting in some areas of the state, there is the potential for increased cutworm activity. Cutworms are night feeding caterpillars that can cause serious stand losses by feeding on small seedlings. Because the black cutworm migrates from the Gulf states each spring, late planting increases the potential for economic damage. Excessive early spring weed growth as well as low wet areas of a field favor cutworm activity. Preventive treatments for cutworm control are not recommended, growers are advised to monitor their fields closely and use rescue treatments as necessary. There have been heavier than normal black cutworm trap catches this spring.

There are several species of flea beetles that can potentially be problems on vegetable seedlings. Flea beetles are tiny beetles that jump like fleas when disturbed. They chew small holes in leaves of vegetables while the corn flea beetle can transmit Stewart's wilt to corn. Although we expect corn flea beetle numbers to be lower than last year, corn growers should use cultivars resistant to Stewart's wilt. Vegetable growers should monitor crops carefully and use rescue treatments as necessary when high numbers of flea beetles are present.

Spring cole crops are potential targets for imported cabbageworm and cross striped cabbageworm. Growers should inspect the youngest leaves in the center of the plant for
these small green larvae. Pay close attention to plants with ragged holes in the leaves. Sprays containing *Bacillius thuringiensis* are very effective against these larvae.

LAWN & TURF

WATCH FOR BROWN RING PATCH ON PUTTING GREENS
by Paul Vincelli

Symptoms of brown ring patch are reportedly showing up in several states (though none bordering Kentucky at this time). This relatively newly recognized disease occurs on putting greens and appears as circular to irregular rings with a narrow circumference of yellowed turf. The diameter of the rings varies from 4 inches to 2-3 feet.

An image with symptoms typical of Waitea patch is available online at http://www.californiagcsa.org/images/waitea-patch2.jpg.

These patches look like yellow patch, but they show up during warm to hot weather, which is not typical for yellow patch. These patches may also be mistakenly thought to be fairy rings, but diagnostic tests reveal no evidence of typical fairy-ring fungi in the root zone. Several states report that *Poa annua* is more being affected by this problem than creeping bentgrass.

This disease has been called by several names: Brown ring patch, Waitea patch, sheath spot, to name a few. It is thought to be caused by a Rhizoctonia-like organism.

If superintendents are seeing symptoms like those described above, they should collect cup-cutter size samples and provide them to the plant diagnostic labs in their states.

Be aware that diagnostic samples should not be sent across state lines unless the receiving lab has an APHIS permit for out-of-state samples.

SHADE TREES, FOREST TREES & ORNAMENTALS

MAY BEETLES CAN STRIP OAKS
by Lee Townsend

Some of the many species of May beetles that emerge from sod fields during May and June eat oak foliage, leaving only veins. The larval stages are white grubs that feed on the roots of grasses. Large expanses of turf or pasture can produce thousands of these beetles. Trees can be stripped after just a few nights of feeding. The beetles leave the trees during the day to hide and to lay eggs in sod fields. Consequently, the damage is present but there is no sign of the cause. The feeding period lasts for several days. Sevin, or one of the pyrethroid insecticides, can be very effective against these insects if damage is detected early and small trees need to be protected.

MAPLE PETIOLE BORER AND LEAF DROP
by Lee Townsend

Petiole boring by a small wasp larvae may cause sudden drop of many sugar maple leaves may during May. Infested leaf stems usually break at a darkened area near the leaf blade. Usually infestations are limited to sugar maples and only about 25% to 30% of the leaves fall to the ground. While spectacular, the leaf drop has little effect on tree health. Buildups of scales or aphids, or drought

stress can cause leaf loss but these typically occur later in the year. Leaf drop due to borers is seen earlier in the season and the leaf blades may still be green. Leaves from trees stressed by sucking insects or drought usually have turned yellow before they drop. Splitting the petiole carefully near the leaf blade should reveal the larva or the tunnel.

There is one generation each year. Infestations begin as the adults, small wasps about 1/6" long, appear in May and lay their eggs in petioles near the leaf blades. Legless, white grubs with distinct light brown heads hatch from the eggs and tunnel inside the leaf stem for 20 to 30 days. The weakened stem breaks and the leaf floats to the ground.

The borer larvae generally remain in the portion of the stem left on the tree. About 10 days after leaf drop, the rest of the stem falls to the ground. The mature larva, about 1/3" long, leaves the stem through a hole in the side and burrows into the soil. It will change to the pupal stage and remain in the soil until the following spring.

Maple petiole borer infestations are infrequent and unpredictable. Also they do not appear to harm tree health so insecticidal control is not recommended. In addition, probably preventive treatments, applied well before leaf drop, would be necessary. It may be possible to reduce future infestations by picking up and destroying infested stems, the short sections without leaves, about 7 to 10 days after the first leaves fall. This sanitation program needs to be continued throughout the leaf drop period and must include all infested trees in the vicinity to be most successful. Raking and disposing of the leaves will not reduce the population because the insects are not in that portion.

DIPLODIA TIP BLIGHT ON SCOTS PINES IN KENTUCKY

by Amy Bateman, Plant Pathology Grad. Student

Scots pine has been one of the most popular Christmas trees grown in Kentucky for decades. This is in part due to the fact that Scots pine seedlings are inexpensive to purchase and grow to a salable size in less time than other Christmas tree species, and short-needled varieties have been developed specifically for Christmas tree use. Unfortunately, in the last ten years, Diplodia Tip Blight has become an increasingly devastating problem for Christmas tree growers in Kentucky. Unlike Austrian pines in the landscape, Diplodia Tip Blight on Scots pines typically produces symptoms on trees before cone-bearing age, including seedlings. Even though the same fungus causes tip blight on both Austrian and Scots pines, the symptoms on Scots pines are much different than those on Austrian pines.

Like Austrian pine, the first symptoms on Scots pine arise in late April through early May. However, these symptoms are often not browning needles, but rather a water-soaked lesion in the middle of the expanding shoot. This water-soaked lesion quickly (within a day or two) turns into a necrotic, resinous canker that can range from dark brown to almost black in color. This canker will expand from the middle toward the shoot tip, turning the entire shoot brown-black. During the early stages of canker development, needles along this canker (tip to middle of shoot) start to die and turn a straw brown color even before they fully emerge from their needle sheaths. As with the Austrian pines, the needles and shoots are stunted and killed very quickly. One major symptom difference between the Austrian and Scots pines is that the canker that forms on Scots pine shoots causes the tip to curve over forming a "shepherd's crook." The shoot from the tip to the middle where the canker formed is dead, but the shoot below the canker is still living and green. On some shoots canker development does occur at the base, causing the entire shoot to die, but the majority of blighted tips form a half dead, crooked shoot. Unlike Austrian pines, these tips are not as resinous (resin does not exude from the needles nor does it coat the dead tip) and therefore do not turn a grayish color.

Typically, during the first year of infection, the needles at the base of diseased shoots as well has older healthy needles do not die. Like Austrian pines, infections year after year can lead to the death of older needles as well as branch dieback and trunk cankers, and ultimately tree death. Trunk and branch cankers are often coated with exuded resin, which dries and leaves white patches and droplets on the bark. Most Christmas trees are removed well before they die from this disease. This disease can also infect and blight the tips of seedlings (one to two years old).

In the past five years especially, this disease has been very devastating to the Christmas tree industry in Kentucky, especially in plantings where the majority of the trees are Scots pines. Surveys conducted over the past two years have shown that on some plots as much as 68% of the Scots pines are showing symptoms of Diplodia Tip Blight. Most of the larger trees (5-7 years old) have less than 20% blighted tips, but in an industry that is ruled by aesthetics, that is a very high number; too high for many growers to accept. Unfortunately, this disease has been so devastating and frustrating to growers that many of them are forced to search for different species of trees to plant and some have said that they are refusing to plant any more Scots pines.

SPRING WEATHER AND LANDSCAPE TREE DISEASES
by John Hartman

Due to the early April freeze, the foliage of many landscape trees are having to re-emerge and produce new leaves and shoots later than normal. During wet spring weather, new shoots and leaves are often more vulnerable to attack by plant pathogens than mature foliage would be. Last week, especially during the period May 3-5, plant foliage statewide was kept in a state of prolonged wetness while temperatures averaged 60-65F. Indeed, based on data obtained from the U.K. Ag Weather Center and monitored for disease prediction, continuous leaf wetness of 30 or 40, and even 50 hours were recorded in some locations last week. These conditions were ideal for infection by many fungal pathogens of landscape trees.

Apple scab. Depending on temperature, certain numbers of hours of leaf wetness are needed for scab infections to develop. Last weeks prolonged leaf wetness certainly provided an opportunity for heavy scab infections of susceptible, unsprayed flowering crabapples. Expect symptoms to appear in about a week.

Sycamore anthracnose. In spring, cool (below 55F) wet temperatures favor twig blight over leaf blight for sycamores attacked by the anthracnose fungus while warm, wet temperatures would favor leaf blight. Last week's weather would have favored the less damaging leaf blight.

Ash, maple, and oak anthracnose. Wet weather favors anthracnose diseases of these landscape trees. With new foliage especially vulnerable, look for leaf spot and blight symptoms to appear in the coming weeks.

Dogwood anthracnose. This disease is favored by cool, wet weather. Perhaps, like sycamore, warmer weather during the time of leaf expansion and disease susceptibility, dogwood anthracnose would be less of a threat. This disease is most active in heavily shaded landscapes.

Fire blight. Primary infections of fire blight, a bacterial disease, occur during bloom. On flowering pears and some flowering crabapples, these infections probably took place on April 3 & 4, before the freeze. Last week, symptoms of primary infections appeared statewide. The recent stormy weather no doubt improved chances for the disease to spread and initiate the secondary infections of the shoots.

The role of wetness. Notice that the common thread for all these diseases is that foliage must be wet. Prolonged wetness increases the chance for infection. It is assumed that the freeze did not reduce the levels of disease-causing inoculum in the landscape. Look for symptoms in the coming weeks.

P. ramorum FINDS IN 2006 AND 2007 - UPDATE AND CLARIFICATION
by Patricia de Sá

In the April 23 edition of Kentucky Pest News we grouped all nursery related *Phytophthora ramorum* finds for 2006 including trace forward, trace back and other investigations in nurseries, and nursery and other retail outlets selling ornamental plants as results of National Nursery Surveys. To make this information more specific and to clarify the results, we consulted the California Oak Mortality Task Force (COMTF) reports, APHIS updates and other sources. The *P. ramorum* positive finds results for 2006 according to the APHIS Emergency and Domestic Program Update, are the following: sixty two positive sites in eleven states were identified through State Inspections, Federal Order, Nursery Survey and other finds, that included two residential sites. Nursery Survey results were reported by 46 states and 4,843 nurseries were visited with 147,347 samples collected and 395 were confirmed positives. The state of Wisconsin included searching for *P. ramorum* in the regular nursery inspection. Alaska, Iowa, Missouri and Puerto Rico did not participate in the Nursery Survey. According to the APHIS *Phytophthora ramorum* Program update of October 2006, the states that had one positive find each were Alabama, Connecticut, Georgia, Indiana, Maine, Mississippi, Pennsylvania; there were 27 positive finds in California, three in Florida, 13 in Oregon and eight in Washington. Indiana had one plant that tested positive for *P. ramorum* and was part of a Trace Forward Survey collected from a small retail outlet, not a nursery sample.

In 2007 to date there have been seven positive nursery sites in four states: Washington, California, Florida and Mississippi. These were identified through inspections required by Federal Regulations, after State Inspections, Nursery Surveys and other detections. To date there have been seven positive sites in four states: Washington, California, Florida and Mississippi.

During 2007 18 states have agreed to conduct nursery surveys according to the Nursery Survey Protocol. In Kentucky the survey will focus on 20 nurseries and garden centers in areas considered to be at risk for *Phytophthora ramorum* establishment.

LIVESTOCK

INSECTICIDES FOR FLY CONTROL ON HORSES
by Lee Townsend

Several species of nuisance and blood-feeding flies attack horses from spring through fall. Key pests can vary regionally and are greatly affected by seasonal weather. In many cases, the breeding sites or sources cannot be managed so efforts must be directed at protecting the animals. A wide range of products are available but they contain on one or two common active ingredients. This publication provides representative types of products and points to consider in selecting control measures.

While there seems to be a bewildering array of products, the list of active ingredients on each label will allow you to sort through them and look for similarities and differences. This information appears in a box below the brand name and includes the common name of the active ingredients (ai) and its % concentration. Each insecticide ai has a common name (e.g. pyrethrins) that will let you recognize exactly what the product contains. Most have one or more of 3 main active ingredients. Often, additives are included to extend the length of protection or to provide some other feature to set the product apart from competitors.

POULTRY

NORTHERN FOWL MITES
by Lee Townsend

The northern fowl mite is a common and important external parasite of poultry. In commercial and home flocks, large numbers of these blood-sucking mites can produce anemia, reduce egg production, or general thriftiness of the birds, and greatly stress them. In addition, the mites will bite humans and produce significant skin irritation or dermatitis.

The life cycle takes place entirely on the bird with the mites concentrated around the vent (anal) area. Under favorable conditions, development from egg to adult can take only 5 to 12 days so large numbers can build up rapidly in a flock. The mites do best in a temperature range of 65 F to 68 F so numbers peak at cooler times during the year.

Light infestations of the mite can explode into very heavy infestations (20,000 mites per bird) in 8 to 10 weeks. Once a bird is moderately infested, the mites can spread within the flock, primarily by bird to bird contact. However, the mites can live off of the host for 2 to 3 weeks. They can be moved on egg crates, flats, egg collectors, or even rats living around the chicken house.

Control of northern fowl mite infestations requires thorough treatment using a high pressure sprayer to deliver about 6 fl oz of finished spray to each bird. The vent area must be thoroughly wetted to the skin to kill the mites. Compressed air (pump up) sprayers generally do not do an adequate job of forcing the spray into the feathers.

Two factors affect mite control. First, eggs laid on the birds are not killed by the insecticides. This serves as a continuous reinfestation threat. Second, some birds are not treated thoroughly. They cluster during spraying and can screen each other to block good spray deposit. Small numbers of surviving mites on these birds can act as a reservoir to re-infest the flock. A second application, 4 to 7 days after the first, will help to control escapees or newly hatched mites. Check the insecticide label for re-treatment intervals.

Northern fowl mite infestations can begin in several ways—

1) Wild birds entering broiler houses or nesting in and around them can be sources. Nestling birds can have high mite loads. Mites left behind when these birds leave the nest can wander off to find a new host. Screen out wild birds to reduce chances of mite introduction.

2) Consider any birds entering the flock to be infested. Treat them preventively before release. Ideally, they should receive two applications before mixing with the flock. Roosters can carry larger mite populations than hens and the mites on them can be much more widely distributed on the body, also. Inspect and treat roosters that are used to "spike" breeding flocks.

3) Regularly insect a portion of birds in the flock for mites. This will help to detect infestations early and allow for a treatment before a general spread throughout the flock

DIAGNOSTIC LAB—HIGHLIGHTS
by Julie Beale and Paul Bachi

Tobacco transplant samples from the past week included Rhizoctonia damping off, Pythium root rot, cold injury, phytotoxic effects from fungicide use, fertilizer burn and heat injury.

On vegetable samples we have diagnosed Botrytis blight

on lettuce and early blight on tomato transplants.

On ornamentals and turf we have seen Phoma canker and dieback on vinca; high pH/low fertility on calibrachoa; iron deficiency on petunia; Lophodermium needlecast on pine; Phomopsis twig blight on juniper; and necrotic ringspot and rust on bluegrass.

INSECT TRAP COUNTS

UKREC, Princeton KY

Kentucky

April 27-May 4, 2007

Princeton, KY

Black cutworm 12
True Armyworm 188
Corn earworm 3

Lexington, KY

Black cutworm 6
True Armyworm 209
Corn earworm 0

This season insect trap counts will be provided for locations in Kentucky and Tennessee.
View trap counts for past seasons and the entire 2007 season at –
http://www.uky.edu/Ag/IPMPrinceton/Counts/2006trapsfp.htm
View trap counts for Fulton County, Kentucky at -
http://ces.ca.uky.edu/fulton/anr/
For information on trap counts in southern Illinois visit the Hines Report at –
http://www.ipm.uiuc.edu/pubs/hines_report/comments.html
The Hines Report is posted weekly by Ron Hines, Senior Research Specialist, at the
University of Illinois Dixon Springs Agricultural Center.

The following chart shows 2007 True armyworm trap counts in green as compared to 2006 and also the average for 2002 through 2005.