The disease is a girdling stem canker and soft rot caused by the fungus *Sclerotinia sclerotiorum*. Until the float system appeared, we very rarely diagnosed cases of collar rot in tobacco transplants, about ten cases in 50 years. However, since the arrival of float beds in the 1990’s, in spring time during prolonged periods of cool and wet weather without much need to heat, Kentucky’s tobacco growers have begun to regularly experience outbreaks of collar rot. Some region of the Commonwealth experiences significant damage from Sclerotinia each year.

Infections of Sclerotinia can occur at any time, but symptoms are seldom noticed until after the canopy has closed among seedlings and clipping has started. Plants that are growing rapidly during the five to seven-week period after germination seem to be most often involved, especially when this growth stage coexists with cool wet weather, but not so cool that heating of the system is necessary. First symptoms often appear as small cluster of plants with poor color or yellowing and willing down, especially in drip zones and areas with poor air movement of the greenhouse. If Sclerotinia is involved, examination of the plants in these areas should reveal white cottony mycelium with or without sclerotia (these are white at first becoming dark with age, and resemble rodent droppings). These sclerotia play little role during the current season, but are the over-wintering stage that generate inoculum for later epidemics; therefore, be careful where you leave them.

Chemical controls are not an option for this disease. Moreover, the fungicides labeled for use in tobacco transplant production to control other diseases have no significant impact on Sclerotinia. Even where research has demonstrated control, chemical manufacturers have been unwilling to label the products for tobacco. Consequently, control efforts rest with careful manipulation of the environment (especially reducing moisture), clipping management, and reducing debris.

Reducing moisture around the plant is the most important step in control of Sclerotinia disease in transplant production systems. I cannot stress this point enough. In fact, longer periods with wet leaves and stem moisture is the main reason float beds experience Sclerotinia. Sclerotinia requires wet plant material to infect and to sustain colonization in seedlings. Moreover, the wet periods need to be long; 16-72 hours of continuous wetness are required to sustain the colony outside the host. Without these long periods of moisture, the colony is confined to scattered plants that are initially infected, rather than the “nest” which result with spread from single plants during the prolonged wetness. Therefore, any condition that contributes to long periods of a wet plant stem could favor disease. Taking steps to improve drying is important. Improving air circulation in the system and within the canopy by proper heating and ventilation is of great value. Also important is good air movement within the canopy, which can be improved with fans, lower plant populations, and keeping bays full of water so that the top of the tray is above the side-boards.

Weakened or dead plant tissues of any kind will greatly favor this disease, assuming the tissue is wet, so be very carefully with clipping operations. We have observed considerable secondary spread by mass movement of the mycelium during clipping and by increasing the amount of dead or dying tissues available to be colonized. It is especially important to avoid dropping clippings into the canopy. At the same time, clipping done correctly can be a valuable tool in reducing the disease by improving air circulation.

However, clipping is often also involved with encouraging the disease, especially when dull blades are used, the plants are extremely lush, or large amounts of clipping debris are left in the beds. All this macerated tissue is ideal food stuff for the fungus, encouraging its colonization and spread, so avoid “feeding the fungus”. Use good clipping machinery that makes clean cuts and lift/vacuum the debris. Avoid dull blades that macerate leaves/veins, sling and drip tobacco juice everywhere, and leave...
clipping debris in the bed. Clipping more often is also important.

Any newly killed or dying plant tissues introduced into the transplants can serve as a good food base for this fungus. I have seen some very serious outbreaks associated with plantings where blossoms from trees and wild mustard have “snowed” outdoor beds and open greenhouses. Take steps to prevent flower petals from landing in tobacco seedlings during ventilation events.

Never discard clippings or unused seedlings near the transplant bed as these serve as important staging and over-wintering sites full of the pathogen with easy access to the next crop of transplants. Such debris sites should be located more than 100 yards away - better yet, bury the debris. Also, maintain regular weed control near the greenhouses to avoid build-up of Sclerotinia in its many weedy hosts.

CORN

EARLY HARVEST AN OPTION TO REDUCE FUMONISIN RISK
by Paul Vincelli

Although Kentucky corn producers are currently thinking more about planting than harvesting, it is not too early to consider harvest practices for the 2004 crop. A recently published research paper from North Carolina State University provided a rather careful look at the timing of fumonisin contamination in North Carolina. Fumonisins are a class of mycotoxins (toxins produced by fungi) which cause toxicity to horses, swine, and other animals. There is also concern about possible detrimental health effects of fumonisins to humans. Fumonisins commonly are produced by the fungus Fusarium verticillioides, the fungus that causes Fusarium ear rot. Fumonisins do not occur widely in Kentucky, but contamination of corn can sometimes develop in the field, especially when hot, dry weather occurs prior to and during silking. Contamination can also occur under improper storage conditions. More information on fumonisins in corn is available online at http://www.ca.uky.edu/agc/pubs/id/id121/id121.pdf.

Fumonisin contamination in the field has sometimes been associated with late-season rains on corn where harvest has been delayed, although this has not been carefully demonstrated in published research. The NC State study closely monitored both kernel infection by Fusarium verticillioides as well as fumonisin contamination during the grain fill period at two locations prone to fumonisin contamination over a two-year period. Key results of the study are as follows.

1. Kernel infection by Fusarium verticillioides began 4-6 weeks after silking, and infection increased for several weeks after that.

2. Fumonisin contamination was first detected 4-6 weeks after silking, and it increased over a period of 3-6 weeks after first appearance.

An important conclusion of this study is that in years with stressful weather favorable for fumonisin contamination, it may be advantageous to harvest at a moisture content of 25-28% MC and dry down the grain to below 16% MC within 24 hours. This should help to reduce the risk of fumonisin buildup, as compared to letting the crop dry down in the field.

On a related issue, one would expect that a corn hybrid with partial resistance to Fusarium ear rot would have less fumonisin contamination. This is exactly what the researchers found in one of the two test locations. However, in the other location, it was surprising to see that the more resistant hybrid actually had more fumonisin contamination than the more susceptible hybrids in the test. Thus, use of a hybrid known to have partial resistance to Fusarium ear rot does not provide an assurance that fumonisin levels in the harvested grain will always be lower than in a more susceptible hybrid.

FORAGE

MUSK THISTLE IN KENTUCKY PASTURES AND HAY FIELDS
by J. D. Green, Extension Weed Science Specialist

One of the most troublesome weed problems in Kentucky pastures and hayfields are thistles. Thistle plants can interfere with livestock grazing and limit the amount of available forage. The spring and early summer months is when thistles become a major problem for land owners and livestock producers who graze cattle or produce hay.

Musk thistle, also called nodding thistle, is the most common type of thistle plant found in Kentucky. It is considered a noxious weed because of its ability to reproduce rapidly and limit pasture production. Musk thistle only reproduces by seed. Therefore, the major aspect of any control efforts is to prevent or limit new seed production.

Seed typically germinate in the fall and young thistle plants form a rosette which grows close to the ground during the winter months, often growing unnoticed until the spring. The most active vegetative growth period of the plant is in the spring throughout the early summer months. The leaf surface is waxy in appearance and contains spines along the leaf margins. Flower stalks emerge from the rosettes and are followed by bright purple to reddish flowers, which bloom in late May to early June. New seed develop within the flower heads and at maturity are easily carried by the wind and spread to other areas.

The most important step in a long-term control program for musk thistle is to prevent flowering, and the production and spread of new thistle seed. This can be accomplished by using various mechanical, biological, or chemical control methods.

Mechanical control consists of mowing, clipping pastures, or even hand-grubbing individual plants. These control methods should be initiated before flowers begin to open. Some regrowth and production of flowers can occur after mowing, but seed production will be notably less than if a timely mechanical control method had not been used. Thistle plants mowed or removed by hand after flowers have bloomed contain enough energy reserves that these plants will still produce viable seed.

A reduction in musk thistle populations can also be obtained through biological control methods. Two different insects are known to inhibit thistle growth and development, the Thistle-Head Weevil and the Thistle...
Rosette Weevil. The Thistle-Head Weevil can be found during the spring in many counties throughout central Kentucky. These insects feed on the maturing seed inside the developing flower head. The impact of the Thistle-Head Weevil will not eliminate all seed production, but can significantly reduce the amount of seed produced by individual plants in areas where the insect has become established.

Broadleaf herbicides labeled for use in pastures can be applied in grass pastures and non-cropland areas for control of musk thistle rosettes. For herbicides to be effective, however, the timing of the application is critical. Best results can be obtained if herbicides are applied to thistle plants that are in the early rosette stage of growth and actively growing. Therefore, the best times for herbicide application are in the early spring (during March and April when plants are actively growing) or in the fall (October or early November following new seed germination). When plants are in the rosette stage they are more susceptible to herbicide applications.

Herbicides which can be used in pastures include 2,4-D, Banvel, Crossbow, Redeem R&P, and Weedmaster. For spring herbicide applications apply when air temperatures are above 55°F for 2 to 3 days. Complete spray coverage of the plant is also important. When herbicides are applied after flower stalks elongate, control will be less effective and inconsistent. When using herbicides for control consult the waiting period on the product label for livestock grazing restrictions following a herbicide application. Avoid spraying near crops such as tobacco, vegetables, or ornamental plantings. Also, avoid spray drift by not spraying on windy days or days with extremely high temperature and high humidity.

**BIOLOGICAL CONTROL OF MUSK THISTLE IN KENTUCKY**

**By Lee Townsend**

Two European weevils that attack musk thistle are established in Kentucky and are contributing to the biological control of this weed. The thistlehead weevil was released in central Kentucky in the late 1970’s and has been distributed over much of the state. The grub-like larvae of this one-fourth inch long beetle feed in the flower heads and destroy seeds. Larvae of the rosette weevil, the second species, attack the rosette stage of the plant, burrowing into the taproot, often killing it. This weevil is established in central Kentucky, and in cooperation with the Ky Transportation Cabinet, is being introduced into other areas of the state. Together, these weevils provide a sustainable component of control that will spread over existing thistle infestations on their own. These insects help to manage the weed in inaccessible areas or on land where control measures are not implemented.

**SMALL GRAINS**

**TRUE ARMYWORM FLIGHT HAS BEGUN**

**by Doug Johnson**

In the last edition of KPN we noted that the first true armyworm and black cutworm moths were captured in 2004. Once again, we find both insects in our traps. At present the numbers are small, which is what we expect. However, it is time to begin watching for these pests. It should also be noted that both insects have also been caught in the So. Illinois trapping system. I spoke with Ron Hines on the phone today (03/25/04) and he indicated that their moth capture is increasing. We hope to have a website address for the So. Illinois trap data in the next issue or so.

By comparison the 2004 capture is about a week earlier than the 2003 capture. However, that probably does not mean much. Additionally, the timing of this years capture is about the same as the “rolling” five-year average. You may view pheromone trap data for field crops on the IPM Web pages at: http://www.uky.edu/Agriculture/IPM/ipm.htm just select “Pheromone Trap Counts” from the menu bar. This site holds current and historic data for a number of insect pests of KY field crops.

The only “major outbreak” of true armyworm in Kentucky for the last 20 or so years occurred in 2001. First generation peak flight then occurred about mid April. So, we should have plenty of time to watch for any buildup.

Even though we do not often have major outbreaks, true armyworms are present every year, so fields of small grains and corn may be subject to large local populations. Corn is especially at risk when planted early and into or near standing grasses (including small grains). Keeping a watchful eye is always the best economic investment.

Controlling true armyworm in either small grains or corn is not especially difficult. The difficulty lies in knowing if the field is infested and when the population reaches a level that needs to be treated. Generally speaking unless true armyworms are clipping the heads off of wheat or other small grains, they are very unlikely to do economic damage.

**SOYBEAN**

**BURNDOWN CONTROL OF MARESTAIL IN FULL-SEASON NO-TILL SOYBEANS**

**by James R. Martin, Extension Weed Scientist**

The choice and timing of burndown applications are key factors affecting marestail control in no-till soybeans.

Glyphosate is typically preferred over parquat for burndown control of marestail. However, there are occasions when glyphosate is inconsistent in managing this weed. Poor weather conditions, low herbicide rate for the size of weed, and tank mix antagonism have historically caused problems with glyphosate; yet a new emerging issue deals with biotypes that are highly tolerant or resistant to glyphosate.

The problems that we sometimes see with controlling marestail with glyphosate can often be overcome by including 2,4-D ester as a tank mix partner in early preplant burndown applications. The drawback with using 2,4-D ester is the risk of injury to soybeans. In order to minimize this risk, 2,4-D ester must be applied 7 to 30 days ahead of planting. Treatments with 0.5 lb (acid equivalent) ae of 2,4-D ester/A require a minimum of 7 days between application and soybean planting; whereas, 1 lb ae of 2,4-D/A requires at least 30 days between application and planting. The rate of product will vary depending on concentration of the 2,4-D formulation used. Consult the label for specific directions. Unacceptable crop injury may occur when 2,4-D is applied as a pre-plant
treatment to soybean. Plant soybean seeds at least 1 ½ to 2 inches deep. Adjust planter press wheels to ensure that soybeans seed are completely covered with soil. Do not cut soybeans for feed or graze fields treated with a 2,4-D pre-plant application. Do not exceed 1 lb ai/A/season.

The following list of 2,4-D ester products helps illustrate the differences in formulations and importance for following label directions for recommended rates and waiting period between application and planting of no-till soybeans.

<table>
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<th>PRODUCT</th>
<th>WAITING PERIOD</th>
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<td>7 days</td>
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<td>Salvo (5 lb ae/gal)</td>
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<tr>
<td>Weedone LV4 EC (3.84 lb ae/gal)</td>
<td>1 pt/A</td>
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<tr>
<td>Weedone LV6 (5.4 lb ae/gal)</td>
<td>0.67 pt/A</td>
</tr>
<tr>
<td>Weedone 638 (2.8 lb ae/gal)</td>
<td>1.33 pt/A</td>
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The size of marestail can also determine when to spray burndown applications. Ideally burndown treatments with 2,4-D ester should be applied before marestail exceeds 6 inches in height. In order to achieve this goal, treatments should be applied before the first of May. Emergence and growth of marestail is usually delayed where there is a heavy cover of vegetation or dead residue.

The fact marestail can emerge throughout the season can complicate your control strategy. Including ALS inhibiting herbicides such as Canopy XL, FrstRate, or Amplify with the burndown treatments, can provide soil-residual control as well as enhance burndown control of marestail that is tolerant or resistant to glyphosate. However, since ALS-resistant marestail has been confirmed in some neighboring states, there is a remote chance these herbicides may not provide the desired level of control.

As you prepare for this season, do not take for granted that rotating to corn last season will eliminate the risk of having marestail in your soybeans this year. There were reports of glyphosate-resistant marestail in no-till soybean fields that were in corn in the previous season. Marestail seed have plumes of hairs that can facilitate their movement in wind currents from adjacent or nearby infested fields. Observe fields early, particularly those that have a history of marestail or ones that are adjacent to problem fields. Prepare a strategy that will be timely. Delaying your tactics will decrease the chance of successfully managing this problem weed.

SHADE TREES & ORNAMENTALS

SUDDEN OAK DEATH A THREAT TO KENTUCKY?
by John Hartman and Joe Collins*

During recent years, we have been concerned about the possibility that Sudden Oak Death (SOD) disease caused by the fungus *Phytophthora ramorum* would be found in Kentucky. So far it has not been found here, but the threat is real because during the past year, SOD-infected nursery stock may have been shipped to Kentucky. In the February 25, 2002 Kentucky Pest News (issue 941) we reported the USDA SOD quarantine. Our 2003 survey for SOD in which it was reported that no SOD was found in Kentucky was described in the January 12, 2004 Kentucky Pest News (issue 1008). As of this writing, a new Kentucky quarantine is pending final approval.

The following information was obtained from the Kentucky nursery inspectors in our office of state entomologist.

[[Sudden Oak Death, (*Phytophthora ramorum*), has been confirmed on camellias from two California nurseries; Monrovia Nursery in Azusa and Specialty Plants in San Marcos. Specialty Plants is a mail order company that ships bonsai directly to the public. Eleven other nurseries in the area have laboratory samples that are currently being processed for confirmation. This is the only means to determine true positives. Unfortunately, there is more that is NOT known about this organism and the current situation than is known.

Monrovia has sent emails to all of their nursery customers (6 in Kentucky in early 2003) to inform them of the situation and asked them to segregate the host material received from Monrovia until USDA or we arrive to take official action. They are also requesting significant funding for a quality, comprehensive National Survey, and are looking at the components of that survey. It is not known how long this organism may have been in nursery settings. There are a massive number of locations nationwide that have received material and, depending on how long the organism has been present, a massive number of locations that have already been planted in the landscape. At the two confirmed nurseries, Monrovia and Specialty Plants, no hosts or associated hosts are allowed to move from the nursery. An agreement has been made with all 11 nurseries to voluntarily hold all shipments of hosts and associated hosts until final confirmation is received.

The USDA has decided to regulate all known hosts and associated host plants from the entire state of California. Before a nursery is allowed to ship these plants, they must undergo a thorough inspection and samples are taken. However, our office doesn't feel that these measures are sufficient to protect Kentucky's forests and nursery trade due to the vast amount of unknowns surrounding this disease. We are currently working on implementing a quarantine against all California nursery stock that hopefully will better protect Kentucky's forest and nursery industry against this disease.

The following is background information about Sudden Oak Death and *Phytophthora ramorum*.

- Sudden Oak Death was confirmed in central coastal California in the summer of 2000. This previously unknown pathogen had caused dieback of several oak species in coastal counties since 1995. The origin of *P. Ramorum* is unknown.
- Thirty-eight plant species are known to be susceptible to SOD, with 22 listed as regulated host plants by the USDA Animal and Plant Health Inspection Service - Plant Protection and Quarantine (USDA-APHIS-PPQ) and by the California Department of Food and
Agriculture (CDFA). An additional 16 species are listed as associated with the disease, but have not been formally documented as hosts.

- *P. ramorum* causes two kinds of symptoms. The most common and lethal symptom of the disease on oaks is the formation of a moist canker in the bark on the trunk which eventually girdles and kills the tree. Mortality is most often associated with oaks.

- Other host species such as Douglas-fir, rhododendron, California bay laurel, and camellia may show symptoms of leaf spots, leaf tip necrosis, blight and twig cankers, but not death. However, these plants serve as a reservoir for the pathogen.

- Where the disease first becomes established, infection of foliar hosts often precedes bark canker infections of nearby hosts.

- The disease is favored by cool, moist conditions and according to USDA Forest Service information, most of eastern Kentucky would be a high risk region for SOD because of favorable weather and susceptible hosts. In Kentucky forests red oaks could become cankered while rhododendrons, mountain laurel, and others would be pathogen reservoirs.

- Thus far, SOD has been found in California, Oregon, and Washington. The natural spread of SOD in the past three years has largely been confined to 12 counties along the western coast of California.

- SOD is spread through splashing and wind-blown rain, movement of soil (e.g., by hikers or equipment) and infected plant material.

- Camellias infected with *P. ramorum* were found in a small nursery in Washington last year. Plant pathologists traced those plants back to Monrovia Growers in Southern California, where a national survey recently confirmed that six varieties of camellias were infected. An additional infection was found at Specialty Nurseries, another Southern California mail-order nursery. Monrovia is one of the largest commercial nurseries in the country and has shipped host material to over 1,700 nurseries in as many as 40 states, including high-risk areas in the eastern United States.

- If *P. ramorum* escapes into the native oak forests surrounding nurseries in the East (including Kentucky), the effects could be catastrophic.

- In Washington, SOD has only been found in the nursery. In southwestern Oregon, an 11-acre woodland site was found with SOD last year. Eradication efforts, including clearcutting, burning, and herbicide application are currently underway on the site.

- To further complicate matters, a second strain of *P. ramorum* exists in Europe. It is feared that this strain, known as A1, could combine with the North American strain (A2) to form an even more virulent variety.

- APHIS and state plant health regulatory officials are waiting for the lab culture test results from the elevated California nurseries. If any are positive, trace-forward analyses will help determine where infected host material may have been sent.

- Then it will be necessary to conduct a nationwide survey of suspected nurseries to test for the presence of the pathogen.

*Joe Collins is the Kentucky state nursery inspector in the Office of State Entomologist housed in the U.K. Department of Entomology.*

**EASTERN TENT CATERPILLAR STATUS**

**By Lee Townsend**

Most eastern tent caterpillar egg masses should have hatched by now in central Kentucky. Scattered observations point to an overall population level comparable to 2003. Caterpillar numbers should be well below area-wide outbreak levels but there will be some strong local pockets of infestation. Careful inspection of wild cherry and related trees is the way to assess the situation on your farm. Now is the time to begin looking.

ETC larvae are still very small but they are feeding on leaf buds and have started to form tents at branch angles. The tents will become more visible as the caterpillars grow and add to the structure. This will be the key to use to determine treatment sites and timing. At this point, the first full week of April should be the time to assess treatment needs, with continued inspections as needed.

Caterpillar management options are the same as those recommended for 2003. Foliar sprays of Bacillus thuringiensis (Bt) products or the pyrethroid Talstar should be made when the tents are about the size of a baseball.

Bt residuals must be eaten by the caterpillars to treatment should be directed at foliage around active tents. Bt products are most effective against caterpillars that are no more than 1 inch long. Residues of these products are broken down by sunlight and remain on the foliage for less than one week. Two applications of Bt products may be needed for adequate control. Mortality results from disruption of the gut lining of the caterpillars so they do not die until several days after ingesting the material.

The pyrethroid Talstar has contact and stomach poison activity and has a residual life of about 1 week after application. As with Bt products, targeted applications should be used, not full tree sprays.

Trunk injections of Bidrin also have been used successfully to control ETC larvae. As with foliar sprays, use of baseball-sized tents is a good clue for timing treatment to allow determination if injection is warranted.

**HOUSEHOLD**

**IT’S TERMITE SEASON**

**by Mike Potter**

Termite season has begun in Kentucky. During the next several weeks, you’ll probably spend more time responding to termite calls than to any other insect pest. To complicate matters, the public has little understanding of termites, and what should be done if their home is infested. This column will help you answer their questions.

**Q: Why be concerned about termites?**

**A:** Termites cause billions of dollars in damage each year. They primarily feed on wood, but also damage paper, books, foam board insulation, and even swimming pool liners and filtration systems. Termites can injure living trees and shrubs, but more often are a secondary invader of woody plants already in decline. While buildings may become infested at any time, termites are of particular importance when buying or selling a home since a termite inspection is normally a condition of sale. Besides the monetary impact, thousands of winged termites emerging
inside one’s home are an emotionally trying experience, not to mention the thought of termites silently feasting on one’s largest investment.

Q: Why are infestations often discovered during March - May?
A: Spring typically is when large numbers of winged termites, known as "Aswarms", emerge inside homes. In nature, termites swarm to disperse and start new colonies. Triggered by warmer temperatures and rainfall, the winged termites emerge from the colony and fly into the air. The swarms then drop to the ground, shed their wings, pair off with a mate, and attempt to begin new colonies. Should all wings be removed, termites will tunnel indoors to begin new colonies. Swarms emerging indoors are incapable of eating wood, seldom survive, and are best removed with a vacuum cleaner. They do, however, indicate that an infestation is present.

Q: How will I know if my home is infested?
A: Discovering winged termites indoors almost always indicates an infestation warranting treatment. People often confuse winged termites with ants, which often swarm at the same time of year. Termites can be differentiated by their straight antennae, uniform waist and wings of equal size. (Ants have elbowed antennae, constricted waists, and forewings that are longer than the hind wings.) The swarms are attracted to light and are often seen around windows and doors. Termite swarms emerging from tree stumps, woodpiles, and other locations in the yard are not necessarily cause for concern, and do not always mean that the house is infested. On the other hand, if winged termites are seen emerging from the base of a foundation wall or adjoining porches and patios, there's a good chance the house is infested also and treatment may be warranted.

Q: Can I treat the house myself?
A: Ridding a home of termites requires special skills. Knowledge of building construction is needed to identify the critical areas where termites are likely to enter. Many of these potential points of entry are hidden and difficult to access. Termite control also utilizes specialized equipment such as masonry drills, pumps, large-capacity tanks, and soil treatment rods. A typical treatment may involve hundreds of gallons of a liquid pesticide, known as a termicide, injected into the ground alongside the foundation, beneath concrete slabs, and within foundation walls. In short, termite treatment is a job for professionals. A possible exception would be if a mailbox post, sandbox, or termite wall was attached to the house. “Do-it-yourself” termite baits (see bait comments below) sold at retail stores or bought over the internet will seldom eradicate an existing termite problem.

Q: How do I choose a pest control company? Why is there such variance in price?
A: These are complex questions. The company should be licensed by the Kentucky Department of Agriculture. Membership in the Kentucky Pest Control Association and/or National Pest Management Association suggest the company is an established firm with access to technical and training information needed to do the job correctly. As with any service company, references are invaluable. Consider calling at least 2-3 companies, requesting inspections and estimates from more than one company will help verify the existence of a termite problem and allow you to compare services. Companies offer different types of treatment methods and warranties. If termites happen to return, most will retreat the affected areas at no additional charge. A smaller percentage of firms also will repair damage occurring subsequent to their treatment, although dating onset of termite damage is a hard thing to determine. In some cases, no warranty will be offered if wells, cisterns, sub-slab heating ducts, drainage systems, or inaccessible crawl spaces make it impossible to treat in accordance with industry standards.

Q: Which treatment methods and products are most effective?
A: Another challenging question. There are two general categories of termite treatment, liquids and baits. Soil-applied liquid termicides have been around for decades. Their purpose is to provide a long-lasting chemical barrier that excludes termites in the ground from entering buildings. In most cases, termites in the structure die off as well since they cannot return to the soil. Most former products were repellent rather than lethal to termites foraging in the soil. Newer materials such as Termidor (fipronil), Premise (imidacloprid) and Phantom (chlorfenapyr) are non-repellent, and termites tunneling into the treatment zone are killed. Overall the non-repellent products are proving to be much more reliable in their ability to resolve termite problems in the first attempt. All registered termicides (both repellent and
non-repellent) can be effective, however, and homeowners should not base their purchasing decision on product alone.

The other broad treatment category is baiting. Termite baits consist of paper, cardboard, or other A termite-friendly® food, combined with a slow-acting substance lethal to termites. The baits are installed below ground out in the yard in cylindrical plastic stations. Others are sometimes placed indoors over active termite mud tubes. Foraging termites consume the bait and share it with their nest mates, resulting in a gradual decline in termite numbers. On some properties, baits may constitute the only form of treatment; on others, they may be combined with liquid applications to areas where termites are observed. Several baiting systems are available, including Sentricon®, Exterra™, FirstLine®, Advance™, and Subterfuge®.

Termite baiting is a very complex subject. A detailed discussion of the considerations in having your home treated with baits versus liquids is provided in entomology extension publications, Enfact-639: Termite Baits: A Guide for Homeowners. (All four of our termite-related Entfacts were recently updated and posted on the entomology department website). No matter which method or product is selected, it's important to have an experienced technician, backed by a responsible pest control firm.

Q: Does the entire house need to be treated... or can they "spot treat" areas where I see termites?
A: Subterranean termite colonies may contain hundreds of thousands of individuals foraging in many different directions. For the homeowner, localized or “spot” treatments are generally a gamble except in cases of retreatment. Most reputable pest control firms will not warranty spot treatments, since it’s likely that termites will eventually find other points of entry into the structure.

Some companies may offer to do a so-called “perimeter” treatment using one of the non-repellent liquid termiticides (e.g., Termidor or Premise). Typically this will involve a thorough application around the entire outside foundation wall of the building, and spot-treating any infested or high-risk interior areas. If the homeowner is considering such a treatment, they should inquire whether it will be accompanied by a service agreement in case termites return. (Service renewal agreements usually state that if termites return, the company will return and retreat the affected areas at no additional charge provided the renewal agreement is maintained.) Purchasing any treatment approach is a bit of a gamble, unless the offer is accompanied by an ongoing service agreement.

Q: How long will the treatment last?
A: All liquid termiticides are supposed to control termites for at least five years when applied according to label directions. The actual length of control on a given structure will depend on such factors as thoroughness of the application, environmental conditions, and density of termites in the area. Should termites continue to be a problem the year after treatment, it's usually because termites have found an untreated gap in the chemical barrier.

Q: Will the chemicals harm my family or pets?
A: Termiticides are tested extensively for adverse effects on health. Before a product can be used, numerous studies are conducted by the manufacturer and independently evaluated by the U.S. Environmental Protection Agency. Based on the current body of knowledge, registered termiticides pose no significant hazard to humans, pets or the environment when applied according to label directions. Despite the negligible health risk from a properly performed termite treatment, people with lingering concerns should consult their physician. Most of the newer liquid products have essentially no odor. Clients who are still apprehensive may want to consider having their home treated with baits.

Q: Have I been Cheated® if termites continue to infest my house after treatment?
A: Not necessarily. Unlike other services such as plumbing or electrical work, termite control involves living creatures. The best treatments performed by knowledgeable firms may fail at times, when termites find their way through tiny, untreated gaps in the soil. While the intent is to establish a continuous, impenetrable chemical barrier, this is all but impossible to achieve in actual practice. In the case of baits, it may take several months for termites to initially find the bait stations in the soil, and several months more to achieve control. The key is to hire a reputable pest control firm employing experienced, conscientious technicians. Companies will return and retreat affected area(s) at no additional charge provided the service agreement is purchased and maintained.

As mentioned earlier, four different termite-related “Entfacts” were recently updated and are posted on the entomology department website.

INSECT TRAP COUNTS

UKREC, Princeton, KY March 19-26, 2004

<table>
<thead>
<tr>
<th>INSECT TYPE</th>
<th>COUNT</th>
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<tbody>
<tr>
<td>Black Cutworm</td>
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<tr>
<td>True Armyworm</td>
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NOTE: Trade names are used to simplify the information presented in this newsletter. No endorsement by the Cooperative Extension Service is intended, nor is criticism implied of similar products that are not named.