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JUST FOR APPLICATORS

UPDATE ON CANOPY CARRYOVER IN CORN AND SOYBEAN ROTATIONS
by James R. Martin

In last week's Kentucky Pest News (03/27/00) I discussed various scenarios regarding herbicide carryover. The information on Canopy was somewhat vague and possibly misleading.

Soils with a pH > 7.0 will be prone to causing injury to corn from the active ingredient chlorimuron. If Canopy, Canopy SP, or Canopy XL was applied to soils with a pH greater than 7.0 to 7.5, the rotation interval to regular field corn is 18 months. However, the rotation interval for these situations is only 8 months if an IR (resistant) field corn is planted. The 8-month rotation interval applies only to corn hybrids with IR resistance, where resistance is obtained from both parents. Corn hybrids with IT resistence obtain their tolerance from only one parent and do not qualify for the 8-month restriction.

Clearfield is the current term used in identifying imidazolinone tolerance/resistance of corn hybrids (whether it is IT or IR) as well as other crops. Since IR and IT are no longer used in identifying this resistence, it difficult to know for certain the degree or source of resistance. Nearly all Clearfield corn hybrids have IT tolerance instead of the IR resistence. Pioneer 32Z18 is probably the only corn hybrid that is marketed in Kentucky that obtains resistence from both parents and would qualify for the 8-month rotation interval where Canopy products were used on soils with a pH greater than 7.0 to 7.5. The opportunity to utilize the 8-month will become more limited since the current and future development of Clearfield corn hybrids will focus on the IT instead of the IR characteristics.

Soils and Canopy

2. Canopy: Soils with a pH > 7.0 will be prone to causing injury to corn from the active ingredient chlorimuron. Planting an imidazolinone- resistant corn (i.e. Clearfield hybrids) and allowing a 10-month rotation interval is recommended where soil pH is between 7.0 and 7.5. Spray drift is a potential problem almost every time a pesticide application is made. The following information, from the Environmental Protection Agency, provides a good review of something every applicator should know.

TOBACCO

ALGAE + WATER = SHORE FLIES
By Lee Townsend

Shore flies are small gnats that can be found most anywhere moisture and algae are present. The legless larval stage of this insect develops in algae

and the adults spend much of their time on or around it.

While shore fly larvae feed primarily on algae, they can make holes in the leaves of tobacco seedlings that are in contact with the growing media. The injury resembles feeding by small cutworms. Very small seedlings can be completely destroyed by shore fly larvae.

The life cycle of these flies is relatively short so thousands of them can build up in a greenhouse in a few weeks. The adults feed by blotting up liquids so there is no plant damage, but they can pose a problem of their own. Researchers have shown that these flies can carry Pythium on their bodies and can serve as a means of spreading this pathogen group.

Physical exclusion and water management are key factors in reducing breeding sites. Screens on windows and doors will prevent these flies from entering greenhouses. Reducing standing water in and around greenhouses and float beds will reduce breeding sites, also. Avoid overfertilization which promotes algae growth in the float beds and minimize the amount of "open water".

Visual inspection for adults is usually adequate to determine whether or not there is a problem. Adults can be observed resting on plants, soil, windows, or walls or
they may be seen flying around. Yellow sticky cards used to check for many types of greenhouse pests, can be used to detect buildups, too. Many more flies will be caught if the traps are laid down horizontally, rather than vertically.

Foliar sprays of Orthene may reduce shore fly numbers over time but this approach is only targeting the adult stage. The flies are killed by direct contact with the spray droplets, and to some extent by resting on treated leaves. The treatment does not make it down into the algae where the larvae are feeding so adults will continue to emerge. Repeated applications, at intervals specified on the label, should help to reduce the problem.

Shore fly larvae only pose a threat to small seedlings, so early build ups are more important than those that occur when the plants are large.

WHEAT

GOT MILDEW?
by Don Hershman

I have received numerous reports from throughout the state that powdery mildew is becoming a serious problem in some fields. Powdery mildew is always active this time of year, but reports suggest that the activity of this disease is greater than usual. This increased activity is probably linked to the unseasonably mild fall, winter and early spring (thus far) conditions.

I wish the news was good for dealing with powdery mildew, but it is not. Of course, the best way to manage this disease would have been to plant a resistant or moderately resistant variety last fall. Alternately, seed could have been treated with the seed treatment fungicide, Baytan, as a preventative before planting. However, hindsight is always 20/20 and the cost of Baytan is high enough and projected wheat prices low enough that few could have been expected to utilize the Baytan option in Kentucky.

In the past, powdery mildew was easily and economically managed by applying 2 oz/A rate of the foliar fungicide Bayleton. However, the manufacturer, Bayer, opted not to support the wheat label for that product during the re-registration process. Thus, the new product label for Bayleton does not provide for application to wheat. Old product with wheat on the label is still legal to use on wheat, but by now older stocks of Bayleton are difficult to find at best.

Tilt and Quadris are both labeled for powdery mildew control. However, if either product is applied now for control of powdery mildew, mid- to late-season disease pressure may demand a second fungicide application. We have proven many times over that applications of foliar fungicides up to flag leaf emergence are ineffective in managing late-season disease pressure. The application is simply too early to last throughout the season. This is a moot point for Tilt because that product is limited to one, 4-fl oz application per acre per year. In addition, **Tilt no longer has a 24c label in Kentucky**. Thus, Tilt cannot legally be applied after flag leaf extension. The main point is that Tilt's utility in managing late season disease pressure in Kentucky is now very limited. Quadris could be applied later if either Tilt or Quadris had been used earlier to control powdery mildew. Specifically, the Quadris label provides for up to two applications per year. However, the high cost of Quadris probably excludes this as a possibility for the majority of farmers. This situation is exacerbated by the fact that powdery mildew is Quadris' Achilles' heel. The minimum rate suggested by the label for powdery mildew control is 7.7 fl oz/A. This is an expensive treatment in itself (about $17.50/A for chemical), but when you couple that with another possible application of Quadris, the cost would be excessive in the current economic climate.

So what do I recommend? If powdery mildew is becoming a serious problem and you have an

excellent crop, you have no choice but to apply a foliar fungicide. Delaying an application now, with the idea of providing some late season disease control, could backfire seriously if the crop is heavily damaged by powdery mildew. If you can find old stocks of Bayleton with wheat on the label, that would be your most economical and effective application (at the 2 oz/A rate, that is). Tilt would be the next least expensive option. In addition, Tilt is more effective in managing powdery mildew than Quadris, especially at lower recommended use rates for Quadris.

On a related topic, the only foliar fungicides that can be applied after flag leaf emergence in Kentucky are Quadris, mancozeb, and Benlate + mancozeb. Current low wheat prices and the high cost of Quadris may give reason for producers to take another look at the inexpensive, protectant fungicide, mancozeb. Applied properly, and before infection takes place, mancozeb can provide good control of leaf and glume blotch and very good control of leaf rust. The key is to get uniform coverage of flag leaves and heads. This requires excellent application technique, use of spray adjuvants, and sufficient application volume (20 gal/A ground- and 5/gal/A aerially-applied). Adding Benlate to the mix will significantly increase the cost, but will provide only minor gains in leaf and glume blotch control and no addition leaf rust control. The Benlate label also provides for a tank mix of Benlate and Bayleton for powdery mildew control. However, do not expect the Benlate component of that tank mix to do much in the way of powdery mildew control.

PASTURE

MUSK THISTLE CONTROL IN KENTUCKY PASTURES
by J. D. Green

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 seed production.

The primary growth period of the plant is generally in the spring through the early summer months. However, most seed germinate in the fall and form a rosette which grows close to the ground, often growing unnoticed until the spring months. The leaf surface is waxy in appearance and contain spines along the leaf margins. Flower stalks develop in the spring followed by bright purple to reddish flowers, which bloom in late May to early June. The seed, which are produced for the next generation, develop soon after flowering and are easily carried by wind and spread to other areas as well.

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

For mechanical control efforts mowing, clipping pastures, or even hand-grubbing can be used. 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 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. However, for herbicides to be effective the timing of the application is critical. Best results can be obtained if herbicides are applied to plants that are in the early rosette stage of growth and actively growing. Therefore, the best times for herbicide application is in the early spring or fall. Application of herbicides in the spring should be made during March and April when thistle plants are actively growing. In the fall, apply herbicides in 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, 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 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.

VEGETABLES

EXPECT STEWART'S WILT ON SWEET CORN
by William Nesmith

Due to the mild winter, sweet corn growers in Kentucky can expect problems with Stewart's wilt this season. It can cause serious losses in susceptible hybrids following mild winters. Entire plantings can be destroyed when highly susceptible hybrids are involved with high levels of the pathogen. Affected plants show long pale-green, yellow to brown streaks in the leaves, but the more severe phase involves the smaller plants. In young plants, these areas extend into the stem and form rotted cavities, resulting in severe stunting, wilting, or death. The causal agent is a bacterium, Pantoea, but the pathogen overwinters in and is spread (transmitted) by adult flea beetles. Losses can be severe with the more susceptible hybrids, which are often killed or severely stunted.

Control is based on using resistant/tolerant hybrids and management of the adult flea beetles with insecticides (see insect control section, of ID 36, Vegetable Production Guide for Commercial Growers), especially following mild winters. Early control is most critical because seedling infections of highly susceptible hybrids are often lethal. Consider wilt-resistant hybrids where possible this year due to the high disease potential. Hybrids performing well horticulturally in Kentucky are also listed in ID 36.

We are very fortunate that Dr. Jerald Pataky of the University of Illinois has an excellent program for evaluating sweet corn hybrids for susceptibility to Stewart's Wilt. He rates them on a scale of 1 = most resistant to 9 = most susceptible. Below are some of his data for some of the more popular resistant hybrids in the region, including some that did not make UK's recommended list.

RESISTANT hybrids are those that were scored either as 1, 2, or 3 (note the actual score is the number in ( ), which include: Ambrosia (1) , Argent (2), Candy Store (3), Day Star (3), Encore (2) , Flagship II, Incredible (3), Lancelot (2), Merlin (3), Miracle (1), Mystique (3), Precious Gem (3), Punchline (3), Prime Plus (3), Primetime (3), Saturn (3), Sweet Sue (2), Summer Sweet 7620, 7631, and 8102, Silver Queen (3), Silverado (3), Sugar Ace (3) Table Treat (2), Tuxedo (2), Zenith (2).

LAWN & TURF

CULTURAL PRACTICES FOR MINIMIZING GRAY LEAF SPOT PRESSURE IN PERENNIAL RYEGRASS
by Paul Vincelli and David Williams

During the last decade, gray leaf spot of perennial ryegrass became one of the most damaging turfgrass diseases known. Although the disease is not destructive in every growing season, epidemics are so rapid and so destructive that, in regions with a high risk of disease in golf course turfs, fungicides must be used to prevent epidemics from destroying the turf.

One of the reasons for this conclusion is that cultural practices alone provide insufficient control under high disease pressure. Yet there still is great value in implementing cultural control practices on swards at risk for the disease. For one, these can help reduce disease pressure, and thus reduce the overall need for fungicides. Secondly, the use of sound cultural practices to minimize disease pressure is the foundation of a fungicide resistance management program. The repeated use of fungicides on swards where disease potential is very high sets the stage for the development of fungicide-resistant strains.

Although research continues on this disease, the following comments represent a summary of my understanding of how cultural practices can reduce gray leaf spot pressure in perennial ryegrass. This is based on extensive research at Rutgers University (S. Vaicunas and B. Clarke), research at the University of Kentucky (D. Williams and P. Vincelli), and field observations by numerous

professionals experienced with gray leaf spot.

Nitrogen should be avoided in spring and summer, but if necessary, spoon-feed a total of no more than 0.1 to 0.25 lb nitrogen/1000 sq ft during this period. High nitrogen fertility enhances susceptibility to the disease. Light N applications past mid-September may help damaged turf recover faster, but avoid high N use during the period for peak disease activity.

Don't irrigate as dusk approaches. This is a standard recommendation to reduce the activity of foliage-infecting fungi, which thrive during long periods of leaf wetness. Irrigation around sunrise can actually help speed drying of leaves, while irrigations near dusk allow for long periods of uninterrupted leaf wetness.

Maintain a standard mowing height in fairways. Golf course superintendents are accustomed to hearing plant pathologists advise them to *raise* mowing heights for control of so many other diseases such as root rots. However, all studies to date suggest that there is no reason to modify current mowing heights in fairways being mowed at 5/8 inch or less. Over a three-year period, scientists at Rutgers University found consistently that lower mowing heights were associated with less disease. This has been consistent with the experience of most golf course superintendents, especially in the Mid-Atlantic states, where the disease usually first appears in the taller-cut roughs. In studies at UK, we have not found a consistent mowing height effect, but based on our studies, we do not expect close mowing heights on fairways to substantially influence activity of gray leaf spot in our region, either. It is less clear what to do with roughs of perennial ryegrass. In the Mid-Atlantic region, superintendents may be well-advised to lower mowing heights to reduce disease pressure. However, in the Midwest, where the influence of mowing height is not as consistent or pronounced, our concern is that the possible benefit from occasional modest reductions in gray leaf spot pressure resulting from a lower mowing height would more than offset the negative effect it would have on the root/shoot ratio during a very critical time of year for heat/drought survival.

Remove clippings. Research at Rutgers showed that removing clippings reduced disease severity significantly under low disease pressure, although under high disease pressure there was no benefit to removing clippings. If feasible, an increment of reduction of disease pressure may be gained by removing clippings.

Delay overseeding until mid- to late-September. Seedlings of perennial ryegrass are highly susceptible to gray leaf spot. Delaying overseeding helps push seedling emergence and development into the autumn, when warm, humid weather favorable for gray leaf spot is less likely. Even with a late seedling, however, fungicide protection is often needed on new seedings because of their high susceptibility.

SHADE TREES & ORNAMENTALS

SHADE TREE ANTHRACNOSE IN THE LANDSCAPE
by John Hartman

Sycamore anthracnose. Two springs ago, sycamore anthracnose was devasting, but last spring much less was observed. Why were the two years so different and what is likely to happen this year? The incidence and severity of anthracnose diseases of landscape trees varies with the season. When we have cool springs with extended periods of wet weather, antracnose diseases are worse. These conditions prevailed two years ago and people looking at their trees in late spring thought that there were mostly dead leaves and branches. In reality, the sycamores showed good resilience because they readily grew out of it and looked much better last year. Some folks worry that sycamore anthracnose may spread to their dogwood trees nearby (it won't).

Sycamore anthracnose is caused by the fungus *Apiognomonia veneta*, and the fungus attacks both sycamore and London plane. The fungus causes twig and branch cankers, shoot blight, and leaf blight. Shoot blight, most visible and most damaging, develops after a period of cold spring weather. Although the disease is devastating, sycamores have managed to survive many disease-favorable years. Obviously, it costs sycamores much of their carbohydrate reserves to refoliate, but by early summer, regrowth is generally well under way, the new growth escaping infection because of heat and dryness. The legacy of crooked branches (because lateral shoots take over when terminals are killed by anthracnose) and multiple shoots arising from the base of a killed branch may be still visible many years later.

Ash anthracnose. This disease, caused by a species of the fungus *Discula*, can also be seen in neighborhoods and landscapes following wet spring weather. Leaflet drop may be so great that anthracnose-infected leaflets practically carpet the walks and lawns nearby. Dead tissue appears along leaf veins or at the leaf edges because infections occur where moisture lingers longest as dew or droplets on those parts of the leaf. Ash anthracnose causes so many individual leaflets drop in the spring that some homeowners are prompted to consider felling the tree because they think it is dying. It isn't, and the tree simply puts out a new

set of leaves, again at a cost of carbohydrate reserves that might be needed to fight other kinds of stresses.

Maple and oak anthracnose. Symptoms on these trees range from leaf spots to shoot blight and shoot cankers. Maple anthracnose may be caused by *Discula* sp. or *Kabatiella apocrypta*, and oak anthracnose by the fungus *Apiognomonia quercina*. Although these two diseases are less common than the sycamore and ash anthracnose disease, they, too are found in cool, wet springs. Dogwood anthracnose, caused by the fungus *Discula destructiva* is only found occasionally in most home landscapes, but it is very common in forest trees and heavily shaded landscapes.

Anthracnose management in landscape trees. Keep in mind that two years ago, carbohydrate reserves were depleted because anthracnose infected trees had to refoliate, and last year, carbohydrate reserves regeneration was limited by the drought. Thus, it is important for these landscape trees to get off to a good start this spring. Although we can't control the weather, there are some cultural practices that may help.

- Rake up and compost fallen leaves. Leaves can be a source of inoculum.
- Prune out and destroy dead twigs and branches, because for many of the anthracnose fungi, branches harbor fungal inoculum. Although it is difficult to prune large trees, small trees are at greater risk, so prune out dead twigs and branches from them. For dogwoods, pruning out dead branches and water sprouts is especially important where anthracnose might be a threat.
- Avoid unnecessary wounding and avoid construction or other activities which could injure the roots or the branches.
- Provide mulch and water as needed. Mulch over the root system helps to retain soil moisture during dry periods. Apply water throughout the growing season, if necessary.
- Although most anthracnose diseases can be controlled using fungicides, the attempt is usually more costly than the benefit.

HOUSEHOLD

TERMITES: STRAIGHT ANSWERS TO TOUGH QUESTIONS
by Mike Potter

Q: Why be concerned about termites?
A: Termites cause more damage than storms and fires combined. They primarily feed on wood, but may also damage paper, books, clothing, leather items, foam insulation, and even swimming pool liners and filtration systems. They may also injure living trees and shrubs. While a structure may become infested at any time, presence of termites is of particular importance when buying or selling a home since a termite inspection / infestation report is normally a condition of sale. More than 75 percent of all consumer complaints received by the Kentucky Department of Agriculture involve termite treatments and real estate transactions.

Besides the monetary impact, thousands of flying termites emerging inside one's home is an emotionally trying experience — not to mention the thought of them silently feasting on one's largest investment. To complicate matters, the public has very little understanding of termites, and what should be done if their home is infested.

Q: Why are there so many termite calls during March - May?

A: Spring is typically when large numbers of winged termites, known as "swarmers," emerge inside structures. This, along with other signs of termites noted during real estate inspections is what usually triggers the initial call from homeowners.

In nature, termites swarm in order to disperse and start new colonies. After a colony reaches a critical size (typically requiring 5-8 years), winged reproductives are produced. Triggered by warmer temperatures and rainfall, the winged termites emerge from the colony and fly into the air. The swarmers then drop to the ground, shed their wings, pair off with a mate, and attempt to begin a new colony in the soil. Very few swarmers emerging outdoors survive to start new colonies. Termite swarmers emerging indoors are incapable of eating wood, and seldom survive; however, they do indicate that an infestation is present. They are best removed with a vacuum cleaner.

Q: How will I know if my home is infested?
A: The presence of winged termites inside a home almost always indicates an infestation warranting treatment. Termite swarmers are attracted to light and often will be seen around windows, doors and light fixtures. They can be differentiated from winged ants 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.) *Swarmers emerging from tree stumps, woodpiles, railroad ties and other outdoor locations are not necessarily cause for concern, and do not necessarily mean that the structure, itself, is infested.*

Another obvious indicator of a termite problem is pencil-wide mud foraging tubes extending over foundation walls, support piers, sill plates, floor joists, headers and subfloors. Termites construct these mud "shelter" tubes as they travel between their underground colonies and the structure.

Termite-damaged wood is usually hollowed out along the grain, *with bits of dried mud or soil lining the feeding galleries.* Wood damaged by moisture or other types of insects (e.g., carpenter ants) will not have this appearance.

Oftentimes there will be no sign of the termites themselves – small, creamy-white insects with an "ant-like" appearance. An infestation can go unnoticed for years, hidden behind drywall, paneling, floor coverings, insulation, and other obstructions. Termite feeding and the resultant damage can even progress undetected in wood that is exposed, because the outer surface is usually left intact. Confirmation of infestation often requires the keen eye of an experienced termite inspector. However, even the most experienced inspector can overlook damage which is hidden.

Q: Can I treat the house myself?
A: Ridding a home of termites requires a great deal of "know-how"and on-the-job experience. Termite work is also very labor-intensive. A knowledge of building construction is needed to identify the critical areas where termites are likely to enter. Many of these potential entry points 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 *termiticide*, injected into the ground alongside the foundation, beneath concrete slabs, and within foundation walls. In short, termite treatment is usually a job for professionals. A possible exception would be if a mailbox post, sandbox or other small wooden object not attached to the house was infested.

Q: **How do I choose a pest control firm? Why is there such a difference in price?**
A: These are complex questions. In brief, the company should be licensed by the Kentucky Department of Agriculture. Membership in the Kentucky Pest Control Association and/or National Pest Control Association suggest that 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 substantiate the extent of your termite problem and allow you to compare services.

Companies offer different types of warranties or service agreements. Most offer retreatment of localized areas if the termites return. In some instances, no warranty/service agreement may be offered if construction elements such as wells, cisterns, subslab heating ducts, drainage systems, or inaccessible crawl spaces make it impossible to treat in accordance with industry standards.

Take your time when selecting a termite control company. Termites damage wood slowly enough that the amount of damage caused by an additional day, week or month of continued activity is seldom significant. Avoid firms that try to pressure you into signing a contract immediately with "specials" or scare tactics.

Q: How can I determine if I'm getting a proper treatment?
A: There are many elements to a quality termite job. The inspection should be thorough, with a diagram of the structure indicating location(s) of termite activity, observable damage, and types of treatment techniques that will be performed. In the case of conventional (non-bait) type treatment, two of the most useful "quality assurance indicators" measurable by homeowners are amount (gallons) of termiticide applied, and spacing between holes drilled through concrete slabs. In order to achieve adequate dispersion of termiticide in the soil, gallonage must be high -- often requiring 150-200 gallons or more on an average-size home. Treatments using smaller amounts (e.g., 100 gallons or less) are less likely to provide a continuous barrier of protection in areas where termites can enter. Holes drilled through porches, patios, basement floors and concrete slabs should be spaced no more than 18 inches apart (12 inches is better) to help provide continuous coverage when the termiticide solution is injected.

Ultimately, the quality of a termite job depends less on the person who sells the job than on the individual who does the work. A safe and effective treatment requires an experienced technician, not someone who was hired a few weeks ago.

Q: **Does my entire house need to be treated... or can I just pay for a "spot" treatment in areas where I see termites?**
A: Subterranean termite colonies can be very large; a single colony may contain a million or more individuals. Termite workers (the life stage doing the damage) can also forage considerable distances -- in some cases, the entire length of a football field. This means that the termite colony or colonies responsible for damage may actually be in a neighbor's yard, rather than beneath the house which is infested. For these reasons, 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 is likely that termites will eventually find other points of entry into the structure.

Q: How long will the treatment last? Which brand of termiticide is most effective?
A: Studies suggest that all registered termiticides should control termites for at least five years if they

are applied according to label directions. The *actual* length of control on a given structure will depend on such factors as thoroughness of the application, prevailing environmental conditions, and density of termites in the area. If termites continue to be present the year following treatment, it's probably not from degradation of the termiticide -- but because termites have found an untreated gap in the chemical barrier. More important than the brand of termiticide, is that the treatment be performed by an experienced technician, backed by a responsible pest control firm.

Q: Will there be an odor after treatment?
A: Odor is one characteristic that *may* differ between termite control chemicals. Some products have more odor than others; in most cases, the odor is due to solvents in the formulation rather than the active ingredient. If odor is judged to be a concern, the client should be informed that low-odor products are available.

Q: Will the termite chemical harm my family or pets?
A: Termiticides are tested extensively for adverse effects on health. Before a product can be used, numerous studies must be conducted by the manufacturer and independently evaluated by the U.S. Environmental Protection Agency. Based on the current body of knowledge, these registered termiticides present no significant hazard to humans, pets or the environment when applied according to label directions. In spite of the negligible health risk from a termite treatment, people with lingering concerns should consult their physician. Clients who are especially apprehensive about pesticides my want to consider having their home treated with baits (see below).

Q: Isn't there a new termite control procedure utilizing baits?
A: A growing number of companies have begun using termite baits as an alternative to conventional liquid (barrier) treatments. The baits consist of paper, cardboard, or other "termite-friendly" food, combined with a slow-acting substance lethal to termites. Some bait products are installed below ground out in the yard, whereas others are placed within the structure in the vicinity of 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 supplemented with either a partial or complete liquid application to the soil.

Termite baiting is a very complex subject. A detailed discussion of this alternative new technology is provided in Entomology extension publications, *ENT-65: Termite Baits: A Guide for Homeowners, and Entfact-644: Consumer Update: Termite 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, because termites are able to find their way through tiny, untreated gaps in the soil. The *intent* is to establish a continuous and impenetrable chemical barrier in the soil, but this is almost impossible to achieve in actual practice. In the case of baits, it may take several months for termites to initially find the installations in the soil, and several months more to achieve control.

The key in termite control is to hire a reputable pest control firm employing experienced, conscientious technicians. Companies will usually return and retreat affected area(s) at no additional charge provided the service agreement is purchased and maintained.

DIAGNOSTIC LAB - HIGHLIGHTS

by Julie Beale and Paul Bachi

Samples received in the Diagnostic laboratory last week included several cases of wheat with spindle streak mosaic virus, as well as wheat with environmental and nutritional problems. We also saw tomato seedlings with damping-off from Pythium; yellow patch (Rhizoctonia) on bentgrass; rhododendrons with sunscald and stress-related symptoms; pines with pine wilt (pinewood nematode); and pines, spruces, and junipers with drought-stress symptoms.

INSECT TRAP COUNTS

UKREC, Princeton, KY - March 24 - 31

Black cutworm 3

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.

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