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ALFALFA

ALFALFA WEEVIL ACTIVITY MAY BE DOWN IN SPITE OF MILD WINTER
by Lee Townsend and John Parr

A relatively mild winter coupled with some recent unseasonably warm weather should set the stage for problems with alfalfa weevils this spring. However, it appears that one important element may be in short supply- the weevils themselves.

Mr. John Parr, forage entomology research specialist, made stem collections this winter in Barren, Breckinridge, Fayette, Hart, and Warren counties. In all locations, egg numbers per square foot are substantially below 1997 levels and generally below levels that point to economic infestations. This is a good year to rely on field checks before making a premature treatment decision. Natural control (diseases, parasites and predators, etc.) can have a great impact on pest levels, even when weather conditions favor the insect. This appears to be the case for 1998.

ALFALFA VARIETY SELECTION MADE SIMPLE
by Paul Vincelli

When selecting an alfalfa variety, for Kentucky producers, there is a very simple rule of thumb: ***Select high-yielding varieties with an R or HR rating to Aphanomyces root rot.***

First, start by identifying the high-yielding, adapted varieties. Examine the alfalfa variety test report produced annually by the UK Dept. of Agronomy, available through UK County Extension Offices. That publication nicely summarizes variety tests over the entire state for several years. These reports are important in two ways:

1. They identify the top-yielding alfalfa varieties for Kentucky conditions. Unfortunately, there is no single variety that always is among the top group in every location, every time. Life never seems to be that simple. However, there *are* varieties that *generally* provide top yields across many locations and years.

2. They identify the best adapted varieties, those

which perform well under a range of conditions over a period of years. This can be important from a disease management standpoint. Some of these test results include comparisons among varieties for survival and yield following an outbreak of crown rots. An example is the test seeded in May 1990 in Lexington, which suffered a major crown rot epidemic in 1992. Yield differences among varieties as a result of that outbreak were detected for several years afterward.

Once you have identified the top-yielding, adapted varieties, select those with at least an R or HR rating to *Aphanomyces* root rot. Recall that alfalfa varieties are scored for disease resistance as follows.

Susceptible (S): 5% or less of the plants are resistant in standardized tests
Low resistance (LR): 6-14% resistant plants
Moderate resistance (MR): 15-30% resistant plants
Resistance (R): 31-50% resistant plants
High resistance (HR): 51% or more resistant plants

Recent research by the UK Forage Program has shown that alfalfa varieties with an R or HR rating are needed should an outbreak of *Aphanomyces* root rot occur. And we have learned in the past several years just how common this problem can be in Kentucky, particularly in spring seedings.

But what about the other diseases we sometimes talk about: *Phytophthora* root rot, anthracnose, bacterial wilt, *Fusarium* wilt? Yes, we still recommend resistance to all of these. *Phytophthora* root rot is a very important disease on many farms where alfalfa is being produced. Anthracnose is still a potential threat, in my opinion, and serious outbreaks are easy to avoid by using resistant alfalfa varieties.

Fortunately, selecting a variety with adequate levels of resistance to all these diseases is really very simple. If you select a variety with an R or HR rating to *Aphanomyces* root rot, it will already have adequate levels of resistance to these other diseases. The *Aphanomyces* resistant varieties are the "new kids on the block", and they've all been developed to already have resistance to these other diseases. Convenient for farmers, isn't it?

CORN

NOT ALL Bt-CORN HYBRIDS USE THE SAME TECHNOLOGY

By Ric Bessin

Grower interest in using transgenic Bt-corn hybrids for corn borer control has been increasing rapidly. While growers have a good understanding of how Bt corn works and which insects it is effective against, there is still some confusion about the different types of Bt-corn technologies on the market. Currently, there are four different groups of Bt corn, at least in the eyes of the EPA. There are differences in the type of Bt endotoxin produced, where it is produced in the plant, when it is produced, and when production ceases. These differences are significant because they are large enough to affect corn borer management.

The EPA has granted registration for the four Bt-corn events listed in Table 1. Each includes the insertion of a Bt gene, a promoter gene, and a marker gene (to allow corn breeders to know which plants have the insert). The promoter gene allows the Bt gene to be turned on and different promoter genes may allow the Bt toxin to be expressed at different times of the year or different parts of the plant. The promoter used with Event 176 is different from the promoter used with the BT 11 and MON 810 events.

Table 1. Types of Bt-corn technology available for commercial use.

Event	***Registrar***	***Bt gene***	***Commercial name***
176	Ciba, (Novartis) Mycogen	CryIA(b)	Maxi-mizer, Nature-Gard
Bt 11	Northrup King (Novartis)	CryIA(b)	YieldGard
MON 810	Monsanto[1]	CryIA(b)	YieldGard
DBT 418	DeKalb	CryIA(c)	Bt-Xtra

[1] Monsanto has licensed the use of their YieldGard technology to several seed corn companies including, but not limited to, Cargill, Pioneer, Golden Harvest, ICI-Garst, and DeKalb.

Differences in insertion packages and insertion events translate into real differences in corn borer control in the field. For example, the 176 event (Maximizer and NatureGard) is designed to have maximum effectiveness against first generation corn borers and not have the Bt endotoxin expressed in the grain, while the YieldGard is designed to provide high levels of control to first and second generation corn borers. While considerable information has been developed for the 176, Bt 11 and MON 810 events through studies at UK, 1998 will be the first year that the DBT 418 event is compared to the others.

An indication of the types of variation that have been observed with these different Bt-corn technologies is illustrated in the following study, conducted in Fulton County in 1997 in cooperation with Lincoln Martin, County Extension Agent for Agriculture. In this example, values for different hybrids using the same Bt-corn technology were averaged together, with 'Standards' representing the hybrids that do not have the Bt-gene. No differences were detected between the YieldGard technologies, so they were averaged together. In this study, the composition of corn borers in plants was about 50% European corn borer and 50% Southwestern corn borer.

Table 2. Efficacy of different Bt technologies (Fulton County, 1997).

Bt-Type	***Tunneling per stalk (inches)*** [1]	***Percent damaged plants***
Standards	3.9 a	70.0 a
Maximzer	1.6 b	40.0 b
NatureGard	0.9 bc	34.2 b
YieldGard	0.2 c	6.1 c

[1] Means in the same column followed by the same letter are not significantly different (LSD, P>0.05).

While the Maximizer and NatureGard provide excellent control of first generation corn borers, their control of second generation is reduced. While this article has focused on the differences among Bt technologies, all of the technologies are effective and provide levels of corn borer control that is satisfactory for most situations.

SMALL GRAINS

SPRING INSECTICIDES FOR CONTROL OF BARLEY YELLOW DWARF
By Doug Johnson

Over the course of the last week I have been called by several individuals in Kentucky and received e-mail from my counterparts in Missouri and Tennessee. There were two central points to their questions: 1. How can consultants in Kentucky guarantee an 8 bushel increase in yield if an insecticide application is made this late in the year? 2. What is the advisability of a spring insecticide application to kill aphids in an effort to control the spread of Barley Yellow Dwarf virus?

Consultant Claims

I cannot comment on what consultants may or may not have claimed. No such claim has been presented to me and I did not heard the information directly. I would have to make comments based on hearsay.

In my opinion, when producers are confronted with a claim they should:

1. Leave several test strips if they do spray. These should be used to check not only changes in symptoms but also for yield estimates. Symptoms often do not reflect actual yield changes.

2. Require that data used to convince you of a need to treat is: a. from a properly designed experiment with replication of the treatments and b. That the results were properly tested (for statistical significance). Beware of comparing means alone. The means of the treatments should have standard errors that indicate the precision of the value. For example, means for a treated and untreated plot may differ by 10 bushels but the variation in the experimental results may show that they are not statistically (OR RELIABLY) different.

3. Require that recommenders increase your NET RETURN, not just gross return. For example if it cost you $10 per acre to apply a control and you see a yield increase of 3 bushels per acre at a value of $3 per bushel then you have increased the yield but lost a dollar!! It is not enough for an application just to increase yield. The use of any application must increase the yield more than the cost of making the application.

Spring Sprays

Several facts are clear from existing research. We know that the older the plant is, the harder it is to infect. Also, the older plants are when they become infected, the less impact there is on yield. However, older plants still will express symptoms so fields can look bad. Both of these factors tend to reduce the benefit of a spring spray.

We also know that the important BYDV vectoring aphids do not suddenly appear from nowhere. If they are in your fields now they have been there from the fall migration. The real problem then is what has gone on up until this time? Generally speaking, the temperatures need to be 50°F or greater for aphids to walk much and must be above 54°F for flight (this would be local movement) to occur.

If you look at Figure 1, you will see that temperatures have been relatively mild this winter. Certainly in the fall, and at least two times in the winter, temperatures have been warm enough to allow aphid movement. Any BYDV spread was going to occur probably already has! Additionally, you will notice that we also saw some quite low temperatures, certainly low enough to kill aphids One of those times was right at the end of November but there were additional cold snaps with temperatures low enough to reduce aphid populations in December, January and February.

While symptoms have not yet been seen in wheat, they certainly have in oats. I have seen an early planted oat field with nearly 100 percent infected plants, many of which have already died. No doubt this is from early fall infection. It does however tell us that in the absence of proper management, BYDV spread has already occurred and on a massive extent. The infestation in this oat field was severe because it was planted too early. As a result, it was 1) exposed to more of the fall aphid migration, 2) generated a great deal of top growth to protect the infesting aphids, and 3) the pests were not managed (detected and controlled) in the Fall. Even with the absence of symptoms, if something similar to this has occurred in your wheat, spring treatment is a waste.

In my opinion, if your fields contain aphids now and have not been properly managed in the fall and winter, BYDV is already spread and symptoms will begin showing up soon. If you had proper fall management, there should be few aphids in your crop and thus little need to spray. Only in the very few cases where proper fall management was applied and aphids still managed to reproduce but not move around spreading the virus, would a spring application be likely to succeed.

You might expect some return from a spring spray if:

1. The BYDV pressure is epidemic,

2. The winter has been cool enough to keep aphids from spreading but not cold enough to kill most of them,

3. You are managing fields with a potential yield near 100 bushels per acre,

4. aphids have over wintered in the field,

5. Symptoms are not visible yet,

6. You have prevented fall infection.

Why recommend sprays when the chance of success is small? Actually, that is relatively simple. The treatment cost is relatively small while the short term cost (to the recommender) of appearing to be wrong is relatively great.

If we assume your recommender tells you to spray, then the following outcomes are possible.

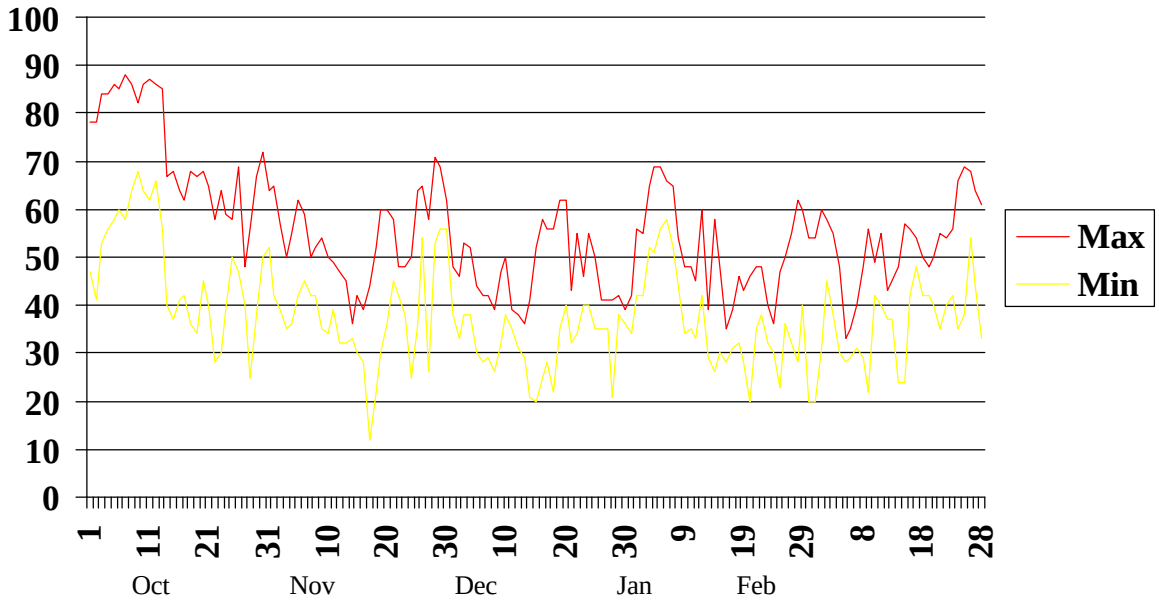
1. Recommender says Don't spray and BYD appears.
Recommender gets the blame even though the infection could have occurred anytime before the insecticide application and the application would have done nothing to help the situation. This is an extremely great fear of recommenders.

2. Spray and BYD appears. At least you tried and you may have saved something.

3. Spray and BYD does not appear. See!! I told you this would work! Even though there was probably no infection in the first place.

4. Don't spray and BYD does not appear. How comfortable would you be making this recommendation?

Figure 1. Average Daily Max and Min Temperatures for Princeton, KY during Fall and Winter 1997-1998.



If you spray wheat this spring, leave several unsprayed test strips in fields, not just one. Then you can look for visual clues as to whether or not an infection was avoided. Remember, this is not foolproof. The strips will aid in showing if an infection was prevented but they do not necessarily indicate eventual yield savings. Some varieties show symptoms very strongly but do not suffer much yield loss; others show symptoms very weakly but suffer great yield loss. The presence or absence of symptoms alone will not tell you if the spray was warranted. Only taking yield estimates, where everything but the insecticide spray is the same, can do that.

IT is possible for a spring spray to have an effect on BYDV but IT IS very unlikely and certainly not guaranteed. It will be very difficult to convince me that 8 bushels per acre can be saved by an application at this time without strong, appropriately tested data.

WHEAT SPINDLE STREAK MOSAIC INCIDENCE INCREASING
by Don Hershman

Wheat fields in Kentucky at this time fall into one of two categories. Those that have received some late winter (Feb) nitrogen, and those that have not. The fields in the former category are deep green in color and growing because of mild late winter temperatures. Fields in the latter category are pale green and are still relatively dormant.

Due to the mild fall and winter, we are now beginning to see symptoms of wheat spindle streak mosaic virus (WSSMV) infection, especially in N-fertilized fields. WSSMV is transmitted to wheat by the soil fungus, *Polymyxa graminis*. This fungus, and thus WSSMV, is widely distributed in Kentucky. Affected fields are either entirely or partially off-color when viewed from a distance. Upon closer inspection, plants will exhibit various degrees of yellowing and mosaic patterns in younger leaves. Some short streaks, which are pointed at both ends, may also be evident in symptomatic leaves. These streaks are a presumptive diagnostic feature of wheat spindle streak, when they occur. The problem is that early in the season, these streaks are often hard to see or they are not present. This makes field diagnosis a problem since symptoms are easily confused with other virus diseases, especially soilborne mosaic virus (SBMV). In all cases, the only way to truly confirm plant infection by WSSMV is through a laboratory test called ELISA. The Plant Disease Diagnostic Laboratories, through a new funding initiative of the Ky Integrated Pest Management Program, now have the capability to run ELISA tests for WSSMV and SBMV on an as-needed basis.

In most years, fields with early symptoms of WSSMV will "grow out" of the disease as temperatures warm, usually around the time of flag leaf emergence. In those instances, crop yields will be little impacted. In highly susceptible varieties, symptoms may be evident throughout the season, especially if the weather following flag leaf emergence is cooler than normal. WSSMV infection, concentration in plants and, ultimately, symptom expression is closely linked with temperature. Warmer than normal temperatures in the fall and winter and cooler than normal temperatures in April and May usually result in the most serious problems. Last season, for example, WSSMV was severe in many fields and you'll remember how cool it was during the period between flag leaf emergence and heading. When WSSMV is severe throughout the season, yield losses can approach 20%. Fortunately, years where WSSMV is severe are not very common, occurring one or two years out of ten.

The bottom line is that if you are now seeing some yellowing in N-fertilized wheat fields, you should send us a sample to confirm the presence or absence of WSSMV. If tests are negative, other causes for the yellowing can be sought. Positive results for WSSMV do not suggest a disaster is imminent. Rather, the probability is good that the situation will improve as weather warms in March and early April. As a practical matter, there is nothing to be done anyway, except destroy the crop and plant corn or beans. In my view, this is too radical a move since the odds are good that WSSMV will not seriously affect crop yields. In the future, WSSMV can be avoided altogether by planting any number of private or public resistant varieties. A listing of these varieties can be found in the 1997 Kentucky Small Grain Variety Trials Report 396. This report is available through local county Extension offices. In addition, most private companies are aware of the reaction of their wheat varieties to WSSMV. This is one disease where there is no reason to have a problem with it more than once!

TOBACCO

POTENTIAL FOR SEEDLING DAMAGE WITH BLEACHED-TRAYS
by William Nesmith

Although household bleach can be a valuable tool in tray sanitation, it can also cause serious phytotoxicity to tobacco seedlings, especially if the bleach is not rinsed-off thoroughly after the sanitation period. I have reported this potential often, but a recent experience from our research program should serve as an important reminder of this advice.

We are comparing several tray treatment regimes for their ability to sanitize trays. One regime involves the common grower practice of dipping the trays in 10% bleach solution (up and down several times over a 15 second period), immediately enclosing the dipped trays inside plastic for an overnight fumigation, then air-drying the trays followed by filling. The trays were not rinsed after the chlorine-fumigation. This is not the method we have suggested, but because its use is common, we elected to evaluate this regime to determine its effectiveness and limitations.

Its limitations appeared quickly. Classic symptoms of bleach (chlorine) injury occurred within 10 days of plugging seedlings into the trays. At a distance, the plants are light-green in color as compared to adjacent plants from steamed trays. Under closer examination, the leaf margins are turned (rolled slightly) upward with the green color disappearing from the margins inward toward the midrib and base on the leaf. Buds become very yellow to white. The larger plants developed symptoms faster than the smaller ones, probably because they have better root systems and absorb the toxic chemicals faster. Smaller seedling initially developed normally, except for being slightly chlorotic.

This example should illustrate the risk involved with bleaching of trays. As we have indicated all along, bleaching is a two-step process: **treatment phase** followed by a **decontamination phase** (rinsing with water and aeration). Washing the bleach solution off the trays after the overnight contact is important, and may be more important with older and lower quality trays than with new trays. Previously (March 18, 1996, KPN No. 733), we reported that bleach injury potential is greater with older trays, probably because they pick up and hold much more bleach solution, increasing the potential for problems.

Alternatives to bleaching of trays were discussed in the February 5, 1996 Kentucky Pest News 730 issue. Alternatives included: steaming, methyl-bromide fumigation, and Q-salts.

LIVESTOCK

PASTURE FLY CONTROL- POUR-ONS
By Lee Townsend

The next group of products for pasture fly control in this series are pour-on products. Most of these insecticides are ready-to-use formulations that are applied to animals in measured doses based upon body weight. As with all pesticides, it is important to read the product label carefully before purchase and use.

The active ingredient in some pour-ons are systemic insecticides, they are absorbed into the animal and circulate in the blood. Examples include famfur (Warbex), fenthion (Spotton, Lysoff, and Tiguvon) and trichlorfon (Neguvon). These products, which target cattle grubs and lice, are applied in the fall.

Pour-on products that contain synthetic pyrethroids (cyfluthrin, permethrin, or lambda cyhalothrin) are not systemic so they can be used at any time during the year. They function as contact insecticides for control of pests such as horn flies or lice. Typically, these formulations provide fly reduction for about 4 weeks so they must be re-applied at intervals. The length of control will vary with weather and other factors so treat again when fly numbers build back up to about 100 per side but no sooner than the label instructions allow. While pour-ons can provide very good horn fly control, it is unlikely that they will do more than a fair job against face flies.

Permethrin is the active ingredient in may pour-ons. There is a wide range of concentrations, and consequently, application rates. Formulations containing 1% (Atroban, DeLice, and Expar) are applied at « fl. oz./100 pounds of animal weight.

Boss (5%) is used at about 1/8 fl. oz./100 lbs, while Brute and Permectrin CD are 10% formulations that are used at the rate of 1/8 fl. oz./250 lbs. In addition, DeLice, Expar, and Permectrin are sold in synergized formulations. These contain piperonyl butoxide, a material that is commonly included with natural pyrethrins to enhance their activity. It is questionable that these synergized formulations are providing the producer with any real gain.

If performance of permethrin is reduced due to insecticide resistance, it would be better to switch to an organophosphate insecticide. Products containing permethrin may be used on beef, as well as, dry and lactating dairy cattle. Cylence (cyfluthrin) and Saber (lambda cyhalothrin) contain the newer synthetic pyrethroid insecticides. Cyfluthrin is used in the Cutter Gold Ear Tags, while Saber Extra Ear Tags are made with (l-cyhalothrin).

Synthetic pyrethroid insecticides are very toxic to fish. Do not allow treated animals to wade in ponds or creeks. They can contaminate the water and kill some aquatic organisms.

SHADE TREES AND ORNAMENTALS

SPRING LANDSCAPE AND BACKYARD FRUIT DISEASE CONTROL REMINDERS
by John Hartman

With the onset of spring weather, it is now time to take measures that will prevent plant disease and provide better plant health in the summer when it is too late to do anything about them.

Sanitation. Prune out dead and diseased twigs and branches from all trees and shrubs and remove and destroy mummified fruit from fruit trees and from grapes. When pruning out diseased material, work when the twigs and foliage are dry. In some cases entire diseased plants need to be removed to reduce the threat to healthy ones of the same type nearby. Sanitation will assist in control of the following diseases: Apple and pear fire blight; peach perennial canker; plum black knot; blueberry twig blights and cankers; raspberry and blackberry anthracnose and cane cankers; grape cane cankers; juniper tip blight; cedar hawthorn and cedar apple rusts (gall removal benefits apples and hawthorns); spruce cytospora canker; pine tip blight; pine wilt nematode; dogwood anthracnose; *Botryosphaeria* canker (redbuds, rhododendrons); Dutch elm disease.

Resistant cultivars. Plant disease resistant fruits and woody plants in the landscape whenever possible. Apples and flowering crabapples immune to scab and resistant or tolerant to fire blight, cedar rusts, and powdery mildew are available and are identified as such in nursery catalogs. Be aware that plant species resistant to *Verticillium* wilt and crown gall are available if they are needed. Oriental (Kousa) dogwoods tolerate dogwood anthracnose and powdery mildew.

Management of the environment. To reduce foliar disease, selectively prune out branches of the diseased plants or of nearby shading vegetation to

provide better air movement and sunlight penetration. Improve soil drainage to reduce the threat of Phytophthora root rot.

Fungicide and bactericide sprays. For a few fruits and landscape plants, chemical sprays might provide a benefit. Most of these spray programs only work if appropriate fungicides are applied early and repeatedly in the growing season as the new growth is emerging. These early sprays are essential and if missed will make it almost impossible to control disease later.

Scab-susceptible green tissue is already out on flowering crabapples and will soon appear on apples. These tissues can become infected anytime there are prolonged periods of moisture on the emerging leaves. Cedar apple and other cedar rusts will begin producing the spores that infect apple, crabapple, and hawthorn during the next moist periods about when these trees begin to bloom. Peach brown rot and strawberry gray mold infections also occur during bloom. Strawberry fruit rots can also be reduced with a layer of straw or other mulch between the rows.

Fruits probably benefit most from fungicide use because the grower may be trying to produce an edible crop. Conveniently packaged fruit fungicides and fruit spray mixes are available for homeowners. In addition to captan, ferbam, and thiophanate-methyl (Cleary's 3336), myclobutanil (Immunox) is now available for backyard fruit use.

For landscape plants, consider the following questions before deciding whether or not to spray. If the answer to any question is no, perhaps a fungicide is not needed: a) Is the host plant valuable? b) Has the disease been properly identified? c) Is the disease threatening to the life or health of the plant? e) Does the disease occur normally on this plant? f) Are effective, legal treatments available? g) Is special equipment needed and available? h) Will one or two applications suffice? i) Have cultural control practices such as sanitation been used? j) Does the homeowner not object to the use of pesticides in their landscape?

For suggestions of backyard landscape and fruit disease control measures, consult publications such as "Disease and Insect Control Programs for Home Grown Fruit in Kentucky Including Organic Alternatives (ID-21) and "Guide for control of Woody Plant Diseases in the Landscape" (ID-88), available at all Kentucky County Extension Offices.

HOUSEHOLD

WARM WEATHER TRIGGERS BUG SIGHTINGS IN BUILDINGS

By Mike Potter

Many clients have called, in recent weeks, complaining about bugs mysteriously appearing inside their homes and businesses. Most have either been ladybugs, yellowjackets or paper wasps (queens), cluster flies, face flies, or hackberry psyllids.

Where Did They Come From?

These critters actually gained entry last fall through cracks and openings, and spent the winter hibernating in attics, soffits, wall voids, window / door casings, and similar protected areas. With the onset of warmer weather, the insects have again become active and are emerging from their overwintering sites. As they attempt to escape to their natural habitat outdoors, some inadvertently disperse inward into living areas, emerging from beneath baseboards, behind window and door frames, from within sash-cord openings, and around light fixtures and ventilators. Since insects are often attracted to light, they are often seen around windows and lighting fixtures.

What Can Be Done Now?

Inform clients that this is a temporary annoyance that will "run it's course" as the weather continues to warm. Lady beetles, hackberry psyllids (those tiny, black 'gnat-like' insects abundant on window sills), and cluster / face flies characteristically do not bite, sting, or carry diseases, nor do they infest food, clothing or wood. They do not breed (reproduce) inside buildings, and generally will not survive indoors more than a few days. Yellowjackets or paper wasps spotted indoors this time of year are overwintering queens, attempting to get outdoors to initiate their spring nests. The emerging queens are not normally aggressive, but will sting if mishandled.

The easiest way to dispose of these overwintering insects found inside the home is with a vacuum cleaner, broom or fly swatter.

Insecticides are not generally recommended unless the temporary annoyance can no longer be tolerated.

Supplemental use of insecticides may be warranted, but only in specific locations and for clients demanding immediate relief of heavy infestations. Aerosol-type foggers containing synergized pyrethrins can be used in attics, but will provide no residual control of insects that have not yet emerged from cracks and protected cavities. (Large numbers of lady beetles, flies or wasps accumulating in ceiling light fixtures would suggest the attic as a possible treatment area.) Aerosol sprays or foggers are *not* recommended for treatment of bedrooms or other living areas within the home. The effect of such treatment would be negligible against any insects which have not yet emerged from wall voids and other hidden locations. Flies or lady beetles spotted on walls, windows, and exposed surfaces can just as easily be removed with a vacuum or fly swatter.

What Can Be Done To Prevent Future Problems?

It is not yet known what percentage of structures experiencing problems with lady beetles *this* year will also have problems *next* year. Since lady beetles (along with cluster flies, face flies, and some wasps and yellowjackets) seek out overwintering sites in late-summer/fall, cracks and other openings can be sealed as a preventive measure. Use a good quality silicone or silicone-latex caulk to seal cracks around windows, doors, siding, fascia boards, utility pipes, wires, and other openings. Repair damaged window screens and install insect screening (12-18 mesh) over attic vents. Standard window screening is small enough to exclude most insects, other than hackberry psyllids.

While sealing and weatherstripping can help limit the entry of pest insects, the approach is time-consuming and often impractical. There are countless number of cracks under and around eaves, siding, vents, etc., where overwintering insects can enter. On multi-story buildings sealing becomes especially difficult. Households or businesses that do not wish to chance a reoccurring problem with overwintering flies or lady beetles next season may want to enlist the services of a knowledgeable pest control firm. Many companies offer strategically placed insecticide treatments to the building exterior, which helps prevent pest entry. Long-lasting, rapid-knockdown formulations of synthetic pyrethroids can be professionally applied around eaves, attic vents, windows, siding, and other likely points of entry. The key is to apply the treatments in late September or early October, before pests enter buildings to overwinter. *At this point in the season (late winter/spring), with the overwintered pests already indoors, such exterior treatments would be ineffective.*

In closing, people have varying levels of tolerance toward insects in their homes. In a statewide poll, *41 percent* of households interviewed (631) indicated that a single lady bug found indoors would not be tolerated. Hospitals, food processors, and other sensitive establishments have zero tolerance for contaminants of any kind. Vacuuming, fly swatters, and pest proofing (sealing), supplemented by client education, are the preferred methods of dealing with overwintering insects infesting structures in Kentucky. Insecticides should be used only when the situation warrants, and prescribed as indicated above.

FIREWOOD CAN BE INSECT SOURCE
By Lee Townsend

Three specimens, each a different species, received for identification last week were long-horned beetles that had emerged from firewood in the homes. These elongate beetles have antennae that are at least half as long as the body, in some cases even longer. All are fast movers, some are brightly colored. They will not become established in the house so they pose no threat. The simplest strategy is to swat and discard them. More information is available in ENTFACT 626, Firewood Insects.

PESTICIDE NEWS AND VIEWS

Transporting Pesticide Containers

Transport pesticides only in containers with intact, undamaged, and readable labels. Inspect containers before loading to be sure that all caps, plugs, and other openings are tightly closed and that there are no pesticides on the outside of the containers. Handle containers carefully to avoid rips or punctures.

Anchor all containers securely to keep them from rolling or sliding. Packing or shipping containers provide extra cushioning. Protect paper and cardboard containers from moisture, because they become soggy and split easily when wet.

Protect pesticides from extreme temperatures during transport. Extremely hot or cold temperatures can damage pesticide containers by causing them to melt or become brittle. Such temperatures also may reduce the usefulness of the pesticides.

Labeling Statements About Transportation

Typical pesticide labeling instructions about transportation include: • Do not ship with food, feeds, drugs, or clothing. • Do not transport damaged or leaking container. • In case of a transportation emergency involving a spill, fire, or exposure, call [telephone number] 24 hours a day."

• Do not transport in or on vehicles containing foodstuffs or feeds."

DIAGNOSTIC LAB - HIGHLIGHTS
by Julie Beale and Paul Bachi

Of particular interest in the Diagnostic laboratory this week have been samples of **greenhouse tomatoes** with **powdery mildew** and **botrytis gray mold**. Managing humidity in the greenhouse is crucial in controlling these fungal diseases.

Other samples included **Sclerotinia crown and stem rot** on **alfalfa**, cool temperature **brown patch** (also known as "**yellow patch**"--caused by *Rhizoctonia*) on **bentgrass**, and **Phytophthora root rot** on **blueberry**.

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