



# KENTUCKY PEST NEWS

ENTOMOLOGY & PLANT PATHOLOGY & WEED SCIENCE

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## ANNOUNCEMENTS

**IPM Scout Training** will be held March 20, 2002 at the UK Research and Education Center in Princeton. Call Patty Lucas for more information (270) 365-7541 ext 218.

## EXTENSION OF CURRENTLY VALID COMMERCIAL PESTICIDE APPLICATOR CERTIFICATIONS

Changes in the regulations governing Kentucky pesticide applicators will go into effect July 1, 2002. One of the provisions of the regulations states ... "All certifications in effect on the effective date of this administrative regulation (July 1, 2002) shall be renewed with an expiration date of December 31, 2005." If currently certified (check your card), you automatically get an extension until the end of 2005. After the regulation goes into effect, you will be able to maintain your certification by accumulating credit hours.

Because of the change in regulations, no meetings are being approved for continuing education. All meetings this winter only offer initial training for those who need to take the certification test.

## TOBACCO

### TERRAMASTER 4EC FUNGICIDE LABELED FOR TOBACCO FLOAT-BEDS By William Nesmith

A new formulation of the fungicide etridiazole (terrazole) has been labeled for tobacco. Terramaster 4EC has a **federal** label for Pythium control in tobacco float-beds (greenhouse or outdoor float-bed systems). Terramaster 4EC is marketed by Crompton Uniroyal Chemical Co. Recall that Terramaster 35WP fungicide was available the past two seasons under a state-label (24c), which remains in effect, but this new 4EC formulation should be much easier for growers to accurately measure and use.

Directions for use, etc. are generally the same as for Terramaster 35WP, **except for different rates of product and disposal methods.**

As a **preventative** treatment, use Terramaster 4EC at 1 fluid oz./100 gallons of float-bed water, no sooner than two weeks after seeding. Supplemental preventive applications at 0.9 fl.oz./100 gallons of float-water can be made at 3-week intervals (maximum of three applications/bed/season totally no more than 2.8 fl. oz). As a **curative** treatment, the product can be used at 1.4 fl. oz./100 gallons of float-water, with a supplemental application of 1 to 1.4 fl. oz./100 gallons of float-water 3 weeks later. There is a limit of 2.8



fl.oz/100 gallons of float-water/per bed (crop of plants)/season.

As with the WP formulation, it is essential that Terramaster 4EC be evenly distributed throughout the float-bed water. The label gives good directions on how to achieve this within the bay. Failure to properly distribute the new product can also result in crop injury, control failure, or illegal pesticide residues, just as it did with the WP formulation. Consequently, as with the state label, the user is reminded that he/she must assume responsibility for any plant injury resulting from using Terramaster 4EC.

Another significant difference between the two labels is in the area of disposal of treated water. The Terramaster 35WP Kentucky label required the remaining Terramaster-treated water to be used as irrigation water on the tobacco field, mainly because of concerns related to mosquitos building up in the treated bays of water. The Terramaster 4EC label allows the treated bays of water to remain until evaporated or to be used as transplant irrigation water.

## FORAGE CROPS

### NEW HERBICIDES FOR FORAGE CROPS

**J. D. Green and J. R. Martin**

#### Alfalfa

**RAPTOR** (imazomox) — Marketed by BASF. Apply RAPTOR at 4 to 6 oz/A to seedling and established stands of alfalfa. Apply with a Crop Oil Concentrate or Surfactant plus Liquid Nitrogen. RAPTOR primarily controls or suppresses growth of selected annual broadleaf weeds and grasses. Apply to weeds that are small and actively growing (# 3 inches in height). For *seedling alfalfa* apply RAPTOR when alfalfa is in the second (2<sup>nd</sup>) trifoliolate stage or larger and when the weeds are 1 to 3 inches in height or before rosettes exceed 3 inches. A temporary reduction in alfalfa growth may be observed when applied to seedling alfalfa. For *established alfalfa* stands apply in the fall, winter, or in the spring to dormant, or semi-dormant alfalfa, or between cuttings. Any application to established alfalfa should be made before significant alfalfa growth or regrowth (3 inches) to allow RAPTOR to reach target weeds. There should be an interval of at least 20 days between application of RAPTOR and cutting or feeding of alfalfa forage or hay.

#### Grass Pastures

**REDEEM R&P** (triclopyr + clopyralid) – Marketed by Dow AgroSciences. Apply REDEEM R&P at 1 to 4 pt/A plus a Surfactant for weed control on permanent grass pastures, non-crop areas such as fencerows, and around farm buildings. REDEEM R&P provides control of various annual and perennial broadleaf weeds that are actively growing. Clovers and other legumes within the treated area will be killed or severely damaged by REDEEM R&P. Harvest restrictions for lactating dairy animals include do not graze or harvest green forage from treated area for 14 days after treatment or harvest hay until the next growing season. However, for other livestock, such as beef animals, there are no grazing restrictions and do not harvest hay for 7 days after treatment. There is a 3-day withdrawal period for livestock from grazing treated grass or consumption of hay before slaughter.

**REMEDY** (triclopyr) – Marketed by Dow AgroSciences. Apply REMEDY for control of woody plants and broadleaf weeds on permanent grass pastures and non-crop areas such as fencerows. Application rate will vary with application method and type of vegetation to control. When application rates of REMEDY is less than 2 qt/A, harvest restrictions for lactating dairy animals include do not graze or harvest green forage from treated area for 14 days after treatment or harvest hay until the next growing season. However, for other livestock, such as beef animals, there are no grazing restrictions and not harvest hay for 7 days after treatment. For application rates greater than 2 qt/A there are more restrictive waiting periods for lactating dairy animals and livestock when grazing treated areas or harvesting for hay. For all applications there is a 3-day withdrawal period for livestock from grazing treated grass or consumption of hay before slaughter.

#### Warm-Season Grasses

**PLATEAU** (imazapic) – Marketed by BASF. PLATEAU herbicide has been granted by the EPA a revised label for weed control in pastures, rangeland, and other noncrop areas. Therefore, the new label now allows PLATEAU to be used during the establishment and maintenance of various warm-season grasses such as big bluestem, little bluestem, Indiangrass, and Eastern gammagrass on pasture areas that will be grazed or consumed by livestock. ***Areas treated may be grazed immediately or harvested for hay within 7 days after treatment.*** PLATEAU herbicide controls various annual and perennial grasses and broadleaf weeds and some viney type species. Use rates and tolerance of desirable grass species will vary; therefore, consult the label for specific guidelines before applying PLATEAU.

## FRUIT CROPS

### MANAGE BLUEBERRY AND STRAWBERRY DISEASES WITH RESISTANT VARIETIES

by John Hartman

Diseases often limit yields and profitability for Kentucky fruit growers. To manage small fruit diseases it is important to use all strategies for disease management including disease-suppressing cultural practices, chemical management, and resistant varieties. For some diseases, especially soil-borne diseases, resistant varieties are the most effective means of control. Thus, in any integrated disease management program, the use of fruit varieties with disease resistance must be emphasized. At this time of year, growers are placing orders for nursery stock that will be used in their commercial or back-yard fruit

plantings. Strawberry and blueberry variety choices should include consideration of disease resistance.

Many commercial blueberry and strawberry cultivars have good resistance and/or tolerance to diseases such as leaf spot, root rot, wilt and mildew. The more disease resistance growers can incorporate within their planting, the better. The following table lists ratings for disease resistance in several of the more commonly grown cultivars. The following tables were derived from the Midwest Small Fruit Pest Management Handbook, Bulletin 861, a Cooperative Extension Service publication available at County Extension offices statewide. This type of information is also available from a number of sources. Most nurseries should be able to provide information on disease resistance for the cultivars they sell.

#### Disease resistance in blueberry cultivars commonly grown in Kentucky.

Variety	Mummy berry	Phomopsis twig blight and canker	Fusicoccum canker	Powdery mildew	Anthraxnose fruit rot	Red ringspot virus	Shoestring virus
Berkeley	S	VS		R			
Bonus							
Bluecrop	MR			MR	S	MR	VR
Bluegold	S						
Bluehaven	S	S					
Bluejay	R						R
Blueray	S				S		
Bluetta	S	R					
Burlington	R						S
Chippewa							
Collins	S						
Coville	MR		MR	MR			
Darrow	R						R
Duke	R						
Earliblue	S	S		R			S
Elliott	R	R			R		S
Jersey	MR	VS		S	VS	MR	S
Lateblue	R						

LittleGiant					R		
Nelson							
Northblue	R						
North-country							
Northland	S						R
Northsky	R						
Patriot							
Polaris							
Rancocas	MS		R	R			MS
Rubel	S	MR	MR		MS		S
Sierra	S						
St. Cloud							
Spartan	MR						S
Sunrise							
Toro							
Weymouth	S						S

VR = very resistant, R = resistant, MR = moderately resistant, MS = moderately susceptible, and S = susceptible and VS = very susceptible, blank = information not available.

Disease resistance of Several Strawberry Cultivars Commonly Grown in Kentucky.

Cultivar	Red Stele	Verticillium Wilt	Leaf Spot	Leaf Scorch	Powdery Mildew
<u>Junebearing</u>					
Allstar <sup>5</sup>	VR <sup>1</sup>	R	R	R	R
Annapolis <sup>5</sup>	S	I	S	S	U
Blomidon	U	U	U	U	U
Canoga	I	I	R	R	U
Cardinal	S	S	R	R	R
Catskill	S	VR	S	R	R
Cavendish <sup>5</sup>	R	I	T-R	T-R	S
Delite	R <sup>2</sup>	R	R	T-R	S
Dalmarvel <sup>4</sup>	R	R	T-R	T-R	T
Earliglow	R <sup>2</sup>	T-R	T-R	R	I
Guardian	R <sup>2</sup>	T-R	T-R	R	S-I

Honeoye <sup>5</sup>	S	S	R	R	U
Jewel	S	S	R	R	U
Kent <sup>5</sup>	U	U	U	U	U
Lateglow <sup>3</sup>	R	R	T	T	T
Latestar <sup>3</sup>	R	R	T-R	T-R	T
Lester	R	R	R	R	R
Midway	R <sup>2</sup>	S-I	S	S	I
Noreaster	R	R	T-R	T-R	T
Primetime	R	R	T	T	T
Raritan	S	S	S	S	I
Redchief	R <sup>2</sup>	R	T-R	R	T-R
Scott	R	I-R	S-I	R	R
Seneca	S	S	U	U	U
Sparkle	S-R	S	S	S-I	R
Surecrop	R <sup>2</sup>	VR	T-R	T-R	U
Veestar	S	T	T	T	U
<u>Everbearing</u>					
Tribute	VR	T-R	T	T	R
Tristar	R	R	T	T	R

1. VS= very susceptible; S= susceptible; I= intermediate; T= tolerant; R= resistant; VR= very resistant; U = unknown. Resistant characteristics of the cultivar usually preclude the need for other controls.
2. Resistant to several races of the red stele fungus.
3. Susceptible to leaf blight.
4. Delmarvel has resistance to Anthracnose foliage and fruit rot.
5. Highly susceptible to angular leaf spot (bacterial blight).

## LAWN & TURF

### RECENT RESEARCH ON MANAGING DOLLAR SPOT AND BROWN PATCH ON PUTTING GREENS by Paul Vincelli

Researchers at Kansas State University (D. Settle, J. Fry, and N. Tisserat) recently published an interesting paper in the journal *Crop Science* on management of the two most common diseases of creeping bentgrass. Since the three-year study was rather comprehensive, I'll consider a few key aspects of their findings separately.

**1. Disease reaction of varieties.** Not surprisingly, the variety Crenshaw was much more susceptible to dollar spot than was the standard cultivar Pennncross; Crenshaw is so susceptible to this disease that we do not recommend it for use in Kentucky. The variety L-93--a high-quality variety well-adapted to this region for greens, tees, and fairways--exhibited equal levels of dollar spot to that observed in Pennncross. Surprisingly, Crenshaw was also more susceptible to brown patch than either Pennncross or L-93. These results are consistent with our perception in the UK turf program that L-93 is well-adapted to the transition-zone region.

**2. Disease resistance enhances flexibility in spray program against dollar spot.** The researchers

demonstrated that use of the two varieties with more resistance to dollar spot allowed much more flexibility in the fungicide program than with Crenshaw. For example, spraying a tank-mix of triadimefon (the active ingredient in Bayleton) with either Prostar or Heritage at 28-day intervals provided disease control equal to the best treatment in the test. However, these same treatments provided inadequate control on Crenshaw. Another example: a weekly, low rate application of chlorothalonil (a 1 oz rate of Daconil Ultrex per 1000 sq ft) effectively controlled dollar spot with less fungicide than a full-rate program of chlorothalonil on a 14-day schedule in Penncross and L-93 but not in Crenshaw.

**3. A curative spray program was superior to a preventive program for dollar spot but not brown patch.** Iprodione (the active ingredient in Chipco 26GT and other products) or chlorothalonil (the active ingredient in Daconil Ultrex and other products) were applied on a preventative, 14-day schedule, or curatively when either brown patch or dollar spot were visibly increasing. In all three years of the study, fungicide sprays were applied half as often or less in the curative spray program, resulting in a substantial savings in fungicide. Control of dollar spot in the curative program was equal to that obtained in the preventive program. This indicates that a curative approach for dollar spot would result in effective control with less fungicide use. While this has been my suspicion in the past, it is gratifying to have solid research data in support of this. In contrast, damage from brown patch was sometimes unacceptably high in the curative program. Even though the brown patch pathogen can be effectively arrested by curative sprays, the damage from brown patch lingers, because of the slow turf recovery from disease during the heat of summer. This fits with the UK recommendation to maintain a preventive spray program against brown patch on putting greens from at least early July through mid-August; the window can even be longer, depending on the weather.

Thanks to Ned Tisserat and Derek Settle for reviewing the article.

## SHADE TREES & ORNAMENTALS

### PINES TURNING BROWN?

by John Hartman

Several kinds of pines are widely planted in landscapes throughout Kentucky. The most common pines used are white, Scots, and Austrian pines. Over the years, these three species have been subject to several kinds of pine disease problems. County

Extension Agents frequently inquire about pine trees that are turning brown in the landscape. There are several common problems that cause browning of pine needles. Some of the problems of pine require laboratory analysis for accurate diagnosis, however agents can make preliminary diagnoses by making good observations and getting accurate information. The following guidelines might help agents deal with the most common of these sometimes difficult problems.

- 1) Determine which kind of pine is having the problem. The majority of landscape pines will be **white** (5 soft, flexible, 2"-4" long needles/cluster), **Scots** (2 stiff, 1"-3" long twisted needles/cluster), or **Austrian** (2 stiff, 3"-5" long needles/cluster) pines.
- 2) If the tree is a white pine, the following maladies may be seen:
  - Air pollution injury. Browning of individual needle tips can be caused by air pollutants such as ozone; sometimes, the next season affected needles turn completely brown and die.
  - White pine decline. Browning of needle tips, wrinkling of bark of small branches, reduced growth, thin and off-color foliage, and tree browning can be caused by white pine decline, which is associated with high soil clay content, neutral to high soil pH, root injury, and soil compaction. White pine decline symptoms often do not appear for the first dozen years of the tree's life, but just when the tree is achieving good size, the problem strikes. Pines may appear weakened for some years and they may eventually die.
  - Transplanting problems. Sometimes white pines will gradually decline and die a few years after transplanting. When plastic twine is not removed at transplanting time and is left to girdle the base of the trunk, the tree will die some years later. Other transplanting problems that lead to decline include planting too deep and failing to keep newly planted trees watered.
  - Iron deficiency. Over-all yellowing of all needles throughout the tree or in large sections of the tree can be caused by iron deficiency associated with high soil pH.
  - Normal needle drop. Yellowing and shedding only of last-year's needles in late summer or fall is normal needle drop.
  - None of the above problems is contagious.
  - White pine root decline. Reduced vigor, yellowing, and then browning of the whole tree, a noticeable patch of resin on the trunk base, and dark staining of the vascular tissues of the trunk flare and root collar area are symptoms of white pine root decline caused by the fungus *Verticicladiella procera*. The

white pine root decline fungus can spread from root to root in the soil or be spread by bark beetles. As trees die from this disease, they should be removed.

- Phytophthora root rot. Tree decline and death associated with decayed bark of the trunk flare, root collar, and roots caused by *Phytophthora root rot* disease. This problem is associated with wet, poorly drained soils. Improving soil drainage can help reduce the effects of this fungus.
- 3) If the tree is a Scots pine:
- Pine wilt disease. Gradual fading out and browning of needles over the entire tree or large parts of the tree can be caused by the pine wood nematode. Cut into affected branches, and notice that there is no sap or resin flow. For positive diagnosis, laboratory analysis to find the causal nematode, *Bursaphelenchus xylophilus* is needed. Use sections of affected lower branches, submitting a foot or so of the part of the branch closest to the trunk. Samples for testing can be submitted to the U.K. Plant Disease Diagnostic Laboratory through local County Extension Offices. This disease is vectored by long-horned beetles, and tree removal is recommended to prevent spread. Pine wilt nematode also attacks Austrian pine, and occasionally white pine.
  - Tip blight. See Austrian pine.
- 4) If the tree is an Austrian pine:
- Tip blight. Browning of needles at the ends of individual branches or browning of entire branches, usually in the lower part of the tree is caused by *Sphaeropsis (Diplodia) tip blight*. The fungus causing tip blight, *Sphaeropsis sapinea*, attacks newly developing shoots of mostly mature, cone-bearing trees. Excess pitch or resin is produced and can be seen on affected branches as white patches of dried pitch. Infected cones and the bases of individual needles may show fungal pycnidia which appear as tiny black “pimples” on the dead tissue. The progress of disease can be slowed, but not completely controlled with diligent pruning and spraying. From research done by one of our graduate students, we now know that the causal fungus already exists in healthy shoots and branches and even in healthy trees. These latent infections may not be affected by spraying and pruning. Tip blight is also a serious problem of Scots pine, and occasionally on white pine.
  - Pine wilt disease. It is not unusual for pines dying from tip blight to also be attractive to the pine wood nematode. See Scots pine.

This is by no means a complete list of the problems facing landscape pines; however, a majority of cases of needle, branch, or tree browning fall into one of these

categories. There are many other species of pines that could be grown here, however we have too little experience with other species in Kentucky landscapes to recommend them as substitutes for our common disease-susceptible pines.

## **EASTERN TENT CATERPILLAR MANAGEMENT ON HORSE FARMS**

### **By Lee Townsend**

The presence of moderate to high numbers of eastern tent caterpillars (ETC) in mare areas was one of the risk factors identified in a Mare Reproductive Loss Syndrome (MRLS) survey of 133 Kentucky horse farms. Consequently, minimizing or eliminating exposure of pregnant mares to ETC has been identified as one part of an overall risk reduction plan. However, the toxicological and biochemical mechanisms of MRLS have not been fully defined so application of insecticides to control ETC may have no impact upon incidence of MRLS in 2002. This information is presented as an aid to decision-making. If an ETC control program is implemented, it must rely upon on well-timed and properly delivered applications of an insecticide.

### **What is the possible role of the ETC in MRLS?**

There are 2 potential ways in which ETC could have been involved in the syndrome, a direct effect or an indirect effect.

#### **Direct effect**

Leaves of the wild cherry tree contain a material that releases cyanide when the leaf is physically damaged. Initially, it was thought that pregnant mares could have eaten enough caterpillars to receive a dose of cyanide that would be passed to the foal with lethal effect. Research in the lab of Dr. Bruce Webb, UK Entomology Department, has shown that cyanide does not accumulate in caterpillars and thus they are not likely to deliver appreciable amounts of cyanide to horses.

#### **Indirect Effects**

Feeding ETC produce large amounts of frass (feces) that rains to the ground under infested trees. This nutrient-rich material could serve as food for specific fungi that in turn produce toxins. These toxins could be ingested by grazing mares and affect their fetuses. Also, diseases can rage through insect populations during outbreak years. It is possible that a pathogen which infects the ETC could in some way have been ingested by mares and contributed to MRLS.

Experiments to investigate these hypotheses will be

conducted early this spring. Results are not likely to be available in time to resolve whether or not the ETC is involved in MRLS. Since ETC cannot be discounted as a contributing factor, reduction of their numbers is one part of an overall program of risk reduction for MRLS.

### **ETC Control Program**

There is no preventive approach to ETC control. If insecticides are to be used, they must be applied after egg hatch is complete and tents are visible in trees. The recommended insecticides do not have long residual lives on foliage. Premature applications may result in the need for an additional spray.

There are 4 elements of an ETC control program:

- ! Timely detection of active ETC nests and feeding caterpillars in trees
- ! Application of an appropriate insecticide with proper equipment if ETC populations are judged to be moderate or greater.
- ! Protection of applicators, animals, and the environment.
- ! Follow up inspections of treated areas 5 to 7 days later to evaluate results and to check for additional tents.

### **When should ETC scouting begin?**

Forsythia bloom is a phenological event that can be used to determine when to scout trees. Egg hatch of ETC coincides with 50% bloom of Forsythia so FULL BLOOM is the right time to be scouting trees for the small tents and starting the sprays.

An insecticide application to control ETC should be made after egg hatch has occurred and when small tents are visible in the trees. The spray should be applied after egg hatch and directed to foliage within about 3 feet of the nest, or where caterpillars are feeding. Most of the products must be eaten by the caterpillars to work so they need to be applied to feeding sites, not the nest.

### **What are “safe” control alternatives?**

**Confirm Turf and Ornamental** (tebufenozide) is labeled for ETC control on shade trees and ornamentals. Tebufenozide is a molt-accelerating compound that disrupts caterpillar development. Because it has no target site in vertebrate animals, it is classified as a low-hazard insecticide. Although environmentally friendly, tebufenozide is toxic to aquatic invertebrates, so it should not be allowed to drift or run-off into streams or ponds. A 6-hour drying time is needed for optimum results. The label recommends use of LATRON B-1956, a spray adjuvant,

for optimum initial deposit, redistribution, and weatherability of the residue.

**Conserve SC** (spinosad) is a new type of microbial insecticide that is labeled for caterpillar control on trees. It, too, poses little or no hazard to vertebrates and is regarded as a reduced risk or biorational insecticide. It is toxic to some aquatic organisms. The label cautions against spraying to the point of excessive runoff. This is a turf and ornamental product.

**Bacillus thuringiensis - Bt based insecticides** (Dipel, etc.) are derived from a toxin produced by a soil microbe. They are specific to caterpillars, disrupting the digestive tract of the insect. The caterpillars generally stop feeding within hours after feeding on treated foliage but may not die for several days. Bt is essentially nontoxic in the environment.

Timing of application is very important with all three of these products. They are most effective against small larvae and less effective against large caterpillars.

Some synthetic pyrethroids can be used for ETC control. These products have an advantage over the previous products in being active at lower temperatures. However, they have a much broader spectrum of activity and can cause more “off target” effects. These include:

**DeltaGard T & O** (deltamethrin) is extremely toxic to fish and aquatic invertebrates. Use care when applying in areas adjacent to any body of water. Skin contact can result in transient tingling and reddening of the skin. Eye protection is required on the label, in addition to standard personal protective equipment.

**Talstar Lawn & Tree Flowable** (bifenthrin) is toxic to fish, drift and runoff may be hazardous to aquatic organisms in nearby bodies of water. It is an eye irritant.

**Tempo 20 WP** (cyfluthrin) is toxic to fish, drift and runoff may be hazardous to aquatic organisms in nearby bodies of water. Tempo causes moderate eye irritation.

**Scimitar CS or GC** (lambda-cyhalothrin) is extremely hazardous to fish, drift and runoff may be hazardous to aquatic organisms in nearby bodies of water. It is an eye irritant. Scimitar SC is for use by individuals/firms licensed or registered by the state to apply pesticide products. Scimitar GC is a Restricted Use pesticide.

### **What about grazing restrictions?**

These products are to be applied to tree foliage, not to pastures. There will be some drip from treated foliage on to the grass below. Confirm and Conserve have specific statements on the label indicating that livestock must not graze on treated areas and must not be fed hay or cover crops grown in treated areas. The same instructions apply to the synthetic pyrethroid insecticides. There are no such restrictions for Bt-based insecticides.

Regardless of the product used, it would be prudent to keep the "drip" area clipped closely and to feed hay away from the tree line to draw horses out of the area.

### **What about pasture spraying pastures?**

Several insecticides, such as Sevin (carbaryl) or Bt products, are labeled for application to pastures to control several caterpillar pests. There is no benefit to spraying pasture grasses to kill wandering ETC.

### **Pesticide Exposure Considerations**

The application of any insecticide to medium to large-sized trees provides the potential for applicator or animal exposure through spray drift or runoff. Read and follow label instructions before buying and applying any pesticide. Pay particular attention to protective equipment and other guidelines.

## **HOUSEHOLD**

### **WARM TEMPERATURES ACTIVATE BOXELDER BUGS**

**By Lee Townsend**

The recent warm spell has caused some stirring of overwintering insects. Several calls and samples have involved boxelder bugs.

Adult boxelder bugs are elongate, 1/2 inch long insects with sucking mouthparts. They are mostly black with some red markings. There are three narrow red lines on the segment behind the head, one down the center and one on either side and a thin red inverted "V" about the middle of the back. The wingless immature or nymphal stages have black heads, antennae, and legs. The red abdomen has an orange-yellow stripe and spot down the center of the back.

Clusters of these insects can be found basking in the sun. They will disperse to boxelder bushes and maple trees and remain there during the summer. Other than being an annoying accidental invader, they cause no harm and no drastic measures are needed.