KENTUCKY PEST NEWS

ENTOMOLOGY • PLANT PATHOLOGY •AGRONOMY

On line at - http://www.uky.edu/Agriculture/kpn/kpnhome.htm

Number 806 March 30, 1998

CORN

CONSIDER GRAY LEAF SPOT IF PLANTING CORN INTO COLD-INJURED WHEAT FIELDS
by Paul Vincelli

Some moderate to warm weather during the past week has allowed wheat producers to evaluate how much damage may have occurred to the wheat crop from the hard freeze on March 12. Some fields certainly will be replanted to soybeans or corn.

For no-till fields that were in corn last year and no-till planted to wheat last fall, corn planted this season will be exposed to a significant risk of gray leaf spot. Remember that the gray leaf spot fungus survives in residue of corn leaves left on the soil surface. Those corn residues from last year will not have had time yet to decompose substantially.

Thus, if planting corn in one of these fields, select a hybrid with partial resistance to gray leaf spot. A rating of 5 or better (on a scale of 1-9) will provide substantial protection against the disease against all but very high disease pressure, particularly if planted in a timely fashion and not late

SMALL GRAINS- Wheat

NOVARTIS ISSUES SECTION 2(EE) RECOMMENDATION TO AUGMENT TILT 24C LABEL
by Don Hershman

As I indicated in last week's Kentucky Pest News, the Kentucky Department of Agriculture issued a 24C label to Novartis on March 13, 1998 for the use of Tilt fungicide through complete head emergence (Feeke's stage 10.5) to control specked leaf blotch (*Septoria tritici*) and leaf and glume blotch (*Stagonospora nodorum*). However, for unspecified reasons, leaf rust was not specified in the 24C label application. As a result, it would have been technically illegal for farmers to apply Tilt after flag leaf emergence in an attempt to control leaf rust. This was a significant concern to us since late-season leaf rust is one of the most common diseases not effectively controlled by an early (Feeke's stage 8) application of Tilt.

On March 24, 1998 Novartis corrected this label situation by issuing a Section 2(ee) recommendation for the control of "rusts (*Puccinia spp.*)", which includes leaf rust. A 2(ee) recommendation allows the use of a pesticide for a

pest not specified on the EPA-approved label, PROVIDED that the rate and timing of the product are CONSISTENT with the label.

There is a large volume of national data showing that Tilt is highly effective in controlling rust diseases of wheat. Novartis' company literature indicates that Tilt has a 2-day curative effect on new infections and a 21-28 residual effect to protect against new infections. Our experience in field trials in Kentucky backs up these claims.

For Kentucky farmers with wheat fields across state borders, this 24C label and 2(ee) recommendation apply ONLY to fields in Kentucky. I was told by an official at Novartis that no 24C applications were submitted to our neighbors in Ohio, Illinois, Indiana, North Carolina, or Virginia. 24C applications for Tilt were submitted to Missouri and Tennessee, but as of this writing, those applications are still pending.

One final point: both the 24C label and a copy of the 2(ee) recommendation must be in the hands of the user at the time of application. Contact your local county Extension agent for agriculture for more information on controlling leaf rust.

SOYBEAN

INCREASED DOUBLECROP SOYBEAN YIELDS MAY BE POSSIBLE
by Don Hershman

There are many advantages associated with planting doublecrop soybean, but one main disadvantage is substantially reduced yield compared to full-season soybeans. There are numerous agronomic reasons for reduced yields in doublecrop soybean. The most notable of these is a reduced period of vegetative growth due to late planting following harvest of small grain crops. Another less publicized factor limiting yields in doublecrop soybean is soybean viruses. The most common of these virus diseases are soybean mosaic virus (SMV) and bean pod mottle virus (BPMV). SMV and BPMV are transmitted by aphids and bean leaf beetles, respectively. SMV is also seed transmitted, albeit usually at relatively low levels.

If soybean becomes infected with soybean mosaic virus (SMV) alone or in combination with bean pod mottle virus (BPMV) prior to flowering, the possibility that yields will be reduced is very high. Yield losses can be especially severe (>60%) in plants doubly infected with both SMV and BPMV.

For SMV, yield losses will begin to accrue if only 18% of plants in a field become infected prior to flowering. This is an important point since field studies in Kentucky have determined that SMV incidence often exceeds 25% in late plantings. The incidence of SMV in full-season crops is also usually high, but infections typically occur during the reproductive stages - a time when virus infection has little impact on yield. The main reason for the difference in time of infection between early- and late-planted crops has to do with the biology of the aphids which transmit SMV; aphid populations peak, and aphids are most active, during late July to early August. Full-season soybean crops during this time period are usually well into the reproductive stages. In contrast, doublecrop or otherwise late-planted crops are almost always vegetative during this same period. Thus, virus levels can be high in both early- and late-planted crops, but yields will only be impacted in the latter.

So what is a farmer to do? Not plant soybean late - no doublecropping? No, these options need not be considered. Rather, we recommend considering the use of SMV-resistant varieties when late-planting is practiced. Studies from 1989-94 found that SMV resistant varieties provided a 12% yield advantage over SMV-susceptible varieties in late-planting situations. Thus, using these varieties when doublecropping may help you to boost yields. The only real hitch is that the number of known SMV-resistant varieties is small and few are resistant to the soybean cyst nematode (SCN). Public varieties with proven resistance to SMV resistance include CF 492, Clifford, Holladay, and Hutcheson; none of these varieties are resistant to SCN, so caution must be exercised. Many other varieties, some with SCN resistance, are currently being evaluated for SMV resistance by scientists in both public and private sectors. As such, representatives from larger private seed companies may have some suggestions on which of their varieties appear to have acceptable resistance to SMV. In addition, as soon as I have confirmation of new SMV-resistant varieties, I will past along that information in future Kentucky Pest News articles.

NOTE: Data and research referred to in this article are the result of studies conducted by University of Kentucky scientists in Department of Agronomy: T.

Pfeiffer, Q. Ren; and Department of Plant Pathology: S. Ghabrial and M. Hajimorad.

TOBACCO

WATCH FOR DISEASES IN PLUG-PLANTS
by William Nesmith

Many of Kentucky's tobacco growers rely on plug-plants, rather than direct seeding, to establish their transplants in float systems. In visiting with a number of growers at winter meetings, too many have the misconception that plug-plants are sold as disease free. I am aware of no plug-plant producer that is marketing certified, disease-free transplants.

Growers need to realize that any of the plants may harbor infectious diseases. Therefore, your best protection is to review the production of each lot prior to purchase and to examine all plants carefully prior to accepting delivery. Be especially particular to review the disease control programs being used by the plant producer. Also, ask the plant producer to divulge the history of any disease events associated with the transplant lot. For example, the following diseases have already been identified in one or more lots of plug-plants planned for use in Kentucky this year: Pythium root rot, *Rhizoctonia* seedling blight, black root rot, angular leaf spot, bacterial leaf spot, and tomato spotted wilt virus.

A wide range of sources of plug-plants are available, including both in-state and out-of-state. In addition to production in traditional tobacco states, some of the largest suppliers of tobacco plug-plants are from non-tobacco production areas. Just because the production is outside a tobacco production area, do not assume the plants are disease-free.

DIFFICULTY FINDING FERBAM
by William Nesmith

I have received several calls from County Agents indicating that Ferbam with the 24-C label for greenhouses was not available locally in farm stores. I contacted UCB Chemical of Smyra, GA, the manufacture of Ferbam Granuflo, which is the only formulation of ferbam with the 24-C label for use in Ky. They identified Helena Chemical of Springfield, Ky as their local distributor.

SAFE PESTICIDE APPLICATIONS IN GREENHOUSES
By Lee Townsend and Ric Bessin

Pesticides are important tools for managing greenhouse pests. However, there is a great risk of worker exposure to pesticides by contact or inhalation in enclosed areas. The EPA has established Worker Protection Standards (WPS) for agricultural pesticide usage to minimize this risk. Growers using greenhouses for the first time need to be made aware of WPS requirements.

What is an REI? Restricted Entry Intervals are periods of time following a pesticide application when workers must not enter the treated area. For example, the REI for Orthene 75S is 24 hours.

When is posting necessary?
You **must post treated areas** in greenhouses where restricted entry intervals (REI) are in effect **unless-**
• no workers will be in the greenhouse during an application or while a restricted entry interval is in effect **or** • the only workers that will be in the greenhouse are those who made the application and are aware of the information required to be given by the oral warning. If postings are necessary, they must be placed where they can be seen from all points where workers enter the treated area.

If workers will have no contact with anything that has been treated with the pesticide, then they may enter when the application is finished and any applicable ventilation requirements have been met.

What is a pesticide-treated area in a greenhouse?
1) When using a typical pump-up sprayer, the treated area is defined as *where the pesticide was applied*. 2) A 25-foot buffer must be added in all directions if • the treatment is applied from more than 12" above the planting media, • or as a fine mist, or • or using a spray pressure greater than 40 psi. 3) The entire enclosed area is included if the pesticide is applied as a smoke, mist, fog, or aerosol. 4) The entire greenhouse and any adjacent structure that cannot be sealed off from the treated area is included if a fumigant is used, or 5) if the pesticide labeling requires the applicator to wear a respirator.

In cases 1) and 2) (above) workers can enter the area when the application is complete. For cases 3) - 5), specific ventilation requirements must be met, first.

See the product label for more information.

LIVESTOCK

SELF-APPLICATION DEVICES FOR FLY CONTROL
By Lee Townsend

There are several systems that can be put in place so that cattle can treat themselves with insecticides for horn fly and face fly control, generally in an effective and economical manner. Dust bags and backrubbers can be made or purchased. In addition, there are spray systems that can be incorporated into mineral stations or triggered as animals pass through gaps in fences between pastures.

Self-applicators must be placed where all animals will use them daily. The devices must be sturdy enough to hold up to frequent use and situated so they are easy to re-charge. Dust bags need to be hung so that the animal must butt it with its head to pass by. This way, the face and backline are treated.
Dust bags can provide excellent horn fly control and good face fly control if they are placed correctly.

Backrubbers provide good coverage of the back and sides. This is fine for horn fly control but "fly-flips" must be added to provide coverage to the face for face fly control. Backrubbers are often set in loafing areas and use by some animals may be very irregular.

Several sprayer designs incorporate compressed air or a solar collector and electric pump to deliver a measured spray dose as the animal visits a mineral station. These can be set to deliver the product to the face and backline as the animal feeds.

Self-applicators need to be checked regularly to mack sure that they are charged and functioning properly. Watch the animals use the devices to see if a change in placement will improve application or ensure that all animals get treated.

LAWN AND TURF

MOWING HEIGHT AND BROWN PATCH
by Paul Vincelli

Research conducted last year at the UK Turf Center has helped resolved a bit of a puzzle concerning brown patch in tall fescue. Specifically, research results have been somewhat conflicting as to the effect of mowing height on brown patch in this landscape grass. This is important because brown patch is the principal limitation to maintaining high quality tall fescue in Kentucky.

Some research has clearly shown that, the higher the tall fescue is mowed, the higher levels of brown patch. Conversely, there have been recommendations, and occasional research results, that indicate that the disease is worse under a low mowing height.

Over many years, our own research at UK has shown more symptoms of brown patch at a higher mowing height. In the most extreme instances, we have found up to ten times more foliar blighting in tall fescue managed at four inches than tall fescue managed at 3/4 to one inch.

In 1997, we had an interesting result, in that we were able to distinguish two phases of the disease: a "foliar blighting" phase and a "tiller death" phase. The foliar phase resulted from direct infections of leaves by the fungus *Rhizoctonia solani*; the tiller death phase resulted from crown and possibly root infections from that fungus (without foliar infections on those same plants, I might add). These two phases were distinguished based on regular field and microscopic observations, coupled with observations of a nearby fungicide study for control of brown patch on tall fescue.

What we saw is summarized very simply: ***a high mowing height favored foliar brown patch, whereas a low mowing height favored tiller death from brown patch infections in crowns.*** Selected data that illustrate this result are provided in the accompanying table.

Table 1. Effect of Mowing Height and Nitrogen on Brown Patch of Tall Fescue, 1997

Mowing height (inches)	% Leaf blighting* (21 Jun)	%Dead fescue tillers* (23 Jul)
0.75 - 1.0	1 c	9 a
2.5	7 b	1 c
4	30 a	3 b

*Means followed by the same letter are not significantly different (P = 0.05). Means shown are back transformed from the arcsine square root normalized data.

For me, these results help make some sense out of the conflicting research reports I have seen over the years on this disease. They also make biological sense. A tall-cut

sward has more leaf-to-leaf contact, more shading, and less air movement than a short cut sward. Thus, one expects more foliar infections in the tall-cut sward. In contrast, grass plants mowed closely don't have the deep roots and vigorous crowns of tall-cut plants, so they can be expected to be more vulnerable to root and crown infections. In fact, because of the close mowing, they may actually be predisposed to become infected more easily.

So, as far as recommendations that result from this, which would one rather have: more leaf blight but live crowns, or uninfected leaves on tillers which are dead? Humor aside, avoiding close mowing of tall fescue is advantageous for a number of agronomic reasons. Our UK Turfgrass Agronomists recommend a mowing height of 2"-3" for tall fescue. Our most recent data show the wisdom of that recommendation from a disease views.

SHADE TREES AND ORNAMENTALS

EMERGING PLANT GROWTH IS VULNERABLE TO SPRING DISEASES
by John Hartman

The emergence of a new woody plant shoot in spring is truly awesome, but it is also a time of vulnerability for many plants. Like any newborn, the tender structures of the emerging shoot are vulnerable to invasion by disease organisms. These delicate tissues often have not begun to accumulate the substances which toughen and protect them from invasion.

Many plant pathogens profit from the unprotected status of plants in the springtime. Fire blight, a devastating bacterial disease of pears and apples in the yard, is most often seen on the succulent shoots which have just emerged, or can even be seen destroying flower clusters before they have had a chance to set fruit. Similarly, the pine tip blight fungus attacks during bud swell and needle emergence in spring. The apple scab fungus and the shade tree anthracnose fungi are most devastating in spring when new shoots and leaves are forming.

Disease control reminders for vulnerable landscape plants. Spring is the only time to control pine tip blight and cedar rusts of flowering crabapples and hawthorns. Diseases such as crabapple scab and shade tree anthracnose are best managed in springtime so that primary inoculum is reduced, thus preventing secondary disease cycles during late spring and summer.

Flowering crabapple scab. Use scab-resistant cultivars for new plantings. Begin fungicide applications at green tip. For protectant fungicides such as chlorothalonil (Daconil 2787), folpet (Phaltan), or mancozeb (Fore) make a second spray just before bloom, a third at petal fall and in wet seasons, a fourth two weeks later. Systemic/eradicant fungicides such as thiophanate-methyl (Fungo Flo or Cleary's 3336), fenarimol (Rubigan), myclobutanil (Eagle, Immunox), or propiconazole (Banner) can be applied at green tip and at 14-day intervals until two weeks after petal fall.

Flowering crabapple cedar rusts. Use rust-resistant cultivars. Apply fenarimol, mancozeb, myclobutanil, or propiconazole just after bud break as flower buds begin to appear, again during bloom and a third time just after trees have finished blooming.

Pine tip blight. Infected cones, twigs, and branches should have been pruned the previous fall or winter. Spray with thiophanate-methyl first at bud break (which is now occurring), then as candles are beginning to elongate, and a third time as needles are emerging from needle sheaths. Fixed copper or Bordeaux mixture are cleared, but not as effective.

Shade tree (ash, dogwood, maple, sycamore) anthracnose. Sprays are usually not needed, but since anthracnose, especially on sycamores, was severe last season and if cool, wet weather is forecast this spring, fungicides may help. Thiophanate-methyl, propiconazole, chlorothalonil, mancozeb, fixed copper, or Bordeaux mixture can be used, if needed. See the label for specific trees and diseases cleared for each chemical. Begin applications now during bud break, and repeat 2-3 times at 10-14 day intervals.

ORNAMENTAL PEST ALERT
By Mike Potter

Unseasonably warm temperatures have hastened emergence and development of two important early-season pests of ornamentals.

Eastern tent caterpillars are active on a variety of deciduous hosts, including wild cherry, apple and crabapple. This defoliator overwinters in brown egg masses encircling the smaller twigs of the host tree. Eggs (150-300 per egg mass) hatch about the time that the leaves begin to unfold. The newly-emerged larvae gather at a branch fork and construct a tent-like web from which they venture out during the day to feed on new foliage. The eastern tent caterpillar favors wild cherry, apple and crabapple but will also attack peach, pear, plum, hawthorn and some shade trees. Trees sometimes contain several nests and can be completely defoliated in 2-3 weeks.

Control - Control is best accomplished when webs are first noticed and the larvae are small. If nests are within reach, they can be removed with a stick or broom. This should be done in the evening, when the larvae are inside the nest. Insecticidal sprays are also effective. Registered products include Bt (*Bacillus thuringiensis*), carbaryl, chlorpyrifos, diazinon, malathion, and synthetic pyrethroids (e.g. Scimitar, Talstar). Apply treatments to the nest and foliage of plants where the caterpillars are feeding. Dousing nests with gasoline and setting them on fire is dangerous and could harm the tree.

Boxwood psyllids soon will be emerging on American and Korean boxwood plantings. Psyllids are tiny (1-2mm), green sucking insects that resemble aphids or miniature cicadas. Boxwood psyllids overwinter as eggs inserted between the bud scales. Eggs hatch as soon as the buds begin to open and the nymphs begin to feed on the expanding foliage, removing plant sap. Feeding injury produces cupping and curling of the leaves, enclosing several nymphs in the leaf pockets. The nymphs also produce white, waxy secretions. Adults emerge in late May and June, mate, and lay their eggs under the bud scales. There is one generation per year.

Control - Boxwood psyllids generally do not kill plants, but can affect aesthetics and overall plant vigor. Early detection is essential if leaf damage is to be avoided. Insecticides, including Dursban, Orthene, Sevin, Tempo or insecticidal soap are effective and should be applied as the leaves are expanding. Treatments applied after leaves have fully expanded won't alleviate this year's damage, but may help to reduce psyllid numbers next season.

NEW EXTENSION PUB AVAILABLE

When it comes to protecting ornamentals from insect pests, timing is everything. To be effective, insecticides, or other forms of intervention, must be applied when pests are present and at their most vulnerable life stage. A new extension publication, *ENT-66: Timing Control Actions for Landscape Insect Pests*, is now available through the usual avenues. Using flowering plants as indicators, the publication predicts the sequence and emergence date for 33 of the most important pests of woody plants or turf in Kentucky.

PESTICIDE NEWS AND VIEWS

FOOD QUALITY PROTECTION ACT
By Lee Townsend

Information on the Food Quality Protection Act has been published in previous issues of the KPN (# 764 - Jan 6, 1997; # 770 - Mar 31, 1997). Direct access is available through an EPA web page- http://www.epa.gov/opppsps1/fqpa/

Among the provisions of the Food Quality Protection Act (FQPA) of 1996 is a requirement for the EPA to reassess all pesticide tolerances (9,700+) within ten years of passage of the Act. During the first phase, EPA plans on reviewing the tolerances of the organophosphate (OP), carbamate and B-1/B-2 carcinogen pesticides. This puts a number of ag and home garden pesticides on the line.

Among those included that are significant to varying degrees in Kentucky are acephate (Orthene), azinphos methyl (Guthion), chlorpyrifos (Lorsban), diazinon, disulfoton (DiSyston), fonofos (Dyfonate), malathion (Cythion), and terbufos (Counter). The carbamate insecticides carbaryl (Sevin), carbofuran (Furadan) and methomyl (Lannate) will be assessed, as will the fungicides (Bravo, Captan, Dithane, and Maneb) and herbicides acetochlor - (Harness, Surpass, Top Notch) and acifluorfen (Blazer, Storm).

The new evaluation approach looks at risk from aggregate exposure to pesticides with common mechanisms of action rather than as distinct products.

PESTICIDE USE VIOLATIONS
By Monte Johnson

MICHIGAN CITIZEN PLEADS GUILTY TO ILLEGAL METHYL PARATHION APPLICATION

On Jan 6, Lee Poole, formerly of Houma, La., pleaded guilty in U.S. District Court for the Eastern District in Flint, Mich., to two counts of illegally applying methyl parathion, a restricted use pesticide, to homes in February 1996. Poole was an uncertified pesticide applicator who had been the subject of previous administrative enforcement actions taken by the Louisiana Department of Agriculture and Forestry (LADF), in 1988 for applying a pesticide in a manner inconsistent with

its labeling and in 1994 for violations surrounding the use and distribution of methyl parathion. The Emergency Response Branch of EPA Region 6 relocated several homes in the Houma area which Poole had sprayed with methyl parathion. The case was investigated by EPA's Criminal Investigation Division, the FBI, LADF and the Louisiana State Police. (EPA Press Release, Jan. 9, 1998)

MISSISSIPPI WOMAN ORDERED TO ANSWER PESTICIDE CHARGES

On Feb. 13, Margaret Stewart of Clarksdale, Miss., was served with a summons to appear in U.S. District Court for the Northern District of Mississippi in Oxford to answer an indictment that alleges she illegally sold the pesticide Endosulfan to the public in improperly marked containers. Endosulfan is an insecticide which is highly toxic to the nervous system. Exposure can cause headache, nausea, vomiting, dizziness, tremors, convulsions, coma and death from respiratory arrest. Ms. Stewart allegedly sold Endosulfan in milk and bleach containers without pesticide warnings required by law. If convicted on both charges, the defendant could face a maximum sentence of up to two years in prison and fines of up to $200,000. The case was investigated by EPA's Criminal Investigation Division, the FBI and the Mississippi Department of Agriculture and Commerce. (EPA Press Release, February 20, 1998)

TWO TENNESSEE MEN ARRESTED ON PESTICIDE CHARGES

On Feb. 13, 1998 Robert E. Kelly, Jr., and Robert E. Kelly, III, who operate Kelly Spraying Service in Memphis, Tenn., were arrested on a 42-count federal indictment which alleges that they illegally applied the pesticide methyl parathion inside homes. The indictment was brought in U.S. District for the Western District of Tennessee in Memphis. The charges allege that Robert Kelly, Jr. purchased at least 280 gallons of the restricted-use pesticide methyl parathion in Mississippi between 1992 and 1996. Methyl parathion is licensed for outdoor agricultural use only where it degrades rapidly when exposed to sunlight. When used indoors, the toxic pesticide can stay potent for periods of up to two years. Both defendants are alleged to have sprayed this pesticide in homes without disclosing its nature and potential health impacts to customers. Both defendants face maximum penalties of up to one year in prison and a fine of up to $100,000 on each count. The case was investigated by EPA's Criminal Investigation Division, the FBI, and the Tennessee Department of Agriculture. (EPA Press Release, February 20, 1998)

FOOD QUALITY PROTECTION ACT (FQPA) BROCHURE CONTROVERSY

A brochure that the EPA is developing entitled "Pesticides on Food: Consumer Information" has drawn criticism from several groups. It has been called "negative and alarming" by the grocery industry, and environmental and consumer groups have called it "milquetoast" and written through "rosy-colored glasses." A final version of the brochure must be available in grocery stores by August this year. It will attempt to answer the following questions about pesticides:

* why pesticides are used on food
* how harmful are pesticides
* what the government is doing to protect consumers from harmful amounts of pesticides
* ways to remove some of the pesticide residues from foods

(AAPSE Notice, March 13, 1998)

DIAGNOSTIC LAB - HIGHLIGHTS

by Julie Beale and Paul Bachi

We have seen numerous cases of **cold injury** on **wheat** in the western part of the state. Cold injury symptoms on wheat range from killed wheat heads (an internal symptom) to stem damage. Heads must be exposed inside the stem to determine their condition. Stem damage can be seen externally with tan to darker brown, water-soaked, collapsing tissue evident.

We are also beginning to see **tobacco** float plants; **cold injury, Pythium root rot and Rhizoctonia damping-off** have been diagnosed.

On ornamentals we have seen **greenhouse geraniums** with **Pythium root rot**, **sedum** with **Pellicularia crown rot** and freeze-injured **tall fescue** with **pink snow mold**, **Drechslera leaf spot and Septoria leaf spot**.

Lee Townsend, Extension Entomologist