



KENTUCKY PEST NEWS

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LIVESTOCK

FACE FLIES FORMIDABLE FOES

By Lee Townsend

Face flies have been in the US only since 1951 but they have become one of the toughest pasture flies to manage. These flies visit cattle and horses to get the protein needed for their diet. Favorite sources include tears, mucus, and saliva but they will feed on blood at wounds and milk on calves faces. The sponging mouthparts on these insects have small, rough spines that scratch tender tissue around the eye and stimulate tears, which are blotted up by the specialized base of the fly's mouth.

Face flies are considered to be a major factor in the spread of pinkeye. The flies not only carry the bacteria but also damage the cornea, providing a place for the *Moraxella bovis* bacteria to enter the eye. Other eye irritants, such as tall grass, pollen, and sunlight can play a role in the incidence of this disease.

Face fly control, along with a vaccination program and pasture clipping are parts of a management program. Daily access to forced-use dust bags may be the best alternative if pinkeye is a chronic problem and fly pressure is intense.

Research estimates indicate that less than 5% of the face flies near a herd of cattle are on the animals at any one time. Control of these insects is difficult because they spend so little time on animals and are limited to places on animals that are difficult to treat. In addition, face flies may move several miles in a day. Movement of flies from nearby herds can compound control problems.

Female face flies lay their eggs in fresh cattle droppings. The life cycle takes about 2 weeks during the summer and adult flies live 2 to 4 weeks.

TOBACCO

CURRENT BLUE MOLD STATUS

By William Nesmith

For the good news first: Weather conditions for mid and late last week did not support long-distance spread due to sunny days, however, local spread near the established centers of activity probably occurred all week.

Now for the rest of the news: The "horse" is already out of the barn! We just do not know how far it went or

where it went, at this point.

This will be a very important week for evaluating blue mold's potential this year. The key question is: How widespread has blue mold become in Kentucky, through airborne and transplant-borne routes? Recall that a protracted cool, wet weather pattern persisted over most of Kentucky during the Memorial Day period. Also, a lot of tobacco was set during the past week, and some of it probably had blue mold. The results of those infections periods should become obvious by June 3 or 4.

I urge County Extension Agents to assist growers by scouting for the disease during this week. We need to get a "good handle" on the situation in each county. A large number of growers have not made a single fungicide application to transplants in traditional beds and float beds. And, although greenhouse growers did a good job earlier in the season, many have not properly maintained fungicide sprays during the past 10 days because they have been very busy with transplanting and hay. Many are juggling a tight list of high priorities. Let's face it, blue mold is not a high priority until it is found in the community, so let's help them find it as soon as possible. We need to scout beds and fields.

SPRAY PROGRAMS: Fungicide spray programs should be maintained in all transplant production systems in the state. Field sprays should be started in all counties with active blue mold, as well as neighboring counties. With the number of unknowns involved, spraying of newly set fields throughout the state, irrespective of how close they are to known sources, is reasonable and prudent at this stage of the season. Acrobat MZ @ 2.5 lbs/100 gallons and Dithane DF @ 1.5-2.0 lbs/100 gallons are the two fungicides labeled for field use in Kentucky. The volume should be adjusted for crop stage. Good coverage is critical with both fungicides.

WHERE IS BLUE MOLD IN KY? The level of blue mold activity has been increasing rapidly in western Kentucky. Several County Extension Agents reported finding strong centers of new activity in western Kentucky last week. Spores generated there and in western Tennessee have been spreading eastward across the Commonwealth. Active blue mold has been confirmed in central and southern Kentucky, as far

east as Estill Co., with newly activity reported during the past week in Pulaski, Washington, Monroe and Barren counties. The disease is active in both burley and dark tobaccos.

BLUE MOLD WATCH EXISTS STATEWIDE AND WARNING exists for the following State Extension Areas: Purchase, Pennyryle, Green River and Mammoth Cave. Blue mold activity is increasing rapidly in western Kentucky and could develop rapidly following the blue mold-favorable weather events of the past week. It is especially important that control programs be in place and maintained for transplant and field production in this region, not only for local protection but to help the state-at-large. Established blue mold in western Kentucky presents a threat statewide. Blue mold has been confirmed in the following counties in western Kentucky: Barren, Caldwell, Calloway, Christian, Daviess, Hancock, Logan, McLean, Monroe, Todd, Simpson, Warren and Webster. However, it probably is active by now in all tobacco-producing counties in western Kentucky.

In addition, warnings exist for four counties in the watch areas: Washington, Estill, Clark, and Pulaski, because blue mold has been confirmed in those counties. I expect to add more counties/area to the warning list this week.

EFFICACY AND ECONOMIC BENEFIT OF FOLIAR FUNGICIDES FOR BLUE MOLD CONTROL

By William Nesmith and Steve Isaacs*

Below are some data taken from research plots and grower-level demonstration plots designed to measure the efficacy and economic benefit of using Acrobat MZ under the Emergency Exemption in 1996 and 1997. All fungicide applications were made by growers or University farm crews as per their individual understandings of the label. Drop nozzles and moderate to high pressure were used in all cases. The entire field was sprayed with Acrobat MZ at labeled rates, except for four untreated areas (the width of the spray boom, or at least 4 rows wide, and 25-50 feet long). Costs are those provided by the grower for his particular situation. The data on efficacy were collected by the University of Kentucky. Net market values are adjusted for marketing charges.

Table 1: Effects of Acrobat MZ Sprays on the Control of Blue Mold and Yield of Burley Tobacco (Variety, NC-3), Breathitt Co., 1997.

Treatment	% leaf damage*		% Systemic	Yield/A (lbs)**	Net Market Value (\$)
	8/1	9/23			
Unsprayed	17.8 a***	58.3 a	98.3 a	2671 b	4567
Acrobat MZ	1.2 b	39.3 b	59.8 b	3398 a	5810

* Ratings are visual estimates of the % leaf surface damaged by blue mold about topping and at harvest. Systemic ratings involved cutting the stem at harvest and determining visually if systemic blue mold was involved in the lower portion of the stem.

** Yields are cured weights, ready for market. Costs of fungicide treatments: Chemical costs: \$265/A (\$30/spray application (6 applications) plus \$85 for the fungicide, market value at \$10/lb) gross benefit = \$1243/A, Net benefit from Acrobat MZ = \$978/A.

*** Values within the same column sharing different letters are significantly different at the 95% confidence level, as determined by the Tukey's Honestly Significant Difference Procedure.

Table 2: Effects of Applying Acrobat MZ with a High-Pressure Sprayer on the Control of Blue Mold and Yield of Burley Tobacco (Variety, Tn-90), Quicksand, Ky., 1997.

Treatment	% leaf damage*		% Systemic	Yield/A (lbs) **	Net Market Value (\$)
	8/1	8/19			
Unsprayed	6.1 a***	11.6 a	50.5 a	3418 b	5845
Acrobat MZ	0.0 b	2.0 b	0.8 b	4283 a	7324

* Ratings are visual estimates of the % leaf surface damaged by blue mold at mid-season and about topping. Systemic ratings involved cutting the stem at harvest and determining visually if systemic blue mold was involved in the lower portion of the stem.

** Yields are cured weights, ready for market. Costs of fungicide treatments: Chemical costs: \$385/A (\$50/application plus \$85 for the fungicide, market value at \$10/lb, making 6 applications) gross benefit = \$1479/A, Net benefit from Acrobat MZ = \$1094/A.

*** Values within the same column sharing different letters are significantly different at the 95% confidence level, as determined by the Tukey's Honestly Significant Difference Procedure.

Table 3: Effects of Four Foliar Applications of Acrobat MZ on the Control of Blue Mold and Yield of Burley Tobacco (Variety, Tn 90), Clark Co, 1996.

Treatment	% Leaf Damaged from B. Mold*			Yield/A (lbs)**	Net Market Value (\$)
	Low	Middle	Top		
Unsprayed	82 a***	19 a	0.4 a	2384 b	4243
Acrobat MZ	24 b	3.4 b	0.0 a	2782 a	4952

* Ratings are visual estimates of the % leaf surface damaged by blue mold in the lower third, middle third, and top third of the plant about 10 days after topping.

** Yields are cured weights, ready for market. Costs of fungicide treatments: Chemical costs: \$205/A (\$30/application plus \$85 for the fungicide, market value at \$10/lb, 4 applications) gross benefit = \$709/A, Net benefit from Acrobat MZ = \$504/A.

*** Values within the same column sharing different letters are significantly different at the 95% confidence level, as determined by the Tukey's Honestly Significant Difference Procedure.

Table 4. Effects of Five Foliar Applications of Acrobat MZ on the Control of Blue Mold and Yield of Burley Tobacco, Fayette Co, 1996, Variety R-711.

% Leaf Damaged from B. Mold*	Yield/A	Net Market
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Treatment	7/12	7/24	(lbs)**	Value (\$)
Check	56.7a	78.3a	2289 b	4074
Acrobat	3.3b	13.3b	3107 a	5530

* Ratings are visual estimates of the % leaf surface damaged by blue mold on various dates.

** Yields are cured weights, ready for market. Costs of fungicide treatments: Chemical costs: \$235/A (\$30 for each spray application (5 applications) plus \$85 for the fungicide, market value at \$10/lb). gross benefit = \$1456; Net benefit from Acrobat MZ = \$1221/A

*** Values within the same column sharing different letters are significantly different at the 95% confidence level, as determined by the Tukey's Honestly Significant Difference Procedure.

Table 5. Effects of Four Foliar Applications of Acrobat MZ on the Control of Blue Mold and Yield of Burley Tobacco - Jessamine County, 1996, Variety Tn 90.

Treatment	% Leaf Damaged from B. Mold*			Yield/A (lbs)**	Net Market Value (\$)
	Low	Middle	Top		
Unsprayed	15 a***	0.5 a	0.07a	2868 a	5105
Acrobat MZ	1.6b	0.3 a	0.2 a	2810 a	5002

* Ratings are visual estimates of the % leaf surface damaged by blue mold in the low third, middle third, and top third of the plant about 15 days after topping.

** Yields are cured weights, ready for market.

Costs of fungicide treatments: Chemical costs: \$220/A (\$30/each spray application, 4 applications made, plus \$100 for the fungicide, market value at \$10/lb)

gross Benefit = -\$100/a, Net benefit from Acrobat MZ = -\$320/A

*** Values within the same column sharing different letters are significantly different at the 95% confidence level, as determined by the Tukey's Honestly Significant Difference Procedure.

FRUIT CROPS

VANGUARD WG FUNGICIDE FOR TREE FRUITS AND GRAPES

by John Hartman

A new fungicide, Vanguard WG, has recently received a national label for control of several fruit crop diseases. The fungicide is labeled for use against scab of pome fruits, brown rot blossom blight of stone fruits, and botrytis bunch rot of grapes. Vanguard may be used alone or in tank mixtures in the orchard and vineyard. It may receive registration for other crops in the near future.

According to the manufacturer, Novartis Crop Protection, Inc., the active ingredient, cyprodinil is a fungicide with protectant and post-infection activity against important fungi in the ascomycete and fungi imperfecti groups. The fungicide inhibits penetration of fungal pathogens into the host and, because it is systemic, it also inhibits growth of the fungus inside the plant. Cyprodinil is unlike other fungicides currently in use so fungi with resistance to another fungicide will not have cross resistance

to Vanguard.

SHADE TREES AND ORNAMENTALS

PLANT BUGS MAKING THEIR MARKS

By Lee Townsend

The world is full of plant bugs. For the most part, these sap feeders go about their lives in relative obscurity. However, the distinctive marks that result from infestations of some species can ruin the appearance of landscape plants and garden herbs. Usually, infestations are noticed only after significant damage is done. Symptoms and specimens of two common species are showing up.

The adult four-lined plant bug is a yellow or bright green insect with 4 black stripes on its back and a black diamond-shaped mark at the end of its body. The smaller, wingless nymphs vary from red to yellow and also have black markings. These insects use their piercing-sucking mouthparts to feed on more 250 different mostly herbaceous plant species. A 1/8" circular area around the feeding site where chlorophyll is removed turns tan or black. This gives leaves a spotted appearance or "lacy"

appearance. Generally, feeding and damage symptoms first appear at the top of the plant.

When the plant is disturbed, adults fly away or hide on the underside of the leaves. The wingless nymphs can only run or hide. Both stages may be overlooked but the damage symptoms are very obvious and detract from the appearance of the plant. Control measures should be taken when the first leaf spots are seen. Contact insecticides, such as insecticidal soap, Malathion, Orthene, or Dursban may be used for control. Be sure the product you select is labeled for the plants being treated, especially herbs.

Four-lined plant bugs overwinter as eggs that are laid in tender shoots or water sprouts. They hatch in mid-to late April and the nymphs take about 30 days to reach the adult stage.

Yucca plant bugs are brightly colored insects that occur wherever yucca is grown. These sap feeders produce small light spots on the leaves where they have used their sucking mouthparts. Large numbers of spots can produce yellow areas. A tarry black waste material is left on the leaves. Adults have wings but do not fly readily; they are more likely to run when the plant is disturbed.

A direct spray of insecticidal soap should provide control. Repeat as needed. Other insecticides such as Sevin (carbaryl) or Dursban (chlorpyrifos) may be used. Check the label to determine whether or not the product can be used on yucca.

WHITE PINE ROOT DECLINE

By John Hartman

There have been recent observations of decline and death of white pines in landscapes in several central Kentucky locations. In most cases the pines were 15-20 years old, established in the landscape for at least 10 years and showed no apparent problems until recent years.

Symptoms observed now. In at least one case involving a group of over 50 pines, several almost a foot in diameter had been cut down; other pines nearby showed poor shoot elongation, needle browning, and lower branch death; and pines still farther away were healthy. Some declining pines

showed patches of resin at the base, and when the bark was removed from the trunk and adjoining buttress roots, a resin-soaked dark brown staining or streaking was evident in the cambium and wood. Others with foliar symptoms had no basal resin patches, but when buttress roots and lower trunk were examined, the resin-soaked brown streaking under the bark was again present. In addition, many diseased trees showed excess resin flow from parts of the trunk where diseased branches had previously been removed. The indications were of a progressive soilborne disease affecting the pines - white pine root decline caused by the fungus *Verticicladiella procera*, also called *Leptographium procerum*.

White pine root decline vs. white pine decline.

White pine decline is a common problem in many parts of Kentucky, but could be confused with white pine root decline. White pine decline is not infectious - it is associated with compacted soils and those that have a high pH or high clay content. However, like white pine root decline, it often only begins to appear in previously healthy plantings after the trees become 15-20 years old. One would not expect white pine decline to begin in one part of the planting and gradually spread from there. In one case where white pine root decline was active, the well-drained silt loam soil with little clay had been treated with sulfur over the years and the pH was in the range of 5.5-6.5, which should have been a favorable growing site for white pine. In addition to site differences, white pine root decline symptoms - the resin-soaked dark brown stained buttress root and trunk base - can help one to differentiate one disease from the other in the field.

Disease management. White pine root decline is not curable and may be difficult to prevent in some sites. We have observed it on well drained as well as on wet sites. White pine root decline is known to be more of a problem for pines that are growing in stressful circumstances such as root and trunk wounding, air pollution exposure, and infection by other root decay fungi. In addition, the fungus can be vectored by trunk boring insects, but their exact role here is not well defined. White pines are native to some parts of eastern Kentucky where it grows in moist sites with acid, sandy, soils. In other parts of Kentucky, there are exceptional long-lived white pines growing out of their native sites. However, if white pines are being planted in landscapes to last a long time, premature decline

and death is a risk that must be considered in most locations. The best advice is to provide white pines with good growing conditions.

DIAGNOSTIC LAB-HIGHLIGHTS

By Julie Beale and Paul Bachi

Wheat diseases diagnosed last week included glume blotch and head scab.

We continue to see a number of disease problems on tobacco transplants still in greenhouses and outdoor float beds. In particular, we are seeing an increase in Pythium root rot (extending into stems) and blackleg. To date blue mold has been diagnosed in 17 counties, several in central Ky.

In the landscape, we have seen frog-eye leaf spot on apple, anthracnose on birch (and other shade trees), bacterial blight on pear, and Phoma stem canker on honeysuckle.

Lee Townsend, Extension Entomologist

INSECT TRAP COUNTS

Princeton

May 22 - 29

Black Cutworm	1
True Armyworm	58
European Corn Borer	3