

“WHAT’S HAPPENING?”

The University of Tennessee/Agricultural Extension Service

Entomology & Plant Pathology - EPP #60

13 July 2007

BEDDING PLANT DISEASES

by Alan Windham

With irrigation, drought is no deterrent to diseases of bedding plants. Impatiens, zinnia, marigold, vinca, petunia, coleus and begonia all have problems from time to time.

Last year, **downy mildew on coleus** was big news. It appeared for the first time in Tennessee and thirteen other states on some very nice coleus cultivars. Symptoms included blotchy, dull colored leaves and stunting. This year, it’s still big news in the Carolina’s. I found downy mildew on coleus in an irrigated landscape bed in Greenville, SC while at the SE Greenhouse Conference in late June. The fungus was growing just fine on the underside of leaves, even though temps were in the low 90's. It’s probably here in Tennessee although I haven’t seen any yet. There are fungicides labeled for downy mildew, but it moves so fast that often the damage is done before a diagnosis is in hand.

Bacterial leaf spot caused by *Xanthomonas* is appearing on zinnia. Brown, angular spots (sometimes with yellow halos) may be found in large numbers on zinnia leaves. Even the new cultivars are not immune. The bacterium that causes this leaf spot may be found on seed, which is where the disease originates. Keeping foliage dry via drip irrigation may help slow spread. We really are dependent on growers, who should disinfect seed prior to planting to control this disease.

Fungal leaf spot diseases caused by fungi such as *Alternaria* may cause severe leaf drop on some bedding plants, particularly impatiens and marigold. Lesions often have a purple margin with a gray to tan center. Fungicides can be used to manage this disease, but only if treatment is applied early in the disease cycle.

Web blight caused by *Rhizoctonia* is more common than you would think. It shows up in mid-to-late summer when the canopy of individual plants has grown together forming one canopy. With little air movement and high humidity within the canopy of the foliage, conditions are perfect for *Rhizoctonia* to do its thing, which is webbing and blighting the foliage in the interior of infected plants. Web blight may not kill plants outright, but will detract from the beauty of bedding plants at their peak. This can be prevented by applying foliar sprays of fungicides when the canopy closes on landscape beds.

Phytophthora crown rot of petunia is capable of wiping out a bed of petunia within a few weeks. Plants are infected at the stem and rapidly wilt and die. The interesting thing about this disease is that the root system on a freshly killed plant will look perfectly healthy. The fungus doesn’t affect the root system. The fungus *P. nicotiana* is long lived in the soil and will attack and kill susceptible plants next season. Fungicides have not been very effective in preventing this disease, so crop rotation to marigold, zinnia or another resistant bedding plant is your best option. A similar disease is a foliar blight of vinca caused by *Phytophthora*. In this case the fungus is splashed from soil or infested media onto the foliage of vinca which collapses under the infection.

Whatever the problem, have it properly diagnosed and management strategies can be implemented to minimize the problem next year and possibly this season.

STINK BUGS ON TOBACCO

by Gene Burgess

Green and brown stink bugs may be found in tobacco. They are shield-shaped bugs. Their beak-like mouthparts are used to remove plant sap. A salivary secretion with enzymes, which is injected as the insect feeds, produces a rapid wilting of the leaf or stem. The leaf usually resumes its normal shape and is not permanently damaged. Scalded areas may develop on injured leaves during hot weather. Growers are likely to encounter injury symptoms and not see the insects. Damage is usually limited to scattered plants, often in border rows.

Insecticide sprays in response to symptoms usually are ineffective. Stink bugs are good fliers and move frequently from plant to plant, as well as into and out of the field. Because of their transient nature and generally minimal damage, insecticide applications specifically for stink bug are rarely justified.

MINI-CHROMOSOMES TO CREATE STACKED/SPECIFIC TRAITS

by Gene Burgess

A team of scientists at the University of Missouri-Columbia has discovered a way to create engineered mini-chromosomes in corn and attach genes to those mini-chromosomes. This discovery opens new possibilities for the development of crops that are multiply resistant to viruses, insects, fungi, bacteria and herbicides

One of the researchers said there have been unsuccessful efforts to create artificial chromosomes in plants but this is the first time engineered mini-chromosomes have been made. Mini-chromosomes are able to function in many of the same ways as chromosomes, but allow for genes to be stacked on them. The new mini-chromosomes are particularly useful because they allow scientists to add numerous genes into one mini-chromosome and manipulate those genes easily because they are all in one place.

By stacking genes on mini-chromosomes, scientists could create crops that have multiple beneficial traits, such as resistance to drought, certain viruses and insects or other stresses. In addition, mini-chromosomes could be used for the inexpensive production of multiple foreign proteins and metabolites useful for medical purposes. Because of their protein-rich composition, a part of the corn kernel (called the endosperm) can be used to grow animal proteins and human antibodies that treat diseases and disease symptoms.

In addition, scientists also may be able to use them to develop plants better suited for biofuel production (MU Press Release, 5/15/07).

NEW TURFGRASS MANAGEMENT AND DISEASE PUBLICATION AVAILABLE

by Darrell Hensley

Drs. Barb Corwin and Ned Tisserat have published a Turf Disease Management and ID publication. It is available for download in PDF at <http://extension.missouri.edu/explore/agguides/pests/ipm1029.htm> and hard copies maybe ordered from the University of Missouri for \$3 each. The publication is titled Integrated Pest Management: Identification and Management of Turfgrass Diseases.

FIELD CROP UPDATE

by Russ Patrick

Rainfall:

It was a welcomed relief to have some rain this week. It may have saved the soybean crop and pastures that were parched from the drought. I do not expect it did much for corn due to the time it came but other crops welcomed this long awaited rainfall.

Corn:

Southwestern corn borers are beginning to show up in our traps. Jackson: 3 moths, Milan: 4 moths. It may be another week before the next generation of moths show in our traps. We will continue to monitor these traps and report the results as we receive them.

Pastures:

When pastures begin to green up we need to be aware that armyworms can and will be looking for some green grass to feed upon. We caught a few true armyworm moths this week but nothing of any significance. Fall armyworms should be showing up in traps before long. This is the species that can cause damage to our pastures. Be alert be aware and let us know if you see anything damaging pastures.

Stored Grain Insects:

The indian meal moth(IMM) is one of the most common insects in stored grain wheather it be corn, milo or wheat. It causes problems by spinning webbings while in the larval stage. Recently I purchased some IMM pheromone traps. Last night I was experimenting with the trap on a colony of IMM that I am raising for our August 9, 07 Regional Stored Grain Workshop in Jackson. When I put the lure in the trap I was almost engulfed by meal moths. They were so excited that they flew into the trap thinking they had a mate. To their surprise it was a sticky trap and I trapped all of the moths in the area. These traps can be placed in grain bins to determine if there are IMM in the bin. The lure works so well that I will have plenty of moths to show you.

Corn: Remember corn harvest is not too far off and clean bins for storage are a needed necessity. Please clean out old grain and spray down the walls and flooring. Treat inside and the outside perimeter as far as 10 back from the bin. Use Tempo(WP or SC-Ultra) to treat the empty bin. On a 5,000 bu bin I would use at least 5 gallons of mix to treat it. Be certain to treat the doors of the bin as well. If you want to use a grain protectant use Actellic 5E which is labelled for corn.

Wheat: If you stored any wheat you may wish to check it for insects. If you wish to use an Indian Meal Moth trap please let me know and I can get you one. This lure is fantastic and really stirs the moths into a frenzie.

All Storage Bins: Aeration is the main cause of reducing insect problems in grain bins. It keeps the grain cooled and dry which insects do not like. No matter what the grain may be aerate as often as possible.

Traps: Jackson: Southwestern Corn Borer: 4.

Milan: 5.

Zero on all other moth traps.

BIOLOGICAL CONTROL

by Frank A. Hale

Many of the new insecticides that are now being used are less toxic to beneficial insects and mites. Some of these insecticides are insect growth regulators that kill the developing immature insect pests or causes the adult to lay eggs that are not viable. Other of these new classes of insecticides or miticides are very specific on the types of insects or mites that they control and are generally much less harmful to the natural enemies. Conversely, some of the older classes of insecticides, especially the organophosphate, carbamates and pyrethroids were often very toxic to many of the natural enemies that helped to regulate pest populations.

Last week after the Field Day at the Highland Rim Research and Education Center, I scouted some of the dark tobacco fields. I found that there had been some feeding in the terminals by tobacco budworms. I was not able to find any live tobacco budworms but I did find the shriveled remains of several and attached to each was a small (1/4 inch) white cocoon with some zig-zags of gray. This is the cocoon of the ichneumonid wasp parasitoid, *Campoletis sonorensis*. From this cocoon will emerge a slender black 1/4 inch wasp that is not very noticeable in the field. The female wasp parasitoid will lay an egg beneath the cuticle of a number of the next generation tobacco budworm caterpillars. The parasitoid larva then devours the caterpillar from the inside and when mature emerges from the caterpillar's exoskeleton and spins its cocoon that is attached to the leaf right next to the remains of the caterpillar. Since caterpillars tend to do most of their feeding damage in the last couple of instars (stages) as they reach maturity, this wasp parasitoid tends to kill the tobacco budworms before they can become full grown. Thus, the amount of feeding damage from the tobacco budworm is greatly reduced. This parasitoid has been known to kill 75 to 80% of the tobacco budworms in a field. When scouting tobacco, it is important to only count live budworms when determining if the economic threshold of 5 infested plants out of 50 (10%) has been met or exceeded.

What allowed this natural control to occur? The tobacco transplants were probably treated with Admire or Platinum just prior to planting in the field. This selective systemic insecticide was used to protect the plants against aphids and flea beetles. Fortunately, it is not toxic to the parasitoid wasps and thus allowed the natural control to flourish.

EXTEND THE LIFE OF ANNUAL BEDDING PLANTS

(Rhizoctonia Web Blight Control)

by Alan Windham

If you have been irrigating or received recent rains, your landscape beds with summer color from bedding plants should just about be at their peak. Canopies have closed and mass plantings look like a mound of color. However, there may be a problem. Rhizoctonia web blight is often observed in beds with waxleaf begonia, vinca and petunias. I have personal experience with this especially with vinca and petunia. Little air movement and high humidity within the canopy of a bed of annual flowers is perfect for *Rhizoctonia* to do its damage. Cob-web like mycelium can be seen running from leaf to leaf; leaves die but don't fall to the ground because of the webbing. This disease doesn't usually kill but it can make you think of pulling the plants and replacing with cool season annuals earlier than you would like.

Control of web blight is achieved with fungicide sprays. Home gardeners can pick one of these fungicides which are available at garden centers: chlorothalonil (many trade names), tebuconazole (Bayer Advanced) or myclobutanil (Immunox). Professional grounds managers could use those or also the strobilurin fungicides such as azoxystrobin (Heritage). These sprays should be applied once the canopy closes and with sufficient pressure to move the fungicide into the canopy of the plants.

24C REGISTRATION

by Gene Burgess

The Tennessee Department of Agriculture has approved a Section 24C Special Local Need Registration on Zoro Miticide/Insecticide for the control of spider mites (two-spotted and Carmine) on cotton. This emulsifiable concentrate contains 0.15 lb. abamectin/gal.

TOBACCO SCOUTING REPORT

by Gene Burgess

Tamara Miller – Claiborne Co.

Tamara scouted 21 fields and found the following pests.

Insects: A few aphids, flea beetles budworms, hornworms and stink bugs. There were no insects at economic threshold levels.

Diseases: Angular leaf spot and brown spot.

Weeds: Some broad leaf weeds and grass, but overall very few weed problems . .

Chemical damage: One plant that looked like chemical injury.

Environmental damage: drowning on a few plants in one field.

Jessica Bolinger – Hamblen Co.

Field 1: This field had been irrigated. It had been treated with Orthene in the setter water. A few flea beetles were reported.

Field 2: This field was not irrigated and approximately 15% of the plants were either stunted or dead due to drought or transplant shock or both. A few flea beetles were found. There were major signs of sunscald and weather fleck in the field. Morning glories had been eradicated.

Brittnee Morgan – Robertson Co.

Field 1: This field was beginning to have weed problem. There were a few tomato spotted wilt virus plants. And, a few plants had target spot or brown spot, but very light. There was evidence of some insect damage, but no insects. The tobacco had been sprayed two weeks earlier.

Field 2: This field had the Platinum, Admire and Orthene treatments. Platinum and Admire gave the best protection thus far, followed by Orthene. Significant more insect damage from flea beetles was reported in the check plants. However, these were not at economic threshold levels.

Jessica Jerrell – Sevier Co.

Some black shank was found. A few budworms were found. And, evidence of cutworms was found. Aphids were beginning to appear on some plants.

Sarah Kennan – Williamson Co.

Plants in the lower third of the field had aphid problems. Treatment was recommended. Worms had been eating the plants for the past several weeks. One plant had stink bug damage. Tomato spotted wilt virus was found in a few plants. A few plants had black shank.

Ryan Hensley – Loudon Co.

Some plants had insect damage, but no insects were found. Grasses and broadleaf weeds were still present.

OTHER UT NEWSLETTERS WITH PEST MANAGEMENT INFORMATION

Fruit Pest News

<http://web.utk.edu/~extepp/fpn/fpn.htm>

Tennessee Crop and Pest Management Newsletter

http://www.utextension.utk.edu/fieldCrops/cotton/cotton_insects/ipmnewsletters.htm

Tennessee Soybean Rust Hotline - 877-875-2326

USDA Soybean Rust Web Site <http://www.sbrusa.net>

This and other "What's Happening" issues can be found at

<http://eppserver.ag.utk.edu/Whats/whatshap.htm>

Precautionary Statement

To protect people and the environment, pesticides should be used safely. This is everyone's responsibility, especially the user. Read and follow label directions carefully before you buy, mix, apply, store or dispose of a pesticide. According to laws regulating pesticides, they must be used only as directed by the label.

Disclaimer

This publication contains pesticide recommendations that are subject to change at any time. The recommendations in this publication are provided only as a guide. It is always the pesticide applicator's responsibility, by law, to read and follow all current label directions for the specific pesticide being used. The label always takes precedence over the recommendations found in this publication.

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