



# KENTUCKY PEST NEWS

ENTOMOLOGY • PLANT PATHOLOGY • WEED SCIENCE

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

Number 902

November 20, 2000

## TOBACCO

- Tobacco disease control planning should be a priority

## GREENHOUSE ORNAMENTALS

- Greenhouse floral crops - management of gray mold and powdery mildew

## TOBACCO

### TOBACCO DISEASE CONTROL PLANNING SHOULD BE A PRIORITY by William Nesmith

Having a sound, long-term and short-term disease control plan and carrying it out are keys to reducing losses from infectious diseases in tobacco production. It is very common during the growing season, especially after transplanting, for producers to face a disease situation where they can do very little, or nothing at all, at that particular time and place to reduce losses from infectious disease. This is because the tools to rescue tobacco crops from diseases are, in general, not available. Conversely, it is rare to find a situation where options were not available before the season started that would have greatly reduced losses had they been incorporated before the season started. Therefore, the lesson to understand is that controlling tobacco diseases centers around using preventive measures, and prevention requires advance planning.

I urge County Extension Agents and dealers to stress this need for proper planning and follow-through with disease prevention in educational programming and advertisements. Each grower needs to make it a priority to assess the disease threats for each and every field on a case-by-case basis as the first step in disease control for their 2001 crop, and future crops.

Disease potentials and risks change from year to year, and the outcome can be greatly impacted by

the decisions made and the timing of controls. Growers are most likely to make the correct decisions when they take steps to become very informed about their particular disease situations - and to the level that they understand key facts about the disease and how to implement the controls. Without growers having such understanding, the probability is high that they will reject the very controls needed for the particular situation, because the controls usually require change, they are not cheap, or sometimes they are not easy to use - so it is human nature to resist them.

Having a sound disease control plan and carrying it out are keys to reducing losses from black root rot, black shank, tobacco stunt, Fusarium wilt, blue mold, nematodes, and viruses. I recommend that growers make it a priority to assess the disease threats for each of these diseases for every field on a case-by-case basis as the first step in disease control for the 2001 crop. Here are some pointers to consider:

- Make an itemized list of the disease history and risks associated with each and every field. Use it during the planning and execution phases of production.
- Take steps to prevent disease carry-over in the field from the previous season by using rotation and good sanitation. No single tool controls more diseases than proper crop rotation.
- Know the level of disease resistance among all varieties, new or old, in your system and use

the appropriate variety for the site and situation. Resistant varieties are especially helpful in reducing losses from black root rot, black shank, the Poty-Virus Complex, Tobacco Mosaic Virus, and Fusarium Wilt.

Unfortunately, there is no one variety with resistance to all these diseases - another reason to carefully consider the situation and count the costs and benefits. Some varieties have more tolerance to blue mold than others, but those with high resistance have other short comings that need to be carefully considered.

- Avoid introducing diseases into your crop and region on transplants by using healthy transplants. They will not be healthy if contaminated trays are used. The fungicide Terrazole/Terramaster is now labeled in Kentucky for adding to the float-water to control Pythium root rot. This is a very valuable tool and the only chemical labeled for addition to the float water for disease control. Ferbam and Dithane are the only fungicides labeled for foliar disease control in the float production system. They are effective when used as preventives, but almost useless in rescue situations.
- Manage greenhouses and float beds carefully to avoid moisture on the foliage of plants. Have aggressive sanitation in all phases of the systems from start to completion.
- Use the appropriate regimen of preventive fungicides for the problems present with your crop. Ridomil Gold and Ultra Flourish are valuable tools in black shank control, but need to be used as close to transplanting as possible and at layby. On some sites, cultivation applications are also needed. For blue mold control, Acrobat MZ has proven to be highly effective, but it must be applied well and frequently. A new blue mold control tool will be in the tool box this year - Actigard. This is not really a fungicide (killer of fungi); instead, it is a plant inducer - turning on the plant's natural disease control mechanisms. This chemical has performed well in reducing losses from blue mold in extensive tests. But, it must be coupled with other controls and applied carefully to avoid serious phytotoxicity problems associated with turning on the mechanism too early, and to maximize control. For best results, understand how it works and what you are doing with it, before attempting

to use it.

- Know the benefits and risks associated with each cultural practice in your cropping system. Seldom are production steps disease-neutral. Some will favor one disease while controlling another, for example.
- Seek and obtain sound advice! There is an abundance of advice available to producers, but some is better than others. Too often, however, the advice comes with strong bias associated with what drives our marketing systems - money. It is especially common for the advisor to give only "half" the story, that which benefits their side of the issue, when the growers usually need the "whole story".

## **GREENHOUSE ORNAMENTALS**

### **GREENHOUSE FLORAL CROPS - MANAGEMENT OF GRAY MOLD AND POWDERY MILDEW**

**by John Hartman**

Greenhouses producing floral crops such as poinsettias, roses, and snapdragons provide an ideal environment for many fungal diseases. Fungal diseases such as gray mold and powdery mildew can occur seemingly without warning and quickly cause widespread damage to these crops.

**Gray mold.** Caused by the fungus *Botrytis cinerea*, gray mold is very common and widespread on the flowers and buds of many greenhouse flower crops, and is sometimes associated with stem and leaf rots or other damage. Symptoms may include rotting of buds, flowers, or flower stalks, or an off-white or brown petal spotting. These symptoms are often associated with tan or gray moldy growth of the fungus. The fungus spreads rapidly by means of airborne conidia and can persist in soil as survival bodies called sclerotia or as a saprophyte on plant debris. The fungus produces spores and causes infections when greenhouse humidity is very high and when leaves are moist. Disease development is rapid when plants are crowded and poorly ventilated.

**Powdery mildew.** The fungus *Oidium* seen on greenhouse crops is the typical imperfect stage of several different powdery mildews. The specific powdery mildew fungus for each crop is usually

different even though the symptoms of each type are pretty much the same. Disease symptoms are very distinct and powdery fungal signs are readily seen on leaves, shoots, buds, flowers, and poinsettia bracts. Fungal mycelium and conidia may be found on both tops and undersides of the leaves. Once the disease gets started, it is capable of "exploding" so rapidly that plants appear to be "flocked" within just a few weeks. Cool (daytime temperatures remaining less than 85 F) and moist greenhouse environments, with crowded plants favor rapid disease development. Based on work done in Michigan, large numbers of powdery mildew spores are released in mid-day as the relative humidity fluctuates in the greenhouse. Greenhouse relative humidity fluctuations are often associated with watering.

**Control.** Good gray mold and powdery mildew control is mostly synonymous with good cultural practices. Growers need to remember to:

- Inspect plants frequently, carefully examining at least one in thirty for disease symptoms and signs, or one in ten if conditions favor the disease.
- Remove and destroy dead and dying plant material. Moribund tissues are easily colonized by *Botrytis* and the fungus spreads more easily to green, healthy tissues. Significant gray mold control can occur by picking off and discarding dead leaves and spent flowers.
- Carefully remove powdery mildew infected leaves while disease levels are still low.
- Provide good spacing between plants on the greenhouse bench.
- Move air through the crop with the ventilation system. Improved ventilation reduces both gray mold and powdery mildew.
- Avoid splashing water on foliage.
- Use heat in the evening to reduce relative humidity. Gray mold development requires high humidity in the greenhouse. As air cools at night, moisture in the air condenses on the plants unless it is heated.
- For gray mold, fungicides containing azoxystrobin (Heritage), chlorothalonil (Daconil 2787, Exotherm Termil), copper hydroxide plus mancozeb (Junction), fenhexamid (Decree), fludioxonil (Medallion), iprodione (Chipco 26019), thiophanate-methyl (Cleary's 3336, Domain), trifloxystrobin (compass), or vinclozolin (Ornalin) may be used.
- For powdery mildew, fungicides containing azoxystrobin (Heritage), chlorothalonil plus

thiophanate-methyl (Benefit, ConSyst), copper sulfate with organic component (Phyton 27), kresoxim-methyl (Cygnus), mancozeb plus thiophanate-methyl (Duosan, Zyban), myclobutanil (Sythane), petroleum oils (Sunspray Ultrafine Spray Oil), piperalin (Pipron), thiophanate-methyl (Cleary's 3336, Domain, Fungo-Flo), triadimefon (Strike), trifloxystrobin (Compass), or triflumizole (Terraguard) may be used.

- Fungi can develop resistance to azoxystrobin, iprodione, kresoxim-methyl, thiophanate-methyl and trifloxystrobin. Even though fungicide resistance is not common here, it can occur locally because greenhouse plants are shipped into Kentucky from many places. Plants harboring fungicide-resistant fungi could become established any time. Look for fungicide resistance and make changes in cultural practices or fungicide chemistry as needed. Resistance to benomyl (formerly used in the greenhouse) also confers resistance to thiophanate-methyl; resistance to vinclozolin and iprodione may also be linked.

Read and follow fungicide label directions before use. Be sure that the crop being grown is listed on the label. If a grower has not previously used a particular fungicide, it needs to be tried out on a few plants at first. Some fungicides may be phytotoxic under some conditions.

  
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NOTE: Trade names are used to simplify the information presented in this newsletter. No endorsement by the Cooperative Extension Service is intended, nor is criticism implied of similar products that are not named.