



## GROWER 101 Disease Primer, Part III

# Fusarium

An unstoppable force and dreaded opponent for any grower, Fusarium is difficult to spot and even more difficult to protect against.

By Jim McLaughlin

As with Botrytis and Root Rot, covered in the September and October issues of *GPN*, Fusarium can ruin a beginning grower's love for floriculture. Not only is it hard to find the fungus, but it also strikes quickly and causes almost instant damage to your plants. The following helpful hints will arm the beginning grower with the tools he or she needs to identify Fusarium and stop its growth.

### CROPS

Fusarium can strike any crop. From cyclamen to African violets, carnations to roses and every ornamental in between, there are not many plants whose flowers have not been affected by the Fusarium fungi. The disease also strikes plants of all ages, but those that are near the end of flowering show the most dramatic symptoms. The fact that this disease does not discriminate only makes it more of a threat, especially for a grower who is just starting out and unaccustomed to the visual symptoms of Fusarium. But the fact that just about every experienced grower has been burned by Fusarium means a lot of people have advice for a new grower like yourself.

### CAUSES AND SYMPTOMS

The soil-based Fusarium fungi produce three types of spores: microspores, macrospores and chlamydo spores. Macro- and microspores spread rapidly through the air and act as a continual inoculum, or a beginning to the fungi's life cycle. Chlamydo spores

persist in the soil for many years and can be present in the soil while clinging to roots.

Fusarium fungi explode in warm conditions. Growers must walk a fine line when trying to stop the spread of the disease. While temperatures below 40° F inhibit the fungi's growth, temperatures just 10 degrees warmer promote growth. The warmer the conditions, the better the chance that Fusarium will spread and strike more than one crop. If that happens, there are a few symptoms to look for.

The main symptom of Fusarium infection is a yellowing or wilting of leaves, especially the lower leaves of the plant. Other symptoms include root rot, browning or purpling of the vascular tissue and spotted leaves. Another symptom of the fungus is a dry, crumbly decay. The actual fungus will be reddish, white, yellow or dirty tan in color. The toughest part about realizing that your plants have become victims of Fusarium is that by the time you detect the disease, your plants will be close to death. Once plants are infected, they almost always die despite chemical application. But that doesn't mean that your identification won't help keep the fungus from spreading to other plants.


### TREATMENT

At this point, you've noticed the presence of Fusarium, and you may have already lost a few plants. Although absolute termination of the disease is impossible, you can minimize the effects on your crop.

As with many other disease preventions,

the first step towards safe growing is making sure that you buy only pathogen-free plugs or seedlings from a grower you respect and trust. After infection, however, there isn't much you can do for the infected plant. But it is important to remove infected plants as quickly as possible to help minimize the spread of the fungus. Don't allow a crop to wilt; stress from lack of moisture is one of the surest causes of Fusarium.

Chemical applications, although not as effective as early detection and prevention, can be useful in preventing spread and total loss. Cleary 3336 and Terraguard have proven effective. Other products that have had success controlling Fusarium include Heritage 50WDG, Medallion 50WP, Compass 50WG, Decree 50WDG, AtEze, Chipco 26019, Phyton 27 and Systhane 2E.

But we cannot reinforce this point enough — if Fusarium has already infected a plant, the chance that a chemical application will save that plant is slim. It is a safeguard against the infection of other plants. Use all chemical products as the label directs. Each new product should be tested against the particular Fusarium disease you are encountering. Read product labels carefully to determine potential uses, rate, site of application and application interval. 

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