

GETTING READY FOR GARDEN MUM SEASON: PYTHIUM



Garden mums can be affected by a diverse range of pathogens, but there are a few diseases that impact growers each year, such as Pythium.

Among the different diseases that affect garden mums, *Pythium* is one of the most frequently encountered root rot pathogens. Spores can be found in most growing media and sometimes in irrigation water (predominately surface water sources like creeks, ponds, etc.), so pathogen exclusion is virtually impossible. As such, good sanitation, sourcing media from reputable suppliers, and only potting into fresh growing media are the first lines of defense against this disease.

The most common symptoms include brown discoloration of roots and root cortex slippage, where the outer layer of the root slides off, leaving behind a thin, threadlike root portion (see photo above). Advanced symptoms include yellowing of lower leaves, stem rotting upward from the soil line, and rapid collapse of the entire canopy.

- Initially, plants may wilt during the daytime but recover overnight. Check roots ASAP if this occurs.
- In contrast, *Fusarium* often causes sections of the canopy collapse, rather than the entire plant. This is often a good way to differentiate between the two without a laboratory diagnosis.

Disease Management

The best practice for managing this disease is to start prevention as early as possible. Apply a root zone protectant about 7 to 10 days after planting liners or once roots have reached container sidewalls.

- Reapply at appropriate intervals (per the label) to ensure constant presence of a root zone protectant.
- Consider reapplying at shorter intervals within the prescribed range if the crop is being grown outdoors under persistent rainfall.

Damaged roots provide an entry point for infection. Regularly check the root zone for desiccation damage, discoloration, and “clubbing” root tips from high soluble salts (EC).

- Avoid drying your crop down too hard and check soil moisture levels at least twice a day. Check your edges and corners, especially on south and southwest-facing sides of production blocks, and “edge-water” as needed.

- Monitor soluble salt levels (EC) in your growing media and leach the crop if necessary to avoid damaging roots.
- If plants are on drip irrigation, place drippers (or at least one, if you have multiple per pot) on the south-facing side of the container. This will help keep the growing media “hot zone” cooler on hot, bright days and reduce potential damage to roots due to extremely heat.

Biologicals (ex. *Trichoderma*-based products and others) work best when applied before disease occurs and have limited efficacy when applied reactively once disease strikes.

Traditional chemistries for controlling *Pythium* (etridiazole, mfenoxam, thiophanate-methyl, etc.) are also most effective when used preventatively; they will likely be more robust solutions to high or persistent disease pressure. For example, if *Pythium* is present in your water source (for example, if you irrigate from a retention pond), traditional chemistries may prove to be the better option.