



Root Rot on Your Radar: Preventing Pythium in Fall Garden Mums

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Pythium species are soil-borne pathogens that can promote root and basal stem rots in garden mums. The aggressive species of *Pythium aphanidermatum*, also known as the “hot weather” *Pythium*, is often associated with garden mums. Disease outbreaks are encouraged by high media temperatures often associated with summer production on black groundcover fabrics. Growing mums in areas of poor drainage, with high soluble salts or the presence of other plant stressors, creates optimum conditions for this pathogen to develop and spread quickly.

Know the symptoms

Symptomatic plants may first exhibit a wet, black-brown basal stem rot that may extend several inches above the media surface. Examination of the root system will reveal brown, soft roots which, when pulled slightly, will slough off the decayed epidermis and cortex leaving the inner vascular strand. Once the root system is compromised, affected plants wilt and look dull in color or turn yellow. In the early stages of the disease, plants may wilt during the day but recover somewhat overnight.



Pythium on garden mum

Preventive measures

Manage your crop to minimize the risk of *Pythium* by using a soilless media that drains well. High EC (soluble salts) levels in the media can be damaging to the root system, particularly if the media is allowed to dry down. The resulting damage can become an entry point for *Pythium*. Be conscious of this risk if you feed your crop heavily early in production (300 ppm or more on a constant basis). Monitor the EC and avoid large swings in moisture levels.

Ponding of water in the mum fields provides zoospores, the mobile swimming structures, with ready access to adjacent healthy mum plants. This is an important method of disease spread. Drip- or trickle-irrigation systems greatly reduce the

risk of spreading this water-borne pathogen. If overhead watering, look for low-lying areas that collect water. Provide additional drainage, elevate plants out of the standing water or avoid using these areas.

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Utilizing integrated pest management (IPM) practices can reduce the risk of *Pythium* in the mum crop, but there are times when fungicides are needed. Several microbial fungicides can be used at planting, including **Actinovate® SP**, **Companion®**, and **RootShield® Plus**. These products are preventative only; if signs of root disease are evident in the crop at planting, treat with a fungicide with eradicant properties before applying the microbial fungicide.

Treatment options

The following products are examples of fungicides that can be used to eradicate *Pythium* and provide residual control of three weeks or longer: **Banrot®**, **Segway® O**, **Subdue MAXX®**, **Terrazole®** and **Truban®**. Shorter residual products include **TerraClean®** and **FenStop™**. Reports of *Pythium* resistance to Subdue MAXX have become more prevalent in recent years. Be sure to rotate with labeled fungicides that utilize a different mode of action (MOA) to slow disease resistance.

The GGSPRO Technical Reference Guide contains important MOA information to help growers make good fungicide rotation choices. The GGSPRO team is available to answer your inquiries as well. Pesticides other than those mentioned may also be legal, safe and effective. Always read and follow all label directions.

Featured Products

Product	Size	Item No.
Actinovate SP	18 oz.	31007318
Banrot 40 WP	2 lbs.	71-1210
Companion	1 gal.	71-1375
FenStop	1 qt.	71-1480
RootShield Plus	10 lbs.	71-27911
Segway O	16 oz.	71-31101
Subdue MAXX	1 qt.	71-2979
TerraClean 5.0	5 gal.	71-2995
Terrazole WP	2 lbs.	3183862
Truban 25 EC	1 qt.	71-3070