

Charcoal rot: A dry weather wilt in processing tomatoes

An unusually hot summer led to a (possibly) minor disease, Charcoal rot appearing in some processing tomato fields may need to be closely monitored. Charcoal rot, caused by the fungus *Macrophomina phaseolina* is normally of minor significance as an economically important disease but with hotter summers, it could become problematic. *Macrophomina* is a generalist soilborne fungus present in most soils in California but becomes an issue only under abiotic stresses such as high temperatures and water stress. The fungus has a wide host range and can affect 500 plant species in more than 100 families.

Charcoal rot is aptly named because charcoal or greyish black discoloration occurs on the roots and stems of the tomato plants. Symptoms on mature plants consist of wilting, plant stunting, and chlorosis of lower leaves. Eventually the plants collapse and die especially when the plants experience water stress.

Luckily, so far charcoal rot is of minor importance and does not seem to be a major constraint to tomato production. But with warmer summers that we have been experiencing lately, it could become more noticeable in the future. Just like southern blight, managing charcoal rot in processing tomatoes remains a challenge. Rotation with non-host crops can be a viable option, but its utility is often limited in processing tomato production systems due to the pathogen's wide host range (>500 species) that includes beans, melons, potatoes, etc. Deep plowing is not an option because of the buried drip tape and the fungus is found throughout the soil profile. The costs of fumigation may limit its use in many situations and currently, there are no viable chemical control options available for this fungus. Cultural practices such as irrigating during periods of high temperature, destruction of infected crop debris to prevent buildup of inoculum and cleaning equipment and other tools between fields may be helpful. If the disease is suspected in the field, please contact your local farm advisor for an official diagnosis.

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