

Fusarium pathogens of tomato reported in an increasing number of Fresno County fields in summer 2014

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Two Fusarium diseases were detected in several tomato fields Fresno County this season and recognition of this disease can be critical because if it is breaking plant resistance, a variety with a different type of resistance should be used in that field in that field in the future. Many of the common tomato varieties grown in this area have resistance to Race 1 and 2 of the Fusarium wilt pathogen. However, both race 3 of the Fusarium wilt pathogen and Fusarium crown and root rot have been detected in Fresno County this year, and varieties with resistance to Fusarium wilt Race 1 and 2 can be damaged by either of these pathogens.

With the widespread use of resistant varieties, Fusarium disease in Fresno County tomatoes was a rare event prior to 2014. Fusarium typically causes a yellowing of the older leaves that will eventually wilt and die. The symptom commonly affects one side of the plant first, the entire plant will turn yellow and dies. Usually, there is striking orange to brown discoloration of the water conducting vessels, but sometimes it is not throughout the entire plant and it may be relatively subtle. The root and crown rot is distinguished from Fusarium wilt in tomato by the presence of a lesion on the stem at the soil line. However, sometimes the lesion is difficult to see, so laboratory tests should be conducted.

Fusarium oxysporum is divided into special forms (f. sp). These special forms are usually very specific in terms of the plant species that they cause disease in. *Fusarium oxysporum* f. sp. *lycopersici*, which causes wilt in tomatoes, only causes wilt in tomatoes. The Fusarium wilt pathogens of tomatoes are divided into races based on the resistance genes that are effective against them. Therefore, Race 3 F. o. f. sp. *lycopersici* is not capable of causing wilt of tomato varieties with Race 3 resistance, but can cause wilt of tomatoes resistant to Races 1 and 2. Furthermore, Fusarium crown and root rot is caused by a different fungus, *Fusarium oxysporum* f. sp. *radicus-lycopersici*. It is very important to know which Fusarium pathogen is present because Race 1, 2 and 3 resistance to the wilt pathogens is not effective against this pathogen.

For additional information and photos, please go to <http://www.ipm.ucdavis.edu/PMG/r783101011.html> for wilt and <http://www.ipm.ucdavis.edu/PMG/r783101211.html> for root and crown rot.

If you suspect the presence of a Fusarium pathogen in your Fresno or Kings County fields, please contact Tom Turini, University of California Vegetable Crops Advisor, at 559-375-3147 and testing will be arranged.