

Seed pathology of Fusarium wilt in cotton - mode of transmission to seed and efficacy of seed treatments

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Abstract

In the few years since race 4 of *Fusarium oxysporum* f. sp. *vasinfectum* (FOV) was discovered in the San Joaquin Valley, the fungus has spread and caused significant losses, particularly where susceptible Pima varieties have been grown. This is the first report of race 4 in the United States and the potential for its spread outside of California via commercial seed sales exists. Several studies have firmly established that FOV may be transmitted through acid-delinted cottonseed but the mechanism of seed infection is unknown. Our goals are to determine how the soilborne FOV infects seed and to test the efficacy of various chemical and physical seed treatments in eliminating FOV in seed. The mechanism of seed infection will be determined by a combination of growth chamber studies using *gfp*-labeled FOV isolates, as well as field studies of naturally infected cotton plants. Overhead-irrigated field plots will be used in an attempt to enhance seed infection and reproductive plant parts will be collected and tested for the presence of FOV. To generate race 4-infected seed for testing the efficacy of chemical and physical seed treatments, healthy bolls will be inoculated in an off-station field infested with race 4. If successful, these experiments should help us understand how seed becomes infected by FOV and find effective ways of disinfecting infected cottonseed.