RESEARCH ON CHEMICAL CONTROL OF PHYMATOTRICHOPSIS (COTTON) ROOT ROT

T. Isakeit
Texas A&M University
College Station, TX
R.R. Minzenmayer
Texas Cooperative Extension
Ballinger, TX
Jeff Stapper
Sinton, TX
Chris G. Sansone
San Angelo, TX

Abstract

Phymatotrichopsis (cotton) root rot, caused by a persistent soilborne fungus, *Phymatotrichopsis omnivora* (synonym: *Phymatotrichum omnivorum*), is a widespread disease in much of the cotton production areas of Arizona, New Mexico and Texas. The objective of our research, done over several years, was to evaluate fungicides for control of this disease in field experiments. The work was done in two production areas of Texas (San Patricio and Tom Green Counties), using irrigated fields with a history of severe root rot. Fungicides were either applied to the lower stems of plants or were injected into drip irrigation tape. Using a volume of 429 gal/A, some disease control was seen with fungicides applied as stem drenches, but not when using a volume of 41 gal/A (details published in previous BCC Proceedings). In the 2007 drip irrigation experiment, fungicides were applied during flowering and disease was evaluated two months later. With the control, the average disease incidence was 59%. Azoxystrobin (0.5 lb. a.i./A), propiconazole (1.5), thiophanate-methyl (1.4) tebuconazole (1) and tetraconazole (1) treatments had average disease incidences ranging from 50-60%, which were not significantly (P=0.05) different from than that of the control. *In vitro* experiments indicated sensitivity of mycelial growth of the fungus to most of the fungicides evaluated. For example, mycelial growth with 0.01µg/ml propiconazole and azoxystrobin was 25% and 17% of the control, respectively. The disparity between *in vitro* inhibition and control in the field suggests that more research is needed to improve fungicide application parameters, perhaps, for example, by an earlier application.