

Evaluation of fungicides and Actigard for the control of Fusarium wilt of watermelon in Georgia, 2013.

The trial was conducted at the University of Georgia Vidalia Onion and Vegetable Research and Education Center in Lyons, Georgia in a Fusarium wilt (FW) nursery. Watermelons were transplanted onto non-raised beds covered with 18-in black plastic mulch on 29 Mar. Beds were on 6ft centers with 2ft plant spacing within rows. Plots were 14ft long with 7 plants per plot and a 10ft unplanted border between plot ends. The test was a split plot design with the main plots either receiving or not receiving *Fusarium oxysporum* f.sp. *niveum* race 1(FON1), and sub plots were fungicide treatments. The trial was replicated 6 times. Plots that received FON1 were inoculated prior to transplanting by pouring 50 ml of a 1×10^2 conidial suspension into each watermelon transplant hole. Drench fungicide treatments were applied after transplanting by pouring 150 ml of fungicide solution at the base of each plant. Foliar sprays were applied in an 18in band using a single nozzle CO₂ back pack sprayer with an 8005E tip calibrated to deliver 60 GPA at 50-60 psi. The crop was grown according to University of Georgia Extension production guidelines, and overhead irrigation was applied as needed. Weather conditions during the watermelon seedling stage of the trial were cool and wet with an average minimum temperature of 53.8 °F and 3.56-in total rainfall for the month of Apr.

Fusarium wilt symptoms were first noticed on 15 Apr in both inoculated and non-inoculated plots; however FW progressed more rapidly in the inoculated plots, and stand loss was severely affected in all treatments that received FON1 inoculum on 30 Apr (data not shown). On 15 Apr, there was no difference in plant vigor between any of the treatments and the inoculated check, and plant vigor was not adversely affected by any of the fungicide treatments for the rest of the trial (data not shown). On 28 May, only inoculated plots treated with Proline drench or Proline drench followed by Proline banded spray had less FW incidence and less stand loss than the untreated inoculated plots. There was no difference in FW incidence or stand loss in the non-inoculated plots that received fungicides or Actigard. Yield was not taken due to the onset of watermelon fruit blotch in the trial which rotted a portion of the marketable fruit.

Treatment, application rate, (method and timing) ^z	Fusarium Wilt ^y % incidence inoculated 28 May	Fusarium Wilt % incidence non-inoculated 28 May	% Stand Loss ^x inoculated 24 May	% Stand loss non-inoculated 24 May
Proline 4 SC, 3 fl oz/ 100gal (drench, 1).....	67.1 b ^w	71.4 a	67.1 b	18.8 a
Proline 4 SC, 3 fl oz/ 100gal (drench, 1) ^z Proline 4 SC, 5.7 fl oz/ A (banded spray, 2).....	71.4 b	57.1 a	45.7 a	25.7 a
Quadris 2.08 SC, 15.4 fl oz/100gal (drench, 1).....	95.7 a	74.2 a	92.8 c	35.7 a
Quadris 2.08 SC, 15.4 fl oz/100gal (drench, 1) Quadris 2.08 SC, 15.4 fl oz/A (banded spray, 2).....	92.9 a	74.2 a	90.0 c	18.6 a
Actigard 50 WG, 0.5 oz/A (banded spray, 1).....	100.0 a	85.7 a	97.1 c	31.4 a
Actigard 50 WG, 0.5 oz/A (banded spray, 1) Actigard 50 WG, 0.75 oz/A (banded spray, 2).....	95.7 a	67.1 a	97.1 c	10.0 a
Untreated check.....	97.1 a	74.2 a	95.7 c	24.3 a

^z Application timings were: 1= 29 Mar, 2= 15 Apr.

^yFusarium Wilt %incidence was rated by counting the number of plants in each plant that showed signs of wilting and dividing that number by the total number of plants in each plot x100.

^xStand loss % was rated by counting the number of plants that were dead in each plot, and dividing that number by the total number of plants in each plot x100.

^wMeans followed by the same letter(s) are not significantly different according to Fisher's protected LSD test at P≤ 0.05.