EFFICACY OF PHY367WRF IN ROOT-KNOT INFESTED FIELDS

Mustafa McPherson
Dru Rush
Phytogen Seed Company, LLC
Leland, MS

Abstract

Root-knot nematodes (*Meloidogyne incognita*) are a serious pest of cotton with yield losses ranging from 10% to 25%. Phytogen Seed Company has developed an early maturing cotton variety, 'PHY367WRF', that greenhouse studies indicated as having reduced root-knot nematode (RKN) galling and reproduction. The objective of this study was to evaluate the efficacy of PHY367WRF as compared to Telone fumigation, Temik in-furrow and Avicta seed treatment nematicide treatments in RKN-infested fields. In 2009, the experimental design was a split plot with seed treatment whole plots and variety subplots replicated six times and arranged in three adjacent strips. Prior to planting, an 8-row strip was treated with Telone, Temik was applied in-furrow at planting to another strip and a third strip was left untreated for nematodes. In 2010, the experimental design was a split-split plot with soil treatment whole plots which were split first by variety and then by seed treatment. As in 2009, the trial was replicated six times. The trial was planted in both years at Clarkton, MO, Leachville, AR and Clarksdale, MS and additionally at Plymouth, NC in 2010. Averaged over six locations, PHY367WRF had less severe galling than did the susceptible check, 'PHY375WRF'. Both Telone and Temik reduced the galling of both varieties, but the galling of PHY367WRF without any nematicide treatment was as low as PHY375WRF with Telone, the best nematicide treatment. Averaged over the four locations and all treatments, PHY367WRF had 69% fewer RKN in the soil at the end of the season. Despite significant differences in root galling and ending RKN levels, significant differences in yield were observed only at Clarkton, MO in 2009 and at Plymouth, NC in 2010. The difference in yield between varieties was not significant in the Telone strip, but it was highly significant in the other two strips with PHY367WRF yielding 16.9% more on average than PHY375WRF in the untreated strip. This study indicated that the RKN tolerance in PHY367WRF was equivalent to Telone and Temik treatments in reducing galling and it surpassed Telone in reducing RKN levels in the soil.

.