RESPONSE OF FIVE TOLERANT COTTON CULTIVARS TO ISOLATES OF *ROTYLENCHULUS RENIFORMIS* COLLECTED FROM RENIFORM INFESTED FIELDS OF LOUISIANNA Bikash Bhandari

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<u>Abstract</u>

Reniform nematode (Rotylenchulus reniformis) is a significant semi-endoparasite in the southern United States causing 4-6% yield loss in cotton (Gossypium spp.). There is reported variability in reproduction and pathogenicity among nematode isolates collected from different US states. However, there is a lack of information about reniform isolate variation within Louisiana. This study was conducted to determine the response of five tolerant cotton genotypes to reniform isolates collected from reniform infested fields within Louisiana. In the greenhouse, 10,000 juveniles from each isolate were injected 2-5 cm below the soil surface near seven-day-old seedlings planted in 3.8liter plastic containers. Plants were harvested at nine weeks after inoculation. Across genotypes, juvenile counts at harvest showed that the Evan and Avoyelles isolates had a significantly higher in reproduction (33,793 and 27,800 juveniles/250g of soil, respectively) than the LA, Old Crop rotation, and Oak Tree cut isolates. Across isolates, the mean number of juveniles on G. arboreum (A₂-190) and Lonren-2 were highly significantly less than on Delta Pearl, TX-110, Barben-713 and Lonren-1 genotypes. There was a significant interaction between the genotypes and reniform isolates suggesting that the response of genotypes against reniform isolates was different. All genotypes inoculated with the Evan isolate vs. all other isolates had the shortest plant height and lowest dry root weight. This study demonstrates that there is variability in reproduction and pathogenicity among reniform isolates within Louisiana. Based upon reproduction, G. arboreum (A2-190) and Lonren-2 were the most resistant across all reniform isolates. It also suggests that Lonren-2 is a good source of resistance for upland cotton (G. hirsutum L.) in future reniform resistance breeding.