

**EFFECT OF NEMATODE CONTROL PRACTICES ON PROFITABILITY OF COTTON PRODUCTION****B. Wilson****D.M. Dodds****C.A. Samples****M. Plumblee****A.B. Denton****S.S. Davis****L.X. Franca****Mississippi State University****Mississippi State, MS****Abstract**

Yield loss due to nematode damage in cotton can be substantial. The Reniform nematode (*Rotylenchus reniformis*) is the major nematode across the Mid-South. Estimated annual loss from the Reniform nematode is \$130 million. There are multiple nematode control products for growers to utilize; however, these treatments are very costly. The objectives of this research were first, to determine the profitability of nematode control treatments in cotton production throughout the Mid-South and second to determine if varietal growth habit has an effect on cotton yield with high nematode populations.

An experiment was conducted in 2016 in Hamilton, MS and Stoneville, MS to evaluate nematode control practices in cotton. Plots were planted with Phytogen 499 WRF (Aggressive growth habit) and Phytogen 222 WRF (Passive growth habit). Plots consisted of four 97 cm rows in Hamilton and 102 cm rows in Stoneville. Experiments were conducted using a randomized complete block with four replications. Nematicide applications used in this experiment consisted of seed treatments, in-furrow treatments, and a soil fumigant. Seed treatments applied were thiodicarb + imidacloprid (Aeris), fluxapyroxad (Base), and fluopyram (Copeo). In-furrow treatments consisted of aldicarb (AgLogic 15G at 5.6 kg/ha), and fluopyram + imidacloprid (Velum Total at 0.24 kg ai/ha + 0.34 kg ai/ha). Soil fumigant application was 1, 3 dichloropropene (Telone II at 28 L/ha). Data collected consisted of nematode samples prior to planting, at planting, at bloom, at harvest, plant height, total nodes, NAWF, NACB, and seed-cotton yield. Data were subjected to analysis of variance using PROC GLIMMIX procedure in SAS 9.4 and means were separated using Fishers protected LSD at  $p = 0.05$ .

Plant heights at bloom using a combination of fluxapyroxad (Base) + aldicarb (AgLogic 15G) were significantly higher than using a fluxapyroxad (Base) treatment only or fluopyram (Copeo) treatment. The application of 1, 3 dichloropropene (Telone II) significantly reduced nematode population by 37% in plots planted with Phytogen 499 WRF. Phytogen 222 WRF (765 kg/ha) had a significantly greater yield than Phytogen 499 WRF (702 kg/ha). fluxapyroxad (Base) + aldicarb (AgLogic 15G) application resulted in a profit of \$48.50 per hectare, while a combination of fluxapyroxad (Base) + fluopyram + imidacloprid (Velum Total) resulted in a profit of \$21.60 per hectare. Treatments of fluopyram (Copeo) + fluopyram + imidacloprid (Velum Total), fluxapyroxad (Base), thiodicarb + imidacloprid (Aeris), and fluopyram (Copeo) all resulted in net losses.