INTERACTIVE EFFECTS OF AERIS® AND VELUM® TOTAL ON COTTON CULTIVARS WITH VARYING REACTIONS TO THE ROOT-KNOT NEMATODE

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Abstract

Root-knot nematodes (*Meloidogyne incognita*) are an economically important pest of cotton in West Texas, where approximately 40% of acres are infested and yield losses as high as 25% have been reported. Losses are more severe in fields that are infested with *M. incognita* and *Fusarium oxysporum* f. sp. *vasinfectum* (*Fov*), causal agent of Fusarium wilt. Nematode management strategies consist mostly of the use of partially resistant cultivars and at-plant or seed treatment nematicides. The nematicide Temik® was long considered the commercial standard; however, it is no longer available. Seed treatment nematicides, such as Aeris® are registered for use in cotton, but the level of nematode control and yield response with seed treatment nematicides is generally lower than what was achieved with Temik. Registration of the in-furrow nematicide Velum® Total will provide producers with additional nematode management options in cotton; however, efficacy on partially resistant cultivars alone or in combination with seed treatment nematicides is lacking. The objective of this study was to evaluate combinations of in-furrow applications of Velum® Total and the seed treatment nematicide Aeris® on cotton cultivars varying in their reaction to *M. incognita*. Trials were conducted at the Texas Tech University Quaker Farm (no history of nematodes), a grower location in Lubbock County (low to moderate nematode pressure) and a grower location in Dawson County (a severely infested with *M. incognita* and *Fov*). Treatments were arranged in a split-split plot design with four replications where Velum® Total rate (0, 10 14 or 18 fl oz per acre) served as whole plots, cotton cultivar ('FiberMax 1900GLT', 'FiberMax 2011GT', 'FiberMax 2484B2F' and 'Stoneville 4946GLB2') served as sub-plots, and the application of the Aeris® Seed Applied System (with or without) served as sub-sub-plots. Stand, plant height, Fusarium wilt incidence and bur cotton yields were analyzed using analysis of variance ($P<0.05$) and used to compare treatments. Stand counts varied by location as a result of conditions at planting. Differences were observed among cultivars and an interaction between cultivars and Velum® Total was noted; however, all stands were well above commercially acceptable levels. Differences in height were pronounced between cultivars at the Lubbock and Quaker locations. Yields were similar between cultivars and Velum® Total rates at the Quaker location. Likewise, the application of Velum® Total at the Lubbock location did not affect yield; however, differences between cultivar were noted, where yields were highest for the partially resistant Fibermax 2011GT followed by Stoneville 4946GLB2. Differences in Fusarium wilt incidence were observed among cultivars and Velum® Total at the Dawson location, where incidence decreased with increasing rates of the product. These preliminary data suggest that Velum® Total is a promising nematicide and these results indicate the compound has activity of Fusarium wilt. Additional research evaluating the use of Velum® Total in combination with Aeris® on susceptible and partially resistant cultivars is needed.