What is the potential of sugarcane borer in reducing sorghum fitness and grain production?

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Pest attack is an important biotic threat to sorghum productivity, and one of the main insect pests of grain sorghum is sugarcane borer (SCB). Despite the importance of this insect species, little is known about the relationship between SCB infestation and reduction in sorghum grain yield, as well as on the gain threshold and economic injury level for decision making of pest control. This study evaluated the influence of SCB infestation on plant performance and grain production in three commercial grain sorghum hybrids. Hybrids AG1090, BRS 373, and DKB 590 were planted in three crop seasons in Sete Lagoas, Brazil, and six treatments were assessed in the experiments, consisting of three grain sorghum hybrids with and without the insecticide under SCB natural infestation. For the analysis of plant height, tunnels length, panicle length, and grain weight of sorghum hybrids, a mixed linear model was adjusted with hybrid and insecticide as fixed effects and crop season as a random effect. For the linear regression analysis between tunnels lenght and grain yield of sorghum hybrids, a simple linear regression model was adjusted with grain production and tunnels length as independent variable. The results of our study using commonly planted commercial hybrids showed grain sorghum susceptibility to SCB under high infestation levels, causing substantial yield losses when not treated with the insecticide chlorantraniliprole. SCB was able to cause yield losses up to 150% when the plants were not treated with insecticide in the less tolerant hybrid, and 50% in the more productive and tolerant hybrid. When the hybrids were not sprayed, BRS 373 lost 50% grain yield, which was considered the most tolerant, and the least tolerant DKB 590 showed 150% yield loss compared to insecticide-treated plants. Therefore, depending on the pest population density in the field, SCB can be considered one of the main pests of grain sorghum.

Apoio: FAPEMIG, UFLA, EMBRAPA MILHO E SORGO.