EVALUATING PLANTING PARAMETERS FOR FIELDS WITH HIGHLY VARIABLE SOIL ELECTRICAL CONDUCTIVITY

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Abstract

Uniformity of plant emergence and resulting final stand counts have been shown in agronomic studies to affect cotton yield and overall profitability throughout the cotton belt. Cotton planting practices, soil characteristics, disease/pest pressures and weather are some of the factors that influence early season stand establishment. The objective of this study is to evaluate how soil variability, measured by apparent soil electrical conductivity (ECa), affects planter settings such as row-unit downforce in fields with high ECa variability. A MSP3 unit (Veris Technologies, Salina, KS) collected ECa readings from a 32-ha field in Jackson county, Oklahoma. The ECa for the field ranged from 29-287 mS/m. Three zones (EC1, EC2, EC3) were created from the data. The southernmost 8-ha was selected because it contained all three zones in each 800 m planting pass. A randomized block design of three downforce treatments (57, 113, 181 kg) per block with six planted rows per treatment and 108 rows total in the study was planted on May 29, 2020. The inner four rows of each 6-row pass were randomly sampled by counting plants in a 1.5m distance along each row at 7, 10 and 27 days after planting. This process was repeated to collect three random samples in each zone for each planting pass. This study is ongoing so no final conclusions can be yet drawn, but for this one location and year, there was a statistical difference in the downforce setting along with an interaction between setting and zone.