Response of Soybean Sudden Death Syndrome to Deep Tillage Practices. (C03-weber143739-Poster)

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Abstract:

The causal agent of Soybean Sudden Death Syndrome (SDS), Fusarium solani f. sp. glycines (FSG), is an important soybean pathogen in Illinois. Prior research has shown that breaking the soil profile, through subsoiling, can reduce soil moisture, bulk density, and SDS foliar symptoms. Objectives in the present research are to determine: 1) if the benefits of subsoiling remain in subsequent seasons; and 2) if chisel plowing will have a similar effect to subsoiling. Four treatments were established for the 2001 season: 1) subsoiled (40 cm) in 1999 only; 2) subsoiled in 1999 and again in 2001; 3) chisel plowed (25 cm) in 2001; and 4) no-tilled. Subsoiling and chisel plowing in 2001 were both effective in decreasing soil moisture and bulk density, and thus increasing soil temperature. Plots receiving these two treatments had fewer foliar symptoms, resulting in higher yields compared to plots that were subsoiled two years prior or continuously no-tilled. Disease symptoms were less in plots subsoiled two years prior as compared to no-till, but yield was not increased. Among treatments, chisel plowing or subsoiling prior to each soybean season provided optimum control of SDS.

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