## **Interaction of Tillage and Spatially Variable Soil** Properties on Crop Response in a Coastal Plain Field. (S06-cassel085323-Poster)

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- Abstract:
- Soil properties and crop responses are highly variable on Atlantic Coastal Plain soils. Tillage and fertilization practices may either increase or decrease soil variability and crop response. The objective of this study was to evaluate the effects of seven soil management systems on cotton response in a 14-ha Coastal Plain field encompassing seven soil map units. Management systems replicated nine times in strips across the field were: (T1) Chisel(C)/disk (D), uniform N; (T2) C/D, variable N; (T3) No-till, wheat cover crop, uniform N; (T4) Strip till (subsoil), cover crop, uniform N; (T5) Strip till (subsoil), cover crop, variable N; (T6) Clean till, subsoil, uniform N; and (T7) Clean till, subsoil, variable N. Soil properties were analyzed on an irregular grid. Variable N fertilization was based on historical yield data. Seed cotton yield in 2000 was measured for each soil management strip and the yield variation within each strip was measured with a yield-monitoring combine. Yield for each management system was least in the sandier portion of the field where available soil water retention was low. Yield distribution within the entire field for each management system was kriged based on yield data and a semivariogram specific for that management system. Maximum seed cotton yield was greatest (2.21 Mg/ha) for Treatment T6 and least (1.65 Mg/ha) for Treatment T3.

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