UTILIZATION OF PEE DEE GERMPLASM IN UPLAND COTTON BREEDING PROGRAMS B.T. Campbell USDA-ARS, Coastal Plains Soil, Water, and Plant Research Center Florence, SC D.B. Weaver R. Sharpe Auburn University, Department of Agronomy and Soils Auburn, AL J. Wu South Dakota State University, Department of Plant Science Brookings, SD

<u>Abstract</u>

The USDA-ARS Pee Dee germplasm enhancement program was initiated in 1935. Although initially focused on developing Sea Island cultivars for the southeast US, the program's long-term objective has been to develop high yielding Upland germplasm with Sea Island fiber properties. The foundation of the Pee Dee program was developed using an array of unique breeding methods and diverse germplasm that included Sea Island, Upland, and triple hybrid strains. Since 1935, the Pee Dee germplasm enhancement program has released greater than 80 cultivars and germplasm lines. The objective of this research was to determine the extant breeding potential of elite Pee Dee germplasm. A number of elite Pee Dee germplasm lines were topcrossed to elite germplasm representative of public cotton breeding programs across the US cotton belt. Topcross progenies were evaluated for agronomic and fiber quality performance. Results suggest that Pee Dee germplasm lines combine well and should be good parental line candidates in Upland breeding programs across the US cotton belt.