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Final Summary

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Optimizing Peanut Production and Pest Management Through Applied Research

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Research was conducted in North Carolina during 2010 in Bertie (Peanut Belt Research Station), Columbus (Border Belt Research Station), Duplin, and Edgecombe (Upper Coastal Plain Research Station) counties to evaluate a range of production and pest management practices for peanut. Trials were conducted to evaluate performance of varieties, in particular the performance of the new releases Bailey and Sugg compared with CHAMPS, Gregory, Florida Fancy, and VA 98R. Experiments also included runner, Virginia, and Spanish market types planted at three dates in one trial while in a second trial these market types planted on the same day and dug at three intervals spaced approximately 10 days apart. Experiments were also conducted in conventional and reduced tillage systems at Lewiston to determine interactions of planting date and variety selection. One experiment at Lewiston was conducted with CHAMPS and Perry planted May 5, May 26, and June 8 with digging dates of September 5, September 20, October 5, and October 20. The goal of this trial research is to better define phases of crop development and improve predictions of crop maturity. Yield data for many of these variety trials are reported in *2011 Peanut Information*. The plant growth regulators Apogee, Stance, Rescue, and several micronutrient combinations (Stoller Co.) were evaluated in trials at several locations. These products had little to no effect on peanut yield. The impact of dicamba, glufosinate, and 2,4-D drift on peanut and other crops was documented in several experiments as a follow up to trials conducted in 2009. Long-term rotation experiments were maintained at three research stations, and a summary of yield data from these trials through 2009 is presented in *2011 Peanut Information*. Peanut yield following rotations including sweet potato, snap beans, and sage was compared at one location. Research was also conducted to compare efficacy of commercial and experimental inoculants that contain *Bradyrhizobia* as well as comparing nitrogen sources and rates needed to correct nitrogen deficiencies. The interaction of irrigation system (subsurface drip irrigation vs. no irrigation) and tillage system (strip tillage vs. conventional tillage) was compared in one experiment when peanut was treated with various fungicide programs. Peanut yield increased dramatically when irrigated irrespective of fungicide program or tillage system.

A wide range of pest management trials were conducted in peanut during 2010. These trials included developing strategies to manage herbicide resistant and non-resistant Palmer amaranth and common ragweed in peanut and defining interactions of tank mixtures that included up to five components in the mixture. Results from these experiments will be included in the compatibility guide developed for peanut.

IMPACT STATEMENT:

Results from these experiments are used to refine recommendations for peanut growers in North Carolina and surrounding states. Data from many of these trials are presented in *2011 Peanut Information* and in formal classroom instruction on campus or at county

production meetings, appear in newsletters and popular press articles, and are published in the peer-reviewed literature. Results from these projects support the historical mission of the land grant system through research, extension, and teaching programs.