Project Report
2005

Title: Breeding Improved Soybean Cultivars for Alabama

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Cultivar development: Experimental soybean (*Glycine max* L.) lines were tested in 2005, including 30 Maturity Group (MG) 6 lines and 80 MG 7 lines tested at one location (Tallassee) with two reps in multiple-row plots. A total of 50 lines (20 MG 6, 20 MG 7 and 10 MG 8) were tested in advanced trials at multiple locations in Alabama. The best-performing of these lines will be advanced to the next level of testing, the USDA Cooperative Uniform Tests. In the USDA tests, five of our best advanced lines were tested in the Preliminary 6 test, four in the Preliminary 7 test, and two in the Preliminary 8 test. Only one line, a MG 6 line that ranked fifth overall in the 2004 Preliminary test was advanced into the 2005 Uniform test. Performance of these lines in USDA tests is currently not available, as the preliminary data have not yet been released. We will not be developing future populations with the objective of cultivar development. Additional Breeder seed of Kuell were produced in 2005 and should be available to Registered and Certified Seed producers in 2006. We grew 38 different populations of material with a combination of the long-juvenile trait (lack of photoperiod response) and Roundup-Ready technology. Single-plant selections were made, and we will continue to evaluate these materials for the next couple of years with the objective of developing a cultivar with these two traits in cooperation with Clemson University. We have conducted several years of yield tests with experimental long-juvenile lines, and are now in the process of combining the long-juvenile trait with Roundup Ready technology for commercial production.

Soybean rust: In cooperation with the USDA, we evaluated 600 soybean accessions in MGs 6, 7, 8, 9 and 10 for reaction to the Asian soybean rust. These accessions were previously screened from the entire USDA germplasm collection, having shown some rust resistance potential in previous tests in an off-shore containment facility. Disease was monitored closely, but sufficient rust did not develop in time for meaningful results to be obtained.

We also are continuing to be a cooperator in the USDA Uniform Cooperative Tests, growing 11 tests in 3 locations (Tallassee, Belle Mina, and Fairhope) and evaluating over 200 public breeding lines of Maturity Groups V, VI, VII and VIII in both Preliminary and Uniform Tests. This continues to be a major resource of genetic material, as well as a great testing network for evaluation of new genotypes from all public breeding programs in the Southeast. However, extensive resources, in terms of labor and materials, are required to conduct these tests. We receive no money from USDA. Most all of these tests conducted in the US are supported by soybean checkoff funding.