

GLAND VARIATION AND GOSSYPOL CONTENT IN GOSSYPIUM HIRSUTUM**Gabriela Romano****USDA-ARS****Stoneville, MS****Jodi Scheffler****USDA-ARS****Stoneville, MS**

Cultivated cotton and its wild relatives typically have glands on both the reproductive and vegetative parts of the plant. These glands contain compounds that are toxic to many pests and help protect the plant from tobacco budworms (TBW), bollworms (BW), plant bugs and possibly some diseases. Unfortunately these same compounds are toxic to humans and non-ruminant animals. Cotton seed would be an even more valuable source of high quality protein if these toxic substances, especially gossypol, could be reduced. The focus of our research is to decrease the levels of gossypol in the seed while maintaining a high enough concentration of toxins in vegetative parts of the plant to offer protection from pests. Work done by ourselves and others showed that crosses between cotton varieties with different gland densities and distributions produced a range of types. By selecting within the resulting progeny, we have identified and advanced to the F7 generation, genotypes that have total gossypol amounts less than 0.30% total gossypol in the de-hulled seed, while still possessing glands at critical locations on the vegetative plant parts. In 2006, two of these lines will be evaluated in independent multi-location yield trials and evaluated for insect and disease susceptibility. The resulting elite lines will be a valuable source of germplasm for developing low seed gossypol cultivars.