

**INTROGRESSION OF THE ULTRA-LOW GOSSYPOL SEED TRAIT INTO ELITE COTTON
GERMPLASM****Rosa Jauregui****Steve Hague****Keerti Rathore****Texas A&M University****College Station, TX****Abstract**

The primary value of a cotton (*Gossypium hirsutum*) crop is fiber, but seed is an important by-product. Cottonseed use is limited by the presence of gossypol, which is a toxic compound. Glandless cotton plants that do not contain gossypol are highly susceptible to pests. Recently researchers at Texas A&M University developed cotton plants with normal gossypol glands in vegetative tissue and ultra-low gossypol (ULG) levels in the seed. The objective of this study was to integrate this trait into elite germplasm, develop techniques to enhance this breeding procedure, and measure performance of newly converted germplasm. The backcross method was used to introduce the ULG trait from transgenic 'Coker 312' plants into four elite lines from the U.S. and two lines developed in East Africa. Phloroglucinol and Fourier transformed-near infrared spectroscopy (FT-NIR) assays were tested to screen for ultra-low gossypol both in the seed and in seedlings in order to make the selection process efficient. Under the conditions tested, the phloroglucinol assay was a better predictor of the ULG trait than the FT-NIR. Converted lines were tested in field trials at College Station, TX, in 2011. First year field trial results suggest the integration of ULG does not affect the production potential and fiber quality of the various genotype backgrounds. A successful introgression program will result in cotton cultivars that provide substantial sources of high-value fiber and feed products.