

**AN ANTISENSE-DERIVED CULTIVAR HAS SMALLER  
GLANDS AND LOW GOSSYPOL BUT LACKS THE EXPECTED T-DNA**

**C. Magill, C.R. Benedict and G.S. Martin**

**Texas A&M University**

**J. Liu and L. Puckhaber**

**USDA-ARS**

**College Station, TX**

**Abstract**

Both Southern hybridization and PCR analysis of DNA extracted from a cotton plant regenerated from callus confirmed the incorporation of at least one copy of the T-DNA construct used for transformation. Since the construct included an inverted copy of a cDNA for  $\delta$ -cadinene synthase, the first enzyme unique to gossypol biosynthesis, expression from the CaMV 35S promoter was expected to lower gossypol levels via "antisense inhibition". Gossypol levels were examined in seeds collected from selfed progeny of the transgenic ( $R_0$ ) plant. Surprisingly, no trace of the antisense CDN gene, the *nptII* selectable marker, the CaMV promoter or the right border of the TI vector were detected in DNA from the  $R_1$  plant that had the lowest levels of gossypol. These results imply that a mechanism other than antisense inhibition must account for the gossypol reduction of approximately 50% seen in seeds and green tissues of the variant. Selfing has shown the trait to be stable into the third generation. Crosses have been made to evaluate the mode of inheritance and analysis continues in an effort to understand the molecular basis for the reduction in gossypol levels.