

**SEGREGATION ANALYSIS AND IMPROVEMENT OF MUTATION-BASED HERBICIDE
RESISTANCE IN COTTON (GOSSYPIMUM HIRSUTUM L.)**

George S. Cutts, III
Texas A&M University
College Station, TX
Jane K. Dever
Texas Agrilife Research
Lubbock, TX
Dick Auld
Texas Tech University
Lubbock, TX

Abstract

Mutant lines of upland cotton conferring resistance of imidazolinone herbicides have been developed through ethyl methanesulfonate (EMS) using three High Plains cultivars and selection using imazamox herbicide. While previous studies have indicated that tolerance is controlled by a partially dominant gene, little is known about the gene action. Therefore segregation analysis studies have been initiated by selection of tolerant parental stocks and crossing these with an established cultivar (FM 958). Additionally, tolerance levels of parental lines have not been high enough to draw commercial interest. Studies will also evaluate how the introgression of this gene with FM 958 is able to improve and stabilize tolerance levels.