

**ADDRESSING ADVENTITIOUS PRESENCE IN PUBLIC GERMPLASM****Ted Wallace****Mississippi State University****Mississippi State, MS****Don Jones****Cotton Incorporated****Cary, NC****Richard Percy****USDA-ARS Southern Plains Agricultural Research Center****College Station, TX****Abstract**

The potential for adventitious presence (AP) of GMO traits in publicly developed cotton germplasm is significant. Despite the need for some level of formal trait testing, the majority of public breeders have relied primarily upon traditional breeding practices such as field isolation and cleaning of equipment for the prevention of AP. To estimate the level of AP in public germplasm, advanced breeding lines submitted for testing in the Regional Breeders Testing Network (RBTN) were screened for tolerance to glyphosate (Roundup Ready® Cotton Trait). Since 2002, 185 advanced public breeding lines have been screened via applications of glyphosate, and presence of the RR trait in surviving plants confirmed with lateral flow assay test strips. Results suggested that public cotton breeders have done a remarkable job of limiting levels of AP, especially when one considers the typical environment where public breeding nurseries are located. Although a few transgenic lines have been discovered in trials since 2011, frequency of the RR trait was quite low in the majority of lines evaluated. In addition to traditional breeding practices, a commodity wide approach should be employed by the community of public cotton breeders to limit AP in public germplasm. A commodity wide approach should include guidelines for testing (when, how, and what traits to test for), acceptable levels or limits for AP, and standards for germplasm exchange. Cotton Incorporated has taken the lead in the development of a document to be used as a guide by public breeders across multiple commodities for implementing practices aimed at limiting proliferation of AP. Crop germplasm committees (USDA-ARS) across all major commodities are also developing a document aimed at excluding transgenes from germplasm collections. During the interim, submissions to the collection will be rejected if any level of AP is detected. Development of new and improved germplasm with high levels of AP is a waste of time and resources, and places other germplasm at risk. Efforts currently underway to develop a commodity wide approach for limiting AP in public germplasm will protect the integrity of our most valuable resources for crop improvement and serve as a future path for coexistence.