

STRATEGIES TO REDUCE TRANSGENE MOVEMENT. Hong S. Moon, Jason N. Burris, Reginald J. Millwood and C. Neal Stewart, Jr., Department of Plant Sciences, The University of Tennessee, Knoxville, TN 37996

Transgene escape is of a major ecological concern when growing transgenic plants in the field. To address these concerns, suitable strategies for transgene containment must be created. Currently, two strategies that can be utilized as transgene containment and control are male sterility and site-specific recombination. First, male sterility can be obtained by making interspecific hybrids of *Nicotiana tabacum* X *Nicotiana glauca*. By using the genetic “distance” and a large difference in chromosome number, we can produce non-functional gametes, and thus, create functional sterility. We will transform male sterile hybrids with fluorescent-protein markers to track the potential of pollen formed in the field. Secondly, a transgene excision system using a site-specific recombinase or a zinc finger nuclease will be created in order to remove transgenes from the pollen. A model plant, canola or tobacco, will be transformed via *Agrobacterium*-mediated methods with constructs containing site-specific recombinases or zinc finger nucleases. This system will employ a visual marker green fluorescence protein driven by pollen-specific promoter to ensure transgene excision. Pollen-specific promoters, *LAT52* and *LAT59*, will be used to activate the recombinase or zinc finger nuclease in pollen to induce the excision of transgenes.