

INTRODUCTION TO GENE FLOW AND INTROGRESSION BIOLOGY. C. Neal Stewart, Jr., Racheff Chair of Excellence in Plant Molecular Genetics, Department of Plant Sciences, University of Tennessee, Knoxville, TN 37996.

Hybridization (crosses between plant types) and introgression (stable gene integration from one plant type to another) are generally referred to as “gene flow”, typically with reference to a recipient plant type and gene(s) of interest. Gene flow is of practical concern in crop breeding, weed evolution, or transgene movement from crops to weeds. While gene flow is a natural process, the desire for transgene containment has elevated plant hybridization and introgression biology to an unprecedented level: both scientifically and politically. While gene flow might pertain to seed movement with regards to volunteer plants or type “contamination”, most research has been performed on assessing gene flow via pollen movement, with transgenes being important and convenient markers to assay. Transgenic introgression and linkage effects (Stewart et al. 2003) might be most pertinent topic with regards to introgression biology for this meeting and will be the focus of this presentation. In short, transgenes cannot be treated as “magic islands” within genomes. Rather, they are subject to evolutionary forces common to the tens-of-thousands of genes within each genome with regards to all natural processes, including introgression.

Reference

Stewart, C.N., Jr. M.D. Halfhill and S.I. Warwick. 2003. Transgene introgression from genetically modified crops to their wild relatives. *Nature Reviews Genetics* 4: 806-817