

EVALUATION OF TEMPORAL ISOLATION ON FREQUENCY AND DISTANCE OF POLLEN-MEDIATED GENE FLOW IN CORN MEASURED AT TWO INTERFIELD SPACINGS. Eric W. Rosenbaum, Michael J. Horak, Todd A. Pester, Kirk M. Remund, and Thomas E. Nickson, Plant Ecologist, Plant Ecology Lead, Regulatory Affairs Manager, Statistician, and Ecological Technology Center Lead, Monsanto Company, St. Louis, MO 63167.

A two-year study at two sites was initiated in 2001 to determine the effects of temporal and spatial isolation on pollen-mediated gene flow in corn. At each site, a 16-acre source plot of yellow corn was centered in a 40-acre field of white corn. Trap plots were established in the white corn to the north, south, east, and west of the source plot. Temporal isolation was tested by varying the planting date of the trap plots -10, 0, or +10 days relative to the planting of the source plot. Spatial isolation was tested by incorporating 15 and 60 ft. fallow borders on each side of the source block. Ears were collected from each trap plot at various distances out to 230 ft. from the source plot and kernels were sorted by color. Yellow kernels indicated gene flow from yellow corn. Minimal differences were observed due to the early or late planting dates. The 60 ft. fallow border reduced gene flow along the edge of the trap plots when compared to the 15 ft. border. As expected, gene flow decreased with greater distance from the source plot and was correlated with wind direction. Gene flow levels were significantly reduced at sampling points 10 ft. into the trap plots, indicating the effectiveness of border rows in filtering foreign pollen.