Pollen Mediated Gene Flow in Corn. (C03-horak173401-Poster)

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Abstract:

A study was initiated in 2001 to determine the effects of temporal and spatial isolation on pollen-mediated gene flow in corn using yellow kernel color and Roundup Ready (RR) traits as markers. A 16-acre source block of yellow RR corn was planted in the center of a 40-acre field at 2 sites. White non-RR corn surrounded the source block on all sides. Yellow kernels collected from the white corn plants indicate gene flow from the dominant yellow corn and half should contain the hemizygous RR trait. Temporal isolation was tested by planting the white corn 10 days earlier than, at the same time as, and 10 days later than the yellow corn block. Spatial isolation was tested by incorporating a 15 and 60 ft. buffer on each side of the yellow corn block. Samples were collected on all sides of the yellow block at distances of 15-230 ft. from the edge of the yellow block and separated into yellow and white sub-samples. Minimal differences (+/- ~1%) were observed due to planting date. The 60 ft. buffer reduced mean gene flow when compared to the 15 ft. buffer at both sites. At both sites, gene flow was correlated with prevailing wind direction and decreased with greater distance from the yellow-RR corn.

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