

Pollen-Mediated Gene Flow in Maize as Influenced by Time and Distance. (C03-berberich170444-Poster)

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Abstract:

Development of genetically modified maize has increased the need to understand pollen-mediated gene flow. The maize industry must now meet quality standards for food labeling, identity preservation, and grain channeling and is required to maintain segregation of non-food varieties, such as those producing pharmaceuticals and industrial enzymes. To assist in development of improved isolation practices, two years of large-scale trials were conducted to assess the effect of physical (distance) and temporal (planting time) separation on gene flow. Phenotypic and/or genetic markers were used to detect gene flow between a pollen source plot and receptor plots at distances ranging from 100 feet to >0.5 mile. Gene flow decreased exponentially with distance when the source and receptor plots were planted at the same time, reaching <0.003% at about 0.5 miles. When planting of the source and receptor plots was separated by two weeks, gene flow was below the limit of detection (<0.001%) at ~1000 feet. Additional trials are in progress to further evaluate the parameters affecting gene flow in maize and to develop scientifically based practices for gene confinement in field production.

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Presentation Information:

Presentation Date: Tuesday, November 12, 2002

Presentation Time: 4:00-6:00 pm

Poster Board Number: 1415

Keywords:

maize, pollen, out-crossing, gene flow