GMO Corn Pollen Drift

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With more than 93% of corn produced in the United States being genetically modified in some way, it is challenging for non-GMO corn producers to prevent contamination of their crop from GMO corn pollen drift. The purpose of this experiment was to find an approximate distance needed from the GMO field needed to reach non-GMO corn purity standards. It was hypothesized that the presence of genetically modified trait, CP4 EPSPS (Roundup Ready) gene, will test positive at approximately 40% in the 3rd row of the non-GMO field, near 10% in the 30th row, about 5% in the 52nd row, and less than 5% in the 60th row. To collect the samples, the researcher took three cobs of corn from 7 spots along each row. The rows tested were at 5 feet, 72.5 feet, 127.5 feet, and 147.5 feet. First, the corn DNA was extracted. Tozz (35s) primer was mixed with the DNA samples and went through the polymerase chain reaction. Gel electrophoresis was conducted. The E-gels were put on a UV Light Table for analysis. At a distance of 5 feet from the edge of the non-GMO field, or the 3rd row, 10 out of 21 samples were positive (47.62%). At a distance of 72.5 feet, or the 30th row, 3 out of 21 samples were positive (14.29%). At a distance of 127.5 feet, or the 52nd row, and 147.5 feet, or the 60th row, all the samples were negative. These results were compared with a previous study, Byrne, 2003, using a chi squared test. At one degree of freedom, the experiments were statistically the same. The results of the experiment partially supported the hypothesis. All of the hypothesized percentages of contamination were accurate except at 127.5 feet. It was found that producers need to be to leave at least 72.5 feet from the edge of the non-GMO field as a buffer to prevent contamination.

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