The soybean plant is naturally self-pollinated, although cross-pollination occurs. Several plant breeders have determined the extent of natural crossing under certain conditions and the results have shown that very little crossing takes place.

In an experiment carried on at the Wisconsin Experiment Station, Woodworth found one hybrid pod in 625, or 0.16%. In this investigation two varieties were interplanted in such a way as to provide the greatest opportunity for natural crossing.

In the soybean varietal experiments carried on at the West Virginia Experiment Station, each variety is grown in four-row plots with the rows 30 inches apart. The investigation here reported had for its object the determination of the extent of natural crossing between different varieties in adjacent rows.

METHODS

The percentage of natural crossing may be determined on the basis of the relative number of pods which contain hybrid seed as was done by Woodworth, or on the basis of relative number of hybrid seed. The latter method was used in this investigation. From a practical standpoint, the plant breeder is interested primarily in the extent of contamination of a certain variety, and natural crossing between different flowers of the same plant or between flowers of different plants of the same pure line variety is not a source of contamination.

In 922 ripened pods were selected at random from rows of Manchu, Haberlandt, Ohio 9016, and Elton which were grown adjacent to rows of Wilson and Hamilton (Ohio 9035). The four varieties first named have yellow seed-coats, whereas Wilson has a black and Hamilton a brown seed-coat. Before taking pods from any particular plant, it was examined to make sure that it was not a hybrid or a chance mixture. The pods so selected were dried and later the seed was hulled by hand. A random sample of seed of each variety with yellow seed-coats was planted the next season to determine the number of hybrids. At harvest each plant was examined and if a

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2Agronomist and Associate Agronomist, respectively.