Accuracy of Estimating the Mean Percentage of Nondetasseled Plants
in Double Cross Corn Seed Production Fields

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The mean per cent of pollen shedding tassels on the pistillate parent in a double cross seed production field has been used by the Iowa Crop Improvement Association as the basis for accepting or rejecting a field for certification. The mean is determined by making five counts of 100 plants at random at each field inspection. In borderline cases additional counts are made, with the average of all counts used as the sample estimate. This method of determining the precision of detasseling in a seed field has evolved by trial and error.

The most objectionable form of contamination which could occur in a double cross detasseling block would be self or sib pollination of the seed parent plants. Such contamination would be determined largely by the incompleteness with which it is done and by the relative rates of functioning of desired tassel parent pollen and contaminating pollen available in the field. A considerable body of data on the per cent of seed parent plants shedding pollen has been accumulated in the course of certification inspections during the past several years. The purpose of this investigation was to utilize the available data in this phase of the certification program to the procedures of sampling now used for determining the maximum tolerance of pollen shedding tassels for certification, and to examine possible modifications in both procedures and requirements.

Materials and Methods

Inspection records of the Iowa Crop Improvement Association for all double cross hybrid corn seed production fields inspected for certification in 1945, 1946, 1947, and 1948 were analyzed to determine the variation in number of pollen shedding tassels among 4 years and 5 field sizes. The number of tassels per sample was classified by years and size of fields. Only those records were used when more than 5% of the silks were observed by the inspector as viable and when an apparent effort was made by the grower to meet certification requirements. Since...