4. Study on single, double, and triple pollinations in relation to silk receptiveness.

Self and cross pollinations were effected on plants from two open pollinated varieties, divided into twenty groups, according to time of silk emergence, from the first to the twentieth day after silk emergence, following three different patterns: (a) one single self pollination on each of four to five plants per group; (b) one pollination the day after silk emergence, and a second pollination on each of the twenty day-after-emergence groups, also on four to five different plants per group; (e) triple pollination pattern, made up by making a first pollen application the day after silk emergence, a second pollen application the next day, and a third application on each of twenty day-after-emergence groups of 4-5 plants each. The data were expressed as angular transformation values of percentage of grain set on each pollinated ear.

For each of the three pollination patterns it was observed that maximum silk receptiveness occurred when the last pollination was made before the 8th day after silk emergence. After this date there was a progressive decrease in percentage seed setting, as the silks became older. With triple pollinations, however, the decrease in seed setting with increased silk age at pollination time, was not so sharp as with the other two patterns. In general, for any day-after-emergence group, the percentage of grain set was larger for the triple pollinations than for the double ones, and in turn, in these it was larger than for the single pollinations. The mean pollination pattern angular values over all groups were 51.18, 48.17, and 44.08, for the triple, double, and single pollinations, respectively.

The highest grain settings were obtained with double pollinations, where the first one was made the day after silk emergence, and the second pollination three days after the first, and also with triple pollinations where the third pollen application was made 10 days after the second application. The analysis of variance did not disclose significance of differences among either dates within patterns of pollination or among "date classes," whether made up by pooling either three or four consecutive day-after-emergence groups.

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