EARLY interest in the effects of detasseling corn centered about the possibility of increasing grain yields by diverting food materials used in pollen formation to the developing grain. With the advent of commercial hybrid seed in recent years, detasseled corn to the extent of about one-fourth million acres annually has become a reality and a necessity in the crossing fields of the United States. It is required to bring about specific cross-fertilization in commercial hybrid seed production.

Current interest is focused largely on the direct effects of detasseling practices which unintentionally remove one or more leaves along with the tassel, under crossing-field conditions of ample pollen supply. Two experiments bearing on these questions were completed at the Nebraska Agricultural Experiment Station in 1944, and it is the purpose of this paper to report the results in summarization with those found in the literature. In exceptional cases, the detasseled parent in crossing fields may become heavily infected with smut which gains a foothold at the point of injury where the tassel was amputated. The results from a field of this kind in 1942 are also included. Such data may be of use in appraising the net profits from producing hybrid seed and also in arranging equitable compensation for the contract-production by farmers for seed companies.

An omnipresent additional hazard of detasseling which needs to be reckoned with and guarded against is that of deficient pollen for perfect fertilization. This may result from two causes—drought and failure to synchronize the silking and tasseling of female and male parents. The effect of either upon yield may range up to partial or complete failure. Drought effects are accentuated by placing dependence upon one-third to one-fourth of the plants in a field to provide an ample supply of viable pollen. Losses from this cause are largely prevented by strategic placement of production fields. Since the parental stocks of many hybrids differ in time of flowering, suitable adjustments in time of planting or in differential fertilizer application are the remedies for the second cause of imperfect seed set. Because experimental data are not needed to demonstrate the unfavorable effect of imperfect fertilization of the ears, this hazard of detasseling will not be considered further in this paper.

EXPERIMENTAL PROCEDURE

One test in 1944 was designed solely to determine the effect of removing the tassels before shedding, without loss of leaf. The corn used was Iowa 939 planted by hand in 10-hill rows at a double rate and thinned in the seedling stage to two plants per hill. Alternating rows were detasseled, the entire test consisting of 40

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1Contribution from the Agronomy Department, Nebraska Agricultural Experiment Station, Lincoln, Nebr. Authorized for publication by the Director as Journal Article No. 372 of the Nebraska Agricultural Experiment Station. Received for publication April 6, 1945.

2Agronomist.