POLLINATION STUDIES WITH ORCHARD GRASS

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Orchard grass is classified as a cross-pollinated plant. However, Frandsen (1) at the Tystofte experiment station in Denmark found that orchard grass, while generally cross-pollinated, produced seed to some extent when self-pollinated. He also found that individual plants showed considerable variation with reference to self-fertility. Breeding work with orchard grass was started at this station several years ago and it became necessary to determine the fertility of orchard grass when the flowers were not allowed to cross-pollinate. Some of the results of the pollination studies are presented in this paper.

MATERIAL AND METHODS

In this experiment the flowers of several clonal selections were pollinated in different ways to determine the set of seed under the different conditions. In some cases the entire plant was enclosed in a cotton cage as shown in Fig. 1. The percentage of seed set inside the cage was compared with the percentage set on open-pollinated plants of the same selection. On other clonal lines some of the heads were enclosed in 2-pound paper bags as shown in Fig. 2. In some instances single heads were enclosed in bags, while in other cases several heads were enclosed in the same bag. The same plants were used for both kinds of enclosures so as to make the results comparable. All heads were enclosed just before blooming started.

Frandsen (1) had fair success in producing self-pollinated seed by enclosing panicles in a glass cylinder closed at both ends with linen paper bags, by enclosing the panicles with linen cloth, and with parchment paper. The use of parchment paper gave the least successful results. McRostie (3) in Canada obtained fairly good results in producing self-pollinated seed by enclosing individual panicles in glassine paper bags. However, he secured much better results by isolating individual plants by means of cotton cages.

RESULTS AND DISCUSSION

The results of our pollination studies are given in Table 1. Different plants vary considerably in the percentage of flowers setting seed. In case of clon 369 only a very few of the flowers set plump seed even

1 Contribution from the Department of Agronomy, Virginia Agricultural Experiment Station, Blacksburg, Virginia. Received for publication September 10, 1925.
2 Agronomist and Assistant in Agronomy, respectively.
3 Reference by number is to "Literature Cited," p. 752.