THE INFLUENCE OF BROKEN PERICARP ON THE GERMINATION AND YIELD OF CORN

MARTON T. MEYERS

When external fungous organisms gain entrance through a broken pericarp and a saprophytic start in the endosperm of some grains during germination, it has been found that they may become parasitic on the seedling when they otherwise would not. The experiments reported in this paper were conducted to determine the relation of broken seed coats to readings for disease on the germinator and to seedling mortality and yield under field conditions.

REVIEW OF LITERATURE

Investigations of the root, stalk, and ear rots of corn by Hoffer and Holbert (9), Duddleston (6), and Holbert and Hoffer (10) suggested the modification of the germination test for the detection of seed-borne infections which could not be otherwise detected, but which were a serious factor in controlling these diseases. Adams and Russel (1) noted that infections with common saprophytic molds, which were borne on the surface of the seeds and which caused very little, if any injury, under field conditions frequently interfered with the detection of serious pathogens on the germinator.

Fusarium moniliforme has been found to be carried almost universally in great abundance on seed corn, by the work of Valleau (17), Melchers and Johnston (13), and Branstetter (3). On the other hand, comparatively few ears infected with Diplodia zeae or Gibberella saubinetii were found. Whether the presence of Fusarium moniliforme is a serious detriment to seed corn is still in doubt, but it is evident that selection or treatment to eliminate this organism, which causes very conspicuous symptoms on the germinator, has little influence on yield under field conditions; as found by Valleau (18), Sherbakoff (16), and Melchers and Johnston (13 and 14).

Branstetter (3) further found, "that with a little care, one can select comparatively disease-free ears from a lot of corn, thus elimi-