STEM MAGGOT INJURY AMONG WHEAT VARIETIES

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The injury to wheat from the wheat stem maggot (Meromyza Americana Fitch) has become increasingly serious during the last 5 years in northwestern Minnesota. Counts of the dead spikes in random samples from the wheat varietal plats have been made at the Northwest Experiment Station, Crookston, Minnesota. An analysis of these data to determine any varietal difference in susceptibility to the attacks of this insect is presented in this paper.

Host resistance to insect attack is a well-known fact among entomologists and there is a growing belief in the importance of breeding crop plants resistant to particular insect pests. Selection of particular varieties or species of food plants by certain insects has been attributed to differences in odor, taste, or some attribute of a plant less evident to human senses (2). Workers at the Kansas Experiment Station have reported evidence of resistance to Hessia fly injury as a characteristic of some varieties of winter wheats (3), while Parker and Painter (4) have mentioned briefly some of the more important studies on host resistance in crop plants.

Very little information concerning the behavior of wheat varieties to stem maggot attack, however, appears in the literature. Gilbertson (1) observed that the beardless varieties were attacked less than the bearded, although all beardless varieties did not show equal resistance.

EXPERIMENTAL RESULTS

In Table 1 the average percentages of dead spikes caused by the wheat stem maggot are shown for nine varieties over a period of 4 years. The data are averages of two random samples of 100 culms each from each of three 1/40 acre plats planted the same day on uniform soil. Dates of heading are also presented in order to study any association of maximum injury with early or late maturity.

It will be noted that there is considerable variation from year to year among the varieties in the extent of injury. Thus, Reward, an early heading variety, was not as severely injured in 1929 and 1933 as some other varieties but was severely injured in 1931 and 1932. McColloch (2) believes that "every species of insect prefers an optimum condition of the host which it selects and will choose a new host in the optimum condition in preference to an old host in which the conditions are unfavorable."

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3Reference by number is to "Literature Cited," p. 980.