RESISTANCE TO THE HESSIAN FLY IN CROSSES OF SOME COMMON SPRING WHEATS
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This paper deals with the resistance to the Hessian fly, *Phytophaga destructor* (Say), in crosses with W38 of Beirao (P. I. 56202-2, P. I. 56202-5), Portugez (P. I. 56204-7), Barbella-Santa Martha (P. I. 56222-13), Lobeiro-Barbella (P. I. 56225-1), unnamed (P. I. 94379-6), unnamed (P. I. 94549-5), unnamed (P. I. 94571-14), Triunfo (P. I. 104138-3), unnamed (P. I. 111245-10), and unnamed (P. I. 125390-8). These strains or varieties of common wheat, *Triticum vulgare*, were found to be resistant to the Hessian fly in a series of greenhouse and field tests during the period 1939-43 at Lafayette, Ind. Of these varieties Triunfo and W38 are the types best adapted to the central part of the United States. A major gene for fly resistance, designated as H3, occurs in W38. As the responses of these wheats to specialized populations of the fly are inadequately known, the full interpretation of the data presented in this paper cannot be made at this time. Preliminary tests, however, indicate that plant selections of Portugez (P. I. 56204), unnamed (P. I. 94549), and unnamed (P. I. 94571) are resistant to a specialized population of flies capable of infesting W38 to a high degree.

MATERIALS AND METHODS

The crosses were made at Madison, Wis., in 1941. The F1 plants were grown in 1942 at Davis, Calif., by C. A. Sueson of the Bureau of Plant Industry, Soils, and Agricultural Engineering, U. S. Dept. of Agriculture. The F2 and F3 plants were grown and tested for resistance to the fly in 1942 and 1943 at Lafayette, Ind. The hybrids, the parents, and Thatcher (the susceptible check) were grown in the greenhouse in rows of approximately 20 plants each, and were exposed while in the 1-blade stage to a heavy attack of the Hessian fly. The flies used in the tests originated at Lafayette and consisted of a general, or unselected, population. Eggs were laid abundantly on all plants. The plants were examined 3 weeks later and classified on the presence or absence of fly puparia. In these tests the presence of puparia was attended by stunting of the plants.

EXPERIMENTAL RESULTS AND DISCUSSION

The F1 plants from the crosses were not tested for fly reaction.

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