STABLE and efficient farm production is based upon regular harvests of good crops. The present commercial varieties of hard red winter wheat produce well in favorable years but may be damaged severely in some seasons by plant diseases, insects, or unfavorable climatic conditions. Two important pests of winter wheat are the Hessian fly, *Phytophaga destructor* (Say), and stem rust, *Puccinia graminis tritici* (Eriks. and Henn.). It is the purpose of this paper to report protection afforded by inherent resistance to stem rust and Hessian fly in hard winter wheat varieties and hybrids developed during the past few years.

Recently, Melchers (3) has called attention to the severity of stem rust losses in Kansas during the period 1935 to 1940 when four stem rust epiphytotics occurred. Some of these were estimated to have caused more than 10% loss to the wheat crop of Kansas. A field survey of wheat stubble made at harvest time in 1941 showed that in eastern and central Kansas infestation by Hessian fly averaged approximately 20% of the culms. Gossard and Houser (1) reported an experiment in 1906 in which infested straws yielded 32.5% less grain than straws free of infestation. The loss to the 1941 wheat crop in Kansas from this insect was estimated by entomologists at Kansas State College to be 13,000,000 bushels. Other diseases and insects, especially leaf rust and grasshoppers, may in some years cause damage as extensive as that just cited.

For several years workers in the hard red winter wheat region have been engaged in transferring inherent disease and insect resistance from various sources to commercially satisfactory winter wheat varieties. In the Kansas plant breeding program, marked progress has been made by using Marquillo spring wheat as a source of resistance to both Hessian fly and stem rust. Painter, *et al.* (4) have reported certain Marquillo winter wheat hybrids as possessing commercially valuable resistance to Hessian fly, jointworm, stem rust, leaf rust, bunt, and mildew, a combination not previously reported in any winter wheat. Since that report was published, addi-