THE RELATION OF FERTILIZERS TO HESSIAN FLY INJURY AND WINTERKILLING OF WHEAT.¹

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The damage to wheat from Hessian fly injury and winterkilling in the southwestern portion of Virginia during the past season was unusually severe. The early fall was dry, followed by damp, warm weather until about November 1. As a result wheat, even when seeded at what was ordinarily the proper date, suffered heavily from attacks of the Hessian fly. The winter temperature was comparatively mild, but with frequent and rapid fluctuations, while the snowfall was unusually light. As a consequence, much wheat winterkilled.

In order to obtain data with regard to the winter injury and Hessian fly damage, notes were taken on some of the wheat experimental plats at Blacksburg. The data presented in Table 1 were taken from plats which have been growing wheat continuously since 1908. The treatments shown have been made annually just previous to seeding the wheat, with the exception of the manure, which has been applied during the winter. The plats are one twentieth of an acre each. In making the counts on Hessian fly injury, the total number and the number of lodged stalks were counted in ten rows on each of the plats. All stalks were not examined for the fly injury; only those stalks which had lodged at the time of counting were classed as injured by the fly. The counts were made just before the wheat matured. In addition to the counts, Table 1 also shows the yields from the various plats. The yields suggest the degree of winterkilling.

The data presented in Table 2 were obtained from a rotation experiment with fertilizers started in 1909. The rotation consists of corn, wheat, and grass and clover two years. The treatments shown are made annually except where noted otherwise in the table. During the first five years of the experiment the applications of commercial fertilizers were half the amounts as now given. The applications of manure have been the same since the experiment was started. The degree of winterkilling is indicated by the yields.

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