CORRELATION OF FACTORS AFFECTING YIELD IN HARD RED SPRING WHEAT

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In planning for the production of an improved variety, the small grain-breeder may cross two or more varieties with the hope of combining in a single variety the desirable characters of several. It is a common practice to use as one parent, at least, a variety which excels in yielding ability as determined by yield trials. The other parent should be selected because it contains a certain desired character or characters which are lacking in the standard variety.

Yield in small grains is apparently a complex character influenced by such factors as plumpness of grain, number of kernels per spike or panicle, reaction to disease, lodging, number of spikes or panicles per unit area, and period of maturity. Insufficient information is available concerning the extent to which various characters influence yielding ability and the extent to which two or more of these agronomic characteristics are conditioned by the same genetic factor or factors.

This report comprises a statistical study of the relation between various plant characteristics and yielding ability of hard red spring wheat grown in rod rows at the Morris, Minnesota, Branch Experiment Station during the crop season of 1929.

REVIEW OF LITERATURE

Goulden and Elders (1), in a study of numerous varieties and selections grown in rod-row trials at the Dominion Rust Laboratory at Winnipeg, Canada, obtained significant negative correlation coefficients between yield and susceptibility to stem and leaf rust. Early heading varieties yielded higher than those heading later. Total and partial correlation coefficients were used to analyze the importance of the different factors concerned.

Hayes, Aamodt, and Stevenson (2) studied spring and winter wheat varieties grown in rod-row trials and Immer and Stevenson (3) made similar studies with oats. Partial and multiple correlation