THE TESTING OF VARIETIES AS FOUNDATION WORK
IN THE IMPROVEMENT OF FARM CROPS.

A. T. WIANCKO,
Purdue University, Lafayette, Indiana.
Presented at the Omaha Meeting, 1909.

Since their establishment the Agricultural Experiment Stations of this country have given much attention to the testing of varieties of all kinds of farm crops, and in the great majority of cases, until recently at least, the prime object of such tests has been simply to determine which varieties were best suited to general culture as indicated by their relative yields. As a rule, too, these tests were confined to the soil upon which the experiment station happened to be located and the results were given to the public as a guide in selecting the varieties they should use, with little reference to the particular conditions under which they were secured. With a few notable exceptions, the stations have made no further use than this of the results of these tests until within the last few years, but now many of them are using the variety tests as a basis upon which to found systematic investigations in crop improvement. The Station Agronomists, or those having crop improvement work in charge, now see in the variety test a valuable means of working out many perplexing problems connected with the selection of the most suitable foundation stock for any given line of improvement. It is pretty well recognized, too, that the results of such tests can not be depended upon for application at any considerable distance from the locality in which they were conducted, on account of important influences of different climatic and soil conditions, and that tests must be conducted at the points where the results are to be applied.

In the study of so-called varieties, our investigators have found that there are wide differences between them in almost all their important economic properties, and that in the search for the best foundation stock for improvement work many peculiarities have to be studied and determined. Prominent among these are yield of grain and forage, adaptation to purpose for which grown, disease resistance, character of growth, length of season required for proper development, feeding value and adaptation to the local soil and climatic conditions, including winter hardiness and drought resistance. Each variety has its own peculiarity in regard to any one of these considerations and the all-around best variety of any crop can only be found after repeated tests of all the varieties available. What may