It is thus seen that the rapidity of growth of one strain may be more than three times that of another. The last column of the table also indicates that rapidity of growth is also strongly correlated with productivity in that the average green weights per plant shows almost exactly the same relationship as the average length of the longest stems.

BREEDING FOR DISEASE RESISTANCE.

In the eastern part of Kansas the question of resistance to leaf spot (*Pseudopeziza medicaginis*), is of vital importance. The differences in our pure strains in respect to the susceptibility to this disease has been very marked. Probably the most striking difference in this regard was shown by our serial numbers, 38 and 64, which grow side by side. It was found that when more than half the leaves of No. 38 were badly spotted and turning yellow, so that the whole plot was assuming a yellow cast, the plants of plot No. 64 were practically untouched by the disease and the plot was perfectly green; thus there has been transmitted from the parents of these strains, to the one a strong susceptibility to leaf spot, and to the other, from its parent, almost perfect immunity.

REPORT OF THE COMMITTEE ON BREEDING CEREALS.

PROF. C. A. ZAVITZ, *Guelph, Ontario, Chairman.*

M. A. CARLETON, *Washington, D. C.*

DR. C. E. SAUNDERS, *Ottawa, Can.*

PROF. J. H. SHEPPERD, *Fargo, N. D.*

PROF. ALVIN KEYSER, *Lincoln, Neb.*

PROF. L. S. KLINCK, *Macdonald College, Que.*

C. G. WILLIAMS, *Wooster, Ohio.*

Objects—The duties of this committee shall be (1) to investigate and report on the methods and technique of improving the cereals by breeding, and (2) to encourage the production of improved varieties of all the cereals for each agricultural region and for each use.

The report of the committee on the breeding of cereals for the past year consists in special articles which are here presented, as follows:

1. "Foundation Stock in Cereal Breeding." By the Chairman.
2. "Progress in Cereal Breeding at the Ohio Experiment Station." C. G. Williams, Agric. Expt. Station, Wooster, Ohio.
3. "Some Results and Observations Noted in Breeding Cereals in a Specially Prepared Disease Garden." Prof. Henry L. Bolley, Fargo, N. Dak.

4. "A Note on Rice Breeding." Chas. E. Chambliss, Department of Agriculture, Washington, D. C.

5. "Field Methods in Wheat Breeding." M. A. Carleton, Department of Agriculture, Washington, D. C.

Respectfully submitted,

C. A. ZAVITZ, *Chairman.*

FOUNDATION STOCK IN PLANT BREEDING.

PROF. Z. A. ZAVITZ, *Guelph, Ontario, Can.*

Dr. Hugo DeVries of Holland, after visiting Luther Burbank in California, wrote an account of his observations, in which the following statements were made:

"Hybrids do not present, as a rule, any new simple qualities, only new combinations of already existing properties. As a general rule, it holds true that the results of crossing depend primarily on the selection of varieties used for that purpose. These indicate the list of possibilities from which the choice of the combinations have later to be made."

It is undoubtedly true that if we can expect to get the best results from work in hybridization, we must take the greatest of care in securing our foundation stock. It seems to me that one of the very first things which needs to be studied in connection with plant improvement, whether it be conducted on the farm or at an experiment station, is the study of existing varieties of nearly all classes of crops, many of which vary considerably in different characteristics. After carefully watching the crop production of the Province of Ontario and closely observing the experimental work at the Ontario Agricultural College for the last twenty-three years, where we have carefully tested each of two thousand varieties of farm crops for at least five years, the writer is thoroughly convinced that the selection of proper varieties is a question of great importance in the improvement of farm crops, whether of a scientific or of a practical nature. Some varieties are particularly desirable, owing to the fact that they usually produce very heavy yields per acre, while others are desirable, owing to the fact that they are exceptionally early in maturing. Some varieties of grain produce long straw, while other varieties produce straw which is very short in its growth. Certain varieties seem very susceptible to the attacks of smut or rust, while others are almost immune. There are also great variations in the quality of the grain, in the strength of straw, and in many other respects.