It was as recently as the Washington meeting of 1922 that I had the pleasure of speaking before this Society on a subject very similar to the present. I would not have consented to appear before you at this time were it not for certain definite convictions.

First, I have a very deep conviction as to the importance of agronomy in our present and future national life.

Agronomy might by some be classified among the applied as contrasted with the pure sciences. Certainly the agronomist has a distinctly practical function to fulfill. He must apply the results of research in physics, chemistry, and biology to crop production on such a scale that, through his efforts, these theoretical sciences may have an immediate human significance.

It is the task of the agronomist to make two blades of grass grow where but one grew before, and to make sure that two blades may be grown on the same spot in the future. Thus he has his responsibility for the national prosperity of the present and for the national well-being of the future. It is his task so to increase crop production per acre that vast areas of our national domain may be withdrawn from present cultivation to serve other immediate needs and to be conserved for future agricultural production when the necessity may arise. Thus upon the persistent and successful facing of his task depends not merely the development of our agriculture, but, in some measure, the reestablishment of our forests and of our grazing lands.

Second, I have very firmly fixed convictions concerning the fruitfulness of the wider application of mathematical methods in agronomic research.

Because of the necessarily high complexity of the conditions which surround crop production under practical agriculture, and even on the plats of the experiment station grounds, the agronomist must of necessity work with the statistical method involving relatively large numbers rather than with the stringently experimental method involving highly controlled conditions.

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1Paper read as part of the symposium on "Field Experiments" at the meeting of the Society held in Chicago, Ill., Nov. 18, 1927. Contribution from the Department of Botany, University of Minnesota, Minneapolis, Minn.

2Head of Department.