ON THE PLANS OF FERTILIZER EXPERIMENTS.

P. L. GILE,
PORTO RICO EXPERIMENT STATION, MAYAGUEZ, P. R.

At the present time there are a great many field experiments conducted to determine the relative effectiveness of different fertilizers. While the objects of these experiments are similar, the plans on which they are conducted vary somewhat with different investigators. Some investigators are following the most approved methods for such tests, while others are following plans that do not yield the desired conclusions with scientific accuracy. If all the field tests of a similar nature were conducted according to the best methods, there would probably be fewer discordant conclusions regarding the effectiveness of different fertilizers.

It therefore seems that it might be expedient to adopt standard plans for certain classes of field tests with fertilizers. A standard plan for determining the effectiveness of different phosphates, for instance, should, with certain modifications, serve equally well for all localities and crops. An examination of field experiments which are designed to determine the relative effectiveness of different fertilizers furnishing the same element shows that there is in many cases need for such a standardization of plans.

Take, for instance, the Maryland\(^1\) experiment on the relative effectiveness of different phosphates. In this experiment the ten different phosphates which were compared, were all applied at the rate of \(150\) lbs. of \(P_2O_5\) per acre. Only one application of potash was made to the plots in the course of the experiment and some plots received no nitrogen at all, while other plots received only the nitrogen of a cover crop turned under. Hence no provision was made for maintaining the phosphoric acid as the limiting factor in the yield. There were no plots which had phosphates applied at a greater or less rate than \(150\) lbs. of \(P_2O_5\) per acre. It is stated that:

"The quantities of phosphoric acid applied in these tests are rather more than would be found economical in practice; but it was thought best in planning the experiment to have an excess present and so endeavor to make the results more pronounced, than to attempt to conduct the work simply on the basis of profits. The object of the investigations was to establish prin-