INTRODUCTION.

Until comparatively recently the only methods of determining the available plant nutrients in a soil were, either by means of chemical analysis, or by actual field experiments. Unfortunately neither of these methods is infallible and both have their disadvantages.

Against chemical analysis it may be argued that the chemicals used in extracting the plant nutrients from the soil do not entirely correspond to the solvent powers of the root hairs of the plant; and furthermore that the presence of Carbonate of Lime in a soil has a disturbing effect upon the determination of phosphoric acid present in the sample, thus making an estimation both difficult and uncertain (8). With field experiments on the other hand, apart from the expense, the time taken, and the fact that small differences in potash and phosphate will not be detected, unfavourable weather, disease and insects attacks are all bound to play an important part in the destinies of the experiment.

It is only within the last few years that Professor E. A. Mitscherlich, one of Germany's most eminent Agricultural Scientists, after many years of research on the laws of plant growth, has devised a method of determining the manurial requirements of plants by a series of pot cultures which for all practical purposes may be described as a fertilizer experiment in pots, whereby the Nitrogen, Phosphoric Acid and Potash requirements of a plant are determined simultaneously.

Although his method has been severely criticised, Mitscherlich has, nevertheless, met with great success in Germany, where in 1923 he founded a society known as the "Mitscherlich - Gesellschaft", and in that year ninety-three soil samples were examined. By 1929 the society had erected six pot-experimental stations (one of which was financially assisted by the Government for the requirement of the small farmer), and 2,400 soil samples were examined during the course of the year (5).

This remarkable achievement alone is proof of the authenticity of this method of soil analysis, for it is obvious from the growth of the society that the farmers have found it to be of some practical

importance. It is all the more remarkable when it is remembered that this is an expensive method. (The society originally charged £6 for each soil sample.)