With reference to the research work that has been conducted with regard to virus disease in potatoes, it has been shown that virus diseases are the main limiting factor in potato-yield. The obvious practice of the potato-grower should be to use seed that is free from virus. To advise him to do so, however, can be of no value unless he is able to secure such material, and the only way that this can be done is for the Plant Research Station to provide the initial supplies of such material. In doing this a vast amount of preliminary research work on potato-virus disease work is necessary, leading to the station itself being able to adopt methods whereby virus-free material can be produced.

The initial research work in this case is for the purpose of furthering the actual work of the Station, and is of no immediate significance to the farmer other than that it will enable the advice to be given him, "Use virus-free seed," to be finally carried out. But here again there is an intermediate step that can, and is, being taken to provide the farmer with a means to enable him to partially, at least, put the advice, "Use virus-free seed" into operation. It has been shown by a system of testing that certain potato crops of any variety have a far higher yielding-power than others, due in large part to a lessened virus-infection. Such crops are being certified to, and in this way the farmer is able to procure seed far superior to the average, which will enable him to greatly improve his potato returns until such time as the Station is able to put under a certification scheme absolutely virus-free material. This work is rather a good example of where research leads to the formulation of a farm practice that can only be put into practical application provided the Station provides all the machinery necessary for its adoption. At the present time the advice is "Use certified potato-seed," and in order that this can be done a crop-certification scheme has been put into operation, the scheme itself entailing very considerable research and necessitating strict mycological and agronomical control.

Let me now quote a third example—namely, "dry-rot" in swedes. It has been definitely shown that this disease is seed-carried, and the reasonable advice to farmers should be "Use disease-free seed." But so far we do not know enough about the diseases concerned to determine just how disease-free seed may be secured, and a whole range of investigational work is necessary before this can be accomplished. So soon as this initial work is done methods enabling farmers to follow the advice, "Use disease-free seed," can be worked out, but until that time the research that is being carried out cannot in any way be applied to the farmer. The research work of the Station can, as exemplified by these three examples, be divided into three main groups—

(1) Where results from which can be immediately applied by the farmer himself. The wheat-manurial work is an example.
(2) Where results from which cannot be applied by the farmer himself unless the means for doing so are provided. The potato-certification work is an example.
(3) Where the results are necessary as a preliminary to putting into operation research that will lead to the formulation of a system enabling the farmer to adopt the practice. The dry-rot work is an example.

As far as the farmer is concerned, he is really interested in that which comes under the scope of Nos. (1) and (2), whereas the Station itself is more interested in that coming under No. (3), inasmuch as such work is fundamentally connected with the further development of the Station, and will provide a really scientific basis for the art of crop-production so far as New Zealand is concerned.

Grassland Research.

Perhaps the most significant scientific generalization with regard to the regular grasses and clovers that go to make up our sown grassland is that each vary amongst themselves just as widely, for instance, as one variety of wheat does from another, and in order to put grassland establishment on a proper basis it is essential that as much attention should be placed on strain in grasses and clovers as it is on live-stock that are to consume the herbage. It has been shown that with regard to our major grasses and clovers—rye, cocksfoot, white and red clover—there are strains that tend to be permanent and of high leaf-production on the one hand, and other strains that tend to be non-persistent and low in leaf-production on the other hand. It is clearly essential in a grazing country such as New Zealand that the main types of grasses and clovers used should be grazing ones, but, unfortunately, such is not by any means the case, and the main grassland work of the Station is being directed to remedy this weakness. The two underlying principles of grassland-management is that efficient animals should be provided to deal with the feed produced, and efficient plants should be used to provide such feed. Both with the plant and the animal the main objective of management is efficient feeding, and the better the animal and the plant the greater will be the returns from efficient feeding.

The enormous significance of grass and clover in the economical management of pastures is hardly yet realized, but the work on perennial rye-grass is showing this out very clearly. It has been shown that the perennial rye-grass, as used in New Zealand, consists of a number of distinct types—on the one hand, of high persistency, and admirably adapted for grazing, returning high returns for their feed expenditure, and, on the other hand, of low persistency, unsuitable for grazing, and returning low returns for their feed expenditure. The majority of the so-called perennial rye-grass sold in New Zealand represents bad strains, as has been clearly shown by the hundreds of lines that have been tested by the Station. Amongst these, however, are a number that represent true perennial, and it is obvious that such seed is what the farmer should use.

Following the work that has led to the defining of the types and the testing of them out, a system of perennial rye-grass certification has been devised whereby the true perennial rye-grass seed crops can be separated from the false perennial ones, and during the year 20,000 bushels were certified to. The definite advice to all farmers who use perennial rye-grass in their mixtures is that true perennial is far superior to the false perennial so frequently sold. However, there is not nearly enough true perennial harvested for New Zealand's requirements, and it is essential that this position should be