tions have been carried out, more especially in connection with dressings for the prevention of smut. Bluestone is undoubtedly a preventive, but is often so injurious to the seed that some other remedy easily applied would be most valuable. Many a thin wheat crop is the—often unsuspected—result of bluestone pickling. Last year several specimens of injured seed wheat were received, with inquiry as to the cause, which was very evidently this practice.

Following up the experiments of Jensen, of Copenhagen, many trials of the effects of hot water have been made. These are detailed in Appendix No. 9. The field experiments were conducted on specially obtained smutty wheat. It is too often the case that suggested remedies are tried on the ordinary seed wheat of the farm, and successful results published, *i.e.*, as to absence of smut in the crop, but all farmers know that seed free from smut does not need pickling. No trial is therefore of any value unless made on wheat to which spores of the fungus are adhering. I find that the plan stated in evidence by a New South Wales farmer (see *Agricultural Gazette* of New South Wales) that dipping wheat for half a minute in water at a temperature of 160° to 170° Fahr. is a certain cure for smut and is in use in his neighbourhood is destructive of the seed. Of golden-drop wheat treated in this way only one-half grew, and much of that was weak, the radicle generally suffering. Of rough-chaff only one-third grew, whilst white tuscan was all destroyed.

Some few new plants have been grown experimentally. For instance, all the more likely varieties of sorghum have been tried, with a view of increasing our summer feed. Our climate is, however, too cold. Several varieties of American grasses have also been cultivated to the same end. Some of these show more promise. Other plants, as the newly-revived serradella, a madia, several "bee" plants have been tried on a small scale. The most valuable importation is, I think, the zig-zag clover (*Trifolium mediam*)—the true English cow-clover. This will grow on lighter lands than the ordinary red-clover, and that sown promises well. The Jersey tree-cabbage and the purple-branching broccoli were also imported, and sown with our turnip-crop, but, unfortunately, these suffered the same fate as other members of the brassica tribe, being destroyed by the cabbage-moth caterpillar.

Sugar-beet is again under trial, newly-imported seed having been kindly sent me by Mr. A. Werner, of Doyleston, who has also lately forwarded for analysis samples of beet-roots grown by several farmers in his neighbourhood. These are under examination by Mr. Gray, but, from the coarse appearance of most of the roots, I have no great expectation of the yield of sugar being larger than in roots examined in several previous years.

Our specimen grass-plats have been kept up, but much more ought to be done in the way of grazing trials, both with respect to yield, fattening qualities, and effects of grazing on various grasses. These I hope to be able to take in hand now that I have assistance on the farm. Mr. Gray has collected samples for analysis at least twice, but for want of time has been unable to proceed with the work.

The report of Mr. Gray upon the work of the chemical department is appended (see Appendix No. 1). This will show how much valuable work has been done in our chemical laboratory, and I should like to point out that this work is done in addition to teaching students both in the lecture-room and the laboratory, and that the time at Mr. Gray's disposal is altogether too short, even for the completion of analysis of manures or for the public, so that original investigation or research is perforce neglected. So great is the pressure on the little time that can be given to this analytical work, that analyses for the farm have stood over, and only that which seems most valuable to the public has been completed, leaving undone altogether at times such less important work as soil analysis. Even as it is reports are often necessarily delayed through sheer inability to spare the time for examination of the samples received.

As much misconception and ignorance exist as to the value of soil analysis, and as some people show annoyance at their request for analysis being at times declined, I have thought it desirable to write a short paper on this subject, which I append (Appendix No. 4).

The most valuable results from our chemical work are the outcome of the examination of manures. There has been a great deal of low-class manure sold at a high price, and even now a sample at times turns up, though, owing to our reports, some districts of the colony have been almost cleared of these, a good class of manure taking their place, to the great benefit of farmers. Still, so long as the farmer will listen to the prating of the seller that "results" is the test of the value of a manure, so long will he be liable to be taken in. For it is very well known to what substances increased crops are due, and therefore, though it may be that a poor manure has in a certain season and on certain land given good results, which cannot be denied, there is no doubt that a smaller quantity of a good manure, containing a like quantity of these useful substances, would have given like results at a very much lower cost. And there has been very much money thrown away on almost worthless rubbish, which might have been saved had farmers a knowledge of this subject, and were they not so easily led away by a glib tongue. I am aware that we have got into very bad odour with some manufacturers, but the annual saving to farmers has been very large, and I am prepared to show that by causing the substitution of good manures for fraudulent or poor ones we have more than saved to the colony the total cost of this institution.

A good Act of Parliament would assist in the work of sweeping away worthless or poor manures by giving legal protection to persons exposing those offering such articles for sale, and by giving the farmer a remedy against fraud. But an Act to be really useful must not unduly hamper manufacturers by imposing irritating conditions. In fact, if the farmer would buy his manure on analysis with a fixed allowance for deficiencies, he can protect himself without further legislation.

Mr. Gray speaks for himself in his report, but, in connection with this subject of manures, I would direct particular attention to some instances where analysis alone has shown great discrepancy in the value of samples of manure very similiar in appearance, and offered in the market at about the same price. And of other instances of what must be characterized as fraudulent manures, and, lastly, of cases of gross adulteration.

Take, firstly, superphosphates, Nos. 578 and 747, both English. No. 578 contains 9·3 per cent. of soluble phosphate; No. 747, 24·93 per cent., the values being £4 7s. and £8 per ton, though the