

selling prices were about alike. Look again at the Chesterfield Island guanos, and the Akaroa guanos; the values of the former range from £1 12s. 3d. to £3 16s. 4., and the latter from £1 11s. 6d. to £9 11s. per ton. Yet in the market—at any rate, in Chesterfield guanos—little difference existed in the selling price of the various samples. Next look at Nos. 681, 762, 119, 125, and 118; these are poor samples, requiring the penal clauses of an Act of Parliament to deal with them. Whilst, as for adulteration, samples of bonedust, Nos. 387, 452, 762, 774, show it in various degrees; the value of these, when compared with that of good samples, such as No. 447 or No. 682, being the best test of the extent to which farmers are at times fleeced.

I have said that good manures have, to a great extent, taken the place of the inferior ones in several districts of the colony, and this applies particularly to those manufactured in New Zealand. For instance, samples of superphosphate and of dried blood, obtained from the Belfast works, are now excellent of their kind, and, in the case of the first-named, were last year as cheap as the imported, whilst the latter is cheaper than any manure of its class that I know of. A report on the work done in the natural science department is also attached (see Appendix No. 2). This also speaks for itself with respect to the work done, and hardly needs reviewing by me.

Mr. Wilkinson's examination of seeds shows the existence at times of adulteration, of substitution, and that old and weak seed is sometimes sold. This, though I know that but few of the really bad samples of seeds on the market reach us, for obvious reasons. I would, however, direct attention to Mr. Wilkinson's observations respecting the presence of seeds of the creeping (here called the California) thistle in samples Nos. 154 and 226, both alsike clover. In one case, one of the seeds found was sown in our garden, and produced a very fine specimen of this dreaded weed. This was carefully dug up and all discoverable roots destroyed, but during the autumn I myself dug up from time to time twenty-five shoots from small pieces of root left behind after the thorough digging-out the plant had been subjected to. Few have an idea how difficult it is to get rid of this weed, and how easily it may be introduced to the land. It is evident that growers of alsike should be particularly careful that the seed purchased by them is quite free from the seed of this thistle.

The work done in the orchard in attacking the scale insect is of considerable interest, but much more requires to be done in this direction.

It will be noticed that a small apiary has been started, which should afford much information to those who care to follow up the proper treatment of the honey bee.

Certain meteorological tables that are of interest are attached to this report. Mr. Wilkinson has, at my desire, divided the observations for the last nine years into periods of four months, representing as nearly as may be—consistent with retaining the totals of each calendar year—the periods during which growth is almost stagnant; that during which it is most rapid; and, lastly, that including the months of ripening and harvest.

It is in connection with this table—my table showing the yields of grain be referred to—it will be seen that there is a close connection between yields of grain and seasons, particularly with respect to rainfall—both quantity and regularity, and also time of fall—and to temperature. Undoubtedly season affects returns more than systems of cultivation or manuring, or aught else. The number of frosts occurring during the year will probably surprise many. The rainfall of 1890—viz., 14·836in. was by far the lowest recorded here. The record of 1891, so far, is, however, anything but promising for a good season, for during the five months, March to July, there has been even less rain than during the same months of 1890—viz., 6·69in. to 8·27in. It is true that we had nearly 6in. in January and February of this year, but these summer rains hardly ever reach the subsoil, so that we have at present the prospect of having to meet even a drier time than the summer of 1890. For August is really now the only month during which we may expect rains sufficient to wet our subsoils to such a depth as would furnish moisture from below to our crops during next summer.

I have, &c.,

The Chairman, Board of Governors.

W. E. IVEY, Director.

APPENDICES.

APPENDIX No. 1.

CHEMICAL DEPARTMENT.

DEAR SIR,—

I beg to hand you herewith my report for the year ending the 30th June, 1891.

In the place of the usual *résumé* of the work done in the chemical laboratory, I have in the present instance, dealt with manures alone, since I venture to think that the information obtained when collated in this way will be of greater interest and value.

Samples of manure have been received from all parts of the colony for analysis, and the results here given fairly represent, I think, the quality of the various manures obtainable in New Zealand generally. Other results, which have accumulated from the analysis of milk, soil, &c., are reserved for future reports.

Yours, &c.,

W. E. Ivey, Esq., Director.

GEORGE GRAY, Lecturer on Chemistry.

A REVIEW OF OUR NEW ZEALAND MANURE SUPPLY.

DURING the last few years a considerable number of manures have been received from farmers and others for analysis, and it has been thought desirable to review the results obtained, so as to give a general idea as to the quality of the various manures obtainable in New Zealand.

In carrying out this work the present resources of the chemical laboratory have been fully utilised, and although the results in some cases have not been furnished as promptly as could be wished, there is reason to believe that the value of the work is fully appreciated; and several cases have occurred where the information given has been the means of checking the sale of manures of doubtful character,