Animal Nutrition.

Perhaps the most remarkable and far-reaching aspect of animal nutrition ever experienced in the Dominion's history has been brought about by the widespread adoption of the advice given by the Chief Chemist in the use of limonite for the rectification of those stock conditions associated with iron deficiency and generally known as "bush sickness." The use of finely ground high-grade limonite can now be looked upon as a standard farm practice on all known bush-sick country, and is rapidly extending to the marginal areas where the condition is present in a modified form. The treatment is so well recognized that the distribution of the material has been taken up by commercial agencies, some operating on an extensive scale. Successful treatment of iron deficiency by such simple means is proving a godsend to farmers in affected country.

Although the North Island is mainly affected, limonite has been used experimentally in the South, particularly on one localized deficiency area. The results to date are not conclusive, but nevertheless can be regarded as most encouraging.

In connection with animal nutrition, a great deal of analytical work has been carried out during the year on pasture plants from different localities and under varying manurial treatments. Detailed accounts of this work will be found in individual appended reports.

Use of Artificial Fertilizers.

The usage of artificial fertilizers in the maintenance of pastures continues to give some anxiety for the future. As indicated in my 1931–32 report, the position appeared to be improving following the subsidizing of superphosphate manufacture with a corresponding drop in cost to farmers. It is significant of the narrow margin of working capital under farmers' control that the failure in recovery of the price trend of dairy produce in November, 1932, was followed by a marked falling-off in the use of fertilizers, despite the continuance of the Government subsidy. Fortunately, climatic conditions were favourable to grass growth and no serious effects are noticeable in the present stock-feed position, but should less favourable conditions be experienced during the ensuing season, depletion of fertility may be expected to make itself manifest. The figures for artificial fertilizers for all purposes delivered during the period January–June for the past five years are as follows:—

	Tons.	Decrease from 1929. Tons.
1929	228,000	..
1930	212,000	16,000
1931	152,000	76,000
1932	222,000	6,000
1933	137,000	91,000

The drastic reduction portrayed becomes even more significant when it is remembered that dairy cows have increased from 1,371,063 in January, 1929, to approximately 1,840,000 in January, 1933. Thus the effective use of fertilizer per cow has fallen greatly, and the continued increase in production noted this season can only be accounted for by improved pastures, improved cows, and improved farm management generally, all of which reflect the policy adopted by the Department in improving pasture strains, in the dissemination of knowledge generally, and in its encouragement of herd testing.

Noxious Weeds Control.

The major activity in noxious weeds control has been the Department's co-operation with the Unemployment Board in the using of unemployed men to combat ragwort. Sodium chlorate still proves to be the efficacious control specific, but its use has several disadvantages. Its high price when purchased in small quantities limits its application, the records for a number of years indicating that 400 tons per annum is the limit likely to be reached for some time to come, whereas 1,000 tons could be used each year to advantage. The possibility of ignition, particularly when clothes become impregnated with the compound, does to some extent constitute a danger where care is not exercised. The practice of certain persons using sodium chlorate as an ingredient for home-made explosives is also to be deprecated. It may be mentioned that the Department has instituted inquiries calculated to encourage research work on the manufacture of an equally efficacious chemical compound without its disadvantages, and work is also being undertaken to this end in our own laboratories.