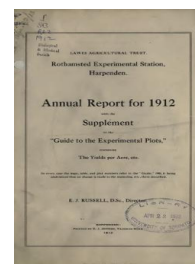


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Annual Report for 1912 With the Supplement to the Guide to the Experimental Plots Containing the Yields per Acre, Etc.



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Introduction

Rothamsted Research

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INTRODUCTION

John Bennet Lawes was the founder of the Rothamsted Experimental Station. He began experiments with various manurial substances, first with plants in pots and then in the field, soon after entering into possession of the estate at Rothamsted in 1834. In 1843 more systematic field experiments were begun, and the services of Joseph Henry Gilbert were obtained as Director, thus starting the long association which only terminated with the death of Lawes in 1900, followed by that of Gilbert in 1901.

The Rothamsted Experimental Station has never been connected with any external organisation, but has been maintained entirely at the cost of the late Sir John Lawes. In 1889 he constituted a Trust for the continuance of the investigations, setting apart for that purpose the Laboratory (which had been built by public subscription, and presented to him in 1855), certain areas of land on which the experimental plots were situated, and £100,000.

By the provision of the Trust Deed the management is entrusted to a Committee nominated by the Royal Society (four persons), the Royal Agricultural Society (two persons), the Chemical and Linnean Societies (one each), and the owner of Rothamsted.

Mr. A. D. Hall was appointed Director in 1902 and held the position till 1912. He brought about great developments, re-organising the work, increasing the staff, and considerably extending the buildings and laboratories. In 1906 Mr. J. F. Mason, M.P., presented the Committee with £1,000 for the building and equipment of the "James Mason" Bacteriological Laboratory, together with a grant towards its maintenance. In 1907 the Goldsmiths' Company made a grant of £10,000, the income of which is devoted exclusively to the investigation of the soil. The Permanent Nitrate Committee have also made a grant of £2,000 to the endowment. The Society for extending the Rothamsted Experiments, founded in 1904, has also collected donations amounting to £3,400 and annual subscriptions of over £130. This Society was in 1909 incorporated under the Board of Trade, thus giving it the power to hold money in trust for the purposes of the Rothamsted Experiments.

During the year 1911 a scheme was published from the Board of Agriculture for the encouragement of agricultural research with funds provided by the Development Commission, and this scheme established or assisted a certain number of institutes for fundamental research, each dealing with one great branch of the subject. The Rothamsted Experimental Station is recognised as the Institute for dealing with Soil and Plant Nutrition problems. In accordance with this scheme a grant of £2,500 was made for the current year, and it is expected that an annual grant of this amount will be made to the Station in future. Certain scholarships have also been instituted to provide the training in research work for men who have already qualified in pure science and are desirous of taking up an agricultural career. The holders of three of these scholarships are now doing their work at Rothamsted.

In addition, investigators from other institutions periodically spend a certain amount of time in the laboratories studying analytical methods or ways of getting over difficulties that have arisen

in the course of their work. These developments have necessitated a considerable extension of the Laboratory and of the farm. For this purpose a grant of £3,000 was promised by the Board of Agriculture out of the Development Fund on condition that an equal sum was provided by the Committee, and this amount has been raised by the Society for Extending the Rothamsted Experiments. 230 acres of land have been taken on a 77 years' lease which, together with the Trust land, give a self-contained farm capable of being worked with great advantage to the experiments. The new Laboratories will shortly be ready for occupation.

The condition of the old Laboratory, however, gives cause for considerable anxiety. It was built in 1855 and some years ago began to reveal certain structural defects. The Committee are advised that it may not last much longer, and as it is in any case not well suited for modern requirements, some definite action will soon have to be taken.

The field experiments, which began in 1843, have on some of the plots been continued without break or alteration up to the present day; on the Broadbalk Wheat Field certain rearrangements were made in 1852, in which year also the Barley experiments on the Hoos Field began. The leguminous crops on the Hoos Field were started in 1848, the experiments on Roots have been continued on the same field since 1843, and on the same plan since 1856. The grass plots began in 1856, and the rotation experiments in 1848.

It is impossible to exaggerate the importance of continuing the experimental plots at Rothamsted without any change, as nowhere else in the world do such data exist for studying the effect of season and manuring upon the yield and quality of the crop, and for watching the progressive changes which are going on in the soil. Year by year these plots are found to throw light upon new problems in Agricultural Science; in all directions they continue to provide material for investigations upon points which were not contemplated in the original design of the experiments, so that it is impossible to foresee when and how they will not become useful and provide indispensable material for the solution of problems undreamt of at the present time.

The maintenance, however, of the old data throws a heavy burden on the Experimental Station. There are 210 plots, and every year 243 samples have to be taken with proper precautions and put into store for future reference. In addition there are made 486 determinations of dry matter, 243 of ash, 170 of nitrogen, 50 of phosphoric acid, and 24 of potash, also 180 determinations of nitrates, etc., in rain and drainage waters, and 17 botanical analyses of hay. This does not include examinations of soils, the complete grass separations, and other extensive series of determinations which are made at longer intervals. All the above determinations, however, are part of the necessary routine which must be completed before any new investigations can be undertaken.

It should be remembered that the object of the Rothamsted Experiments is to ascertain "how the plant grows," and only indirectly to find the most paying method of manuring; hence neither the nature nor the quantities of material applied are to be taken as indicating the manures which should be used in practice.