ROTHAMSTED RESEARCH

Rothamsted Report for 1938

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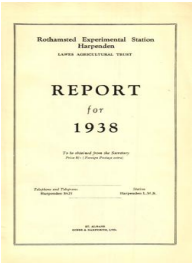

Grassland

Rothamsted Research

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Malaya, Ceylon and elsewhere. They have the great merit of giving results of known validity, so that the magnitude of the experimental error can be estimated, and in consequence the experimenter knows how much importance attaches to each figure in his results. Dr. W. B. Haines in 1927 gave up his post at Rothamsted to carry out experiments on the growth of rubber in Malaya, remaining in close association, however, with the chemical and statistical departments. His work has already had a marked effect in showing how the rubber trees should be manured. Dr. H. J. Page, formerly head of our Chemical Department, has accepted the Directorship of the Rubber Research Institute in Malaya, thus ensuring close touch between their workers and ours. A visit by Dr. Crowther in 1938 still further strengthened the connections. Dr. T. Eden left Rothamsted in 1927 for the Tea Research Institute in Ceylon and by suitably applying the new field plot technique has succeeded in obtaining valuable information about the manuring of tea which the older methods never could have given, in view of the difficulties such as steeply sloping ground, etc. All the important sugar cane experiments in India are laid out on the modern lines discussed in our laboratories with Dr. Vaidyanathan and others responsible for their performance. This use of Rothamsted methods and of Rothamsted results has led to invitations to members of the staff to visit overseas countries for purposes of discussion with the experts there : during 1938 the Director was invited to Australia and Ceylon ; Dr. Crowther was invited to plan experiments on the manuring of oil palm and to visit West Africa as expert attached to the Leverhulme Commission ; Mr. Cochran was invited to the United States to lecture on the recent application of statistical methods to agricultural problems : in addition Dr. Mann went to New Zealand. Quite apart from the many advantages of rendering service to the large planting organisations operating overseas, but centred in England, and of returning courtesies to the United States and European Universities and experiment stations which are invariably willing to help us—apart from all this the Rothamsted work gains enormously by these visits : the methods and results are criticised by really competent experts and new ideas emerge. In all scientific work, and especially in agricultural science, it is the new idea that counts : and whether it was acquired in Africa, America, or at home is of secondary importance.

THE LESSON FOR THE BRITISH FARMER

One impression comes out very definitely from these overseas visits. Farmers in every exporting country are casting longing eyes on the English market, and their expert advisors are doing their best to help them secure a place. English farmers can keep their position only by maintaining a high standard of efficiency, for it is certain that no protection would long be given to an inefficient industry.

GRASSLAND

Numerous experiments are made on grassland. For some years these were chiefly concerned with basic slag and were carried out under the aegis of the Basic Slag Committee of the Ministry of

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Agriculture, but this has unfortunately come to an end with the setting up of the Land Fertility Committee. Although much remains to be done there is at present no research work on basic slag. The present grassland experiments are concerned with the effect of fertilisers on the yield and botanical composition of hay (studied in the Botanical Department) and with the effect of cake fed to grazing animals on the feeding value of pasture land.

The Cropping of Ploughed-up Grassland

An investigation of special interest has been begun to study various ways of rapidly converting grassland into arable land with a view to the fullest utilisation of its stored-up fertility.

During the period that the land has lain in grass it has accumulated fertility and this is liberated when the land is ploughed up. A field experiment of special interest has been started to find how best the fertility can be utilised : several different first crops are being tried. Considerable work is being done on another problem of particular importance, while it was in grass the land accumulated not only fertility but usually also accumulated insect pests, especially wire worms, which may do great damage, sometimes almost ruining the first crop. The possibility of controlling wire worms by soil insecticides has been under investigation since January, 1934, by Major W. R. S. Ladell, but he left in April, 1938 to take the post of Agronomist and Soil Chemist to the West India Sugar Company, Jamaica ; the work was then continued by Messrs. P. S. Milne and H. G. Gough. The problem is difficult but not by any means hopeless.

CONTINUOUS WHEAT GROWING

The wheat consumption of the United Kingdom is about 6½ million tons per annum, of which about 1½ million tons are produced at home and the rest is imported. The need for ensuring that the home production shall not fall below its present level has led to the adoption of certain financial devices, and the possibility that a higher home production might be needed has opened up certain technical problems.

Increased wheat production could be brought about in two ways : by more frequent growth of wheat on existing arable land, and by ploughing grassland and sowing it with wheat. For various reasons the former is the easier. Valuable information on this subject is furnished by the Broadbalk wheat field at Rothamsted on which wheat has been grown for nearly 100 years ; its history is very instructive. The field has long been arable land : it appears so on the estate map of 1620 when it had the same boundaries as now, though it was called Sheepcote field and not Broadbalk. Its soil is heavy but it never had much reputation for fertility and at the outset of the experiments it yielded about 20 bushels of wheat per acre. In 1839 it was given a dressing of farmyard manure for the turnip crop : this was succeeded in 1840 by barley, in 1841 by peas, in 1842 by wheat and 1843 oats ; then in October, 1843, the field was sown with wheat, and it has been cropped with wheat each year ever since : the ninety-fifth successive crop was harvested in August,

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