

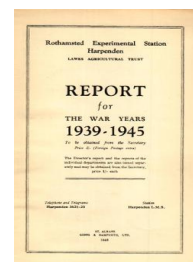
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ROTHAMSTED  
RESEARCH

## Report for 1939-45

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## The Work of the Station in War-time

### Rothamsted Research

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for the war, it seems certain that the target of £125,000 would have been reached. With the coming of the war, however, the appeal was discontinued, and the Rothamsted Centenary Fund was closed in 1939 when nearly £67,000 had been received or promised. With this sum, which included £15,000 from the Ministry of Agriculture for the South Wing and for spectrographic equipment, excellent accommodation has been provided for the departments of Chemistry, Biochemistry, Physics and Microbiology, pot-culture houses have been built and farm buildings reconstructed. The latter are now ideal for their purpose, having modern electrical equipment and spacious barns in which the experimental crops can be stored and threshed during the winter months. Unfortunately the projects for improving the accommodation of other scientific departments, re-housing our unique agricultural library, and providing administrative offices and an Assembly Hall, have had to be postponed. Lack of accommodation is hindering the development of the Station's work and has led to the necessity of refusing to accept some of the voluntary workers from other countries. It is, in fact, proving difficult to find room for workers training for our own and the Colonial agricultural research services.

There is also an urgent need for providing more farm cottages, improving the lay-out at the back and front of the laboratories, and re-making the road to the farm.

#### THE WORK OF THE STATION IN WAR-TIME

As was to be expected the war had a marked effect on the work of Rothamsted. The field work of the classical and the more important of the other experiments, particularly the long-term ones, was continued. Much of the laboratory work had to be allowed to fall into arrears and many investigations had to be postponed in order that *ad hoc* problems, immediately connected with increased food production, might be undertaken.

Most members of the staff were engaged in various forms of war work and consequently were reserved, nevertheless 14 entered H.M. Forces and we regret to record that two—Jack Olver (Fleet Air Arm), assistant in the Chemistry Department, and John Williams (R.A.F.), assistant in the Insecticides Department—were reported missing. A few members were seconded for scientific work elsewhere, but most of the staff carried on their war duties at Rothamsted.

Between 1938 and 1945 the total number of workers, including voluntary workers, assistant staff, farm workers and the Woburn staff, increased from 143 to 219.

Among those who left us were Dr. J. Henderson Smith, who resigned in 1940 after 21 years at Rothamsted, the last eight as head of the Plant Pathology Department, and Miss Mary S. Aslin, who resigned in 1942 after 23 years' service as librarian.

It is with regret that we record the death during the early war years of two heads of departments—Mr. E. H. Richards, head of the Fermentation Department, who died in 1939, and Mr. D. Ward Cutler, head of the General Microbiology Department, who died in 1941. Both of these workers had been on the staff since 1919.

In 1940 an Agricultural Research Council Unit dealing with

soil metabolism was set up at Rothamsted under Dr. J. H. Quastel, F.R.S. This Unit was transferred to the University College of South Wales, Cardiff, at the end of 1945.

The Bee Section has been made a separate department recently under Dr. Butler, and a new Pedology Department has been established, in 1945, under Dr. A. Muir. Arrangements have also been completed for the setting up of a separate Biochemical Department, and for the appointment of a Colonial Soils Adviser.

The following is a brief review of the main lines of work : more detailed accounts are given by the heads of the various departments.

#### SOILS AND CROP NUTRITION

Much of the soil work consisted of short-term investigations which could be regarded as "operational research" in the food-production campaign. These investigations, however, have had more than a short-term value for they have supplied much information which will be of value in long-range soil-fertility investigations. Amongst the problems set us by the war were : how to maintain or increase production and at the same time practise a rigid economy in the use of fertilisers, and how to handle to the best advantage the large area of old pasture land which had to be broken up.

A statistical examination by E. M. Crowther and F. Yates of the results of all the recorded field experiments made during this century in Britain and various European countries revealed the average fertiliser needs of different farm crops. This threw light on problems of fertiliser imports and showed how the supplies could be most efficiently distributed. It was of great value in formulating the war-time fertiliser policy.

As in the past, much of the soil-fertility work was a combination of field experiments and laboratory investigations. In addition to those on the Rothamsted and Woburn farms, many experiments were carried out on commercial farms in different parts of the country.

A good many of the special war-time investigations were done on behalf of the Agricultural Research Council, the Ministry of Agriculture and the Ministry of Supply, and in collaboration with the staffs of other research institutes and with the advisory chemists.

The sugar-beet manuring trials begun in 1933 were continued, and it was clearly shown that the outstanding requirements of this crop are nitrogen and sodium. It was demonstrated that sodium acts as a direct plant food and the application of 5 cwt. of common salt produced, on an average, about 5 cwt. of extra sugar. As a result of these experiments the manuring of sugar beet has been put on a more satisfactory basis. As well as throwing light on the manuring of sugar beet these experiments have proved useful in developing and improving methods of soil analysis for advisory work.

A considerable amount of work done on the manuring of flax showed that this crop is relatively unresponsive to fertilisers and should be manured like barley.

Investigations on organic manures have also been a feature of the war-time programme, and an attempt has been made to assess the physical as well as the manurial effects. The materials studied included farmyard manure, sewage sludge, straw and various