ROTHAMSTED RESEARCH

# Report for 1937

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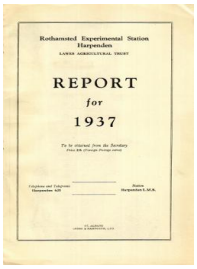


## Problems Before the Research Station

### Rothamsted Research

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# REPORT FOR 1937

## THE PROBLEMS BEFORE THE RESEARCH STATIONS

The main outlines of the problem before the agricultural research stations are clear and incontestible. Since 1919 the area of arable land in England and Wales has fallen by 3.2 million acres, while the grassland has increased only by 1.3 million acres : the total loss of agricultural land has, therefore, been 1.9 million acres. Since 1914 the loss has been even greater, amounting to 2.3 million acres. The growth of the towns is responsible for only about 20 per cent. of this loss : most of it represents simply reversion to rough grazing. The figures are shown in Table 1.

TABLE I

*England and Wales : thousand acres*

| | 1914 | 1919 | 1936 | Loss or gain between 1919 and 1936 |
|---|---|---|---|---|
| Arable land .. .. | 10,998 | 12,309 | 9,120 | 3,189 loss |
| Grass land .. .. | 16,115 | 14,439 | 15,743 | 1,304 gain |
| Total cultivated area .. | 27,113 | 26,748 | 24,863 | 1,885 loss |
| Rough grazings .. .. | 3,782 | 4,121 | 5,433 | 1,312 gain |
| Forest .. .. .. | 1,884 | 1,884 (1) | 2,000 (2) | 116 gain |
| Other purposes (towns, villages, roads, etc.) .. | 4,357 | 4,383 | 4,837 | 454 gain |
| Total land area .. .. | 37,136 | 37,136 | 37,133 | |

(1) 1924 Census.
(2) 3,200 thousands for Great Britain, an increase of 200 thousands since 1924.

Simultaneously there has been a fall in the numbers of workers on the land. From 1921 to 1936 the fall has amounted to nearly a quarter of a million, all told, for England and Wales :—

| | Regular men and boys thousands | Total workers, including women and casuals thousands |
|---|---|---|
| 1921 .. .. .. | 612 | 869 |
| 1936 .. .. .. | 502 | 641 |
| Fall .. .. .. | 110 | 228 |

Only about 40 per cent. of our food is produced at home, the amount varies, however, for the different foods. The proportion of home production and importation of the different foods in the United Kingdom is as follows :—

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| | Percentage | | |
|---|---|---|---|
| | Home-produced | Imported | |
| | 1935 | 1935 | 1936 |
| Butter .. .. .. | 10 | 90 | 91 |
| Wheat .. .. .. | 26 | 74 | 77 |
| Cheese .. .. .. | 30 | 70 | 71 |
| Sugar .. .. .. | 30 | 70 | 52 |
| *Meat*— | | | |
| Beef and Veal .. | 52 | 48 | 48 |
| Mutton and lamb .. | 43 | 57 | 56 |
| Pork and bacon .. | 50 | 50 | 48 |
| Eggs .. .. .. | 66 | 34 | 38 |
| Poultry(1) .. .. | 76 | 24 | 25 |
| Potatoes .. .. | 96 | 4 | 6 |
| Liquid milk .. .. | 100 | — | — |

[1]Great Britain

It is not safe to count on a continuation of importation of the kind that we have had hitherto. Much of our imported food was produced under conditions of prairie farming and ranching which are now passing. A new farming will no doubt arise in these countries but neither quantities nor prices of the products can be foretold, and the wisest policy is undoubtedly to do as much as we can towards feeding ourselves.

For a good deal of the home production the farmer is dependent on materials such as fertilizers and feeding stuffs supplied from outside.

In face of this shrinking area of land and diminishing number of workers how is the farmer to maintain and if possible increase his output of food? And even more important, what can be done to stop the shrinkage?

There are various possible remedies, social, economic and technical, but the line adopted at the experimental stations is to seek means whereby the efficiency of the farmer and of the worker can be increased so that he may with the same expenditure of time and energy produce more food. Thus can higher wages be afforded for the worker and a better standard of life for the countryman. Greater efficiency turns in the end on greater knowledge of the materials and of the conditions necessary for their most successful use, and it is this knowledge that experimental stations try to obtain.

The redeeming feature of what would otherwise be an entirely depressing situation is that the value of the agricultural output is well maintained in spite of the smaller number of acres and of men: calculated on the pre-war price basis the value of the output was £141.7 millions in 1925 for 803 thousand workers, and £170.7 millions in 1936 for 641 thousand workers. These are gross values, not net values, but nevertheless they indicate an increasing efficiency of production. But these figures give no ground for complacency: there still remains the vital need for increasing still further the output and efficiency of the worker: only in this way can an economic basis be found for measures to stop the drift to the town.

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The part played by Rothamsted in the organised effort to improve agriculture is the study of soil and crop production. The work necessitates a competent staff, good laboratories, experimental fields, and as the essential bridge between them, the pot culture house.

Provision for the fields was made in 1934 when the agricultura part of the Rothamsted estate was purchased by the Station : this part of the problem can now be regarded as solved.

The next step has been the improvement of the laboratories, especially the Chemical and Bacteriological laboratories which for some years past have been unsuitable for their work and very overcrowded. The Bacteriological laboratory was erected in 1906, and the subject has changed so much since that date as to necessitate a completely different design and equipment. The Chemical laboratory was built in 1913 and 1914 and here also the developments of the subject demand an entirely different design. Plans have been drawn up by Mr. Michael Tapper and new laboratories are to be erected at a cost of £30,000. Towards this the Ministry of Agriculture has made a first contribution of £14,500 and a request has already gone forward for the rounding off of the sum by the addition of another £500. The other £15,000 has to be raised by the Station.

An even more important matter, however, has been the subject of preliminary discussion by the Committee. In 1943 the Station will complete its Centenary and it is proposed to celebrate the event by putting all its buildings and equipment in thorough order, providing much needed extensions, and adding sufficient to the endowment to provide for maintenance of fabric and provision for salary augmentations or Fellowships. The total sum required will be £125,000, and the appeal for the £15,000 needed for the new laboratories will constitute the first part of the Centenary Fund Appeal. Inasmuch as the Finance Acts allow of deduction of Income Tax from subscriptions to the Fund, provided they are made in the prescribed manner and spread over at least seven years, it is not intended to wait until 1943 before raising the fund but to begin in the autumn of 1938 so as to allow the necessary spread-over for those who prefer to subscribe in this particular way.

The work of the Station has continued on substantially the same lines as in the last preceding years. The experiments with crops have been made not only at Rothamsted and at Woburn but also on a number of ordinary commercial farms typical of considerable areas of land. Similar designs are used at a series of centres and they are such that the errors of the experiment can be estimated. Thus a strict comparison can be made between the results obtained in the different places, and the fullest possible information can be extracted from the experiments.

In the last two Reports extended summaries have been given of some of the investigations. These will not be repeated here : only the new results will be given, or summaries that have not yet been presented.

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