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# Report for 1948

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Rothamsted Experimental Station
Harpenden

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# The Farms : Rothamsted

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# THE FARMS

By J. R. Moffatt

## Rothamsted

The year 1947–48 has brought no major changes in policy, staff or buildings, and has been a period of settling down under post-war farming conditions.

The acreage farmed was reduced to 474¾ acres by relinquishing 26 acres of rented grazing land (for sports grounds) and also 5 acres of rented arable, although an extra 2½ acres of grassland were taken in. The main arable crops were wheat (95 acres), barley (58 acres), oats (16 acres), potatoes (34 acres). Other crops included linseed, sugar beet, beans, peas, rye, mangolds, and kale. The area of permanent grassland was 103 acres, most of which was either under long-term experiments or was unploughable because of tree stumps. 86 acres were under temporary leys. The only big difference between 1947 and 1948 cropping was that the proportionate areas under wheat and barley were reversed.

The number of experimental field plots decreased from 1479 in 1947 to 1412, which proved almost as many as could be handled successfully under the bad harvesting conditions. One bean experiment was destroyed by birds, and the severe attack of fleabeetle on the linseed reduced the value of one experiment as the late-sown plots were destroyed. The main factor limiting the number of corn plots is the bottle-neck caused at harvest by all winter and spring sown cereals and pulses needing to be harvested within a short space of time, but when a small combine harvest suitable for use on small experimental plots is available, it may be possible to raise the limit. With root crops, the limiting factor is the labour available for singling. For some years past much of this work has been done by labour gangs from the Agricultural Executive Committee, but since the repatriation of the German prisoners-of-war, this source is likely to dry up, and may result in a reduction in the acreage of root crops which can be handled.

Details of the field experiments are given in the report of the Field Plots Committee.

The severe drought experienced during the summer of 1947 continued until early December of that year, and it was not until the middle of that month that moisture reached ploughing depths. Land work in the autumn was pushed ahead as far as the hard dry conditions allowed. The drilling of the winter corn, which had to be delayed because of the very dry state of the ground, was completed early in November. Eleven acres were sown to winter beans, but birds destroyed the whole area on which the beans were drilled, but did little damage where the seed was ploughed in. In the latter half of December and throughout January, 1948, the rainfall was heavy. Very few frosts occurred during the winter, and none of any severity, and the mean temperature for January was 4° F. above the average.

Weather conditions during spring were very favourable to farm work; the rainfall for February, March, and April was well below average, while the mean temperatures were well above. Land

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operations started on March 2nd, much earlier than usual, and continued almost uninterrupted until all sowings were completed. Good seedbeds were obtained reasonably easily, and the seeds germinated rapidly and evenly.

The very mild weather caused fleabeetles to become active far earlier than usual and their attacks persisted throughout the latter half of April and all of May. Severe damage was done to several crops; the first sowing of kale was completely destroyed and the second only survived after repeated dustings with benzene hexachloride; the first sowing of mangolds in Barnfield was so badly damaged, despite repeated dusting, that the whole area had to be resown; the sugar beet, which was sown early under good conditions, was severely attacked, and although several dustings saved the crop. growth was severely retarded and the singling stage was not reached until later than usual. The linseed was also badly attacked, and although repeated dustings saved the main area, the experiment comparing early and late sowings was spoilt as the beetles concentrated on the late-sown plots and destroyed most of the plants.

Wireworm damage, although not severe except on one field where an experiment was carried out to control the pest, was much more widespread than usual. Preliminary reports on the experiment indicate that seed dressing against wireworm may become a practical possibility within the next few years.

The season was a favourable one for the growth of weeds. The early preparation of the seed beds and the warm spring encouraged a widespread germination of weed seeds, while the moist weather in May and June enabled them to grow fast and compete strongly with the crops. The hoes had to be kept going continuously, as many of the hoed weeds took root again in the moist soil. Many of the cereal crops were sprayed against weeds, and gang labour was employed to side-hoe the root crops. On Broadbalk field the infestation of weeds was the worst for many years, but the permanent barley plots on Hoosfield provided a happy contrast, the corn being so much cleaner than usual that the annual spraying operation was not needed. Wild oats seem to be spreading from the permanent wheat and barley plots over much of the farm, and on one wheat field the infestation was particularly severe.

The rainfall during the latter half of May and throughout June and early July was heavy, and temperatures were below average. The cereal crops, sugar beet and potatoes grew vigorously under these conditions and looked very promising. Cereal crops became longer in the straw than usual, which led to some lodging before the end of July, while ripening was delayed by the dull cool weather during that month.

The weather conditions at the start of harvest were atrocious, and the work was very seriously delayed. The heavy rainfall early in August caused many areas of barley to become badly lodged, but fortunately most of the wheat and oats remained standing. Moulds formed very rapidly on the wheat ears, and what at one time promised to be an excellent harvest degenerated into a rush to harvest as much as possible before too much deterioration took place. Fortunately the weather improved in September, and enabled all the experimental corn plots and most of the non-

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experimental corn to be carted in fairly good condition and stored in the Dutch barns. Only a few outside stacks were built, and these were threshed soon after harvest was completed. Yields of the major crops were as follows: wheat, 24 cwt. per acre, barley, 26 cwt. per acre, and oats, 19 cwt. per acre.

The wet weather in early August caused Late Blight to appear on the potatoes, and despite spraying against the disease and burning off the tops with sulphuric acid before lifting, some lesions appeared on the tubers when they were lifted. The Scotch A seed used was disappointing in that many of the tubers were affected by Dry Rot, which caused several blanks in the rows. The harvesting of the crop was spread over a longer period than usual because of the heavy yield and the short hours worked by the school children who did most of the picking, but fortunately the weather remained reasonably good. The tubers were large, but of good shape with few blemishes. The yield from the non-experimental areas was estimated at about 14 tons per acre, but the highest individual plot yield was 23·8 tons per acre, with a percentage ware of 94·2. Lifting was completed in the last week of October and as usual the crop was stored in heaps to a depth of 12–14 ft. within straw bale walls under the Dutch barns. It was very difficult to dispose of the crop, but fortunately they stored very well, and most of them were eventually sold to the Ministry of Food. The two main non-experimental areas were granted an English H seed certificate, and some of the crop will be planted in 1949 at Rothamsted and Woburn.

The protracted potato harvest delayed the preparation of the winter corn seed beds, and the lifting of the mangold and sugar beet crops. In the past few years, labour for both these operations has been supplied by the County Agricultural Executive Committee, but in 1948 this labour was no longer available. These operations therefore took longer than usual, as they had to be carried out mainly by the regular staff. Fortunately the weather remained open and the mangolds were harvested without being damaged by frost. The lifting of the sugar beet was not finished until just before Christmas, as the damp conditions made the roots difficult to clean and the land sticky. Yields were well above average, the best individual plot treatment yielding over 20 tons of beet per acre.

### Grassland

The weather throughout the year was very suitable for grassland. Growth started early and was maintained throughout the year, and extra cattle were needed to keep the grass properly grazed. Hay-making was a very tedious operation, for in the dull, cold weather of June and early July the hay remained at the same stage for days on end, but it was all carted by mid-July. Yields were well above average and the quality was quite fair.

The grazing experiment in High Field comparing the manurial value of feeding stuffs with the conventional estimate of their value applied as fertilizers was concluded in the autumn of 1948.

### Implements

The main acquisition during the year was a small 5 ft. cut combine harvester which was used during the 1948 harvest for the first time. It proved very satisfactory, tackling the laid crops of

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barley very well and considerably reducing the losses due to shed grain. It could only be worked for a limited period because of the damp conditions and the lack of a grain drier. The machine was tested out for harvesting experimental plots, but did not prove satisfactory for this work.

A few other implements were purchased to replace similar old equipment.

### Buildings

No additions or alterations were made to the buildings at the farmstead, but six new cottages for the farm workers were completed. The new concrete road between the farm and the laboratory was also completed during the year.

### Livestock

*Cattle.* The shortage of grass during 1947 reduced the number of cattle which could be fattened from the grass that year. Most of those left were brought under cover during the winter of 1947–48 and kept on hay and barley straw with a small supplement of concentrated foods. They were fattened on the grass during the summer and autumn, and an extra bunch of Irish beasts were purchased in the late spring and finished on the grass. By September 30th, 1948, some 40 beasts had been sold fat, and in that autumn they were replaced by another bunch of Irish cattle. Another 25 cattle are almost ready, and will be sold before the end of the year.

*Sheep.* Because of the high cost of Scottish Halfbred gimmers, no additional breeding sheep were purchased, although some of the best of the home-bred ewe lambs were saved for breeding. The flock is therefore now rather mixed, consisting of 75 Halfbred ewes, 6 Hampshire ewes, 34 home-bred ewes (Oxford x Halfbred) and 65 ewe lambs of the 1947 crop, of which about 30 had lambs by a Suffolk ram. All except ewe lambs were mated to Oxford rams for the production of fat lambs. The lambing percentage was 131, rather lower than usual, but the abundance of grass enabled the ewes to milk well and their lambs made good progress throughout the season.

### Feeding stuffs

The farm has again been independent of purchased feeding stuffs except for those foods allotted to us in return for sugar beet and linseed sold off the farm, and molasses for feeding with straw.

The year on the farm can on the whole be regarded as satisfactory, although what promised to be a bumper corn harvest was partly spoilt by bad weather just before the harvest. For all other crops the season was a good one once the initial difficulties caused by pest damage and weed competition were overcome.

## Woburn

This account of the year's activities covers the second year in which the direction and management of the Rothamsted and Woburn Farms was merged. Many of the objectives of the first year of merged direction were thwarted by the very abnormal weather conditions in that year, but changes in cropping, manuring