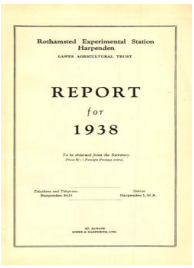
This work is licensed under a Creative Commons Attribution 4.0 International License.

Thank you for using eradoc, a platform to publish electronic copies of the Rothamsted Documents. Your requested document has been scanned from original documents. If you find this document is not readible, or you suspect there are some problems, please let us know and we will correct that.

ROTHAMSTED RESEARCH

Rothamsted Report for 1938

Full Table of Content



Farm Report, 1938

Rothamsted Research

Rothamsted Research (1939) *Farm Report, 1938 ;* Rothamsted Report For 1938, pp 61 - 68 **- DOI: https://doi.org/10.23637/ERADOC-1-86**

This work is licensed under a Creative Commons Attribution 4.0 International License.

Potato

Virus. Leaf Drop Streak was fairly common at Woburn on Butt Furlong field.

Blight (*Phytophthora infestans* (Mont.) de Bary) was observed as slight on the Four-course experiment on Hoosfield in August.

FARM REPORT, 1938

Weather

The outstanding weather feature of the year 1937-38 was the severe drought during the spring and summer months. The total rainfall for the year was only 20.084 inches compared with last year's total of 35.859 inches and the 85-year average of 28.710 inches. Ten of the twelve months had rainfall below the average, and the six months April to September only had 8.144 inches compared with the average of 14.029 inches. The winter was generally mild and there were only two frosts of any severity. Mean temperatures were slightly above average. There was an extremely warm and sunny spell in March, but the total sunshine for the year was below normal.

Weather and Crops

Conditions from late autumn to early spring were generally favourable to farm work, and all root crops were gathered under good conditions. The land which was ploughed by the end of 1937 worked down well in spring and good seed beds were obtained early for the spring cereals. Owing to the absence of frosts the late ploughed land was difficult to work down. The continuous dry weather soon slowed down growth of all corn crops and towards the end of May most crops were turning yellow. However the little rain which fell at the end of May brought about an immediate change in the corn and bean crops. These started to grow rapidly and changed to a darker and more uniform colour. The continuation of the drought did not appear to affect the corn crops after this, and yields were exceptionally high. Although the weather conditions gave rise to excellent yields of grain, the straw yields were not correspondingly high, and in many experiments the yield of grain was higher than the yield of straw.

The root crop areas which were worked down early produced good seed beds, but those that were not worked down by the middle of March dried out into hard unworkable lumps, and good seed beds were difficult to obtain. Yields of beet were rather poor, but the weight of the tops was in most cases up to average and was well above the weight of roots. Sugar percentages were low.

The dry weather during the summer enabled the weeds to be kept under control easily. The germination of seedlings was slow and they were far less numerous than usual. The stubbles were far cleaner than usual, and as these had been softened by storms during harvest they were in good condition for working. Advantage was taken of this and all stubbles were cleaned either by shallow ploughing or cultivating, followed by several harrowings.

https://doi.org/10.23637/ERADOC-1-86

This work is licensed under a Creative Commons Attribution 4.0 International License.

The experiment on newly-ploughed-up grassland, to determine the best crop to utilise the stored-up fertility, could not be commenced, although some of the preliminary work was carried out. The ground during the summer was far too hard for ploughing, and by the time the ground was soft enough the season was too far advanced to expect reasonable autumn sown crops. The ploughing will now be done in the late winter of 1939, and the autumn-sown crops will be replaced by the same crops to be sown in the spring.

Classical Experiments

Broadbalk was ploughed in September, only the one ploughing being given. Drilling took place rather later than usual as we waited for rain before commencing this operation. The wheat looked exceptionally well throughout the year, and at harvest every plot was standing well. This is the first occasion for many years that all plots were standing at harvest. Some of the plots ripened earlier than others so the cutting was done at two different times. There was some bird damage both before cutting and while in the stooks, but the damage was not so severe as in past years. Sections I and II of the dunged plots contained a lot of wild oats but otherwise the field was much cleaner than usual.

The wheat plant on Hoosfield Halfacre was rather thin, but the straw was long and the ears of good size. Before harvest the crop looked better than it had for many years. There was no sign of wireworms or wheat bulb fly damage.

Hoosfield barley plots worked down to a nice seedbed, and sowing was done in late February under excellent conditions. The plant looked well early, but late frosts and lack of rain caused a slight setback. However, the barley grew away later, and at harvest was an excellent crop with all plots standing.

In Agdell field the clover looked a nice even plant in autumn, but much was killed off during the winter by *Sclerotinia*. However a fair plant remained, the plot which received full manuring for the root break looking poorest. Very little growth took place until late in May but then growth started fairly quickly after rain. The plot receiving mineral manures only stood out as having the best plant and making the greatest growth.

Barnfield was ploughed rather late, and considering the few frosts there were, the land worked down quite well. All seedbed preparations were done when the soil was dry, and the land was ready for sowing by the end of March. Sowing was postponed in the hope of rain, but as none had fallen by early May drilling was done. The plant came through rather slowly but a good thick plant was finally established. Singling was difficult owing to the hard state of the ground. Fair growth was maintained throughout the season and yields were almost up to average. Weeds were kept under control easily as the dry weather retarded their germination and growth.

Modern Long-Term Experiments

Four Course Rotation. The wheat was sown under good conditions and came through nicely, though it became a little patchy

https://doi.org/10.23637/ERADOC-1-86

This work is licensed under a Creative Commons Attribution 4.0 International License.

later. The crop evened out before harvest and though the straw was short the yields of grain were very good. The barley was sown in a fair seedbed but much of the seed was taken by birds shortly after drilling. The crop looked rather gappy and uneven, and throughout the year was the most backward barley on the farm. However, yields were up to average, the grain yield being above the straw yield. The ryegrass was sown late and germination was extremely slow. Only a thin plant was established and subsequent growth was slow. A little growth of flowering heads took place in May but there was no bottom grass, and yields were very low. The wheat stubble for potatoes was ploughed across the usual way, and the second ploughing was done across these furrows. The land worked down quite well but the sets were planted rather late. The crop looked poor throughout the season and yields were low.

Six-Course Rotation. The clover stubble was ploughed early to give a bastard fallow before the wheat crop. The wheat looked well throughout the season and had a remarkably dark colour. Grain yields were well above average but straw yields were low. The mustard catch crop between the rye and sugar beet made very little growth. The seedbed for beet worked down well, but sowing was delayed in the hope of rain. The yield of roots and the sugar content were low and there was more weight of tops than of roots. The clover plant was thick and even, and looked well in spring. However growth during the summer was very slow and the crop was not cut until the end of June. The wheat stubble was ploughed early so that a second ploughing for potatoes could be made later. The rye crop to be ploughed in as green manure was omitted this year so that better tilth could be obtained for potatoes. A good tilth was obtained and the crop looked well throughout the season. Yields were about average despite the dry season. Barley and rye was drilled under good conditions and good growth was maintained throughout the season. Yields of grain were well above average but straw yields were low, there being more weight of grain than of straw in the barley crop.

Three-Course Rotation. (Straw and Adco.) The green manure crops were omitted this year for the first time. In past years these crops were ploughed in shortly before sowing, and as the last ploughing prevented much weathering action on the soil good seedbeds were difficult to obtain. This year instead of ploughing each break as it was cleared, the ploughing was delayed until the whole area was cleared and then the ploughing was done across the usual direction of ploughing. This will be the procedure adopted in future years. All three breaks were partly worked down together in early spring, and good tilths were obtained for barley and potatoes. These crops did very well throughout the season and gave excellent yields. The sugar beet break was not worked down to the final seedbed until much later, and by this time the soil had dried out. The plant had a poor start and there were many gaps. Growth throughout the season was slow but yields were lower than were estimated owing to the high proportion of tops.

Three-Course Rotation. (Cultivation.) This experiment was slightly modified this year. Each of the three methods of cultivating the ground was done at the most suitable time, and not all

https://doi.org/10.23637/ERADOC-1-86

This work is licensed under a Creative Commons Attribution 4.0 International License.

at the same time as hitherto. The usual shallow ploughing of the wheat stubble was attempted but had to be abandoned. On some plots the plough sank in deep and on others it would not enter the soil. The area was therefore cultivated both ways and the rubbish pulled out was carted off. Ploughing for mangolds was done in the winter, and the cultivator was used twice in late winter. The rotary cultivation was delayed until mid-May as the ground was too hard for the Simar. Germination and growth were very slow, and weeds were thick in the rotary cultivated plot. Yields were very poor. For wheat the ploughing and tine cultivation were done earlier than usual, and the tine cultivation was repeated shortly before drilling. The rotary cultivation was done just prior to seeding. Much of the seed was taken by birds, and throughout the season the plant looked poor, thin and weedy. The rotary and tine cultivated plots were most weedy, the ploughed plots standing out as better, taller and thicker plants with fewer weeds. On the barley break the eastern row of plots came through badly and they would have been redrilled had rain come. The ploughed plots seemed the most damaged. The western row of plots came through fairly well, but at harvest both ears and straw were short. The eastern row remained thin and backward and ripened late. Over the whole break the rotary cultivated plots seemed most forward throughout the season and they ripened earlier. This is borne out in yields, though the yields of grain and straw were low.

Annual Experiments

Wheat after different Leys. The crop looked well throughout the season and plot differences were soon noticeable. The plots after the ryegrass ley were noticably more backward and yellow. All plots yielded well, the best treatments yielding up to 64 bushels per acre.

Kale. The experiment testing town refuse with sulphate of ammonia and dung was only slightly attacked by flea beetle and a good plant was left. Growth was maintained until late in the season.

The first sowing of the experiment testing various forms of organic manure was destroyed by flea beetles, but the second sowing survived. Growth was slow but the discoloration of the plant noticed last year on this experiment did not re-appear.

Sugar Beet. The land was ploughed early but the ground dried out before a tilth was obtained, and sowing was therefore delayed. Sowing finally took place on a rather rough tilth but a fair plant came through. An even plant was left after singling, which grew until late in the season. There was good growth of tops but roots were rather small and fangy. The roots averaged nearly 9 tons per acre of washed beet, while tops averaged 15 tons per acre. The sugar content was low (average 15.6%) but bolters were almost entirely absent.

Potatoes. The land was ploughed rather late but worked down to quite a good tilth. The plants came through well and good growth was maintained despite the drought. The crop was not

https://doi.org/10.23637/ERADOC-1-86

This work is licensed under a Creative Commons Attribution 4.0 International License.

sprayed but only a few of the tubers were blighted. Yields were good, the best treatments yielding up to 15 tons per acre with an average of 12½ tons per acre, and the proportion of ware was high.

Clover. The plant in Great Harpenden field was rather thin but was spread evenly over the whole area. Little growth was made until late May and then the crop grew fairly fast. The ground became well covered and there were very few weeds. Cutting was delayed until early July, and a fair cut was obtained.

Non-experimental Cropping, 1937-8

The non-experimental corn crops were affected by the spring drought but the rain which fell at the end of May brought about an immediate change in the crops. The crops looked well during the remainder of the season and only one field was lodged. The yields were higher than were expected as the straw was generally rather short, the oat straw being especially short. The wheat averaged 54 bushels per acre, the barley 64 bushels per acre and the spring oats 74 bushels per acre. All crops except the oats were threshed and sold before the end of September.

The winter beans which were ploughed in with dung in Great Harpenden field looked well forward and clean until July, but the crop was then attacked by bean aphis. The beans were too tall to allow spraying and the attack ran its course, but the yield was reduced by about half. The part of the field under spring beans did poorly as the drought severely retarded growth. The aphis first attacked the spring beans and spread from them to the winter crop.

Little Hoos field was ploughed up late after folded kale and was too hard to work down until the middle of May. It was drilled on May 23rd with Abed Kenia barley, a quick growing variety with a stiff straw. Growth was rapid for the first few weeks but then slowed down, and had stopped completely by early July. Although the plants were only 6 inches to 8 inches high they showed signs of coming into ear, and the crop was therefore folded off with sheep for which there was no other keep.

The kale plant on the various fields was attacked by flea-beetle which severely thinned the plant. However, enough was left to warrant leaving the crop and heavy doses of sulphate of ammonia were given to hasten growth. Part of the plant on Foster's field was completely destroyed and had to be re-sown. Growth during the autumn was rapid but much was destroyed by frosts and pigeons during the very cold spell late in 1938. The heavy doses of sulphate of ammonia appeared to make the kale more susceptible to damage by frost. Long Hoos VII which had received 20 tons of compost per acre in addition to nitrogen gave the best yield.

The non-experimental potato land worked down quite well and growth throughout the summer was good. The rain which fell in August kept the haulms green longer than usual, and lifting was delayed by rain early in October. Yields were quite good and only the King Edward VII variety was attacked to any appreciable extent by late blight. Selling prices throughout the winter were very low.

https://doi.org/10.23637/ERADOC-1-86

This work is licensed under a Creative Commons Attribution 4.0 International License.

High Field Grazing Experiment

This experiment is designed to compare the manurial value of feeding stuffs fed to stock on grassland with the conventional estimates of the manurial value of the cake, applied as fertilisers. The arrangement is described on page 25 of the 1937 Station Report. The season 1937 was used to develop technique and to conduct a uniformity trial on all the plots, while the 1938 season was the first in which experimental treatments were given.

Before grazing commenced two extra strands of wire were added to the fences to make them completely stockproof, and eight cages were put on each plot so that samples of the herbage for botanical analysis could be taken later in the season.

The plots were grazed from the end of April until mid-June, the rate of stocking being adjusted on each plot to suit the growth of grass. During this period 828 lbs. each of flaked maize and undecorticated cotton cake was fed on each "cake" plot. The stock was removed owing to shortage of grass. All plots remained empty until mid August and were then grazed with varying densities of stock until October 4th when the plots were cleared for the season. During the second grazing period 1,650 lbs. of each flaked maize and decorticated groundnut cake was fed on each "cake" plot. In order to get the amount of cake fed close to the amount which would be fed in a year with a normal growth of grass, the two "cake" plots were grazed more heavily than the grass warranted.

The stock used this season were forward blue-grey bullocks on the plots receiving cake, and blue-grey heifers on the other plots. The sheep used were Halfbred ewe tegs.

Estate Work

The badly overhanging trees around Appletree field have been severely lopped and trimmed.

A new automatic electric water pump has been installed at the well, and has been suitably housed. There is a pressure tank at ground level which has enabled us to dispense with the two unsightly water towers. Water has been laid on from the farm to the two cottages on the Redbourn Road.

The foundation of the Roman Temple and surrounding wall near the buildings have been built up in cement to prevent disintegration, and the surrounding area has been levelled off.

Grassland

The grass remained very green throughout the winter but very little early growth was made. Most of the fields were harrowed in the spring. The most serious effect of the drought was on the grassland. There was no flush of grass in the spring, and during the summer the grass made but very little growth. Full winter rations, including hay, were fed to cattle into May, and ewes with lambs had to be fed until the end of May, four weeks longer than usual. Owing to the shortage of grass no fields were shut for hay and none of the fields required topping as the stock ate the flowering heads. However the mower was put over most fields to cut thistles. There was

https://doi.org/10.23637/ERADOC-1-86

This work is licensed under a Creative Commons Attribution 4.0 International License.

no grass or aftermath for the lambs after weaning so they were folded on a late sown crop of barley which had stopped growing. The grassland remained bare until late September but rapid growth then took place. The fields were more green in October than at any time during the summer.

Livestock

Horses. Two horses have been disposed of owing to advancing age, and two useful young horses have been bought to replace them. There are now three teams, all fairly young horses: two of the teams are Suffolks and the third team are crossbred horses which are only worked together at busy periods.

Cattle. The Kerry heifers which were bulled to calve in the spring of 1938 were out-wintered, and received only poor quality hay, but they remained in fair condition. They calved down early in the summer and did their calves quite well on the little grass they had. The heifers were bulled again to calve in the spring of 1939. The calves were weaned early in November into a field with a covered shelter, but during the rough weather late in 1938 they were brought into covered yards. They were turned out at the end of March, 1939, and their food was gradually stopped. Between weaning and turning out they received an average of 4 lb. per head per day of a concentrate ration in addition to hay. They were sold early in May and fetched £13 5s. 0d. each.

The Blue-Grey heifers from the High Field grazing experiment were taken over by the farm when they came off the plots.

Sheep. Owing to the large number of lambs sold by October 1st, 1937 (217 had been sold) we had rather more kale than was needed for winter keep, so 90 store tegs were purchased and fattened off on the kale with the remainder of our own tegs. All were sold by early February before prices dropped.

For the 1938 lamb crop Hampshire rams were used on the Halfbred ewes. Hay and beet tops were fed until January and then the ewes were folded on kale each day. Lambing started at the end of February and concentrate feeding was commenced as the ewes went into the lambing field. Weather conditions during lambing were almost ideal, and both ewes and lambs did well. Of nearly 250 ewes lambed only 3 died through lambing. The final lambing figure for the Halfbred ewes was 157 per cent. 216 of the 1938 lamb crop had been sold by the end of September, but prices were very much lower than in past years.

The Suffolk ewes purchased in the autumn of 1937 were sold after rearing their lambs. The ewes were rather disappointing in that their lambs were very small and their lambing percentage was only 120. The ewes seemed more liable to foot trouble than did the Halfbreds, and they did not appear suitable to our conditions and requirements.

Pigs. During the early winter months the old cow standings and old manure shed were converted into farrowing pens, and the litters reared in them did far better than did those in the piggery.

https://doi.org/10.23637/ERADOC-1-86

This work is licensed under a Creative Commons Attribution 4.0 International License.

The fattening pigs did fairly well during the summer and sales for the year totalled 297. Owing to the unsatisfactory housing conditions it was decided to disperse the herd, and all the sows were sold. The fattening pigs were kept on until most of them had reached bacon weight. A new herd will be started immediately new housing is provided.

Shows. No entries were made at any of the Agricultural Shows during the year. At the Redbourn Agricultural Competitions C. Mepham and F. Stokes were both placed for their horse ploughing, and they secured first and second places respectively for turnout, Mepham also being reserve champion for the best turnout in the field.

Staff. A. F. Howell, the farm recorder, left in September, 1938, and G. W. Wilcock was appointed to the post.

Implements

The following implements have been presented or loaned to the farm by the manufacturers. The firms to whom we are indebted are as follows :

Allen & Simmonds, Ltd.	Motor hoe.
Bamfords, Ltd.	Hay machinery.
E. H. Bentall & Co., Ltd.	Cake breaker.
Blackstone & Co., Ltd.	Swathe turner.
Cooch & Sons.	Potato sorter.
Cooper, McDougall & Robertson, Ltd.	Sheep dipper.
Cooper, Pegler & Co., Ltd.	Spraying machinery.
The Cooper-Stewart Engineering Co., Ltd.	Sheep shearing machine.
Dunlop Rubber Co., Ltd.	Rubber wheels.
R. G. Garvie & Sons.	Grass seed broadcaster.
General Electric Co.	Electric motors.
Harrison, McGregor & Co., Ltd.	Root pulper, manure distributor.
R. A. Lister & Co., Ltd.	Oil engine, sheep shearing machine.
Parmiter & Sons, Ltd.	Rake and harrows.
Ransomes, Sims & Jefferies, Ltd.	Ploughs, cultivators, grass rejuvenator.
J. Wallace & Sons, Ltd.	Manure sower, potato planter.
J. Wilder.	Pitch-pole harrows.
W. A. Wood & Co., Ltd.	Mower, spring tine harrows.
The Harvest Saver & Implement Co.	Prime Electrical Fence.

https://doi.org/10.23637/ERADOC-1-86