ROTHAMSTED RESEARCH

Report for 1953

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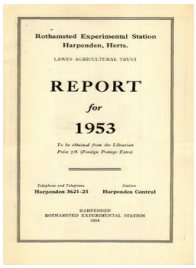

The Farms : Rothamsted

J. R. Moffatt

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THE FARMS

J. R. MOFFATT

Rothamsted

The year 1952–53 was generally a very satisfactory one. Weather conditions, which always play a major part in the success or failure of a farming year, were very variable, and rather extreme. Despite this, the weather generally favoured farming operations this year, as crops were sown in good time, growth was continuous throughout the year and most of the crops were harvested satisfactorily. The major exception to this was the hay crop, much of which was spoilt by adverse conditions.

The very wet and hard weather in the autumn of 1952 gave the year a bad start, as less wheat was drilled than had been planned, and the winter ploughing was very considerably delayed. The germination of the winter wheat was severely retarded by the early onset of wintry weather, and hungry flocks of rooks and pigeons preyed on the seed. Two fields of wheat were so badly damaged that they had to be resown in spring.

A very welcome spell of fine weather occurred during the latter half of January 1953 and the early part of February, during which the ground dried out well. This enabled the ploughing to be finished and some fields to be ploughed a second time, while others were given a preliminary working for spring corn seedbeds.

The two weeks in the middle of February brought a return of wintry conditions, with frosts and falls of snow, but from the third week of February to the last week of March the weather was very dry. Fortunately the ground dried out fairly slowly, and so did not become harsh, and suitable seedbeds were obtained without any difficulty. Some 100 acres of spring corn were drilled and manured by mid-March. There was a large number of sharp night frosts, which, although not interfering with field work, must have retarded germination and growth of crops and grass.

The preparation of seedbeds for the root crops following immediately. Sugar beet was drilled under good conditions before the end of March, and potato planting was also well under way by the end of the month. Mangolds were sown early in April.

Growth of all crops was satisfactory during April and early May, but the milder weather in the latter part of May greatly accelerated growth. June was a month of cold, unsettled weather, with very little sunshine. Crop growth was retarded, but the warmer wet weather during July enabled good growth to be maintained. Unfortunately the wet weather, interspersed with thunderstorms, caused serious lodging of some of the corn. Weeds tended to flourish under these conditions, and became difficult to control.

The weather during the first half of August was generally fine and warm, and good progress was made with the corn harvest, which, however, started later than usual. Changeable conditions during the latter half of the month delayed these operations, but a fine spell during early September enabled the harvest to be completed early in that month. Unsettled conditions in the latter half

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of the month delayed the start of potato lifting until early October, but then a spell of almost three weeks' dry weather enabled the crop to be lifted under almost ideal conditions. The experimental crops of winter corn were sown during this fine spell, and autumn ploughing made excellent progress. Heavy rain towards the end of the month delayed the drilling of non-experimental winter corn, but the mild and fairly dry weather in November enabled this work to be completed in good time.

The very mild weather persisted throughout November and December, and although the rainfall was small, it was spread over seventeen days in November and twenty days in December. The harvesting of the mangolds and sugar beet was done under good conditions and was completed early in December. The land continued to work well throughout these two months, and the work was well up to schedule. The mild conditions encouraged the growth of weed seedlings, and several fields were ploughed a second time before the end of the year.

Field Experiments

The number of experimental field plots at Rothamsted in 1953 showed a considerable increase over the previous year. Altogether there were about 3,000 plots, of which about 600 were microplots. A small number of plots did not have to be harvested, and some work was carried out by members of the scientific staff. However, as usual, the resources of the farm were strained, and long hours of work had to be put in by the farm staff at critical periods to enable the large programme to be carried through successfully. The experiments embraced most farm crops, and an account of them is given in the report of the Field Experiments Section.

Crops

Wheat

Some 85 acres of this crop were grown, of which about 27 acres were under experiments. Squareheads Master 13/4 was grown on the Classical experiments and on some long-term experiments, and Yeoman was grown on the more recent long-term experiments. On the non-experimental fields Cappelle replaced Nord Desprez as the main winter wheat, though a small area of the latter variety was grown, while Atle held pride of place as the spring wheat. No lodging occurred with the French wheats, and only patches of the Atle were laid. There was little evidence of damage by wheat bulb fly, except after the fallow section of Broadbalk. Although threshing is not yet completed, indications are that yields will be above average. The wild oats which were a serious menace on Broadbalk field a few years ago were further reduced in numbers by hand pulling, and the infestation is no longer serious.

Barley

Plumage Archer was grown only on experimental plots and blanket areas. This variety has been completely replaced on non-experimental areas by Herta and Proctor. The former has been grown very successfully for several years, and its strength of straw and high yielding capacity make it very suitable to our conditions.

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However, its poor malting quality will probably result in its replacement by Proctor, which although of somewhat weaker straw and lower yielding capacity, has a much higher market value. Under the rather exceptional weather conditions of this year the Herta grown on some of the richer land was badly laid, although it stood well under more normal conditions. The Proctor yielded over 34 cwt./acre, and though it was leaning at harvest, no real lodging occurred.

Hoosfield, the Classical barley field, was so badly infested with wild oats that the whole area was cut and carted off before the oats ripened. This procedure will probably have to be adopted for some years in order to clean up the field, as the infestation is too severe to be dealt with by hand pulling.

Oats

The Dutch variety Marne was the only one grown in 1953. The crop looked very forward during the early summer, but unfortunately became badly lodged during July. Although losses from shedding were severe, the yield was high, and averaged about 33 cwt./acre.

Beans

The area under this crop was restricted to experimental plots. The season was remarkably suitable for beans, and both winter and spring strains yielded extremely well. There was no aphis attack, but weeds, especially mayweed, made rapid growth during the wet weather in July, when the crop was too high for inter-row cultivations.

Potatoes

The area under this crop was reduced from over 40 acres in 1952 to 27 acres this year, because of the difficulty of getting seasonal labour for lifting. The variety grown was Majestic, Stock seed being used on experimental plots and Class A seed on the non-experimental areas. All operations were mechanized, no hand labour at all being used, except for lifting.

The crop maintained good growth throughout the season. Late blight appeared towards the end of July, and two preventive sprayings were carried out, mostly at low volumes. The haulm was burnt off with acid, except for a small area where a mechanical haulm destructor was used. This proved unsatisfactory on our very stony ground. Lifting was done mainly by schoolchildren, and heavy yields were obtained. The crop was lifted under almost ideal conditions, and is stored under cover at the farmstead. Owing to the glutted market very few have been sold so far.

Sugar beet, fodder beet and mangolds

The area of each of these crops was restricted to experimental requirements, as the labour force available was unable to cope with the heavy demands at singling and lifting times. Sowing took place early under good conditions, and good growth was maintained throughout their life after an initial attack by flea beetles had been checked by spraying with DDT emulsion. The rapid growth of weeds presented a problem in the wet weather, but the crops were

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kept reasonably clean. There were more bolters than usual in the sugar beet, and there was a fairly severe attack by the mangold fly on all three crops, which, however, grew away from the attack just as control measures were being considered. Harvesting was done under good conditions, and yields were well above average. The roots were of good size and shape.

Kale

A small area of Marrow-stem kale was grown for cutting and carting to cattle in yards, and Thousand-head was grown for folding by sheep. Although the crop was sown early under good conditions, at attack of flea beetles developed, but one spraying at low volume with an emulsion of DDT prevented any severe check or damage. Weeds were troublesome in the early stages, but were soon smothered by the rapidly growing crop. The crop is a very heavy one.

Grassland

The rather cold spring somewhat retarded the early growth of the grassland, but subsequent growth was very rapid, and the land remained productive until about the end of the year. No supplementary feeding was given to the livestock until sugar-beet tops were fed early in December.

The heavy rainfall and lack of sunshine during June and July made haymaking a very difficult and protracted operation. Cutting, making and carting were all delayed and interrupted by the weather, and the quality of the resulting hay was adversely affected. Some which was cut in late July appears to be the best quality. The hay was all baled, and is stored under Dutch barns at the farmstead.

Livestock

Cattle

There were a number of Aberdeen Angus and Hereford crossbred cattle in hand at the beginning of the year which could not be fattened in 1952 because of the shortage of grass. These were overwintered, some outside and some in yards, and were fattened, together with some younger Hereford-cross cattle, on the grass during the summer and autumn of 1953. Altogether fifty-nine beasts were sold, all without supplementary feeding.

In view of the apparent preference of butchers for light-boned cattle, it has been decided to fatten some crossbred Devon beasts, and to this end some forty young animals were purchased in the autumn. Twenty Hereford-cross cattle were also purchased, and both bunches will be fattened on the grass in 1954.

Sheep

The small and rather mixed flock of sheep were mated in the autumn of 1952 to Suffolk rams to lamb in late March and April. They produced 112 lambs at tailing time, giving a lambing percentage of 147. Some of the lambs were sold fat, but most of them have been retained for use on the grazing experiments at Rothamsted and Woburn in 1954. In the autumn of 1953 the whole breeding

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flock was disposed of, and was replaced by eighty Scotch Half-bred gimmers. These were mated to Suffolk tups to lamb 1954, and the progeny will be kept for use on grazing experiments.

Machinery

New machinery purchases were mainly restricted to items replacing out-moded equipment, and to duplicating some equipment in great demand at peak periods of work. Such items include the replacement of a small wheeled tractor by a diesel-engined one fitted with an hydraulic lift, and the exchange of a vaporizing-oil tractor for a diesel-engined model. This gives a total of three of one make, for which there is a range of implements for direct mounting. A third combined seed and fertilizer drill and a drill suitable for drilling beans deeply were also purchased.

The mounted two-furrow reversible plough purchased in 1951 is being used to an increasing extent each year. Not only does it save time and fuel on the operation, but it leaves the land free from ridges and furrows, which are a severe handicap when laying out experimental plots. Once the fields have been ploughed by the reversible plough it seems a retrogade step ever to revert to the ridge-and-furrow method. Therefore a single-furrow reversible plough was purchased for the lighter tractors, and it is planned to standardize on the heavy tractors so that they can all take the mounted reversible ploughs.

The trials of the standard pusher-type combine harvester for harvesting experimental corn crops which were started in 1952 were continued in 1953. The results were again very encouraging, and a new 10-ft self-propelled machine fitted with a diesel engine has been ordered for the 1954 harvest.

The old road weighbridge used by horses and carts for weighing the produce of the Classical plots is being replaced by a new 20-ton dial machine suitable for tractors and trailers.

A full-time mechanic has been engaged to repair and maintain the equipment. Workshop facilities have been extended, and a gas welding plant has been purchased.

The wetter harvesting conditons of 1953 made it necessary to dry more grain than in 1952. Comparable figures for the fifty-hole platform drier for the two years are as follows :

	1952	1953
Quantity of grain dried	22 tons	60 tons
Average % moisture extracted	4·1	4·3
Units of electricity per cwt. dried	4·2	5·0
Units of electricity per 1% moisture extraction (per cwt.)	1·02	1·14

Buildings

No new building work has been undertaken, though some modifications to existing buildings have been made.

Plans are being considered for the bulk handling and storage of grain either in covered bins or in bins in existing buildings. The adaptation of part of the old stables to other uses is under consideration.

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Estate Work

General estate duties, including hedging and fencing, were carried out during the year. Owing to the large amount of time taken in hedging, it is hoped to purchase a mechanical hedge trimmer in the near future. Several old post-and-wire hedges were renewed during the year. The woodlands were cleared of dead and dying trees, which have been sawn up for use on the farm.

Staff

Mr. S. Meyler has been appointed Deputy Farm Manager, and commenced his duties in April 1953.

Woburn

The work of the Woburn Farm was carried out under the direction and management of the staff of the Rothamsted Farm.

The year, although by no means an easy one, can be considered a satisfactory one, in that the result of several years' endeavours showed up in very satisfactory crops on the experiments and on the non-experimental parts of the farm. The attention paid to hedges, ditches and fences over recent years not only greatly improved the appearance of the farm, but resulted in a general improvement in the crops.

Of the 127 acres farmed, 60 acres were under cereal crops, 18 acres under potatoes and 33 acres under grassland of varying age. The remaining acreage was under various experimental crops, with a small fallow area.

The experimental field work was restricted to the Classical wheat and barley plots and the modern long-term experiments, except for some microplot experiments. In all there were 550 plots, of which 104 were micro-plots.

The year started off badly, as the adverse weather conditions in the late autumn of 1952 resulted in the wheat being sown rather late. Germination was delayed by the early onset of wintry conditions, and rooks and pheasants very seriously damaged the crop just as it was emerging. About 25 acres of wheat, fortunately all non-experimental, were almost completely destroyed, and had to be ploughed up. A small experimental area of spring cabbage on the Market Garden Experiment was so badly damaged by pigeons that it had to be scrapped, and two isolated areas of winter cabbage were also badly damaged.

Weather conditions improved considerably in the latter half of January, and the fine spell lasted well into February. During this period farmyard manure was applied to the potato crop, and several of the fields were ploughed a second time. After another short spell of bad weather a four-week spell of fine, dry weather enabled land work to continue without a check. Twenty-four acres of light land were given a dressing of 3 tons/acre of ground carbonate before sowing to Herta barley, and Atle spring wheat was sown on those areas where winter wheat was destroyed.

The preparation seedbeds for root crops followed, and good tilths were readily obtained. Sugar beet and early potatoes were

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