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Report for 1964

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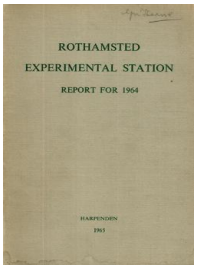

The Farms : Woburn

J. R. Moffatt

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Equipment

The tanker-combine adapted by the suppliers in 1963 for quick conversion to a bagger for harvesting plots was so successful that a second machine was similarly adapted in 1964.

A two-row potato planter able to carry and plant chitted "seed" was fitted with a machine to apply granular systemic insecticides at time of planting.

A double-knifed mower with a p.t.o. extension for a crimper is now used on grass for hay. A 4-in.-row general-purpose seed drill is used for sowing grass seeds and some cereal experiments.

A light, high-clearance, narrow-wheeled tractor was fitted with a sprayer specially designed for use on plots. The boom has stop cocks that alter the effective width to suit plots of different widths. Five polythene containers mounted on the front of the tractor permit small amounts of different materials to be sprayed with little waste, and the minimum loss of time in filling.

Irrigation plant. An irrigation plant has been installed to supply water over a large part of the farm; it will be used for both experimental and non-experimental crops.

Water is pumped from a 300-ft borehole at 5,000 gal/h into a 150,000-gal reservoir, from where it is pumped into a 5-in. underground main, of which there is about 1⅓ miles with several take-off points. Four-inch portable aluminium mains carry the water to most parts of the farm. Two acres can be irrigated at any one time using sprinklers which can apply 1 in. of water in 4 hours.

Oscillating spray-line equipment is used for experiments involving irrigation.

WOBURN

Spring work started early, and most crops were sown in good time under satisfactory conditions. A very wet June delayed haymaking, but later, in good weather, excellent hay was made; there was then a long dry period until mid-November. Each of the last 6 months had less rain than usual, and the yearly total of 17·9 in. was 6·8 in. less than usual. Hours of sunshine were slightly fewer than average. Winter wheat did exceptionally well, but barley was rather disappointing. The weather at harvest was good, and very little corn needed drying. Potatoes and sugar beet suffered from the drought and yielded less than usual; the dry and warm weather during lifting made the work easy, but the soil was very hard and dry. Autumn ploughing and drilling was delayed by the hard ground, but all field work was completed by the end of the year.

The autumn of 1963 was very wet, but winter wheat was drilled early. December, January and February each had less than 1 in. of rain; in a spell of frosty weather in January dung was spread and ploughed in for sugar beet, and all ploughing was finished. In early February most of the heavy land was worked for spring corn, but little drilling was done. The early

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part of March was dry, and by the middle of the month all cereals and spring beans, except one area where drilling was purposely delayed, had been drilled under excellent conditions. The fine spell broke on 13 March, and there was 3·19 in. of rain during the month.

Good weather in early April favoured field work, but then another very wet spell delayed potato planting and the sowing of small seeds. The weather improved in May, when there was 1·12 in. rain in 12 days, about half the average, and all planting was finished.

There was heavy rain in the first 3 weeks of June, and the total for the month was 3·34 in., almost twice the average. This severely curtailed field work and damaged the grass for hay, but root crops grew well. The weather was fine in the last week of June, and this continued throughout July, in which month there was only 0·92 in. of rain spread over 8 days, and haymaking was quickly finished. The dry weather brought a rapid change in the appearance of crops; the corn turned colour fast, the sugar beet wilted on the hot days, and at the end of July potatoes began to turn yellow.

August and September were dry, the 2 months giving only 1·92 in. compared with the average of 4·36. Grain harvest started on 18 August and finished on 5 September and very little needed to be dried. Conditions were also ideal for harvesting beans and potatoes, and the work was finished on 2 October. Sugar beet suffered from drought throughout September.

Only 0·91 in. of rain fell in October, mainly as light drizzle which did little to soften the land. Sugar beet were lifted in unusually good conditions, and the rye and most of the winter wheat was drilled, the wheat seedbeds after potatoes being prepared by a heavy cultivator. The dry weather delayed the ploughing of a ley on the heavy land, and when this was done the ground was too rough to work down. Several areas were sprayed with aminotriazole against couch grass, though the dry conditions were not really suitable for this. Throughout this dry period the new seeds leys remained green and productive.

November was mainly dry and mild, except for a few wet days in the middle of the month. Field work went ahead with very little interruption, and the rough ground after the seeds ley was worked and drilled with wheat.

The damp and mainly mild weather lasted well into December. Dung was carted and ploughed in, and all other ploughing was finished. Some of the ground broke up so much during ploughing that it was too fine for over-wintering, and was made more rough by a deep cultivator.

By the end of the year field work was as far ahead as it could be.

Field Experiments

There were 1,470 full-scale field plots, 331 more than in 1963, and there were also several hundred microplots. The full programme was completed, but two barley experiments were affected by "scorch" and take-all, and the whole of one, and part of another, was abandoned, leaving 1,350 plots harvested. A few barley plots were lodged, but in the dry weather they were

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combine-harvested without difficulty. Potato and sugar-beet plots were lifted easily and quickly.

Cropping

Of the 172 acres farmed, 20 carried wheat, 41 barley, 18 potatoes, 10 beans and 8 sugar beet. There were small areas of rye, lucerne, sainfoin, carrots and other market-garden crops. There were 42 acres of temporary grasses and clovers, and 15 acres of permanent grass.

As potato-root eelworm (*Heterodera rostochiensis*) is widespread, main-crop potatoes are not grown more than once in 6 years. Sugar beet is the alternative root crop, though beans are grown on the heavy land and some temporary leys are grown.

In spring several acres of very uneven old grassland in three fields acquired in 1962 were levelled by bulldozer. The rest of two of these fields was rotary cultivated shallow, one was sown direct to a long-term ley and the other to a short-term ley of Italian ryegrass. The third field was planted late with potatoes. Two other old grass fields, unsuitable for arable crops, were rotary cultivated and resown direct.

Crops

Wheat. The Cappelle wheat sown in October and early November 1963 grew well in the autumn; spring and summer growth was good, and it was the best wheat grown at Woburn for many years. It turned colour quickly at the end of July and ripened evenly by mid-August. An experiment comparing broadcasting seed with rows spaced at 4 in. and 7 in. gave an average yield of 50 cwt/acre; the 4-in. spacing yielded rather more than the 7-in. or the broadcasting. Over the whole farm the Cappelle averaged about 35 cwt/acre.

Barley. Maris Badger replaced Proctor in all experiments and most non-experimental areas, but some Proctor was grown. Barley usually does well at Woburn, but was disappointing this year. Drilling was done under good conditions in the first half of March. In early summer the crop was patchy and uneven in both colour and growth, but evened out later; take-all was widespread, and severe in places. The barley variety trial and the row-spacing experiment alongside were badly affected by "scorch" and take-all; the variety experiment and 2 blocks of the row-spacing experiment were abandoned. Lodging was widespread and patchy, but severe only on the plots in the Ley–Arable experiment given much nitrogen. On the Green Manuring rotation the barley after barley was much better than barley after sugar beet. The average yield of about 30 cwt/acre was more than the appearance of the crop suggested.

Beans. Spring beans were grown without fertiliser on the Permanent Wheat and Barley land in Stackyard field, and on one of the heavy fields with phosphate and potash. On the Long-term liming experiment birds did much damage, and the experiment was redrilled with spring beans without

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fertiliser. Row spacing was 10½ in. and weeds were controlled by simazine. On the Permanent Wheat and Barley area the crop grew slowly, was short and ripened unevenly. The average yield was about 15 cwt/acre. The crop on the Long-term liming experiment was also short and probably affected by the residue of simazine on the site, but on the heavy field beans grew well and maintained a good colour until late July. There were some late aphids, but, as the crop was too tall to spray, only a half-boom width was sprayed on the windward side of the non-experimental crop on the heavy land. The yield was about 25 cwt/acre.

Potatoes. The seed of the main-crop Majestic and King Edward was grown and chitted at Rothamsted. Most were planted in late April and early May, but 4 acres in School Field, levelled by a bulldozer, were not planted until the last week in May. The plants soon appeared above ground and grew rapidly during June and July. Some areas were sprayed with a mixture of diquat and paraquat to control weeds; on part of these areas there was a big secondary germination of weeds which could be controlled only by mechanical cultivations, and the ground was left ridged. Because of an early blight warning they were sprayed on 24 June; the King Edward were sprayed twice more and the Majestic once. Where the ground was ridged tubers were free from blight, but where not ridged many were blighted. The long haulm was burnt off with diquat in early September, but as dead haulm caused difficulty at lifting it was broken up by a mechanical "swipe". Lifting started on 9 September and was finished in 3 weeks, but the hard ground prevented the lifter penetrating to full depth and many tubers were cut. Scab was widespread and very severe on the late-planted Majestic in the field after old grass; King Edward in the same field were less affected. The yield of King Edward ranged from 10 to 15 tons/acre total produce.

Sugar beet. This was drilled in early April, but lack of labour meant that singling was rather protracted. There was an early attack by mangold fly (*Pegomyia betae*) and some areas were sprayed. After some initial difficulty in controlling weeds, control became easy in the dry weather. The crop grew well in May and June, but afterwards suffered from drought; growth was slow and plants wilted on hot days. In August many of the older leaves died, leaving ground visible between the 21-in. rows. Green aphids were too few to require controlling, but some areas were sprayed at the end of July against black aphids. The roots were rather smaller and shorter than usual and there was far less top; where singling was done in good time, yields averaged about 18 tons/acre unwashed beet, but where it was delayed, the crop suffered from competition and yields were 12–14 tons/acre. The average sugar content was 17·5% about 1% more than usual. Lifting finished on 18 November, but at the end of the year several loads awaited collection.

Carrots. Early carrots in the Market Garden experiment and main-crop carrots in two experiments germinated well, grew rapidly and evenly, and yielded well. Those from the Market Garden experiment were well shaped,

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but, because of the plentiful supply of washed and graded carrots, they were difficult to sell, and many were fed to stock. Those on the Ley–Arable experiment were rather large and mis-shapen and all were fed to stock. All carrots were sprayed with menazon to kill the vectors of motley dwarf virus.

Market-garden crops. The leeks planted out in July 1963 were rather more weedy and gappy than usual, but they grew satisfactorily to produce an average crop which sold well. The leeks for the 1965 harvest were planted out later than usual because of drought. They were watered in, but many died and the area was patched several times. Very little growth was made in autumn or winter.

The red beet was drilled on 4 May with seed dressed with an organo-mercury compound plus dieldrin, and was sprayed with DDT to control leaf miners. It was thinned in the latter half of June. The crop grew well and gave a good yield of nice size and quality. The first pulling for yield records was on 22 July and the second on 10 August.

Lucerne, sainfoin and clover. On the Ley–Arable experiment the lucerne was miserable. There were 4 cuts on the second-year crops and 3 on the third-year, and both lots were ploughed up in the autumn. The lucerne is now replaced by common sainfoin; the first sowing of this germinated well and early growth was good, but dry weather slowed growth and there were only 2 cuts.

On the Irrigation experiment the Dorset Marl red clover grew well and gave 3 heavy cuts, 2 of which were made into hay.

The undersown seeds in the experiments established themselves satisfactorily; the only poor establishment was on the plots in the Green Manuring experiment given the most nitrogen. Seven acres of non-experimental undersown seeds failed; as soon as the ground was soft enough, it was rotary cultivated and seeds drilled again in mid-October.

Grass. This was given a high-nitrogen compound fertiliser in spring; early growth was slow, but was faster during May. The rain in June produced heavy crops for hay, but delayed cutting. After crimping, the grass was made quickly into hay of excellent quality; one field was so badly lodged that it was cut by a forage harvester. The yield was about 2½ tons/acre. The new direct-sown leys, though sown late, were very productive; grazing started on a field of Italian ryegrass 5 weeks after sowing, and these leys provided grazing when the older fields were bare, despite a dressing with nitrogen at mid-season or after-cutting. They continued productive until November, when sugar-beet tops were fed.

Most of the new leys were sprayed with MCPB to kill annual weeds and thistles, and 2,4-D/2,4,5,T was used against patches of nettles.

On the Ley–Arable experiment grazing started on 2 May and finished on 24 October; the first-year ley was grazed 5 times, the second- and third-year leys 6 and 4 times respectively. The 1-year seeds hay gave a good first cut and the aftermath grew well but dried out in late July; the second cut produced little.

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Livestock

Cattle. Twenty-seven Hereford bullocks were fattened in autumn 1963. Another 27 dehorned Herefords were bought and outwintered; they were fed largely on sugar-beet tops, brock potatoes or carrots and hay with a small ration of home-grown concentrates, and fattened on the grass in summer. Another 32 similar bullocks were bought in autumn 1964 and fed on sugar-beet tops and hay until the end of the year

Sheep. Thirty ewe tegs were wintered and were used during the summer on grazing experiments at both farms.

Pigs. In an attempt to cheapen labour costs per pig the Large White pig herd was gradually increased to about 35 sows by keeping home-bred gilts from sows on the National Register. This had little effect on sales in the current year, for only 18 more pigs were sold, but more were weaned in the last few months of the year. Farrowing crates helped to give bigger litters, but a few very poor litters kept the average down to 8·9, about the same as in 1963. Three hundred and fifty-eight pigs were sold for pork, and 82% were in grade "A" or the "Quality" grade.

Stricter control of service ensured that the sows farrowed more regularly than in the past.

Feeding costs were very satisfactory when compared with other herds in the Pig Industry Development Association's feed-recording scheme, but labour costs were large, and it is doubtful whether they can be cheapened enough with the existing housing.

Implements

A light tractor-mounted rotary cultivator was bought and will be used in the preparation of seedbeds for potatoes and general weed control. A heavy spring-tined cultivator is now used to make seedbeds after potatoes, and it may sometimes replace the plough on the light land.

A double-knife mower was used with success on some heavy and badly laid hay crops.

A potato planter has been bought which enables chitted potatoes to be planted from trays carried on the machine.

The grain-drying and cleaning plant was improved by replacing an auger by a pneumatic blower between the cleaner and the storage bins.

Buildings

The old steel and corrugated-iron barn was replaced by a timber barn, 60 ft long and with a 60-ft roof span and asbestos roof, which is used to store hay, straw and potatoes.

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