ROTHAMSTED RESEARCH

Rothamsted Report for 1946

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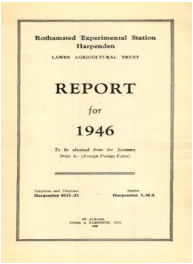

The Farm - Rothamsted

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THE FARM

By J. R. MOFFATT

The area farmed during 1946 was 501¾ acres, of which 324¾ acres were under arable crops (including leys). The main crops grown were wheat, 59 acres; barley, 70 acres; oats, 17 acres; potatoes, 27 acres; beans, 11 acres; with smaller areas of sugarbeet, kale, mangolds and rye. The area under temporary leys was 114 acres. During the year some 20 acres of permanent grassland were ploughed up.

Compared with 1945 these figures show a slight reduction in the tillage area while the area under temporary leys increased from 84 to 114 acres. The wheat acreage dropped but that under barley rose considerably, while the area devoted to other crops remained at about its war-time level.

Conditions in the autumn of 1945 were very favourable to farm work. All ploughing and winter corn sowing was carried out under excellent conditions, while root crops were lifted and carted without difficulty. Early in 1946, however, there was a spell of about 11 weeks during which very little land work was possible because of frost, rain and snow. The preparation of spring seed beds and the sowing of the crops was seriously delayed. During this spell about 20 acres of old grassland were broken up, the potatoes in the barn were sorted, and threshing was completed. Average grain yields from the 1945 crops, per acre, over the whole farm, including experiments, were as follows: wheat, 25·1 cwt.; barley, 21·2 cwt.; oats, 27·75 cwt.

A dry spell in March and April eventually enabled all spring crops to be sown under good conditions although rather late in some cases. The cutting and saving of the hay crop was considerably delayed by damp and cold weather in June, in which month there were 21 wet days, with a rainfall of 2·66 in., while sunshine figures were 50 hours below normal. Most of the hay-making, therefore, had to be done in July, when the crop was past its best, but it was carted in satisfactory condition.

The weather during the corn harvest was disastrous. This very protracted and disheartening operation commenced late in July and continued into October. Rain fell on 39 days in August and September, and totalled 7·82 in., compared with the average of 4·93 in. Most of the experimental crops were carted early and suffered little or no damage, but the consequent delay in harvesting the non-experimental areas caused heavy losses in both quality and quantity, which will be reflected in the financial returns. The wheat stood well, but most of the barley and oats were lodged, some so badly that we had to resort to scything. Most of the crops sprouted either before cutting or while in the stook, and the value of the corn was thus considerably reduced. The yields, however, proved to be above expectations. The average yields per acre for 1946 over the whole farm were: wheat, 28·13 cwt.; barley, 20·9 cwt.; oats, 21·3 cwt.; and beans, 18 cwt. The high wheat yields were due primarily to the fact that the short stiff-strawed varieties were grown and given liberal dressings of sulphate of ammonia.

The protracted harvest seriously upset the autumn schedule of work. The threshing of the outside corn stacks and the ploughing

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for winter corn, which normally take place between harvest and potato lifting, could not be done. But fortunately a fine spell of weather in October, 1946, enabled the potatoes to be lifted under almost ideal conditions; the tubers came out clean and dry, and most were stored in large heaps in the barn. The crop was attacked by Late Blight about mid-September, and although the tops were burnt off some tubers were affected.

Sugar-beet lifting followed almost immediately. This was the only crop that did not appear to have suffered from the unfavourable weather conditions. There was a bigger proportion than usual of bolters, but roots and tops grew well throughout the season. The average yield per acre was 15 tons of washed beet, with a sugar content of 15·2 per cent. Weather conditions for root lifting were atrocious, the land being either a sea of mud or frozen hard. This operation, which normally finishes early in December, was not completed in 1946 until 31st December.

The growth of the mangolds on the classical field (Barnfield) was uneven and yields were low. This was probably due to the sugar-beet eelworm, which is prevalent over the whole field, and which seems to be making its presence felt very severely. Soil samples have been taken to measure the intensity of the infestation, and a decision regarding the future of the field will be made when the eelworm counts are known.

The late corn harvest which delayed the harvesting of the potato crop in turn delayed the start of the winter corn sowing. Unfortunately, November was a very wet month, with rain falling on 23 days and a total fall of well over twice the average. This considerably hampered the drilling of winter corn, and drilling operations had to be abandoned with little more than half the scheduled wheat acreage sown. However, the variety used mainly, Bersee, gives very satisfactory yields when sown in early spring, so that the seed not used will be sown in the spring of 1947 if weather conditions are suitable.

Use of herbicides

Field-scale tests of herbicides were continued, and were extended to cover a wide range of materials. Much useful knowledge was obtained. A trial was also made using sodium chlorate at 1½ cwt. per acre on ploughed land in the late autumn of 1945, to eradicate twitch (*Agropyrum repens*). The twitch was almost completely eradicated, and the absence of annual weeds in the sprayed areas was very noticeable. The surrounding unsprayed areas were badly infested with black bent (*Alopecurus agrestis*), with some wild oats (*Avena* spp.), but these two noxious weeds of arable land were completely absent from the sprayed plots. The germination and growth of the barley, sown in the spring of 1946, was in no way affected, and in fact the crop on the sprayed areas appeared much stronger throughout the season. A further very noticeable fact was that while much of the unsprayed barley was lodged, little or no lodging occurred on the sprayed plots. Annual weeds made their appearance on the sprayed plots soon after harvest, but even then the stubble was much cleaner than that of the untreated areas. Observations in the spring of 1947 showed that the areas treated with sodium chlorate in 1945 were almost clear of twitch, while there were fewer annual weeds than on the untreated areas.

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Storage of potatoes under cover

Following upon tests made with Majestic tubers in previous years to determine to what depths potatoes could be stored under cover, a test was made in a Dutch barn in 1945–46 with a heap measuring 21 ft. by 24 ft., with a height of 9 ft. against the front straw bale wall, and sloping up to 12 ft. deep in the middle of the heap. On this area of 56 square yards there was approximately 100 tons of potatoes. The tubers were free from blight and reasonably clean and dry when stored. No ventilation was provided, yet when the potatoes were sorted in March and April, 1946, the tubers were in perfect condition. There was an initial rise in temperature of 4·7° C. followed by a steady fall until the end of January, and thereafter the temperature in the heap followed, after a considerable time lag, the variations in the air temperature.

Livestock

The cattle breeding policy was again governed by the necessity to produce an even bunch of young stock of known history for grazing experiments. The 23 Blue-grey and Kerry cows, now 10 years old, were bulled by an Aberdeen-Angus bull and produced their last lot of calves in 1946. There is now sufficient of their progeny on the farm to stock the main grazing experiment until its conclusion. The cows reared only their own calves, as the aim of the breeding policy would have been defeated had bought-in calves, no matter how suitable they may have appeared, been available for fostering on. The cows remained outside for most of the year, only being brought into the yards for part of the winter to tread straw into dung. They calved outside in the spring, the calves being weaned into covered yards late in the following autumn. The feeding of concentrated foods was restricted to the short time the cows were yarded, and then the ration consisted almost entirely of home-produced foods.

The Half-bred breeding flock of ewes was retained, although the numbers put to the Oxford rams were reduced by culling to 130. Time of lambing was set back so that grass should be avilable for the ewes soon after lambing. The lambing season was quite successful, 215 lambs being tailed from 130 ewes put to the tup, giving a percentage of 165. There were four barren ewes. The use of purchased feeding stuffs was almost eliminated, being restricted to the small proportion of protein-rich food required to balance the home-grown foods.

Conclusion

In retrospect, the year 1946 does not now appear so unsatisfactory as it did at the time. The unprecedently bad corn harvest conditions, the difficulty in harvesting the sugarbeet and mangold crops and in drilling the winter corn seemed to cast a cloud over the whole year's work. Yields of all crops were up to, or above, average, and the experimental crops suffered little or no damage by the weather. The damage to the non-experimental crops was much lighter than anticipated, and yields much higher. Root crops generally benefited from the heavy rains and gave satisfactory yields. There was an abundance of grass throughout the year, and both cattle and sheep thrived on it.

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