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The Farms : Woburn

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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 spoiled 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

and livestock policy were made. The most urgent tasks not fully achieved were the need to clean the land and increase its productivity, and to increase the mechanization of the work.

CROPPING

The area farmed during the year remained at 128 $\frac{3}{4}$ acres, of which 53 $\frac{3}{4}$ acres were under cereals, 15 $\frac{1}{2}$ under potatoes, 10 $\frac{1}{4}$ under sugar beet and 10 under linseed. About 11 $\frac{1}{4}$ acres were bare-fallowed, 4 $\frac{1}{2}$ were under sundry experimental crops, and the remaining acreage under grass. 23 acres of old grassland were broken up during the year. The number of experimental field plots was increased by the inclusion of sugar beet experiment testing the effect of plant density on the spread of Virus Yellows disease and two experiments testing various manurial and cultural effects on linseed. These brought the total plot numbers to 530, although the yields on the sugar beet experiment were not taken.

EFFECT OF WEATHER ON CROPS

The season opened inauspiciously, as the severe drought of the summer of 1947 continued throughout the autumn of that year, and many fields remained so hard that the preparation of the land for winter wheat was prevented. Ploughing however was possible during December 1947 and early January 1948, but then a period of very heavy rain stopped land work and gave a rainfall figure for the month of 4.26 in. Conditions soon improved and field work was got up to schedule by the end of February. Conditions in March were very favourable, for only 0.66 in. of rain fell, while the average temperature remained well above average, so the sowing of spring corn started earlier than usual. The favourable weather continued throughout April, and this enabled more time than usual to be spent on the preparation of seedbeds. All the areas for root crops were ploughed twice, while some of the twitch-ridden land was ploughed three times. By the end of April, all spring cereals, linseed, potatoes, sugar beet, red beet, peas, cabbages and leeks had been sown, as well as all undersown grass and clover seeds and green manure crops.

The warm spring weather encouraged the germination of crop seeds, but unfortunately had a similar effect on weed seeds. The wet weather which followed in May and June enabled the weeds to grow rapidly and compete strongly with the crops. In the dry summer of 1947 the number of weeds which germinated was low, and it is probable that in 1948 a bigger proportion than usual of weeds germinated. MCPA weed-killer in powder form was used very successfully in the cereal crops, but much extra hand and horse labour was needed in the small experimental areas, to keep the weeds under reasonable control. The experimental pea crop presented very great difficulties, and despite every effort, the prevalence of weeds must have affected the yield of this crop. Trials were carried during the season with a number of small motor hoes, and one was found which should considerably reduce the amount of hand labour needed in future on experimental plots.

The permanent wheat and barley plots in Stackyard field were fallowed in 1947 to eradicate twitch and wild oats, but owing to the dry summer there was a very poor germination of wild oats and it

was decided to fallow these areas again in 1948. The wet and mild weather in late December 1947 and early January 1948 encouraged germination, and by continually working these areas throughout the season, several successive batches of seeds were encouraged to germinate, and it is hoped that a fairly high proportion of the seeds in the ground were destroyed.

The exceptionally warm weather in March and April caused the flea beetles to become active far earlier than usual, and before the end of April, red beet and rape on experimental plots had to be dusted to save them from total destruction. The linseed areas were also badly attacked despite many dustings, and although sown early, while some plots which were not sown until later were checked in their growth until early June. These plots remained backward throughout the season and a number of plants were still in the flowering stage when they were cut in September. Wireworm damage was also fairly widespread, especially on spring cereals, but none of the attacks were very severe.

Game damage unfortunately was considerable. Two sowings of wheat on an experiment were destroyed, and other areas of wheat and barley were damaged. Moles were again active, but their numbers were greatly reduced by trapping.

The rainfall in May was almost twice the average, and in June, too, was well above average. This caused all crops to make very rapid growth, and the cereals, sugar beet and potatoes looked very promising throughout June and early July. Several patches of barley and much of the linseed became lodged later in the month, however, while low temperatures and lack of sunshine retarded the ripening of all crops. Conditions improved later in the month, but it was evident that harvest would be later than usual.

The early part of August produced extremely bad weather, and on one day there was a rainfall of 2.39 in., more than the average for the whole month. This increased the lodging of the barley and linseed crops, but the oats and wheat stood up quite well. Harvesting started on August 10th, but more heavy rain followed and further delayed this operation. The total rainfall for the month was 4.42 in. and September also had a fall well above the average; despite this, most of the crops were eventually secured in reasonable condition, although a considerable amount of barley was lost through lodging and shedding. The linseed was so badly lodged that it had to be cut by mower and carted loose, and this was accomplished in good conditions at the end of September. The yield of spring oats reached 30 cwt. per acre, but wheat and barley yields were lower than anticipated, the former averaging 22.2 cwt. per acre and the latter 20 cwt. per acre.

The potato crop, benefiting from early planting and suitable weather, grew well throughout the season. The crop was sprayed against Late Blight, and the haulm was burnt off with acid shortly before lifting. The lifting of the crop was an extremely slow job, partly because of the difficulty of obtaining sufficient labour at the start and partly because of the heavy crop, (the yield being estimated at 14 tons per acre over the non-experimental areas). The tubers were of good size and shape, with little damage by pests and less scab than usual, but there was a proportion of blighted tubers despite the precautions taken. The crop was stored in a building

at the farmstead to a depth of about 11 feet from the surface of the heap. There proved to be an inadequate flow of air over the top of the heap, and this inadequate dispersion of warm and damp air resulted in the condensation of moisture at a depth of about 18 in. from the surface of the heap, and a band of potatoes at the centre had to be discarded when the potatoes were sorted. In future years the storage of potatoes will be on similar lines except that provision will be made for the adequate flow of air by adjustable shutters, and the drawbacks experienced this year should not recur. To expedite the handling of the 1949 crop, some form of elevator will be used, and it is also hoped that some degree of mechanisation of the harvesting process may be possible. The restriction on the sale of Majestic potatoes in Bedfordshire and the huge surplus of potatoes in the country as a whole have made it difficult to secure a market for the crop, and it has now been taken by the Ministry of Food for processing at sugar beet factories.

The shortage of skilled labour for singling the sugar beet crop necessitated the use of unskilled help for this work, which resulted in poor singling and poor control of weeds, while the very slow work caused costs to be high. However, by dint of a few skilled men working long hours of overtime, the beet area was kept reasonably clear of weeds and rapid growth was maintained. The harvesting of this crop was carried out mainly by the regular farm staff, although a few extra workers were obtained to complete the work by Christmas. Yields averaged about 13 tons per acre of washed beet, with an average sugar content of about 16.5 per cent.

The only tractor was engaged on potato lifting throughout October and early November; consequently no other land work was possible. Outside assistance was obtained for ploughing, and about 30 acres of winter corn were drilled by mid-November.

GRASSLAND

All the grassland not scheduled for breaking up was dressed with basic slag during the winter of 1947-48, and nitrogenous fertilizers were used liberally later to ensure a good growth of grass throughout the season. Only a small area was cut for hay, but the wet summer and adequate supply of nitrogen produced a heavy yield which was made and carted in good condition.

BUILDINGS

New implement sheds, tractor garages, and covered barn space are now urgently required, and although it has not been possible to erect these during the year, plans are now well advanced and it is hoped to have these new buildings erected during 1949.

IMPLEMENTS

The policy of re-equipping the farm with modern implements started in 1947, and there is now at the farm or on order a nucleus of essential equipment. However, much more requires to be done, especially with regard to implements required for the working of experimental plots, while a gradual replacement of old equipment by modern equipment will be continued. A second tractor will probably be ordered in 1949.

LABOUR

The increased area under arable crops, and the increased production from the farm as a whole, has necessitated a larger labour force. It has been very difficult to recruit sufficient labour of the right type, and we have had to rely to a considerable extent on such casual labour as was available, and on the Agricultural Executive Committee's labour gangs. The position is aggravated by the fact that there are only two cottages on the farm, and it is difficult to secure labour unless accommodation can be provided. The position is a little easier than it was, but several of the workers now on the staff have to travel some distance, and it is unlikely that they will stay if work becomes available nearer their homes.

W. A. McCallum, the farm foreman, retired from this position at the end of September, 1948, and has been succeeded by A. W. Neill.

LIVESTOCK

Horses. The two old worn-out horses were disposed of, and a team of three grey Percheron-cross horses has been purchased. Most of the work on the experimental plots has been carried out by these horses.

Cattle. The eleven beasts which could not be fattened during the summer of 1947 because of the shortage of grass due to the very dry weather, were finished off during the summer of 1948. As much grassland had been ploughed up no other beasts were purchased until the autumn, when 12 cross-bred Hereford bullocks were bought.

Pigs. The Large White pig herd has done quite well, but because of the scarcity of feeding stuffs most of the pigs were sold as stores. In order to qualify for extra feeding stuffs under the new bonus scheme, the pig herd will be reduced somewhat and more of the pigs will be carried on to bacon weight.

CONCLUSION

The results of the season's work have been generally satisfactory, although the difficulties were increased by the prevalence of weeds, the bad weather conditions at harvest, and the difficulty of obtaining sufficient labour of the right type. As more equipment is obtained, it is hoped that the farm can be made less dependent on Rothamsted for equipment, and on casual workers for labour. There has been a big increase in labour costs during the year, and a much heavier expenditure on seeds and fertilizers, but the heavier outgoings are reflected in a very much increased valuation of crops.