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The Entry of Sugar-beet into the Economy of the Farm

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(3) Weight has been placed upon the acreage of barley—the corn crop for which the soils and the climate of the county are best suited. Wheat has disappeared from some of the farms.

(4) The area of hay has been kept as low as stock-feeding requirements permit.

(5) Less and less stock-feeding roots are being grown. Sugar-beet tops, sugar-beet-top silage and pulp are being substituted in stock-feeding.

(6) Sheep are being discarded or arable flocks replaced by the much cheaper grass-land sheep.

(7) On the lighter lands the temporary ley is being used. In spite of adverse circumstances it is proving successful.

(8) Smaller joints of beef and mutton, cattle fat at a more tender age, and breeding, rearing and feeding on the same farm are striking changes.

(9) Greater interest is being taken in poultry-keeping.

(10) On the better land black-currants and other fruit is extending.

THE ENTRY OF SUGAR-BEET INTO THE ECONOMY OF THE FARM

BY COLONEL G. H. LONG

Bury St Edmunds

THE extension of the sugar-beet industry of recent years, particularly in the root-growing areas of the Eastern Counties, has perhaps opened up more revolutionary ideas in the four-course shift of farming since its introduction by Coke of Holkham in the early part of the last century.

That sugar-beet can be grown in this country equally as well—both as regards weight per acre and sugar content—as in the best sugar-beet areas on the Continent has now been proved without doubt, and, under present conditions, profitably.

The problem now confronting the industry is the future prospect when the period of subsidy ends. The industry can be then carried on successfully only if the farmer makes full economic use of the crop. It is not proposed in this paper to deal with the costs of growing and harvesting the sugar-beet crop, as this has been fully done in a recent publication,¹ from which the following typical figures are taken :

AVERAGE PROFITS PER ACRE AND PER TON OF WASHED BEET (1927)

Number of fields costed	172
Average washed yield	7·71 tons
Sugar per cent.	16·1

¹ Carslaw, Burgess and Rogers, *Sugar-Beet in the Eastern Counties*, 1927.

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	Per Acre			Per Washed Ton		
Total cash costs	£21	1	4 $\frac{1}{4}$	£2	14	7 $\frac{3}{4}$
Gross cash receipts	21	6	10 $\frac{3}{4}$	2	15	4 $\frac{1}{2}$
Cash profit	0	5	5 $\frac{1}{2}$	0	0	8 $\frac{1}{2}$
Credit for tops and net residual values of manures and cultivations	3	18	7 $\frac{1}{2}$	0	10	2 $\frac{1}{2}$
Net profit	4	4	1	0	10	10 $\frac{3}{4}$

The purpose of this paper is to relate my personal experience in substituting sugar-beet on two-thirds of the root area on a mixed farm of 700 acres (600 acres arable) in Suffolk carrying a dairy and flock of breeding ewes.

Labour

The first and all-important question is labour. Although certain casual labour is employed during hoeing and lifting, from early in May to the end of November the resources of the farm are heavily taxed by the busy periods of the hay and corn harvests, and autumn threshings and seeding. It is only by the most careful organization that the farm routine can be carried on without neglect, and it has been found necessary that more permanent hands must be kept on during the winter to catch up the arrears of work of less importance on the farm.

Sheep

The problem of providing enough winter keep for the ewe flock with so large an area under beet was at first a difficult one, particularly until experience proved that beet tops can be quite safely folded by breeding ewes, provided they are allowed to wilt and have not become rotted through frost; and it can most certainly be stated that an average crop of tops will substitute an average crop of white turnips or kale of an equal acreage.

The method now adopted on this farm is to break up the early seed leys¹ (Italian rye-grass and trefoil) after folding with ewes and lambs in the spring, and drill with rape. The ewes fold on this during August and September, and from early October to the New Year on beet tops. Four to five acres of mangolds are grown for the lambs in the spring, and this is the only root crop (other than beet) grown on the farm for pulling off. No experience has been had with the use of beet pulp for ewes, but one of the best-known sheep-breeders in the district, who was very short of keep last winter, fed his ewes on dried pulp and hay for some weeks with no ill effect; in fact he had a remarkable fall of lambs. Beet tops therefore that had previously been ploughed in now take the place of about one-third the crop of turnips and kale previously grown for the ewe flock alone, at a saving of the whole cost of the latter crops.

¹ Called "layers" in East Anglia.

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Cattle

This farm carries a dairy of twenty cows and about forty to fifty head of young growing stock, and for some years past the root crop has been almost entirely substituted by ensilage made in a tower silo from vetches, beans and oats. This has not been entirely dispensed with (during the past two winters about 150 tons have been used against 300 tons previously) by making fuller use of the residue of beet.

At the present time cows are having beet tops thrown out on the pastures in lieu of cabbages, which formerly were grown for this purpose but are now entirely dispensed with. For yard feeding, both for cows and young stock, roughage consists entirely of dried beet pulp (previously soaked) and either beet tops or ensilage, together with long oat straw. It is now intended, as soon as the beet crop is lifted, to make 100 tons of ensilage from the tops in the manner adopted on the Continent, and referred to below.

By adopting the methods described above, not only is the very expensive root crop almost entirely dispensed with, but an abundant supply of roughage is available on the farm at all seasons, and the head of stock on the farm has not been diminished by the introduction of sugar-beet.

Continental Experience

In the summer of this year (1928) the writer paid an extensive visit to the beet-growing areas of Germany, and was most impressed with the manner in which the German farmer has introduced sugar-beet into the economy of his farm, and has indeed made it the very basis of his farming operations both in crops and stock. No other crop at all appears to be grown for fodder, and on all the farms visited a large head of stock, both sheep and cattle, are kept.

All stock are kept in sheds or yards all the year round, and are fed entirely on beet residues and straw, with the necessary concentrates. For winter feeding the methods are similar to those now in use on this farm—*i.e.* beet tops fed fresh, and pulp, either wet or dry, with straw. For summer feeding the universal custom seems to be the use of ensilage made of beet tops, again with straw.

The method of making tops into silage is that sometimes used in this country: carting into a shallow pit and compressing by carting the loads on to the mass. On those farms close to the factories wet slices were mixed with the tops, and the resultant silage appeared to be eaten with relish, and all stock looked remarkably well on it. In Germany the beet-grower apparently gets his pulp back from the factory without charge for wet slices and only the bare cost of drying and bagging for the dry, and it appears that the factories in this country might well copy this example in future years.

Summary

From the experiences quoted it does appear that although the labour bill on the beet crop is heavy it is at least repaid on a cash basis, and the residue of the crop relieves the farm labour account of the very heavy item of root crops grown entirely for stock.

Present-day costs of pulp returned from the factory are 7s. 6d. per ton for wet, and £4, 15s. *ex* factory for dry.

As the usual recognized proportion between beet pulp and mangolds is about 1 lb. of pulp = 8 lb. mangolds, this would represent mangolds at about 12s. per ton. It will be realized that as beet pulp is received in a form ready for feeding, the very heavy cost of carting roots from clamp to farm and pulping and cleaning is entirely dispensed with, and as beet pulp can be usefully supplemented by the tops fed either green or as silage, the residue of the crop is most assuredly an economic substitute for the usual root crop.

As to the effect on other crops in the rotation, we in East Anglia have always maintained that close-folding roots by sheep was absolutely essential for the following barley crop, not only for the value of the fold manure but for the mechanical action of treading the land by sheep. The experience of the past nine years on this farm proves beyond doubt that barley can be as successfully grown following beet as following roots folded; indeed in most seasons it is of far better quality, and little or no difference has been noticed in the barley whether the tops have been folded or ploughed in.

The deep cultivation for beet has also, without doubt, given our thin-skinned lands of West Suffolk far greater drought-resistance, which in this dry district is of considerable importance.

In conclusion, the last and all-important factor of the entry of sugar-beet into the economy of the farm is the fact that during the past lean years the beet crop alone has made the farm an economic proposition, and in fact has saved many of us in East Anglia from the Bankruptcy Court.

RECENT CHANGES IN SYSTEMS OF FARMING IN BUCKS

BY JOHN PORTER, B.Sc., N.D.A.

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THE fall in prices of farm produce generally since 1920 has not been accompanied by a corresponding fall in the cost of production. The continued production of much of the farm produce on pre-war systems has, therefore, become an uneconomic proposition.