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ROTHAMSTED RESEARCH

The Growth of Cheaper Winter Food for Livestock

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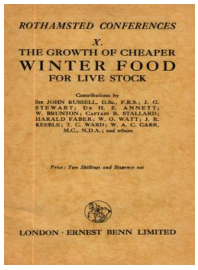

The Growth of Cheaper Winter Food for Live Stock

J. R. Keeble

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(2) The simplicity of feeding, permitting of reduction and organization of labour.

(3) The good effect of these crops on the rotation as a whole in maintaining soil fertility, while obtaining maximum use of atmospheric nitrogen.

Under these conditions the herd has been maintained in a sound and healthy condition, and breeding has been successfully carried on with little trouble from abortion and Johne's diseases.

The herd average in 1927–1928 was 8098 lb. for all cows.

To summarize:

(1) The question of production of cheap food can be adequately considered only in relation to the economy of the farm *as a whole*.

(2) It is possible, and in my case profitable, to maintain a herd in good health and production without roots.

(3) Crops for maintenance should be *high in minerals and protein*, should cost little to produce and handle, and should benefit the cropping rotation. I place lucerne hay first, clover mixture second, and oat and tare hay third in respect of feeding quality.

(4) It is false economy to feed home produce when such may be sold and equivalent food value bought with a profit on the deal.

(5) The organization of the details of labour and machinery, with a view to obtaining efficiency and reducing labour costs, is an important aspect of the production of cheap foods.

THE GROWTH OF CHEAPER WINTER FOOD FOR LIVE STOCK

By J. R. KEEBLE
Manningtree, Essex

Before commencing it may be as well to give you a few facts about the holding upon which the matter for my paper has been based. We farm 1000 acres of mixed and light land, two-thirds of which are under the plough. The farm is situated by a tidal river—the Stour. There is a railway siding on the farm and a dock on the river.

We grow 150 acres of sugar-beet as our pivotal crop, about 100 acres of barley, and 30 to 40 acres wheat.

We breed and fat out about 500 hogs a year, mostly baconers, from Large Black sows by a Large White boar. There is a pedigree

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herd of Friesian cattle (tuberculin-tested) from which all the heifer calves are reared ; the bull calves mostly go to the butcher as early as possible.

There is also a ram-breeding flock of Suffolk sheep, and all the produce that is not sold for breeding goes to the butcher.

A considerable acreage of fruit is planted, mostly apples, plums and black currants. Shire horses used to be a considerable feature, but as the price is less than pre-War this branch has been given up.

Hunter-breeding as a side-line is not very profitable, but gives a good deal of pleasure.

First of all I might say do not farm sour land, as it is labour in vain to try to grow crops on land that is markedly deficient in lime. On our holdings we have chalked all the arable land, with from 10 to 20 tons an acre. This is well-spent money, even if the land does not belong to the occupier, as should he have to leave for any reason there is compensation for eight years; and in our experience most of the money comes back in two years.

We have seen very little result from a ton per acre of lime on light or mixed soil, but a good dressing of chalk will not be worn out in thirty years.

Sugar-beet has been a great help, and of this we grow about 150 acres annually. During the drought this summer we went over the fields and collected the "bolters" and threw them about on the grass for the cattle, who duly appreciated them. As soon as the beets are cleared, the tops become a valuable food for stock.

Some fields are folded off with sheep, who do well on them; others are carted off for cattle and used green until after Christmas, and the rest are carted into silage heaps, or pits, to be used when the fresh tops are finished.

Care must be taken when starting to use the tops to let them get well wilted, and go on to them gradually, or mischief will be done.

As a considerable slice of the crown of the beet is cut off with the leaves, and the crowns contain a good percentage of sugar, they are a valuable feed for cattle and sheep, and even horses and pigs.

Where sugar-beet tops are most valued for feeding stock it is advisable on light or mixed soils to select a strong-growing variety, such as "Dippe" or "Schreiber."

Though the sugar percentage may be sacrificed to some extent it is probably compensated for by the extra weight of roots, and the weight of tops is very much heavier.

With some of the high-sugar-percentage beet, such as Kuhn, the tops amount to very little in a dry season, on light land.

This winter, being short of hay, the working horses are on a

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restricted allowance, this being supplemented with sugar-beet tops, and up to the present the results are satisfactory.

We winter a good many cattle out on the grass, with the addition of sugar-beet tops and, later on, silage.

To make sugar-beet silage we cart the tops into a heap, driving the carts over them just like a manure heap. When the heap is sufficiently large the ends are made up, and the whole is earthed-up like a beet-clamp.

Wet Pulp can sometimes be obtained from the factory at a very reasonable price, and when it can be had quite fresh it is valuable to mix in the silage, but when it has to come by train and gets hot in the truck, as it does after a day or two, we find it of very little use.

Concrete Silage Pits.—We have been warned against using concrete silage pits, but as there seems no particular reason against them, as long as the drainage is well catered for, we have ventured to make a large one, as an experiment. The floor is not concreted, but consists of gravel and sand, which will be covered with brushwood and poles, well sloped to a drainage outlet.

When silage was previously made, in a pit, we did not find so much waste on the outsides as in a heap on the level.

Freedom from Dirt.—We are particular to keep the beet tops as free from dirt as possible, and have them heaped up before the roots are carted, in order not to drive over them.

The dried pulp can be had from the factories by growers at a reasonable price, and if soaked is a good stock food.

Some authorities recommend this pulp for pigs, but we have not had much success in feeding it to them.

Lucerne.—I do not think we make half enough use of lucerne. The Danes grow it in large quantities, and it is to a great extent the basis of their success. In America the dried lucerne is ground up in mills made for the purpose. Mixed with molasses it is fed to stock, who thrive rapidly on it.

We are getting more and more to depend on lucerne for our hay crop, which cuts a big bulk and is carted with hay sweeps at a comparatively small cost. This year our lucerne yielded four cuts, which is a great help in dry weather. Ten acres that were sown down this spring had the seed dressed with cultures supplied by Rothamsted, and we never had a more promising-looking piece, though it was sown in the barley crop with 1 lb. per acre of wild white clover for cleaning purposes.

Green Peas.—We pick several acres of green peas each year, and the rice or green straw is collected and dried, and this, with the few thin pods that are left on it, makes valuable food for the cattle and sheep, for the winter.

As soon as the pea straw is collected the land is cleaned, and manured, and planted with some green crop for the winter.

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Early Potatoes.—About 20 acres of early potatoes are grown, and though the price is usually too low to yield much profit another green crop is planted for winter or spring use.

In Scotland I believe rye-grass follows early potatoes and yields a good crop.

Rye.—We always plant a certain amount of rye for the sheep to come on to after lambing, and this year we have sown an extra field; drilling the rows about twenty inches apart, we then ran the seed-barrow over it with a mixture of rape, trefolium and rye-grass, and it looks quite promising. We should have liked to put some nitrate of soda on, but were afraid the shepherd would say it made the lambs scour.

Rape.—The last few years, after taking a hay crop off the mixed seeds or trefolium, we have at once broken up the stubble, and sown it down with rape for the sheep in the spring; this seems to answer very well, as we get a crop of sugar-beet after the rape is fed off.

Later on in the season the sheep come on to tares, and then rape and thousand-head kale.

Any crop that does not require hoeing is grown for forage, as we work all the sugar-beet with our own staff, and we cannot spare men to hoe other crops.

We think that it cannot pay to spend £10 per acre on root-crops to be fed off by sheep to grow low-priced corn the next season.

Ensilage.—Well, we have had a shot at most things, and of course had a stave silo, in pre-War days, when they came into fashion. It did very well with a mixed crop of tares and oats, though the last crop we put in was sunflowers, which also did very well; but since sugar-beet came in we have not used it, and last winter it blew down in a heavy gale, and will never be re-erected if the beet crop has come to stay.

Mr Boutflour.—Since Mr Boutflour came round lecturing we have not used a chaff-cutter, except a hand one in the riding stable to cut a little hay for the hunters. Previously we had mixed green lucerne and straw in alternate layers and cut the mixture into chaff after it got cool, but have not done so lately.

Dutchmen and Potato Silage.—This spring there was a big surplus of potatoes, and though many Englishmen let theirs rot, our more thrifty Dutch neighbours made theirs into ensilage, by first putting a layer of green grass and then a layer of potatoes. I have not heard how the mixture turned out, but it was cheap food, and I should think all right.

Spartina-grass.—We are now harvesting (end of October) a very heavy crop of Spartina-grass. In this case it is mainly the seed we are after, as there seems to be a world-wide demand for it. Spartina, as we know, grows on the mud-flats of estuaries, and soon raises their level several inches. We planted some of this in 1919, and it has

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now spread over several acres. Our idea was to protect the sea-walls. However, from experiments carried on at Chelmsford, it has proved to be a valuable forage crop. We first heard of it from Professor Oliver, and he has been very kind in advising us ever since.

There is quite a percentage of iodine in it, and over 60 per cent. is digestible.

All stock eat it readily, and dry weather does not affect it, as it is submerged every twelve hours. We are hoping in future dry seasons to find it very useful.

Subterranean Clover.—I believe experiments have been made in England with this variety, with no very great results. However, a friend who has lately been to Australia brought over a bushel of seed, and though too late to sow in the fields he had a very promising crop in his garden.

Artificial Manuring.—We usually put on half-a-ton of artificial manure, including top-dressing, for sugar-beet, as well as a coat of farmyard. Most of the lucernes and grasses get an occasional dose of potash and phosphates in the autumn, and the corn gets sulphate of ammonia in the spring, and nothing pays better.

The only crop we do not dose is 10 acres of white turnips grown for the ewes at lambing time: here we always give way to the prejudices of the shepherd and let Nature have her own way, but I am bound to say she generally treats us well.

Damage by Kainit.—I fancy we have done harm sometimes to the sugar-beet crop by putting on kainit too late in the spring, so now we put muriate of potash instead.

Conclusion

To grow cheap forage the latest type of labour-saving machinery must be employed, including a powerful tractor capable of ploughing an acre an hour. We have not worked out the cost accurately, but believe it to be very much less than ploughing by horses, besides getting the work done quickly when time is important. The men employed must be capable of and willing to do piece-work, and an employer must not be afraid to let them earn money if they do the work.

Our men are on piece-work most of the year.

It is no use doing a thing because it always has been done, and full advantage must be taken of the latest scientific discoveries, though it is always well to be cautious in accepting new ideas.