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The Growth of Cheaper Winter Food for Livestock

[Full Table of Content](#)



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THE GROWTH OF WINTER FOOD FOR LIVE STOCK

BY W. BRUNTON

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BEFORE commencing on the production of winter foods for stock I should like to describe one of my own farms, and make the management of the crops practically the basis of my paper.

The farm is situated in the vicinity of a large town. A large part of the output of the farm is in the form of Grade A milk. I have not given all my attention to this particular product, but have put considerable trust in the ordinary wholesale farm products. Large outputs have been obtained of pork, mutton, corn crops, potatoes, poultry, without prejudice to the milk.

The gross output in 1928 was £7297, 15s. 3d., comprised chiefly of:

Sheep . . .	£529	Roots and potatoes . . .	£825
Pigs . . .	813	Corn	1025
Poultry . . .	354	Dairy products	3614

—the dairy products thus being about equal to all the other products combined.

In order to see how this has been obtained a study of the cropping is instructive: 88 acres have been devoted to corn crops and potatoes, and have yielded £1850. The remainder of the land has been at the disposal of the stock, and has been composed of 161 acres pasture (78 of which are used as a golf-course); 10 acres fodder, roots and kale; 21 acres seed hay. This land has given a gross output of £4195, in the form of milk and mutton.

To produce this output it is easily seen that a large amount of food is required, for besides consuming the produce of the farm I have purchased £2000 worth of concentrates, corn and hay, and nearly £1500 has been spent in labour on the farm.

The stock was composed of:

13 horses	150 breeding ewes
80 milk cows	71 pigs
2 bulls	500 head of poultry
27 young cattle	

Referring to the summary of costs, I find my cows have cost £16, 16s. per head:

	£	s.	d.
For grazing	3	7	6
Hay and straw	3	9	2
Roots	0	10	5
Concentrates	9	8	11

WINTER FOOD FOR LIVE STOCK

19

The cost of the food for the production of milk is 64·2 per cent.

It is worth noting that, although 40 acres of my grassland is under the intensive system, the cost of grazing is only £3, 7s. 6d., or 12·9 per cent. of the 64·2 per cent. of the food, and the concentrates, 36·1 per cent.

I will now turn to the cost of the production of corn and hay on my farm. Knowing the quantity of stock I have to feed in the winter, I will try to find out how best to provide for them. I have grown about 2 tons of hay and 1 ton of corn per acre.

To produce 1 ton of hay has cost about £3; 1 cwt. of wheat and barley, 8s.; 1 cwt. of oats, 7s. My cows require about 1 ton of hay and 14 cwt. of corn. This means that 1 acre for hay will suffice 2 cows, and 3 acres for corn will suffice 5 cows.

It appears I will require 44 acres for hay and about 48 for corn for my cows. Assuming that it will take about the same quantity for my other stock I would require 96 acres to produce about 100 tons. To balance the 100 tons of corn I want about 50 tons of decorticated earth-nut or soya meal or dec. cotton cake, giving me a balanced ration of 150 tons. To buy a balanced ration as good as the one from dec. earth-nut and corn it will cost about £1650. Taking oats at 7s. per cwt. and dec. earth-nut at £11, 10s. per ton, the cost would be £1250, a saving of exactly £400.

This clearly points out to me the importance of not buying any winter food for my stock before I know what I am going to get for my corn. Ever since June the merchants have been interviewing me to buy cakes and compounds. When I ask them if they will give me 50s. for wheat, 40s. for barley, and 30s. for oats, they at once say they cannot do so, and consequently they have done very little business. It is necessary to purchase a third of the quantity required of a protein food, so if I can buy at a reasonable price I do so.

I now go on to prepare the cropping of my farm for the growth of winter food for my stock next winter. It is worth while to sum up the position as it presents itself. As far as I can see it means disaster if I go on farming my arable land in the old rotation. I have always had a good market for barley. My grandfather, father, and myself, as long as I have been farming, have made barley the chief crop, and sold it always directly it was harvested to the same firm. Fancy my disappointment this year when, a week before the harvest, I received a letter to say no more of my barley would be required. I naturally had prepared as usual, and have to-day four days' threshing of barley on this farm. Several merchants have had samples on the market and up to the present I have never had an offer. I attended one market and had plenty of German oats offered me. This flooding of German subsidized corn has come at a critical time for the English farmer. If the farmer works for twelve months without

receiving anything in hard cash he naturally is disappointed at the position he finds himself in when he tries, as I have done, to sell his corn.

For this reason I am paying particular attention to the growing of crops that can be consumed by stock during winter, as well as marketed. If the price of corn is below the price of concentrates I consume the corn, and *vice versa*.

I now turn to the cropping of my farm, and arrange the following rotation :

70 acres corn	16 acres one-year ley
8 „ potatoes	5 „ sugar-beet
4 „ winter barley	8 „ roots, turnips and kale
18 „ temporary seeds	4 „ forage crop

The corn can be utilized to feed the stock and poultry—wheat to poultry, barley to pigs, oats to horses and cows. It is estimated that one sow, if she produces 16 pigs—and they are made into bacon—would consume round about 70 sacks of barley, which is a home market for 7 acres of barley at 5 qrs. per acre. The roots, with straw, are for cattle and light-milkers. Sugar-beet is included owing to the value of tops and the fact that I have an assured market for the beets. The next point is to produce as cheaply as possible. If I look at the production costs I find 41 per cent. are for foodstuffs, 32 per cent. for labour, and only 4.5 for fertilizers. Knowing full well that labour and purchased foodstuffs are more than 100 per cent. higher, and fertilizers probably lower than pre-War, I will certainly pay particular attention to give my crops all they require in the form of manures. Cut down the purchase of concentrates and I am compelled to view my labour costs.

The weakness of the old rotation of farming arable land is to be found in large proportion under roots. These cannot be produced profitably to be fed in abundance to stock, owing to the high cost of labour. Nearly all the farms I visited in Denmark and Germany (especially Denmark) grew a very large area under roots, owing to cheap labour. Many of the cattle were receiving 100 lb. of roots per day. After roots good crops of corn are produced, and this may be the reason why so much is available for export.

Again, comparing the labour costs per acre to grow a crop of roots with the labour per acre on the permanent pasture, I find it is 7s. 5d. for the pasture and £10 for roots, so naturally I pay attention to my grassland. Forty acres are under the new system of grassland management, and after four years of intensive treatment of grassland with such excellent results I must take into consideration this system.

There is no need to go into details of the management. One of the greatest advantages is the fact that the grazing period is materially

WINTER FOOD FOR LIVE STOCK

21

lengthened, and grass can be obtained to take the place of late winter food. Grass can be obtained in February, which is invaluable for ewes and early lambs. Instead of turning the cows out in the second week in May they can be turned out the first week in April, and, in addition, better grazing is obtained in October.

I estimate that I can save about 8 tons of concentrates and 5 tons of hay on my farm, the majority being in the month of April and late autumn. Less land is required for grazing, and by a complete dressing of fertilizers on all land intended for mowing, more winter food for stock is obtained. The neglect of grassland is a great mistake. There are three reasons on my farm why this is so:

- (1) The results obtained from a small area under intensive treatment.
- (2) The amount of milk obtained during the grazing period with the cost of my grazing at £3, 7s. 6d. per cow.
- (3) The labour only 7s. 2d. per acre.

As regards the arable crops, the growing of corn needs little comment. The main point to aim at is to grow as much as will stand. The chief factor to attain this is sunshine, over which we have no control. I have included four acres of winter barley in my rotation (ordinary Plumage Archer I have grown successfully) because of the early harvest. If 20 lb. per acre of Italian rye-grass is sown in early April, and top-dressed with sulphate of ammonia as soon as the barley is harvested, excellent grazing is obtained in late autumn and early spring.

A similar crop can be obtained on land where early potatoes have been lifted, as well as rape sown in rows.

The crop that has given me the most winter green food is marrow-stemmed kale. This crop I have grown exactly similar to turnips, and it has given me excellent food from November onwards, especially for milking cows. If kept well into winter many of the leaves fall off during heavy frosts, although last February we found it useful for ewes and lambs. I have included sugar-beet because of the fact that I have an assured market, as well as the tops for winter food. I saw excellent use made of them in Denmark and Germany, many were made into silo, and I see no reason why the same use cannot be made of them in this country.

I should like to say a word or two about the turnip crop. If I have a fairly strong loam I get the land manured and ploughed as early as I can after harvest. I take care I do not lose the benefits of the winter frost. I work the land in the spring and keep my fine tilth on the surface; then sow my fertilizers. Harrow only once. The secret of a crop of turnips is in the fine tilth and the conserving of the moisture.

WINTER FOOD FOR LIVE STOCK

Since decreasing my root area I have introduced mixed forage crops. I have sown 2 acres of a mixture composed of :

1 $\frac{1}{4}$ bushel winter oats	1 $\frac{1}{4}$ bushel winter beans
$\frac{1}{4}$ „ wheat	$\frac{1}{4}$ „ winter tares
$\frac{1}{2}$ „ winter barley	

The land is strong and in good heart, and the only manure that I have used is 5 cwt. high-grade slag, guaranteed 80 per cent. solubility. I am trying this mixture more as an experiment in order to see if it is possible to harvest the crop with the binder. It will take considerably longer to cure in the stack, but it takes little harm in bad weather. I intend to harvest as soon as the cereals ripen, thrash the crop for the grain, and use the straw and grain in the place of hay, together with a little oil-containing concentrate.

The spring forage crop used is a mixture of :

Oats	.	.	.	2 bushels
Tares	.	.	.	1 „
Peas	.	.	.	1 „

The crop replaces an ordinary root-crop. Plough in, about 6 inches deep, 10 tons of dung in the autumn, and apply 3 cwt. of supers at the time of sowing. Roll down with Cambridge roller as soon as possible. Top-dress with 1 cwt. sulphate of ammonia in the spring. The crop is cut with the grass-cutter when the bulk of the crop is in flower, about a third of the crop at a time. Allow two days to elapse between each cutting.

The crop is stored in a pit, which for a four-acre crop is 12 yards long, 3 yards wide, and 1 yard deep.

Each load of green material is tipped into the pit, and is evenly spread, and cart passes over material in pit.

When the hole is full the greenstuff is stacked over it to a height of 1 yard, the horses and carts still pass over.

Leave the stuff about two days to settle, then repeat operations until the crop is fed.

The material above ground is stacked with sides sloping inwards, so as to make a triangular heap about 2 yards high. Leave for a day to settle, then cover top of heap with soil.

Thick poles are suspended about half-way up the sides of the heap, and a six-inch covering of soil is built on the poles to cover heap. Air and rain should be excluded, and although there is a little waste it should yield 6 tons to the acre.

I hope you will not think that I expect the problem of how to make farming pay will be solved under this system of management. I do not for one moment think so myself. I have just outlined what I consider, in my opinion, is the most economical way to farm my farm at the present time and under the present conditions.

WINTER FOOD FOR LIVE STOCK 23

The productions of my farm will chiefly be milk and milk products, beef, pork and mutton. Those will have to be turned into hard cash. At the present values it is impossible to get back what they have already cost.

THE GROWTH OF CHEAPER WINTER FOOD FOR DAIRY COWS

BY CAPTAIN R. STALLARD

Pershore, Worcestershire

I do not propose to touch on the dairy farm run entirely for the sake of the dairy (by that I mean the farm which looks for its income entirely from the sale of dairy products and draft dairy cattle, where the cattle are managed with a view to getting very high milk records), for two reasons: (1) that I know nothing of such farming; (2) I am very strongly of the opinion that a farm should be of sufficient size to enable general farming to be carried out, for the reason that the by-products of one branch, such as vegetable and fruit growing, dairy and poultry, corn or live stock, may be the very life-blood of another branch.

Looking at the subject from the point of view of the general farmer—after good pasture, what is the next crop the farmer with a dairy will be most anxious to have? The answer indubitably is lucerne. Not only will he have two good crops of hay and a good aftermath for the dairy cattle to graze in late September, when milk yields are going down with a bump, but in the case of a dry summer he can fall back upon his lucerne to help out the bare pasture. In a wet summer he can make ensilage with alternate loads of lucerne and seeds.

The ground for lucerne must be selected with great care, for the following are absolutely essential:

- (1) It must be well drained.
- (2) It must be perfectly clean.
- (3) It should be reasonably accessible to the buildings.

Taking my farm as having 200 acres of arable, I will select 60 acres as probably the maximum which will answer to these requirements.

I will now take you over a twelve-year rotation by which 30 acres of this 60 acres will be constantly under lucerne. I put down a fresh 10 acres of lucerne every other year in preference to 5 acres every year, because there is one thing quite certain, that, with present costs, it is uneconomical to work a ground of less than 10 acres. I would prefer 20 acres.