



NORFOLK

AGRICULTURAL STATION.

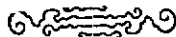


Guide to Experiments

CONDUCTED AT THE

Station Farm, Little Snoring

1915-1918.



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NORFOLK AGRICULTURAL STATION.

CHAIRMAN - J. SANCROFT HOLMES.

Executive Committee:

THE LORD HASTINGS, *Chairman.*

THE EARL OF LEICESTER.

W. J. EAGLING.

J. SANCROFT HOLMES.

R. E. HORSFALL.

K. J. J. MACKENZIE.

HENRY OVERMAN.

J. THISTLETON-SMITH.

B. B. SAPWELL.

PROFESSOR T. B. WOOD.

Honorary Secretary:

JAMES B. FORRESTER,

32 Prince of Wales Road, Norwich.

Farm Manager:

HENRY COOK,

Little Snoring, Fakenham.

*Postal and Telegraphic Address
of Farm—
Cook, Little Snoring, Fakenham
(Porterage 3d.)*

*Station—
Fakenham—G.E.R. & M. & G.N.R. (3 miles).
Thursford—M. & G.N.R. (3 miles).*

Norfolk Agricultural Station

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The Executive Committee have the pleasure to submit this, their eighth Report. The Seventh Annual Meeting was held in Norwich on Saturday, January 29th, 1916, at which the Report and Accounts for the year ended October 11th, 1915, were presented and adopted, and, there being no vacancies, the Executive Committee were re-elected.

It will be noticed that there is an interval of three years since this last Annual General Meeting was held in 1916, the reason being that the Executive Committee felt that on account of the War, and the urgent necessity of growing the largest possible area of Corn, that the experimental work at the Station must be greatly, if not entirely, suspended; but they feel now the time has arrived when they may very well inform their subscribers what has been done during this period.

It is with sincere regret the Committee have to report, in April, 1918, the death of their colleague, Mr. H. V. Sheringham, and they desire to place on record their great appreciation of the good and helpful work he has done for the Station since its inception eleven years ago. His lamented death has caused a vacancy in the Executive Committee, and it now rests with the Meeting to fill it. Mr. A. C. Dawson's term of office as

as Superintendent came to a close in February, 1917, and Mr. Henry Cook was appointed to succeed him; and the Committee desire to express their appreciation of the services he has since rendered the Station.

Since January, 1916, there have been Meetings of the Executive Committee; at the Station on August 18th, 1916; at Norwich on October 21st, 1916; at Norwich on January 27th, 1917; at the Station on August 3rd, 1917; at the Station on August 6th, 1918; and at Norwich on September 21st, 1918.

On August 18th, 1916, the last Annual Inspection took place at the Station, and those present were kindly entertained by the President, Mr. J. Sancroft Holmes. In accordance with custom, the members made a round of the fields, headed by Professor Wood, who gave a short address at the various points of interest.

The actual management of the farm has been carefully supervised by the Sub-Committee, Mr. Henry Overman and Mr. J. Thistleton-Smith, to whom best thanks are due. The farm bears an excellent appearance, and the financial position of the Station is entirely sound. Since 1917 the Committee have refrained from asking for annual subscriptions from those who have so generously supported the Station in the past, but they trust that, if occasion arises, and additional funds are required in the future, they may look for a renewal of support.

The Committee desire to make it known that, if at any time anyone interested in Norfolk Agriculture should desire to visit the Station, it can be done on application to the Honorary Secretary, 32, Prince of Wales Road, Norwich; or the Superintendent, The Station, Little Snoring, Fakenham.

The following is an account of the experimental work carried out at the Station since the issue of the last Report, in 1916, as compiled by Professor Wood, to whom the Committee feel the best thanks are due for all he has done on behalf of Agriculture, both at the Norfolk Station and at the Board of Agriculture; and they congratulate him on the honour of the Companionship of the British Empire which has been conferred on him.

BULLOCK FEEDING TEST, 1917-1918.

This was one of a series of experiments carried out at the suggestion of the Board of Agriculture with the object of investigating the possibility of producing beef on a ration of cake very much smaller than that which Norfolk graziers have been accustomed to use in the past. Similar experiments were carried out in Scotland and in Ireland, and the whole series has been reported upon in the Journal of the Board of Agriculture for August, 1918. This report is concerned only with the experiment carried out at the Station.

For the experiment, 20 good Irish bullocks, over 2 years old, were bought in Ireland. When bought they weighed 194 cwt. 2 qrs., and cost £599 13s. 4d., which works out at 62s. 9d. per live cwt. The expenses of droverage, lairage, and carriage by boat and rail amounted to £37 4s. 2d. The total cost at the Station was therefore £636 17s. 6d. The weight, on arrival at the Station, was 186 cwt. 2 st. The price on the farm was therefore 68s. 4d. per live cwt. The shrinkage on the journey from Ireland was $8\frac{1}{4}$ cwt. on the 20 cattle, or just over 3 st. per head. This works out at between 4 and 5 per cent., a very small loss for so long a journey.

The bullocks arrived at the Station on November 19th, 1917, and were fed until April 11th, a period of 20 weeks.

During this period their average daily ration per head was $1\frac{1}{2}$ cwt. of roots, 3 lb. cut oat straw, 5 lb. good long hay, and $1\frac{1}{2}$ lb. undecorticated cotton cake.

On April 11th, 1918, the 20 bullocks were graded and weighed at Fakenham Market. Half of them were graded first grade, and half super. The average price realised was therefore 75s. 6d. per live cwt. Their total weight was 246 cwt. 7 st., and the total sum realised was £932 3s. 7d.

The gross return for feeding was therefore :—

	£	s.	d.
Realised by sale	932	3	7
Cost on farm	636	17	6
Gross return	295	6	1

Some members of the Executive Committee of the Station prefer to assess the return thus :—

	cwt.	st.
Total live weight sold	246	7
Total live weight bought	186	2
Increased live weight produced	60	5

60 cwt. 5 st. of live weight increase at the average price of 75s. 6d. per cwt. works out at £228 17s. 2d.

The writer protests against this method of calculation, because it gives a gross return nearly £70 less than the actual cash return, realised as a fact. Obviously, the gross return must be the difference between the price paid for the stores and the price realised by the sale of the fat animals, and that is the former figure of £295 6s. 1d.

To calculate the gross return as the value of the increased live weight at beef price is to ignore the fact that store cattle almost invariably cost less per live cwt. than fat cattle sell for. Part of the return is due to the fact that the fattening process increases the quality, and consequently the price of the whole animal. If it were not for this, fattening would be an economic impossibility, as the following facts clearly show.

Every farmer who has had experience of fattening cattle in the winter will agree that a gain of 3 cwt. in live weight is the most that can be expected from 20 weeks grazing on roots, straw, and a full ration of cake. The average price of fat cattle for the five years 1909-1913, before the war, was 36s. 6d. per cwt. Calculated on the increase only, the return for 20 weeks' fattening would be 3 x 36s. 6d., or £5 9s. 6d. per head, or just under 5s. 6d. per week.

Calculated as the difference between the price paid for the store and the price realised by the fat animal, the return would be:—

	£	s.	d.
Cost of 9 cwt. store	14	8	0
Sale of 12 cwt. fat bullock at 36s. 6d. per cwt.	21	18	0
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	7	10	0
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This return is £2 more than by the other method of calculation, because it allows for the fact that the store was bought at about 32s. per live cwt., and the fat animal sold at 36s. 6d. per live cwt. Even this return works out at only 7s. 6d. per head per week.

The cost per week of a normal pre-war ration was:—

	s.	d.
7 cwt. roots at 7s. per ton	2	6
5 stone cut straw at 15s. per ton		6
$\frac{1}{2}$ cwt. cake at 8s. per cwt.	4	0
Labour at 6d. per head		6
	<hr/>	
	7	6
	<hr/>	

At this rate, the grazier made no profit unless he was an extremely good buyer and seller, and was fortunate enough to meet with a lucky turn in the market.

But he made no loss, and got the muck in return for the straw. If the return is calculated at the value of the live weight increase at beef price, there would be a loss of over £2 on each animal.

Finally, it is a definite fact that the gross return to the Station as the result of grazing the 20 bullocks for 20 weeks was £295 6s. 1d.

It is also possible to state, as another definite fact, the amounts of roots, straw, hay, and cake which the 20 bullocks consumed in the 20 weeks.

These amounts were as follows:—

	Tons.	cwt.	st.	lb.
Swedes	131	13	1	10
Mangolds	95	10	3	3
Cut oat straw	3	16	4	12
Long hay	6	3	4	8
Cotton cake	1	17	4	0

There are two possible ways of pricing the above materials. Practical members of the Committee suggest putting them at the then market prices, which they estimate as follows :—

	£	s.	d.
Swedes, at 11/8 per ton	76	16	1
Mangolds, at 15/-	71	12	6
Cut oat straw, at 50/- per ton	9	11	3
Long hay, at £5 10s.	33	19	3
Cotton cake, at £16 2s. 6d.	31	5	0
Labour, at 1/- per head per week ...	20	0	0
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	243	4	1

Taking the gross return as the difference between the cost of the stores and the price realised by the fat animals, the result is as follows :—

	£	s.	d.
Gross return	295	6	1
Cost of foods and labour	243	4	1
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Nett profit	52	2	0

If the value of the manure is set off against the price of the straw, the Station made a profit, according to this method of calculation, of £52 2s. on the 20 bullocks.

If, however, the gross return is calculated by multiplying the increased live weight by the selling price of the fat animals. a loss would result, thus :—

	£	s.	d.
Cost of food and labour	243	4	1
Live weight increase at 75/6 per cwt.	228	17	2
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Loss	14	6	11

In the above calculations of the cost of the food consumed by the bullocks, the prices given were suggested as fair market prices by some of the practical members of the Committee. The prices assigned to the roots are, according to the writer's estimate, rather below the cost of production for 1917 : For mangolds 20s. per ton, and for swedes 15s. per ton. The prices for hay and straw are, on the other hand, considerably above the cost of production, being the prices at which these fodders were then being taken over by the Government.

By charging the hay and straw to the bullocks at these prices, a certain profit accrues to the Station on these articles, and this, of course, correspondingly decreases the profit made on the bullocks. In the estimated cost of production of hay, given in the report of these trials in the August number of the Journal of the Board of Agriculture, the allowance for the cost of the clover and grass seed in 1917 was, perhaps, not sufficient. If this item is liberally increased, the cost of production per ton may be taken as £3 10s. Retaining the figures given for straw, namely, oat and barley straw, 15s. per ton, and oat straw chaff 20s. per ton, and charging 1s. 6d. per head per week for labour, the cost of feeding works out as follows:—

	£	s.	d.
Cost of swedes, at 15/- per ton ...	98	15	0
Cost of mangolds, at 20/- per ton ...	95	10	0
Cost of oat straw chaff, at 20/- per ton		3	17 0
Cost of hay, at £3 10s. per ton ...	22	4	0
Cost of cake, as before	31	5	0
Cost of labour, at 1/6 per head per week	30	0	0
	<u>281</u>	<u>11</u>	<u>0</u>

This figure is £38 higher than the former estimate, because, though the hay and straw are priced lower, the roots are priced higher, and the latter are used in such large quantities that their price is the predominant factor in the cost of feeding.

On this calculation, the feeding still resulted in a profit, thus:—

	£	s.	d.
Gross return from feeding	295	6	1
Foods and labour at cost of production	281	11	0
Profit	<u>13</u>	<u>15</u>	<u>1</u>

The profit, however, is but a small one, so small that, were this the whole story, bullock feeding would not be worth the candle. It is not the whole story, for the feeding has converted some 35 tons of straw into about four times as much muck, the muck being thus obtained at about quarter the price of the straw. This muck is certainly very cheap at such a price, considering the present price of wheat. For some years, winter fed bullocks have been, to all intents and purposes, manure-

making machines, from which little or no direct profit has been made. Their place on the farm has been to convert a ton of straw into four tons of muck. If they do this without direct loss, the transaction, as a whole, is profitable, because it produces a reasonably cheap manure for wheat growing.

Finally, however, the financial return for the bullocks is worked out. The fact remains that 20 bullocks made a most satisfactory increase in live weight on a ration containing only $1\frac{1}{4}$ lb. per head per day of common cotton cake. This fact conveys a piece of information which it will pay Norfolk graziers to ponder on when cake becomes plentiful once more.

