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THE FATTENING OF CATTLE ON GRASS, 1951 and 1952.

A Study of Management, Costs and Returns.

(Final Report)

by

PRUDENCE P. RICHARDSON, B.Sc. (Econ.)

DEPARTMENT OF AGRICULTURAL ECONOMICS
SUTTON BONINGTON
LOUGHBOROUGH

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C O N T E N T S

I. INTRODUCTION.

This report summarises the results of a two year investigation into the profitability of fattening cattle on grass, incorporating data obtained in the summer of 1951 on grass-fed cattle in the marsh area of Lincolnshire[1], and data obtained in 1952 from this area again and also from a study of the Leicestershire grazing pastures.

The object in undertaking these enquiries was to throw some light on the beef industry of the East Midlands at the time the Government is attempting to increase the output of beef in this country. In 1952 the amount available for consumption in the United Kingdom was a third less than pre-war, so that from the point of view of the consumer as well as that of the agricultural industry it is desirable to increase the home production of beef in addition to finding more imports from abroad. In 1952 the home output was approximately the same as in 1938 but imports were considerably lower, accounting for only 20 per cent of supplies instead of 50 per cent as pre-war.

Is it likely that home production will be increased any further? Between 1938 and 1950 cattle numbers in England and Wales increased from 6.7 millions to 8.0 millions but fell again during 1951 and 1952 to 7.7 millions. At the time of writing the number for 1953 is available only in a provisional form (based on a 50 per cent sample of farms) and this shows an increase once more to 7.9 millions.

Unfortunately it is not possible to say how much of the decrease was due to a fall in beef numbers as no differentiation was made between beef and dairy cattle in the Agricultural Returns until 1952. Some indication can be obtained, however, by examining the number of steers. The number under one year of age fell seven per cent in 1951 and 1952 indicating that there may be a fall in the number of fat steers for slaughter in the near future. This is borne out by the provisional figures for 1953 which show a fall in the number of steers over two years of age. However, these figures also show that the number of steers under one year has risen again suggesting that the decrease was only temporary. Despite this no concrete conclusions can yet be drawn as to the likely trend of the beef industry, but at the present level of prices many farmers may now be considering the advisability of including beef cattle on their farms and it is hoped that this report will provide some of the data required in weighing up the pros and cons of the enterprise.

During the 1952 enquiry information was collected from 49 herds on 36 farms (some farms supplying data on more than one herd). Altogether 1,365 acres of grass and 1,162 fattening cattle were included in the investigation.

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(1) Richardson. P.P. and Jones. R.B. The Fattening of Cattle on Grass: A study of management, costs and returns, (Interim Report). Published September 1952. Farmers' Report No.114. University of Nottingham, Department of Agricultural Economics, Sutton Bonington. Price 1s. 6d.

Of these herds 26 were situated on the strip of land between the Lincolnshire Wolds and the sea, known as the marsh area. The other 23 herds were in Leicestershire, on or near the famous fattening pastures of the Welland Valley.

Throughout this report the words Leicestershire and Lincolnshire are used to indicate the respective groups of sample farms in the areas defined above. It should be clearly understood that the tables relate to those farms only and not to figures for the entire counties.

The investigation would not have been possible without the willing co-operation of these 36 farmers and their assistance is gratefully acknowledged. Also that of the Advisory Officers of the National Agricultural Advisory Service through whom contact was made with the farmers.

II. TYPE OF FARM WHERE BEEF IS FATTENED.

The type of farm and the practice of fattening beef differed greatly between the two areas chosen for the enquiry. The farms in the southern part of Leicestershire are mainly devoted to beef and sheep grazing or dairying, but in the Lincolnshire marshes the farms are primarily arable. At one time this marsh land was mainly used for grazing but during the war a great deal was ploughed up, and also many beef herds were turned over to dairying.

From Table 1 will be seen that the average size of the sample farms on the marsh land was nearly 600 acres,(1) and more than twice the average size of the sample farms in Leicestershire. The Lincolnshire farms had an average of 58 per cent under tillage crops and could be described as arable farms on which livestock were of considerable importance being kept for the manures they supplied. The Leicestershire farms were mostly devoted to livestock with only 30 per cent of their land under tillage crops.

The Leicestershire farms were the more intensively stock, carrying in the summer about 36 cattle and 66 sheep per 100 acres, compared with 22 cattle and 49 sheep in Lincolnshire. These figures hide the time

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(1) Actually this sample included several farms on the Lincolnshire Wolds with grazing on the lower marsh land.

position to a certain extent for on many Leicestershire farms the livestock are not kept on the farm the whole year whereas in Lincolnshire the livestock are mainly from breeding herds so that the numbers are fairly constant throughout the year. On the other hand the Leicestershire graziers prefer to have stock on their fields for most of the year, whilst in Lincolnshire the farmers keep their cattle pastures empty during the winter, keeping the animals in yards to supply manure for the arable land. Thirteen farmers in Lincolnshire kept breeding herds, one reared his animals from bought-in calves, one had a dairy herd from which he fattened a few animals and only four depended entirely on bought stores. In Leicestershire only one farmer had a breeding herd and the other 16 boughtin their stores although four of these had a dairy herd in conjunction with their fattening enterprise.

LAND UTILISATION AND LIVESTOCK CARRY ON FARMS IN SAMPLE.

TABLE 1 — Per farm and per 100 acres

Item	Per farm		Per 100 acres	
	Leicester-shire	Lincoln-shire	Leicester-shire	Lincoln-shire
	acres	acres	acres	acres
Crops:-				
Wheat	29	85	12	15
Other corn	28	121	12	21
Sugar beet	1	14	-	2
Potatoes	4	25	2	4
Market garden crops	-	5	-	1
Other crops	10	88	4	15
Permanent grass	139	206	60	35
Temporary grass	25	43	10	7
Total acreage(1)	236	587	100	100
	Nos.	Nos.	Nos.	Nos.
Beef cattle:-				
Cows and bulls	2	30	1	5
Others over 2 years	67	58	28	10
Others under 2 years	9	42	4	7
Dairy cattle:-				
Cows and bulls	5	2	2	-
Other	2	2	1	-
Sheep	156	318	66	49

(1) Does not include summer keep.

In both areas some farmers rented extra grazing for the summer (three in the Lincolnshire sample and two in Leicestershire). The practice is very common on the Lincolnshire marshes but few were included in the sample due to the difficulty of discovering the identity of the person renting a particular field. Rents as high as £15 per acre are being paid for good pastures in a convenient position.

III. AVERAGE COSTS AND RETURNS.

This section puts forward the average results obtained from the investigation with comparisons for the Leicestershire and Lincolnshire groups and for the five most profitable and the five least profitable herds within each area. Tables4 and 6 show the farmer's individual result compared with the average and the high and low profit groups.

(1) Comparison of results for Leicestershire and Lincolnshire 1952.

(2) Leicestershire 1952.

(3) Lincolnshire 1952.

(4) Comparison of results for Lincolnshire in 1951 and 1952.

(1) Comparison of Results for Leicestershire and Lincolnshire 1952.

In Table 2 costs and returns are compared for Leicestershire and Lincolnshire showing that the average profit or net margin was approximately the same for both areas at just over £6 per beast. However, the structure of the results differed slightly between the two areas. Lincolnshire farmers obtained a margin between the cost of the store animal and its value when fat (i.e. the feeders' margin) that was £2 per head higher than the average for the Leicestershire sample. This was offset by lower grazing costs in Leicestershire and a further analysis of those costs will be found on page 22.

COMPARISON OF AVERAGE COSTS AND RETURNS IN PRODUCTION OF GRASS FED CATTLE IN LINCOLNSHIRE AND LEICESTERSHIRE 1952.

TABLE 2 — Per head

	Leicestershire 23 herds	Lincolnshire 26 herds
Average No. of cattle per herd	27	21
	£. s. d.	£. s. d.
Cost of store cattle	56.12. 9.	59. 6. 3.
Value of fat cattle	67. 2. 6.	71.18. 6.
Feeders' margin	10. 9. 9.	12.12. 3.
Grazing costs(1)	3. 1. 0.	4.19. 6.
Other costs:-		
Shepherding - manual labour	7. 5.	9. 3.
Shepherding - car, tractor etc.	1. 0.	1. 3.
Feeding stuffs - home grown	6. 4.	-
Transport	3.10.	5. 2.
Droving	5.	1. 1.
Market dues	2.	3. 7.
Overheads	3. 3.	5. 1.
Miscellaneous	7.	5.
Total costs	4. 4. 0.	6. 5. 4.
Net margin	6. 5. 9.	6. 6.11.

(1) Including rent, cultivations, fertilisers, drainage rates, etc.

The average fattening beast in Lincolnshire weighed approximately one cwt. more than the average in Leicestershire due to the predominance of the heavy Lincoln Red breed. Both groups showed an average weight increase of two cwts. per beast during the summer fattening season. It should, however, be noted that the weight of the store animal is based on the farmer's estimate and is only approximate.

ESTIMATED LIVE-WEIGHTS OF CATTLE 1952.

TABLE 3 — Per head

	Leicestershire		Lincolnshire	
	cwts.	qrs.	cwts.	qrs.
Weight of store cattle	9.	0.	9.	3.
Weight of fat cattle	11.	0.	12.	0.
Weight gain	2.	0.	2.	1.

(2) Leicestershire 1952.

A comparison of the results for the five highest and five lowest margin herds with the average results (see Table 4) suggests that the value of the cattle is the important factor whilst variations in grazing and other costs are not significant. A difference of £11 per head profit occurred between the two groups, of which only 13s. 0d. could be accounted for by differences in costs (excluding the cost of the store animal). The low profit group had paid an average of £6 per head more for stores receiving an average of £4 per head less at sale, emphasising that a most important factor in cattle feeding is to buy good cattle cheaply.

AVERAGE COSTS AND RETURNS IN PRODUCTION OF GRASS-FED CATTLE IN LEICESTERSHIRE 1952.

TABLE 4

Per head

	23 Herds	Five most profitable	Five least profitable	Your herd
Average No. of cattle per herd	27	28	22	
	£. s. d.	£. s. d.	£. s. d.	£. s. d.
Cost of store cattle	56.12. 9.	59. 9. 0.	65.12.10.	
Value of fat cattle	67. 2. 6.	74.17. 5.	70.17. 0.	
Feeders' margin	10. 9. 9.	15. 8. 5.	5. 4. 2.	
Grazing costs(1)	3. 1. 0.	2.17.10.	3. 9. 4.	
Other costs:-				
Shepherding - manual labour	7. 5.	9.11.	9. 0.	
Shepherding - car, tractor, etc.	1. 0.	1. 5.	1. 9.	
Feeding stuffs - home grown	6. 4.	2. 4.	3.11.	
Transport	3.10.	3. 3.	2. 2.	
Droving	5.	6.	8.	
Market dues	2.	-	-	
Overheads	3. 3.	4. 0.	3. 5.	
Miscellaneous	7.	5.	2. 1.	
Total costs	4. 4. 0.	3.19. 8.	4.12. 4.	
Net margin	6. 5. 9.	11. 8. 9.	11.10.	

(1) Including rent, cultivations, fertilisers, drainage rates, etc.

An analysis of the 23 records in Leicestershire by size of net margin per head gave the distribution below. Only two herds showed a loss, whilst two thirds had a profit of over £5.

Net margin per head	No. of records
Profit over £15	-
" " £10 and under £15	5
" " £ 5 " " £10	10
" under £ 5	6
Loss " £ 5	2
	23

ESTIMATED LIVE-WEIGHTS OF CATTLE IN LEICESTERSHIRE 1952.

TABLE 5

	23 Herds	Five most profitable	Five least profitable	Per head Your herd
	cwts.qrs.	cwts.qrs.	cwts.qrs.	cwts.qrs.
Weight of store cattle	9. 0.	9. 1.	10. 1.	
Weight of fat cattle	11. 0.	11. 3.	11. 2.	
Weight gain	2. 0.	2. 2.	1. 1.	

Table 5 sets out the average live-weights of cattle in the Leicestershire sample according to profitability. The low profit farmers bought in stores weighing one cwt. more per head but which increased in weight during the season by only $1\frac{1}{4}$cwts. against an increase of $2\frac{1}{2}$cwts. for the more profitable herds. The high profit farmers appeared to be buying in thin cattle that would fatten quickly.

(3) Lincolnshire 1952.

The results in Table 6 show a similar trend to those for Leicestershire. Again variations in grazing and other costs are not as significant as those in the value of the cattle. Between the highest and the lowest profit groups there was a difference of only £2 per head for grazing costs and nearly £13 for the feeders' margin.

AVERAGE COSTS AND RETURNS IN PRODUCTION OF GRASS-FED CATTLE IN LINCOLNSHIRE 1952.

TABLE 6

	26 Herds	Five most profitable	Five least profitable	Per head Your herd
Average No. of cattle in herd	21	11	18	
	£. s. d.	£. s. d.	£. s. d.	£. s. d.
Cost of store cattle	59. 6. 3.	58.12. 0.	59. 9. 4.	
Value of fat cattle	71.18. 6.	79. 7. 7.	67. 7. 6.	
Feeders' margin	12.12. 3.	20.15. 7.	7.18. 2.	
Grazing costs(1)	4.19. 6.	4. 3. 1.	6. 3. 8.	
Other costs:-				
Shepherding - manual labour	9. 3.	9. 2.	10. 7.	
Shepherding - car, tractor, etc.	1. 3.	-	1. 3.	
Feeding stuffs - home grown	-	-	-	
Transport	5. 2.	2. 0.	5. 1.	
Droving	1. 1.	2. 0.	1.	
Market dues	3. 7.	5. 3.	4. 9.	
Overheads	5. 1.	4. 1.	5. 0.	
Miscellaneous	5.	-	8.	
Total costs	6. 5. 4.	5. 5. 7.	7.11. 1.	
Net margin	6. 6.11.	15.10. 0.	7. 1.	

(1) Including rent, cultivations, fertilisers, drainage rates, etc.

The distribution of herds by size of net margin was as follows:-

Net margin per head	No. of records
Profit over £15	3
" " £10 and under £15	5
" " £ 5 " " £10	9
" under £ 5	7
Loss under £ 5	2
	26

There were three herds with net margins of over £15 per head whereas in Leicestershire there were none. Again about two thirds of all herds have a profit of over £5 per head.

As in Leicestershire there was a trend for the low profit farmers to start with heavier stores at the beginning of the season and to obtain a much smaller increase in live-weight than the more profitable group. At the end of the season the high profit farmers were selling cattle at an average $1\frac{3}{4}$cwts. heavier per head than the low profit farmers.

ESTIMATED LIVE-WEIGHTS OF CATTLE IN LINCOLNSHIRE 1952.

TABLE 7

Per head

	All herds	Five most profitable	Five least profitable	Your herd
	cwts.qrs.	cwts.qrs.	cwts.qrs.	cwts.qrs.
Weight of store cattle	9. 3.	9. 2.	9. 3.	
Weight of fat cattle	12. 0.	12. 3.	11. 1.	
Weight gain	2. 1.	3. 1.	1. 2.	

(4) Comparison of Results for Lincolnshire in 1951 and 1952.

In Lincolnshire 39 records were collected in 1951 and 26 in 1952 and from these it was found possible to abstract an identical sample of 24 that had been included each year. These records are not completely comparable as the size of herds, and the quality of the cattle varied between the two years. It can be seen from the figures in Table 8 that cattle fattening in Lincolnshire was slightly more profitable in 1952, the cattle yielding an average net margin of £6.12s. 6d. per head as against £4. 5s. 5d. in the previous year. Although the prices of both store and fat cattle had increased as a result of the 1952 Price Review the feeders' margin was £1.10s. 0d. per head higher than in 1951. Grazing costs were 15s. 0d. lower because the more favourable season in 1952 produced better grazing and more livestock were grazed per acre during the year. The costs of fertilisers, cultivations, etc. were thus spread over more animals, and the incidence was less per fattening beast.

It is interesting to note that on examining the most profitable 12 of the 24 records for the two years, seven were from the same farms each year, suggesting that some farmers consistently show a greater skill in grazing cattle.

The full sample of 39 records collected in 1951 showed an average profit of only £2.18s. 0d. per head which points to the fact that when the sample was reduced in 1952 a greater proportion of the low profit farmers was left out.

COMPARISON OF COSTS AND RETURNS IN PRODUCTION OF GRASS-FED CATTLE FOR AN IDENTICAL SAMPLE OF 24 RECORDS IN LINCOLNSHIRE IN 1951 AND 1952.

TABLE 8

	1951	1952
Average No. of cattle per herd	20	21
	£. s. d.	£. s. d.
Cost of store cattle	51.16.11.	59. 4. 8.
Value of fat cattle	62.19. 3.	71.17. 1.
Feeders' margin	11. 2. 4.	12.12. 5.
Grazing costs(1)	5. 9. 9.	4.14. 3.
Other costs:-		
Shepherding - manual labour	11. 0.	9. 3.
Shepherding - car, tractor etc.	2. 1.	1. 4.
Feeding stuffs - home grown	1.	-
Transport	5. 0.	5. 5.
Droving	8.	1. 1.
Market dues	1.11.	3. 0.
Overheads	6. 2.	5. 1.
Miscellaneous	3.	6.
Total costs	6.16.11.	5.19.11.
Net margin	4. 5. 5.	6.12. 6.

(1) Including rent, cultivations, fertilisers, drainage rates, etc.

The indentical sample of 24 records showed a live-weight increase of one qr. more in 1952 than in 1951, probably due to the more favourable grazing conditions in the second season.

ESTIMATED LIVE-WEIGHTS OF CATTLE IN LINCOLNSHIRE 1951 AND 1952. (IDENTICAL SAMPLE)

TABLE 9

Per head

	1951	1952
	cwts.qrs.	cwts.qrs.
Weight of store cattle	9. 2.	9. 3.
Weight of fat cattle	11. 1.	11. 3.
Weight gain	1. 3.	2. 0.

IV. FACTORS CAUSING VARIATIONS IN COSTS AND RETURNS.

The items which cause variations in profits from cattle feeding are the cost of the store animal, the value of the fat animal and the cost of feeding it from the store condition until fat. These items are taken individually below in an attempt to determine the effect that differences in their structure and in management may have on profits.

(1) Store cattle.

(2) Fat cattle.

(3) The feeders' margin.

(4) Grazing and other costs.

(1) Store Cattle.

Breed and Class. Before examining values and prices of the store cattle obtained for fattening in 1952 it is desirable to determine the class and breed of these animals and the source from which they were obtained. The total number of livestock and the percentage distribution according to class and breed are shown in Table 10 for the average and for the five highest and five lowest profit herds in each area.

In all cases more steers were fattened than female cattle. In Leicestershire over 60 per cent of all cattle were steers, and in Lincolnshire the proportion was 73 per cent. Breeds favoured varied greatly between the two counties. Leicestershire farmers preferred Hereford and Hereford Cross cattle. Profitability appeared to vary little according to breed, both high and low profit herds having averages of 80 per cent Hereford Cattle. The other 20 per cent consisted for the high profit group of other Shorthorn types and some Friesian and South Devon, and for the low profit group of Lincoln Red and Aberdeen Angus.

Lincolnshire showed a majority of farmers in favour of the Lincoln Red breed with a few also fattening Herefords. The high profit herds were entirely Lincoln Reds, whilst this breed formed only 27 per cent of the low profit cattle. A similar trend had been shown in the 1951 Lincolnshire enquiry when Lincoln Reds formed 86 per cent of the high profit cattle and only 67 per cent of the low profit cattle. It does not follow from this that the Lincoln Red is the most profitable breed but rather that the majority of the more efficient cattle graziers in Lincolnshire keep Lincoln Reds, whereas in Leicestershire they favour Herefords.

SIZE OF HERD, BREED AND CLASS OF LIVESTOCK AND THE SOURCE OF SUPPLY.

TABLE 10

Percentage of total cattle

	LEICESTERSHIRE			LINCOLNSHIRE		
	23 Herds	Five most profitable	Five least profitable	26 Herds	Five most profitable	Five least profitable
Total number	611	137	107	551	55	90
Average number per herd	27	28	22	21	11	18
Class:-	---Per cent---			---Per cent---		
Steers	64	80	100	73	72	79
Heifers	32	20	-	19	22	18
Cow-heifers	-	-	-	1	2	2
Drape cows	4	-	-	7	4	1
Breed:-						
Lincoln Red	5	-	8	63	100	27
Other Shorthorn	25	11	-	3	-	-
Hereford	63	80	79	24	-	51
Aberdeen Angus	2	-	13	9	-	19
Other	5	9	-	1	-	3
Source:-						
Reared on the farm	7	7	8	50	78	32
Purchased Irish - Autumn 1951	4	-	24	31	-	64
Purchased Irish - Spring 1952	26	-	38	-	-	-
Purchased other - Autumn 1951	30	49	25	13	22	-
Purchased other - Spring 1952	33	44	5	6	-	4

Source of Supply. Farmers in the two areas differed widely in the sources from which they obtained stores for summer fattening. Leicestershire farmers purchased 93 per cent of their requirements whilst in Lincolnshire farmers reared 50 per cent on their own farms. In Leicestershire the high profit farmers bought 93 per cent of their stores, in Lincolnshire they bought only 22 per cent. In both areas the high profit farmers did not purchase any Irish stores.

The figures show that only 41 per cent of the Leicestershire cattle were kept by the farmer throughout the winter previous to the summer fattening period, the other 59 per cent being purchased in the Spring and put straight on to grass to avoid over-wintering. As already mentioned in Section II the general practice in Lincolnshire is to keep cattle for supplying manure for the arable land and 94 per cent of the cattle in the sample were kept in yards during the winter.

Value and Weight. Table 11 shows the average valuation of store cattle at the beginning of the summer grazing period. These valuations are obtained from the actual price of the cattle if purchased immediately prior to being put on the grass, otherwise from the farmer's estimate of market value. It is probable that these valuations are unreliable as many farmers find it difficult to make such an estimate accurately. This is particularly the case in Lincolnshire where the greater proportion were animals bred on the farm and the valuation depended entirely on the farmer.

AVERAGE VALUE AND LIVE-WEIGHT OF STORE CATTLE BY CLASS AND BREED OF LIVESTOCK.

TABLE 11 — Per head

Type	Value		Live-weight	
	Leicestershire	Lincolnshire	Leicestershire	Lincolnshire
Class:-	£. s. d.	£. s. d.	cwts.qrs.	cwts.qrs.
Steers	63. 3.10.	62.17. 9.	9. 3.	10. 0.
Heifers	46.15. 4.	51.19. 8.	7. 2.	8. 3.
Cow-heifers	-	52. 6. 8.	-	9. 1.
Drape cows	29.15. 8.	43. 8. 9.	8. 1.	9. 3.
Breed:-				
Lincoln Red	52. 2. 6.	58.10. 9.	8. 0.	9. 3.
Other Shorthorn	48. 9. 5.	51. 5. 3.	8. 1.	9. 0.
Hereford	60. 7. 2.	66. 9. 6.	9. 1.	10. 1.
Aberdeen Angus	64. 3. 4.	52. 2. 6.	10. 2.	8. 1.
Other breeds	51. 2.11.	33.10. 0.	8. 0.	7. 0.
All types	56.12. 9.	59. 6. 3.	9. 0.	9. 3.

It will be seen from Table 11 that, on the average, farmers in Lincolnshire had stores of a higher monetary value than in Leicestershire. This tendency showed for the Lincoln Red, other Shorthorn and Hereford, but was reversed for the other breeds.

AVERAGE VALUATION PER LIVE CWT. OF STORE CATTLE BY CLASS AND BREED OF ANIMAL.

TABLE 12 — £ per live cwt.

Type	LEICESTERSHIRE			LINCOLNSHIRE		
	23 Herds	Five most profitable	Five least profitable	26 Herds	Five most profitable	Five least profitable
Class:-	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.
Steers	6. 9. 3.	6. 8. 3.	6. 8.11.	6. 6. 3.	6. 4. 2.	6. 6. 2.
Heifers	6. 6. 9.	6.13. 3.	-	5.17. 3.	6. 6. 4.	5. 9.11.
Cow-heifers	-	-	-	5.13. 2.	5.15. 9.	5. 6. 8.
Drape cows	3.12. 4.	-	-	4. 8. 5.	5. 3. 6.	4. 1.11.
Breed:-						
Lincoln Red	6. 7.11.	-	6.18.11.	5.19. 9.	6. 3. 9.	5.13. 3.
Other Shorthorn	5.17. 3.	6. 2.11.	-	5.13.11.	-	-
Hereford	6. 9.11.	6. 9. 8.	6. 8. 0.	6. 8. 1.	-	6. 9. 1.
Aberdeen Angus	6. 6. 2.	-	6. 6. 2.	6. 5. 4.	-	6. 2. 7.
Other	6. 6. 2.	6.11. 0.	-	4.15. 9.	-	5. 6. 8.
All types	6. 6. 7.	6. 9. 1.	6. 8.11.	6. 1.11.	6. 3. 9.	6. 2. 6.

This shows that in fact the Leicestershire cattle were of a higher value per live cwt. in nearly every case. It is difficult to say whether this is an indication of higher quality cattle or merely that the Leicestershire farmers tended to over-estimate values more than the Lincolnshire farmers. As further evidence for the former, it will be seen from Table 13 that prices paid for purchased cattle were higher in Leicestershire but here again there may be confusion as to whether this is due to higher quality or to generally higher prices in the markets where Leicestershire farmers deal.

In neither area was there any appreciable difference between the value per live cwt. of stores belonging to high and low profit farmers.

Purchased Stores. Leicestershire farmers purchased the majority of their store cattle in the spring whilst Lincolnshire farmers favoured autumn purchase so that the cattle could be kept in yards during the winter. It can be seen from Table 13 that in both areas prices were about 10s. 0d. per cwt. higher in the Spring than in the previous autumn. This was mainly the result of the Price Reviews in November 1951 and February 1952 which raised the price of fat cattle by an average of 7s. 6d. per live cwt., but partly to a general increase that occurs in the Spring when there is a sudden demand for stores when the grazing becomes available.

AVERAGE PRICES PAID BY FARMERS IN SAMPLE FOR STORE CATTLE BOUGHT IN AUTUMN 1951 AND SPRING 1952.

TABLE 13 — £ per live cwt.

Type	LEICESTERSHIRE				LINCOLNSHIRE			
	Autumn 1951		Spring 1952		Autumn 1951		Spring 1952	
	No.	£. s. d.	No.	£. s. d.	No.	£. s. d.	No.	£. s. d.
Steers	197	5.14. 0.	177	6. 5. 9.	200	5. 8. 3.	30	6. 2. 6.
Heifers	10	4.17. 9.	165	6. 0. 9.	40	5. 2. 0.	3	5. 2.10.
Cow-heifers	-	-	-	-	1	4.10. 0.	-	-
Drape cows	-	-	21	3.11. 5.	1	3.10. 0.	2	4.11. 0.
Lincoln Red	-	-	5	6. 4. 9.	49	5. 5. 2.	35	5.18. 8.
Other Shorthorn	23	5. 7.11.	128	5.10. 6.	19	4.15.11.	-	-
Hereford	165	5.15. 0.	209	6. 5.11.	129	5.10. 5.	-	-
Aberdeen Angus	9	5.13. 4.	5	6. 6. 2.	42	5. 4.11.	-	-
Other breeds	10	4.17. 9.	16	6. 4. 9.	3	2. 4. 0.	-	-
All types	207	5.13. 3.	363	6. 0. 9.	242	5. 7. 1.	35	5.18. 8.
Irish stores - all breeds (included above)	26	5. 7. 8.	159	5.17. 4.	170	6. 7. 2.	-	-

More steers were purchased than any other class of cattle and their price was higher than that of other classes. Prices of individual breeds varied considerably, Herefords being the most popular breed and also among the highest priced.

As already stated above, prices paid by Leicestershire farmers were on the average higher than those paid by Lincolnshire farmers. This may have been due to better quality animals or to the fact that the farmers in the two areas were dealing in different markets. The number of cattle purchased in different markets by farmers in each area is shown in Table 14. Northampton was of great importance for the purchase of cattle for Leicestershire, and York for Lincolnshire. In Lincolnshire local sales were also of considerable importance.

MARKETS USED BY FARMERS IN SAMPLE FOR PURCHASE OF STORE CATTLE.

TABLE 14 — No. of cattle

Market	Total	Lincoln Red	Other Shorthorn	Hereford	Aberdeen Angus	Other breeds
Leicestershire farmers:						
Northampton	253	-	74	165	-	14
Tenbury Wells	57	-	-	57	-	-
Ireland	49	-	-	49	-	-
Banbury	30	-	-	30	-	-
Melton Mowbray	29	-	-	15	14	-
Kettering	25	-	25	-	-	-
Bridgnorth	24	-	8	16	-	-
Leek	19	-	19	-	-	-
Nottingham	10	-	-	10	-	-
Leicester	6	-	-	6	-	-
Rugby	6	-	-	6	-	-
Market Harborough	3	-	3	-	-	-
Cornwall	10	-	-	-	-	10
Local sales	49	5	22	20	-	2
Lincolnshire farmers:						
York	113	-	-	82	31	-
Ireland	46	-	-	46	-	-
Louth	30	29	-	1	-	-
Brigg	19	-	8	-	11	-
Gainsborough	7	-	7	-	-	-
Local	62	55	4	-	-	3

(2) Fat Cattle.

Method of Disposal. At the end of the 1952 summer grazing season the cattle were disposed of by the methods shown in Table 15. The outstanding factor here is the high proportion of cattle sold fat to the Ministry of Food in Leicestershire compared with Lincolnshire. In Leicestershire 90 per cent of all cattle were sold fat and only three per cent were sold as stores. In Lincolnshire the proportion was only 68 per cent sold fat whereas 26 per cent were sold on the store market. The remainder were accounted for by casualties or by cattle retained on the farm for further feeding. In both areas a higher proportion of cattle were sold fat in the most profitable groups than for the average of all the herds.

DISPOSAL OF CATTLE.

TABLE 15

Percentage of total cattle

Method of disposal	LEICESTERSHIRE			LINCOLNSHIRE		
	23 Herds	Five most profitable	Five least profitable	26 Herds	Five most profitable	Five least profitable
Sold to Ministry of Food	90	98	91	68	78	55
Sold store	3	-	8	26	18	37
Casualty	-	-	-	2	4	1
Retained on farm	7	2	1	4	-	7
Number of cattle	611	137	107	551	55	90

Grade of Cattle Sold Fat. Table 16 shows the percentage of cattle sold in each grade. The Lincolnshire farmers were obtaining a greater proportion of high grades in comparison with Leicestershire farmers. Grades of A+ and over were obtained for 40 per cent of the cattle sold fat in Leicestershire and for 70 per cent of those sold fat in Lincolnshire. It would seem that the Lincolnshire farmers prefer to sell their lower grade cattle as stores rather than as fat cattle. In both areas high profit farmers obtained better grades than the average.

GRADES OF CATTLE SOLD TO MINISTRY OF FOOD.

TABLE 16

Percentage of cattle sold fat

Grade(1)	Killing out percentage	LEICESTERSHIRE			LINCOLNSHIRE		
		23 Herds	Five most profitable	Five least profitable	26 Herds	Five most profitable	Five least profitable
SS	59 & over	1	1	1	3	-	-
S	58	15	25	25	29	21	14
A+	57	24	30	16	38	58	46
A	56	38	29	47	20	21	18
A-	55	17	12	9	7	-	8
B+	54	4	2	1	2	-	8
B	53	1	1	-	1	-	6
B-	52	-	-	-	-	-	-
C+	51	-	-	1	-	-	-
C	50	-	-	-	-	-	-
No. of cattle sold fat	-	551	134	98	374	43	50

(1) Including grades for fat cows.

Prices and Weights. The choice of method of disposal was made primarily according to the quality of the animal. Consequently the highest prices obtained were for cattle sold fat to the Ministry of Food at an average of £6. 4s. 0d. per live-cwt., whereas cattle sold as stores were obtaining about £5.15s. 0d. per live-cwt. The valuesof cattle retained on the farm were obtained from the farmer's estimate of market value and so are not necessarily accurate.

AVERAGE PRICE AND LIVE-WEIGHT OF FAT CATTLE ACCORDING TO DIFFERENT METHODS OF DISPOSAL.

TABLE 17 Per head

Method of disposal	LEICESTERSHIRE			LINCOLNSHIRE		
	Price £. s. d.	Weight(1) cwts.qrs.	Price per cwt. £. s. d.	Price £. s. d.	Weight(1) cwts.qrs.	Price per cwt. £. s. d.
Sold to Ministry of Food	68.16. 8.	11. 0.	6. 4. 3.	75. 5. 2.	12. 0.	6. 4. 0.
Sold store	54.10. 1.	9. 2.	5.14. 5.	66. 4. 8.	11. 2.	5.15. 9.
Casualty	22. 0. 0.	10. 2.	2. 1.11.	40.17. 3.	12. 1.	4. 1. 6.
Retained on farm	50.14. 0.	9. 1.	5.10. 8.	65.14. 4.	11. 1.	5.16. 7.
All methods	67. 2. 6.	11. 0.	6. 3. 2.	71.18. 6.	12. 0.	6. 1. 0.

(1) Weight given to nearest qr.

The average price per beast according to class and breed is shown in Table 18. In every case prices in Lincolnshire were higher than in Leicestershire. As already seen in Table 17 prices per live-cwt. were

AVERAGE PRICE OF FAT CATTLE BY CLASS AND BREED OF LIVESTOCK.

TABLE 18 Per head

Type	LEICESTERSHIRE			LINCOLNSHIRE		
	23 Herds	Five most profitable	Five least profitable	26 Herds	Five most profitable	Five least profitable
Class:-	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.
Steers	74. 2. 6.	76. 7. 9.	70.17. 0.	75. 5. 7.	83. 0. 5.	71. 0. 9.
Heifers	56. 8. 8.	63.13. 8.	-	66.12. 1.	71. 0. 6.	53. 1. 1.
Cow-heifers	-	-	-	60. 4. 7.	76.15. 0.	59. 9.10.
Drape cows	39.13. 7.	-	-	53. 8. 7.	57.19.11.	52.10. 5.
Breed:-						
Lincoln Red	58. 9. 7.	-	67.17. 9.	72. 3. 9.	79. 7. 7.	59. 8.10.
Other Shorthorn	59.11. 2.	70.10. 9.	-	59.11. 1.	-	-
Hereford	70. 5. 6.	74.17. 3.	69.12. 0.	76. 6. 0.	-	74. 4. 2.
Aberdeen Angus	77.14. 5.	-	80. 5. 0.	67. 5. 5.	-	64. 0. 6.
Other breeds	68.12.10.	80. 7. 0.	-	39. 0. 9.	-	45. 1. 6.
All types	67. 2. 6.	74.17. 5.	70.17. 0.	71.18. 6.	79. 7. 7.	67. 7. 6.

similar for the two areas so that the difference in prices per head must be accounted for by heavier weights. This is borne out by the figures in Table 19 which show that Lincolnshire cattle were on the average one cwt. heavier.

AVERAGE LIVE-WEIGHT OF FAT CATTLE BY CLASS AND BREED OF LIVESTOCK.

TABLE 19 — Per head

Type	LEICESTERSHIRE						LINCOLNSHIRE					
	23 Herds		Five most profitable		Five least profitable		26 Herds		Five most profitable		Five least profitable	
Class:-	cwts.	qrs.	cwts.	qrs.	cwts.	qrs.	cwts.	qrs.	cwts.	qrs.	cwts.	qrs.
Steers	11.	3.	11.	3.	11.	2.	12.	1.	13.	0.	11.	2.
Heifers	9.	1.	11.	1.	-		10.	3.	12.	0.	9.	3.
Cow-heifers	-		-		-		11.	1.	12.	0.	10.	0.
Drape cows	10.	1.	-		-		12.	1.	13.	1.	12.	2.
Breed:-												
Lincoln Red	9.	1.	-		10.	1.	12.	0.	12.	3.	10.	2.
Other Shorthorn	10.	2.	11.	2.	-		10.	2.	-		-	
Hereford	11.	0.	11.	2.	11.	2.	12.	1.	-		12.	0.
Aberdeen Angus	12.	0.	-		12.	1.	11.	0.	-		10.	3.
Other breeds	11.	1.	12.	3.	-		7.	2.	-		9.	0.
All types	11.	0.	11.	3.	11.	2.	12.	0.	12.	3.	11.	1.

The high profit groups were obtaining about £7.10s. 0d. per beast more than the average and for both areas the average live-weight was higher.

In every case steers were obtaining the highest sale price and were mostly the heaviest animals sold. The Aberdeen Angus breed obtained the highest value at sale in Leicestershire, and Lincoln Reds and Herefords in Lincolnshire. The weights at sale showed a similar trend.

(3) Feeders' Margin.

Increase in Value. The feeders' margin may be defined as the difference between the cost or valuation of the store animal and its value when fat. Table 20 shows this increase in value for different classes and breeds of cattle in the two areas. On the average Lincolnshire farmers were obtaining a larger feeders' margin than those in Leicestershire, and in both areas the high profit group had a margin considerably above the average.

AVERAGE INCREASE IN VALUATION BY BREED AND CLASS OF LIVESTOCK.

TABLE 20 Per head

Type	LEICESTERSHIRE			LINCOLNSHIRE		
	23 Herds	Five most profitable	Five least profitable	26 Herds	Five most profitable	Five least profitable
Class:-	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.
Steers	10.18. 8.	14.17. 1.	5. 4. 2.	12. 7.10.	20. 9. 5.	8.18. 6.
Heifers	9.13. 4.	17.14. 5.	-	14.12. 5.	22.17. 2.	2.18. 7.
Cow-heifers	-	-	-	7.17.11.	21.15. 0.	11. 9.10.
Drape cows	9.17.11.	-	-	9.19.10.	13.19.11.	8.10. 5.
Breed:-						
Lincoln Red	6. 7. 1.	-	1.17. 9.	13.13. 0.	20.15. 7.	-7. 2.10.
Other Shorthorn	11. 1. 9.	19. 6. 9.	-	8. 5.10.	-	-
Hereford	9.18. 4.	14. 4. 1.	4. 2. 0.	9.16. 6.	-	9.13. 9.
Aberdeen Angus	13.11. 1.	-	14. 0. 0.	15. 2.11.	-	26. 5. 3.
Other breeds	17. 9.11.	21.13. 8.	-	5.10. 9.	-	-2.18. 6.
All types	10. 9. 9.	15. 8. 5.	5. 4. 2.	12.12. 3.	20.15. 7.	7.18. 2.

In Lincolnshire the Aberdeen Angus breed showed the highest average margin closely followed by Lincoln Reds. In the low profit group in Lincolnshire two breeds actually showed a deficit for the feeders' margin probably due to over-estimation by the farmers of the value of the store animal.

Increase in Weight. The average live-weight gain was about two cwts. during the season. The weight gain varied directly with profitability, the most profitable group in Lincolnshire obtaining weight increases of up to four cwts. for certain classes.

Increases per Grazing Day. Table 22 shows the average increase in the value and live-weight of an animal during a grazing day. The average increase in value for Leicestershire was 1s. 7d. per day, and 1s. 9d. for Lincolnshire. For both areas the average increase in live-weight was 1.68 lbs. per day.

AVERAGE INCREASES IN LIVE-WEIGHT BY BREED AND CLASS OF LIVESTOCK.

TABLE 21

Per head

Type	LEICESTERSHIRE			LINCOLNSHIRE		
	23 Herds	Five most profitable	Five least profitable	26 Herds	Five most profitable	Five least profitable
Class:-	cwts.qrs.	cwts.qrs.	cwts.qrs.	cwts.qrs.	cwts.qrs.	cwts.qrs.
Steers	2. 0.	2. 1.	1. 1.	2. 1.	3. 0.	1. 3.
Heifers	1. 3.	3. 2.	-	2. 0.	4. 1.	2.
Cow-heifers	-	-	-	2. 0.	2. 2.	1. 0.
Drape cows	2. 0.	-	-	2. 2.	4. 3.	1. 3.
Breed:-						
Lincoln Red	1. 1.	-	3.	2. 1.	3. 1.	-1. 1.
Other Shorthorn	2. 1.	3. 1.	-	1. 2.	-	-
Hereford	1. 3.	2. 1.	1. 1.	2. 0.	-	2. 0.
Aberdeen Angus	1. 2.	-	1. 3.	2. 3.	-	4. 2.
Other breeds	3. 1.	3. 3.	-	2.	-	0.
All types	2. 0.	2. 2.	1. 1.	2. 1.	3. 1.	1. 2.

AVERAGE INCREASES IN VALUE AND LIVE-WEIGHT PER GRAZING DAY.

TABLE 22

Per grazing day

	Increase	
	Value	Weight
Leicestershire:-	s. d.	lbs.
23 Herds	1. 7.	1.68
Five most profitable	2. 2.	1.94
Five least profitable	9.	1.03
Lincolnshire:-		
26 Herds	1. 9.	1.68
Five most profitable	3. 1.	2.71
Five least profitable	1. 0.	1.09

(4) Grazing and Other Costs.

After analysing the cost of the store cattle, the price of the cattle when fat and the difference between these two values, the next stage is to examine that part of the feeders' margin devoted to the cost of feeding the animal from the store condition until fat. The costs consist of the expenses pertaining to the grass such as that of harrowing, drainage, etc., and also those costs applying directly to the cattle such as shepherding, feeding stuffs given in addition to the grazing, transport expenses to market, etc.

Grazing Costs. Total grazing costs per head of cattle have already been referred to in Section III above. Table 23 below presents an analysis of these costs per acre.

GRAZING COSTS.

TABLE 23 £ per acre

Item	Leicestershire 23 Herds	Lincolnshire 26 Herds
	£. s. d.	£. s. d.
Labour(1)	10. 5.	10. 6.
Rent or rental value	2. 8.11.	2.17. 3.
Drainage rates	-	7. 1.
Water rates	-	2.
Artificial fertilisers	14. 8.	12. 7.
Spray or dust	7.	4.
Fencing materials	1. 5.	11.
Miscellaneous	4. 9.	9.10.
Machinery depreciation	1. 3.	11.
Machinery residues	- 11.	- 1. 1.
TOTAL	4. 1. 1.	4.18. 6.

(1) Including manual, horse, tractor and contract labour.

From this it will be seen that the recorded fields in Lincolnshire had grazing costs nearly £1 per acre higher than those in Leicestershire, the difference being due to higher rent per acre and the drainage rates charged on most of the Lincolnshire marsh fields. The item 'miscellaneous costs' included a standard charge of 5s. 0d. in Leicestershire for large scale hedging and ditching expenses over and above the normal yearly maintenance and 10s. 0d. per acre in Lincolnshire where the clearing and dredging of dykes is a considerable expense.(1)

(1) This item in Table 23 comes to less than the standard allowance because it was not charged for fields taken only as a summer letting.

Table 2 (page 5) shows that when grazing costs were averaged per head of cattle Lincolnshire farmers had costs nearly £2 per head higher than those in Leicestershire. This higher cost per head in proportion to cost per acre results from the more intensive stocking of the Leicestershire pastures which enables the costs to be spread over a larger number of beasts.

Some farmers prefer to look on their grazing costs as an alternative cost. They consider that the cost is really the amount of income they are giving up by not letting the land for summer keep. Consequently each farmer was asked what price he considered his land would obtain if let for the summer grazing season. The costs were re-calculated on this basis except for land actually taken as summer keep and the results are shown below with actual costs for comparison:-

	Leicestershire	Lincolnshire
	£. s. d.	£. s. d.
Actual grazing costs per acre	4. 1. 1.	4.18. 6.
Summer keep-value per acre	7.16.11.	7. 7. 4.

Other Costs. To see the structure of other costs reference should again be made to Table 2. For both counties the cost of shepherding for the season was just under 10s. 0d. per head, and in Leicestershire home grown feeding stuffs were given to the value of 6s. 4d. per head. Market dues were higher in Lincolnshire because more cattle were sold in the store market.

Grazing and other costs are, however, insignificant when compared with the cost of the store animal, which accounts for 90 per cent of total costs as may be seen from the figures below.

	Leicestershire	Lincolnshire
	Per cent	Per cent
Grazing costs	5	8
Other costs	2	2
Cost of store cattle	93	90
	100	100

It might, perhaps, be pointed out here that although farmers are very cautious about using fertilisers on grass the cost of additional applications will make little difference to costs incurred but may add greatly to the number of stock the grass will carry and the amount of weight gain during a season.

Cost per Grazing Day. Grazing and other costs for each beast per day were 5d. for Leicestershire and 8d. in Lincolnshire.

Length of Grazing Period. The table below shows the average number of days each beast spent on the grass during the summer of 1952.

LENGTH OF GRAZING PERIOD.

TABLE 24

	Days per head
Leicestershire:-	
23 Herds	129
Five most profitable	143
Five least profitable	133
Lincolnshire:-	
26 Herds	143
Five most profitable	136
Five least profitable	156

The average beast in Lincolnshire took a fortnight longer to reach market condition than in Leicestershire, and it should be noted from Table 3 that the live-weight gain was slightly more in Lincolnshire.

Intensity of Stocking. In Leicestershire there was one fattening beast per acre and in Lincolnshire one per 1.3 acres. But this is not an absolute comparison as there were other livestock grazing on the fields during the year. If these are taken into account according to the number of days grazing the result is roughly that the 611 fattening cattle in Leicestershire were grazing on the equivalent of 440 acres and the 551 cattle in Lincolnshire on 539 acres.

Livestock unit grazing days were calculated for all the livestock on the costed fields. One livestock unit grazing day represents one day's grazing for a fattening beast over two years of age and the grazing needs of other livestock are calculated proportionately. From these calculations it was estimated that there was an average of 181 cattle grazing days on each acre costed in Leicestershire and 146 per acre in Lincolnshire, showing that the Leicestershire pastures carried considerably more stock during the year. On this assumption although it will be seen from Table 2 that the average profit per head of cattle was approximately the same in both areas where the enquiry was held, Leicestershire farmers were actually obtaining a return from their fattening cattle of £4. 14s. 9d. per acre compared with only £3 9s. 9d. per acre in Lincolnshire owing to the fact that they are able to carry more livestock to the acre. The live-weight increase was also higher in Leicestershire being 2.32 cwts. per acre compared with 2.19 cwts. in Lincolnshire.

V. SUMMARY.

(1) In 1952 the supply of beef available in the United Kingdom was a third less than pre-war. United Kingdom farmers are now producing 80 per cent of total supplies compared with 50 per cent pre-war.

(2) Cattle numbers fell about four per cent during 1951 and 1952. It is still too early to say how much this was due to a fall in beef numbers, or whether there is likely to be a recovery to the former position.

(3) There is considerable difference in the type of farming between the two areas chosen for the enquiry. In the Lincolnshire Marsh area the farms are of the predominantly arable type keeping livestock to supply manure whereas in the Welland Valley of Leicestershire the farms are mainly concerned with beef and sheep fattening or dairying.

(4) For the summer of 1952 the average profit per head of cattle fattened was £6. 6s. 0d., with an average weight increase during the summer season of two cwts.

(5) A comparison of the results of high and low profit herds shows that the value of the store animal is the most important and variable item in determining profits. The essential factor in making high profits is to obtain relatively cheap stores that will obtain a good weight and grade increase during the season.

(6) Of the 49 records only four showed a loss for 1952.

(7) A comparison for 1951 and 1952 of an identical sample of farms in Lincolnshire showed a profit of £2. 7s. 1d. per head higher in 1952.

(8) The farmers in the Leicestershire sample purchased 93 per cent of their store requirements whilst Lincolnshire farmers reared 50 per cent. The majority of store purchases by Leicestershire farmers was made in the Spring, but there was a preference in Lincolnshire for autumn purchases so that manure would be obtained from the winter-feeding.

(9) In Leicestershire 90 per cent of all cattle were sold to the Ministry of Food, in Lincolnshire the proportion was only 68 per cent.

(10) On the average the Lincolnshire cattle obtained a higher margin between purchase price and sale price than those in Leicestershire.

(11) The average increase in live-weight per day of grazing was 1.68 lbs. per head of fattening cattle.

(12) The land was stocked more intensively on the Leicestershire farms where there was one beast to the acre compared with Lincolnshire where there was one beast per 1.3 acres. Consequently the return from fattening cattle was £4. 10s. 9d. per acre in Leicestershire and only £3. 6s. 8d. in Lincolnshire.

APPENDIX

STANDARD CHARGES USED AND PROCEDURES ADOPTED IN THIS INVESTIGATION.

LABOUR.

The charges for labour were as follows, unless the farmer paid more than the standard rate, when the full amount was charged:-

Per hour.	s. d.
Men	2. 8½
Women	2. 1¼
Youths	1. 9¾
Wheel tractor	4. 0.
Tracklaying tractor	5. 6.
Lorry	4. 6.
Horse	1. 4.

Contract work was taken at cost.

MANURES.

Artificials were taken at cost minus subsidy where applicable and farmyard manure was charged at 10s. 0d. per ton. Lime was charged at net cost less subsidy.

MANURIAL RESIDUES.

The residual debit or credit was reached by deducting any residues chargeable from previous crops from the sum of residues to be credited to the present crop.

The residual value of fertilisers was calculated according to the tables in "Residual Values of Fertilisers and Feedingstuffs" Advisory Leaflet No.24, Department of Agriculture for Scotland. No manurial residues were allowed to farmyard manure.

The charge for lime was spread equally over four years.

MACHINERY DEPRECIATION AND REPAIRS.

A charge of 2s. 6d. per hour of tractor work and 7½d. per hour of horse work was made in order to cover depreciation and repairs to all other machinery.

LEYS.

The costs of establishment were spread equally over four years.

GRAZING COSTS.

The costs of grazing (rent, cultivations, fertiliser applications, hedging, ditching, etc.) were allocated to the fat cattle according to the proportion of days grazing to the total number of livestock grazing days (fat cattle equivalents) for the field.

HOME GROWN FEEDING STUFFS.

These were charged as follows:-

Hay	5s. 6d. per cwt.
Crushed oats	13s. 9d. " "
Swedes	4s.10d. " "

OVERHEADS.

(1) Hedging and ditching - a standard charge of 5s. 0d. per acre in Leicestershire and 10s. 0d. per acre in Lincolnshire was made to cover large scale expenses of this kind over and above the normal yearly maintenance.

(2) All other overheads were calculated for each record on the basis of 5s. 0d. for each £ of direct manual labour.