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F. R. No. 114

UNIVERSITY OF NOTTINGHAM SCHOOL OF AGRICULTURE



THE FATTENING OF CATTLE ON GRASS

A Study of Management, Costs and Returns

(Interim Report)

DEPARTMENT OF AGRICULTURAL ECONOMICS
SUTTON BONINGTON
LOUGHBOROUGH

THE FATTENING OF CATTLE ON GRASS

A Study of Management, Costs and Returns

(Interim Report)

Department of Agricultural Economics
University of Nottingham School of Agriculture
Sutton Bonington, Loughborough.

SEPTEMBER, 1952.

THE FATTENING OF CATTLE ON GRASS

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Introduction

This report deals briefly with the first part of a two years' study of the grass feeding of cattle in the East Midlands Province (1) of the Agricultural Economics Service. During its first year this study was confined to the marsh grazings of Lincolnshire but in the second year comparable data are also being collected on the feeding of cattle on the grazing lands of South Leicestershire.

The nation needs more meat and the price changes announced recently have been designed to encourage farmers to achieve the greatest possible increase in the production of meat. In the House of Lords on 30th April, 1952, Lord Woolton gave as two of the Government's four main proposals for the four year period from June 1952 "an additional 300,000 to 400,000 calves to be reared annually for beef production" and "an increase of 15 per cent in the output of grass land"

This seems, therefore, to be an opportune time for a study of the costs and returns of beef production from grass and of the factors of management which affect the profitability of this enterprise.

This study has already shown clearly that there is a wide range in profitability between the different herds. This is no new thing in farm cost studies. What are the reasons for these big differences in profits between herds? Are they merely a reflection of differences in the skill of the various farmers as graziers or is it possible to point to causes that are clearly within the control of the farmer? Is it a matter of the breed of the cattle? Do homebred cattle do better than bought stores? Is it a question of the quality of the grass? Is there any difference between the return from feeding steers, heifers and cows? What difference does the date of purchase and sale make?

This report sheds some light on a few of these points. A more comprehensive report will be prepared at the end of the second year of the enquiry and it is hoped that it will then be possible to amplify and substantiate many of the results of the first year's work.

This enquiry could not have been undertaken without the willing cooperation of the farmers who kept the necessary records or without drawing upon the guidance and local knowledge of the Advisory Officers of the National Agricultural Advisory Service in the area. This help is readily acknowledged.

The counties of Nottingham, Derby, Leicester, Rutland, Lincs. (Kesteven and Lindsey.)

Location of the study

The area chosen for the enquiry was the marsh grazing land of Lincolnshire. This is one of the traditional areas of beef production in the East Midlands and although it has changed in character during the past 15 years by partly turning over to arable and to dairy farming, it is still of some considerable importance.

The term "marsh grazing" is applied here to a strip of land about ten miles in width running north and south between the Lincolnshire wolds and the sea, and broadening in the south near Skegness. No longer marshy, this land is crossed with drainage systems and some has been reclaimed from the sea.

The management of fattening cattle in this area has certain peculiarities. Much of the land is let for summer keep from the beginning of April to the end of October. The land is rented either privately or at "letting auctions" in the local market town at prices ranging from about £5 to as much as £15 per acre for the season. By this system fields are often at a considerable distance from the farm. Under these circumstances shepherding is usually done by a local man who makes a charge for the season on an acreage basis rather than on the basis of the number of animals grazed. In 1951, the charge was usually about 55x 00; or 65 00; per acre for the season, and as there is normally one beast to the acre, the cost per head would be roughly the same.

There are few leys, nearly all the grazing being on permanent pasture, and the grass receives little attention in the way of harrowing or fertiliser applications. The majority of the cattle are Lincoln Reds bred in the district, but there are also a considerable number of steers brought over from Ireland for fattening.

In this area 29 farmers co-operated in the investigation and between them they provided records for 39 if attending herds. With a total of 752 cattle individual herds varied in size from three to 58 head of cattle, but costs were not obtained for all the animals being fattened on every farm.

The total area of grass covered by the survey was 1,143 acres but this included land grazed by other livestock. The proportion grazed by the fat cattle only was roughly 774 acres and with 752 fattening cattle this means that the rate of grazing was just under one beast to the acre.

Type of farm

The 29 farms in the sample had an average size of 628 acres although they ranged from 80 acres to 1,707 acres. The information in Table 1 shows that on an average, only a third of the land was under grass whilst there was a considerable proportion of land under cash crops.

LAND UTILISATION OF FARMS IN SAMPLE

TABLE 1 Average siz	e of farm = 628 acres
Crop	Percentage
Wheat Other corn Sugar beet Potatoes Market garden crops Cther crops (including seeds) Pasture Rough grazing	15 22 3 6 2 21 30 1
TOTAL	100

Twenty-one of the farms kept a breeding herd of beef cattle, four had a diary herd and four kept stores for fattening only. Fifteen of the farmers kept some sheep. In very few cases were the farmers running any livestock in winter on the pasture that was used for summer fattening.

Only six of the herds were on accommodation land, this probably being a lower proportion than a true cross-section of the area would show.

Costs and returns

Average costs and returns for the 39 herds in the enquiry are shown in Table 2 in comparison with the average of the five most profitable and the five least profitable herds.

AVERAGE COSTS AND RETURNS FROM PRODUCTION OF GRASS-FED CATTLE 1951

Average no. of cattle per herd Average no. of cattle per herd 19 23 16 2. s. d. £.	TABLE 2			Per hea	ıd
Average no. of cattle per herd Cost of store cattle Value of fat cattle Feeders' margin Cother costs: Shepherding - manual labour Shepherding - car, tractor, etc. Feeding:striffs Transport and droving Market dues Overheads Total costs 19 23 £. s. d. £. s. d. 59. 7.10. 62.16.11. 71. 0. 1. 62.16.11. 71. 0. 1. 19.13. 2. 1.12.10. 5. 9. 9. 5.13.10. 5. 8. 1. 11.10. 6. 5. 7. 7. 7. 7. 1.12. 7. 6. 1. 8. 7. 2. 6. 9. 7. 2. 10.11. 7. 3. 0. 6.14. 5. 9. 9. 8.		All	Five most	Five least	Your
Cost of store cattle Value of fat cattle Feeders' margin Cother costs: Shepherding - manual labour Shepherding - car, tractor, etc. Feeding striffs Transport and droving Market dues Overheads Total costs £. s. d. £. s. d. 52.15.11. 51. 6.11. 71. 0. 1. 51. 0. 1. 52.15.11. 62.16.11. 71. 0. 1. 61. 0. 8. 1.12.10. 5. 9. 9. 5. 13.10. 5. 8. 1. 11.10. 6. 5. 7. 7. 7. 7. 1.12. 7. 6. 9. 7. 2. 6. 9. 7. 2. 6. 9. 7. 3. 0. 6. 14. 5. 9. 9. 8.		herds	profitable	profitable	herd
Cost of store cattle Value of fat cattle Feeders' margin Cother costs: Shepherding - manual labour Shepherding - car, tractor, etc. Feeding striffs Transport and droving Market dues Overheads Total costs £. s. d. £. s. d. 52.15.11. 51. 6.11. 71. 0. 1. 51. 0. 1. 52.15.11. 62.16.11. 71. 0. 1. 61. 0. 8. 1.12.10. 5. 9. 9. 5. 13.10. 5. 8. 1. 11.10. 6. 5. 7. 7. 7. 7. 1.12. 7. 6. 9. 7. 2. 6. 9. 7. 2. 6. 9. 7. 3. 0. 6. 14. 5. 9. 9. 8.					
Cost of store cattle Value of fat cattle Feeders' margin Crazing costs* Cother costs:- Shepherding - manual labour Shepherding - car, tractor, etc. Feeding striffs Transport and droving Market dues Overheads Total costs 52.15.11. 51. 6.11. 59. 7.10. 62.16.11. 71. 0. 1. 61. 0. 8. 1.12.10. 59. 7.10. 61. 0. 8. 1.12.10. 59. 7.10. 61. 0. 8. 1.12.10. 50. 10. 11. 70. 70. 11. 12. 70. 61. 8. 70. 62. 16. 11. 70. 1. 12. 10. 61. 0. 8. 1. 12. 10. 61. 0. 8. 1. 12. 10. 61. 0. 8. 1. 12. 10. 62. 16. 11. 70. 61. 0. 8. 1. 12. 10. 62. 16. 11. 70. 61. 0. 8. 1. 12. 10. 61. 0. 8. 1. 12. 10. 61. 0. 8. 1. 12. 10. 61. 0. 8. 1. 12. 10. 61. 0. 8. 1. 12. 10. 61. 0. 8. 1. 12. 10. 61. 0. 8. 1. 12. 10. 61. 0. 8. 61. 0. 1. 61. 0. 8. 61. 0. 8. 61. 0. 1. 61. 0. 8. 61. 0. 1. 61. 0. 8. 61. 0. 1. 61. 0. 8. 61. 0. 1. 61. 0. 8. 61. 0. 1. 61. 0. 8. 61. 0. 1. 61. 0. 8. 61. 0. 1. 61. 0. 8. 61. 0. 1. 61. 0. 1. 61. 0. 8. 61. 0. 1. 61. 0. 1. 61. 0. 8. 61. 0. 1. 61. 0. 1. 61. 0. 1. 61. 0. 1. 61. 0. 1. 61. 0. 1. 61. 0. 1. 61. 0. 1. 61. 0. 1. 61. 0. 1. 61. 0. 1. 61. 0. 1. 61. 0. 1. 61. 0. 1. 61. 0. 1. 62. 10. 61. 0. 1. 61. 0. 1. 61. 0. 1. 61. 0. 1. 61. 0. 1. 61. 0. 1. 61. 0. 1. 61. 0. 1. 61. 0. 1. 61. 0. 1. 61. 0. 1. 61. 0. 1. 61. 0. 1. 61. 0. 1. 61. 0. 1. 61. 0. 1. 61. 0. 1. 61. 0. 1. 61. 0.	Average no. of cattle per herd	19	23		
Value of fat cattle Feeders' margin Grazing costs* Other costs:- Shepherding - manual labour Shepherding - car, tractor, etc. Feeding:striffs Transport and droving Market dues Overheads Total costs Other costs:- Shepherding - manual labour Shepherding - car, tractor, etc. Feeding:striffs Transport and droving Market dues Overheads Total costs Other costs:- Shepherding - manual labour Shepherding - car, tractor, etc. 2. 6 4. 0 - 6. 1. 8. 7. 7. 7. 1.12.10. 11.10. 6. 5. 16. 7. 7. 7. 1.12. 7. 6. 9. 9. 9. 8.		£. s. d.	£. s. d.		£. s. d.
Feeders' margin Grazing costs* Other costs:- Shepherding - manual labour Shepherding - car, tractor, etc. Feeding striffs Transport and droving Market dues Overheads Total costs 10. 1. 0. 19.13. 2. 1.12.10. 5. 9. 9. 5.13.10. 5. 8. 1. 11.10. 6. 5. 2. 6. 7. 7. 7. 1.12. 7. 6. 9. 2. 1. 8. 7. 2. 1. 12.10. 5. 8. 1. 11.10. 6. 5. 7. 7. 7. 7. 1.12. 7. 6. 9. 7. 2. 10.11. 7. 3. 0. 6.14. 5. 9. 9. 8.	Cost of store cattle	52.15.11.	51. 6.11.		
Grazing costs* 5. 9. 9. 5.13.10. 5. 8. 1. Other costs:- Shepherding - manual labour 11.10. 6. 5. 16. 7. Shepherding - car, tractor, etc. 2. 6 7. 7. Feeding striffs 4. 0 - 1.12. 7. Transport and droving 6. 1. 8. 7. 6. 9. Market dues 2. 1. 1. 3. 7. 2. Overheads 6. 9. 4. 4. 10.11. Total costs 7. 3. 0. 6.14. 5. 9. 9. 8.	Value of fat cattle	62.16.11.			
Other costs:- Shepherding - manual labour Shepherding - car, tractor, etc. Feeding: triffs Transport and droving Market dues Overheads Total costs Other costs:- 11.10. 6.5. 16.7. 2.6 7.7. 1.12.7. 6.1. 8.7. 6.9. 2.1. 1.3. 7.2. 6.9. 4.4. 10.11. 7.3.0. 6.14.5. 9.9.8.	Feeders' margin	10. 1. 0.	19.13. 2.	1.12.10.	
Other costs:- Shepherding - manual labour Shepherding - car, tractor, etc. Feeding triffs Transport and droving Market dues Overheads Total costs Other costs:- 11.10. 6.5. 16.7. 2.6 7.7. 1.12.7. 6.1. 8.7. 6.9. 2.1. 1.3. 7.2. 6.9. 4.4. 10.11. 7.3.0.6.14.5. 9.9.8.					1
Shepherding - manual labour Shepherding - car, tractor, etc. Feeding striffs Transport and droving Market dues Overheads Total costs 11.10. 6.5. 2.6 7.7. 1.12.7. 6.9. 2.1. 1.3. 7.2. 6.9. 4.4. 10.11. 7.3.0. 6.14.5. 9.9.8.	Grazing costs*	5. 9. 9.	5.13.10.	5.8.1.	
Shepherding - manual labour Shepherding - car, tractor, etc. Feeding striffs Transport and droving Market dues Overheads Total costs 11.10. 6.5. 2.6 7.7. 1.12.7. 6.9. 2.1. 1.3. 7.2. 6.9. 4.4. 10.11. 7.3.0. 6.14.5. 9.9.8.					
Shepherding - car, tractor, etc. Feeding striffs Transport and droving Market dues Overheads Total costs 2. 6 7. 7. 4. 0 - 1.12. 7. 6. 9. 2. 1. 1. 3. 6. 9. 7. 2. 6. 9. 4. 4. 10.11. 7. 3. 0. 6.14. 5. 9. 9. 8.		77.70	6 5	16 7	
Feeding striffs Transport and droving Market dues Overheads Total costs 4. 0 - 6. 1. 2. 7. 6. 9. 6. 9. 7. 2. 6. 9. 4. 4. 10.11. 7. 3. 0. 6.14. 5. 9. 9. 8.				1	
Transport and droving Market dues Overheads Total costs 6. 1. 8. 7. 6. 9. 2. 1. 1. 3. 7. 2. 6. 9. 4. 4. 10.11. 7. 3. 0. 6.14. 5. 9. 9. 8.		1	ł		
Market dues Overheads Total costs 2. 1. 1. 3. 7. 2. 6. 9. 4. 4. 10.11. 7. 3. 0. 6.14. 5. 9. 9. 8.	•				
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Total costs 7. 3. 0. 6.14. 5. 9. 9. 8.					
	-	1	1 /	4	
Mot marrin 2 78 0 472 78 0 477 76 70	TOTAL COSTS	1. 3. 0.	0.14. /	7. 7. 0.	
Mer markri	Net margin	2.18. 0.	±12.18. 9.	-7.16.10.	

^{*} Including rent, cultivations, fertilisers, drainage rates, etc.

Net margin

The average profit margin for all herds was just under £3 per head. For the five most profitable herds the average profit was nearly £13 per head, but a loss of nearly £8 per head was suffered by the five least profitable. Of the 39 herds, 14 showed a loss. An analysis of the records by size of margin per head showed the following distribution.

Net margin per head	No. of records
Profit over £10 " # £5 - £10	4 11
" under £5	10
Loss under £ 5 " £ 5 - £10	5
" over £10	<u>1</u>
) 9

There are, of course, three main variables which affect the result of a cattle feeding enterprise; the cost of the store animal, the value of the fat animal and the cost of feeding it.

Cost of store cattle

Of the 752 cattle in the investigation over 50 per cent were bought in. Many of these cattle were purchased in the autumn when prices are lower than in the spring. Their "cost" in the spring at the beginning of this enquiry was the farmers' estimation of their market value. The average "price" or valuation of these cattle in the spring was £5.10s. Od. per live cwt. The average valuation of homebred cattle was also £5.10s. Od. per live cwt. In fact there was considerable variation from these averages.

It is clear that the accuracy of the farmers' estimate of the weight and value of cattle not purchased at the beginning of the grazing season will exercise a considerable influence on the results of such a study as this. It is thought that the tendency is for farmers to over-estimate slightly both the value and weight of the cattle when they go out to grass. This would make the profitability of the enterprise appear less than it actually is. This fact should be kept in mind when studying many of the figures in this report.

Value of the fat animal

About 60 per cent of the cattle costed were sold fat at the end of the feeding period. Many of the remainder were sold as stores but some were retained on the farm for further feeding. The average price realised for all animals sold fat was £68 per head or £5.15s. 4d. per live cwt. The figures shown in Table 2 are averages of fat sales, store sales and of the values of cattle retained (at estimated market prices).

The scheduled prices paid by the Ministry of Food for fat steers and heifers during the period of the investigation were highest for the last week in April from when they declined steadily until October. For Grade A animals the price was 127s. Od. per bive cwt. in April and by October had declined to 109s. Od. per live cwt. After October the price rose and by the end of the year would have been 116s. Od. per live cwt. but was further increased by a Special Price Review in November 1951 which added an average of 4s. Od. per live cwt.

For Grade A and above, prices for cow heifers were the same as for heifers and steers, but below this grade were several shillings per cwt. less. For Grade C in April they were as much as £1. Os. Od. per cwt. less. Prices for Grade A cows were also considerably below those of steers and heifers.

There was a price reduction for heavy weight steers, heifers and cowheifers amounting to 5s. Od. per live cwt. in the case of animals weighing from $13\frac{3}{4}$ cwt. to $15\frac{3}{4}$ cwt. (inclusive) net live weight and 10s. Od. per live cwt. in the case of animals weighing 16 cwt. and over net live weight. About half a cwt. gain is necessary to offset the reduction in price at the point where the penalty is imposed and farmers should not sell at this weight unless by doing so they obtain a higher grade.

The steep drop in price during the summer months makes it important for a farmer to consider carefully the best time to sell. For much of the summer the price falls about 6d. per cwt. per week or 6s. 0d. per head per week for a 12 cwt. beast. If the animal is putting on weight at the rate of about 1b. per day this extra weight will offset the fall in the price of beef per live cwt. and leave a small margin. But if costs are being incurred which are not covered by this margin, the animal should be sold as soon as it will grade reasonably well. If the cattle are being fed on grass, the actual saving in costs from early sale may be very small. Rent, the main cost, must be paid anyway and quite frequently no other stock is available to graze the field.

Costs

The cost of the store animal represents 88 per cent of the total cost of the fat animal. Of the balance of 12 per cent amounting on these farms to £7. 3s. 0d. per beast, £5. 9s. 9d, or more than three quarters was the cost of grazing. Shepherding was the other main expense. It will be seen that the average expenditure on faciling attiffs was only 4s. 0d. per head.

Grazing costs

A further analysis of grazing costs per acre is shown in Table 3. Actual grazing costs were obtained for 33 of the records only. The other six herds were on accommodation land and the rent paid was the only grazing cost incurred.

GRAZING COSTS - ALL HERDS £ per acre TABLE 3. Per cent Item Cost per acre Actual costs (33 herds) £. s. d. 12.8 Labour 11. 7. 2. 9. 2. 6. 0. Rent or rental value Drainage rates 0.2 2늘 Water rates 12.4 Artificial fertilisers 11. 4. 0.3 F.Y.M. 0.4 Spray or dust 12.4 Miscellaneous costs 11. 4. 1.0 Machinery depreciation 11. Net manurial residues 100.0 4.11. 2. TOTAL 8.10. 7. Rent of summer keep (six herds) Estimated "letting" value (all records) 7• 9• 7•

In the 33 records for which detailed grazing costs were obtained, rent accounted for more than 50 per cent of the total. Manual, horse and tractor labour in doing cultivations accounted for another 13 per cent and artificial fertilisers for 12 per cent. The quantities of artificial fertilisers applied were on average very small, only 12 farmers applying any. Applications consisted mainly of basic slag at about 10 cwt. per acre or compound fertiliser mixtures at two or three cwt. per acre. Only a proportion of the full cost of fertilisers applied during the year was charged against the grass, but a charge was made for the residual value of fertilisers applied in previous years as explained in Appendix I. Miscellaneous costs include a standard charge to cover the cost of large-scale operations of hedge-laying or dredging ditches carried out in previous years. Allowance has been made in the labour and machinery charge for the maintenance of fences and the annual mowing out of ditches.

For the other six herds the price paid for the summer keep was intended to cover cultivations, fertiliser applications, etc. although it is doubtful whether the grass did receive any attention. The average cost was considerably higher by this method, being £8.10s. 7d. as opposed to £4.11s. 2d. for the 33 herds.

At the request of a number of farmers it was decided to ask each cooperator owning or renting his land under a normal yearly lease what he
considered his land would fetch ata letting auction. On average the
estimated "letting" value of the land was £7. 9s. 7d. per acre as compared
with an estimated cost of £4.1ls. 2d. per acre. In certain circumstances,
the "letting" value of the land may be the real cost to the farmer because
he is giving up this source of income to keep his stores on the grass.
If his margin on the grazing beast is below the figure of £7. 9s. 7d.
(assuming a beast to the acre) it will pay him better to let the grazing
to someone else. This may be the position for the individual farmer, but
if many attempted to let grass, the rents obtainable would be much reduced.

Cost per livestock grazing day

Total grazing and other costs per livestock grazing day were considerably higher on the low profit herds, but it has already been shown in Table 2 that the importance of these costs is low in comparison with the value of the store.

COST PER LIVESTOCK GRAZING DAY

TABIL 4		A	verage per head
Item	All herds	Five most profitable	Five least profitable
Average grazing cost per	d.	c 5	s. d.
livestock day. Average grazing and other	7.	9.	81/2
costs per livestock day.	91/2	11.	1. 3.

Comparison of high and low profit herds

Much of the interest of this study lies in the differences observed between herds and particularly between the high and low profit herds. Several points of interest are revealed in Table 2.

- (a) The cost of the store cattle was about average on the five most profitable herds, but roughly £7 above the average on the five least profitable hords.
- (b) On the other hand, the value of the finished beasts on the least profitable farms was very slightly below average. The cattle in the most profitable herds were disposed of for about £8 per head more than the sample average.
- (c) Consequently, the feeders' margin (i.e. the difference between the cost of the store and the value of the animal when fat) was nearly 11 times greater on the high profit herd than on the low profit herds.
- (d) Grazing costs were roughly equal for all groups.
- (e) Other costs were higher for the low profit group mainly because of the feeding stuffs used.
- (f) The average size of the most profitable herds was slightly greater, but there is no reason to suppose that this was a factor of much significance.

Weights

It will be seen from Table 5 that the estimated weight increase during the season was less for the low profit group than for the other two groups. The average weight increase for all herds was only $l\frac{1}{2}$ cwt. but the weather during the season was not favourable, commencing with a cold wet spring which proved a considerable set back to the cattle.

ESTIMATED	UNITCHIC	O.EJ	ጥለጥጥኒም
P.STI MATELL	WELLERINS	()H	CATTIO

TABLE 5					Ave	rage	per hea	ad
Item	All h	e rds	Five m		Five l		Your	herd
Weight of store cattle Weight of fat cattle Weight gain	cwt. 9 11 1	qr. 3 1 2	ewt. 9 12 2	qr. 3 1 2	ewt. 10 11 1	qr. 0 0 0	cwt.	qr.

Costs and returns per cwt. gain

A calculation of the costs and returns per cwt. gain is given in Table 6. This shows that the return per cwt. gain was considerably higher in the high profit group than in the low profit group. The balance between opening and closing valuation was £8 as opposed to £1. 10s.:0d'. and costs were considerably lower. In the low profit group the farmers were actually losing over £7 for every cwt. gained.

COSTS AND RETURNS PER CWT. GAIN

TABLE 6		•	·
Itom	All records	Five most profitable	Five least profitable
Cost of store cattle Value of fat cattle Feeders margin Grazing costs	£. s. d. 32. 4. 4. 38. 7. 0. 6. 2. 8.	£. s. d. 21. 2. 8. 29. 4. 6. 8. 1.10.	£. s. d. 55. 9. 7. 57. 0. 3. 1.10. 8.
Other costs Total costs Net margin	1. 0. 3. 4. 7. 3. 1.15. 5.	8. 6. 2.15. 4. 5. 6. 6.	3.16. 3. 8.17. 3. -7. 6. 7.
Average weight gain*	cwt, qr. 1 2	cwt. qr. 2 2	cwt. qr.

^{*} To nearest quarter.

Breed and class of livestock

Nearly 90 per cent of the cattle in the high profit herds were of the Lincoln Red breed. On an average of all records a third of the animals were of other breeds, mainly Irish stores. About three quarters of the animals costed were steers, but there was little difference between the high and the low profit groups in the proportion of steers, heifers and cows fattened.

SIZE OF HERD, BREED AND CLASS OF LIVESTOCK

TABLE 7	,	Percentage of	total cattle
<u> T</u> tem	All hords	Five most profitable	Five least profitable
No. in herd	19	23	16
Breed - Lincoln Red - Other	Per cent 67 33	Per cent 86 14	Per cent 67 33
Class - Steers - Heifers - Cow heifers - Drape cows	73 18 1 8	82 12 1 5	81 11 - 8

Source of supply and method of disposal

Only a third of the animals in the high profit herds were reared on the farm, but the figure for low profit herds was nearly two thirds.

SOURCE AND DISPOSAL OF CATTLE Percentage of total cattle TABLE 8 Five least Five most profitable profitable All herds Item Per cent Per cent Per cent 32 59 48 - Reared on the farm Source 28 14 - Bought - Irish 30 13 54 - Bought - other 22 90 18 61 - Sold fat Disposal 6 45 26 - Sold store 1 2 - Casualty 1 2 - Transferred out

A considerably higher proportion of cattle were sold as fat beasts to the Ministry of Food from the high profit herds. The figure was 90 per cent compared with 20 per cent from the low profit group. For this sample of farms this was a significant factor in determining profitability.

Grade

In view of the marked difference in the proportion graded off it is not really surprising that for the herds in the enquiry there was little connection between grade and profitability. For the sample as a whole, 84 per cent of the cattle sold fat obtained Grade A or above.

GRADE OF CATTLE SOLD FAT

TABLE 9			Percentage o	f total cattle
	Killing out	All	Five most	Five least
Grade*	porcentage	records	profitable	profitable
	Per cent	Per cent	Per cent	Per cent
SS	59 and over	9	2	-
S	58	28	40	50
A+	57	29	38	43
. A	56	18	14	7
A-	55	8	4	-
B \	54	3	1	-
В	53	3		. 🕳
B-	52	-	-	-
C+	51	-	. -	-
C	50	2	1	-

^{*} Including grades for fat cows.

Date cattle were put on and off grass

This appeared to vary little with profitability as can be seen from Table 10. About 55 per cent of all cattle in the investigation were put on the field between April 12th and April 20th. Normally more are turned out around April 6th, the day for the start of many summer "lettings".

The average date for removing cattle from the field was about three weeks earlier for the high profit group. The disposal of some cattle was delayed by the outbreaks of foot and mouth disease.

DATE CATTLE WERE PUT ON AND TAKEN OFF GRASS

TABLE 10			Average date
Item	All herds	Five most profitable	Five least profitable
Date on field Date off field	17th April 23rd Sept.	16th April 3rd Sept.	19th April 22nd Sept.

"Letting" value of grass

An examination in Table 11 of the type of grass according to the level of the "letting" rent or estimated "letting" value shows that the low profit herds were grazing on land of a higher estimated value. If "letting" rents were a true appraisal of the value of the grass this would suggest that in this area managerial factors affect the profitability of the enterprise to a greater extent than the quality of the grazing available.

LETTING VALUE OF GRASS - ACTUAL OR ESTIMATED

TABLE 11			£ per acre
		Five most	Five least
Item	All herds	profitab <u>le</u>	profitable
Letting value	£. s. d. 7. 9. 7.	£. s. d. 7.10. 7.	£. s. d. 10. 7. 9.

But letting rents often vary according to the traditional reputation of a field and not according to the actual quality of the grass. One farmer in the enquiry renting two fields, one at £8.10s. Od. an acre and the other at £12 could see little difference in the results achieved from them. The farmers' estimate of the letting value of their grass may not have yielded an accurate picture of the actual value of the grazing, but it is interesting to note that the average estimated letting value was £7. 9s. 7d. per acre compared with an actual payment of £8.10s. 7d. per acre for six fields.

Conclusions.

- (1) The average profit margin was just under £3 per head of cattle, varying from £13 on the five most profitable herds to minus £8 on the five least profitable.
- (2) Variations in the value of the store animal and in the receipts from the disposal of the cattle had more effect on profitability than variations in feeding costs.
- (3) The difference between the value of the store animal and the value of the fat animal was far higher for the high profit herds £20 as opposed to £2 for the low profit herds.
- (4) Total fattening costs per beast (excluding the price of the store) were £7. 3s. Od. and varied little with profitability.

- (5) Costs of ley establishment, fertiliser applications and other cultivations were small showing that the grass received little attention. Grazing costs were mainly accounted for by rent.
- (6) Average live weight gain was only $1\frac{1}{2}$ cwt. during the season. This was probably due to the adverse weather, particularly the cold late spring.
- On many fields there was little grass until late in the season. For the high profit herds the average live weight gain was $2\frac{1}{2}$ cwt.
- (7) The average net margin per cwt. gain was £1.15s. 5d.; for the high profit group it was £5.16s. 6d. and for the low profit group minus £7. 6s. 7d.
- (8) The high profit herds had a higher proportion of Lincoln Reds, but a lower proportion of animals reared on the farm.
- (9) On the average 60 per cent of the cattle were sold fat to the Ministry of Food, but it is a significant factor that the proportion was considerably higher for the five most profitable herds.
- (10) The possibility must not be overlooked that there may have been errors in the farmers' estimations particularly of opening valuations and weights of cattle.

P.P.R.

R.B.J.

APPENDIX I

STANDARD CHARGES USED AND PROCEDURE ADOPTED IN THE INVESTIGATION

Labour

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

Per hour	s. d.
Men Women Youths	2. 6. 2. 0. 1. 8.
Wheel tractor Tracklaying tractor Lorry Horse	4. 0. 5. 6. 4. 6. 1. 4.

Contract work was taken at cost

Manures

Artificials were taken at cost and farmyard manure was charged at 10s. 6d. 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 artificals was calculated according to the tables in "Residual Values of Fertilisers and Feedingstuffs" Advisory Leaflet No. 20, 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 $7\frac{1}{2}$ d. per hour of horse work was made in order to cover depreciation and repairs to all other machinery.

Overheads

- (1) Hedging and ditching a standard charge of 10s. Od. por acrowas made to cover large-scale expenses of this kind.
- (2) All other overheads were calculated for each record on the basis of 5s. Od. for each £ of direct manual: labour.

PROFIT AND LOSS ACCOUNT

(Total of 39 herds)											
Opening valuation	£. s. d.	£. s. d.	Sales or Closin		d. £. s. d.						
cwt: .qr 549 Steers 5386. 0 30 138 Heifers 1208. 1 6	0732. 0. 0. 0574. 0. 0. 350. 0. 0. 2045. 0. 0.	a e	549 Steers 138 Heifers 8 Ccw heifers 57 Drape cows	cwt . qr . 6363. 0 36459. 7. 1356. 1 7652. 2. 86. 3 446. 5. 680. 2 2700.12.	9. 10.						
752 Total 7254. 1		39701.0.0.	752 Total	8486. 2	47258.8.10.						
Shepherding - manual labour Shepherding - car, tractor, etc. Feeding stuffs	4126. 5. 2½ 445. 8. 1. 91.15. 0. 149.12. 0. 229.18. 4. 78. 3. 2.	e i i i i i i i i i i i i i i i i i i i		a, pi €e , a	APPENDIX						
	247.14. 7.			garage and the second s	B 1 1840 00 1 1						
MARGIN		2182. 2. 5½									
	•	£47258.8.10.			£47258. 8.10.						

CHART SHOWING THE POSITION OF YOUR HERD IN RELATION TO SOME FACTORS AFFECTING PROFIT

This chart shows some of the main factors affecting profit. For each factor the highest, lowest and middle herd have been selected and the red lines indicate the position of your herd. Each column shows the range of a particular item, and is independent of all other columns.

margin of	Cost of store cattle	Value of fat cattle	Feeders! margin	Grazing costs	Other costs	Cost per livestock grazing day	Weight gain	Net margin per cwt. gain
£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.		£. s. d.	cwt. qr.	£. s. d.
Highest return	or lowest	cost herd	in each it	tem:-				
17.15. 6. 58	38.18. 2.	80.17. 0.	20.17. 0.	2. 3. 0.	12. 1.	4.	4 0	6. 9. 6.
	;							
Middle herd in	each item:	 		F 70 0	7 77 7	8	1 2	1.16. 5.
2. 4. 6. 14	52. 0. 0.	60.18. 4.	10. 0. 4.	5.10. 0.	1.11. 7.	0	.	1.51.0 o / o
Lowest return	or highest	cost herd	in each i	tem:-			†	
-21.18. 3. 3	68.14. 2.	41. 0. 0.	-7.13. 4.	15. 0. 0.	10.19. 2.	1. $6\frac{1}{2}$	-1 0	-8. 9. 0.

PENDIX

