Cattle - Feeding

University of Exeter

Department of Economics (Agricultural Economics)

A Study of Cattle Fattening on Grass in South-West England

1963

Summary of Results

1, Courtenay Park,

Newton Abbot,

Devon.

January 1964.

Price:-
One Shilling & Sixpence

ACKNOWLEDGEMENTS.

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Summary of Investigation.

1. The study on which this report is based was undertaken on 28 farms during the summer of 1963. These farms were located mainly in Devon, 10 in the Exe and Culm Valleys north of Exeter, 7 in the Milton Abbot/Lamerton districts near Tavistock and 6 in the Taw Estuary area of North Devon. The remaining 5 farms were situated in the Callington/Launceston districts of East Cornwall.

2. Altogether, 776 head of cattle were covered by the study, comprising 586 steers and 190 heifers. In terms of breeds, the Friesian-cross bullock was the most popular type encountered, accounting for approximately 37% of the total sample. The native Devon and South Devon breeds accounted for 23% and 16% respectively of the total. It is interesting to note that in 1958, when a similar investigation was last conducted by this Department, these two native breeds, together, accounted for nearly 90% of the sample. An analysis of the 1963 cattle by breed is presented below:-

Breed	No. Cattle	%
Devon	176	23
South Devon	124	16
Friesian X Devon	236	30
Friesian X Hereford	50	7
Friesian	42	5
Mixed	148	19
Total	776	100

3. Just under three-quarters (560 head) of the total cattle were purchased as stores during the spring and early summer of 1963. The number of stores purchased in the autumn of 1962 and over- wintered was insignificant. Hence, the cattle entered in the opening valuation in Table 1 refer to the number of home-reared stores on the farm when the grazing season was deemed to have commenced. Cattle in the closing valuation refer to those which were unfinished on grass and were brought indoors for hand-feeding.

4. The investigation extended over a period of 8 months, from April to November. The average duration of the grazing period for any particular bunch of cattle was just under four months, but this varied considerably between farms, from about one and a half months to a little over six months.

5. The gross output and inputs for the 28 study farms are analysed in

Tables 1 and 2. The total value added to the 776 cattle during the 1963 grazing season, inclusive of attested bonus payments, was £12,205, equivalent to £15. 15s. per head. This sum represents the gross feeders' margin, and is the difference between the sum of the closing valuation plus sales (inclusive of attested bonus) and the sum of the opening valuation plus purchases. Cattle on hand, both at the beginning and end of the grazing period, were entered at their estimated market values. The inputs employed in fattening - feed, labour, marketing charges etc. - amounted in total to £6,436 or £8. 5s. per head, which left a total margin of £5,769 or £7. 10s. per head for the grazier. Profit margins, however, varied considerably between farms, from a deficit of £3. 2s. to a surplus of £16 per head. The distribution of the study farms according to profit margins is set-out below:-

	Margin/Head £	No. Farms
Deficit	3	1
Surplus	1 - 3.9	1
	4 - 6.9	12
	7 - 9.9	8
	10 -11.9	3
	12 and over	3
	Total	28

The main input item was grazing, which at £4. 12s. per head accounted for 55.8% of total costs. Marketing and haulage was the next most important at £1. 6s. or 15.8%, followed by labour at £1. 4s. or 14.5% of total costs. The average grazing period amounted to 118 days, during which time an average live-weight gain of 2.1 cwt. per head was achieved, equivalent to a daily live-weight increase of 2.0 lb.

6. The results for the 5 highest and 5 lowest margin farms, set-out in Table 3, show that both the initial purchase price or valuation and the selling price were important factors affecting the level of profitability. Those farms with the highest margins showed not only an advantage in initial cost of 8s. per cwt., but also an advantage of a further 8s. per cwt. in the selling price.

Cattle in the highest margin group achieved a bigger daily gain in weight than in the lowest margin group, 2.3 lb. compared with 1.7 lb. This quicker fattening rate, coupled with lower input cost, enabled the highest margin group of farms to show an overall advantage of just over £1. 12s. in the fattening costs per cwt. of live-weight gain.

On a per acre basis, the high margin farms showed a significantly higher level of profitability than the low margin farms, £16. 11s. 5d. compared with £4. 13s. 4d. This was in part the result of a lower acreage requirement per beast fattened, 0·7 acres relative to 0·9 acres, and in part the result of higher margins per head.

7. A comparison of the 1963 results with those obtained in 1958 for a similar study reveals that, on average, profit margins were £5 per head higher in 1963 than in the earlier year. This was brought about by the substantially higher feeders' margin obtained in 1963, £15. 15s. compared with £10. 0s., which was the result of lower store prices in the latter year since in both years the returns per live cwt. for fat cattle were identical. Input costs in 1963 were 15s. per head higher than in the earlier period.

E.T.D

Table 1. Financial Results - 28 Farms. 1963.

Dr.				Cr.		
	Opening Valuation			Closing Valuation		
No.	cwt.		£	No.	cwt.	£
216 Cattle	1723		13,254	146 Cattle	1409	10,408
	Purchases				Sales	
560 Cattle	4654		35,788	630 Cattle	6584	50,798
Gross Output carried down	1616		12,205	Attested Bonus		41
776	7993		61,247	776	7993	61,247
Inputs		£		Gross Output brought down		12,205
Grazing		3572				
Other Foods		579				
Labour:-						
Manual		825				
Tractor/Car		115				
Marketing & Haulage		1010				
Sundries		129				
Share of Overheads		206	6,436			
MARGIN			5,769			
			12,205			12,205

Note: No charge has been made for management or interest on capital.

No credit has been allowed for manure.

Table 2. Gross Output, Inputs and Margin per Head.

28 Farms - 1963.

		£	s.	%
Returns for Fat Cattle		78	19	
Value of Store Cattle		63	4	
Gross Output		15	15	
Inputs		£	s.	%
Foods:-	Grazing	4	12	55.8
	Other		15	9.1
	Total Foods	5	7	64.9
Labour:-	Manual	1	1	12.7
	Tractor/Car etc.		3	1.8
	Total Labour	1	4	14.5
	Marketing & Haulage	1	6	15.8
	Sundry Costs		3	1.8
	Share of Overheads		5	3.0
Total Inputs		8	5	100.0
Margin		£7	10	
Value of Store per Live cwt.		£7	14	
Return per Live cwt.		£7	13	
Weight of Store (cwt.)		8.2		
Weight of Fat Beast (cwt.)		10.3		
Gain in Live weight (cwt.)		2.1		
Input Costs per cwt. Gain		£3.	19s.	7d.
Average No. Grazing Days		118		
Gain per Grazing Day (lb.)		2.0		
Acres per Beast Fattened		0.8		
Margin per Acre devoted to Cattle		£9.	5s.	2d.
Number of Cattle Fattened		776		

Table 3. Gross Output, Inputs and Margin per-Head for the Five Highest & Lowest Margin Groups - 1963.

	5 Farms with Highest Margins		5 Farms with Lowest Margins	
	£ s.		£ s.	
Returns for Fat Cattle	70 18		85 12	
Value of Store Cattle	53 12		73 16	
Gross Output	17 6		11 16	
	£ s.	%	£ s.	%
Inputs				
Foods:- Grazing	2 10	43·9	4 8	57·9
Other	2 6	40·3	-	-
Total Foods	4 16	84·2	4 8	57·9
Labour:- Manual	6	5·2	16	10·6
Tractor/Car etc.	2	1·8	2	1·3
Total Labour	8	7·0	18	11·9
Marketing & Haulage	8	7·0	1 18	25·0
Sundry Costs	-	-	4	2·6
Share of Overheads	2	1·8	4	2·6
Total Inputs	5 14	100·0	7 12	100·0
MARGIN	£11. 12s.		£4. 4s.	
Value of Store per Live cwt.	£7. 6s.		£7. 14s.	
Return per Live cwt.	£7. 10s.		£7. 2s.	
Weight of Store (cwt.)	7·6		8·8	
Weight of Fat Beast (cwt.)	9·6		10·5	
Gain in Weight (cwt.)	2·0		1·7	
Input Costs per cwt. Gain	£2. 17s. 0d.		£4. 9s. 5d.	
Average No. Grazing Days	98		111	
Gain per Grazing Day (lb.)	2·3		1·7	
Acres per Beast Fattened	0·7		0·9	
Margin per Acre devoted to Cattle	£16. 11s. 5d.		£4. 13s. 4d.	
Number of Cattle Fattened	87		126	

Table 4. Gross Output, Inputs & Margin per Head

1958 and 1963

	1958		1963	
	£	s.	£	s.
Returns for Fat Cattle	80	3	78	19
Value of Store Cattle	70	3	63	4
Gross Output	10	0	15	15
Inputs				
Foods:- Grazing	4	13	4	12
Other		8		15
Total Foods	5	1	5	7
Labour:-Manual		18	1	1
Tractor/Car etc.		3		3
Total Labour	1	1	1	4
Marketing & Haulage	1	2	1	6
Sundry Costs		1		3
Share of Overheads		5		5
Total Inputs	7	10	8	5
MARGIN	2	10	7	10
Value of Store per Live cwt.	8	2	7	14
Return per Live cwt.	7	13	7	13
Weight of Store (cwt.)	8·7		8·2	
Weight of Fat Beast (cwt.)	10·5		10·3	
Gain in Weight (cwt.)	1·8		2·1	
Input Costs per cwt. Gain	£4. 3s. 10d.		£3. 19s. 7d.	
Average No. Grazing Days	125		118	
Gain per Grazing Day (lb.)	1·6		2·0	
Acres per Beast Fattened	0·7		0·8	
Margin per Acre devoted to Cattle	£3. 8s. 3d.		£9. 5s. 2d.	
Number of Farms	57		28	
Number of Cattle Fattened	2262		776	

APPENDIX I.

COSTING METHOD.

LABOUR CHARGES

Manual	Adult Male	5s.	0d. per hour
Tractor	Medium Power	4s.	6d. per hour
Car/Van			9d. per mile

GRASSLAND COSTS

Manurial Residues - No Manurial residues from previous years have been charged to the pasture nor have any residues been carried forward to the succeeding years.

Machinery Depreciation - No depreciation allowances have been charged for implements used on the grassland. It was considered that the charges would be negligible.

Manures - Artificial manures and lime have been charged at net cost to the farmer after deducting subsidy.

Allocation of Grassland Cost to the Fattening Cattle - The utilisation of the grassland has been the basis on which the grassland costs have been allocated. For this purpose all classes of livestock have been converted into cattle equivalents. The conversion rates were as follows:-

Cattle:-	Cows and Other Cattle over two years old	=	1·0
	Cattle 1 - 2 years old	=	0·8
	Cattle 0 - 1 year old	=	0·5
Sheep:-	Ewes and Rams	=	0·2
	Fattening Sheep & Replacements	=	0·2

Winter Grazing - The value of the grazing during the winter months (November to March inclusive) has been taken as one-third that of summer grazing.

MISCELLANEOUS EXPENSES

This item includes such expenses as veterinary fees, warble fly dressing etc.

WEIGHT OF STORE CATTLE

The initial weights of the store cattle were in all instances estimated by the farmer.

WEIGHT OF FAT CATTLE

Where the cattle were sold by auction the liveweights are the actual weights when sold. For those cattle sold by deadweight an estimated killing out percentages of 54·0% has been used. Farmers' estimated weights were entered for those cattle remaining on the farm when the grass fattening ceased.

GENERAL FARM OVERHEADS

A charge of 5s. 0d. per £ of manual labour has been made to cover the general farm overheads such as use of farm car, telephone, general farm insurance, office expenses etc.

AVERAGES

Weighted averages have been used throughout the analyses.

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APPENDIX II.

INDIVIDUAL RESULTS.

Your Farm Code No. is	

Code No.	GROSS OUTPUT												
	Home Reared		Purchased		Total		Closing Valuation		Sold		Total		Output
	No.	£	No.	£	No.	£	No.	£	No.	£	No.	£	£
180	10	600	32	2025	42	2625	13	910	29	2388	42	3298	673
475	-	-	47	3344	47	3344	1	75	46	3793	47	3868	524
730	-	-	65	2903	65	2903	17	1010	48	3155	65	4165	1262
806	9	540	-	-	9	540	-	-	9	739	9	739	199
808	15	810	-	-	15	810	-	-	15	1090	15	1090	280
813	12	630	-	-	12	630	10	710	2	125	12	835	205
826	-	-	62	4340	62	4340	2 died	-	60	5400	62	5400	1060
829	-	-	12	921	12	921	1	76	11	911	12	987	66
968	8	496	19	1201	27	1697	-	-	27	2101	27	2101	404
975	18	1170	-	-	18	1170	-	-	18	1502	18	1502	332
990	13	754	-	-	13	754	3	165	10	748	13	913	159
1204	35	1960	-	-	35	1960	-	-	35	2503	35	2503	543
1210	8	520	-	-	8	520	-	-	8	691	8	691	171
1211	17	1060	17	987	34	2047	2	120	32	2523	34	2643	596
1218	21	1425	23	1459	44	2884	19	1559	25	2057	44	3616	732
1220	-	-	31	2487	31	2487	-	-	31	2973	31	2973	486
1221	6	510	9	465	15	975	3	238	12	922	15	1160	185
1223	-	-	65	4678	65	4678	14	1120	51	4596	65	5716	1038
1224	-	-	39	2426	39	2426	12	855	27	2119	39	2974	548
1225	9	737	2	160	11	897	4	350	7	678	11	1028	131
1236	8	570	4	198	12	768	6	396	6	561	12	957	189
1424	-	-	56	2926	56	2926	-	-	56	3887	56	3887	961
1425	4	248	5	298	9	546	9	689	-	-	9	689	143
1426	12	484	-	-	12	484	6	330	6	344	12	674	190
1427	-	-	8	404	8	404	8	496	-	-	8	496	92
1428	-	-	20	1301	20	1301	10	800	10	833	20	1633	332
1430	-	-	44	3266	44	3266	-	-	44	3721	44	3721	455
1431	11	740	-	-	11	740	6	510	5	437	11	947	207

GATION - SUMMER 1963.

INPUTS												MARGINS	
Foods				Labour			Sundry				Total		
Grazing	Corn	Hay	Total	Man-ual	Car/Van	Total	Over-heads	Vet. Meds	Market Expenses	Total	Inputs	Total	Per Head
£	£	£	£	£	£	£	£	£	£	£	£	£	£
175	20	-	195	10	-	10	2	-	51	53	258	415	9·9
217	-	-	217	9	9	18	2	4	24	30	265	259	5·5
313	102	12	427	120	-	120	30	-	70	100	647	615	9·5
30	36	-	66	9	-	9	2	-	15	17	92	107	11·9
59	-	-	59	7	1	8	2	-	19	21	88	192	12·8
75	-	-	75	6	4	10	1	-	2	3	88	117	9·7
350	180	-	530	31	-	31	8	10	136	154	715	345	5·6
82	-	-	82	4	-	4	1	3	13	17	103	- 37	- 3·1
168	-	-	168	23	-	23	6	-	38	44	235	169	6·3
66	-	-	66	13	1	14	3	-	52	55	135	197	10·9
72	-	-	72	12	-	12	3	-	13	16	100	59	4·6
188	-	-	188	33	4	37	8	10	37	55	280	263	7·5
46	-	-	46	4	-	4	1	-	-	1	51	120	15·0
98	-	-	98	72	13	85	18	5	54	77	260	336	9·9
292	-	-	292	21	-	21	5	1	35	41	354	378	8·6
156	-	-	156	38	12	50	10	21	90	121	327	159	5·1
70	-	-	70	19	-	19	5	-	21	26	115	70	4·7
285	5	-	290	156	-	156	39	55	145	239	685	353	5·4
170	-	-	170	60	25	85	15	6	34	55	310	238	6·1
60	-	-	60	12	-	12	3	1	18	22	94	37	3·4
72	-	-	72	24	9	33	6	-	13	19	124	65	5·4
95	200	-	295	10	6	16	3	1	17	21	332	629	11·2
45	-	-	45	18	10	28	4	-	2	6	79	64	7·1
75	-	-	75	34	-	34	9	-	9	18	127	63	5·2
21	-	-	21	6	-	6	1	-	-	1	28	64	16·0
104	-	24	128	32	19	51	8	4	13	25	204	128	6·4
110	-	-	110	22	-	22	5	-	87	92	224	231	5·1
78	-	-	78	20	-	20	5	-	6	11	109	98	8·9