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University of Exeter Department of Economics (Agricultural Economics)


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A Study of Cattle Fattening on Grass in South-West England
1963
Summary of Results

1, Courtenay Park,<br>Newton Abbot,

Devon.

ACKMOWLEDCEMENTS.

The Department of Economics (Agricultural Economics) of the University of Exeter at Newton Abbot wishes to thank those farmers whose co-operation enabled this investigation to be undertaken.
S. T. Morris.

Provincial Agricultural Economist.

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## Summary of Investigation.

Devon
South Devon
Friesian X Devon
Friesian X Hereford Friesian Mixed

No. Cattle
176
124
236
50
42
148
776
\%
23

$$
16
$$3075

19
100

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.

The investigation extended over a period of of 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.

The gross output and inputs for the $2 \delta$ 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 212,205, equivalent to $£ 15$. 15 s. 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 narket values. The inputs employed in fattening - feed, labour, marketing charges otc. - amounted in total to $£ 6,436$ or $£ 8.5 \mathrm{~s}$. per head, which left a total margin of $£ 5,769$ or $£ 7$. 10 s . per head for the grazier. Profit margins, however, varied considerably between farms, from a deficit oî £3. 2s. to a surplus of $£ 16$ per head. The distri.bution of the study farms according to profit margins is set-out below:-

|  | $\begin{gathered} \text { Margin/Head } \\ £ \\ \hline \end{gathered}$ | No. Farms |
| :---: | :---: | :---: |
| Deficit | 3 | 1 |
| Surplus | 1-3.9 | 1 |
|  | 4-6,9 | 12 |
|  | 7-9.9 | 8 |
|  | 10-17.9 | 3 |
|  | 32 end over | 3 |
|  | Total | 28 |

The main input item was grazing which at £L. 12 s . per head accounted for $55.8 \%$ of total costs. Marketing and haulage was the next most important at £1. 6 s. or $15.8 \%$, followed by labour at $£ 1.4 \mathrm{~s}$. 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 .

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 8 s. per cwt., but also an advantage of a further 8 s . per cwt. in the selling price.

Cattle in the highest margin group achieved a bigger daily gain in weight than in the lovest 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 £l. I2s. 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, £l6. 71s. 5d. compared with £4. I3s. 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.

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 vas brought about by the substantially higher feeders' margin obtained in 1963, £15. 15s. compared with flO . Os., which was the result of lower store prices in the latter year since in both years the returns per live curt. for fat cattle were identical. Input costs in 1963 were 15 s. per had higher than in the earlier period.

Table 1. Financial Results - 28 Farms. 1963.

Dr. Cr.


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.

$$
28 \text { Farms - } 1963
$$



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


Table 4. Gross Output, Inputs \& Margin per Head
1958 and 1963

|  | 1958 | 1963 |
| :---: | :---: | :---: |
| Returns for Fat Cattle Value of Store Cattle | $\begin{array}{rr}\text { £ } & \text { s. } \\ 80 & 3 \\ 70 & 3\end{array}$ | $\begin{array}{cc} 8 & 5 \\ 78 & 19 \\ 63 & 4 \end{array}$ |
| Gross Output | 100 | $15 \quad 15$ |
| Inputs <br> Foods:- Grazing Other | $\begin{array}{r} 4 \quad 13 \\ \\ \hline \end{array}$ | $\begin{array}{r} 4 \quad 12 \\ \quad 15 \\ \hline \end{array}$ |
| Total Foods | 51 | 57 |
| Labour:-Manual. <br> Tractor/Car etc. | $\begin{array}{r} 181 \\ 3 \\ \hline \end{array}$ | $\begin{array}{r} 11 \\ \hline \end{array}$ |
| Total Labour | 11 | 14 |
| Marketing \& Haulage Sundry Costs Share of: Overheads | $\begin{array}{ll} \hline 1 & 2 \\ & 1 \\ & 5 \\ \hline \end{array}$ | $\begin{array}{r}1 \\ 6 \\ 3 \\ \hline 5\end{array}$ |
| $\therefore$ Total Inputs | 710 | 8 \% |
| MARGIN | 210 | 710 |
| Value of Store per Live cwt. Return per Live cwt. | $\begin{array}{lr} 8 & 2 \\ 7 & 13 \end{array}$ | $7{ }_{7}^{7} \cdot \frac{14}{13}$ |
| $\begin{aligned} & \text { Weight of Store (cwt.) } \\ & \text { Weight of Fat Beast (cwt.) } \\ & \text { Gain in Weight (cwt.) } \end{aligned}$ | $\begin{array}{r} 8.7 \\ 10.5 \\ 1.8 \end{array}$ | 8.2 10.3 2.1 |
| Input Costs per cwt. Gain | 14. 3s. 10d. | £3. 19s. 7 d . |
| Average No. Grazing Days Gain per Grazing Day (1b.) | $\begin{aligned} & 125 \\ & 1.6 \end{aligned}$ | $\begin{aligned} & 118 \\ & 2.0 \end{aligned}$ |
| Acres per Beast Fattened Margin per Acre devoted to Cattle | $\begin{aligned} & 0.7 \\ & \text { £3. 8s. 3d. } \end{aligned}$ | $\text { £9. } \quad 5 \mathrm{~s} . \quad 2 \mathrm{~d} .$ |
| Number of Farms Number of Catile Fattened | $\begin{array}{r} 57 \\ 2262 \end{array}$ | $\begin{array}{r} 28 \\ 776 \end{array}$ |

APPEMDIX I.
COSTITIG METHOD.

IABOUR CHARGES

| Manual | Adult Male | 5s. | Od. per hour |
| :--- | :--- | :--- | :--- |
| Tractor | Medium Power | 4s. | 6d. per hour |
| Car/Van |  |  |  |
| 9d. per mile |  |  |  |

GRASSLAIND 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 grass-land costs have been allocated.: For this purpose all classes of livestock have been converted into cattle equivalents. The conversion rates were 0.5 follows:-

Catile:- 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 (Novenber 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 $54 \cdot 0 \%$ has been used． Farmers＇estimated weights were entered for those cattle remain．．． ing on the farm when the grass fattening ceased．

## GENERAL FARM OVERHEADS

A charge of 5s．Od．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．

## APPENDIX II.

IMDIVIDUAL RESULTS.

| Code No. | GROSS OUTPUT |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Home Reared |  | Purchased |  | Total |  | Closing Valuation |  | Sold |  | Total |  | Cutput |
|  | 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 | 43 | 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 | 1 | 6 | 62 | 4340 | 62 | 4340 | 2died |  | 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 | 3 | - | 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 | 21 | - | 31 | 2487 | 31 | 2487 | - | - | 31 | 2973 | 31 | 2973 | 486 |
| 1221 | 6 | 510 | 9 | 465 | 15 | 975 | 3 | 238 | 12 | 922 | 15 | 1160 | 185 |
| 1223 | - | 510 | 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 | 17 | 897 | 4 | 350 | 7 | 678 | 17 | 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 | 6 | - | 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 | II | - | 44 | 3266 | 44 | 3266 |  | - | 44 | 3721 | 44 | 3721 | 455 |
| 1431 | 111 | 740 | - | - | 11 | 740 | 6 | 510 | 5 | 437 | 17 | 947 | 207 |

## CATION - SUMAER 1963.

| INPUTS |  |  |  |  |  |  |  |  |  |  |  | MARGINS |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Foods |  |  |  | Labour |  |  | Sundry |  |  |  | Total <br> Inputs |  |  |
| Grazing | Corn | Hay | Total | Man- | Caran | Potalh | Over eads | Vet | Market | Total |  | Total | Per Head |
| £ | £ | £ | £ | £ | § | £ | £ | $\mathcal{L}$ | £ | £ | £ | £ | - £ |
| 175 | 20 | - | 195 | 10 | - | 10 | 2 | - | 51 | 53 | 258 | 415 | $9 \cdot 9$ |
| 217 | - | - | 217 | 9 | 9 | 18 | 2 | 4 | 24 | 30 | 265 | 259 | $5 \cdot 5$ |
| 313 | 102 | 12 | 427 | 120 | - | 120 | 30 | - | 70 | 100 | 647 | 615 | $9 \cdot 5$ |
| 30 | 36 | - | 66 | 9 | - | 9 | 2 | $\cdots$ | 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 | $9 \cdot 7$ |
| 350 | 180 | - | 530 | 31 | - | 31 | 8 | 10 | 136 | 154 | 715 | 345 | $5 \cdot 6$ |
| ठ2 | - | - | 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 | $4 \cdot 6$ |
| 188 | - | - | 188 | 33 | 4 | 37 | \% | 10 | 37 | 55 | 280 | 263 | $7 \cdot 5$ |
| 46 | - | - | 46 | 4 | - | 4 | 1 | - | - | 1 | 51 | 120 | 15.0 |
| 98 | - | - | 98 | 72 | 13 | 85 | 18 | 5 | 54 | 77 | 260 | 336 | $9 \cdot 9$ |
| 292 | - | - | 292 | 21 | - | 21 | 5 | 1 | 35 | 41 | 354 | 378 | $8 \cdot 6$ |
| 156 | - | - | 156 | 38 | 12 ! | 50 | 10 | 21 | 90 | 121 | 327 | 159 | $5 \cdot 1$ |
| 70 | - | - | 70 | 19 | - | 19 | 5 | - | 21 | 26 | 115 | 70 | $4 \cdot 7$ |
| 285 | 5 | - | 290 | 156 | - | 156 | 39 | 55 | 145 | 239 | 685 | 353 | $5 \cdot 4$ |
| 170 | - | - | 170 | 60 | 25 | 85 | 15 | 6 | 34 | 55 | 310 | 238 | 6.1 |
| 60 | - | - | 60 | 12 | - | 12 | 3 | 1 | 18 | 22 | 94 | 37 | $3 \cdot 4$ |
| 72 | - | - | 72 | 24 | $9{ }^{\prime}$ | 33 | 6 | - | 13 | 19 | 124 | 65 | $5 \cdot 4$ |
| 95 | 200 | - | 295 | 10 | 6 | 16 | 3 | 1 | 17 | 21 | 332 | 629 | 17.2 |
| 45 | - | - | 45 | 18 | 10 | 28 | 4 | - | 2 | 6 | 79 | 64 | $7 \cdot 1$ |
| 75 | - | - | 75 | 34 | - | 34 | 9 | - | 9 | 18 | 127 | 63 | $5 \cdot 2$ |
| 21 | - | - | 21 | 6 | - | 6 | 1 | - | - | 1 | 28 | 64 | 16.0 |
| 104 | - | 24 | 128 | 32 | 19 | 51 | $\delta$ | 4 | 13 | 25 | $20_{4}$ | 128 | $6 \cdot 4$ |
| 110 | - | - | 110 | 22 | - | + 22 | 5 | - | 87 | 92 | 224 | 231 | $5 \cdot 1$ |
| 78 | - | - | 78 | 20 | - | - 20 | 5 | - | 6 | 17 | 109 | 98 | 8.9 |

