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Cattle - Cost of production a.s.

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AGRICULTURAL ECONOMICS DEPARTMENT

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BREEDING CATTLE COSTS 1955/56

by

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AGRICULTURAL ECONOMICS DEPARTMENT

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BREEDING CATTLE COSTS 1955-56

Introduction

This report continues the series giving the results of investigations carried out into the cost of production of weaned calves in the breeding herds of the North of Scotland and shows the cost per calf for the year (approximately) 1st November, 1955/56. Costs were available from forty-nine herds which were divided somewhat arbitrarily into four groups.

Group I (Caithness). Twelve herds situated in Caithness. In these herds the general practice was to winter the cows inside and all except one farm received the cow subsidy with nine of the herds receiving the marginal land grant.

Group II (Upland). Eighteen herds mainly situated in the Spey - Avon - Findhorn valleys. All the cows were wintered inside, and the cow and marginal land grants were received on each farm.

Group III (Lowland). Eight herds all on arable farms on low ground. Neither the marginal land grant nor the cow subsidies were received. In three cases the cows were outwintered, but as the cows were predominantly Shorthorn or Aberdeen Angus feeding was fairly high.

Group IV (Outwintered). Eleven herds in which the cattle were outwintered, many of them being of a hardy type. All herds received the cow Subsidy, whilst marginal land grant was received by nine of the eleven.

Average physical data giving the size of the farm and salient geographical features are shown in Table I together with a note of the breed of cattle maintained.

Table I

Type of Farm and Breeding Cow Herd

Group	Size of Farm Acres		Ht. above sea level ft.	Distance from sea miles	Herd Type	
	Arable	Rough			Breed of Bull	Breed of Cow
I Caithness	114	232	186	3½	9 A.A. 3 S.	7 S.X. 4 S. 1 S. x G.
II Upland	86	441	752	16	16 A.A. 2 S.	5 A.A. 12 S. x A.A. or S.X. 1 S.
III Lowland	204	85	190	3	7 A.A. 1 S.	6 S. x A.A. 2 S.X.
IV Out-wintered	204	1816	400	8½	9 A.A. 8 S. 2 H.F. 1 H.H.	Wide variety of S., S.X., S. x H.H., H.H., G. and X.G.

In Breed Table:      S. = Shorthorn                      A.A. = Aberdeen Angus  
                              G. = Galloway                      H.H. = Highland  
                              H.F. = Hereford

Breeds

It will be seen that the Aberdeen Angus bull is now being used in most herds except those of Group IV where the Shorthorn bull still occupies an important place for crossing with the hardier types of cow.

In Group II several herds are pure Aberdeen Angus, but in the other groups many of the cows are still predominantly Shorthorn in type; in the hill herds cows of a variety of breeds are encountered and in this sample some type of Shorthorn cross was dominant in all herds except two.

Size of Herd

Most farms in the area are relatively small units and as a result the herds in this sample were in many cases under twenty cows. Larger herds of over forty cows occurred however on two farms in Group III, whilst in Group IV there were two herds of over 100 cows.

The average herd size in each group together with other details is shown in Table II.

Table II

Herd Size

Group	No. of Herds	Number of Herds				Range in Cow Numbers	Av. No. of Cows Per Herd
		0-20 cows	20-40 cows	40-100 cows	Over 100 cows		
I Caithness	12	9	3	-	-	7-36	13
II Upland	18	14	4	-	-	8-31	17
III Low-land	8	3	3	2	-	7-55	24
IV Out-wintered	11	6	1	2	2	8-157	43

Cow Numbers

A livestock reconciliation for each of the four groups is given in Table III. Group III contains three herds in which some of the cows reared two calves so that the "Calves Reared %" is well over 100% in that group, whilst in Group IV the proportion of calves reared is not unnaturally under 100%.

Table III

Cow Numbers and Numbers of Calves Reared

	Group I (Caithness)	Group II (Upland)	Group III (Lowland)	Group IV (out-wintered)
No. of Cows at start	159	292	199	480
Purchased and transferred in	24	44	15	53
TOTAL	183	336	214	533
Sold	17	20	26	37
Died	1	4	4	12
No. of Cows at End	165	312	184	484
Av. No. of Cows	162	302	192	482
No. of Calves reared	165	308	212	449
Calves Reared %	102%	103%	111%	93%
% Cow Deaths	0.6%	1.3%	1.9%	2.5%

Time of Birth of Calves

Where calves are to be sold in the autumn as weaned calves an early calving date is aimed for (i.e. December - February) and this explains why the small Upland herds of Group II show much earlier calvings than Group III where many of the calves are retained on the holding until they are eighteen months old or even sold fat.

In Group IV there is an optimum type of calving with some risk of losses and high food costs if too many of the calves come early, and on the other hand small calves unfit for sale in the autumn, if the calves come too late.

Table IV shows the percentage of calves born in the various months in each group.

Table IV

Time of Calving

Percentage of Calves:

Group	Jan. or before	Feb.	Mar.	Apr.	May	Jan. or later	Total
I Caithness	7	9	45	29	5	5	100
II Upland	24	15	17	23	12	9	100
III Lowland	1	24	45	18	9	3	100
IV Out-wintered	1	3	38	45	11	2	100

Average crop yields in 1955 for the sample of farms are shown in Table V.

Table V  
Crop Yields (1955)

Group	Turnips	Oats	Hay
I Caithness	23 tons	16 cwts.	22 cwts.
II Upland	18 tons	16 cwts.	22 cwts.
III Lowland	19 tons	26 cwts.	28 cwts.
IV Outwintered	16 tons	18 cwts.	21 cwts.

The root crop was very variable being exceptionally good in Caithness and on several of the Upland farms in the districts with a normally high rainfall; on the other hand, it was very poor on most low ground farms since the hot dry summer gave little opportunity for plant growth.

Compared with other years the oat yield was not depressed, but straw was in very short supply and so too was hay so that several farmers especially those of Group II had to purchase either or both these commodities as the winter progressed. The yield of hay per acre in Table V does not appear unduly low, but it must be remembered that because of (a) the very poor seeds "take" in 1954 and (b) the hot summer of 1955, many farmers were short of grass and used the fields normally set aside for hay to eke out the grazing. The winter was not severe and the mild autumns of both 1955 and 1956 saved a good deal of winter keep, whilst the wet summer of 1956 meant that most farms had an abundance of grass all through the season.

Cost per Cow

(a) Winter foods. The average cost of winter feeding per cow is shown in Table VI. The Costs shown are "Net" i.e. with the residual manurial values<sup>#</sup> already deducted, whilst straw used for bedding has also been omitted.

Table VI  
Average Winter Foods per Cow - 1955/56

Type of Food	Group I Caithness	Group II Upland	Group III Lowland	Group IV Outwintered
Turnips and Swedes	£11.13. -	11.12. -	10. -. -	2. 3. -
Straw (eaten)	1. 4. -	1.14. -	1.11. -	-.13. -
Oats	4.11. -	2.10. -	1. 5. -	1.15. -
Hay	-.11. -	1.14. -	-.14. -	3.10. -
Silage	-. -. -	-. 7. -	-.19. -	1. 1. -
Other	-. 7. -	-.10. -	-. 8. -	-. -. -
NET FOODS	18. 6. -	18. 7. -	14.17. -	9. 2. -

<sup>#</sup> Calculated according to the current recommendations of the Scottish Standing Committee.

The cost per cwt. of the various crops is made on the basis of the enterprise crop costs of this department, the charge being varied according to the yield per acre of the crop on the farm being costed.

The figures are slightly higher than those of last year for comparable farms, the difference being mainly due to the higher cost of production of home grown foods especially roots.

In Groups I and II, turnips, straw and oats were fed on every farm, whilst hay was fed on six farms in Group I and on fifteen of the eighteen in Group II. Purchased concentrates were only fed in small amounts and were used on four farms in Group I and on eight in Group II. In the latter group, there were also two farms which used draff and silage and the average amounts of food used in these two herds are shown in Table VII alongside the average quantities used on the remaining sixteen farms of Group II and all those of Group I.

Table VII

Average Foods per Cow:                      Groups I and II

	Group I (Caithness)	Group II	Group II
		(16 farms)	(2 farms)
Turnips, etc.	99.5	92.1	50.8
Straw eaten	11.5	10.9	10.0
Oats	4.7	2.1	1.2
Hay	2.3	3.7	4.4
Silage	-	-	24.4
Draff	-	-	12.5
Concentrates	0.2	0.3	0.2
FOOD COST	£18. 6.	£18.11.	£16.13.

In Groups III and IV there was more variation and examples given below show the different types and amount of feeding in these groups.

Group III (Low Ground Herds) Foods per Cow	Three herds outwintered			Av. of Other 5
	Farm A	Farm B	Farm C	Farms Inwintered
Turnips	22.5 cwt.	66.7 cwt.	-	110.0 cwt.
Straw	14.3	7.0	13.1	17.2
Oats	2.9	2.5	3.6	1.2
Hay	-	3.8	1.8	2.8
Silage	61.1	36.6	-	-
Draff	-	-	26.8	-
Other	0.1	-	-	-
NET COST	£11. 9.	£16. 2.	£7. 7.	£16.15.

The low food cost on Farm C is of particular interest since the draff was mainly purchased in the summer at a low price and stored.



In Group IV the systems of feeding fall broadly into three categories and details are shown below.

Group IV (Outwintered)

<u>Foods per Cow</u>	<u>X</u> (2 farms)	<u>Y</u> (2 farms)	<u>Z</u> (7 farms)
Turnips	70.5 cwt.	13.1 cwt.	1.6 cwt.
Straw	23.2	9.1	1.0
Oats	1.5	3.4	1.7
Hay	2.2	3.1	10.0
Silage	-	51.6	-
NET COST	£14.17.	£10.11.	£7. 1.

The seven herds composing Z are of course either in more sheltered districts or are working with a hardier type of animal than those of X and Y.

Acres per Cow

A consideration of this factor is useful since many of the farms are small so that ultimately production and output per acre are critical features. Table VIII shows the figures for 1955/56. Any concentrates or draff purchased have been converted into equivalent (S.E.) oat values.

Table VIII

Acres per Cow: Winter Feed

Group	Turnips acres	Hay acres	Oats acres	Silage acres	Total acres
I (Caithness)	0.22	0.07	0.34	-	0.63
II (Upland)	0.24	0.12	0.20	0.02	0.58
III (Lowland)	0.21	0.06	0.10	0.07	0.44
IV (Outwintered)	0.05	0.22	0.11	0.06	0.44

In addition cows kept inside in winter will use between feeding and bedding about 1 acre of straw (Groups I and II) or rather less (Group III). It is exceedingly difficult to give a figure for grassland since the rough grazings vary so greatly from farm to farm.

Total Cost per Cow

The average cost of keeping a cow for a year is shown in Table IX for all groups.

Table IX

Average Cost per Cow per Year

	Group I (Caithness)	Group II (Upland)	Group III (Lowland)	Group IV (Out-wintered)
Net Foods	£18. 6. -	18. 7. -	14. 17. -	9. 2. -
Grazing	3. 6. -	4. - . -	5. 16. -	3. 13. -
Labour and Power	6. 17. -	6. 6. -	4. - . -	4. 14. -
Miscellaneous	- . 4. -	- . 7. -	- . 15. -	- . 6. -
Cow Depreciation	2. 13. -	2. 10. -	2. 15. -	2. 11. -
Bull Charge	1. 6. -	1. 11. -	2. 1. -	1. 10. -
Share of farm overheads	2. 8. -	2. 5. -	1. 19. -	2. 15. -
Total Cost per Cow	£35. - . -	35. 6. -	32. 3. -	24. 11. -

Compared with last year there is a slight upward trend in costs, but as with all farm costings there is the usual wide range of results.

Table X

Range of Costs per Cow per Year

No. of Herds with cost:	Under £20	£20 - £25	£25 - £30	£30 - £35	£35 - £40	Over £40
Group I	-	-	3	3	2	4
Group II	-	2	3	6	2	5
Group III	-	-	3	3	1	1
Group IV	1	5	3	2	-	-

Labour and Power

The figure of over £6 per cow in the first two groups is associated with small herds often kept in ill designed buildings and frequently the labour is not a cash outlay but is done by the farmer, his wife or his family as is shown in Table XI.

Table XI

Type of Labour

	Farmer and Family	Some Hired	All Hired
Group I	9 farms	3 farms	-
Group II	13. "	4. "	1 farm
Group III	2. "	3. "	3. "
Group IV	2. "	3. "	6. "

The average number of man hours per cow per week in the winter was:

Group I	1.28	man	hours	per	cow	per	week
Group II	1.13	"	"	"	"	"	"
Group III	0.68	"	"	"	"	"	"
Group IV	0.64	"	"	"	"	"	"

Grazing Costs

The time of beginning full time grazing varied considerably and as would be expected was rather earlier on the farms on low ground:

Group I	8th May
Group II	10th May
Group III	28th April
Group IV	26th April

The method of calculation of the grass cost is that described in detail in the other Economic Reports of this Department which are concerned with the costing of cattle. The average cost of grass per L.S.U. (i.e. cow) per week is given in Table XII.

Table XII

Grass Cost per Cow per Week

Group	Av. Cost per cow per week	Range in Costs						
		Under 1/-	1 - 2/-	2 - 3/-	3 - 4/-	4 - 5/-	5 - 6/-	Over 6/-
I Caithness	2/5½	-	3	8	1	-	-	-
II Upland	2/11½	-	8	2	3	3	1	1
III Lowland	4/3	-	-	1	2	3	1	1
IV Out-wintered	2/-	2	3	4	1	1	-	-

The cost is low where there is considerable grazing of rough land as in Groups I and IV and about half the farms of Group II. Where, however, grazing is mainly upon rotational grassland, costs are inevitably higher as for example on the remaining farms of Group II and all Group III.

Cow Depreciation

This item has "settled down" in all groups except Group III since the vast majority of herds in the upland areas are now fully attested. In calculating this item allowance has been taken of the cow and calf subsidies received during the rearing of herd replacements.

Bull Charge

On eleven small farms a service charge was incurred as the farmers had no bull of their own, but on the remaining farms one or more bulls were kept

and the average cost of keeping a bull for a year is shown below.

Cost of Keeping a Bull for a Year

Foods	£20.13. -
Grazing	4.13. -
Labour and Overheads	9. 2. -
Insurance	3. 5. -
Depreciation	24.12. -
	<hr/>
	£62. 5. -
	<hr/> <hr/>

For these herds the average number of cows served per year was 44, giving a bull charge of £1. 8/- per cow omitting the effect of Bull Premium Schemes. The service charge varies directly with the number of cows served.

Table XIII

Variation in Bull Charge per Cow

No. of Cows served	Under 20	20 - 29	30 - 39	40 - 49	Over 49
Bull Charge per Cow	£2. 15/-	£2	£1.10/-	£1. 8/-	£1. 1/-
No. of Herds	8	7	6	9	8

This may seem particularly obvious but it is worth emphasising that for the small farmer to keep a bull of his own outwith a Premium Scheme will usually prove very expensive.

Cost and Margin per Calf

The cost per cow per year will give a figure close to that of the cost per calf to weaning in many herds but certain adjustments do have to be made in order to get the cost per calf accurately:

- (1) The cost of any cows in the herd for a part of the year must be added;
- (2) A proportion of the cost of any cows used for household milk production must be deducted;
- (3) Calves purchased or sold young must be taken into account;
- (4) The cost of the grazing of the calves must be added;
- (5) The cost of any additional feeding to the calves during the autumn before weaning must be added.

Taking these items into account the average cost per calf in the four groups come to:

Group I	£34.13/-
Group II	35. 6/-
Group III	31. 1/-
Group IV	28. 8/-

Returns and Margin per Calf

The sale price less carriage and commission gives a net return per calf in the case of calves sold, but where the calves were retained on the breeding farm a valuation had to be put upon them. This always tends to be a rather speculative figure and this year was complicated by the fact that calf prices tended to rise through the autumn. The reason for this rise lay in the restoring of confidence throughout the cattle markets which was triggered off by the higher prices paid to sellers of fat cattle. This in turn arose partly from the "back payments" and partly from the natural effect of the rolling average method of deficiency payments.

The upward trend of weaned calf prices came too late to help most of the farmers selling calves in the autumn<sup>‡</sup>.

The average margin per calf for the four groups is set out in Table XIV together with the effect of adding in the Cow and Calf Subsidies.

Table XIV

Margin per Calf: Average Results

Group	Cost per Calf	Valuation or Sale Price	Margin	Calf or Cow Subsidy	Margin including Subsidies
I Caithness	£34. 13. -	27. -. -	-7. 13. -	17. 9. -	+ 9. 16. -
II Upland	£35. 6. -	30. 3. -	-5. 3. -	17. 14. -	+12. 11. -
III Lowland	£31. 1. -	28. 12. -	-2. 9. -	7. 13. -	+ 5. 4. -
IV Out-wintered	£28. 8. -	25. 7. -	-3. 1. -	17. 19. -	+14. 18. -

In those herds in which most of the calves were actually sold in the autumn the results were;

Inwintered

Av. of 8 Farms - Groups I and II	£35. 3. -	33. 2. -	-2. 1. -	17. 16. -	+15. 15. -
Av. of 3 Farms - Group IV	£29. 10. -	30. 9. -	-. 19. -	17. 17. -	+18. 16. -

<sup>‡</sup> According to information supplied by the D.O.A.S. the weaned calf prices for 1956 were about £4 lower than corresponding prices in 1955 in the Moray Firth area.

Time of Sale

Six of the eight farms in Groups I and II which sold their calves had better than average results and so did two of the three farms in Group IV. In Group II a number of farmers go "half and half" and sell their best calves but retain the rest over winter, whilst others sell all the calves of one sex and buy in a corresponding number of the other sex so that the whole lot can be run together over the winter.

Low Ground Herds

In Group III the results from the three farms rearing more than one calf per cow gave a margin per calf (including subsidy) of £5. 5/- per calf compared with the single suckled herds average of £6. 14/- . This difference is fully covered when the figures are brought to a margin per cow:

Single suckled herds: £6. 14. -  
 Double suckled herds: £8. 16. -

In practice rearing more than one calf per cow is only done where the £10 cow subsidy is not payable and where there is no need to sell the calves until they are a year old or more. Under these specified conditions however it will usually show good financial results.

Outwintered Herds

The results from these herds tend to be good, the lower cost of production more than fully compensating for the lower value. This is evident from Table XV which shows the range of margin for all four groups.

Table XV

Range of Margin per Calf

Margin per Calf excluding subsidy	Profit over £5	Profit £0 - 5	Loss £0 - 5	Loss £5 - 10	Loss over £10
Group I Caithness	-	-	5	2	5
Group II Upland	1	4	3	3	7
Group III Lowland	1	1	4	2	-
Group IV Out-wintered	3	3	1	1	3
Margin per Calf including subsidy	Profit over £15	Profit £10 - 15	Profit £5 - 10	Profit £0 - 5	Loss
Group I Caithness	2	4	2	3	1
Group II Upland	7	2	5	4	-
Group III Lowland	-	2	2	3	1
Group IV Out-wintered	6	1	3	-	1

Trend of Costs over Five Years

Seven farms in Group I, seven farms in Group II and two in Group III have kept records continuously over five years and the average figures for the cost per calf, valuation/sale price at weaning and margin are shown below.

Table XVI

Year	Cost per Calf to weaning	Valuation or sale price including cow and calf subsidies	Margin
1951/2	£29. 8. -	£35. 5. -	£5.17. -
1952/3	29. 8. -	42.18. -	13.10. -
1953/4	30.19. -	42. 9. -	11.10. -
1954/5	33.18. -	47. -. -	13. 2. -
1955/6	34. 2. -	47. 5. -	13. 3. -

The cow subsidy stood at £10 each year, but the calf subsidy has been raised successively from £5 to its present level of £8 (average of stot and heifer calves).

The figures suggest that the average margin of potential receipts over costs has varied little over the past four years.

Conclusion

The results in every way confirm those of previous years and show that provided the cow and calf subsidies are taken into account the farms on marginal land are able to show a reasonable margin over the costs involved in calf production. The farms where most of the calves were sold in the autumn showed better than average returns this year, whilst other good results came from the outwintered herds of Group IV. On low ground non-marginal farms rearing two calves on part or all of the cows again appeared to be quite profitable.

Acknowledgment

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