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Cattle - Cost of production 0.50

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AGRICULTURAL ECONOMICS DEPARTMENT

ECONOMIC REPORT NO. 55

BREEDING CATTLE COSTS 1955

by

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AGRICULTURAL ECONOMICS DEPARTMENT

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## BREEDING CATTLE COSTS 1955

This report is a continuation of the series which shows the cost of production of calves in some breeding cattle herds in the North of Scotland. Because conditions vary widely it is necessary to divide the records into three groups, thus:-

### Group I: Caithness.

Results from eighteen herds in the County of Caithness;

### Group II: Upland.

Results from nineteen herds outwith Caithness for which the £10 cow subsidy is received;

### Group III: Lowland.

Results from six herds on low ground.

Last year a fourth group was added consisting of herds outwintered, but this year that has not proved possible. The number of results from hardy outwintered herds declined from six to two and this change in the size of the sample renders the results of the two years incongruous.

Actually outwintering was practised in eleven herds, but since the feeding was generally similar to that of cows kept inside these herds have been included in Groups 1, 2 or 3.

The difference in cost between the two seasons has however been noted for six outwintered herds costed both years - two herds being of hardy cattle and the other four with orthodox feeding.

### SEASON

The winter of 1954/55 was severe, although in most areas losses of cattle were nothing like as great as in the exceptionally long winter of 1950/51. The hard winter did mean however that the quantities of foods fed were in some cases higher than normal and on some farms the inaccessibility of turnips for periods of up to six weeks meant that more oats were used than usual. The summer was hot and dry and as a result the grass was extremely burnt up on the lighter land but by a fortunate coincidence the resulting shortage of grazing was often mitigated by the disappearance of the rabbits due to myxomatosis. The autumn was mild and on the whole the weather during the year must have suited cattle very well since rarely if ever could the cows and calves have looked so fit as the winter approached.

# METHOD OF REARING

Single suckling is the normal method of rearing in the Northern Counties and variants from this procedure are not common on the poorer land but on low ground farms more intensive methods are sometimes practiced. In Group III two of the six farms reared two calves to the cow, whereas none of the Group I farms did and there were only two farms in Group II on which some cows reared more than one calf.

# FARM TYPE

The elevation above sea level and distance from the sea tend to affect the type of cattle enterprise and Table I illustrates the variation.

Table I

Average Size of Farm and Physical Data

Group	Size of Farm	Altitude	Distance from Sea
I Caithness	144 acres arable 24 acres old arable 197 acres rough	185 ft. (Range 75-275)	4 miles (Range $\frac{1}{4}$ - $9\frac{1}{2}$ )
II Upland	134 acres arable 40 acres old arable 662 acres rough	725 ft. (Range 200-1050)	$15\frac{1}{2}$ miles (Range $4\frac{1}{2}$ - $29\frac{1}{2}$ )
III Lowland	176 acres arable 70 acres rough	223 ft. (Range 75-325)	4 miles (Range 1-9)

An exception to this general rule is found in Caithness (Group I) where an uncertain exposed climate counterbalances the advantages of good soil and flat land.

# HERD TYPE

Most of the herds were small as can be seen from Table II which also indicates the variety of breeds. It will be seen that "cross" cows (Aberdeen Angus x Shorthorn) were commonest in Group I but that in Group II there were more "black" cattle (Commercial A.A.). Cattle of the Highland breed either pure bred or crossed occurred in seven herds while in three herds there were some cows of the Galloway breed.

The bulls used were of three breeds only with the Aberdeen Angus most popular (thirty-two bulls over the three groups) followed by the Shorthorn (seventeen bulls over the three groups) and Hereford (four bulls).



Table II

Average Size of Herd and Herd Type

Size of Herd	Group I	Group II	Group III
0-20 cows	13 herds	13 herds	4 herds
20-40 cows	4 herds	4 herds	-
Over 60 cows	1 herd	2 herds	2 herds
Breed of Bull <sup>†</sup>	12 A.A. 7 S.	14 A.A. 10 S. 4 H.F.	6 A.A.
Breed of Cow	Mainly A.A. x S. Also S. S. x G. and S. x H.H.	Mainly A.A. or A.A. x S. 4 H.H. or S. x H.H.	2 A.A. 3 A.A. x S. 1 S. x H.H.

<sup>†</sup>A.A. = Aberdeen Angus; S. = Shorthorn;

G. = Galloway; H.F. = Hereford;

H.H. = Highland.

METHOD OF COSTING

Home-grown foods are charged at average cost of production figures, adjusted according to the yield of the particular crop concerned. For labour and overhead charges the rates used are those agreed for livestock costings by the Scottish Conference of Agricultural Economists. They appear in detail in Appendix II.

COST PER COW PER YEAR

The average cost of keeping a cow for the twelve months period - 1st November, 1954/55 is shown in Table III for all three groups.

Table III

Average Cost per Cow per Year

	Caithness Farms	Upland Farms	Lowland Farms
Foods: Turnips	£8: 4:11	£8:11: 3	£12:11: 8
Straw	1: 6: 1	1: 5: 8	1:10:11
Oats	5: 9: 1	1:14: 3	-:11:10
Hay	-:18: 1	1: 7: 3	-:16: 5
Silage	-: 6: 8	-: 9: 4	1: 3: 5
Others	-: 5: 1	-: 8: 6	-: 2: 1
NET FOODS	16: 9:11	13:16: 3	16:16: 4
Grazing	3: 3: 3	4: 9: 7	5: 6: 9
Labour & Power	6: 6: 8	6: 1: 7	4: 4: 7
Miscellaneous	-: 2: -	-: 4: 9	-: 8: 7
Cow Depreciation	3: 2: -	2: 8: 1	1:19: 4
Bull Charge	1:12: 4	1:14: 1	2: 2: 2
Overheads	2: 3:10	1:19:10	1:13: 9
TOTAL	£33: -: -	£30:14: 2	£32:11: 6

# FOODS

Since this is the major item in the total cost of keeping a cow some further details showing the way the cost is made up are given. In Group I the standard foods used were turnips, straw, oats and hay and this combination occurred on seven farms, whilst on seven others the foods used were simply turnips, straw and oats; two other farms fed the four foods and also a little concentrates and the average quantities of foods fed on these sixteen farms form Group A in Table IV. On two other farms the feeding was unusual in that no turnips were used and these occur as B and C in Table IV. The results from farm B were good and costs were low suggesting the fact that turnips are by no means absolutely essential in keeping breeding cows.

In Group II the feeding tended to be rather more varied than in Group I but the main divisions were:-

- (A) Two farms feeding turnips and straw alone or with the addition of: Oats and hay (five farms); Oats only (two farms); Hay only (one farm); Oats, hay and concentrates (four farms).
- (B) Three farms feeding turnips and straw with some silage, hay and other foods.
- (C) Two farms on which hardy outwintered cattle received hay, silage and straw or simply hay and silage.

In Group III four of the farms (Section A in Table IV) fed turnips and straw at a heavy rate (the good turnip season of 1954 caused a surplus of this crop) supplemented by hay (one farm), hay and oats (one farm), oats and draff (one farm) and oats and concentrates (one farm). On the other two farms (Section B) silage was fed in addition to the turnips, hay and straw.

The average quantities of food fed for the various sub-divisions of the groups are shown in Table IV.

Table IV

Foods Per Cow: Physical Data

All foods in Cwts. per Cow.

	Group I			Group II			Group III	
	A (16 farms)	B (1 farm)	C (1 farm)	A (14 farms)	B (3 farms)	C (2 farms)	A (4 farms)	B (2 farms)
Turnips	74.27	-	-	98.9	40.2	-	145.3	87.8
Straw (eaten)	14.43	13.0	1.3	10.6	11.7	9.6	15.4	14.8
Hay	1.4	-	10.0	3.0	6.1	3.4	3.0	1.4
Oats	4.67	8.0	1.3	1.8	0.9	-	0.3	2.3
Silage	-	-	48.0	-	26.6	15.8	-	37.5
Draff	-	-	-	0.1	3.8	-	0.3	-
Other	0.1	0.8	-	0.3	0.1	-	0.1	-
Period of Winter feeding (days)	173	181	133	162	175	155	183	173

In attempting to compare the results with those of last year we find that in Group II for cows inwintered eleven identical herds showed about the same average food consumption, thus:-

	<u>1953/54</u>	<u>1954/55</u>
Turnips	92 cwt. per cow	92 cwt. per cow
Straw (eaten)	9 " " "	10.5 " " "
Oats	1.5 " " "	2 " " "
Hay	3 " " "	2.5 " " "
Druff	.5 " " "	
Starch Equivalent Total	10.3 cwt.	10.6 cwt.

Where outwintering is practiced, however, the feeding in a hard winter does have to be rather more liberal and considering six herds in which conditions were otherwise similar for the two years the average food consumption per cow was:-

	<u>1953/54</u>	<u>1954/55</u>
Turnips	19 cwt. per cow	30 cwt. per cow
Straw	18 " " "	13 " " "
Oats	2 " " "	2.5 " " "
Hay	3 " " "	5 " " "
Silage	16 " " "	19 " " "
Other	.3 " " "	.3 " " "
Starch Equivalent Total	9.4 cwt.	10.6 cwt.

Of these six herds all except one showed an increase in either quality or quantity of food consumed in the winter of 1954/55 and the average cost of feeding is greater by £2: 2/- per cow (£12: 1:11 compared with £9:19:11) whereas with the sample of eleven herds wintered inside the food cost in the two years was almost level.

#### GRAZING COSTS

The method of calculation is that described in the other Economic Reports of this department which are concerned with the costing of cattle. Since the quality of the grass is almost impossible to assess, the effect of the drought may not be evident from the simple cost picture.

A great variation in grazing cost is inevitable since hill or permanent grass incurs very little expense compared with highly manured rotation grassland. In Group II the herds were divided into two groups to illustrate the difference in summer cost.

Eleven herds grazing mainly rotation grassland - Average cost 4/8 per L.S.U. per week;

Eight herds grazing mainly old grass and hill - Average cost of grass 1/5 per L.S.U. per week.



# COW DEPRECIATION

The number of deaths can be seen from Table V which shows the cow numbers over the year. The losses are just over four per one hundred cows compared with three last year. In some cases the losses were due indirectly to the effect of the hard winter but not wholly so (e.g. in one herd a number of cows were poisoned) and on the whole losses were surprisingly few.

Table V

## Cow Numbers

	18 Caithness herds	19 Upland herds	6 Lowland herds
No. of cows at Start	284	517	123
Purchases	12	4	3
Transferred in	16	69	22
	—	—	—
<b>TOTAL</b>	312	590	148
Sold	22	38	6
Died	7	26	8
	—	—	—
No. of cows at End	283	526	134
No. of calves reared	268	489	146

## VARIATION IN COST PER COW

Out of the forty-three herds costed twenty-six had a cost per cow between £28 and £38 and the figures in Table VI show the trend of costs in the three groups. It will be observed that compared with last year the main difference is in the fewer numbers of herds with a low cost of under £20 which is mainly due to the different sample.

Six outwintered herds common to both years showed an average rise from £25: 6: 5 to £26:11: - per cow, while for herds wintered inside there was very little difference in the average cost for the two years - indeed for eleven identical farms in Group II it declined from £33 to £31:10: - because in 1954/55 the cow depreciation was lower in that particular group.

Table VI

Variation in Cost per Cow per Year

No. of herds with cost per cow	Under £20	£20- £25	£25- £30	£30- £35	£35- £40	Over £40	TOTAL
Group I CAITHNESS	-	3	2	6	3	4	18
Group II UPLAND	2	2	6	4	4	1	19
Group III LOWLAND	-	-	2	2	2	-	6

Four of the five cases of a high cost per cow in Caithness concerned small herds inwintered and in two of them the number of cows kept over the year exceeded the number of calves reared illustrating thereby the way in which barrenness and deaths of calves can cause costs to rise quickly. The two lowest costs in Group II were both outwintered herds of hardy cattle whilst the highest cost of all occurred with high quality calves born early and sold in the Autumn.

MARGIN PER CALF

Where the calves are sold in the Autumn sales the profit or loss can easily be ascertained but when the calves are over wintered an idea of the value of the calves can only be obtained by placing a valuation on them. In Table VIII the margin per calf in the three groups is shown both before and after the subsidies have been included. From the point of view of costing in this area, April 1st was a most unfortunate choice of date to begin raising the calf subsidy since it meant that a variable proportion of animals in each herd received the extra £2:10/-.

Table VIII

Margin per Calf: Average Results

	Cost per Calf	Valuation or Sale Price	Margin	Calf Subsidy and Cattle Subsidy	Margin including Subsidies
Group I CAITHNESS	£33: 5:10	£26: 6: 7	£6:19: 3	£14:15: 3	£7:16: -
Group II UPLAND	£30:14: 1	£28:16: 6	£1:17: 7	£15:16: 1	£13:18: 6
Group III LOWLAND	£33: 3: 2	£29:19: -	£3: 4: 2	£6: 8: 4	£3: 4: 2

The results are rather similar to those for last year but the performance of the lowland farm group is not quite so good. The variation in results from farm to farm was very great and is shown in Table IX before and after the subsidies are taken into account.

Table IX  
Variation in Margin per Calf

Margin per Calf (excluding Subsidies)	Profit Over £5	Profit 0 - £5	Loss 0 - £5	Loss 5 - £10	Loss Over £10	TOTAL
Group I	-	2	7	5	4	18
Group II	3	5	5	3	3	19
Group III	-	1	3	2	-	6
Margin per Calf (including Subsidies)	Profit Over £15	Profit £10-15	Profit £5-10	Profit 0-£5	Loss	TOTAL
Group I	2	5	4	5	2	18
Group II	7	6	3	2	1	19
Group III	-	-	1	4	1	6

The two best results came from hardy cattle outwintered and it is noteworthy that most of the animals in those two herds were actually sold in the Autumn Sales and that the results are not therefore those of a conjectural valuation. Seven other outwintered herds also showed results better than the average, while the poorest returns occurred in one case where there was a low calving percentage (outwintered cattle) and in another case because most of the stock had to be sold off as reactors. Two other poor results were associated with late born calves of indifferent quality.

The extra expense incurred in aiming at very early high quality calves (December - January) in attempting to hit the top prices in the Autumn markets may also prove relatively unprofitable but in such cases allowance should perhaps be made for the "hobby value" of the enterprise to the farmer, i.e. it is not strictly commercial and the farmer may not worry about getting a large return.



The better results for inwintered herds occurred in fact when calving was reasonably early but was associated with a fairly low cost of production, e.g. in herds where late grazings are available cutting down the winter food cost or where an early start can be made to the summer grazing season.

In Group II the two herds in which some cows reared more than one calf showed an average net loss per calf of 2/- compared with £1:17: 7 for the whole group but if subsidies are included and the results expressed per cow then the farms double suckling show a profit of £17:10: 1 compared with £13:18: 6 for the group as a whole. One factor which is now of major importance in limiting the advantages of double suckling is the very high price that must be paid for calves of good quality and for this sample the price of young calves bought in ranged between £9 and £23 with an average of £17. In Group III there were two farms on which most of the cows reared two calves and the average margin per cow was £5: 9: 9 compared with £3: 5: 6.

#### CONCLUSION

Recognising the fact that the breeding cow herds must often be planned to work in with the rest of the farm enterprises, it seems clear that if the herd is to be kept inside then the best plan is to aim for fairly early calves of good quality. The feeding must be done as economical as possible and late grazing and the use of hay and silage should be considered where turnips are unreliable. Oats may be useful in place of the above foods but over feeding does seem to occur on some farms. Double suckling will tend to be profitable and increases intensity while outwintering has generally proved successful provided feeding is adequate and shelter available.

#### ACKNOWLEDGMENT

The Economics Department of the North of Scotland College of Agriculture wish to thank the farmers who have provided data for this report. The study is continuing during 1954/55 and records would be acceptable for any farmers who would like to participate.

APPENDIX I  
THE EFFECT OF MYXOMATOSIS (1955)

Since the disease has now reached most farms it was possible to obtain the views of some of the farmers giving Breeding Cattle Costs records upon the difference the disappearance of the rabbits made to their crops and grass in 1955.

The comments of thirty-two farmers are tabulated below. "Some" effect indicates better grazing or growth of crop round the verges of the field or possibly earlier grazing in the spring.

"Great" effect is noted where it was formerly impossible to grow turnips in certain fields without netting or where crop failures occurred from time to time because of rabbit damage.

In the case of grass it refers to better grazing not only around the verges of the fields or near woods but over the whole farm.

Table A  
Effect of Rabbit Clearance on Grass and Crops

	Effect on Grass			Effect on Arable		
	None	Some	Great	None	Some	Great
CAITHNESS AREA	8	5	2	9	3	3
MORAY FIRTH AREA <sup>†</sup>	5	7	5	4	6	7

<sup>†</sup>Including Strath Spey and valleys of Findhorn and Nairn.

In Caithness where most farmers have some rough grazing or hill, hares were often said to be a greater nuisance than rabbits whilst on low ground farms where crops are always heavier, any rabbit damage may not be so noticeable. The farmers reporting the greatest benefit from the destruction of rabbits were those on lightish land with a shallow soil.

Even this very small sample of farms illustrates the tremendous irregularity from farm to farm in the cash advantage occurring from the advent of myxomatosis - a point which should be remembered whenever the question is under discussion.

## APPENDIX II

The following standards were used in this Costing:-

<u>LABOUR</u>	<u>Man</u>	Winter 1954/55	3/2d. per Hour;
		Summer 1955	3/4d. per Hour;
	<u>Tractor</u>		3/9d. per Hour.

<u>OVERHEAD CHARGES</u>	Per £ Man Labour	5/9; 6/9 (summer)
	Per Tractor Hour	5/-; 5/3 (summer)
	Per Acre	16/3; 17/6 (summer).

COST OF HOME-GROWN FOODS In accordance with Enterprise Crop Costs for the Area.

MANURIAL RESIDUE OF FOODS were calculated using the standards adopted by the Department of Agriculture for Scotland.

<u>LIVESTOCK UNITS</u>	Horse, Adult Cattle	1 Unit
	Cattle 1-2 years	.75 Unit
	Cattle 6 months - 1 year	.50 Unit
	Sheep - over six months	.25 Unit
	Sheep - 3-6 months	.07 Unit