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Sheep - Cost of production

UNIVERSITY OF
MANCHESTER



FACULTY OF ECONOMIC
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Grass Fattened Sheep

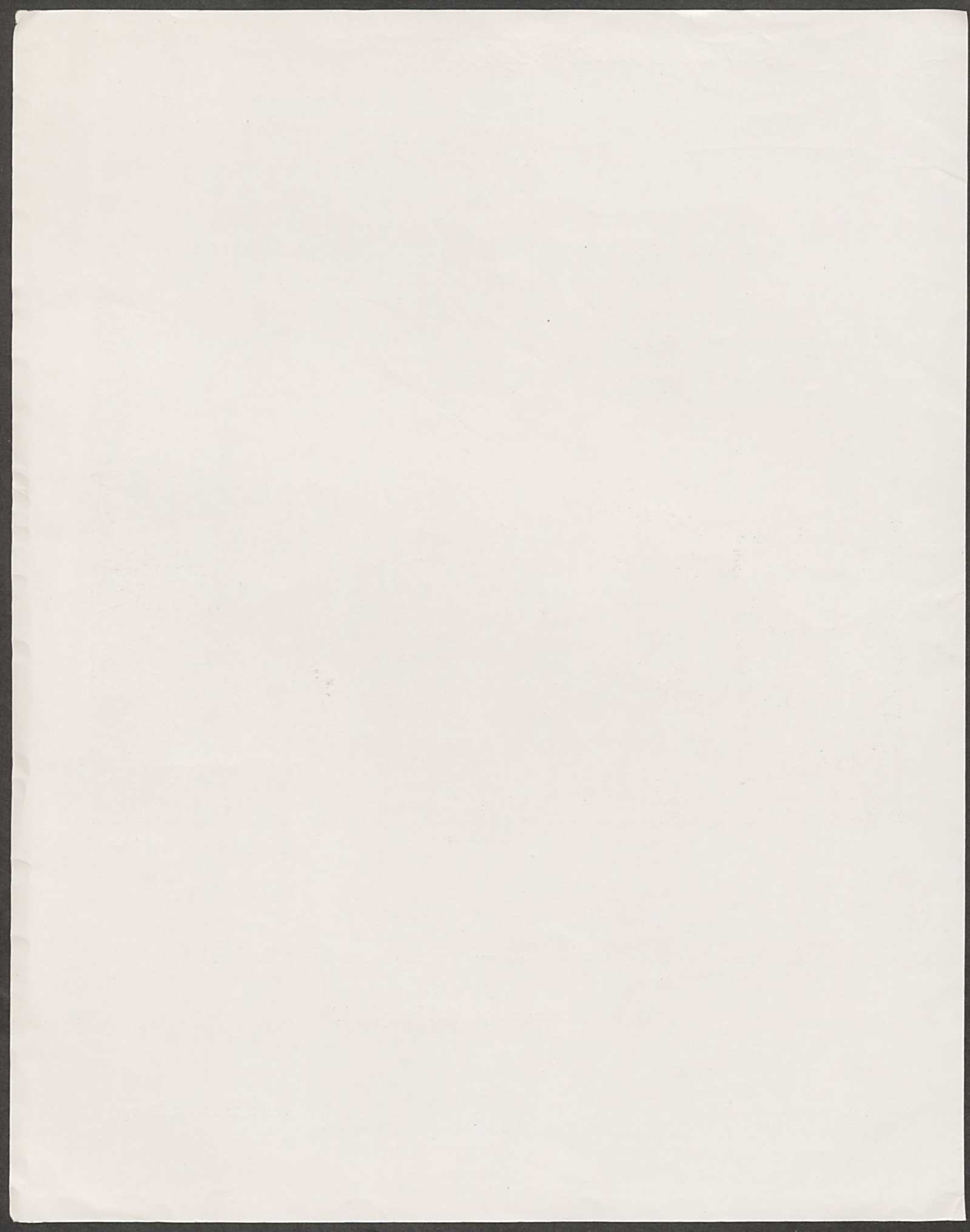
An Economic Study during 1954—1956 in North-West England

by

T. W. Gardner and T. Kempinski

BULLETIN No. 87/EC50
SEPTEMBER 1957

PRICE THREE SHILLINGS



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Acknowledgments

The authors acknowledge their indebtedness to colleagues who in various ways have stimulated and helped forward this report on the fattening of lambs off grass.

Above all, the Department is grateful to those farmers who provided information about the flocks to which this report particularly refers.

SUMMARY

(1) This is a report of the fattening of lambs off grass during a two-year period, October 1954 to September 1956.

(2) Average financial results per ewe for 47 flocks were as follows:—

										1954-55			1955-56		
										£	s.	d.	£	s.	d.
Stock Input	..	..	..	..	..	..	..	..	..	11	11	1	11	19	11
Stock Output	..	..	..	..	..	..	..	..	..	19	8	1	20	7	11
										<hr/>			<hr/>		
Gross Margin	..	..	..	..	..	..	..	..	..	7	17	0	8	8	0
Other Inputs	..	..	..	..	..	..	..	..	..	5	14	5	5	13	10
										<hr/>			<hr/>		
Net Margin	..	..	..	..	..	..	..	..	..	2	2	7	2	14	2

(3) Flocks were grouped according to breed type as "longwool", "shortwool" or "other". The "longwools" were found on Lancashire lowlands, the "shortwools" on higher land in Cheshire and Staffordshire. "Longwool" flocks showed a higher profit margin and a higher lambing ratio in both years. Early tupping or lambing was associated with higher supplementary feed costs. Grass costs per acre and per ewe were higher for the "longwool" flocks. Larger flocks benefit by economy of labour. "Longwool" flocks buy more ewes by way of replacement but at lower cost per head than "shortwool" flocks.

(4) Few early fat lambs are sold, chiefly "shortwools". Although more "shortwool" lambs are kept until the autumn, those sold before September tend to be younger than the "longwool" lambs sold. Lambs were sold at lighter weights in 1955-56 than 1954-55. Prices decline (per lb.) during the summer and recover a little during the autumn. The higher lambing ratio of the "longwools" is of greater importance than any other influence on receipts. Sales of wool from "longwool" flocks are heavier.

(5) It is suggested that flocks with the characteristics of the "longwools"—good lambing ratio (which is associated with neither early nor particularly quick maturing sales); good grazing and modest supplementary feed costs; good wool sales—have an advantage over flocks with the characteristics of the "shortwools" of some 12s. 6d. per ewe in their profit margin, because of those characteristics.

(6) The margin per fat lamb in 1955-56 was estimated at between 34s. 3d. and 41s. 1d., and as between 9d. and 11d. per lb., according to breed type. Land required is rather less than an acre for two ewes; it is least where grazing is intensively stocked. Heavy outlay on grass makes heavy stocking possible. The effect of raising the proportion of sheep to cattle may be to delay the turning out of dairy cows on the intensively and the lightly stocked grassland.

(7) It is finally suggested that the net margin shown by this type of enterprise account may understate the real financial return from the sheep flock.

GRASS FATTENED SHEEP

AN ECONOMIC STUDY DURING 1954-56 IN NORTH-WEST ENGLAND

1. *Introduction*

This report summarises a two-year study of the economics of grassland sheep flocks in north-west England and relates to the period between October 1st, 1954 and September 30th, 1956. The tables included in the report refer—depending upon their purpose and the material available—to a varying number of flocks. The main statement of costs and returns per ewe, however, is based upon the records of 47 flocks where no substantial number of store lambs was purchased in either year.

All but one of the flocks studied were on farms in Lancashire, Staffordshire and Cheshire. On each farm the basis of the sheep enterprise is the production of lambs for sale fat off grass (either as lambs or hoggets): occasionally lambs may be sold as stores and, less often, a few are retained for flock replacement. The majority of ewes and rams are purchased and used for breeding for a varying number of years before being sold, usually for slaughter.

Because many farming enterprises are interlocked (the cowman feeds the pigs, heifers graze round the poultry houses) it is impossible to divide certain joint costs exactly between the different sections. The allocation of grassland costs is particularly difficult, especially if the grazing is shared by several kinds of livestock. Yet the "cost" of an enterprise can only be arrived at if some division of these joint costs is made: the division is made by use of conventions. Grazing provides the major part of the keep for the flocks studied here and, in an effort to improve the sharing of grazing costs, some change has been made in the basis of allocation from that employed in the interim report (Bulletin 84/EC 48). Where necessary, the costs for 1954-55 have been recalculated; details of the method of allocation are given in Appendix II. Although the conventional element in arriving at certain costs means that the final figures of expense and margin cannot be regarded as accurate in an absolute sense, the application of the same conventions to a group of farms does increase the value of analysis and of the comparisons which may be made.

2. *Financial Results*

The breeding ewe may be regarded as the basic unit in sheep production and for this reason most of the flock data are presented in this report in terms of costs and returns per ewe. However, such a form of presentation requires the exclusion of results from flocks where a large proportion of store lambs was bought in. These flocks are included in comparisons which are made in terms of lambs sold (Tables 7, 8 and 9).

A statement of the average financial results for 47 flocks separately for 1954-55 and 1955-56 is contained in Table 1. It will be seen that the total production expenses ("other inputs") are similar in both years at approximately £5. 14s. 0d. per ewe but that the net margin is some 11s. 6d. per ewe greater in the second year. The difference is clearly attributable to the stock section of the account, and, to some extent, it arises because more lambs remained on the farms on October 1st, 1955, than at the corresponding date in 1954 or 1956. Although these lambs were valued at estimated market price many of them realised somewhat better returns when they were sold (mostly before the end of 1955). The sale of these lambs as hoggets so early in the 1955-56 year, at prices above the valuation placed upon them, is clearly a "paper" transfer of profit on production in 1954-55 into the 1955-56 account.

This explanation of the difference in the margins illustrates the weakness of attempting to base conclusions on a single year's results. Whilst valuations cannot be altogether eliminated, the longer the period considered the greater is the relative importance of production expenses and sales as against the estimated opening and closing valuations. Assuming that the average results in

TABLE 1. AVERAGE FINANCIAL RESULTS PER EWE, 1954-55 AND 1955-56, FOR 47 SHEEP FLOCKS IN NORTH-WEST ENGLAND

	1954-55	1955-56
	£ s. d.	£ s. d.
Opening Valuation of Sheep	8 11 8	9 2 7
Purchases of Sheep	2 19 5	2 17 4
(a) Total Stock Input	11 11 1	11 19 11
Sales of Sheep and Wool	9 15 11	12 13 2
Closing Valuation of Sheep	9 12 2	7 14 9
(b) Total Stock Output	19 8 1	20 7 11
(c) Gross Margin (b-a)	7 17 0	8 8 0
Labour	0 19 11	1 0 2
Supplementary Feed	1 8 4	1 6 11
Grazing	2 8 1	2 8 3
Sundry Direct Costs (incl. vet)	0 5 6	0 4 4
Depreciation and Repairs (specialised equip.)	0 0 6	0 0 6
Share of General Farm Expenses	0 8 1	0 8 1
Transport and Marketing	0 4 0	0 5 7
(d) Total Other Inputs	5 14 5	5 13 10
Net Margin (c-d)	2 2 7	2 14 2

Table 1 could be amalgamated to give the two-year account of some hypothetical flock, this might be summarised as follows:—

	£ s. d.
Opening Valuation	8 11 8
Purchases	5 16 9
(a) Stock Inputs	14 8 5
Sales	22 9 1
Closing Valuation	7 14 9
(b) Stock Outputs	30 3 10
(c) Gross Margin (b-a)	15 15 5
(d) Other Inputs	11 8 3
Net Margin (c-d)	4 7 2

The average annual results per ewe would be obtained, in this example, by dividing the final figure by two, which would show a net margin per ewe of £2. 3s. 7d.

3. Factors Affecting Cost

(a) *Breed.* It is appropriate to consider how far this study throws light on the factors which affect costs. Amongst these, breed might be thought important because of its influence on

fecundity, on the earliness and rapidity with which lambs mature, and on capacity to forage for feed. With more than 25 breeds or crosses of ewes and some 15 different breeds or crosses of rams, an analysis strictly by breed is out of the question. The sheep have, therefore, been grouped by the broader categories of mountain, longwool, and shortwool, as shown in Table 2.

TABLE 2. NUMBER OF FLOCKS BY BREED GROUPS 1955-56

Type of Ram	Type of Ewe in Flock				
	Longwool	Longwool × mountain	Shortwool	Shortwool × mountain or Mountain	Mixed
Longwool .. .. .	..	..	..	1	..
Shortwool .. .. .	..	9	20	..	7
Mixed	1	7	..	1	1
Totals	17		22		8

From this table it will be seen that, in 1955-56, in 17 flocks the ewes were longwool or longwool crosses, in 22 flocks the ewes had no longwool blood (indeed were mainly shortwools), whilst the remaining eight flocks were of mixed breeds.* By excluding the mixed flocks one is able to present two fairly distinct breed groups which for brevity may be called "longwool" and "shortwool", being respectively the flocks with ewes having longwool blood and the flocks whose ewes have no longwool blood.

These groups coincide almost exactly with geographical divisions in that the "longwools" are found—in our sample—almost exclusively in Lancashire whilst the "shortwools" occur only in Cheshire and Staffordshire. Perhaps surprisingly, it is the "shortwool" flocks which tend to be found on higher lying farms than the "longwools". Some indefinable part of the difference of results between the "longwool" and "shortwool" flocks may, therefore, be attributable to climate, topography and their effect, via grassland, on the flocks.

Quite naturally, in the course of adjusting their farming, some farmers change the breed of sheep which they keep. This happened between 1954-55 and 1955-56 on a few of the farms surveyed. Consequently, in comparing the results over two years for the "longwool" and "shortwool" flocks it is necessary to restrict attention to those farms with the same type of sheep in both years—i.e. to 12 "longwool" and 18 "shortwool" flocks. Summary financial results for these farms are given in Table 3.

In both years the "longwool" flocks provided a higher margin per ewe. This was mainly due to a greater livestock output (gross margin). Only in the second year were operating costs lower for the "longwool" group. Of these costs, supplementary feeding and grazing are the only ones which vary noticeably between the groups: "shortwool" flocks cost more in supplementary feed and less for grazing than the "longwool" but their advantage in grazing was relatively small in 1955-56. This was a moister and much more productive season for grassland than 1954-55 and from it the lowland (and generally more intensively managed) pastures—where the "longwools" were situated—seem to have reaped most benefit. That benefit is reflected in reduced grazing costs per "longwool" ewe. It is also to be noted (Table 5) that expenditure per acre of grazing was higher on the "shortwool" and lower on the "longwool" farms in 1955-56 than in 1954-55; this also influences the grazing costs per ewe.

(i) *Early Lambing.* It might be anticipated that feeding costs, and the relative importance of supplementary feeding to grazing, would be affected by a number of possible variations in shepherding practice. Important amongst these should be the date of lambing, since the earlier the lambing the greater the reliance necessary upon supplementary feeding—other things being equal. In this respect, therefore, Table 4 offers interesting comparisons between the different

* See Appendix II for the breeds in each group.

TABLE 3. AVERAGE FINANCIAL RESULTS PER EWE, 1954-55 AND 1955-56, FOR 12 "LONGWOOL" AND 18 "SHORTWOOL" FLOCKS

	1954-55		1955-56	
	Longwool	Shortwool	Longwool	Shortwool
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Opening Valuation	9 7 5	8 13 5	11 0 9	8 5 10
Purchases	3 16 10	2 3 2	3 19 6	2 0 0
(a) Total Stock Inputs	13 4 3	10 16 7	15 0 3	10 5 10
Sales	9 15 3	10 1 1	15 0 9	11 10 6
Closing Valuation	11 19 6	7 15 5	8 17 8	6 17 5
(b) Total Stock Outputs	21 14 9	17 16 6	23 18 5	18 7 11
(c) Gross Margin (b-a)	8 10 6	6 19 11	8 18 2	8 2 1
Labour	1 0 7	0 19 10	1 1 2	1 2 6
Supplementary Feed	1 3 7	1 10 8	0 19 3	1 11 10
Grazing	2 16 4	2 0 0	2 10 3	2 5 9
Sundry Direct Cost (incl. vet) ..	0 5 5	0 8 3	0 4 1	0 4 6
Depreciation and Repairs	0 0 4	0 0 6	0 0 5	0 0 5
Share General Farm Expenses ..	0 8 6	0 8 1	0 8 1	0 8 7
Transport and Marketing	0 3 9	0 4 5	0 6 7	0 5 3
(d) Total Other Inputs	5 18 6	5 11 9	5 9 10	5 18 10
Net Margin (c-d)	2 12 0	1 8 2	3 8 4	2 3 3
Lambing ratio; percentage	146	126	139	129

TABLE 4. FEEDING COSTS PER EWE, IN 1954-55 AND 1955-56, AND EARLINESS OF LAMBING FOR THREE TYPES OF FLOCKS

	12 "Longwool"	18 "Shortwool"	17 "Other"
1954-55			
Average proportion of lambs born by March 31st	64%	72%	86%
Supplementary feed per ewe ..	£1 3 7	£1 10 8	£1 9 4
Grazing per ewe	£2 16 4	£2 0 0	£2 10 11
1955-56			
Average proportion of lambs born by March 31st	66%	67%	82%
Supplementary feed per ewe ..	£0 19 3	£1 11 10	£1 7 0
Grazing per ewe	£2 10 3	£2 5 9	£2 9 7

types of flocks in the two years. With the average proportion of lambs born before the end of March being greater in the "shortwool" flocks than the "longwool" (but only very slightly in 1955-56) there is a higher supplementary feed cost per ewe. When the comparison is extended to include the "other" flocks it is found that they are even more predominantly early in lambing but that their supplementary feed costs per ewe, although higher than those for the "longwools", are appreciably below the "shortwool" costs.

This apparent anomaly is almost certainly associated with the location of the farms and the quality of their grassland. It has already been pointed out that the "longwool" flocks are generally situated on lower land than the "shortwools"; the "other" flocks are on farms at least as low-lying as the "longwools". Moreover, their grassland is probably amongst the richest and earliest growing of any in this sample of farms. Consequently, they are able to rely entirely upon grazing earlier in the season than the "shortwool" farms and so save on supplementary feed. In comparison with the "longwools" it will be seen that the "other" flocks do incur heavier expenditure on supplementary feed as a result of earlier lambing.

Early lambing, of course, should reflect the farmer's policy of putting his ewes to ram early in the autumn. For 43 farms, where the date in 1955 when the ram was first put with the ewes is known, the costs of supplementary feed have been extracted as follows:—

<i>Ram first put with Ewes</i>	<i>No. of Flocks</i>	<i>Supplementary Feed Cost per Ewe</i>		
		£	s.	d.
Before September 24th	14	1	18	11
Later, but before October 6th	14	1	11	6
After October 6th	15	0	16	4

This is an alternative to presentation of the data by date of lambing and—whilst the costs may be influenced by other factors—indicates that the farmer who introduces his ram early to the ewe flock must anticipate heavier supplementary feed costs.

(b) *Grassland.* It is clear from the discussion of supplementary feed costs that there is a close inter-relationship with the grazing available. Because all the farms studied had other livestock beside sheep, the allocation of grazing cost must depend, to some extent, upon the conventions employed. In other words, the grazing charge per ewe is an estimated share of the grass cost which is based upon the food requirements of various grazing livestock and their access to the grass in question. About the cost of producing grazing there is less uncertainty and the outlay per acre for the farms with each of the three types of flock is set out for both years in Table 5.

TABLE 5. GRASS COST PER ACRE, 1954-55 AND 1955-56, BY TYPE OF FLOCK

Year	12 "Longwool"	18 "Shortwool"	17 "Other"
	£ s. d.	£ s. d.	£ s. d.
1954-55	6 16 0	5 8 5	8 8 5
1955-56	6 1 10	5 13 7	7 18 0

It was noted in the interim report that grass costs per acre were higher on the "longwool" than the "shortwool" farms; this continued in 1955-56, although the difference was considerably less. In both years the cost per acre was heaviest on the farms with the "other" type flocks. If, as has been suggested, these farms have the best grassland of all the groups, a very probable pattern is reflected in these figures. On the one hand rents per acre tend, other things being equal, to increase from the higher-lying to the lowland farms; on the other hand, the better the potential grassland the more farmers are prepared to spend on its husbandry. It is to be noted, however, that the highest cost per acre on the "other" farms is not matched by the highest grazing cost per ewe (Table 4). This influence of density of stocking can be seen more fully later when dealing with the acreage requirement of the sheep flock.

(c) *Labour.* The labour requirement for sheep flocks is at least as difficult to measure as the charge for grazing. Apart from such specific tasks as dipping, shearing, doctoring or sorting, most farmers "look over" their sheep regularly and frequently but on the same occasions they will be looking at other stock, crops, or equipment. Few farmers can say how much less often they would go across the farm in an evening or how many hours less they would work if they had no sheep. Yet it would be some little less and this we have tried to reflect in the hours attributed to shepherding in agreement with the farmers. (Where there is a large flock and a shepherd—even part-time—this difficulty does not arise.) Naturally, a difficult lambing, or early lambing with hand feeding, requires more time. These things apart, a larger flock is probably economical of labour per ewe: once there is a flock very little extra time is required to attend to a few extra sheep. Probably the farmer with a flock of over 100 ewes saves up to 5s. or 6s. per ewe in labour charges compared with the man who has only twenty or thirty ewes but the difference cannot be exactly measured.

The factors affecting the operating costs of a sheep flock have been seen to be chiefly the feed requirements. The cost of these is in turn affected by earliness of lambing and by the quality and early availability of grazing. Variations in weather will modify the relative costs between farms in different locations and with different kinds of grassland. Thus, in 1954–55 the advantage lay with the "shortwool" flocks; in 1955–56 it lay with the "longwool" flocks.

(d) *Purchase of Ewes.* In addition to the operating costs there are those associated with keeping the flocks in being. "Longwool" and "shortwool" flocks (measured by the number of ewes put to ram) averaged much the same size: just over 87 ewes for "longwool" and just under 83 ewes for "shortwool" flocks. Costs depend largely upon the number of ewes purchased and the price paid for them. Both of these items vary widely from flock to flock. In summary, however, the 12 "longwool" flocks contained some 1,048 ewes and 668 were purchased in the two year period; i.e. on average almost one-third of the ewes were replaced annually. The 18 "shortwool" flocks contained some 1,488 ewes and 776 were purchased in the two years; on average, therefore, about one-quarter of the ewes were replaced annually.

As a counterweight to the greater proportion of annual purchases, the price paid for "longwool" ewes was a little less than that paid for "shortwools". Ewes appear to have been somewhat cheaper in 1955–56 than in the previous year but over the whole period the average cost of "longwool" ewes was £6. 18s. 4d. and of "shortwool" ewes £7. 9s. 4d. This difference, however, was not enough to balance the larger proportion of annual "longwool" replacements. The "longwool" flocks, therefore, have over all rather higher costs per ewe than the "shortwools" largely as a result of their flock maintenance policy.

4. *Factors Affecting Income.*

Costs are only one side of the account and it is equally important to examine receipts to discover if there are any consistent causes of differences in returns. Since fat lambs are the main sale item, it is factors affecting the return on these which call for first consideration.

(a) *Lambing Ratio.* Perhaps first among the influences to be examined is the lambing ratio (number of lambs born per ewe put to ram). This was given at the foot of Table 3 for "longwool" and "shortwool" flocks for both years and it seems that the "longwools" may expect ten to twenty more lambs per 100 ewes on average than the "shortwool" flocks. Provided each type of lamb sells equally well, the larger "longwool" lamb crop would mean a return of approximately £1 more per ewe.

Whether, in fact, the lambs sell equally well depends in turn upon various considerations. Important amongst these are the date of sale, quickness of maturity, and weight at sale.

(b) *Date of Lamb Sales.* From the records of the flocks surveyed, it appears that a greater proportion of "longwool" than "shortwool" lambs is sold off fat before the end of September in the year of birth. Some "shortwool" lambs are sold as stores whilst others are carried over—mainly for sale in the period up to December or January. Between 55 per cent and 60 per cent of "shortwool" lambs were sold fat by the end of September in each year. Although some "longwool" lambs are carried over to the autumn a greater proportion of these is sold fat by the

TABLE 6. SALES OF FAT LAMBS BY BREED AND AGE, 1954-55 AND 1955-56

Year and Breed Type	Age of Fat Lambs in Months when Sold					
	under 3	under 4	under 5	under 6	under 7	7 and over
1954-55	per cent of number sold					
Longwool ..	6	23	15	33	19	4
Shortwool ..	13	19	31	31	6	—
1955-56						
Longwool ..	4	22	21	43	10	*
Shortwool ..	4	24	32	27	12	1
1954-55	average dressed carcase weight in lbs.					
Longwool ..	41	44	46	46½	52	48
Shortwool ..	44½	44	48	45	48½	—
1955-56						
Longwool ..	39½	42	44	44½	46	48*
Shortwool ..	40½	42	43	43¼	47	44

* Under ½ per cent sold at this age before the end of September.

end of September. The dry summer of 1955 seems to have kept the lambs back in that year for only 63 per cent of the "longwool" lambs had been sold; in 1956, however, over 80 per cent of the lamb crop was sold before the end of September.

The sale of really early lamb is unusual from either group of flocks. Indeed, out of almost 4,000 lambs sold fat before the end of September from the thirty flocks over the two years, only fifty were sold by the end of April: these were equally divided between "longwool" and "shortwool" lambs. Relatively high prices continue through May and another 150 fat lambs were sold (three "shortwool" to every "longwool") during that month from these flocks in 1955 and 1956.

(i) *Early Maturity.* The rather more numerous, fairly early, sales from "shortwool" flocks reflect the slightly earlier lambing referred to previously. It is possible to look at the sales also from the point of view of the age of the lambs, although the material available to us permits of only rather approximate classifications. Of the lambs sold before the end of September, it would appear that the "shortwools" tend to be sold younger. The average position over the two years may be summarised as follows:—

	Percentage of Fat Lambs Sold	
	under 5 months old	at 5 months old or over
"Longwools"	46	54
"Shortwools"	62	38

This is fairly representative of each year and the great difference between the flocks appears to be in the sales between four and six months old (Table 6).

In determining when a lamb is ready for market a farmer has to estimate its "condition" (i.e. to judge whether it has developed the right amount of flesh in proper conformation). There will be a natural tendency for twins to grow somewhat less rapidly than single lambs and thus to be rather older when ready for market. It is consistent with this view that the more prolific "longwool" flocks should sell their lambs a little older than the "shortwools". The influence of "twinning" grows less important in this respect as the season progresses and Table 6 shows the general picture of lambs of both breed types increasing in weight as they are sold later in

life. There is no real evidence that either breed type sells at a greater average weight than the other, although a far greater proportion of "longwools" sell between 40 lb. and 50 lb. dressed carcase weight: it appears that some of the "shortwools" may mature more quickly whilst others are slower to mature. On the other hand, it is fairly clear from Table 6 that lambs were generally sold some three pounds lighter in 1955-56 than a year earlier.

(ii) *Seasonal Prices.* There is a declining price for fat lambs through the summer, as is illustrated by the average receipts, per lb. dressed carcase weight, for lambs sold during 1956 from co-operating farms (Table 7). This must be taken account of in considering the influence upon receipts of the factors already discussed. A lamb sold in May 1956 would make about 7½d. per lb. more than the average for later in the season and was therefore worth approximately 25s. more to its owner. So few lambs were sold up to the end of May that the small advantage to "shortwool" flocks would average less than 1s. per ewe.

Readers will notice that monthly prices for "shortwool" lambs are fairly consistently above those for "longwools" (Table 7). This could be purely a breed difference or a difference between the markets where they were sold, but it more likely reflects the larger proportion of somewhat younger lambs amongst the "shortwool" sales. Over the season the average advantage to the "shortwools" is of the order of 2½d. per lb. or perhaps a little more than 8s. per lamb.

TABLE 7. AVERAGE PRICES, PER LB. D.C.W., FOR 1956 CROP FAT LAMBS BY BREED TYPE AND MONTH

Month								" Longwools "		" Shortwools "	
								s.	d.	s.	d.
March	..	..	..	..	..	..	..	4	6.1	4	6.0
April	..	..	..	..	..	..	..	4	3.3	4	6.1
May	..	..	..	..	..	..	..	3	8.5	4	10.0
June	..	..	..	..	..	..	..	3	3.2	3	4.4
July	..	..	..	..	..	..	..	3	0.2	3	2.4
August	..	..	..	..	..	..	..	2	11.5	3	2.8
September	..	..	..	..	..	..	..	2	11.8	3	2.0

Not only is the lambing ratio lower for "shortwools" but we have seen that a smaller proportion is sold fat up to September. Thereafter the "shortwools" have no clear price advantage. Taking account of all these factors, the greater fecundity of the "longwool" ewe is sufficient to wipe out the price advantages of the "shortwools" and to ensure some 11s. or 12s. greater receipts per ewe.

(iii) *Autumn Sales.* Although autumn lamb sales may bring no advantage to one breed group compared with another, the price per lb. dressed carcase weight rises from its summer trough as the year closes and suggests the possibility of a larger receipt for the farmer who delays his lamb sales. The month to month price movement varies from year to year but the lowest price per lb. has been received in August or September in recent years and the prices in October, November, and December have been from 2 to 14 per cent above the summer minimum. This is equivalent to a maximum increase of 5d. per lb. by December over the August or September prices. It is only possible to compare one set of autumn sales from our survey with the preceding summer lamb sales (for 1955) and here an increase of approximately 2d. per lb. was recorded in November or December. For keeping lambs an extra three months farmers were able to obtain approximately 7s. 6d. more per lamb. There is not likely to be an equivalent increase in costs for the sheep but, if cattle are deprived of grazing and have to be fed cake rather earlier than otherwise, the extra return on the lambs can easily be swallowed up and no net benefit accrue to the farm.

(c) *Sale of Ewes.* In addition to the sale of lambs there are, of course, sales of wool and of ewes no longer required for breeding.

From the twelve "longwool" flocks, 528 ewes were sold in the two years of the survey: this is almost exactly equal to a sale each year of one-quarter of the ewes put to ram. The discrepancy

between the sales and the purchases, which were quoted in the discussion of costs, results partly from a small increase in ewe numbers and partly from deaths amongst the "longwool" ewes. Selling prices, like the buying prices, of ewes were lower in 1955-56 but over the period averaged some £4. 12s. 9d. for the "longwools".

Sales of ewes from the eighteen "shortwool" flocks totalled 911 in the two years, or a little less than one-third of the ewes put to ram each year. The greater number sold than bought is a reflection of some reduction in numbers over the period and the retention of a few home bred lambs for breeding. Selling prices averaged £4. 10s. 9d. per "shortwool" ewe sold. Although the price for "shortwool" ewes was slightly lower, the larger ratio sold meant that receipts on this account were some 4s. or 5s. greater per ewe put to ram than in the "longwool" flocks.

(d) *Sale of Wool.* In sheep flocks kept for the production of fat lambs, wool is a by-product but in recent years it has been a valuable by-product whose sale value was equal to rather more than half the average profit per ewe realised on the whole enterprise. The "longwool" flocks—as is perhaps appropriate to their name—produced rather more wool per ewe on the average than did the "shortwools", although there were wide variations between individual flocks. The difference between the two groups was 10 ozs. of wool per ewe, the "longwools" giving almost 6½ lb. and the "shortwools" a little over 5¾ lb. of wool per ewe.

If at one time the shortwool breeds produced finer and more valuable wool, this is no longer reflected in the returns received by co-operators in this study. No doubt the cross breeding which has taken place has reduced the difference. "Longwool" flocks averaged almost 4s. 8d. per lb. for their wool: "shortwool" flocks averaged just over 4s. 6d. per lb. for their wool. For both groups the price was slightly higher in 1955-56 than in the previous year. The combination of heavier wool crops and a fractionally higher price for the wool gave the "longwools" an advantage of some 4s. per ewe.

5. *Profits.*

This report presented the financial summary first and has proceeded to examine why costs and receipts varied; it is necessary to bring these cost and receipt elements together. The analysis, it will have been noted, has been carried through mainly in terms of "longwool" and "shortwool" flocks. This differentiation does seem to throw into relief some basic characteristics such as lambing ratios, earliness of lambing, and rate of maturity. By coincidence, this division also corresponds roughly to a difference in elevation and quality of grassland. There are, therefore, two elements involved; the type of flock and the quality of grazing. There need not be the association of "longwool" flocks and lowland pastures found in this survey. (A third element, not analysed in this report, which affects the fortunes of individual flocks is the quality of management—a factor which seems to find expression in a consistently high rate of successfully reared lambs or good quality yields of wool.)

Because the "longwool"—"shortwool" division throws most light on the reasons for differences in results it does not mean that individual flocks within the breed groups do not show equally wide variations in their results or that the lessons cannot be applied to other flocks which have characteristics similar to those shown by these groups.

(a) *Lamb Sales.* When a lamb is about ready for market, a balancing of the seasonally falling price against further increases in liveweight and, probably, the supply of grazing will normally confirm the decision to sell. Lambs for the early market, however, are the result of deliberate policy dating back to the time when the ewes were put to ram. The receipt for a lamb sold before mid-May—according to season—is probably 25s. to 35s. greater than that for a similar lamb sold later in the year. A few early lambs were sold from "shortwool" flocks but, because of the small number involved, it gave the "shortwools" an average advantage of only approximately 1s. per ewe. "Shortwool" lambs also seem to have been sold rather younger and this gave them a quality advantage of up to 10s. per lamb according to the time of year but again, because they carried more lambs over beyond the end of the season, this meant only some 6s. per ewe. Against this, the "longwool" ewes were more prolific (approximately 15 more lambs per 100 ewes) and

this gave them an advantage of about 18s. per ewe. Balancing the advantages on sales of fat lambs, it will be seen that returns to the "longwool" flocks were approximately 11s. per ewe above those for "shortwools".

(b) *Flock Maintenance.* A consideration of the purchase and sale of ewes, taking into account the small changes in numbers over the period, suggests that maintenance of the "longwool" flocks cost approximately 2s. 6d. per ewe more on average than that of the "shortwools". Sales of wool, we have already seen, were heavier from the "longwool" flocks and gave them an advantage of approximately 4s. per ewe.

(c) *Feeding.* Before taking the feeding into account, it would seem that the trading factors provide explanation for a profit advantage to the "longwool" flocks of some 12s. 6d. per ewe. Of the feeding expenses it can be recorded that supplementary foods cost 10s. per ewe more in "shortwool" flocks than in "longwool" but that the estimated grazing cost was 10s. per ewe heavier for the "longwools". "Longwool" flocks, therefore, have a net advantage of 12s. 6d. per ewe in all.*

So far as the various influences may be related to each other, the experience of these flocks in the two seasons concerned show: (i) that the price advantage on the few early lambs and the proportion sold younger was not enough to balance the extra hand feeding needed by the "shortwool" flocks; (ii) that the return from the heavier lamb crop more than outweighed the extra grazing cost per ewe in the "longwool" flocks; (iii) that the slightly heavier flock maintenance costs were more than covered by higher wool receipts for "longwool" flocks. These are points which farmers who wish to improve the profitability of their flocks might care to consider.

6. *Other Economic Aspects.*

Having dealt with the causes of difference in costs and receipts, it is proposed to turn to one or two other economic aspects of the grassland sheep flock.

(a) *Results per Lamb.* First, because the main object of the sheep enterprise studied was to produce fat lambs, a statement of the results "per fat lamb" is set out in Table 8. It will be remembered that a fairly heavy proportion of lambs was carried over from the 1954-55 year into 1955-56; the presentation of the "per lamb" figures is restricted, therefore, to the second year but includes the hogs as "fat lambs". Since the valuation at the beginning of October 1955 was subsequently seen to be rather low for the lambs our figures might be thought to exaggerate the profit per lamb achieved. Against this, the inclusion of hogs almost certainly reduces the average value per lb. and will go at least part way to restoring the balance.

In order to eliminate the influence of any farms not primarily fattening, only those selling more than half their lambs fat within the period are included. On the other hand it has been possible to include farms where store lambs were bought and later sold fat. Consequently the groups in Table 8 do not correspond exactly with those in any of the previous tables.

Nevertheless, they confirm the patterns already observed. Production costs ("other inputs") are lower for the "longwool" group because of the higher lambing ratio and because a larger proportion of those lambs were sold fat. For the same reason, but seen from the other side—that few "longwool" lambs were sold as stores or retained—the "gross deficit" on the non-fattening side of the enterprise is greater in the "longwool" flocks. The total cost per fat "longwool" lamb is not only below that of the "shortwools" but is sufficiently lower to more than offset the poorer prices received.

(i) *Per lb. d.c.w.* These figures may be expressed in terms of per lb. dressed carcase weight to make them comparable with the form of the price guarantees. In the year ending 25th March, 1956, the guaranteed standard price per lb. estimated dressed carcase weight was 3s. and in the following year it was 3s. 2d.; weekly prices for lambs varied quite widely about these averages. Average results for the 48 flocks of Table 8 are given below (Table 9) expressed per lb. estimated dressed carcase weight.

* It is not possible to compare this figure with any derived directly from Table 3, which is based upon individual year results in which there was some variation in the flock sizes.

TABLE 8. AVERAGE COSTS AND RETURNS PER FAT LAMB 1955-56 FOR 48 FLOCKS BY BREED GROUPS

	16 "Longwool"	15 "Shortwool"	(48) All Flocks
Percentage of Lambs sold fat Dressed carcase weight, lbs.	88 44.7	79 45.6	84 44.3
Opening Valuation of Sheep Purchases of Sheep	£ s. d. 6 5 10 2 2 10	£ s. d. 7 12 11 0 19 1	£ s. d. 6 12 8 1 15 1
(a) Total Stock Inputs ..	8 8 8	8 12 0	8 7 9
Sales (excluding fat lambs) Closing Valuation of Sheep	1 19 2 5 4 9	2 2 0 5 18 6	1 17 11 5 7 4
(b) Output	7 3 11	8 0 6	7 5 3
(c) Gross Deficit (a-b) ..	1 4 9	0 11 6	1 2 6
Grazing	1 8 3	2 2 1	1 12 7
Supplementary feed	0 15 3	1 5 10	0 19 0
Labour	0 13 3	0 17 0	0 13 6
Other costs	0 11 8	0 15 3	0 12 9
(d) Total Other Inputs ..	3 8 5	5 0 2	3 17 10
(e) Cost per fat lamb (c+d)	4 13 2	5 11 8	5 0 4
(f) Sales of Fat Lambs ..	6 14 3	7 5 11	6 18 7
Net Margin (f-e)	2 1 1	1 14 3	1 18 3

NOTE.—In this Table "Fat Lamb" also includes fat hogs; only flocks selling more than half their lambs fat in the year are included.

TABLE 9. AVERAGE FAT LAMB COSTS AND RETURNS PER LB. ESTIMATED DRESSED CARCASE WEIGHT, 48 FLOCKS 1955-56

	16 "Longwool"	15 "Shortwool"	(48) All Flocks
	s. d.	s. d.	s. d.
Costs	2 1.1	2 5.4	2 3.4
Sales	3 0	3 2.5	3 1.7
Net Margin	0 10.9	0 9.1	0 10.3

(b) *Acreage Requirements.* Second, we may look at the acreage required to feed the sheep flock. It is perhaps necessary to recall that where grazing is shared by different stock the apportioning of cost is based upon the relative food requirements of the animals concerned. In so far as sheep are close grazers and feed on grass that might otherwise be left or be crowded out by taller growing species, they are overcharged by this system. If they are an integral part of the farm system and of the grassland management, however, it is difficult to see how they could escape a fair share of the grassland costs. This qualification, nevertheless, needs to be remembered in relation to the acreage requirements quoted in Table 10.

This Table presents a physical measure of the feed particulars contained in Tables 4 and 5. It confirms that the "shortwool" group are relatively heavy supplementary feeders and shows that the extra hand fed foods come from the farm in the form of cereals or hay. Table 10 also brings out the economy of land for grazing achieved by the "other" flocks group. In general it appears that one may expect an acre of land to carry two ewes and her followers: the "other" flock group shows that it is possible to improve on this.

TABLE 10. AVERAGE ACREAGE REQUIRED PER 100 EWES, 1954-55 AND 1955-56, BY BREED GROUPS

	12 "Longwool"	18 "Shortwool"	17 "Others"
	acres	acres	acres
Purchased Concentrates ..	3.30	3.13	2.88
Home Grown Concentrates	0.30	2.12	0.95
Roots and Green Crop ..	0.20	0.18	0.18
Silage	0.39	0.09	0.19
Hay and Dried Grass.. . .	0.88	2.08	1.42
Acreage Equivalent, Hand Fed	5.07	7.60	5.62
Grazing	44.79	41.00	32.08
Feed Acreage per 100 ewes	49.86	48.60	37.70

NOTES

- (i) These are the averages of the acreage equivalents—of the foods fed in both years.
 - (ii) Acreage equivalents of the hand fed foods are obtained by assuming the following yields per acre: concentrates 1 ton, roots 15 tons, silage 5 tons, hay $1\frac{1}{2}$ tons.
 - (iii) Grazing for "shortwools" is based on 17 flocks, the eighteenth flock being kept on wide acres of poor grass which would distort the picture.
- (i) *Grassland Expenditure and Carrying Capacity.* Our material does not provide any comprehensive answer as to how this economy in land is to be achieved. Clearly, and as might be expected, greater outlay on grassland enables more stock to be carried. Not only is this true for the inter-group comparisons already presented but also for inter-farm comparisons within the groups and perhaps surprisingly for inter-farm comparisons which ignore the groups. A summary of this relationship is given in Table 11. Less than 10 per cent of the difference in outlay is attributable to higher rents and the additional carrying capacity of the grazing where more is spent on cultivations and fertilisers is quite remarkable. But it will be noted that in 1954-55, which shows the most favourable results, the density of stocking could only be doubled where expenses were more than doubled. In other words, the cost of grazing per ewe on these farms tends to be less where the cost of grazing per acre is lower.

TABLE 11. RELATION OF EXPENDITURE PER ACRE ON GRAZING AND THE ACREAGE OF GRAZING REQUIRED PER 100 EWES

Expenditure per Acre on Grazing	Acres of Grazing per 100 Ewes	
	1954-55	1955-56
Under £4	50.9	45.8
£4 and under £7	44.4	40.9
£7 and under £10	32.5	33.5
£10 and over	24.4	28.2

This is only part of the financial story. The material does not permit of strict mathematical treatment but it may be estimated that increasing the outlay on grassland by £1, from approximately £6 to £7 per acre, would be matched by an increase of 3s. to 4s. in grazing cost per ewe. At the same time, however, it would be possible to carry some 20 to 25 extra ewes per 100 acres of grazing. Although extra ewes might call for additional outlay on supplementary feed during the winter, it is unlikely that other costs would be materially increased and, in particular, labour and overhead costs would be virtually unchanged. A statement of the possible total result of spending an extra £1 per acre on grazing, on the basis of the less favourable 1955-56 conditions is set out in Table 12, assuming an original flock of 80 ewes on 32 acres (i.e. 40 acres per 100 ewes) and grazing costs of £6 per acre.

Whether a farmer would wish to make this additional outlay in order to obtain so small an increment to his net income is doubtful. On most farms it would only be undertaken as part of a general policy of intensification which would probably be concerned primarily with the dairy enterprise. The illustration of Table 12 is included only to show that, although more costly grazing increases the grazing cost per ewe, the extra outlay should yield a small extra profit on the sheep enterprise.

TABLE 12. POSSIBLE EFFECT UPON FINANCIAL RESULTS OF SHEEP FLOCKS OF SPENDING AN EXTRA £1 PER ACRE ON GRAZING, 1955-56 CONDITIONS

	Grazing Cost of £6 per acre	Grazing Cost of £7 per acre
Number of ewes on 32 acres	80	86
	£ s. d.	£ s. d.
Gross Margin £8. 8s. per ewe	672 0 0	722 8 0
Grazing—32 acres	192 0 0	224 0 0
Supplementary feed at 27s. per ewe	108 0 0	116 2 0
Sundry costs at 10s. per ewe	40 0 0	43 0 0
Overheads constant at 80 × 8s. 7d.	34 6 8	34 6 8
Labour constant at 80 × 20s. 2d.	80 13 4	80 13 4
Total Other Inputs	455 0 0	498 2 0
Net Margin	217 0 0	224 6 0
Net Margin per ewe	2 14 3	2 12 2

(c) *Ratio of Sheep to Cattle.* Thirdly, there are two further aspects of the economics of sheep husbandry upon which it was hoped this study might throw some light. One concerned the relative benefits of mixed and exclusive grazing of pastures; the other referred to the effects of varying proportions of sheep to cattle. On neither of these has the survey proved helpful.

Almost all the sheep flocks have, for at least part of the time, and generally a substantial part of it, shared their pastures with cattle. On the six farms where the sheep had exclusive grazing during the summer months of one or both seasons they certainly required a smaller acreage than the average. With one exception, however, their financial results were either below average or poorer than on the same farm in the year when there was mixed grazing. On this point our evidence is inconclusive except to show that mixed grazing is the almost universal practice.

When one considers the problem of the ideal ratio of sheep to cattle, it is fairly clear that it is not one to be solved from a study of the sheep enterprise in isolation. Indeed, it probably requires the use of controlled experiments. There are, however, two pointers which might have given some indication of the influence of different proportions of sheep and cattle—profits, and the date when dairy stock are turned out. These could be no more than pointers because of the many other factors involved, such as breed, location of farm, outlay on grazing, and over all density of stocking. Any fairly uniform groups are consequently too small for reliable comparison. The profit indicator yields quite inconclusive results. An examination of the date of turning out dairy

cattle may be used to see whether a larger proportion of sheep seems to have delayed the availability of grazing for the cows. Remembering that outlay on grazing and density of stocking are closely related, density and sheep-cattle ratio can be examined together. It then appears that where land is lightly stocked (the poorer, higher grazing) the turning out date will be relatively late in any case, although an increased proportion of sheep may delay it even further. The problem is more urgent on the better, more heavily stocked grassland. Here one gains an impression (it is no more) that with very intensive stocking farmers avoid having more than one ewe per cow and that if they keep more sheep it may delay the turning out of the dairy cows by a week or ten days. With a good density of stock (30 to 37 acres per 100 ewes or $1\frac{1}{4}$ to $1\frac{1}{2}$ acres of grazing per livestock unit) there seems to be no serious delay where the ewes outnumber the cattle by five to four or even four to three; beyond this point some delay may be occasioned in getting the cows out to grass in the spring. Even supposing that this estimate of the position is about right, it does not tell us whether, if one ewe per cow is carried throughout the summer, this can be done without materially reducing the grazing that would otherwise be available to the cattle.

7. Conclusion.

This report has reviewed the costs and returns of a number of grass sheep flocks during the two years between October 1954 and September 1956 and has sought to show, in terms of breed type (with its influence on the lambing ratio and age of maturity), grassland management, and date of tupping (with its influence on the need for supplementary feed), why some of the observable variations in profitability occurred. It remains to be said that the profit margin of some fifty shillings per ewe, which the financial accounts record, probably understates the value of the sheep flocks to these farmers. If they disposed of their flocks, averaging approximately 80 ewes, the accounts would suggest a loss of some £200 per farm in net income. To this £200, which is the profit foregone, there would have to be added however certain continuing costs (e.g. part of the labour, rent and overheads), amounting to approximately £300, previously carried by the sheep enterprise and set off against flock sales before arriving at the £200 profit. The real loss from disposing of the average flock is therefore more like £500 per annum. This may be shown alternatively in the following way. To be without sheep altogether these farmers would avoid only some of the expenses listed in the Tables, whilst losing all the income, namely, per ewe per year:—

<i>Costs Avoided</i>				<i>Income Lost</i>			
	£	s.	d.		£	s.	d.
Livestock purchases	3	0	0	Sales of sheep and wool	11	4	0
Supplementary feed	1	7	6				
Sundry direct costs	0	5	0				
Depreciation (special equipment) ..	0	0	6				
Transport and marketing	0	5	0				
Total £4 18 0							

The real loss of dispensing with the sheep flock, being the difference between the costs avoided and the income lost, would average therefore some £6. 6s. per ewe or just over £500 for an average flock of 80 ewes.

Supposing that, in an expansion of the dairy herd to make good this loss on sheep, the grazing, labour, and overhead costs were to remain unchanged, a farmer would incur some additional expenses and obtain new income. If it be assumed that the cows yield 750 gallons per year, calve annually, and are replaced every third year, the new outlay and income involved per cow per year might be of the following order:—

<i>Costs Incurred</i>				<i>Income Added</i>			
	£				£		
Supplementary feed	50			Sale of milk	115		
Sundry direct costs	10			Sale of stock	20		
Stock purchase	25						
Total £85				Total £135			

The gain from adding cattle, being the difference between costs incurred and income added, therefore might average £50 per cow. To keep farm income at its previous level and make good the £500 lost by disposing of 80 ewes the farmer would need to add ten cows as replacement for the sheep. The ewes with followers were valued at an average of £8. 10s. per ewe during the period of this study and might therefore realise £680 per flock of 80 ewes when sold. This would provide an average of only £68 per cow for purchasing the ten cows (and any followers) seen to be necessary to replace the ewes and to maintain the level of the farm income. Since no allowance has been made here for any additional dairy buildings to house the extra cattle in winter and since the surplus of liquid milk is likely further to depress dairy receipts, farmers with sheep flocks may conclude that, despite the apparently low profit per ewe shown by accounting figures, they would be well advised to maintain their sheep enterprises.

APPENDIX I

STANDARD SUPPLEMENT OF FINANCIAL RESULTS 1955-56

Based on 50 flocks averaging 90 ewes, with 1.35 lambs reared per ewe

TABLE A. GROSS MARGIN PER EWE

	£ s. d.	£ s. d.		£ s. d.	£ s. d.
Opening Valuation:—			Sales:—		
Ewes	6 11 0		Ewes	1 4 9	
Rams	0 8 2		Rams	0 0 10	
Hoggs	2 6 1		Lambs	7 1 11	
			Hoggs	2 17 3	
Total		9 5 3	Wool	1 6 10	
Purchases:—			Total		12 11 7
Ewes	1 17 8		Closing Valuation:—		
Rams	0 2 6		Ewes	5 16 1	
Lambs	0 4 0		Rams	0 7 11	
Hoggs	0 9 8		Lambs	1 11 4	
			Hoggs	0 0 4	
Total		2 13 10	Total		7 15 8
(a) Total Stock Input		11 19 1			
(c) Gross Margin (b-a)		8 8 2			
		£20 7 3	(b) Total Stock Output		£20 7 3

TABLE B. NET MARGIN PER EWE

	Quantity	£ s. d.	£ s. d.
Labour—manual hrs.	5.79		0 19 3
tractor "	0.14		0 0 10
Feed—purchased: concentrates cwts.	0.56	0 18 4	
other "	0.11	0 0 8	
—homegrown: concentrates "	0.30	0 4 2	
roots "	0.72	0 2 1	
silage "	0.06	0 0 2	
hay "	0.40	0 2 4	
other "	0.22	0 0 5	
—grazing "		2 8 10	
Total feed			3 17 0
Sundry Direct Costs (including vet.)			0 4 6
Depreciation/repairs (specialised equipment)			0 0 6
Transport and Marketing			0 5 6
Total direct costs			5 7 7
Share of General Farm Expenses			0 8 1
Total other Inputs			5 15 8
Net Margin (Gross Margin—Other Inputs)			2 12 6

APPENDIX II

DEFINITION OF TERMS

A. TERMS DESCRIBING SHEEP

Longwools include Border Leicester, Leicester, Teeswater, Wensleydale.

Shortwools include Clun, Hampshire, Kerry, Oxford, Shropshire, Southdown, Suffolk.

Mountain include Cheviot, Dalesbred, Derbyshire Gritstone, Scotch Blackface, Swaledale.

Flocks are classified, in the report, as "longwool" if the ewes were of longwool breed or a longwool cross (not crossed with a shortwool); as "shortwool" if the ewes were without any longwool blood; as "other" if there were ewes of both longwool and shortwool breeds.

Ewes include shearlings put to ram. Results per ewe in the report refer to "ewes put to ram" which includes, in addition to those served on the farm, ewes purchased in lamb or with lambs at foot.

Lambs are so named until the end of September in the year of birth.

Hoggs are young sheep from October in the year of birth until such time as they are sold or enter the breeding flock as ewes or rams.

B. ACCOUNTING TERMS

Feed costs.

- (i) *Grazing.* The total cost of grass production was calculated by normal crop cost procedures; where appropriate a deduction was made for the acreage conserved. The grazing cost so arrived at was divided amongst the grazing livestock on the farm according to the "livestock grazing days" attributable to each category. For this purpose stock were given the following unit values:—

Cattle	2 years and over:	1 unit	Horses:	$1\frac{1}{2}$ units
"	1-2 "	$\frac{2}{3}$ "	Ewes and rams:	$\frac{1}{4}$ "
"	under 1 year	$\frac{1}{3}$ "	Hoggs:	$\frac{1}{10}$ "

Any payment for grazing by sheep away from the farm was added to the farm grazing to arrive at the total cost of grazing by sheep.

- (ii) *Home grown feed.* The costs are based on average costs of production calculated in other surveys.
- (iii) *Supplementary feed.* All costs are given net of residual manurial value.

Labour.

- (i) *Manual.* Charged at rates on the farm for a 47 hour week, including allowance for perquisites, plus 4d. per man-hour to cover overtime, national insurance and holidays.
- (ii) *Tractor.* Charged at 6s. per hour and included under "Labour" in the report.

Purchases. The price includes the cost of carriage to the farm.

Sales. These cover total receipts for sheep and wool sold, including deficiency payments, before any deduction is made for carriage, handling or commission.

Share of General Farm Expenses. This is calculated as 15 per cent of the cost of direct manual labour plus 5 per cent of total other costs (i.e. all costs except stock inputs).

Sundry Direct Costs. Consist mainly of expenditure on veterinary preparations and treatment.

Transport and Marketing. Costs involved in the sale of sheep.

Valuations. Based on estimated market values at 1st October.

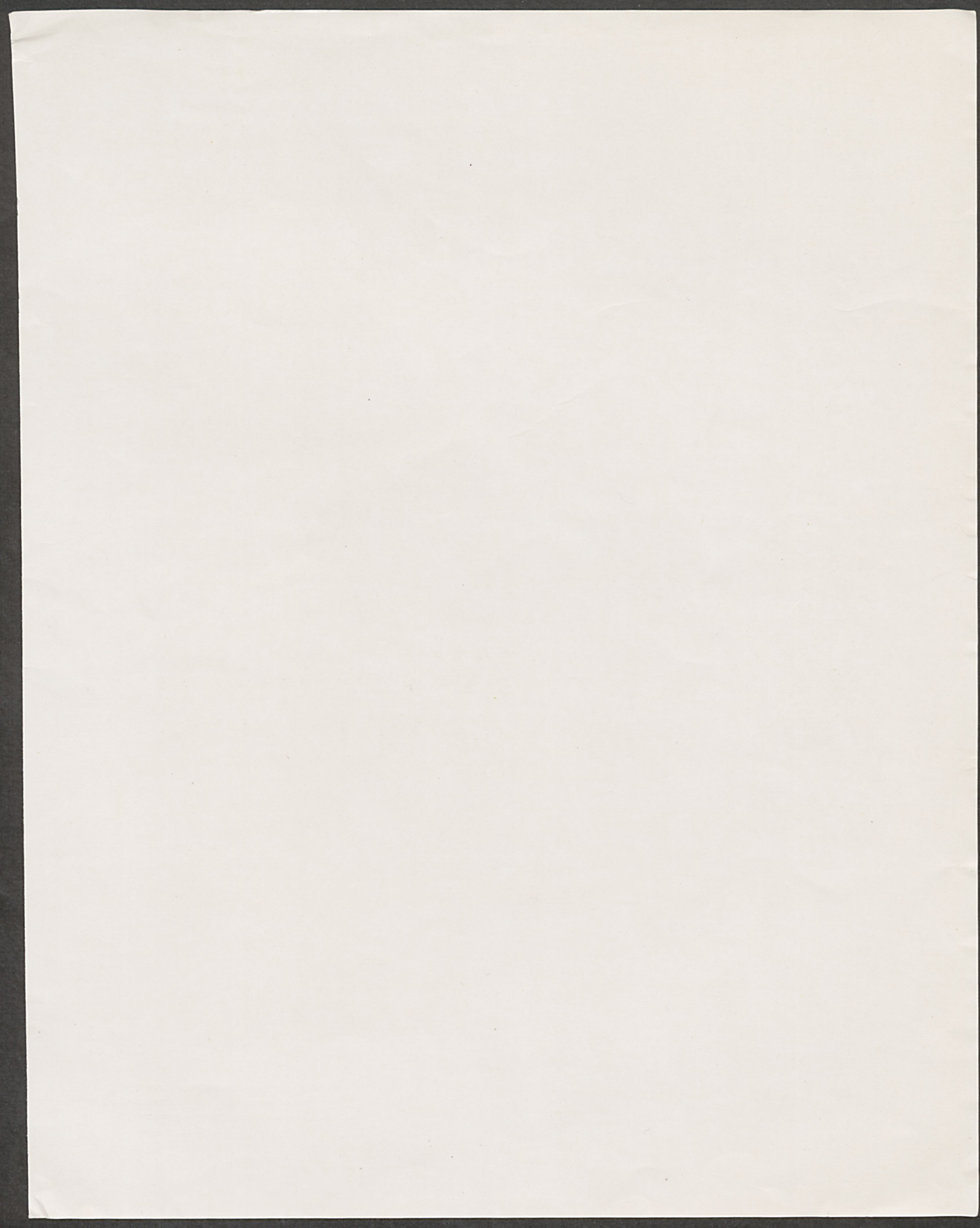
C. OTHER TERMS

Lambing Ratio. The number of lambs reared per 100 ewes.

Ratio of Sheep to Cattle. This is the approximate ratio of ewes to other stock (cattle of 2 years and over = 1 unit; see Feed Cost: Grazing) during the summer grazing season.

Weights. The weight of lambs sold is given as dressed carcass weight (actual or estimated).

Averages are simple: i.e. the results per ewe (or per lamb, etc.) for each farm added together and divided by the number of farms in the group.



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BY MORRIS AND YEAMAN (PRINTERS) LTD.
10, SHORT STREET, MANCHESTER, 15.
24328.11.57