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Sheep - Cost of production O.S.

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ECONOMIC STUDIES IN SHEEP FARMING IN WALES.

NUMBER 1.

General Report on Costs and Returns for 65
Hill Sheep Flocks for 1954-55 and 1955-56.

by

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December 1957.

E. F. Nash.
Professor of Agricultural Economics.

INTRODUCTION.

Hill sheep farming is, perhaps, one of the most distinctive forms of pastoral activity practised in Wales. This is so owing to the wide expanse of hill and upland country which, apart from forestry, is only suitable for affording pasturage for sheep and to some extent cattle. Thus almost 60 per cent of the land area of the Principality is above the 500 foot contour, while over one-quarter is above 1,000 feet. In fact, the country consists of a central upland core with mountain ranges extending into the Llyn peninsula of Caernarvonshire in the north-west, and in the form of the Prescelly Mountains in Pembrokeshire in the south-west. Along the western seaboard the coastal plain is very narrow and in some places non-existent. On the east, however, the valleys opening out towards the English border are wider and give rise to more broken country.

In some counties, such as Brecon and Radnor, for instance, between 50 and 60 per cent of the land area is above 1,000 feet, while in Merioneth, Montgomery and Denbigh the proportions vary between one-third and one-half. The remaining contiguous counties have land of similar elevations although accounting for somewhat lesser proportions of their total areas. About one-half of the agricultural area of Wales (excluding common grazings) is, moreover, returned as rough-grazing. It will be realised, therefore, that the practice of keeping permanent flocks of hill sheep is widespread. Nevertheless, quite significant differences in productivity occur even on hill land of similar elevation. Thus some of the Breconshire hills, for example, carry a somewhat heavier breed of sheep and have a higher level of productivity than is found on land of similar or even lower elevation in Caernarvonshire and Merionethshire.

At present the total sheep population of Wales amounts to about $4\frac{3}{4}$ million, of which roughly 40 per cent would appear to be found in hill flocks. The latter are predominantly of the Welsh Mountain breed, although there has been a strong influx of Cheviot blood in parts of Breconshire. There are also certain variations in type within the native breed and some differences in management systems. On the whole, however, hill sheep farmers throughout the Principality are confronted with the same basic problems. These may vary in degree but not in kind, and all such farmers are subject to the same limitations as the flexibility of their actions. The hill-sheep flock is essentially a permanent

self-contained breeding unit made up of certain numbers of sheep of different kinds and ages. It must not be inferred, however, that the proportions of different classes of sheep in mountain flocks do not undergo some change, as there has for some years been a progressive decrease in numbers of wethers and a corresponding increase in numbers of ewes. Nevertheless, the rate of turnover of capital is still low. Income is also exceedingly variable by virtue only of differences in lamb yield which in bad seasons may be as low as 40 per cent. Almost all the ewe lambs have to be kept for replacement purposes as the ewes are usually drafted out after bearing three lamb crops. Sales consist chiefly of draft ewes and wether lambs in store condition. Certain hill farmers may be in a position to sell some fat lambs, but this is not practicable to any great extent. It will be seen, therefore, that the prosperity of the hill farmer is dependent, in very large measure, on the demand on the part of the lowland farmer for draft ewes for crossing purposes and for store lambs for finishing. The hill sheep farmer is therefore essentially an intermediate producer and any developments which affect adversely the markets for fat sheep react sharply on his fortunes. During times of general agricultural depression, such as occurred during the inter-war period, all types of farming suffered. Then with the outbreak of war and the consequent increase in the tillage area, numbers of sheep on lowland farms were drastically curtailed, which served to prolong the depressed condition of hill-sheep farming. Many farm houses and buildings had fallen into a state of dis-repair, while such operations as drainage, bracken-cutting and heather control had been neglected. The acute concern felt for the welfare of this branch of the farming community found expression in a far-reaching programme of government aid in the form of direct subsidies and production grants which have now been embodied in the Livestock Rearing Act of 1951.

The Sample.

Owing to the importance of sheep in the agricultural economy of Wales the Department has continually kept under review the changing fortunes of this section of the industry. The present Report is based on the results for 65 identical hill-sheep flocks over a period of two years. The major part of the sample is drawn from Merionethshire and Caernarvonshire with 26 and 20 flocks respectively. Denbighshire comes next with 10 flocks, 7 from Breconshire, and

the remaining two from Montgomeryshire. With such a wide diversity in physical and environmental conditions as are found in these counties, it is natural that breeds and types of sheep, stock-carrying capacities, and systems of management, should show considerable variations. And when to these circumstances are added differences in the sizes of enterprises and in the technical skill and managerial ability of individual flockmasters, it is inevitable that there should be wide variations in costs and returns. Whilst attention will be drawn to this feature of extreme variability in costs, which is incidentally a characteristic of most if not all forms of agricultural output, the main purpose of the present Report is to focus attention on the structure of costs, and in order to do this the results are chiefly expressed in the form of averages for the entire sample.

Land Utilisation.

Land is^a factor of some considerable importance in hill-sheep farming and would seem to call for special elucidation. It has already been pointed out that the hill-sheep flock must be of a permanent character with little or no reliance on outside purchases. The maximum size of flock is determined by the amount of pasturage available in summer. The rate of turnover of capital in hill-sheep farming is at best very low and in order to achieve as high a rate of turnover as possible it is usual for sheep numbers to approach that which the hill will maintain during the summer. But owing to the small proportion of enclosed land at somewhat lower elevations it is, in most cases, impossible to keep all the sheep on the farm throughout the winter. Consequently, the ewe lambs and perhaps some of the yearling ewes have to be sent away to be wintered on farms of lower altitude, often some considerable distances away.

Again, some hill farms have grazing rights for a specified number of sheep on an open mountain. Whilst the sheep are free to roam about at will the force of instinct is such that they generally keep to the same portion of land year after year. In fact, 18 farms in the present sample had such grazing rights. It will be appreciated, therefore, that it is very difficult to assess the effective total acreage of the farms in the sample other than that continuously in their sole occupation. The acreage data presented in this Report conforms with the above definition.

A detailed statement of the land utilization on both a per farm and per 100 acres basis is given in Table I of the Appendix. It will be seen that the average size of farm works out at about 800 acres, of which about four-fifths consists of rough-grazing. Corn and other tillage crops, therefore, accounted for very small acreages, whilst the permanent grass for both hay and grazing only amounted to about one-tenth of the total land in sole occupation. The farms in the sample ranged from under 100 to upwards of 4,000 acres. When expressed in the form of averages it is not possible to visualise the differences which exist within the sample. All crops were, of course, entirely for fodder. Corn, chiefly oats, was grown on 49 farms in the sample, and apart from hay which was made on every farm without exception, the only other crop which assumed some importance was rape. The problem of obtaining adequate supplies of fodder can therefore be quite acute during adverse seasons.

Livestock Carried.

The average numbers of livestock carried are given in Table II of the Appendix, and show little change during the both years under review. Sheep and cattle are the only livestock enterprises of any significance, although the relative importance of these two forms of livestock production also showed considerable variation from farm to farm. Pigs were only kept for domestic purposes and on the majority of farms numbers of poultry did not exceed 150 birds.

Cattle were kept on every farm without exception and were maintained chiefly, if not entirely, for store-raising. Those in the North Wales counties were chiefly of the Welsh Black breed and on 16 farms some liquid milk was sold in addition to the rearing of stores. The Breconshire farms, on the other hand, were all stocked with Herefords and therefore did not resort to milk-selling. Of late years the grazing of cattle on the hill land proper had been largely discontinued, much to the detriment of the herbage. The payment of the Hill Cattle Subsidy, which has now given way to the Hill Cow Subsidy, has recently led to a revival of this practice, and along with the Calf Subsidy, has served to give a much needed stimulus to the cattle sector on these hill farms.

A similar differentiation in breeds between Breconshire and the remaining

farms in the sample is also found in the case of sheep. In the former county, where much of the outcrop consists of Old Red Sandstone formations, the Cheviot breed has been established, while there has also been some influx of the neighbouring Radnor breed. The Breconshire hills are among the best in the country, and whilst isolated attempts have been made to establish the Cheviot breed in other parts of Wales, it has not been a success. Apart from isolated pockets of Scotch Blackfaces in parts of Denbighshire, the Welsh Mountain breed reigns supreme throughout the remainder of the Principality. There might, perhaps be a case for treating the 7 Breconshire flocks separately from the main body of the present sample. The chief purpose of this general Report, however, is merely to focus attention on the structure of costs, and as these do not show any appreciable difference either between breeds or regions, it has been thought appropriate to include them with flocks from the other Welsh counties which feature in this sample.

The average size of the breeding flock (based on numbers at dates of opening and closing valuations) amounted to about 700 ewes and shearlings. Numbers in individual flocks ranged from 84 in the smallest to 3,200 in the largest. An indication of the size distribution for the entire sample is provided in Table 1.

Table 1.

Size Distribution of Sheep Flocks.

Size Groups (Ewes).	1954-55.		1955-56.	
	Number : of Flocks	Per : cent.	Number : of Flocks	Per : cent.
Under 200	11	16.9	11	16.9
Over 200 & under 400	17	26.1	19	29.2
" 400 " " 600	16	24.6	15	23.1
" 600 " " 800	12	18.5	9	13.9
" 800	9	13.9	11	16.9
Total	65	100.0	65	100.0

Whilst about 17 per cent of the flocks in the sample contain not more than 200 ewes and shearlings and almost a half of them are accounted by flocks containing not more than 400 ewes and shearlings it would seem that the sample is still not sufficiently weighted with small flocks to make it representative of the actual situation for all hill sheep flocks throughout Wales. In fact,

about one-third of the hill flocks contain not more than 50 ewes and shearlings and about two-thirds of them are found in flocks containing not more than 100, while flocks of up to 200 ewes and shearlings comprise ^{about} four-fifths of the total. Nevertheless, such a wide divergence between the size distribution in the sample and that of the national flock does not detract from the validity of the features which it is intended to portray in the present Report.

Composition of Costs.

The chief items which enter into the costs of hill sheep production are in respect of land and labour. These are, moreover, items which exhibit a considerable degree of rigidity. The output of sheep, on the other hand, is susceptible to wide variation as between one year and another. Consequently, it has been deemed appropriate to express the results in terms of per 100 ewes for breeding.

A detailed statement of the costs and returns on this basis is provided in Table III of the Appendix. The proportionate distribution of costs for the two years under review is given in Table 2 below.

Table 2.

Percentage Distribution of Costs.

	<u>Per cent.</u>	
	1954-55.	1955-56.
Purchases of Sheep	6.7	7.9
Hand-Fed Foods	3.2	1.8
Grazing	18.2	18.8
Forage Crops	1.3	1.1
Agistment	27.0	25.3
Labour	28.4	29.1
Transport	2.0	2.3
Miscellaneous	13.2	13.7
Total	100.0	100.0

It will be seen that agistment and grazing together comprise not far short of a half of the total costs.

Agistment is not an item which features in the expenses of all hill sheep farmers as some may have a higher proportion of lower land or be otherwise more favourably placed and are thereby enabled to winter the entire flock at home. On the majority of hill farms, however, the wintering away of the ewe lambs and perhaps of some of the yearling ewes is an established practice. Whilst there are undoubtedly border-line instances where it

might not be absolutely essential, in the great majority of cases it is the result of physical necessity.

Grazing costs are made up of an appropriate share of the rental of the farm and sheep walk together with the costs of any lime and fertilisers applied to grassland and of any other operations performed. Due allowance has also been made in cases where farm improvement or marginal land schemes have been undertaken.

Forage crops account for a very insignificant proportion of total costs over the whole sample and represent the outlay on special crops, chiefly rape, for feeding the wether lambs in preparation for market.

Hand-fed foods, while accounting for a somewhat larger proportion of the total costs than forage crops, are nevertheless a very small item. It consists almost entirely of hay fed during severe spells during winter when foraging is difficult or even impossible.

The above four items, all associated with grazing and crop production, account for 50 and 47 per cent of the costs of production during 1954-55 and 1955-56 respectively.

Labour accounted for roughly 29 per cent of the costs during both years. All the tasks associated with the care and maintenance of the flock have been taken into consideration in computing this item, such as shepherding, docking, marking, shearing, and the selection and preparation of sheep for sale.

Purchases of Sheep refer exclusively to rams bought for service. These are, of course, carefully selected to maintain type and hardiness as the begetting of unsuited progeny would spell disaster, especially on many of the higher and more exposed sheep-walks.

Transport Costs refer to payments in respect of marketing sheep, and also the movement of sheep to and from other farms for wintering.

Miscellaneous Costs consist of payments for such items as serums and vaccines, dips and marking fluid, commission charges, along with a share of the general farm expenses.

Turning to the level of costs during the two years it will be seen from Table III of the Appendix that in total they were practically identical at about £220 per 100 breeding ewes. Neither were there any significant differences in the component items of costs during the years in question.

Variations in Costs.

A characteristic feature of the costs of agricultural commodities is their extreme variability and in view of the wide diversity in the natural conditions found on hill farms and the differing managerial efficiencies of individual flockmasters, it is not surprising that hill sheep offer no exception.

It has already been noted that the costs per 100 breeding ewes for the two years under consideration were roughly £220. The extreme range in costs, however, was very wide, and in 1955-56 varied from £113 to £454 per 100 breeding ewes. For purposes of illustration the 10 flocks with the lowest and highest costs respectively during both 1954-55 and 1955-56 are set out in Table 3.

Table 3.

Costs per 100 Breeding Ewes.

	<u>1954-55.</u>		<u>1955-56.</u>	
	10 Lowest	10 Highest	10 Lowest	10 Highest
	Cost Flocks	Cost Flocks	Cost Flocks	Cost Flocks
	£. s. d.	£. s. d.	£. s. d.	£. s. d.
Purchases of Sheep	6.15. 5	75.17.10	2. 2. 7	66.13. 7
<u>Foods:-</u>				
Hand-Fed	5.13. 0	11.17.11	2. 4. 2	6. 1. 9
Grazing	38. 7.10	71.17. 3	35. 4. 4	59.17. 6
Forage Crops	1. 5. 4	7. 8. 0	3.12.10	6. 7. 2
Agistment	32.13. 8	54.14.10	30.14. 1	50.11. 4
Total Food & Grazing	77.19.10	145.18. 0	71.15. 5	122.17. 9
Labour	48.14. 6	100. 6. 7	48. 8. 1	74.12. 1
Transport	2.10. 4	3.16. 2	3. 0.10	5. 3. 2
Miscellaneous	18.10. 0	48.16. 6	20. 9. 4	36.10. 4
Total	154.10. 1	374.15. 1	145.16. 3	305.16.11
Average Number of Breeding Ewes	619	203	577	204

The preponderating importance of both agistment and labour has already been commented upon, and on the farms in the present sample they together accounted for roughly 55 per cent of total costs. Any circumstances which permitted these two items to be curtailed would therefore exert a considerable influence on costs.

The wintering away of a proportion of the flock is, of course, a practice of long standing among hill sheep farmers in Wales. In common with current trends, the costs of wintering have increased considerably during recent years, and for 1955-56 the average price per head amounted to 27s.2d. over the whole

sample. On the Caernarvonshire farms, however, the figure was as high as 28s.2d. For farms which send away a fairly high proportion of the flock this item is, therefore, far above the rental of the farm. No hill sheep farmer would undertake such an outlay lightly. In the case of some of the larger sheep-walks on very exposed country it is absolutely essential to winter away owing to the physical impossibility of keeping all the flock at home throughout the winter months. In other instances, where the situation is not so acute, the decision is the result of a subjective valuation on the part of the farmer. By wintering away the lambs get a good start during their first winter on farms which have been carefully chosen. In fact it is usual for a hill-farmer to choose the same lowland farms year after year. Payment is only made for sheep which come back in the Spring so that there is every incentive on the part of the lowland farmer to tend them well. If, on the other hand, the entire flock is kept at home on the scanty resources available there will be a loss in condition, particularly in the case of the young ewe-lambs intended for breeding, which would probably be reflected in the fertility of the latter in the following winter when they become a part of the breeding flock.

A factor of some considerable importance regarding the feasibility of wintering the flock at home is the proportion which the cultivated area bears to the total acreage. In Table 4 the farms have been grouped into three broad groups on the basis of their reliance on wintering.

Table 4.

Main Categories of Land Use.
Flocks grouped according to Proportions Wintered Away.

	Proportion of Flock Wintered Away.					
	None.		Up to 33 per cent.		33-66 per cent.	
	1954-55.	1955-56.	1954-55.	1955-56.	1954-55.	1955-56.
	Acres	Acres	Acres	Acres	Acres	Acres
Tillage	22.6	26.0	11.2	11.9	4.5	5.5
Temporary Grass	10.8	6.3	4.9	3.2	2.6	2.0
Permanent Grass	119.7	119.5	74.4	80.5	82.1	76.2
Total Cultivated Area	153.1	151.8	90.5	95.6	89.2	83.7
Rough Grazings	297.7	270.7	701.2	715.1	917.1	886.4
Total	450.8	422.5	791.7	810.7	1006.3	970.1
Breeding Ewes (Average)	387	320	502	523	648	622
Number of Farms	9	7	39	44	17	14

It will be seen that there is, in general, a greater reliance on wintering as farms (and flocks) increase in size. The smaller farms, which did not send any sheep away over the winter period, only had about two-thirds of their enclosed land under rough-grazing. Those which sent up to one-third of the flock away had about four-fifths of their enclosed land in this category, whilst in the remaining group, which sent between one-third and two-thirds of their total flock numbers away, the proportion of rough-grazing was as high as nine-tenths. The highest proportion sent away on any one farm was 58 per cent. In this particular case the total sheep in the flock numbered 698 and 93 per cent of the enclosed land consisted of rough-grazing. The categories of sheep wintered away were as follows:-

Total number of sheep in flock (at opening valuation)	=	698
Number wintered away - Ewe Lambs	=	205
Ram Lambs	=	10
1½ year old Ewes	=	180
Rams	=	<u>10</u>
Total	=	<u>405</u>

It will be noted that the shearling ewes were also sent away on this farm, along with rams. In fact such instances occurred on 22 of the farms in the present sample.

A more detailed statement of the relationship between size of flock and dependence on wintering for the combined years under review is given in Table 5.

Table 5.

Proportions of Flock Numbers Wintered Away 1954-56.
(Flocks Grouped according to Number of Breeding Ewes).

Number of Breeding Ewes.	Merioneth- shire Flocks.	Caernarvon- shire Flocks.	All Flocks.
	Per cent	Per cent	Per cent
Under 200	9	28	23
200 - 400	28	24	21
400 - 600	26	39	25
600 - 800	27	26	23
800 & over	33	47	34
All Flocks	29	38	27

Whilst there is, as already noted, a tendency for size of flock and reliance on wintering to vary directly, this does not seem to apply to an equal extent to all farms in the sample. As the bulk of the farms have been drawn from

Merionethshire and Caernarvonshire the position for these two counties has also been given in Table 5.

In Merionethshire there is a definite relationship between size of flock and the proportion of the flock wintered away. In Caernarvonshire, on the other hand, this is not so evident, where the smaller flocks of up to 200 ewes also show quite heavy dependence on this practice. This may be explained by the fact that these farms are situated on the lower slopes at quite modest elevations while the "hill" which goes with the farm may not be contiguous but situated some considerable distance away in the Snowdonian mountains. All of them sell some milk and the ewe lambs and shearling ewes (with rams) are wintered away in order to relieve pressure on the grassland. The largest sized flocks in this county, moreover, are all situated on very exposed farms which makes it essential to winter away high proportions of the flocks.

The losses suffered by the farms when grouped in this manner are set out in Table 6.

Table 6.

Losses per 100 Breeding Ewes.
(Flocks grouped according to Proportions Wintered Away).

	Proportion of Flock Wintered Away.					
	None.		Up to 33 per cent.		33-66 per cent.	
	1954-55	1955-56	1954-55	1955-56	1954-55	1955-56
Ewes	15	9	12	7	6	6
Rams	-	-	-	-	-	-
Wethers	1	2	2	2	2	1
Lambs	11	6	21	13	16	7
Total	27	17	35	22	24	14
Number of Farms	9	7	39	44	17	14

The extent to which wintering away is resorted to is certainly an element in the losses sustained, although it is by no means the only influence. The reasons for losses are many and various and the most which may be done here is to record the experiences on the farms under review. It should be stated that for the purposes of this investigation the accounting year commences on 1st November. Ewes in the above table include shearling ewes and lambs refer to those born during the current year.

It will be seen from Table 6 that 1955-56 was more favourable than the

previous year although the trends in losses for the three groups of farms were similar for both years. There were relatively higher losses among ewes on farms where no sheep were wintered away which is perhaps, just what would be expected. Losses in lambs are greatly influenced by weather conditions at lambing time and by the condition of the ewes. But disease might also give rise to heavy losses as indeed it did on one farm in 1954-55 which lost a total of 43 per 100 ewes.

Labour.

The greater part of the farm tasks were performed by the farmer and members of his family, although on the majority of farms some regular hired labour was also employed. The ratio of family to hired labour worked out at roughly 2:1 over the whole sample. The assistance of casual labour has also to be enlisted during certain seasonal operations, although it is chiefly performed on a basis of reciprocity amongst neighbouring farmers rather than on a monetary basis.

In Table IV of the Appendix the average labour time devoted to all tasks associated with the sheep flock are set out, again in terms of per 100 breeding ewes.

It will be seen that shepherding occupies most of the time, accounting for two-thirds of the total. This operation has been divided into three categories, namely winter shepherding from 1st November to the beginning of the lambing period; summer shepherding from the end of lambing to the 31st October, and finally the lambing period itself, which lasts on average for about one month in March-April. It will be seen that the relatively short period of lambing has roughly the same labour requirements as the longer period of winter shepherding.

The labour requirements for shepherding were met entirely from the available farm labour, but for the other operations associated with flock management there was need to supplement the regular farm labour with outside help. This latter has traditionally been provided by neighbouring hill farmers and their families and staffs. An operation of major importance in this respect was shearing, which accounted for nearly 15 per cent of the total labour requirements. It will be noted from Table IV of the Appendix that of the total labour hours involved in the enterprise

nearly 17 per cent of the requirements were met by casual labour.

Table 7.

Proportion of Total Manual Labour Requirements Performed
by Casual Labour. (Flocks grouped according to Numbers of
Breeding Ewes.

		: 1954-55. :	: 1955-56.
Flock Size:		Per cent	Per cent
No. of Breeding Ewes:			
Under 200		7.6	7.3
Over 200 & under 400		17.2	17.7
" 400 " " 600		19.8	18.6
" 600 " " 800		20.9	26.7
800 and over		11.7	13.3
All Flocks		16.1	17.4

There is, moreover, a direct relationship between size of flock and the proportion of total labour requirements met by casual labour in all the flock size groups except the largest. In the case of the latter there was a good deal more family labour available which obviated the necessity for such heavy dependence on casual help (see Table 7).

In Table 8 the number of breeding ewes per man have been worked out. It is fully realised, however, that the labour complement on farms is dependent on the total requirements for all forms of farm work and that the above measure might not give a strictly accurate indication of the labour available for sheep in individual cases owing to the varying importance of sheep in the

Table 8.

Numbers of Breeding Ewes per Man.

Size of Flock (Breeding Ewes)	: 1954-55. :	: 1955-56.
Under 200	70	71
200 - 400	148	141
400 - 600	222	200
600 - 800	248	248
800 & over	377	360
All Farms	222	212

general farm economy. Nevertheless, it does provide a rough guide to the general situation. The table suggests, moreover, that the smaller flocks possess an advantage in that fewer breeding ewes per man allow a greater degree of care and attention to be given than would be possible with larger flocks, and that this advantage would probably be reflected in the relative lambing

percentages. In Table V of the Appendix, however, the total numbers of livestock (in sheep units) per man have been worked out, which again points to the same general conclusion.

The variation in the total manual labour hours spent on the sheep enterprise is due, in the main, to the variation in the hours devoted to shepherding which constitutes, on average, about two-thirds of the total manual labour hours. When the average manual labour requirements per 100 breeding ewes for farms in Merionethshire and Caernarvonshire are considered (see Table 9), it

Table 9.

Manual Labour Requirements (1954-56) (per
100 Breeding Ewes).

	Merionethshire.		Caernarvonshire.	
	Hours	Per cent	Hours	Per cent
Shepherding:				
Winter	72	19.6	87	20.1
Lambing	76	20.7	96	22.2
Summer	94	25.5	116	26.9
Total Shepherding	242	65.8	299	69.2
Marking and Docking	20	5.4	15	3.5
Dipping	13	3.5	25	5.8
Shearing (incl.				
Washing)	56	15.2	61	14.1
Other	37	10.1	32	7.4
Total Manual Labour	368	100.0	432	100.0

will be seen that whereas the proportionate time accounted for by shepherding is roughly similar, the actual hours spent on the operation differ widely. This is accounted for by the fact that Caernarvonshire has a higher proportion of smaller flocks than Merionethshire. The smaller flocks in the former county spend much of their time on the open mountain grazings which are often some considerable distance away from the farmsteads. Consequently more time is spent on shepherding than would be the case were the flocks grazing fenced mountains adjacent to the farmsteads.

The total manual labour hours and the time spent shepherding per 100 breeding ewes by size of flock is given in Table 10.

Table 10.

Manual Labour Requirements by Size of Flock.
(Per 100 Breeding Ewes).

Size of Flock (Breeding Ewes).	1954-/55				1955/56.			
	No. of Farms.	Total Hours Shep- herding.	Total Manual Labour Hours.		No. of Farms.	Total Hours Shep- herding.	Total Manual Labour Hours.	
Under 200	11	360	529		11	339	508	
200 - 400	17	307	452		19	301	463	
400 - 600	16	260	402		15	254	393	
600 - 800	12	221	336		9	224	375	
800 & over	9	289	398		11	257	361	
All Farms	65	272	398		65	262	395	

There is, in general, an inverse relationship between size of flock and manual labour hours. The un-evenness in the trend may be attributed to the small number of farms involved, and the widely varying circumstances relating to each farm.

Returns.

The average returns from the sheep enterprise for the two years under review are given in Table III of the Appendix. It will be noted that the latter year was the more favourable, showing an improvement of £60 per 100 breeding ewes above that for the previous year.

The relative importance of the main items of receipts are given in Table 11. Sales of sheep constituted just over 70 per cent of the total and those for wool just over one-fifth. The remainder was made up of the Hill Sheep Special Payment. This is a non-recurring payment, provision for which

Table 11.

Composition of Receipts.
(including Hill Sheep Special Payment).

	1954/55	1955/56
	%	%
Sale of Sheep	70.5	70.6
" " Wool	22.7	22.9
Hill Sheep Subsidy	6.8	6.5
Total Returns	100.0	100.0

may or may not be made at the Annual Review. Needless to say, all the farms in the sample qualified for this payment which was awarded during both years at the standard rate of 5 shillings per breeding ewe.

When the Hill Sheep Special Payment is excluded the percentage distribution of receipts are as given in Table 12.

Table 12.

Composition of Receipts.
(excluding Hill Sheep Special Payment).

	1954/55	1955/56
	%	%
Ewes	32.3	29.2
Wethers	9.6	9.3
Lambs	28.7	32.9
Rams & Ram Lambs	5.0	4.1
Wool	24.4	24.5
Total	100.0	100.0

When broadly classified in this manner it will be seen that both ewes and lambs account for very similar proportions of total receipts. Ewes were slightly higher than lambs in 1954-55, while the position was reversed in the following year. Wool amounted to approximately one quarter, with wethers, and rams and ram lambs, making up the remainder.

This, however, is the overall position for the whole sample. When the farms are sub-divided according to size of flock and the sheep classified according to whether or not they were marketed in store or fat condition we have the situation presented in Table 13.

Table 13.

Composition of Receipts from Sheep and Wool.
(Flocks grouped according to Numbers of Breeding Ewes).

	Breeding Ewes.				
	Under 200.	200 - 400	400 - 600	600 - 800	800 and over.
1954-55:	%	%	%	%	%
Fat Sheep	21.9	13.1	10.6	14.1	7.2
Store Sheep	57.2	64.3	66.0	59.9	67.5
Wool	20.9	22.6	23.4	26.0	25.3
Total	100.0	100.0	100.0	100.0	100.0
1955-56:					
Fat Sheep	25.5	12.8	14.1	7.0	10.2
Store Sheep	54.1	64.7	62.5	68.9	62.5
Wool	20.4	22.5	23.4	24.1	27.3
Total	100.0	100.0	100.0	100.0	100.0

It would appear that the small flocks containing not more than 200 ewes

and shearlings were in a somewhat better position than those in the other groups in so far as they were able to market a considerably higher proportion in fat condition. Thus in 1954-55 fat sheep constituted over one-fifth of total receipts (excluding subsidy) in these flocks, while in the more favourable subsequent year this proportion had risen to one-quarter. This fact, alone therefore, would seem to place these small flocks in a more favourable position than those in the remaining groups.

The price received for the product, however, is only one of the factors influencing the returns from the enterprise; others being the productivity of the breeding ewes and the number of lambs weaned. The weather conditions are also an all important factor. In a general Report such as this it will suffice to say that 1954-55 was a very unfavourable year for hill sheep. The excessively wet summer and autumn of 1954 left the sheep, and especially the ewes, in a very poor condition to face the onset of winter. The severe conditions experienced in January and February 1955 caused a further deterioration in the condition of the ewes. It is not surprising, therefore, that it was a poor lambing season, with ewes generally weak and in many cases short of milk. The following year, however, was more satisfactory with ewes in better condition and yielding better lambing results.

The productivity of the flock may also be influenced by the type of management accorded and the efficiency with which it is pursued. There are, of course, widely differing practices followed according to the different circumstances surrounding each farm. September and October are months of great activity on hill farms. It is then the flocks are gathered together for the removal of the wether lambs and draft ewes for sale, and for the transference of the ewe lambs and possibly some of the ewes for wintering away. The sheep remaining on the farm would consist chiefly of the breeding ewes.

The time at which the ewes and rams are mated is governed by the potential keep available at lambing time. On some farms the rams are allowed to run with the ewes on or around the 15th October, with lambing taking place towards the middle or end of March. On other farms the rams are held back until the early part of November in order to delay the lambing period until April. It is the farmer's experience of the keep available on the farm during the months of March and April which is the deciding factor. Many farmers in the present sample stated that they could not cope with a lamb on the farm before April.

Special consideration is given to the $1\frac{1}{2}$ year old ewes during their first breeding season. In some cases they are sent away for the winter period together with a ram or rams and return to the farm for lambing in early April. In yet other cases their mating with a ram on the farm may be delayed for up to a fortnight after the older ewes. This is a very judicious arrangement since it allows the older ewes to lamb first so that more attention may be given to the ewes lambing for the first time.

So far as selection and breeding practices are concerned this tends to favour the smaller flocks. It is possible to sort the smaller flocks into groups according to the qualities required and then segregate them in fields with particular rams. In this way a greater measure of uniformity in type is possible. In addition, it enables a check to be made on the capabilities of the rams and on their progeny. Thus in the case of the small flocks of under 200 ewes in Caernarvonshire, about 18 per cent of the receipts for sheep and wool (in terms of per 100 breeding ewes) were accounted for by the sale of rams and ram lambs, which indicates the additional care and supervision which may be bestowed on the flock. Although attention is paid to selection and breeding practices on most farms in order to maintain and if possible improve the quality of the breeding flock, the extent to which it may be carried out is influenced by the number of breeding ewes and the availability of enclosed fields in which to segregate them.

In many cases the ewes are brought off the mountain and the rams turned in with them on the "ffridd". After a period of three weeks or so the ewes may either return to the mountain or remain on the lower-lying ground. In other cases the rams are turned out with the ewes on the mountain and remain there until nearly Christmas.

During the in-lamb period the breeding ewe has, in general, to subsist on the herbage available on the farm. Actually this was the position on 20 farms in 1954-55 and on 26 farms in 1955-56. On the remaining farms some supplementary feeding took place, principally in the form of hay, when the weather was particularly severe. In 1954-55 2 farms fed flaked maize in addition to hay, whilst on 9 farms some purchased concentrates were given. On yet 5 other farms the breeding ewes were given swedes or mangolds.

Careful and attentive shepherding is the general practice throughout this period. On the frequent trips around the flock any ewes which show signs of weakness are removed and kept nearer the farmhouse. Where ewes are left to graze on the mountain all gates are usually opened after Christmas in order to allow unhindered access to all parts of the farm. Towards mid-March there is a gathering of the flock on low-lying ground in readiness for the lambing period.

An attempt was made to obtain as careful an estimate as possible of the productivity of the breeding ewes on all farms in the sample. The results are given in Table 14.

Table 14.

Productivity of Breeding Ewes.
(Per 100 Ewes Mated).

	: 1954-55 :	: 1955-56 :
Ewes - Lambing	: 81.5 :	: 87.8 :
- Barren	: 11.6 :	: 8.4 :
- Died	: 6.9 :	: 3.8 :
Total	: 100.0 :	: 100.0 :

The influence of the harsh weather experienced in the former year is brought out in the lambing results, there being more than 6 lambs per 100 breeding ewes born in 1955-56 above the figure for the preceding year. It will be seen that both deaths and numbers of barren ewes were higher in 1954-55.

It appears, moreover, that the proportion of barren ewes tends to increase with increasing size of flock. Thus it will be seen from Table 15 that there is

Table 15.

Productivity of Breeding Ewes by Size of Flock.
(Per 100 Ewes Mated).

	Breeding Ewes.				
	: Under 200 :	: 200-400 :	: 400-600 :	: 600-800 :	: 800 and over. :
1954-55:					
Ewes - Lambing	: 91.6 :	: 85.2 :	: 81.6 :	: 80.2 :	: 79.4 :
- Barren	: 3.7 :	: 7.1 :	: 11.5 :	: 13.2 :	: 13.6 :
- Died	: 4.7 :	: 7.7 :	: 6.9 :	: 6.6 :	: 7.0 :
Total	: 100.0 :	: 100.0 :	: 100.0 :	: 100.0 :	: 100.0 :
Number of Farms	: 11 :	: 17 :	: 16 :	: 12 :	: 9 :
1955-56:					
Ewes - Lambing	: 90.9 :	: 91.0 :	: 87.9 :	: 87.6 :	: 85.9 :
- Barren	: 5.4 :	: 5.9 :	: 7.1 :	: 8.8 :	: 10.5 :
- Died	: 3.7 :	: 3.1 :	: 5.0 :	: 3.6 :	: 3.6 :
Total	: 100.0 :	: 100.0 :	: 100.0 :	: 100.0 :	: 100.0 :
Number of Farms	: 11 :	: 19 :	: 15 :	: 9 :	: 11 :

during both years a consistent increase in the proportion of barren ewes as one moves from the smallest to the largest flocks. The incidence of deaths also tends to be heavier in the larger flocks. The reasons for these trends would again seem to lie in the greater care and supervision which it is possible to exercise as flocks decrease in size and possibly in the more favourable conditions under which the smaller flocks subsist. In the case of larger flocks, moreover, it seems to be the practice to turn the rams loose to run with the ewes on the mountain, a practice which does not seem to be consonant with a particularly high rate of fecundity.

The nearest estimate of the number of live births is that recorded at first count when the new born lambs are usually injected against dysentery. Losses can, of course, be quite considerable. It will be seen from Table 16 that not

Table 16.

Lambing Results by Size of Flock.
(Per 100 Ewes Mated).

	Breeding Ewes.						All Flocks.
	Under 200	200-400	400-600	600-800	800 & over.		
<u>1954-55:</u>							
Lambs - Born Alive	95	85	81	80	80		81
- Died	8	15	15	18	23		18
- Weaned	87	70	66	62	57		63
Number of Farms	11	17	16	12	9		65
<u>1955-56:</u>							
Lambs - Born Alive	95	91	89	88	87		89
- Died	7	8	10	10	14		11
- Weaned	88	83	79	78	73		78
Number of Farms	11	19	15	9	11		65

only do the larger flocks tend to have a lower lambing ratio but that they also suffer heavier losses than the smaller flocks. To revert to the group of smallest flocks again, these ewes having come off the open mountain on to better grassland were in much better condition than the rest of the flocks in the sample and some even brought twins. Losses were lower, thus leaving a relatively greater number of weaned lambs. With the increasing size of flock there is a decrease in the ratio of lambs born alive and an increase in losses of lambs after birth.

In hill sheep farming the number of lambs weaned is of the greatest importance. Such lambs provide both the flock replacements and a fair proportion of the income from the enterprise during the year. The disposal

of the weaned lambs during the two years under review is given in Table 17.

Table 17.

Disposal of Weaned Lambs.
(Per 100 Ewes Mated).

	1954-55.		1955-56.	
	Number	%	Number	%
Retained: Ewe Lambs	30	47.6	37	47.4
Ram Lambs	1	1.6	2	2.6
Wether Lambs	8	12.7	7	9.0
Sold as Fat Lambs	3	4.8	3	3.8
Sold as Store Lambs or on hand for Sale	21	33.3	29	37.2
Total Weaned Lambs	63	100.0	78	100.0

Practically all the ewe lambs are retained for replacement purposes and amounted to about 48 per cent of the total weaned in both years. Ram lambs retained form a very small proportion. Retention for wether flock replacement was higher at 10 per cent but the farm to farm variation was very high.

The numbers so retained on farms in Merionethshire seem to be higher than those for farms drawn from the remaining counties in the sample.

On all farms about 60 per cent of the lamb crop was retained in both years, thus leaving about 40 per cent for disposal through sale.

The lambs from the current year's crop which are sold fat are those which are deemed capable of being brought to the required condition in the minimum amount of time. These form, on average, 4 to 5 per cent of the total number over the sample as a whole. The bulk of the remaining lambs are sold in store condition. Those which happen to be on hand for sale at the end of the accounting period are usually fed on rape or ryegrass and sold fat about Christmas or early in the new year.

When the flocks are divided according to size we have the situation presented in Table 18.

It will be seen that as flocks increase in size there is a steady decrease in the number of weaned lambs per 100 breeding ewes and a decrease in the number of ewe lambs retained for flock replacement. The smaller flocks are, therefore, in a more favourable position in so far as they are not compelled to draft out their ewes so early, or alternatively are able to be somewhat more selective in their replenishments, whilst they also have a relatively large number of lambs for sale.

This is reflected in the data presented in Table 19. Whereas the

influence of the better season in 1955-56 is apparent, nevertheless the

Table 18:

Disposal of Weaned Lambs by Size of Flock.
(Per 100 Ewes Mated).

	Breeding Ewes.				
	Under 200	200-400	400-600	600-800	800 and over.
<u>1954-55:</u>					
Retained: Ewe Lambs	39	35	32	30	26
Ram Lambs	3	2	1	1	1
Wether Lambs	7	10	5	10	7
Sold as Fat Lambs	9	3	3	4	1
Sold as Store Lambs or on hand for sale	29	20	25	17	22
Total Lambs Weaned	87	70	66	62	57
Number of Farms	11	17	16	12	9
<u>1955-56:</u>					
Retained: Ewe Lambs	39	40	38	37	35
Ram Lambs	3	2	2	2	1
Wether Lambs	5	8	5	10	6
Sold as Fat Lambs	8	3	6	1	3
Sold as Store Lambs or on hand for sale	33	30	28	28	28
Total Lambs Weaned	88	83	79	78	73
Number of Farms	11	19	15	9	11

Table 19.

Numbers of Sheep Sold by Size of Flock.
(Per 100 Breeding Ewes).

	Breeding Ewes.					All Flocks.
	Under 200.	200-400	400-600	600-800	800 and over.	
<u>1954-55:</u>						
Ewes	29	30	26	26	24	26
Rams & Ram Lambs	4	1	2	1	1	1
Wethers	4	6	4	5	11	7
Lambs	39	28	30	22	24	26
Total	76	65	62	54	60	60
Number of Farms	11	17	16	12	9	65
<u>1955-56:</u>						
Ewes	27	31	28	26	21	25
Rams & Ram Lambs	4	2	1	1	1	1
Wethers	4	5	7	12	8	8
Lambs	45	37	36	29	29	33
Total	80	75	72	68	59	67
Number of Farms	11	19	15	9	11	65

same trends are evident for both years. The decrease in numbers of weaned lambs as flocks increase in size reduces the scope for culling and hence leads to a decrease in numbers of draft ewes available for sale.

A detailed statement of the distribution of sales by months is given in Table VI of the Appendix. The bulk of the sales, of course, take place in the autumn. Thus for all classes of sheep taken together about three-quarters are sold during the months of September and October and if August is also included the proportion comprises more than four-fifths of the yearly totals.

Lambs sold during the early months of the accounting period (chiefly November, December and January) are those which were on hand from the previous year's crop. These are chiefly sold fat, it being the practice to put them on to rape or ryegrass from August onwards and sell them off as they become ready. The couples, which feature in the disposals from April-June, consist of ewes and lambs transferred from the hill to the lowland farm for summer fattening and disposal.

The average prices received for the different classes of sheep during both years are given in Table 20. Those for the main categories, namely store lambs

Table 20.

Average Prices per head for Sheep Sold.

	1954-55.			1955-56.		
	£.	s.	d.	£.	s.	d.
Fat Lambs	4.	10	6	4.	11.	7
Fat Wethers	5.	3.	1	4.	10.	1
Fat Ewes	3.	2.	5	3.	12.	3
Store Lambs	3.	5.	9	3.	5.	10
Store Wethers	4.	4.	6	3.	18.	2
Draft Ewes	4.	1.	5	4.	0.	5
Rams & Ram Lambs	14.	0.	0	13.	1.	7

and draft ewes, were practically identical for the two years under review, as also were those for fat lambs. Prices of the remaining classes, however, did show some variation.

There are also some significant variations in prices received for similar classes of sheep in different counties. The disparities in the quality of the hill and mountain grazings in different parts of the country and the varying levels of productivity associated with them, have already been commented upon. For the time being it will suffice to state that the average dressed carcase weight of fat lambs on the Merionethshire farms was only 22½ lb., on those in Caernarvonshire 27 lb., and on those in Breconshire 32½ lb. These results reflect the differences in physical conditions and in the economic potentialities which go with them.

Margins.

From the foregoing discussion on costs and returns from the hill sheep enterprise the pattern of the resulting margins will be apparent. The average position for all flocks in the sample for both years is given in Table 21. With overall costs remaining practically unchanged and the higher level of

Table 21.Margins per 100 Breeding Ewes.

		1954-55.	1955-56.
		£. s. d.	£. s. d.
Total Returns		348.12. 4	374.16. 4
Total Costs		222.17. 9	219.19. 8
Excess Returns over Costs		125.14. 7	154.16. 8
Valuation Difference	+	-	13. 2. 1
	-	17. 6. 8	-
Margin		108. 7.11	167.18. 9

returns in the latter year it will be seen that the excess of returns over costs in 1955-56 was about £30 above that for the preceding year. When allowance is made for the valuation differences the margin for 1955-56 was £60 above that for the preceding year.

This margin includes the Hill Sheep Special Payment. If this were excluded the average margins per 100 breeding ewes for all flocks would amount to £85 and £144 in 1954-55 and 1955-56 respectively.

In 1954-55 6 flocks actually incurred losses; in 1955-56 the number was reduced to one. Were no Hill Sheep Special Payment made the corresponding numbers would be 11 and one respectively.

The distribution of flocks according to the margins obtained from the enterprise, both including and excluding the Hill Sheep Special Payment is given in Table 22.

Table 22.Margins per 100 Breeding Ewes.

		Excluding Hill Shepp Subsidy.		Including Hill Sheep Subsidy.	
Margin per 100 Breed- ing Ewes:		1954-55	1955-56	1954-55	1955-56
£'s.					
Under 50		10	4	7	1
Over 50 & under 100		17	11	18	7
" 100 " " 150		6	19	11	17
" 150 " " 200		9	16	10	18
" 200 " " 250		6	9	6	14
" 250 " " 300		4	2	4	4
" 300		2	3	3	3
Farms incurring loss		11	1	6	1
Total		65	65	65	65

When the flocks are grouped according to size we have the situation presented in Table 23. These results might also have been anticipated from the previous discussion. The tendency for the margins per 100 breeding ewes to

Table 23.

Margins per 100 Breeding Ewes.
(Flocks grouped according to size).

	Breeding Ewes.				
	Under 200	200 - 400	400 - 600	600 - 800	800 & over
1954-55:	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.
Total Returns	480.12. 5	367.15. 4	331. 9. 4	334.17. 6	345.16. 0
Total Costs	305. 6. 2	246. 4. 4	227. 4. 0	188.10.10	224. 9.10
Excess Returns over Costs	175. 6. 3	121.11. 0	104. 5. 4	146. 6. 8	121. 6. 2
Valuation Diff. + or -	+ 36.15. 0	- 11.13. 6	- 21.10. 4	- 1.16. 0	- 34.13. 4
Margin	212. 1. 3	109.17. 6	82.15. 0	144.10. 8	86.12.10
Number of Farms	11	17	16	12	9
1955-56:	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.
Total Returns	498. 9. 2	401. 0. 7	399. 6. 7	362.15. 6	341. 2. 9
Total Costs	295.15. 0	247. 7. 7	222.15. 6	183.15.10	214.17. 5
Excess Returns over Costs	202.14. 2	153.13. 0	176.11. 1	178.19. 8	126. 5. 4
Valuation Diff. + or -	+ 22. 7. 1	+ 26.12. 4	- 16. 5. 2	+ 4. 1. 2	+ 26.19. 7
Margin	225. 1. 3	180. 5. 4	160. 5.11	183. 0.10	153. 4.11
Number of Farms	11	19	15	9	11

decrease with increasing size of flock is clearly brought out. There are, it is true, certain inconsistencies in this trend; although it is seen that this may be attributed to the smallness of the sample rather than to any special features attached to certain sized flocks.

Conclusion.

The results presented in the foregoing pages provide an indication of the level and structure of hill sheep costs for a somewhat varied sample of flocks. The chief characteristics of costs and the susceptibility of returns to show extreme variability as between one year and another are brought out. This tendency for costs to remain fairly rigid, along with the possibility of wide fluctuations in returns, lends an element of acute uncertainty regarding the amount of the resulting margins. It is, in some ways, one of the most vulnerable of our farming systems.

Looking at the vicissitudes through which hill sheep farming has passed during the last few decades we find that flockmasters did attempt to make some adjustments by way of cutting down numbers of wethers and replacing them with

breeding ewes. This was done partly in response to market demand, while at the same time increasing the rate of turnover in sheep. The practice of turning cattle on to the hills had also fallen into disuse over the years. These changes had harmful effects on the quality of the herbage. During prolonged periods of depression there was further neglect of such operations as bracken cutting, heather control and drainage, again to the detriment of the quality of the grazings. These economic ills accentuated already existing difficulties in the field of labour and social conditions and, in time, each re-acted upon the other. There was much depopulation of the hills and some amalgamation of hill grazings.

It has already been pointed out that the unbalance between the summer and winter stock-carrying capacities of many hill sheep farms is a source of considerable weakness. This is particularly so nowadays when so many of the lowland farms which at one time accepted hill sheep for wintering have entered the liquid milk market and are consequently no longer eager to take them. But on the majority of the farms in the sample the proportion of hill land was so high that there was no alternative other than to resort to wintering away a portion of the flock. In some cases, moreover, the conditions on the hill and to a lesser extent on the lower fields were so rugged as to make improvement difficult or even impossible. The nutrition of the flock is, however, closely bound up with the scope for and standard of grassland management practiced.

This links up with the vexed question of hand-feeding. The practice of hand-feeding the breeding ewe is, in the main, resorted to during severe weather in winter and usually takes the form of hay. Many farmers seem to take the view that this practice is likely to reduce the foraging ability of the hill ewe and hence its hardiness. Recent research into this question does not seem to support this view with regard to the hill ewe. On the other hand, one writer has pointed out that the practice of hand-feeding the in-lamb ewes for a period before lambing time may well repay the cost of feed, both in terms of a greater number of weaned lambs, and in achieving a better quality lamb.* These farmers in the present sample who resorted to this practice did not seem to think that foraging ability was thereby impaired.

The differences in the conditions under which the flocks in the present

* W. Thomson: Management of the Breeding Ewes (Scottish Agriculture, Vol. XXXVI, No. 3, 1956-57).

sample are kept are so great that considerable care must be exercised in the interpretation of the results. It has been noted, for instance, that total costs per 100 breeding ewes decreased from the smallest to the largest sized flocks. Total returns showed the same trend. But as flocks became smaller lambing rates, numbers of weaned lambs and the proportion of total income obtained from fat lambs increased. The margins per 100 breeding ewes were therefore greater for the smaller flocks. It must not be implied, however, that small flocks are more desirable than large flocks. On the contrary, in order to obtain a satisfactory turnover hill sheep farming in the Principality would be in a far healthier state were the units considerably larger than they actually are. The smallness of the flocks is, in fact, one of the most important inhibiting factors in the attainment of ^a/satisfactory level of income on hill sheep farms at the present time.

APPENDIX.Table I.Land Utilisation.

	1954-55		1955-56.	
	Per	Per 100	Per	Per 100
	Farm.	Acres.	Farm.	Acres.
	Acres	Acres	Acres	Acres
Oats	5.7	0.71	6.2	0.77
Mixed Corn	1.1	0.14	1.2	0.15
Total Corn	6.8	0.85	7.4	0.92
Potatoes	0.4	0.07	0.4	0.05
Mangolds	0.1	0.01	0.1	0.02
Turnips and Swedes	0.6	0.07	0.8	0.10
Rape and Kale	1.7	0.21	1.5	0.18
Direct Re-seeding	1.4	0.17	1.8	0.23
Total Tillage	11.0	1.38	12.0	1.50
Temporary Grass for Hay	3.0	0.38	2.6	0.32
Temporary Grass for Grazing	2.1	0.26	0.7	0.09
Total Arable	16.1	2.02	15.3	1.91
Permanent Grass for hay	25.4	3.18	23.5	2.93
Permanent Grass for grazing	57.3	7.15	60.2	7.50
Total Permanent Grass	82.7	10.33	83.7	10.43
Rough Grazing	700.2	87.45	702.6	87.46
Total Land in Agricultural and Pastoral Uses	799.0	99.80	801.6	99.80
Buildings, Roads, Woodlands	1.6	0.20	1.6	0.20
Total land in sole occupation	800.6	100.00	803.2	100.00

Table II.
Numbers of Livestock Carried.

	<u>1954-55.</u>		<u>1955-56.</u>	
	Per	Per 100	Per	Per 100
	Farm.	Acres.	Farm.	Acres.
	No.	No.	No.	No.
Breeding Ewes	521	65	522	65
Shearling Ewes	172	21	178	22
Wethers	84	11	76	9
Wether Lambs	56	7	49	6
Rams and Ram Lambs	21	3	22	3
Total Sheep	854	107	847	105
Cows in milk & in calf	12	2	13	2
Other Cattle 2 + years	9	1	9	1
Cattle 1-2 years	9	1	9	1
Calves 0-12 months	9	1	9	1
Total Cattle	39	5	40	5
Pigs	2	-	1	-
Poultry	39	5	39	5
Horses	3	-	3	-

Table III.
Costs, Returns and Margins.
(Per 100 Breeding Ewes).

	<u>1954-55.</u>			<u>1955-56.</u>		
Number of Flocks	65			65		
Average Numbers of Ewes (per farm)	524			522		
<u>EXPENSES.</u>	£.	s.	d.	£.	s.	d.
Purchases of Sheep	14.	16.	11	17.	7.	0
<u>Foods:</u>						
Hand-fed	7.	4.	10	3.	17.	11
Grazing	40.	13.	1	41.	5.	5
Forage Crops	2.	15.	10	2.	9.	7
Agistment	60.	3.	10	55.	12.	0
Total Food and Grazing	110.	17.	7	103.	4.	11
Labour	63.	6.	5	64.	3.	1
Transport	4.	11.	1	5.	2.	10
Miscellaneous	29.	5.	9	30.	1.	10
TOTAL EXPENSES	222.	17.	9	219.	19.	8
<u>INCOME.</u>						
Sales of Sheep	245.	16.	3	264.	10.	0
Value of Wool	79.	4.	6	86.	0.	9
Hill Sheep Special Payment	23.	11.	7	24.	5.	7
TOTAL INCOME	348.	12.	4	374.	16.	4
Excess Income over Expenses	125.	14.	7	154.	16.	8
Valuation Difference	- 17.	6.	8	+ 13.	2.	1
Margin	108.	7.	11	167.	18.	9

Table IV.

Manual Labour Requirements.
(Per 100 Breeding Ewes).

	Farm Labour.	Casual Labour.	Total Farm and Casual Labour.	Casual Labour % of Total Labour.	Proportionate Distribution of Total Labour Requirements.
	1954-55.	1955-56.	1954-55.	1955-56.	1954-55.
	Hrs.	Hrs.	Hrs.	Hrs.	%
Shepherding:					
Winter	81	79	-	81	-
Lambing	81	83	-	81	-
Summer	103	100	-	103	-
Total Shepherding:	265	262	-	265	-
Docking & Marking	10	11	6	16	38
Dipping	10	10	8	18	43
Shearing (incl. Washing)	15	16	42	57	74
Other	26	27	7	33	22
Total Manual Labour:	326	326	63	389	16

Table V.

Number of "Sheep" Units per Man.
(Flocks grouped according to Numbers of Breeding Ewes).

Size of Flock (Breeding Ewes)	Sheep.	Other Livestock.	Total Livestock.
	1954-55	1955-56	1954-55
Under 200	110	111	82
200 - 400	230	218	80
399 - 600	331	306	103
600 - 800	409	408	100
800 & over	589	563	84
All Farms	348	333	91

Table VI.

Percentage Monthly Distribution of Sales of
Sheep.

	Lambs.		Wethers.		Ewes.		Rams	Total	
	Store	Fat	Store	Fat	Fat	Draft	& Ram Lambs : Couples :	All Sheep	
<u>1954-55.</u>	%	%	%	%	%	%	%	%	%
November	3.6	12.0	6.3	7.3	34.0	0.2	- -	3.2	
December	0.1	23.3	5.0	37.6	2.1	-	2.2 -	4.0	
January	-	10.8	-	1.1	29.8	-	0.3 -	1.2	
February	0.1	2.4	-	-	-	-	- -	0.3	
March	0.7	0.4	5.9	-	-	-	- -	0.8	
April	-	-	-	-	8.5	-	- 67.4	1.5	
May	0.2	-	11.3	0.6	-	0.2	4.0 26.9	1.8	
June	0.8	-	-	0.6	-	1.3	0.2 -	0.8	
July	3.1	-	0.4	-	-	-	- -	1.0	
August	23.3	4.1	1.2	0.8	-	-	0.3 -	8.1	
September	35.4	11.2	22.3	1.2	19.2	68.3	30.6 -	43.7	
October	32.7	35.8	47.6	50.8	6.4	30.0	62.4 5.7	33.6	
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0 100.0	100.0	
<u>1955-56.</u>									
November	-	11.3	3.0	6.4	50.0	0.2	- -	1.8	
December	1.6	15.6	16.4	21.0	-	0.1	- -	4.2	
January	0.1	11.8	-	11.6	8.3	-	2.2 -	1.7	
February	-	0.5	-	3.9	-	-	- -	0.2	
March	-	0.8	-	-	-	0.2	- -	0.2	
April	0.1	-	-	-	-	-	0.3 -	-	
May	0.1	-	2.5	-	-	-	- 71.4	1.0	
June	1.2	-	0.4	1.3	-	0.1	- 28.6	0.9	
July	5.5	1.4	0.2	1.0	-	-	- -	2.3	
August	36.2	4.6	2.2	-	-	-	0.5 -	14.7	
September	36.3	17.5	10.1	23.2	37.5	85.9	15.5 -	49.8	
October	18.9	36.5	65.2	31.6	4.2	13.5	81.5 -	23.2	
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0 100.0	100.0	

