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*Lambs  
Cost of  
production*

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COST OF FAT LAMB PRODUCTION ON LOWLAND

FARMS IN WALES IN 1945-6.

by

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Price: One Shilling.

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FARMS IN WALES IN 1945-6.

Introduction.

The lowland flocks of Britain have for long been the source of high-class breeding stock for other countries. The breeds were of the bigger type sheep which would make good use of the productive grassland. Before the war a change in the consumption habits of the public reflected itself in a change in the constitution of flocks. To meet the growing demand for leaner and smaller joints, smaller type ewes were gradually introduced for crossing with an early maturing breed and increasing attention was given to the production of lamb. With the advent of war conditions, however, the stress was again on quantity rather than quality and market control favoured the production of the larger early-maturing breeds. This was no doubt the factor which influenced the decision of many Welsh lowland flock-masters to change over to the heavier types, as war-time prices of lamb and mutton had been weighted against the smaller, higher quality breeds.

Fat sheep prices (see Table 1) did not move proportionately to prices of agricultural products in general during the war years. This was partly due to the deliberate policy of discouraging livestock production, other than for milk, which was adopted during the emergency owing to shortage of feed. Nevertheless, while in the earlier years the tendency was for the disparity to widen, in the later years it has tended to narrow down again.

Table 1.

Harvest Year.	Indices of Fat Sheep Prices* (1927-8 to 1929-30 = 100).	Fat Sheep Price Index as % of General Index.
1939-40	92	82.5
1940-41	106	73.8
1941-42	116	70.7
1942-43	124	74.2
1943-44	125	71.6
1944-45	135	76.1
1945-46	143	77.5

\* Ministry of Agriculture & Fisheries Series.

Farms Investigated.

During 1945-6 an investigation was carried out into the cost of lowland sheep on 27 farms in Wales. These farms were situated in the Severn and Wye Valleys of Montgomeryshire, Towy Valley in Carmarthenshire and the Vale of Aeron in Cardiganshire. They were mainly dairy farms, with an over-all average area of

148 acres. On 23 of the farms, milk was the main sale product; while sheep constituted the second main sale product on 18 of them. Of the total area covered by these farms over 58 per cent was under pasture and about 24 per cent was under tillage crops.

Over all farms the average number of livestock carried per 100 acres of total cultivable land was as follows:-

Breeding Ewes	43
Other Sheep	66
Total Sheep	<u>109</u>
Cows in Milk or in Calf	15
Other Cattle over 2 years	9
Cattle 1 - 2 years	7
Calves	5
Total Cattle	<u>36</u>
Pigs	2
Poultry	59
Horses	3

It will be seen that sheep form an important part of the livestock on these farms, and relatively more so than on dairy farms as a whole. Whether the enterprise will maintain its proportion on this sample of farms largely depends on price relationships and other factors which affect its profitability. As far as the "rules of good husbandry" are concerned, it may not be essential to maintain this stocking "formula" and the ratio of sheep to cattle may be reduced without prejudice to the maintenance of good pasture management. But in some cases diseases of sheep have played havoc, and influenced the farmer's decision, sometimes to the extent of making him dispense with the sheep enterprise altogether.

On this sample of 27 farms, more than half the ewe flocks were of the Kerry or Kerry-cross breed, and the most popular breeds of rams used were Wiltshire and Kerry. It is obvious therefore that the aim was to produce a stocky lamb capable of putting on meat fairly quickly, and the first generation of these crossed breeds served the purpose quite well. The ewe flocks were not permanent flocks, but were kept for one or two years and subsequently sold as draft or fat ewes.

The total number of ewes put to the ram on these 27 farms was 1,623. Of these, only 1,476 or 91 per cent actually lambed, so that 147 can be classed as barren ewes. However, there were among these a number of yearlings which were intended for breeding but which failed to do so. Besides the 147 barren ewes, another 63 were not rearing lambs for various reasons; some had lost their lambs or were "dry". The total number of lambs born was 2,024 or 125 lambs per 100 ewes, and of these 154, or 7½ per cent, did not survive the first week of their lives. The number of lambs finally weaned was 1,795, which meant losses up to weaning of 229 lambs or 11.3 per cent of the number born.

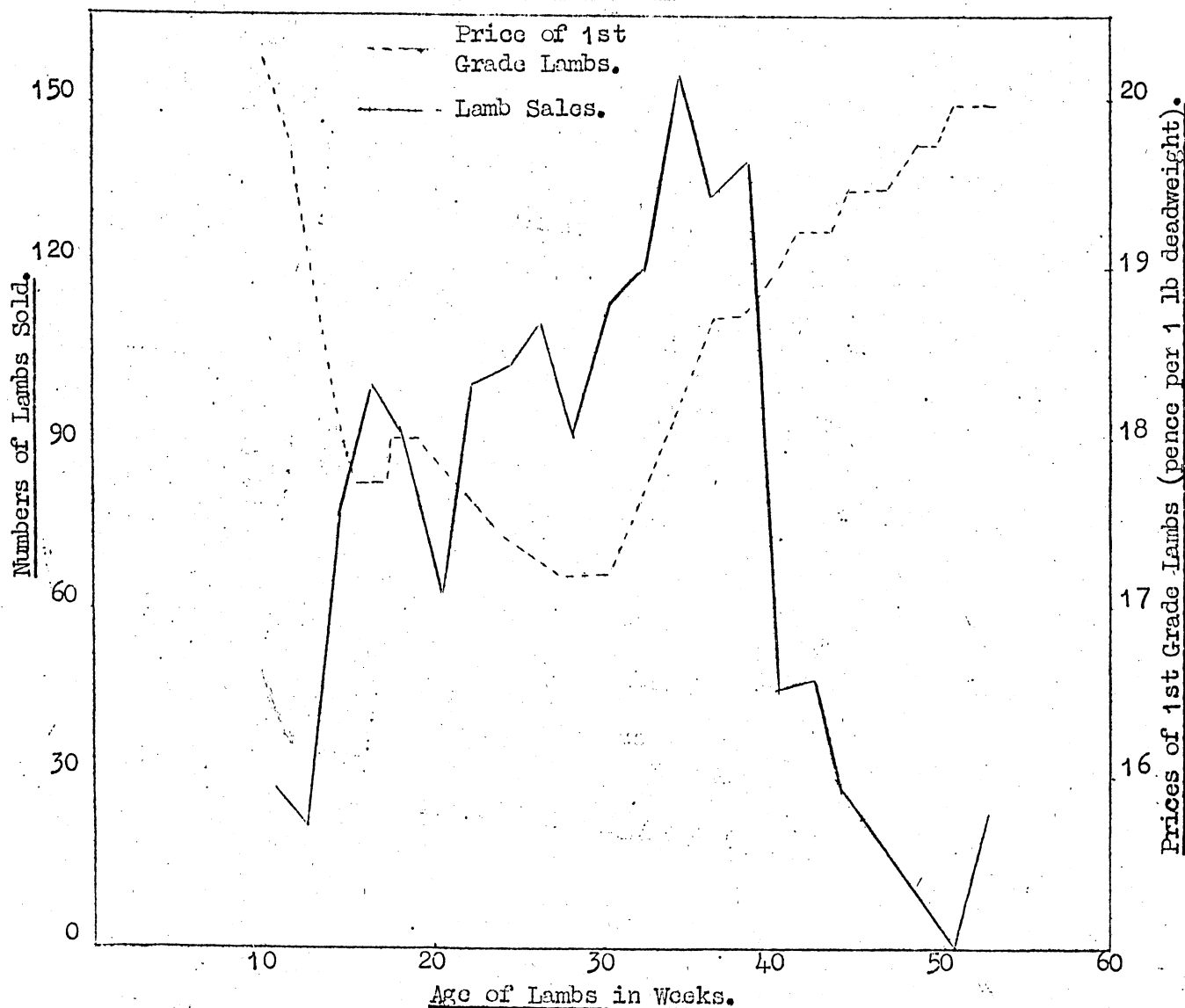
During the months of August, September and October, 451 lambs were bought,

mainly for fattening on the surplus grass available. These were saleable during the period of rising prices.

The average price realised for the lambs sold was 1s. 7½d. per lb. deadweight (including headage payments), which roughly corresponds with the price for 1st grade lambs during the autumn of 1945. The average age of the lambs sold was 29-30 weeks, and the bulk of the sales were fairly evenly distributed in the period when the lambs would be between 20 and 40 weeks old. Chart 1 shows the distribution of sales and the approximate prices in force during the period.

Chart 1.

Distribution of Lamb Sales and Prices of  
1st Grade Lambs.



Costs.

In presenting details of costs for an enterprise like sheep, which may have more than one purpose, we have two alternatives. If the farmer considers his flock mainly as an agent for restoring fertility or as a factor in promoting efficient utilisation of resources, he will be concerned about the costs and returns from the flock as a whole. If, on the other hand, he is interested in the conversion of feed-stuffs into a salcable product like lamb meat, he will be mainly concerned about the costs and returns in respect of that product.

Tables 2 and 3 show average costs and returns per flock of the 27 farms for the year 1945-6. They are self-explanatory. The primary data were collected by the survey method, the grazing charges being allocated on the basis of distribution of stock-grazing units on each farm.

Table 2.Costs per Flock.

			: Average for
			: 27 Welsh
			: Farms.
<u>Average Size of Ewe Flock.</u>			: 58
			:
<u>Numbers:</u>			:
<u>Sheep &amp;</u>			:
	<u>Rams.</u>	<u>Lambs.</u>	: £. s. d
			:
Purchases	22	17	: 106. 3. 7
<u>Food Costs:</u>			:
Hand-fed Foods			: 6.10. 0
Grazing			: 63. 0.10
Special Crops			: 10. 3. 5
	Total Foods		: 79.14. 3
Labour			: 38.16.11
<u>Other Costs:</u>			:
Vet and Medicines			: 3. 0. 2
Miscellaneous			: 1. 0.10
	Total Other Costs		: 4. 1. 0
			:
Total Gross Costs per Flock			: 228.15. 9
Opening Valuation of Flock			: 192. 6.10
Closing Valuation of Flock			: 210. 3. 4
			:
Valuation Increase -			: 17.16. 6
Valuation Decrease +			: -
			:
<u>Total Net Costs per Flock</u>			: 210.19. 3

Table 3.

Returns and Margins per Flock.

	:Average for
	: 27 Welsh
	: Farms.
	: £ s. d.
Sales of Sheep and Lambs	: 311.14. 9
Sales of Wool	: 19.18. 4
Total Receipts	: 331.13. 1
Total Net Cost as in Table 2	: 210.19. 3
	:
<u>Difference (= Margin per Flock)</u>	: <u>120.13.10</u>

Two of the farms owing to high mortality rates made losses of £44 and £588 per 100 ewes, while for the whole sample the average margin of profit per 100 ewes was just over £208. On one farm the margin per 100 ewes was nearly £400; this was a low-cost farm with a high output per lamb produced.

Lamb purchases on these farms would occur in late summer or autumn, after the home-bred lambs had been weaned. It has been possible therefore to estimate the cost of producing a home-bred lamb up to the weaning stage. However, in estimating the cost of a weaned lamb one is estimating the cost of a variable product; the lamb may be in store condition, semi-fat, or even a fat lamb eligible for first grade. In fact, several of the home-bred lambs graded fat before they were weaned. In interpreting the results shown in Table 4, therefore, it must be realised that the net cost per lamb weaned is not precisely the cost of producing a store lamb, although the share of the cost attributable to the fattening of those lambs which reached fat condition prior to weaning would be relatively small. The cost of producing weaned lambs has here been taken as the total net cost of the breeding flock for the full year, together with any direct costs chargeable to the lambs themselves while they are with the ewes.

Table 4.

Costs of Rearing Home-bred Lambs up to Weaning.  
Per Lamb Weaned.

	£ s. d.
Grazing	0.16. 8
Other Foods	0. 1.11
Labour	0.10. 4
Vet and Medicines	0. 0.11
Net Depreciation	0. 4. 8
Total Gross Costs	1.14. 6
<u>Less Value of Wool from Ewe Flocks</u>	<u>0. 5. 4</u>
Net Costs per Lamb	<u>1. 9. 2</u>

The highest individual farm cost of producing a weaned lamb was £3.14. 8. This was, of course, largely due to a high depreciation charge on the ewe flock consequent on a heavy death rate of ewes. On one farm where the ewe flock showed net appreciation the whole process of producing a weaned lamb showed a profit of 6s.5d. per lamb weaned; this is equivalent to saying that the cost of producing the weaned lamb was minus 6s.5d.

The average price paid for store lambs purchased for fattening was £2. 9. 6. If we can regard the cost of 29s.2d. as being a representative cost of producing a store lamb, it indicates that rearers' margin, including marketing expenses, is something like £1 per lamb.

In order to estimate the cost of producing a fat lamb the procedure in this investigation has been to take the breeding flock costs for the full year together with costs incurred on the lambs, including the cost of store lamb purchases.

Table 5 is a summary of the total costs expressed in terms of "per lamb produced". The number of lambs produced includes sales and those in the Closing Valuation.

Table 5.

Total Costs of Fat Lamb Production.

	: Average for
	: ALL Flocks.
Number of Lambs Produced	: 82
Average Net Deadweight produced per Lamb	: 35.8 lb.
	: Per Lamb
	: Produced.
<u>Costs.</u>	: £. s. d.
Purchases of Lambs	: 0. 10. 1
Grazing	: 0. 15. 2
Foods (including Rape etc.)	: 0. 4. 2
Labour	: 0. 9. 5
Vet and Medicines	: 0. 0. 10
Miscellaneous	: 0. 0. 3
Net Depreciation	: 0. 3. 9
	: Total Gross Costs
	: 2. 3. 8
Value of Wool from Ewe Flock	: 0. 4. 3
	: Total Net Cost of Fat Lamb
	: 1. 19. 5

In Table 5 the costs are credited with the value of the wool from the ewe flock only, the lamb wool being considered to be a by-product of fat lamb production and therefore treated as part of the final output.



Table 6.

Returns and Margin per Lamb Produced.

	£	s.	d
Sale Value of Lambs	3.	8.	2
Sale Value of <u>Lamb</u> Wool Produced	0.	0.	7
Total Returns	3.	8.	9
Total Costs (from Table 5)	1.	19.	5
<u>Difference (= Margin per Lamb)</u>	1.	9.	4

For each lamb finally produced, the margin was £1. 9. 4, equivalent to nearly 75 per cent of the cost.

The average cost of fattening lambs after weaning was 5s.8d. per lamb, made up as follows:-

	£	s.	d
Grazing	0.	1.	9
Foods (including Rape etc.)	0.	2.	7
Labour	0.	1.	1
Miscellaneous	0.	0.	3
	0.	5.	8

If to this<sup>is</sup> added the net cost of producing a weaned lamb, on the assumption that it represents the cost of producing a store lamb, the total cost of producing a home-bred fat lamb will be £1.14.10., which is 4s.7d less than the net cost of £1.19. 5 per lamb produced. This appears to suggest that better results might be obtained by the farmers if they reared more lambs for fattening instead of relying on purchases for that purpose. Several factors, however, will determine whether purchases of store lambs are necessary or not, the dominant one, in this group of farms, being the supply of grass in the autumn.

The gross output of meat per lamb produced averaged about 42½ lb. dead-weight. For every 112 lb. dead-weight of meat produced, therefore, the cost was £5. 3. 8, and the average sale value (plus value of lamb wool produced) was £9. 1. 2. It follows that, for each 112 lb. of meat, the margin was £3.17. 6 or about 8d per lb.

The output of lamb-meat from home-produced lambs was equivalent to 31 lb. dead-weight per lamb born, or 39 lb. dead-weight per breeding ewe.

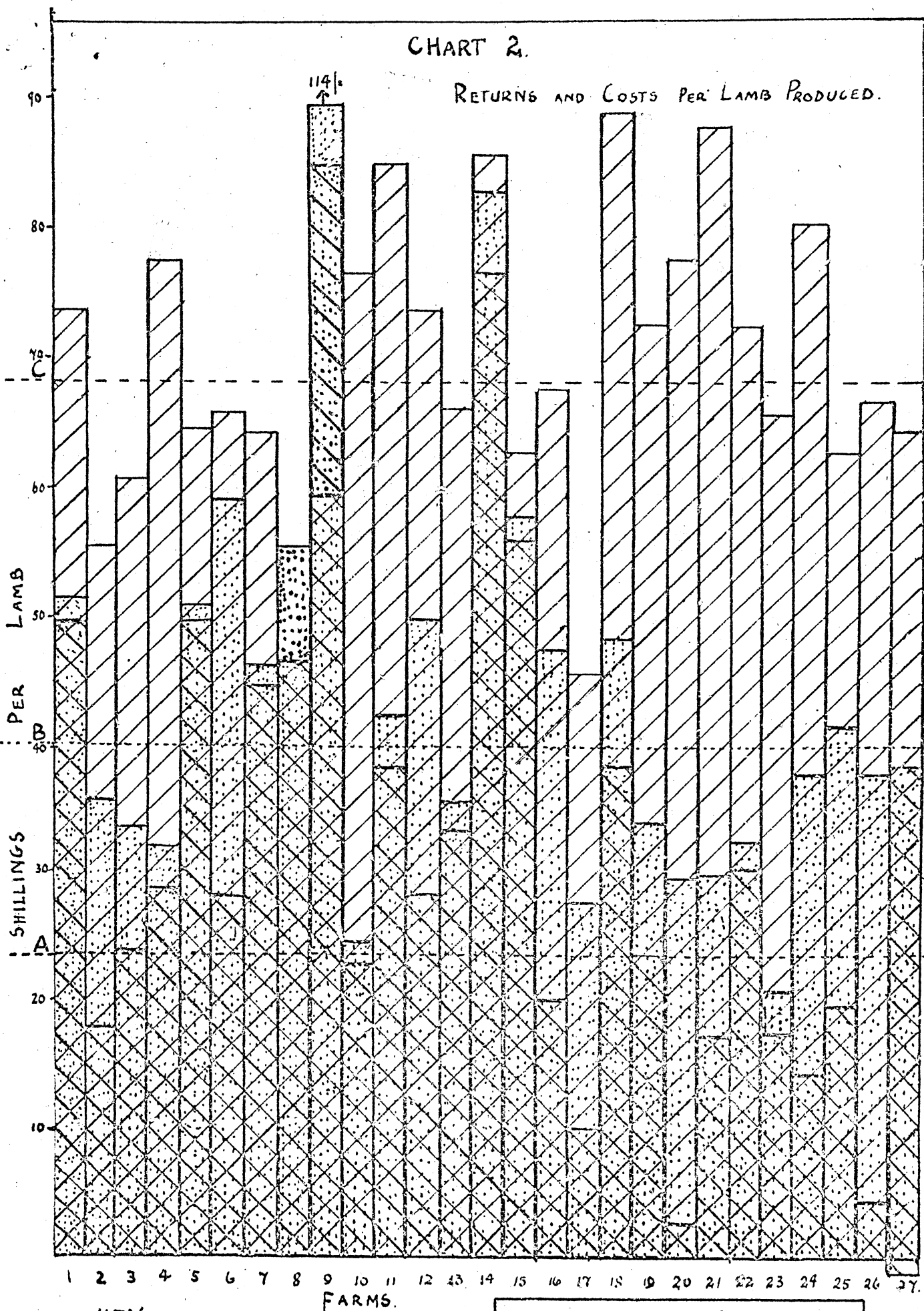
An examination of Charts 2 and 3 will reveal results much above the average on the group of farms numbered 18-24. These farms were all in the same locality and had much in common as regards management and resources. On the whole

pastures were very productive and able to carry the heavier type of sheep, mainly Kerry or Kerry-cross ewes, with Suffolk or Clun rams. It is interesting to note that on this group of farms the average dead-weight of the lambs produced was 48 lb., compared with the all-flock average of  $42\frac{1}{2}$  lb., and the average net production of lamb meat (i.e. gross output less input of meat in purchased stores) was  $42\frac{1}{2}$  lb., compared with an average of  $35\frac{3}{4}$  lb. per lamb for all farms. The flocks on these farms were also larger, with an average size of 85 ewes compared with 58 for the whole sample. Labour cost per ewe was consequently less, and purchases also were comparatively lower. A comparison between this group and the total sample, expressed as indices, shows the following results:-




	<u>All Farms.</u>	Farms <u>18-24.</u>
Average Size of Flock	100	147
Labour Cost per 100 Ewes	100	78
Value of Purchases per 100 Ewes	100	75

CHART 2.

RETURNS AND COSTS PER LAMB PRODUCED.



KEY

-  Total Output per Lamb Produced.
-  Total Cost per Lamb Produced.
-  Net Cost up to weaning per Lamb Produced.

ALL-FARM AVERAGES.  
per lamb produced.

A-A = Average Net Cost to weaning.

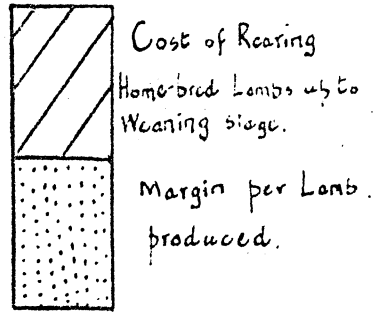
B-B = Average Total Cost.

C-C = Average Total Output.

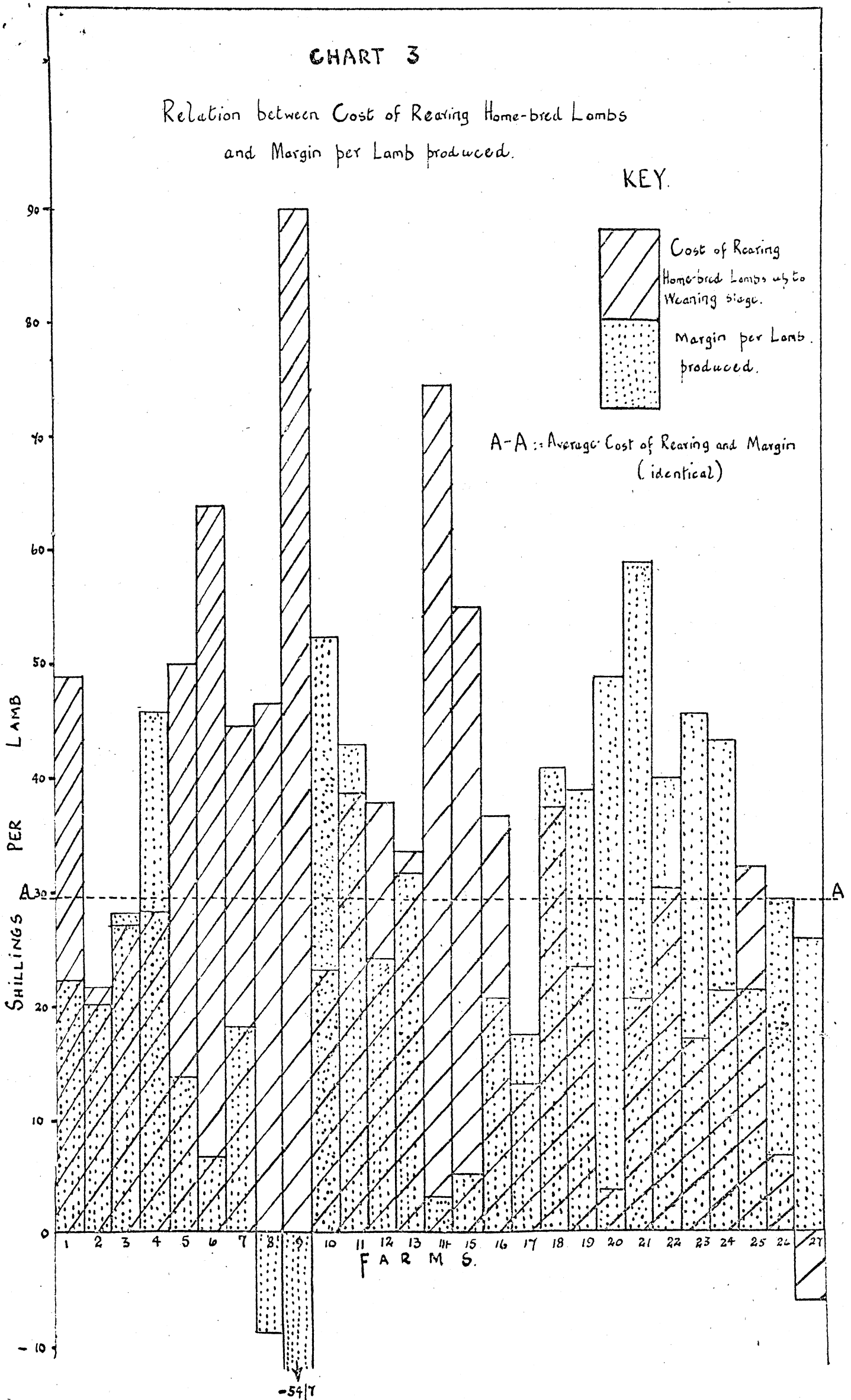
### CHART 3

Relation between Cost of Rearing Home-bred Lambs  
and Margin per Lamb produced.

KEY.



A-A :: Average Cost of Rearing and Margin  
(identical)



Labour Requirements and Lamb Yields.

Table 7 shows the analysis of the labour requirements per 100 ewes, by size groups, of the flocks in this investigation. As would be expected, the requirements per ewe decrease as the size of flock increases. If they are expressed in the form of indices, as in Table 5, it becomes obvious that the labour per sheep on shepherding varies appreciably with the size of flock, while seasonal labour per sheep - as might be expected - varies comparatively little. The labour requirement of the average flock (cf. say, 50 ewes) is equivalent to about 10 man-hours per week over the whole year, of which just under 2 man-hours would be for seasonal work. By seasonal work here is meant work on docking, marking etc., dipping, washing and shearing, and for the average-sized flock of 50-60 ewes this would probably be confined to a period of 10-12 man-days. It is not likely therefore that, on most Welsh dairy farms where sheep are kept, they will make demands on the labour supply which will hinder the general organisation and utilisation of labour. In fact, they may provide conditions for fuller and more efficient use of labour during the slack periods of the main enterprise of milk production.

Table 7.Labour Requirements per 100 Ewes by  
Flock Size Groups.Average for Group.

<u>Size of Flocks.</u>	<u>0-29</u>	<u>30-59</u>	<u>60-89</u>	<u>90 +</u>	<u>All Farms.</u>
<u>Number of Farms in Group</u>	7	12	3	5	27
<u>Breeding Flocks:-</u>	<u>Hours</u>	<u>Hours</u>	<u>Hours</u>	<u>Hours</u>	<u>Hours</u>
Labour on Shepherding	767	576	446	399	578
Seasonal Labour	150	126	113	112	129
Total	917	702	559	511	707
<u>Lambs:-</u>					
Labour on Shepherding	383	268	206	151	269
Seasonal Labour	71	49	58	62	58
Total	454	317	264	213	327
<u>Total Labour on Sheep</u>	<u>1371</u>	<u>1019</u>	<u>823</u>	<u>724</u>	<u>1034</u>

Table 8.

Indices of Labour Requirements.

Size Group (No. of Ewes)	0-29	30-59	60-89	90 +	All Groups
<u>Breeding Flock:-</u>					
Labour on Shepherding	192	144	112	100	145
Seasonal Labour	134	113	101	100	115
Total	179	137	109	100	138
<u>Lambs:-</u>					
Labour on Shepherding	254	178	136	100	178
Seasonal Labour	115	80	94	100	94
Total for Lambs	213	149	124	100	153
Total for Breeding Flocks and Lambs	189	141	114	100	143

It was impossible to get accurate records of the number of lambs born dead. The loss up to weaning was about 11 per cent of the lambs born. This compares favourably with the results of arable flocks in the East Midlands\*, where losses in birth and in rearing were as high as 21 per cent of the number born. The distribution of flocks according to percentage deaths in lambs before weaning was as follows:-

Per cent of Lambs born: Dying before Weaning	Number of Flocks.
Up to 5	2
5 - 10	9
11 - 15	5
Over 15	11

On the whole, the ewe flocks in this sample of 27 farms could not be regarded as prolific. The average number of lambs born per 100 ewes was 125, the highest individual flock average being 180, and this was in a flock of 20 ewes.

\* See Makings and Wynne: Economics of Arable Sheep Farming in East Midlands, 1942-3 and 1943-4.

The last point is significant, since one of the most important influences on the crop of lambs is the size of flock. Small flocks as a rule produce a higher output of lambs in relation to the number of ewes kept than do large flocks. This is chiefly due to the fact <sup>that</sup> in general the management, both as regards feeding and shepherding, is more thorough and efficient in the small flocks. Although the sample is not large enough for any definite conclusions to be drawn from it, the following statement does seem to point to a general tendency towards a reduction in lamb yield with increasing size of flock:-

Size-Group. (No. of Ewes for Lambing.)	No. of Flocks.	Average No. of Lambs Born per 100 Ewes.
0 - 29	6	144
30 - 59	12	132
60 - 89	4	111
90 +	5	123
All Flocks	27	125

#### Advantages of the Sheep Enterprise.

Although sheep are gradually being replaced by dairy cows on lowland farms in Wales, there is no doubt that, from the point of view of general farm organisation, they still perform a useful and important function. A ley farming programme compatible with an increased tendency towards liquid milk production still has room for a sheep enterprise and, while it is true that sheep will not be a success if kept intensively on grassland, a small flock can be maintained with advantage. Apart from the monetary returns involved, their presence on the farm will also benefit the land because of their value as agents for restoring fertility and in the maintenance of pasture improvement. It is well known that pastures will be kept in a much higher state of productivity if grazed with sheep and cattle than when grazed with cattle alone. Through increasing the fertility of the pasture it grazes, the sheep has won the title of "The Golden Hoof". Sheep have other advantages for the farmer. In comparison with cattle, they represent a relatively low capital investment; they require neither expensive barns nor implements; there are no great labour costs for tending them; and they only require a minimum of care and attention during the busy summer season. Sheep have their use in clearing stubbles, in the close grazing of leys before ploughing and in the winter grazing of pastures when the cattle are indoors. Moreover, in wool and in the flesh of her offspring the ewe gives double returns each year.

One problem, however, particularly on dairy farms, is that sheep compete with other stock for valuable early spring grazing. Under the general methods of management of grassland sheep, the maximum demands of the flock arise

in spring and early summer and at this period their numbers and needs are greatest. This is also the time when pastures should be rested in order to provide keep for the grazing of dairy cows and other stock. Later in summer and under normal conditions there is usually enough grass for all classes of livestock. It would therefore appear that, if sheep are to retain their position on the lowland mixed farm (especially of the dairying type), competition with the dairy herd and other cattle must be avoided. Where the dairy cow is an important factor in the farm organisation the difficulty may be overcome by the buying in of store lambs for fattening in late summer or by a certain amount of hand feeding of the flock during the early spring. There is the advantage that grassland sheep on lowland farms are generally the non-permanent or flying flocks. The system is therefore a comparatively flexible one and purchases can be made according to prospects and the amount of keep available.

As previously stated, grass-fed sheep do not make a heavy demand on labour. In this respect they have an advantage over arable-fed sheep. While the latter require something like 3 to 4 man hours of direct labour per fat sheep, grass-fed sheep on average demand something less than a single man-hour. These figures exclude any indirect labour on production of crops fed, which in the case of arable sheep is again relatively heavy.

Such, then, are the main advantages of the sheep enterprise; and farmers would be well advised to consider them carefully when they are planning the organisation of their farms.