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Sheep

Agricultural Enterprise Studies in England & Wales #43

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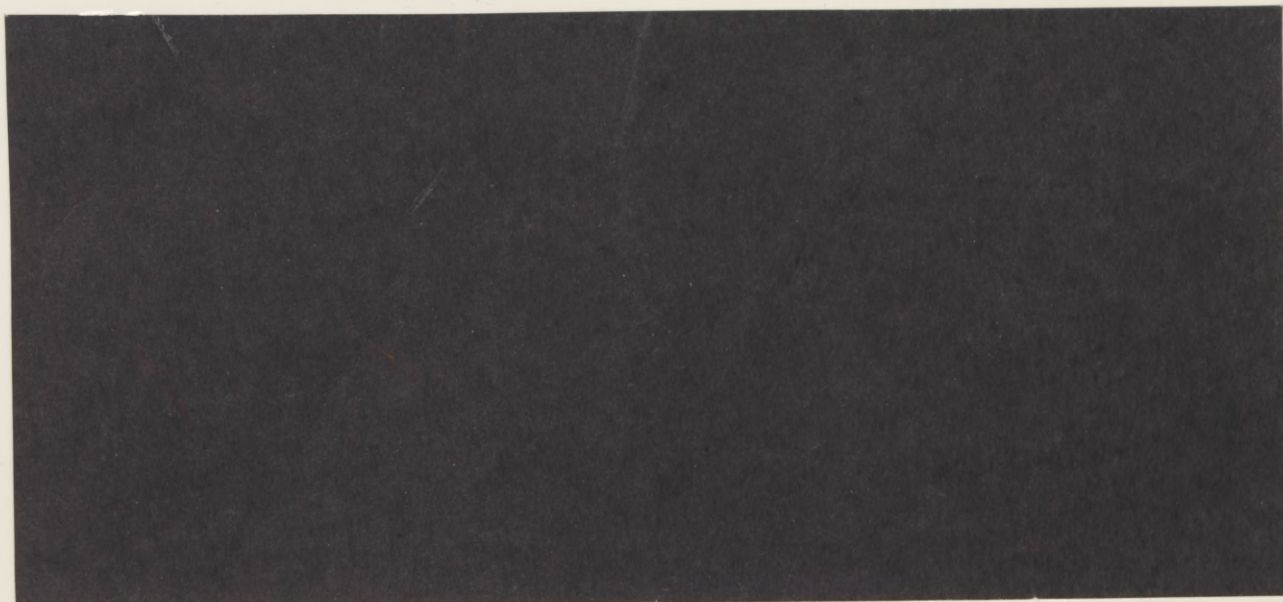
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SHEEP PRODUCTION AND MANAGEMENT IN WALES

A Survey of 413 Flocks

by A. Lloyd.

Enterprise Studies Report: No. 43

SHEEP PRODUCTION AND MANAGEMENT IN WALES

A Survey of 413 Flocks

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Price: £1.00

March, 1977.

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AGRICULTURAL ENTERPRISE STUDIES IN ENGLAND AND WALES

University departments of Agricultural Economics in England and Wales have for many years undertaken economic studies of crop and livestock enterprises. In this work the departments receive financial and technical support from the Ministry of Agriculture, Fisheries and Food.

Departments in different regions of the country conduct joint studies into those enterprises in which they have a particular interest. This community of interest is recognised by issuing enterprise reports in a common series entitled "Agricultural Enterprise Studies in England and Wales", although the publications are prepared and published by individual departments.

Titles of recent publications in this series and the addresses of the University departments are given at the end of this report.

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SUMMARY

This report contains the findings of a survey of 413 sheep flocks in Wales carried out in 1974. It is complementary to similar surveys carried out in England by Exeter University, together covering both hill and lowland areas.

Sheep production is a very important part of Welsh agriculture, being especially suited to the rugged terrain and high rainfall characteristic of so much of the Principality. Flocks in receipt of hill sheep subsidy constitute the greater part of the national flock; it is those flocks that are so important as the pool of breeding stock from which sheep farmers in many parts of Great Britain draw.

The survey showed that upland and hill flocks (those in receipt of the basic and supplementary rates of hill sheep subsidy respectively) are, on average, larger in size than lowland flocks. At the same time the rate of replacement of breeding ewes from within the flock is greatest amongst the hill flocks; on such farms one of the conditions for payment of the higher rate of subsidy is the maintenance of a self-replenishing flock of a recognised hill breed.

Of all breeding ewes covered by the survey nearly 60 per cent were Welsh Mountain, ranging from 70 per cent amongst the hill flocks, to 30 per cent in the lowland flocks. The significance of Welsh Mountain rams was not quite as great but still considerable.

Just 4 per cent of the lowland flocks were tupped before the end of September, while in the upland and hill flocks there was heavy concentration of tupping in October with some hill flocks carrying over into November or later.

Lambing rates varied widely - from over 150 per 100 ewes in 22 per cent of lowland flocks to less than 80 lambs per 100 breeding ewes in hill flocks. Over 60 per cent of all lambs reared, in the survey, were sold fat, ranging from nearly 90 per cent in the lowland flocks to just over one half amongst the hill flocks. Only 13 per cent of the 1973 lamb crop from hill flocks was disposed of in the store market.

The auction market was the most important outlet for fat lambs, accounting for 60 per cent of all fat lambs in the survey. The relative importance of the various outlets for fat lambs varied quite significantly between regions.

Supplementary winter feeding of breeding sheep was widespread; over 25 per cent of flocks were given feed blocks. Rape was a very important fodder crop for many fattening lambs on hill farms in the survey. Winter housing on Welsh farms was not of great

importance, but this may grow in the future. Shepherding of the flock was found to be done, in the vast majority of cases, by the farmer. Help by neighbours was an important aspect of flock management on many hill farms.

Away wintering of ewe lamb replacements was still very widespread on hill farms in the survey. Measurements of stocking densities showed that, as would be expected, intensity was higher on the upland farms than on the hill farms; also, cattle figured more prominently on the former. Common grazings added significantly to the stock-carrying capacity of many farms, and in most cases available common grazings were utilised.

Future intentions of sheep farmers in 1974 appeared to indicate a continued increase in the size of the national flock, a possibility which has materialised since that time.

SHEEP PRODUCTION AND MANAGEMENT IN WALES

A SURVEY OF 413 FLOCKS

Chapter One

1. Introduction

Great Britain is a country which experiences a mild and equable climate but one nevertheless where regional variations exist. The eastern part of the country has less precipitation, greater extremes of temperature, and more sunshine, than has the west which is more exposed to the westerly winds and affected by the warmth of the Gulf Stream. This being so the western extremities of the country are the traditional grass growing and livestock producing areas. This is especially true of most parts of Wales where altitude, slope, rainfall, and temperature, all combine to make most arable sale products technically and economically less viable. Many of the factors militating against arable crops are beneficial to the production of grass and grass products, thus making the Principality especially suitable for the production of beef, sheep and milk. Depending on the altitude and soil conditions, one of these will be found to be the predominant enterprise in most districts. For example the Vale of Glamorgan, lowland Carmarthen, and the Severn Valley are particularly important for milk production whilst Brecon and Radnor are noted for cattle

2.

rearing. Sheep are all important in most upland and hill areas of the Principality.

2. The Sheep Industry

Over the past decade the sheep industry in England and Wales has expanded and contracted according to its profitability relative to cattle rearing and dairying. Table 1.1 shows the number of breeding ewes in England and Wales from 1961 to 1973 and the percentage annual change. Whereas from 1961 to 1966 the national flock increased slightly annually, from 1967 to 1971 this trend was reversed. This movement coincided with changes in profitability, especially since 1971. In that year the downward trend in the size of the Welsh flock was reversed. The increase in numbers that occurred in the Principality since 1971 was of considerable significance, for the 1973 total was the highest recorded in the period reviewed in Table 1.2. At the same time it should be noted that an increasing proportion of the sheep population is accounted for by Welsh flocks.

3.

A brief examination of the years in question will illustrate why there should have been this marked upturn. Entry into the EEC was being anticipated and then realised in 1973. Of great importance in this respect was the enlarged market for mutton and lamb which membership of the EEC provided. Prior to entry the fact that the price of lamb in France was approximately double that in Great Britain gave good export possibilities to our producers. Britain's membership of the Community took effect from the 1st January 1973 and as this date approached the price of British lamb rose dramatically.

However, the fact that mutton and lamb was one agricultural commodity not governed by any EEC policy subjected it to more price variability than other commodities.

Table 1.1
The Breeding Flock 1961-1973
England and Wales

'000 ewes

	June 1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973
Breeding Ewes	7,396	7,680	7,744	7,859	7,891	7,988	7,811	7,627	7,238	6,927	6,885	7,110	7,381
Shearling Ewes	1,545	1,601	1,594	1,569	1,675	1,654	1,624	1,626	1,541	1,467	1,480	1,626	1,901
Total	8,941	9,281	9,338	9,428	9,566	9,642	9,435	9,253	8,779	8,394	8,365	8,736	9,282
Annual Percentage Change in Flock Size		+ 3.8	+ 0.6	+ 1.0	+ 1.5	+ 0.8	- 2.1	- 1.9	- 5.1	- 4.4	- 0.3	+ 4.4	+ 6.3

Table 1.2
The Breeding Flock 1961-1973
Wales

'000 ewes

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973
Breeding Ewes	2,233	2,314	2,335	2,423	2,478	2,565	2,590	2,615	2,553	2,472	2,485	2,571	2,634
Shearling Ewes	568	585	580	560	605	624	642	661	628	595	601	625	675
Total	2,801	2,899	2,915	2,983	3,083	3,189	3,232	3,276	3,181	3,067	3,086	3,196	3,309
Percentage of England and Wales	31.3	31.2	31.2	31.6	32.2	33.1	34.3	35.4	36.2	36.5	36.9	36.6	35.7
Annual Percentage Change in Flock Size		+ 3.5	+ 0.6	+ 2.3	+ 3.4	+ 3.4	+ 1.3	+ 1.4	- 2.9	- 3.6	+ 0.6	+ 3.6	+ 3.5

Turning now to Wales in particular, sheep obviously play a very important role in Welsh agriculture. With 1½ million acres classed as rough grazing (37 per cent of the total agricultural area of the country), sheep, being the most efficient utilizers of such poor pasture, figure as a dominant enterprise.

Table 1.3

Acres, Breeding Ewes and Stocking Rates

England and Wales - 1973

	Wales	England	England and Wales
		'000	
Crops and Grass ¹	2,567	21,124	23,691
Rough Grazings ¹	1,508	3,053	4,562
Total Area ¹	4,075	24,177	28,253
Breeding Ewes ²	3,309	5,973	9,282
Breeding Ewes/ 100 acres Crops & Grass	129	28	39
Breeding Ewes/ 100 acres Rough Grazing	219	196	203
Breeding Ewes/ 100 acres Total Area	81	25	33

1. Acres

2. Including Shearling Ewes.

In Table 1.3 the numbers of breeding sheep per 100 acres of crops and grass, rough grazing, and total area are given for Wales, England and England and Wales. This table shows that approximately four times as many ewes are carried, per unit of land, in Wales as in England.

Table 1.4 sheds a little more light on the relative position of sheep in the Welsh agricultural economy. It shows the number of breeding sheep and the holdings returning them, by standard man-day size-group and farming type (based on MAFF definitions¹). In 1973, out of a total of nearly 33,000 holdings in Wales just over 16,000 carried sheep. Of the full time holdings (those that is with 275 smd's or more) 62 per cent carried sheep, the average flock size being 277 ewes. The 'mostly sheep'² farms carried 33 per cent of the total number of ewes and had, on average, just over 550 ewes per flock.

Compared with the previous year the overall number of flocks in 1973 had fallen by nearly 1.5 per cent but this was completely accounted for by the change in part-time holdings (i.e. those with less than 275 smd's). On the 'mostly sheep' farms, flock size, over the same period, rose by 5 per cent. However, the largest increase in average flock size was in the 'others' category where the rise was of the order of 7.5 per cent.

¹ See 'Digest of Welsh Agricultural Statistics', MAFF, Plascrug, Aberystwyth.

² Those farms where more than 50 per cent of total standard man days are in livestock rearing and fattening, of which 75 per cent or more are in sheep.

Table 1.4

A Distribution of Breeding Sheep¹ and Holdings by Type of Farming
Wales - June 1973.

	smd size group									Total		
	275 - 599 smd			600 - 1199 smd			1200 smd and over					
	Holdings	Br. Sheep	Mean Size of Flock	Holdings	Br. Sheep	Mean Size of Flock	Holdings	Br. Sheep	Mean Size of Flock	Holdings	Br. Sheep	Mean Size of Flock
<u>Holdings with 275 smd or more</u>												
Dairy	1311	76521	58	1067	101593	95	287	44652	156	2665	222766	84
Livestock Rearing and Fattening Mostly Cattle	236	10291	44	124	10414	84	29	4937	170	389	25642	66
Livestock Rearing and Fattening Mostly Sheep	983	305282	311	718	449983	627	238	324158	1362	1939	1079423	557
Livestock Rearing and Fattening Cattle and Sheep	2515	463467	184	1818	658613	362	446	358192	803	4779	1480272	310
Others	347	31680	91	344	52206	152	152	50499	332	843	134385	159
Total Holdings with 275 smd or more	5392	887241	165	4071	1272809	313	1152	782438	679	10615	2942488	277
Holdings with less than 275 smd										5652	366912	65
All Holdings	5392	887241	165	4071	1272809	313	1152	782438	679	16267	3309400	203

¹ Ewes kept for breeding and shearling ewes.

Source: Annual Digest of Welsh Agricultural Statistics.

Tables 1.5 and 1.6 indicate the number of ewes receiving hill sheep subsidy at each of the two rates and those in receipt of no subsidy. The difference between the figures published by MAFF for the number of ewes receiving each the basic and supplementary rates, and the figures for the number of ewes as at June 4th, was assumed to represent those ewes not in receipt of any subsidy. It is assumed that these three groups may be taken as representing respectively upland, hill and lowland ewes. We can then examine the changes that have taken place since 1961 in the structure of these three categories of flocks.

Tables 1.5 and 1.6 show the numbers of ewes in each category, on the basis of the above definition, for Wales and England respectively. Dealing with Wales first, the upland and hill flocks increased in size fairly consistently from 1961 to 1973 except in 1967 when there was a dramatic increase in numbers, approximately 43 per cent. The reason for this uncharacteristic change was that in that year the lower limit of the basic rate flocks was pushed further down the hill to include many more sheep; the lowland flock therefore shows a corresponding decrease. Once this has been accounted for the pattern of change for the hill and upland flocks appears to be significantly uniform. However, for the lowland flock, after excluding 1967, the pattern is not consistently upwards. From 1968 until 1971 the flock fell in size but in 1972 it showed an increase.

Table 1.5

Ewes Receiving Hill Sheep Subsidy at Supplementary and Basic Rates,
and Ewes Receiving no Subsidy - Wales 1961-1973

'000 ewes

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973
Supplementary	1143	1187	1191	1218	1285	1339	1511	1552	1566	1595	1623	1674	1724
Basic	167	184	181	183	184	190	674	699	698	702	733	760	789
Total	1310	1371	1372	1401	1469	1529	2185	2251	2264	2297	2356	2434	2513
Percentage annual change		4.7	0.1	2.1	4.9	4.1	42.9	3.0	0.6	1.5	2.6	3.3	3.2
No subsidy	1491	1528	1543	1582	1614	1660	1047	1025	917	770	730	762	796
Percentage annual change		2.5	1.0	2.5	2.0	2.9	-36.9	-2.1	-10.6	-16.0	-5.2	4.4	4.5

Table 1.6

Ewes Receiving Hill Sheep Subsidy at Supplementary and Basic Rates, and
Ewes Receiving no Subsidy - England 1961-1973

'000 ewes

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973
Supplementary	904	922	915	936	980	1004	1119	1134	1124	1141	1175	1214	1247
Basic	116	128	130	131	125	117	573	593	602	609	634	663	698
Total	1020	1050	1045	1067	1105	1121	1692	1727	1726	1750	1809	1877	1945
Percentage annual change		2.9	- 0.5	2.1	3.6	1.4	50.9	2.1	-	1.4	3.4	3.8	3.6
No subsidy	5120	5334	5379	5378	5379	5332	4511	4252	3873	3578	3471	3663	4028
Percentage annual change		4.2	0.8	-	-	- 0.9	-15.4	- 5.7	- 8.9	- 7.6	- 3.0	5.5	10.0

In England the hill and upland flocks increased in size by small amounts every year except in 1963 when they decreased slightly and in 1967 when numbers increased by over 50 per cent for the reasons given above. Again, the lowland flock decreased in size, from 1966 up until 1971.

Table 1.7 shows that the majority (over 60 per cent) of flocks in Wales are to be found on holdings of less than 100 acres in extent, although one must be wary in stating this and remember that the size of holding excludes rough grazings. For example many hill farms consist of a large total acreage, only a small proportion of which is crops and grass. The 167 holdings having flocks of 700 breeding ewes and over are most probably hill farms of this type. In comparing tables 1.7 and 1.8 an indication can be obtained of changes that have taken place between June 1963 and June 1973. The most noticeable fact is the sharp drop, approximately 30 per cent, in the number of flocks over the 10 years. However, this change occurred mainly in the smallest size group where the decrease was of the order of 47 per cent. This change is very similar to that for the total number of holdings the total number of which fell rapidly especially amongst the smallest size groups.

Table 1.7

Distribution of Flocks by Size of Holding and Size of Flock.

Wales - June 1973

Size of Flock Holding Size - C. & G.	0 - 99		100 - 199		200 - 399		400 - 699		700+		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
0 - 99	5899	36.3	2243	13.8	1231	7.6	386	2.4	167	1.0	9926	61.1
100 - 149	816	5.0	836	5.1	901	5.5	334	2.1	109	0.7	2996	18.4
150 - 299	446	2.7	515	3.2	910	5.6	578	3.4	288	1.8	2737	16.7
300 - 499	32	0.2	59	0.4	100	0.6	139	0.9	150	0.9	480	3.0
500 and over	5	-	9	-	9	0.1	27	0.2	78	0.5	128	0.8
Total	7198	44.2	3662	22.5	3151	19.4	1464	9.0	792	4.9	16267	100.0

Table 1.8

Distribution of Flocks By Size of Holding and Size of Flock
Wales - June 1963

Size of Flock Holding Size - C. & G.	0 - 99		100 - 199		200 - 399		400 - 699		700+		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
0 - 99	11581	50.0	3017	13.0	1408	6.1	413	1.8	237	1.0	16656	71.9
100 - 149	1278	5.5	1145	4.9	772	3.3	168	0.7	68	0.3	3431	14.8
150 - 299	608	2.6	709	3.1	945	4.1	311	1.3	126	0.5	2699	11.7
300 - 499	14	0.1	70	0.3	103	0.4	86	0.4	56	0.2	329	1.4
500 and over	-	-	-	-	13	0.1	15	0.1	24	0.1	52	0.2
Total	13481	58.2	4941	21.3	3241	14.0	993	4.3	511	2.2	23167	100.0

The Principality, then, has experienced a gradual increase in the size of the national flock, reversed only for a few years, whilst at the same time the number of flocks decreased rapidly causing the average flock size to go up from 126 ewes to 203 ewes over the decade 1963-1973. If economies of scale are to be obtained in sheep production then moves in the right direction have been made over that period.

Table 1.9 shows holdings having sheep as a proportion of total Welsh holdings. The overall figure is approximately 50 per cent of all holdings in the Principality; ten years before it was 46 per cent. As size of holding increases the proportion of holdings carrying sheep increases likewise, from just over 40 per cent in the smallest size-group to 80 per cent in the largest; and nearly 50 per cent of holdings with sheep in the largest acreage size-group had flocks of 700 ewes and over. We may conclude from this table that small farms are more common in Wales than large ones but that sheep are relatively more important on the large farms than on the small ones.

Table 1.9

Holdings with sheep as a percentage of Total Holdings
Wales - June 1973

Size of Flock Holding Size - C. & G.	0-99	100-199	200-399	400-699	700+	Total
	%	%	%	%	%	%
0 - 99	24.5	9.3	5.1	1.6	0.7	41.3
100 - 149	18.3	18.8	20.3	7.5	2.4	67.3
150 - 299	12.3	14.2	25.0	15.9	7.9	75.2
300 - 499	5.5	10.2	17.2	24.0	25.9	82.8
500 and over	3.1	5.6	5.6	16.9	48.8	80.0
Total	21.9	11.1	9.6	4.5	2.4	49.5

It was calculated that in 1968-69 the value of the output of the Welsh sheep industry was £15.2m, a figure which represented nearly 11 per cent of total Welsh agricultural output. Since no work on this type of exercise has been performed since that time one cannot assess whether or not sheep have become more important over the period. But the industry is clearly important enough to make a study of its structure and practices at the present time.

3. The Survey

The survey was carried out in both England¹ and Wales and examined the period relating to the 1973 lamb crop. A similar questionnaire

¹ Ewe Flocks in England by W.J.K. Thomas, Agricultural Economics Unit, University of Exeter, Nov. 1976.

had been sent out in 1968 by Exeter University to lowland sheep producers in England when the effective response rate was 65 per cent. The present survey was thus something of a follow-up which would also include hill and upland sheep farmers in England and sheep farmers in Wales.

The initial Welsh sample consisted of 821 randomly chosen holdings scattered throughout the Principality. The questionnaires were sent out on May 2nd 1974 and were then returned to the department over the following four months. By delaying the sending out of the questionnaires until early May one ensured the complete disposal of the 1973 lamb crop and also avoided the main part of the 1974 lambing period when farmers would have been far too busy to fill in the form.

Three weeks after the commencement of the survey, by which time 22 per cent of the forms had been returned, reminders were sent out. By the end of August approximately 50 per cent of the questionnaires originally despatched were returned in a useable condition. This compared very closely with the response to a postal survey carried out by a member of the department¹ in late 1969 when 51 per cent of questionnaires were returned in a condition satisfactory for the main analysis. 3.7 per cent of the present survey were returned in an unuseable state, many of them due to the retirement of the farmer.

¹ University College of Wales Farm Survey, 1969, R. E. Owen.

The English part of the survey also yielded a response rate of around 50 per cent although there was some variation from region to region. This drop in response in England could perhaps be explained by the increased complexity of the questionnaire. In Wales the response rate, compared with the earlier departmental survey, has stayed at a constant level.

Table 1.10 shows the number of questionnaires sent out (by county and flock category), and the number returned in a satisfactory condition. 'Old' counties are used in the analysis for two reasons: the 'new' counties do not coincide exactly with multiples of the 'old' counties, and secondly the 'old' counties are more convenient than the 'new' for regional analysis. The table shows that response rates were highest in Cardigan, Carmarthen and Montgomery, and lowest in Brecon, Monmouth and Flint. There would appear, therefore, to be no consistent regional pattern of response rates.

It was not possible to distinguish flocks before sending out the questionnaires, and so no distribution can be presented of the 821 forms originally despatched.

Table 1.10

Distribution of Questionnaires by County and Type of Flock.

County	Numbers sent out	Returned Questionnaires by flock type					Questionnaires returned in satisfactory condition %
		Lowland ¹	Upland ²	Hill ³	Other ⁴	Total	
Anglesey	28	13	-	-	-	13	46.4
Brecon	93	4	7	21	-	32	34.4
Caernarvon	65	8	2	19	1	30	46.2
Cardigan	61	10	4	18	-	32	52.5
Carmarthen	64	15	6	17	-	38	59.4
Denbigh	90	11	21	18	5	55	61.1
Flint	15	3	1	1	-	5	33.3
Glamorgan	45	9	-	12	-	21	46.7
Merioneth	67	1	5	27	1	34	50.7
Monmouth	46	12	2	5	-	19	41.3
Montgomery	108	8	21	33	4	66	61.1
Pembroke	21	5	-	5	-	10	47.6
Radnor	118	3	40	15	-	58	49.2
Total	821	102	109	191	11	413	50.3

1. Flocks in receipt of no hill sheep subsidy
2. " " " " the basic rate
3. " " " " supplementary rate
4. Combined lowland and upland/hill flocks

Table 1.11

Breeding Ewes and Shearling Ewes by Type of Subsidy
National and Sample - Wales 1973

	Basic Rate	Supplementary Rate	No Subsidy	Total
National - No. %	759,134 22.9	1,673,670 50.6	876,596 26.5	3,309,400 100.0
Sample - No. %	33,726 20.3	112,429 67.8	19,737 11.9	165,892 100.0
Sampling Percentage	4.4	6.7	2.3	5.0

Based on the returned questionnaires, Table 1.11 presents the number of ewes and shearling ewes by the subsidy for which they were eligible, alongside the national figures for the same year, 1973. It indicates that the sample was biased towards the hill flocks, i.e. those in receipt of the supplementary rate of hill sheep subsidy. This was to be expected as the sample originally drawn was biased towards the larger flocks, and the mean size of hill flocks is greater than that of upland and of lowland flocks. The over-representation of the larger flocks is illustrated by the fact that the sampled flocks accounted for 5 per cent of the total breeding flock but only 2.5 per cent of holdings.

The initial sample (821) represented 5 per cent of total Welsh holdings carrying sheep on June 4th 1973. The national flock consists predominantly of small units, nearly 45 per cent of total flocks having less than 100 ewes. The sample flocks were fairly evenly distributed throughout the five size groups and therefore the representation of the larger flocks is much better than that of the smallest, giving an initial sampling ratio of 1 in 4.3 for the largest flocks down to 1 in 40 for the smallest. The 413 returned questionnaires represent 2.5 per cent of total Welsh holdings carrying sheep but the percentage within groups range from 1.2 for the smallest flocks to 9.6 for the largest. The response rate was highest among the medium-sized flocks and lowest for the largest flocks. One might have expected some indication of a direct relationship between flock size and the degree of cooperation but this was not so.

Since the number of flocks analysed represented one in every forty of all Welsh flocks, the results obtained from this cannot be viewed with complete confidence. However, they may be taken as giving a broad reflection of the real situation.

Table 1.12

Distribution of National and Sampled Flocks by Size of Flock

Wales 1973.

Size of Flock	0 - 99		100 - 199		200 - 399		400 - 699		700+		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
National	7198	44.2	3662	22.5	3151	19.4	1464	9.0	792	4.9	16267	100.0
Sample (sent out)	183	22.3	123	15.0	153	18.6	177	21.6	185	22.5	821	100.0
Sampling Percentage %	2.5		3.4		4.9		12.1		23.4		5.0	
Sample (received)	88		68		101		80		76		413	
Sampling Percentage %	1.2		1.9		3.2		5.5		9.6		2.5	
Proportion Returned %	48.1		55.3		66.0		45.2		41.1		50.3	

4. Flock and Farm Types within the Sample

The following two tables show how the sample is divided according to flock type and farming type (according to M.A.F.F. definitions). A tendency already commented upon is illustrated well in the first of the two, namely for the vast majority of lowland flocks in the sample to be relatively small in size, and for most hill flocks to be large. This situation is indicative of the importance of the sheep flock in the economy of hill farms.

Table 1.13

A Distribution of Flocks by Flock Type and Flock Size

	0 - 99		100-199		200-399		400-699		700+		All Flocks	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Lowland	48	47.1	24	23.5	17	16.7	9	8.8	4	3.9	102	100
Upland	26	23.9	20	18.3	31	28.4	25	22.9	7	6.4	109	100
Hill	13	6.8	23	12.0	50	26.2	46	24.1	59	30.9	191	100
Other	1	9.1	1	9.1	3	27.3			6	54.5	11	100
Total	88	21.3	68	16.5	101	24.4	80	19.4	76	18.4	413	100

The second table, from which it can be seen that 40 per cent of the hill flocks come into the 'mostly sheep' livestock category, illustrates this more clearly.

Also illustrated is the overwhelming importance of livestock enterprises in Welsh agriculture; dairying on lowland farms, but also general

Table 1.14

A Distribution of Flocks by Farm Type¹, Flock Type and Flock Size

Farm Type	Flock Size		0 - 99		100 - 199		200 - 399		400 - 699		700+		All Flocks	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Lowland Flocks														
Specialist Dairying	10	20.8	2	8.3									12	11.8
Mainly Dairying	6	12.5	4	16.7			2	11.7					12	11.8
Livestock Rearing & Fattening, Mostly Cattle	3	6.3	2	8.3									5	4.9
" " " Mostly Sheep							1	5.9	2	22.2			3	2.9
General Livestock Rearing & Fattening	2	4.2	12	50.0	11	64.7	5	55.6	2	50.0			32	31.4
Mixed	1	2.1	1	4.2	2	11.8	2	22.2	2	50.0			8	7.8
Part Time	26	54.1	3	12.5	1	5.9							30	29.4
Total	48	100	24	100	17	100	9	100	4	100	102	100		
Upland Flocks														
Specialist Dairying	1	3.8											1	0.9
Mainly Dairying	3	11.5	2	10.0	2	6.5							7	6.4
Livestock Rearing & Fattening, Mostly Cattle	1	3.9											1	0.9
" " " Mostly Sheep									2	8.0			2	1.9
General Livestock Rearing & Fattening	2	7.7	13	65.0	25	80.6	22	88.0	7	100			69	63.3
General Pigs and Poultry			1	5.0									1	0.9
Mixed			1	5.0	3	9.7							4	3.7
Part Time	19	73.1	3	15.0	1	3.2	1	4.0					24	22.0
Total	26	100	20	100	31	100	25	100	7	100	109	100		
Hill Flocks														
Specialist Dairying	1	7.7											1	0.5
Mainly Dairying			1	4.4	1	2.0							2	1.0
Livestock Rearing & Fattening, Mostly Cattle			1	4.3									1	0.5
" " " Mostly Sheep			2	8.7	14	28.0	22	47.8	39	66.1			77	40.3
General Livestock Rearing & Fattening	1	7.7	6	26.1	34	68.0	24	52.2	19	32.2			84	44.0
Mixed					1	2.0			1	1.7			2	1.1
Part Time	11	84.6	13	56.5									24	12.6
Total	13	100	23	100	50	100	46	100	59	100	191	100		
Other Flocks														
Specialist Dairying			1	100									1	9.1
Livestock Rearing & Fattening, Mostly Cattle											1	16.7	1	9.1
General Livestock Rearing and Fattening	1	100									5	83.3	6	54.5
Mixed					3	100							3	27.3
Total	1	100	1	100	3	100			6	100	11	100		
All Flocks														
Specialist Dairying	12	13.6	3	4.4									15	3.6
Mainly Dairying	9	10.2	7	10.3			5	5.0					21	5.1
Livestock Rearing & Fattening, Mostly Cattle	4	4.6	3	4.4									7	1.7
" " " Mostly Sheep			2	2.9	15	14.8	26	32.5	40	52.6			83	20.1
General Livestock Rearing and Fattening	6	6.8	31	45.6	70	69.3	51	63.8	33	43.4			191	46.3
General Pigs and Poultry			1	1.5									1	0.2
Mixed	1	1.1	2	2.9	9	8.9	2	2.5	3	4.0			17	4.1
Part Time	56	63.7	19	28.0	2	2.0	1	1.2					78	18.9
Total	88	100	68	100	101	100	80	100	76	100	413	100		

¹ MAFF Classification

livestock rearing and fattening; on farms with upland flocks cattle are much more significant than on the hill farms. Through all these major flock types the proportion of part time holdings was significant; such holdings are identified by having less than 275 standard man days per annum; a figure which is taken to be the minimum necessary to keep one man in full employment.

5. Raising of Results

The practise of raising the results of a sample survey to present a picture of the whole 'population' is common, provided that the sample is representative enough of the whole. The results of the last Exeter survey of 1968 were dealt with in this way. It has been found, however, that in the present survey the difference in the size of flock recorded at June 4th 1973 and the size recorded by the farmers for tuppung time of that year, was very substantial.

Therefore to present 'raised' results from our sample on the basis of the size groups from the 4th June returns would be meaningless. One of the reasons for the high degree of discrepancy is that much activity takes place in the couple of months prior to tuppung with the selling of draft ewes, in particular on the hill farm. If the farmer, then, was intending to alter the size of his flock, we can account for the discrepancy. Another reason for the difference is the fact that many Welsh farmers have more than one holding apiece, but in many cases the Ministry census data referred only to one.

The farmer, on filling out the questionnaire, would naturally refer to his whole farm, not just one holding, and thereby a discrepancy would arise.

Given this basic problem, it was thought best not to attempt the raising of the results but to carry out an analysis purely on the basis of the sample. This would present a rough guide of the structure and organization of the sheep industry in the Principality but avoid the danger of drawing false conclusions by giving 'national' results.

Chapter Two

Breeds and Breeding Policy

1. Breeds

Listed in the following two tables are the more important breeds of ewes and rams encountered in the survey, together with the numbers in each category within each broad type of farming. It is not surprising that at the head of the list for each flock type in the first table is the Welsh Mountain, representing from 70 per cent of total ewes in the hills to 32 per cent in the lowlands. On the other hand, it is at first surprising that such a large proportion of the lowland flock consists of this breed; no doubt, it indicates the ability of the Welsh Mountain ewe to perform well when crossed with the larger lowland breeds, and hence the importance of the annual draft ewe sales held in the autumn all over the Principality.

Altogether the Welsh Mountain breed, either pure-bred or crossed, accounted for nearly 90 per cent of the ewes in the sample.

The Speckleface ewe, a larger breed, is again quite popular in each of the farming types, especially in upland flocks. Not being as hardy as the true Welsh Mountain it is of rather less significance in the hill areas but comes into its own in less extreme conditions.

The Welsh Halfbred figures prominently in the lowlands and to a lesser

Table 2.1

Top 15 Breeds of Ewes at Topping - 1973.

Flock Type Breed of Ewe	Sample Results - Wales									
	All Types		Lowland		Upland		Hill		Other	
	No.	%	No.	%	No.	%	No.	%	No.	%
Welsh Mountain	104302	58.4	6094	31.9	12303	33.5	79911	70.4	5994	63.6
Speckleface	35169	19.7	2120	11.1	8830	24.0	24153	21.3	66	0.7
Welsh Halfbred	6492	3.6	2808	14.7	2956	8.0	176	0.2	552	5.9
Welsh X Cheviot	6071	3.4	20	0.1	664	1.8	5184	4.6	203	2.2
Welsh X Suffolk	3652	2.0	1900	10.0	1055	2.9	185	0.2	512	5.4
Welsh X Kerry	2917	1.6	490	2.6	1619	4.4	244	0.2	564	6.0
Suffolk Crosses	2865	1.6	2014	10.6	591	1.6	100	0.1	160	1.7
Kerry Hill	2603	1.5	369	1.9	1877	5.1	310	0.3	47	0.5
Clun Crosses	2599	1.5	16	0.1	1338	3.6	15	-	1230	13.1
Suffolk	1775	1.0	929	4.9	739	2.0	60	0.1	47	0.5
Clun Forest	1532	0.9	383	2.0	1111	3.0	38	-	0	0.0
Brecknock Hill Cheviot	1000	0.6	0	0.0	0	0.0	1000	0.9	0	0.0
Radnor Forest	880	0.5	0	0.0	456	1.2	376	0.3	48	0.5
Suffolk X Scotch Half Bred	700	0.4	700	3.7	0	0.0	0	0.0	0	0.0
Welsh X Clun	557	0.3	0	0.0	421	1.1	136	0.1	0	0.0
Total ¹	178730	100.0	19077	100.0	36744	100.0	113486	100.0	9423	100.0

¹This figure includes other breeds as well as those listed.

extent amongst the upland flocks; apart from the Welsh Mountain the only other breed that is of any measurable significance on the hills is the Welsh Mountain X Cheviot ewe.

The Welsh Mountain breed also predominates in the list of rams but there is a much wider range in significance between flock types, varying from 65 per cent in the hill flocks down to one per cent in the lowland flocks. The importance of the Suffolk ram for crossing on upland and lowland farms is evident from Table 2.2. It accounts for two thirds of all rams on the upland flock and for just over half on the lowland flocks. This breed of ram may also be of growing importance in the hill flocks where it constituted just under 10 per cent of total rams. It is worth noting that although a third of ewes in the upland flocks were Welsh Mountain only 6 per cent of the rams used were of the same breed. Other breeds of significance were the Dorset Down in the lowland flocks, and the Border Leicester and Clun Forest in the upland flocks.

Table 2.2

Top 15 Breeds of Ram at Topping - 1973.

Flock Size Breed of Ram	Sample Results - Wales									
	All Types		Lowland		Upland		Hill		Other	
	No.	%	No.	%	No.	%	No.	%	No.	%
Welsh Mountain	1946	46.1	5	1.1	50	6.2	1801	65.3	90	47.1
Suffolk	1049	24.9	310	66.4	412	51.4	242	8.8	85	44.5
Speckleface	518	12.3	5	1.1	54	6.7	459	16.6	0	0.0
Border Leicester	197	4.1	18	3.9	116	14.5	36	1.3	2	1.0
Welsh X Cheviot	96	2.3	9	1.9	0	0.0	87	3.2	0	0.0
Clun Forest	88	2.1	12	2.6	65	8.1	10	0.4	1	0.5
Kern Hill	74	1.8	3	0.6	46	5.7	14	0.5	11	5.8
Dorset Down	62	1.5	56	12.0	3	0.4	1	-	2	1.0
Cheviot	55	1.3	1	0.2	7	0.9	47	1.7	0	0.0
Suffolk Crosses	21	0.5	1	0.2	17	2.1	3	0.1	0	0.0
Hampshire Down	14	0.3	14	3.0	0	0.0	0	0.0	0	0.0
Cheviot - N. Country	13	0.3	10	2.1	2	0.2	1	-	0	0.0
Dorset Horn	12	0.3	4	0.9	8	1.0	0	0.0	0	0.0
Southdown	11	0.3	1	0.2	0	0.0	10	0.4	0	0.0
Shropshire	10	0.2	0	0.0	10	1.2	0	0.0	0	0.0
Total ¹	4217	100.0	467	100.0	801	100.0	2758	100.0	191	100.0

¹This figure includes other breeds as well as those listed.

2. Breeding Policy

This section examines distributions of flocks according to approximate dates of tupping and numbers of ewes per ram. Breeding policy in these respects is important for a number of reasons: firstly it determines the time of year at which the lamb crop becomes available for sale, be it the early fat lamb market from Easter onwards, or the autumn store lamb sales. Secondly one of the peak periods for labour requirements (i.e. lambing time) is determined once a decision on timing has been reached. Thirdly the ewe-ram ratio could be an important factor in determining the performance of the flock although surrounding this matter at the present time is a good deal of controversy.

Table 2.3, which shows a distribution of flocks in the sample according to flock size and main tupping date, illustrates time progression in tupping through lowland and upland to hill flocks. For example over 50 per cent of the lowland flocks had their main tupping periods before the end of September whilst in the hill flocks there was an equivalent figure of five per cent. There does appear to be a slight tendency towards later lambing of the larger flocks. In the case of hill flocks this tendency is probably due to the greater ease of lambing later in the year. Large hill flocks tend to be found on large hill farms with considerable rough grazings at high altitudes where the grazing season begins that much later, and so later lambing is a necessary feature of such farms.

Table 2.3

A Distribution of Flocks by Main Breeding Date of Ewes, Flock
Type and Flock Size

Flock Size Breeding Date	0 - 99		100 - 199		200 - 399		400 - 699		700+		All Flocks	
<u>Lowland Flocks</u>	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
August	11	22.9	6	25.0	2	11.8	1	11.1			20	19.6
September	19	39.6	6	25.0	6	35.3	3	33.3	1	25.0	35	34.3
October	14	29.1	11	45.8	9	52.9	5	55.6	3	75.0	42	41.2
November or later	2	4.2	1	4.2							3	2.9
Not stated	2	4.2									2	2.0
Total	48	100	24	100	17	100	9	100	4	100	102	100
<u>Upland Flocks</u>												
September	8	30.8	2	10.0	2	6.5	3	12.0	1	14.3	16	14.7
October	17	65.4	16	80.0	27	87.1	20	80.0	4	57.1	84	77.1
November or later	1	3.8	2	10.0	2	6.4	2	8.0	2	28.6	9	8.2
Not stated												
Total	26	100	20	100	31	100	25	100	7	100	109	100
<u>Hill Flocks</u>												
September	1	7.7	3	13.0			5	10.9	1	1.7	10	5.3
October	11	84.6	15	65.2	41	82.0	36	78.3	47	79.7	150	78.5
November or later	1	7.7	4	17.4	9	18.0	5	10.8	11	18.6	30	15.7
Not stated			1	4.4							1	0.5
Total	13	100	23	100	50	100	46	100	59	100	191	100
<u>Other Flocks</u>												
September			1	100	1	33.3			1	16.7	3	27.3
October	1	100			2	66.7			3	50.0	6	54.5
November or later									2	33.3	2	18.2
Not stated												
Total	1	100	1	100	3	100			6	100	11	100
<u>All Flocks</u>												
August	11	12.5	6	8.8	2	2.0	1	1.3			20	4.9
September	28	31.8	12	17.6	9	8.9	11	13.7	4	5.3	64	15.5
October	43	48.9	42	61.8	79	78.2	61	76.3	57	75.0	282	68.3
November or later	4	4.5	7	10.3	11	10.9	7	8.7	15	19.7	44	10.6
Not stated	2	2.3	1	1.5							3	0.7
Total	88	100	68	100	101	100	80	100	76	100	413	100

Table 2.4

A Distribution of Flocks by Breeding Date of Ewe Lambs, Flock Type
and Flock Size

Breeding Date	Flock Size		0 - 99		100 - 199		200 - 399		400 - 699		700+		All Flocks	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
<u>Lowland Flocks</u>														
August	3	6.3	1	4.2	1	5.9							5	4.9
September	5	10.4	2	8.3	1	5.9					1	25.0	9	8.8
October	4	8.3	6	25.0	5	29.4	5	55.6					20	19.6
November or later	4	8.3	3	12.5	2	11.8	1	11.1	1	11.1	1	25.0	11	10.8
Ewe Lambs not put to ram	11	22.9	1	4.2	2	11.7	1	11.1	1	11.1	2	50.0	17	16.7
No Ewe Lambs	21	43.8	11	45.8	6	35.3	2	22.2					40	39.2
Total	48	100	24	100	17	100	9	100	4	100	102	100	102	100
<u>Upland Flocks</u>														
September	3	11.5									1	14.3	4	3.7
October	5	19.2	11	55.0	4	12.9	6	24.0					26	23.9
November or later	4	15.4			9	29.0	10	40.0	5	71.4			28	25.7
Ewe Lambs not put to ram	3	11.6	4	20.0	6	19.4	6	24.0					19	17.4
No Ewe Lambs	11	42.3	5	25.0	12	38.7	3	12.0	1	14.3			32	29.3
Total	26	100	20	100	31	100	25	100	7	100	109	100	109	100
<u>Hill Flocks</u>														
September	1	7.7	1	4.3									2	1.0
October	6	46.2	4	17.4	3	6.0	13	28.3	2	3.4			28	14.7
November or later			6	26.1	21	42.0	9	19.5	13	20.0			49	25.7
Ewe Lambs not put to ram	6	46.1	11	47.8	26	52.0	24	52.2	44	74.6			111	58.1
No Ewe Lambs			1	4.4									1	0.5
Total	13	100	23	100	50	100	46	100	59	100	191	100	191	100
<u>Other Flocks</u>														
September														
October					1	33.3					1	16.7	2	18.2
November or later	1	100									3	50.0	4	36.4
Ewe Lambs not put to ram			1	100	1	33.4					2	33.3	4	36.3
No Ewe Lambs					1	33.3							1	9.1
Total	1	100	1	100	3	100			6	100	11	100	11	100
<u>All Flocks</u>														
August	3	3.4	1	1.5	1	1.0							5	1.2
September	9	10.2	3	4.4	1	1.0					2	2.6	15	3.6
October	15	17.1	21	30.9	13	12.9	24	30.0	3	4.0			76	18.4
November or later	9	10.2	9	13.2	32	31.7	20	25.0	22	28.9			92	22.3
Ewe Lambs not put to ram	20	22.7	17	25.0	35	34.6	31	38.8	48	63.2			151	36.6
No Ewe Lambs	32	36.4	17	25.0	19	18.8	5	6.2	1	1.3			74	17.9
Total	88	100	68	100	101	100	80	100	76	100	413	100	413	100

It also emerges that the date of tugging for any ewe lambs in the flock is generally later than for the main ewe flock, presumably to allow for increased growth of such ewes and enhance their condition from tugging through to lambing and beyond. In lowland flocks, where purchased replacements are most important, a high proportion carried no ewe lambs. The proportion of flocks with ewe lambs not put to the ram was highest amongst the hill flocks (58 per cent of flocks).

The average number of ewes per ram throughout the national flock is reckoned to be somewhere between 30 and 40. According to the results of this survey the mean is at the top end of that range. However the variation in numbers was considerable, ranging from over 50 per cent of the smallest lowland flocks having less than 30 ewes per ram to 10 per cent of the largest hill flocks. A clear relationship between the size of flock and number of ewes per ram appears therefore to exist. This coincides with a tendency for lambing rates, as will be seen later, to increase as flock size decreases, which allows for the possibility of a relationship between ewes per ram and the lambing rate.

Table 2.5

A Distribution of Flocks by the Number of Ewes per Ram, Flock Type
and Flock Size

Flock Size Ewes per Ram	0 - 99		100 - 199		200 - 399		400 - 699		700+		All Flocks	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
<u>Lowland Flocks</u>												
20 and under	15	31.2									15	14.7
21 - 30	13	27.1	3	12.5							16	15.7
31 - 40	9	18.8	7	29.2	5	29.4	4	44.4	1	25.0	26	25.5
41 - 50	9	18.8	9	37.5	8	47.1	5	55.6	2	50.0	33	32.3
50 and over	2	4.1	5	20.8	4	23.5			1	25.0	12	11.8
Total	48	100	24	100	17	100	9	100	4	100	102	100
<u>Upland Flocks</u>												
20 and under	4	15.4	1	5.0							5	4.6
21 - 30	10	38.5									10	9.2
31 - 40	5	19.2	9	45.0	9	29.0	3	12.0			26	23.8
41 - 50	6	23.1	7	35.0	13	41.9	14	56.0	7	100	47	43.1
50 and over	1	3.8	3	15.0	9	29.1	8	32.0			21	19.3
Total	26	100	20	100	31	100	25	100	7	100	109	100
<u>Hill Flocks</u>												
20 and under	1	7.7	1	4.3	1	2.0			1	1.7	4	2.1
21 - 30	2	15.4	1	4.3	4	8.0	3	6.5	5	8.5	15	7.9
31 - 40	6	46.1	9	39.2	7	14.0	9	19.6	19	32.2	50	26.2
41 - 50	4	30.8	7	30.5	25	50.0	22	47.8	21	35.6	79	41.3
50 and over			5	21.7	13	26.0	12	26.1	13	22.0	43	22.5
Total	13	100	23	100	50	100	46	100	59	100	191	100
<u>Other Flocks</u>												
20 and under												
21 - 30												
31 - 40												
41 - 50	1	100			1	33.3			1	16.7	2	18.2
50 and over			1	100	1	33.3			3	50.0	5	45.4
Total	1	100	1	100	3	100			6	100	11	100
<u>All Flocks</u>												
20 and under	20	22.7	2	2.9	1	1.0			1	1.3	24	5.8
21 - 30	25	28.4	4	5.9	4	4.0	3	3.8	5	6.6	41	9.9
31 - 40	20	22.7	25	36.8	22	21.8	16	20.0	21	27.6	104	25.2
41 - 50	20	22.8	23	33.8	47	46.5	41	51.2	33	43.4	164	39.7
50 and over	3	3.4	14	20.6	27	26.7	20	25.0	16	21.1	80	19.4
Total	88	100	68	100	101	100	80	100	76	100	413	100

Chapter Three

1. Winter Housing

In sheep production, as in all other activities, inflation has a significant bearing on profitability; one needs continually to seek for ways of combatting the adverse effect of rising input prices especially if output prices are not rising accordingly. The physical and economic conditions under which lowland and hill sheep farmers operate, however, are so diverse that the importance of winter housing as a possible long-term cost-cutting measure is probably greater in the case of the latter. On lowland farms winter housing is much more likely to be used as an aid to management before, during and after lambing, thereby making lambing at any time of the year a real possibility.

The question of winter housing for hill flocks is a different matter; many hill farmers have a very low ratio of inbye to rough-grazing, limiting severely the amount of winter fodder that can be gathered. It has been a very common practice, in the light of these circumstances, for hill farmers to away winter their ewe replacements on lowland farms. As well as easing the fodder situation it ensures that the sheep return to the farm in a strong and healthy condition ready for tuppung the following autumn. In recent years not only has the cost of winter tack risen considerably but its availability has also decreased. In an attempt to overcome this problem some

have seriously considered winter housing as an alternative to away-wintering.

It was thought prudent, therefore, to refer to the issue in the present survey. In including questions about winter housing on the farm it was not intended to measure the number of flocks housed at night only or for a few days at lambing time; rather, those flocks which were housed for a number of weeks, or months, through the winter. This qualification reduced the number of positive responses to the question by a considerable amount. Only 21 out of a total of 413 farmers who provided satisfactory replies in-wintered sheep for several or more weeks at a time. In relation to regional variation Glamorgan and Montgomery produced the highest numbers of positive replies, one quarter of all respondents in the case of the former. Concentration, in respect of flock size, is at either end of the scale, suggesting the large scale sheep specialists at the one end, and small lowland flocks at the other where existing buildings are utilized. It is clear that converted buildings are the most popular choice by farmers who in-winter some or all ewes. This is only to be expected as the cost of constructing new buildings is high and would hardly show a worthwhile return. The only four specially constructed buildings were on hill farms each with 700 ewes or more.

Table 3.1

A Distribution of Housed Flocks by Building Type
and Flock Size

No. of Flocks

Flock Size Building Type	0-99	100-199	200-399	400-699	700+	All Flocks
Specially Built	-	-	-	-	4	4
Converted	6	2	2	2	1	13
Partly in Both	-	-	-	-	2	2
Not Stated	-	-	-	1	1	2
Total	6	2	2	3	8	21

No doubt the aim on these farms was to save on the away wintering bill, the saving that could be expected being estimated to be large and to economically justify the investment. In two of the four above mentioned cases the number of sheep housed corresponds exactly with the number of ewe lambs in the flock, and one of the other two had housing facilities large enough to accommodate almost 50 per cent of the flock.

Table 3.2

A Distribution of Housed Flocks by Flock Size
and Flock Type

No. of Flocks

Flock Size Flock Type	0-99	100-199	200-399	400-699	700+	All Flocks
Lowland	5	2	-	-	-	7
Upland	-	-	-	2	-	2
Hill	1	-	1	1	6	9
Other	-	-	1	-	2	3
Total	6	2	2	3	8	21

In view of the high cost of buildings every opportunity should be taken of making use of the buildings when they are not required for sheep.

In reply to the question on the use made of the housing in summer, four respondents stated that no use at all was made of them. A variety of other uses were recorded; however only one listed another livestock enterprise, namely poultry.

Table 3.3

A Distribution of Housed Flocks by Capacity of House and
Flock Type

No. of Flocks

Housing Capacity- No. of ewes	Not stated	1-49	50-99	100-199	200+	All Flocks
Flock Type						
Lowland	1	3	2	1	-	7
Upland	1	1	-	-	-	2
Hill	1	2	-	-	6	9
Other	-	-	-	-	3	3
Total	3	6	2	1	9	21

Table 3.4

A Distribution of Housed Flocks by Flock Size and Summer
Use of House

No. of Flocks

Flock Size	0-99	100-199	200-399	400-699	700+	All Flocks
Summer Use						
Sheep Shearing & Other Sheep Work	-	-	-	1	3	4
Machinery Shed	1	-	-	-	-	1
General Purpose	3	1	1	2	1	7
Hay Storage	1	-	-	-	-	1
Poultry & Hay Storage	1	-	-	-	-	1
Machinery Shed & Hay Storage	-	-	1	-	1	2
Other	-	1	-	1	2	4
Not Stated	-	-	-	-	1	1
Total	6	2	2	4	7	21

2. Shepherding

Of all the many aspects of any agricultural activity the human element, the quality of management and control, is the most difficult to consider and quantify. Management is of the utmost importance and has far-reaching consequences on flock performance and profitability. If the flock concerned is a lowland one then it needs to perform well in order to justify its existence among the other enterprises, whereas with a hill flock returns need to be good not only to provide an adequate income to meet living expenses but also to enable reinvestment in such items as additional housing, higher quality breeding stock, and land improvement.

Many factors other than management have considerable effect upon flock performance e.g. the climate, the availability of grass and fodder in any given year, and so on. A flock of sheep on a true hill farm can never be expected to match the performance, in terms of numbers of lambs born and reared, of a lowland flock.

Nevertheless it is equally true that hill flocks exhibit a wide range in lambing rates, varying from below 70 lambs reared per 100 breeding ewes up to occasionally above 120. It is therefore very likely that the standard of shepherding plays a significant if not dominant role in determining the standard of performance of both ewes and lambs. The great difficulty is that the quality of shepherding is a factor of production the effects of which are virtually impossible to measure in quantitative terms. There are no easily-determined criteria whereby the ability of the shepherd

may be measured. Good management though and a profitable sheep enterprise (given that the enterprise is not economically depressed in relation to other products) go hand in hand.

Table 3.5

A Distribution of Flocks by Type of Shepherding
and Type of Flock

Per cent of Flocks

Flock Type Type of Shepherding	Lowland	Upland	Hill	Other	Total
Farmer/Manager	81	83	75	55	78
Specialist Shepherd	3	2	2	27	3
General Farm Worker	6	6	7	9	7
Farmer and Wife	2	-	4	-	2
Farmer & Farm Worker	6	5	7	-	6
Other Family Workers	1	2	2	-	1
Farmer & Family Workers (except wife)	-	-	3	-	1
Other Combinations	-	1	-	9	1
Not Stated	1	1	-	-	1
Total	100	100	100	100	100

The only questions concerning shepherding, asked in the questionnaire, were concerned with who did most of the shepherding and whether any assistance was required (e.g. casual or contract labour) for lambing, dipping, shearing and any other sheep work. The replies to the first question showed that although the combinations of workers were varied, there was a very high degree of concentration within the farmer/manager category. Farmer-shepherding was by far the most important type amongst all groups except the 'other' flocks.

Table 3.6
Contract Work Carried Out According To Size
of Flock
Per cent of Flocks¹

Size of Flock Contract Operation	0-99	100-199	200-399	400-699	700+	All Flocks
Lambing	-	1	3	1	3	2
Dipping	9	15	18	9	11	12
Shearing	50	54	59	56	71	58
Other	1	4	7	5	8	5
No Contract	47	44	38	39	25	38
No Information	1	1	-	2	-	1
Total Flocks - No.	88	68	101	80	76	413

¹ The columns do not total 100 because many farmers utilised contract work for more than one job.

Another point concerning shepherding that needs to be made is that the degree of reliance on neighbours' assistance for certain tasks has long been a characteristic of hill and upland sheep farming. Farmer co-operation in gathering etc. is not as important now as it has been because of the fencing off of hill land that has taken place and the advent of contract shearing, even so it is still a distinguishing feature of farming in many parts of Wales.

The other question, concerning the use of contractors, was answered by all but four farmers; the results are presented in Tables 3.6 and 3.7. The task most commonly done on contract is shearing; in all types and size groups over 50 per cent of the flocks were shorn by contractors. Although not apparent from the tables below the number of times that dipping and shearing were recorded on the

same farm was considerable. The other operations listed include tailing, drenching and vaccinating, dagging and marking. These tables would indicate that the incidence of contract work increases with flock size which also ties in with the fact that the hill flocks had the lowest percentage recording 'no contract work done', as the average flock size of the hill flocks is greater than that of the lowland and upland flocks.

Table 3.7

Contract Work Carried Out According to Type
of Flock
Per cent of Flocks¹

Type of Flock Contract Operation	Lowland	Upland	Hill	Other	All Flocks
Lambing	1	1	3	-	2
Dipping	5	4	22	-	12
Shearing	55	54	61	73	58
Other	4	4	7	-	5
No Contract	42	44	34	27	38
No Information	1	1	1	-	1
Total Flocks - No.	102	109	191	11	413

¹The columns do not total 100 because many farmers utilized contract work for more than one job.

3. Autumn and Winter Feeding

The need for supplementary feeding in winter varies according to locality and from year to year. The survey shows that breeding ewes in 14 per cent of the lowland flocks compared with only 7 per

cent of the hill flocks were fed only grass during the winter months. Hay was a very important part of the winter diet. Nearly 60 per cent of all ewe flocks were fed hay with or without other foods; a similar percentage applied to concentrates.

In lowland flocks hay and concentrates were the most popular supplementary feed mix (25 per cent of flocks), whilst feed blocks, with either concentrates, hay or roots were fed to another 15 per cent of flocks within this category. Amongst upland flocks no particular combination showed prominence but this was not so with hill flocks. Here, feed blocks were, on average, given to 37 per cent of all flocks, but to as many as 48 per cent in the 100-199 size group. The popularity of feed blocks was considerable, and the substantial advertising campaigns conducted in the past appear to have been successful. As to the value of blocks in terms of sheep output it is impossible to make any objective assessment from the survey results. Conditions vary so much between areas that to draw any conclusion from them could be misleading.

There appears to be a trend towards increased usage of feed blocks as flock size increases. With sheep scattered over a wide area feeding is made relatively simple and speedy with blocks.

Table 3.8

A Distribution of Flocks by Size of Flock and Ewe Feeds in Autumn
and Winter

Percent of Flocks

Flock Size	0-99	100-199	200-399	400-699	700+	All Flocks
Feed						
<u>Lowland</u>						
Mainly Grazing	21	8	12	-	-	14
Hay	6	4	18	-	-	7
Concentrates	17	13	18	11	-	15
Hay & Concentrates	31	33	5	22	-	24
Concentrates or Hay or Roots/ & Blocks	13	8	18	45	25	16
Hay or Concentrates/ & Roots	3	21	12	22	50	15
Other	-	8	12	-	25	5
No Information	4	4	5	-	-	4
<u>Upland</u>						
Mainly Grazing	8	10	10	4	-	7
Hay	8	-	10	4	-	5
Concentrates	19	20	19	12	29	18
Hay & Concentrates	19	20	32	40	14	28
Concentrates or Hay or Roots/ & Blocks	19	15	6	20	43	17
Hay or Concentrates/ & Roots	4	20	23	12	-	14
Other	8	10	-	8	14	6
No Information	15	5	-	-	-	5
<u>Hill</u>						
Mainly Grazing	8	13	8	4	7	8
Hay	15	-	4	11	5	6
Concentrates	15	9	10	7	5	8
Blocks	8	4	12	11	13	11
Hay & Concentrates	8	35	12	15	19	17
Concentrates or Hay or Roots/ & Blocks	8	21	26	26	34	27
Hay or Concentrates/ & Roots	15	-	18	15	8	12
Other	8	9	6	4	7	6
No Information	15	9	4	7	2	5
<u>Other</u>						
Concentrates	-	-	33	-	17	18
Hay & Concentrates	-	100	-	-	33	27
Concentrates or Hay or Roots/ & Blocks	-	-	67	-	17	27
Hay & Roots	100	-	-	-	-	10
Other	-	-	-	-	33	18
<u>All Flocks</u>						
Mainly Grazing	15	10	9	4	5	9
Hay	8	1	8	7	4	6
Concentrates	17	13	15	9	8	13
Blocks	1	1	6	6	11	5
Hay & Concentrates	24	31	17	24	18	22
Concentrates or Hay or Roots/ & Blocks	14	15	19	26	33	21
Hay or Concentrates/ & Roots	9	13	18	15	9	13
Other	3	9	5	5	11	6
No Information	9	6	3	4	1	5

The 'All Flocks' section of the above table indicates that supplementary feeding was practised more frequently in the small flocks. Only six per cent of replies come into the 'Other' category; five per cent failed to reply to the question.

Table 3.9 is laid out similarly to the previous one but deals with autumn-winter feeding of fattening lambs. If there were no lambs available by autumn-winter such flocks were included in the group designated 'Lambs Already Sold'. Over a third of lowland flocks, a very high proportion as expected, come into this category.

Amongst the upland and hill flock categories fodder crops were of considerable significance. In nearly all of these cases rape was mentioned as being grazed by the lambs. It is a crop in widespread use in the Principality for the fattening of lambs, especially in association with the reseeded rough grazing when it is grown as a cover crop.

Table 3.9

A Distribution of Flocks by Size of Flock and Lamb Feed in Autumn
and Winter

Percent of Flocks

Flock Size	0-99	100-199	200-399	400-699	700+	All Flocks
<u>Feed</u>						
<u>Lowland</u>						
Mainly Grazing	37	21	18	11	50	28
Roots	2	-	-	22	-	3
Fodder Crops	-	13	-	22	25	6
Roots & Fodder Crops	-	4	-	-	-	1
Concentrates	2	-	6	-	-	2
Hay & Concentrates	-	-	6	-	-	1
Concentrates & Roots	-	4	-	11	25	3
Other	-	8	12	-	-	4
Lambs Already Sold	44	33	35	22	-	36
No Information	15	17	23	11	-	16
<u>Upland</u>						
Mainly Grazing	18	25	19	16	29	20
Roots	-	-	7	-	14	3
Fodder Crops	4	5	32	36	29	20
Roots & Fodder Crops	-	10	3	12	-	6
Concentrates	4	5	-	8	-	4
Hay & Concentrates	-	10	-	4	-	3
Concentrates & Roots	-	5	-	4	14	3
Other	-	10	13	16	-	9
Lambs Already Sold	54	15	16	-	-	20
No Information	19	15	10	4	14	12
<u>Hill</u>						
Mainly Grazing	23	26	22	13	12	17
Roots	-	-	-	2	-	-
Fodder Crops	-	26	38	39	44	36
Roots & Fodder Crops	-	-	4	11	5	5
Concentrates	-	-	2	2	2	2
Hay & Concentrates	-	4	-	2	2	2
Other	-	-	4	2	3	3
Lambs Already Sold	54	31	22	13	15	21
No Information	23	13	8	16	17	14
<u>Other</u>						
Mainly Grazing	100	100	33	-	-	27
Roots	-	-	-	-	17	9
Fodder Crops	-	-	33	-	33	27
Roots & Fodder Crops	-	-	-	-	17	9
Concentrates & Roots	-	-	33	-	17	19
No Information	-	-	-	-	17	9
<u>All Flocks</u>						
Mainly Grazing	31	25	21	14	14	21
Roots	1	-	2	4	3	2
Fodder	1	15	29	36	39	24
Roots & Fodder	-	4	3	10	7	5
Concentrates	2	2	2	4	1	2
Hay & Concentrates	-	4	1	2	1	1
Concentrates & Roots	-	3	1	3	4	2
Other	-	6	8	6	3	5
Lambs Already Sold	48	26	22	10	12	24
No Information	17	15	11	11	16	14

Chapter Four

Sheep Disposals

1. Lambing and Lamb Mortality Rates

The number of lambs reared per 100 breeding ewes is a vital element in the profitability of sheep production and the first table shows the results for the sample flocks both by size and type of flock. The range in this number was considerable over all the sample, and also between types of flocks. The differences between the lowland and upland flocks were not very marked however, except that a smaller proportion of upland flocks achieved a rearing percentage of over 150. The most marked difference is between these two types and the hill flocks; 15 per cent of the latter category had lambing rates of less than 80 per cent. Obviously the possibility for improving lambing percentages on many hill farms is considerable.

Lamb mortality rates here refer to the number of lambs which died after weaning and are expressed per 100 lambs weaned. There appears to be very little significant variation between flock types and sizes. In terms of possibilities for improvement there would appear to be some scope.

Table 4.1

A Distribution of Flocks By Lambing Rate¹, Flock Type and Flock Size

1973

Lambing Rate %	Flock Size		0 - 99		100 - 199		200 - 399		400 - 699		700+		All Flocks	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
<u>Lowland Flocks</u>														
60 - 99	12	25.0	2	8.3	5	17.6					1	25.0	18	17.6
100 - 149	25	52.1	16	66.7	13	76.5	6	66.7	6	66.7	2	50.0	62	60.8
150 and over	11	22.9	6	25.0	1	5.9	3	33.3	3	33.3	1	25.0	22	21.6
Total	48	100	24	100	17	100	9	100	9	100	4	100	102	100
<u>Upland Flocks</u>														
60 - 99	3	11.5	5	25.0	12	38.7	8	32.0	8	32.0	3	42.9	31	28.4
100 - 199	19	73.1	12	60.0	18	58.1	16	64.0	16	64.0	3	42.9	68	62.4
150 and over	4	15.4	3	15.0	1	3.2	1	4.0	1	4.0	1	14.2	10	9.2
Total	26	100	20	100	31	100	25	100	25	100	7	100	109	100
<u>Hill Flocks</u>														
40 - 79	1	7.7	4	17.4	2	4.0	8	17.4	8	17.4	13	22.1	28	14.6
80 - 99	8	61.5	10	43.5	25	50.0	25	54.3	25	54.3	32	54.2	100	52.4
100 - 149	4	30.8	9	39.1	23	46.0	13	28.3	13	28.3	14	23.7	63	33.0
Total	13	100	23	100	50	100	46	100	46	100	59	100	191	100
<u>Other Flocks</u>														
60 - 99					2	66.7					1	16.7	3	27.3
100 - 149	1	100.0	1	100.0	1	33.3					5	83.8	8	72.7
Total	1	100	1	100	3	100					6	100	11	100
<u>All Flocks</u>														
40 - 99	24	27.3	21	30.9	43	42.6	41	51.2	41	51.2	50	65.8	179	48.3
100 - 149	49	55.7	38	55.9	55	54.4	35	43.8	35	43.8	24	31.6	201	48.7
150 and over	15	17.0	9	13.2	3	3.0	4	5.0	4	5.0	2	2.6	33	8.0
Total	88	100	68	100	101	100	80	100	80	100	76	100	413	100

¹ Lambs Reared Per 100 Breeding Ewes.

Table 4.2

A Distribution of Flocks By Lamb Mortality Rates¹, Flock Type and Flock Size

Lamb Mortality Rate	Flock Size		0 - 99		100 - 199		200 - 399		400 - 699		700+		All Flocks	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
<u>Lowland Flocks</u>														
Under 1%	32	66.7	16	66.7	11	64.7	5	55.6	4	100	68	66.7		
1 - 5%	9	18.7	7	29.2	6	35.3	4	44.4			26	25.5		
Over 5%	7	14.6									7	6.8		
Not stated			1	4.1							1	1.0		
Total	48	100	24	100	17	100	9	100	4	100	102	100		
<u>Upland Flocks</u>														
Under 1%	15	57.7	16	80.0	18	58.1	12	48.0	4	57.1	65	59.6		
1 - 5%	9	34.6	3	15.0	11	35.5	12	48.0	3	42.9	38	34.9		
Over 5%	2	7.7	1	5.0	1	3.2					4	3.7		
Not stated					1	3.2	1	4.0			2	1.8		
Total	26	100	20	100	31	100	25	100	7	100	109	100		
<u>Hill Flocks</u>														
Under 1%	8	61.5	12	52.2	30	60.0	22	47.8	34	57.6	106	55.5		
1 - 5%	2	15.4	9	39.1	15	30.0	22	47.8	19	32.2	67	35.1		
Over 5%	2	15.4	2	8.7	4	8.0	1	2.2	2	3.4	11	5.7		
Not stated	1	7.7			1	2.0	1	2.2	4	6.8	7	3.7		
Total	13	100	23	100	50	100	46	100	59	100	191	100		
<u>Other Flocks</u>														
Under 1%	1	100							4	66.6	5	45.5		
1 - 5%					3	100			1	16.7	4	36.3		
Over 5%														
Not stated			1	100					1	16.7	2	18.2		
Total	1	100	1	100	3	100			6	100	11	100		
<u>All Flocks</u>														
Under 1%	56	63.6	44	64.7	59	58.4	39	48.8	46	60.5	244	59.1		
1 - 5%	20	22.7	19	28.0	35	34.7	38	47.5	23	30.3	135	32.7		
Over 5%	11	12.5	3	4.4	5	4.9	1	1.2	2	2.6	22	5.3		
Not stated	1	1.2	2	2.9	2	2.0	2	2.5	5	6.6	12	2.9		
Total	88	100	68	100	101	100	80	100	76	100	413	100		

¹ Per 100 Lambs Weaned.

2. Disposal of the 1973 Lamb Crop

This section examines the various ways in which the lambs reared in 1973 were utilised. Flocks have been allocated to six different groups depending on the predominant output from the flock. The criteria for allocating flocks between groups are as follows:-

Early Fat Lamb	-	more than 50 per cent of lambs sold fat before the end of June
Fat Lamb	-	more than 50 per cent of lambs sold fat between the end of June and the end of December
Fat Hoggett	-	more than 50 per cent of lambs sold fat after the end of December
Store Lamb	-	more than 50 per cent of lambs sold store
Breeding Lamb	-	more than 50 per cent of lambs sold/retained for breeding
Mixed	-	those flocks which do not fit into any of the above

A relationship between the above classification and lowland, upland, or hill flocks was expected; for example that most of the 'Early Fat Lamb' flocks are lowland flocks, and that most of the 'Store Lamb' flocks are on the hills. However, to a certain extent production patterns have changed in recent years; whereas previously traditional outputs from hill farms were store lambs, and wethers sold at varying ages, more recently there has been a shift towards the production of an increased proportion of fat lambs on these farms. Wethers are now very uncommon whilst store lambs for sale are being

replaced by lambs finished on the hill unit, in many cases on rape grown either on the arable section of the farm, or associated with hill land improvement. The change referred to has had significant effects upon the sheep industry. Those hill farmers who have been able to fatten more of their lambs make themselves less subject to fluctuations in the store lamb market and provide themselves with higher profit margins.

This change in practice has also had effects in other areas of farm policy. For example, many hill sheep producers, when increasing the proportion of lambs finished, changed their replacement policy as well. Instead of retaining ewes for not more than three years in the breeding flock, now many are being retained until they are no longer of any value for breeding, thus ensuring their presence in the flock at the most prolific period of their lives. If the changeover to disposing of the ewes at a much older age takes place on a large scale the annual movement of breeding stock from the hills and uplands to the lowlands could be seriously reduced.

Table 4.3 shows the distribution of flocks according to the predominant lamb output within the flock. What is immediately apparent is the predominance of early fat lamb production on almost one-quarter of lowland farms.

It is interesting to note that roughly the same proportion of upland flocks are classified as fat lamb producers (of one type or another)

Table 4.3

A Distribution of All Flocks According to the Predominant Lamb OutputPercent of Flocks

<u>Flock Size</u>	<u>0 - 99</u>	<u>100 - 199</u>	<u>200 - 399</u>	<u>400 - 699</u>	<u>700+</u>	<u>All Flocks</u>
<u>Main Lamb Output</u>						
<u>No. of Flocks - Lowland</u>	48	24	17	9	4	102
Early Fat Lamb	31	25	12	-	-	23
Fat Lamb	33	58	59	67	75	48
Fat Hogget	-	4	12	-	-	3
Store Lamb	2	-	-	-	-	1
Breeding Lamb	9	-	-	-	-	4
Mixed	25	13	17	33	25	21
<u>Total</u>	100	100	100	100	100	100
<u>No. of Flocks - Upland</u>	26	20	31	25	7	109
Early Fat Lamb	11	5	3	4	-	5
Fat Lamb	58	80	65	68	86	68
Fat Hogget	-	-	-	-	-	-
Store Lamb	19	10	19	4	-	13
Breeding Lamb	4	-	3	4	-	3
Mixed	8	5	10	20	14	11
<u>Total</u>	100	100	100	100	100	100
<u>No. of Flocks - Hill</u>	13	23	50	46	59	191
Early Fat Lamb	-	-	-	-	-	-
Fat Lamb	62	39	70	61	59	60
Fat Hogget	-	-	-	-	-	-
Store Lamb	15	30	8	9	5	11
Breeding Lamb	8	18	10	6	17	12
Mixed	15	13	12	24	19	17
<u>Total</u>	100	100	100	100	100	100
<u>No. of Flocks - Other</u>	1	1	3	-	6	11
Fat Lamb	100	100	100	-	100	100
<u>Total</u>	100	100	100	100	100	100
<u>No. of Flocks - All Flocks</u>	88	68	101	80	76	413
Early Fat Lamb	21	10	3	1	-	7
Fat Lamb	45	59	67	64	66	60
Fat Hogget	-	2	2	-	-	1
Store Lamb	9	13	10	6	4	9
Breeding Lamb	7	6	6	5	13	7
Mixed	18	10	12	24	17	16

as lowland flocks. Another comparison worthy of mention is that of the proportion of flocks classified as being primarily store lamb producers. 'Store lamb' flocks are more significant in the upland category than amongst the hill flocks which is rather unexpected since the latter are generally situated at higher elevations and therefore in more rigorous conditions. Many of the hill farms that would otherwise have been classified as producing mainly store lambs have been included in the 'breeding lamb' category because the lambs retained and the breeding lambs sold have equalled more than 50 per cent of the total lamb crop.

The eleven 'other' flocks were all primarily producers of fat lambs, according to the definition applied; in fact they accounted for 7 per cent of total fat lambs sold in the sample, although constituting only 2.5 per cent of the farms. In most cases, the 'other' flocks consisted of two flocks per farm, run on separate holdings but presumably with the possibility of transferring lambs for sale from the hill to the lowland area for finishing. The opportunity to do this solves many of the problems traditionally associated with hill farming; for example that of having to rely upon the vagaries of the store market because of the lack of land of a quality good enough to finish stock. The acquisition, by hill farmers, of a lowland holding, either by purchase, tenancy, or by cooperating with a lowland farmer, must bring considerable long term benefits.

Table 4.4

Disposal of Lamb Crops By Flock TypePercent of Lambs

Flock Type	Lowland	Upland	Hill	Other	All Flocks
Lamb Disposals					
Fat Lambs - to end of May	11	-	-	4	2
- June to August	43	16	9	21	16
- Sept & October	18	25	18	23	20
- Nov & December	8	27	21	25	21
Total Fat Lambs	80	68	48	73	59
Fat Hoggets - January & later	9	5	3	7	5
Total Fat Lambs (including Hoggets)	89	73	51	80	64
Store Lambs - to end of August	0.5	3	8	1	5
- September & later	1	5	5	-	4
Total Store Lambs	1.5	8	13	1	9
Lambs Sold for Breeding	2	5	3	1	3
Lambs Retained for Breeding	7	14	32	17	23
Other Lambs	0.5	-	1	1	1
Total	100	100	100	100	100

Table 4.4 shows, for each type of flock, the disposal of the lamb crop by, main type of output, time of sale, and flock type. This shows clearer trends than the previous table. Over 50 per cent of the lambs produced on lowland farms were disposed of by the end of August, ready for slaughter; the corresponding figure for the hill flocks is under 10 per cent. Nearly 90 per cent of the lowland lamb crop

reared is sold fat and just over 7 per cent retained for breeding whilst in the hill flock a little in excess of 50 per cent is sold fat, the majority from September to December, and over 30 per cent is retained for breeding. The contrast here is therefore quite considerable and again illustrates clearly the conditions under which the average hill farmer operates; namely fairly late lambing due to the harsh weather conditions, leading to lambs being sold later, and a high replacement rate of the breeding flock.

The proportion of lambs sold in a store condition from hill flocks is obviously higher than that for the other flock types, at nearly 13 per cent of total lambs reared, but in relation to the proportion of lambs sold fat it is not substantial.

Table 4.5
Store Lambs Purchased for Fattening By
Type of Flock

	Lowland	Upland	Hill	Other	All Flocks
No. of farms purchasing store lambs	23	14	12	6	55
% of total farms	23	13	6	55	13
Lambs purchased per flock	101	181	97	540	168
% purchased -					
to end of August	54	25	14	20	29
September and later	46	75	86	80	71
% of purchased lambs sold in -					
September, October	19	1	-	3	6
November, December	56	87	100	43	66
January and later	25	12	-	54	28

The above table illustrates the importance and timing of purchasing store lambs and selling them. Its incidence overall was not very great, but as would be expected, it was most important in the lowland flocks and least in the hill sector. The six 'other' flocks had, on average, 540 lambs purchased per flock, which had the effect of raising the overall average number purchased per flock. Again, the reason for this is most probably the better land available along with the larger size of unit associated with over 50 per cent of these flocks. With regard to the time of purchasing of lambs, a higher proportion of lowland farms purchased before the end of August, but relatively few hill farmers purchased before that time. The earlier harvesting on lowland farms no doubt explains this situation.

Sale periods follow a similar pattern although that for lowland flocks is more drawn out than for the others probably because of the extended growing season.

3. Method of Sale of Fat Lambs

We now turn to the next item included on the questionnaire, namely the method of sale of fat lambs. Five possible methods were listed: auction, group or cooperative, meat wholesaler, local butcher, and other. The respondent was asked to list the number of fat lambs disposed of by each of these methods. In the past the pattern in Wales has been for the auction mart to handle the majority of total throughput; however, in recent

years, this outlet has been subjected to competition from other agencies in the form of wholesale meat companies, (the premier example being F.M.C.), and groups and cooperatives which have been increasing in number with varying degrees of success, depending on the state of the market in any particular year. It is therefore interesting to see what proportions of the market were captured by each type of marketing outlet in 1973, and examine the statistics to see if there are any significant differences according to flock type, flock size and geographical location..

Table 4.6

A Distribution of Fat Lambs Sold, By Methods
of Sale of Fat Lambs, and By Flock Type

Percent of Fat Lambs

Outlet	Flock Type				All Lambs
	Lowland	Upland	Hill	Other	
Auction	56	73	55	56	60
Group or Cooperative	6	5	7	-	6
Meat Wholesaler	20	13	29	29	23
Local Butcher	3	1	3	6	3
Other (e.g. dealer)	15	8	6	9	8
Total	100	100	100	100	100

The main point to emerge from the table above is that the auction market is still the most important outlet for each flock type. The upland flocks appear to dispose of more of their fat lambs by auction than do other types of flocks and less via meat wholesalers; however, apart from this, there is little variation. This seems to suggest that

geographical location, and flock size may have more influence on method of marketing than has type of flock.

The survey of livestock marketing in Wales, referred to previously and carried out by this Department in 1970 showed that 56 per cent of fat sheep and lambs were disposed of via the auction market, 2 per cent through groups or cooperatives, 23 per cent to wholesalers and processors, 12 per cent direct to butchers, and 7 per cent to dealers. These figures are not strictly comparable with those of the current survey as they included fat ewes. This means, however, that the difference between the two percentages is even greater. Groups and coops appear to have made ground between 1969 and 1973, whilst meat wholesalers have held their ground. The proportion of lambs sold direct to butchers has dropped considerably, and if dealers constitute the major part of the 'other' category then this has remained fairly constant.

Turning to regional variation, there appear to be some definite differences although the figures for Flint, for which few flocks were sampled, need to be treated with extreme caution. The auction market is very important as an outlet in North Wales, apart from Anglesey. In Caernarvon the local butcher took 18 per cent of fat lambs. Anglesey stands out in comparison with the other counties in that a large proportion of its total fat lambs (45 per cent) is sold through 'other' outlets, presumably dealers. Meat wholesalers are very successful in Mid and S.W. Wales where Cardiganshire and Pembrokeshire

stand out predominantly as major areas for selling through meat wholesalers, but where group marketing has gained especially in recent years.

Table 4.7

A Distribution of Fat Lambs Sold By Method
of Sale and By County

Per cent of Fat Lambs

County \ Outlet	Auction	Group or Coop	Meat Wholesaler	Local Butcher	Other	Total
Anglesey	42	8	5	-	45	100
Brecon	78	2	20	-	-	100
Caernarvon	69	-	5	18	8	100
Cardigan	14	25	40	2	19	100
Carmarthen	62	6	10	3	19	100
Denbigh	82	1	10	-	7	100
Flint	99	-	1	-	-	100
Glamorgan	61	3	26	10	-	100
Merioneth	45	5	41	7	2	100
Monmouth	58	7	21	-	14	100
Montgomery	59	-	37	1	3	100
Pembroke	19	21	60	-	-	100
Radnor	58	14	17	-	11	100
Wales	60	6	23	3	8	100

Radnorshire is also important for groups with 14 per cent of total sales but here the auction is much more important than meat wholesalers.

In concluding this section, the background to sheep sales in 1973, the period covered by the survey, should be described. On 1st

January 1973 Britain entered the E.E.C.; great optimism was expressed over the future of red meats and the price of beef and lamb were held at high prices throughout the year. Farmers were therefore probably more attracted to the auction market than to the other outlets because of the higher returns from the former. Although the organization of cooperatives involves the signing of contracts the incidence of farmers breaking their agreements is high, especially in a year like 1973 when prices in auction markets were higher. The same sort of circumstances would apply to meat wholesalers whose prices are less flexible than those of the auction. It is probably true, then, that in 1973 the proportion of lambs disposed of via the auction was higher than in a less buoyant year with respect to prices, to the extent that in 1974 the proportion of lambs disposed of through groups and meat wholesalers could have been much higher than in 1973. Nevertheless it is true that the auction market accounted for more lambs than all the other outlets put together and that this situation is likely to continue for many years to come.

An interesting question arising is - does the size of flock i.e., number of lambs available for sale, affect the farmer's choice of outlet? In an attempt to answer this question Table 4.8 lists the proportions of lambs sold in the five outlets according to size of flock. The auction market attracts roughly similar proportions from all size-groups apart from the largest which sells rather a smaller proportion. The proportion going to meat wholesalers rises

steadily with flock size - from 13 per cent in the smallest size group to 28 per cent in the largest. What are the reasons for this? The larger flockmasters, having greater numbers of lambs to dispose of, may be more concerned to dispose of their lambs quickly and easily and so find the meat wholesalers the most attractive outlet. There seems to be little relation between flock size and the importance of groups and cooperatives.

Table 4.8

A Distribution of Fat Lambs Sold By Method of Sale and By Size of Flock.

Percent of Fat Lambs

Outlet \ Flock Size	Flock Size					All Flocks
	0-99	100-199	200-399	400-699	700+	
Auction	66	66	67	64	53	60
Group or Coop	10	6	6	8	4	6
Meat Wholesalers	13	16	17	22	28	23
Local Butchers	4	3	4	2	3	3
Other	7	9	6	4	12	8
Total	100	100	100	100	100	100

4. Disposal of Ewes

The number of lambs retained for breeding by flock type have already been shown in Table 4.4. The proportion of the lamb crop retained by hill flocks was over four times, and the upland flocks, twice that of the lowland flocks. This does not imply that only 7 per cent of

the lowland flock or 14 per cent of the upland flock is replaced annually because many farmers buy in replacements. Those flocks in receipt of the supplementary rate of hill sheep subsidy are bound by the conditions of payment to ensure that the flock is self-replenishing and composed of recognised hill breeds; the figure for such flocks then, is an accurate measurement of the replacement rate.

If the flock size is being maintained then the number of sheep brought into the flock should be roughly equal to the number of ewes that died and were sold. Table 4.9 shows numbers of sheep sold, and lost through death, by size of flock and by type of flock. Important distinctions emerge between flock types as can be seen in the "All Flocks" column. The number of ewes sold as a proportion of the total flock averaged 22 per cent for all types except the "Other" flocks. However the lowland flocks sold 18 per cent for slaughter and 41 per cent for breeding whilst the hill flocks sold 4 per cent for slaughter and 18 per cent for breeding, with upland flocks in between these two extremes. Surprisingly average mortality rates did not vary significantly between flock types, that for lowland flocks being slightly higher than those in the upland and hill flocks. One might have expected mortality rates to increase with flock size but this is not so. Generally there is no significant trend except that the very small flocks in this respect do worse than the others. Possibly this is due to the small flock owners being less specialist and so lacking in the degree of skill possessed by the larger flock masters.

Table 4.9

Ewe Disposals by Flock Type and Flock Size

Flock Size	0-99	100-199	200-399	400-699	700+	All Flocks
<u>Lowland Flocks</u>						
No. of Flocks	48	24	17	9	4	102
Size of Farm (acres)	72	147	206	464	479	163
Size of Flock	44	141	256	483	914	175
Ewes Sold Fat %	18	17	23	17	14	18
Ewes Sold for Breeding %	5	14	1	3	-	4
Ewes Sold - Total %	23	31	24	20	14	22
Ewe Mortality %	3.7	3.3	3.1	3.4	3.3	3.4
Ewe Disposals - Total %	27	34	27	23	17	25
<u>Upland Flocks</u>						
No. of Flocks	26	20	31	25	7	109
Size of Farm (acres)	57	130	167	323	790	210
Size of Flock	55	141	266	510	1043	299
Ewes Sold Fat %	16	10	15	13	10	13
Ewes Sold for Breeding %	4	8	3	10	16	9
Ewes Sold - Total %	20	18	18	23	26	22
Ewe Mortality %	3.8	3.5	3.3	3.4	2.3	3.2
Ewe Disposals - Total %	24	22	21	26	28	25
<u>Hill Flocks</u>						
No. of Flocks	13	23	50	46	59	191
Size of Farm (acres)	43	125	201	380	953	456
Size of Flock	60	151	298	520	1080	559
Ewes Sold Fat %	3	2	4	6	4	4
Ewes Sold for Breeding %	24	22	19	18	17	18
Ewes Sold - Total %	27	24	23	24	21	22
Ewe Mortality %	4.5	2.6	3.4	3.0	3.2	3.2
Ewe Disposals - Total %	32	27	26	27	24	25
<u>Other Flocks</u>						
No. of Flocks	1	1	3	-	6	11
Size of Farm (acres)	75	116	345	-	909	607
Size of Flock	85	178	363	-	1235	714
Ewes Sold Fat %	12	10	5	-	11	10
Ewes Sold for Breeding %	12	-	12	-	17	16
Ewes Sold - Total %	24	10	17	-	28	26
Ewe Mortality %	2.4	3.9	4.7	-	4.4	4.4
Ewe Disposals - Total %	26	14	22	-	32	30

Chapter Five

Aspects of Hill, Upland and Lowland Flock Management, and Future Intentions

1. Hill and Upland Flock Management

For reasons already given, hill and upland flocks warrant special attention, and therefore the last two pages of the questionnaire were allocated to questions specifically devoted to aspects of management of these categories of flocks. Environmental conditions forced upon the hills a way of farming different from all others, and it is some of these issues that are examined in this section.

The hills and uplands of Wales occupy a large percentage of the total agricultural area; rough grazings alone (solely occupied and common) account for 37 per cent. Although hill farming is more important in some parts of Wales than others, varying proportions of land qualifying for the hill sheep subsidy are found in all the old counties except Anglesey. This is made clear by Table 5.4 which shows that the proportion of rough grazings to total agricultural area varies from as much as 70 per cent in Merioneth to only 18 per cent in Monmouth.

a) Autumn-Winter flock management

On most hill farms the ewe flock, which in part or wholly may have been grazing on the hill in summer and autumn, has to be brought down

some time prior to lambing in the spring. On some farms part of the flock is wintered on a lowland farm, a practice which, wherever and whenever possible, eases the stocking problem on the hill farm, and considerably improves the condition of the ewes for lambing the following spring, or possibly the spring after.

The practice of away wintering some of the breeding flock, especially the ewe lambs, is a traditional practice on many hill farms and is far more common than the more recently introduced practice of in-wintering on the farm itself. The cost of agistment, as it is called, has increased substantially in recent years, probably averaging £3. 50 or £4 per head for ewe lambs over a five to six month period from October-November through to March-April in the winter of 1974-75. A farmer with 1,000 ewes and a replacement rate of 30 per cent could be away wintering up to 300 ewe lambs costing around £1,200. It is by no means cheap, and certainly needs to be examined closely to ensure that it is the most economic way of organising flock management in winter.

Table 5.1 shows the distribution of flocks according to the time when the ewes were brought down from the hill. Many upland farms had no rough grazings at all and so contributed to the 40 per cent of upland flocks not grazing on the hill. A large proportion of hill flocks stayed on the hill until the beginning of the year; nearly 21 per cent of the flocks were brought down in March or later and 6 per cent of flocks lambed on the hill. The keeping of the flock on the

rough grazings until just before lambing is forced upon many farmers by the shortage of winter pasture at lower levels.

Table 5.1

A Distribution of Upland and Hill Flocks
in the Sample By Date of Transfer from Hills and by
Flock Size

Percent of Flocks

Flock Size	0- 99	100-199	200-399	400-699	700+	All Flocks
<u>Upland Flocks</u>						
December or earlier	15	15	7	4	-	9
January	15	5	3	24	14	12
February	4	5	22	8	-	10
March or later	8	10	26	32	14	19
Never on hill	46	45	35	28	43	39
Not stated	12	20	7	4	29	11
Total	100	100	100	100	100	100
<u>Hill Flocks</u>						
December or earlier	31	17	24	24	19	22
January	31	26	18	24	22	23
February	23	26	14	15	19	18
March or later	-	9	24	26	24	21
Lambing on hill	8	4	6	2	10	6
Never on hill	7	9	8	7	3	6
Not stated	-	9	6	2	3	4
Total	100	100	100	100	100	100

The practice of bringing flocks down early is much more common amongst small flocks than the larger ones. This could be because the smaller flocks tend to lamb earlier than the larger ones or because of the higher proportion of better land associated with smaller flocks and smaller farms. There is no consistent relationship between the proportion of flocks lambed on the hill and flock size. The highest proportion was found amongst the largest flocks, but even in this case the average was only just over 10 per cent; the largest flocks are usually found on the largest farms and since these tend to have the highest proportion of rough grazings a larger proportion of lambing taking place on the hill would have been expected.

The incidence of away wintering is given below in Table 5.2. It is not surprising to find that it is a much more common practice amongst hill farmers than upland, since the latter have a higher proportion of better land. One in 8 or 9 upland farmers in the sample sent breeding sheep away over the winter period, whilst the corresponding figure for hill farmers was nearly one in two. For both farm types there is an obvious direct relationship between the extent of away-wintering and flock size, but more especially amongst the hill flocks; here, 7 per cent of farmers in the smallest size group sent sheep away and 79 per cent in the largest. One may conclude from this that up to and including the winter of 1973-74 the away wintering of breeding sheep was of major significance in hill and upland flock management in Wales, and that despite the

substantial increases in the charges, hill farmers can find no competitive alternative. It is surprising that the number of ewes away wintered per flock in the hill section is negligible overall. The average number of ewe lambs away-wintered per hill

Table 5.2

The Away Wintering of Sheep by Flock Type and Size

Size of Flock	0-99	100-199	200-399	400-699	700+	All Flocks
<u>Upland Flocks</u>						
Size of Flock	55	141	266	510	1043	299
Proportion of Flocks with Sheep Away-Wintered %	8	-	10	16	43	12
No. of Breeding Ewes per Flock Away-Wintered	-	-	30	6	157	49
No. of Ewe Lambs per Flock Away-Wintered	17	-	27	169	225	122
<u>Hill Flocks</u>						
Size of Flock	60	151	298	520	1080	559
Proportion of Flocks with Sheep Away-Wintered %	8	24	33	46	79	48
No. of Breeding Ewes per Flock Away-Wintered	-	-	12	12	55	33
No. of Ewe Lambs per Flock Away-Wintered	40	46	88	106	272	184

flock is much higher and illustrates the policy, commonly adopted on hill farms, of not tuppung sheep until they are 18 months old, allowing them to build up strength and resources for future breeding by wintering

them in a much more favourable environment. In the largest flocks, those of 700 ewes and over, the number of ewe lamb replacements per flock that were away wintered was 272. These represent approximately 80 per cent of the total ewe lamb replacements in such flocks.

b) Stocking Rates

Turning now to stocking densities and the relative importance of cattle on hill and upland farms Table 5.3 below lists some of the relevant measures. In drawing some comparisons and contrasts between the two flock types, firstly we see that, on average, the hill flocks are nearly twice the size of the upland flocks, hill farms (sole occupation only) just over twice as large, and the proportion of rough grazing on the former is about two thirds compared with one fifth for the upland farms. In consequence cattle are more important and sheep less so on the upland than on hill farms; in terms of livestock units cattle account for nearly 54 per cent of total stock on upland farms, on hill farms 41 per cent. The overall stocking rates are also much lower on hill farms, 26 livestock units per 100 actual acres as opposed to 51 on the upland farms. We see then a picture of greater intensity and a higher concentration of cattle on the upland farms.

Table 5.3

Sheep and Cattle Stocking Densities by Flock Size and Flock Type.

Size of Flock	0 - 99	100 - 199	200 - 399	400 - 699	700+	All Flocks
<u>Upland Flocks</u>						
No. of Flocks	26	20	31	25	7	109
Size of Flock	55	141	266	510	1043	299
Size of Farm - Acres	57	130	167	323	790	210
Proportion of Rough Grazing %	10	27	18	15	33	21
<u>Stocking Density</u>						
Sheep per 100 Actual Acres	98	108	160	158	132	143
Sheep per 100 Acres Rough Grazing	974	398	903	1075	405	684
Cattle (L.U.) per 100 Acres Crops & Grass	40	38	35	32	29	34
Sheep & Cattle (L.U.) per 100 Actual Acres	51	46	55	54	41	51
Sheep (L.U.) as a proportion of Total L.U.'s	31	39	48	49	53	46
<u>Hill Flocks</u>						
No. of Flocks	13	23	50	46	59	191
Size of Flock	60	151	298	520	1080	559
Size of Farm - Acres	43	125	201	380	953	456
Proportion of Rough Grazing %	18	46	43	54	78	68
<u>Stocking Density</u>						
Sheep per 100 Actual Acres	139	121	148	137	113	123
Sheep per 100 Acres Rough Grazing	770	264	348	255	145	181
Cattle (L.U.) per 100 Acres Crops & Grass	37	34	37	30	33	33
Sheep & Cattle (L.U.) per 100 Actual Acres	47	33	39	31	21	26
Sheep (L.U.) as a proportion of Total L.U.'s	35	45	47	55	66	59

c) Common Grazings - access and utilisation

The use of common grazings is an important feature of hill farming in Wales. These areas constitute as much as 11 per cent of the total agricultural area in the Principality. The importance of common grazings varies from county to county; for instance Brecon alone, the third largest county, has nearly 34 per cent of all common grazings in the Principality; whilst Cardiganshire, the fourth largest has only 1 per cent. These areas of common grazings, although extremely scattered and variable in amount, play a significant role in the hill farming economy. Between 35 and 40 per cent of flocks who provided replies to the question had access to common grazings, and about 90 per cent of these made use of them.

No assessment of the contribution of the common grazings to the overall farm grazing pattern was possible because periods of grazing were not asked for. The replies show, however, that of the upland farms utilising common grazings (21 in all) only two used them for cattle grazing, whilst the average number of sheep making use of the common grazings was 150 per farm. The mean flock size for these farms was 369 ewes; therefore, these figures suggest that about 40 per cent of ewes in the sampled flocks made use of common grazings.

Concerning the use made of common grazings by hill flocks, the total number of such flocks was 75, 11 of which grazed cattle on the commons. The mean size of hill flocks was 512 breeding ewes, whilst an average of 515 sheep per farm, made use of common grazings.

Table 5.4

Composition of the Total Agricultural Area in Wales by County,

June 1973.

	Total Holdings		Total Area (excl R.G.)		Total R.G. in Sole Occupation.		Total Area (incl. R.G. in Sole Occupation)		Total Area of Common R.G.		Total Area	
	No.	%	'000 acres	%	'000 acres	%	'000 acres	%	'000 acres	%	'000 acres	%
	Anglesey	1897	5.8	127.2	4.9	15.2	1.4	142.4	3.9	1.8	0.4	144.2
Brecon	1599	4.9	166.5	6.5	78.6	7.4	245.1	6.8	151.0	33.8	396.1	9.7
Caernarvon	2284	6.9	120.3	4.7	148.6	14.0	268.9	7.4	42.0	9.4	310.9	7.6
Cardigan	3344	10.2	240.4	9.4	120.6	11.4	361.0	9.9	4.6	1.0	365.6	9.0
Carmarthen	5303	16.1	370.8	14.4	66.5	6.3	437.3	12.1	28.6	6.4	465.9	11.4
Denbigh	2932	8.9	245.7	9.6	74.4	7.0	320.1	8.8	42.4	9.5	362.5	8.9
Flint	1645	5.0	109.3	4.3	8.2	0.8	117.5	3.2	1.8	0.4	119.3	2.9
Glamorgan	2434	7.4	184.9	7.2	79.5	7.5	264.4	7.3	39.4	8.8	303.8	7.5
Merioneth	1333	4.0	94.3	3.7	196.8	18.5	291.1	8.0	26.5	5.9	317.6	7.8
Monmouth	2422	7.4	194.1	7.6	18.0	1.7	212.1	5.9	25.2	5.6	237.3	5.8
Montgomery	3060	9.3	270.9	10.5	157.6	14.8	428.5	11.8	14.8	3.3	443.3	10.9
Pembroke	3296	10.0	277.5	10.8	38.9	3.7	316.4	8.7	18.1	4.1	334.5	8.2
Radnor	1339	4.1	165.3	6.4	58.2	5.5	223.5	6.2	51.0	11.4	274.5	6.7
Wales	32888	100.0	2567.2	100.0	1061.0	100.0	3628.3	100.0	447.2	100.0	4075.5	100.0

Table 5.5

The Availability and Utilisation of Common Grazings (C.G.)
by Farms in the Survey By County

	% of Farms providing Replies					
	Upland Farms		Hill Farms		All Upland & Hill Farms	
	Flocks with Access to C.G.	Flocks Utilizing C.G.	Flocks with Access	Flocks Utilizing	Flocks with Access	Flocks Utilizing
	%	%	%	%	%	%
Brecon	50	50	90	90	81	81
Caernarvon	100	100	39	33	42	37
Cardigan	25	25	13	13	15	15
Carmarthen	-	-	47	40	37	32
Denbigh	-	-	44	38	21	18
Flint	-	-	-	-	-	-
Glamorgan	-	-	50	50	50	50
Merioneth	-	-	22	19	19	16
Monmouth	50	50	100	100	86	86
Montgomery	5	5	28	19	19	13
Pembroke	-	-	60	60	60	60
Radnor	41	36	73	73	50	46
Wales	23	21	45	41	37	34

d) The Improvement of Rough Grazings

Because of the part it has played in recent years and can play in the future in expanding output from many hill and upland farms, a section of the questionnaire was devoted to seeking information concerning the improvement of rough grazings. Since the 1930's improvement has been effected through a number of different methods, ranging from fencing off parcels of land to enhance control of grazing, through to a full treatment of ploughing, pioneer cropping and then reseeded. Levels of inputs per acre vary widely according to the type of treatment but experience has shown that if the land in question has potential, and the improved area is well managed, nearly all methods will give a worthwhile return on the capital invested. Up until the late 1960's ploughing and reseeded, with or without pioneer crops, was the main method of improvement, but since then, with possibilities being demonstrated by such bodies as the Hill Farming Research Organisation, the Redesdale Experimental Husbandry Farm, and more especially for Wales, the Pwllpeiran Experimental Husbandry Farm and the Welsh Plant Breeding Station in Cardiganshire, other methods have grown in popularity. At Pwllpeiran a programme of surface treatment has been underway for a few years now at altitudes of about 1800 feet above sea level, the results of which have been very rewarding to date.

Table 5.6

A Distribution of Survey Farms According to Method of Hill
Land Improvement since 1969 and by Size of Flock

Per cent of Farms

Flock Size	0- 99	100-199	200-399	400-699	700+	All Flocks
<u>Upland Flocks</u>						
Ploughing & Reseeding only	19	30	32	60	29	35
Other Methods only	4	-	-	-	14	2
Ploughing & Reseeding & Other Methods.	-	5	-	-	-	1
No Improvements Made	65	60	61	36	43	55
Not Stated	12	5	7	4	14	7
Total	100	100	100	100	100	100
<u>Hill Flocks</u>						
Ploughing & Reseeding only	15	31	40	46	44	40
Other Methods only	8	4	8	9	10	9
Ploughing & Reseeding & Other Methods	-	-	4	13	10	7
No Improvements Made	69	61	40	30	34	40
Not Stated	8	4	8	2	2	4
Total	100	100	100	100	100	100

The questionnaires enquired whether any improvement of rough grazings had been carried out since 1969 and if so what type of improvement, how many acres were involved, and when the last improvement was actually made. To the question "Have you improved any rough grazings since 1969?" there were 101 replies from upland farmers (93 per cent), 41 of whom (38 per cent) had carried out improvements since that time. Of the hill farmers 183 (96 per cent) replied,

of whom 106 (56 per cent) had improved their rough grazings since 1969.

These replies enable us to observe the extent of this practice. Table 5.7 does not list all the counties as some were only represented by a few farms and misleading conclusions could have been drawn from the results for these. In the upland section Radnor stands out as an important area for rough grazing reclamation. Ploughing and reseeding was the only type of improvement practised by upland farmers; however, the hill farmers in this county make use of other methods as well. 36 per cent and 47 per cent respectively of the farmers in the upland and hill sections had ploughed and reseeded some of their rough grazings since 1969.

The points of interest in the hill section are the counties which stand out as having a fairly significant interest in other types of improvements, such as Caernarvon where these predominate, and also, Cardigan, Merioneth and Radnor. Are there any explanations for this type of distribution? Caernarvon with its steep slopes in the Snowdonia area perhaps has a lower proportion of rough grazing suitable for improving by the traditional method; farmers in Merioneth, on the other hand, having a higher proportion of rough grazings of variable quality would have a strong vested interest in improving as much rough land as possible and would therefore use a greater variety of methods. Thirty per cent of the farms in this county had carried out improvements other than ploughing and reseeding since 1969.

Table 5.7

A Distribution of Farms according to method of Hill Land
Improvement and by County

Per cent of Farms

	Ploughing & Reseeding Only	Other Methods Only	Ploughing & Reseeding & Other Methods	No Improvement Made	Not stated	All Flocks
<u>Upland Flocks</u>						
Denbigh	29	-	-	62	9	100
Montgomery	33	10	-	52	5	100
Radnor	50	-	-	50	-	100
Other Counties	18	-	4	59	19	100
Total	35	2	1	55	7	100
<u>Hill Flocks</u>						
Brecon	33	-	5	62	-	100
Caernarvon	5	37	-	53	5	100
Cardigan	61	6	11	11	11	100
Carmarthen	41	-	12	35	12	100
Denbigh	39	-	-	56	5	100
Glamorgan	67	-	-	33	-	100
Merioneth	52	15	15	18	-	100
Montgomery	43	9	6	39	3	100
Radnor	27	-	20	47	6	100
Other Counties	27	9	-	64	-	100
Total	40	9	7	40	4	100

2. Lowland Flock Management

One section of the questionnaire related only to lowland flocks. Included were such items as the creep feeding of lambs, paddock grazing, and then an assessment of the number of ewes normally grazing per acre in May.

Table 5.8

Aspects of Lowland Flock Management By Size of Flock

Per cent of Flocks in each size group

Flock Size	0-99	100-199	200-399	400-699	700+	All Flocks
Creep Feeding of Lambs	11	19	7	43	-	15
Creep Grazing of Lambs	-	10	-	-	-	2
Paddock Grazing	14	-	-	14	-	7
Flushing of Ewes Prior to Topping	43	57	47	100	100	55
Wintering of Breeding Sheep Away from Farm	-	5	13	-	-	4

The flushing of ewes prior to topping was important with 55 per cent of lowland sheep farmers stating that this was practised. A higher percentage of the larger flocks replied in the affirmative but not too much significance should be attached to this because of the very small numbers involved. Of the other items, the fact that there are so few farms practising away wintering of their breeding sheep is the only other point of interest.

Table 5.9

A Distribution of Lowland Flocks by Stocking Rate
and By Flock Size

Per cent of Flocks

Flock Size Ewes Grazing Per Acre in May	0-99	100-199	200-399	400-699	700+	All Flocks
Under 3	21	19	23	29	-	20
3 - 4	40	33	31	-	-	31
5 - 6	24	29	23	71	50	31
7 - 8	9	14	23	-	25	13
9 or over	6	5	-	-	25	5

Of the replies to the question on stocking rates over 80 per cent gave a density in May of under seven ewes to the acre. Twenty per cent stocked even less than three ewes per acre.

3. Future Intentions

The last questions on the postal form related to any plans the farmer had for future developments for the sheep enterprise; whether, for instance, to cut back or increase its size, change the emphasis in production, or in the use of inputs, change breeds, reduce or increase the numbers of breeds etc. At the time of filling in the questionnaire, in the summer of 1974, 8 per cent of the farmers who returned them, planned to expand the flock size, as opposed to 4 per cent who would be cutting back. Four per cent of all farmers were contemplating

winter housing, the 27 per cent for 'Other' flocks represents three out of the eleven.

Table 5.10

A Distribution of Flocks by Future Intentions
and Flock Type

Per cent of Flocks

Flock Type Future Intentions	Lowland	Upland	Hill	Other	All Flocks
Increase Size of Flock	11	7	8	-	8
Decrease Size of Flock	2	3	5	-	4
More Sheep, Less Cattle	-	2	2	-	1
Earlier Lambing	4	-	1	-	1
Later Lambing	4	4	1	-	2
Change Breed of Ewe	6	3	1	-	2
Change Breed of Ram	2	1	2	-	2
Start Winter Housing	3	4	4	27	4
Grow more Fodder Crops	3	1	3	-	2
No Change	39	55	59	73	54
Not Stated	36	25	20	-	25

Probably the fact that those contemplating expansion of the flock outweighed those contemplating contraction by two to one is a significant point, indicating that at that particular time the general trend towards a larger national flock was continuing.

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