October, 1959

REPORT NO. 113

UNIVERSITY OF BRISTOL
DEPARTMENT OF ECONOMICS
(Agricultural Economics)

STORE CATTLE AND STORE SHEEP REARING IN DEVON AND CORNWALL

1955/56 and 1956/57

1, COURTENAY PARK
NEWTON ABBOT
DEVON

PRICE FIVE SHILLINGS

STORE CATTLE AND STORE SHEEP REARING IN DEVON AND CORNWALL 1955/56 and 1956/57

AN ECONOMIC AND PHYSICAL INVESTIGATION
ON A SAMPLE OF 54 FARMS

BY

E. T. DAVIES, B.Sc.

AND

H. W. B. LUXTON, B.Sc., Dip. Agr. Econ.

CONTENTS

LIST OF TABLES AND CHARTS

I.

II.

III.

Cover Photograph:
Devon Cattle on a Cornish Farm.
(Farmer and Stock Breeder)

FOREWORD

Despite the very considerable emphasis placed on milk selling over the past quarter of a century, and in particular during and following World War II, the production of cattle and sheep for sale as store stock and for fattening still remains a major concern of South Western farmers. This is so not only on the upland and moorland areas of the region, but also over wide areas of good land, such as in the South Hams of Devon and in South Cornwall.

In comparison with information which is available concerning the economics of milk production, there is a dearth of data concerning cattle and sheep enterprises and the organisational problems involved in adapting these enterprises to the complex economic and physical environment which faces farmers in these regions at the present time. Because the enterprises are so often combined in one way or another on the same farm, it was decided to make a study of the joint enterprise and farms were selected on that basis. This report has been confined to a presentation of some the principal physical and economic data of the joint enterprise together with some additional data relating to the separate enterprises. While the study has provided a great deal of useful material in the field of input and output relationships, the gaps in our knowledge are very considerable. Similar studies to the one undertaken may go some way to filling in these gaps, but many of the answers sought will come only from carefully developed experiments jointly planned by agricultural economists and agricultural scientists.

The field work and much of the analysis of this investigation has been the responsibility of Mr. E. T. Davies in association with Mr. H. W. B. Luxton.

The Department of Economics (Agricultural Economics) acknowledges with thanks the co-operation of farmers in the South West whose help has made this investigation possible.

S. T. MORRIS,
Provincial Agricultural Economist.

I.

INTRODUCTION

CATTLE AND SHEEP REARING IN DEVON AND CORNWALL

Physical and Historical Considerations

The rearing of beef store cattle and sheep is by tradition an integral feature of farming systems in the South West of England. The counties of Devon and Cornwall possess a preponderance of poor soil conditions which, coupled with a high rainfall, restrict the profitable cultivation of cash crops over large areas of the region. The rainfall is well above the average for the country as a whole, ranging from about 60 inches on the uplands of Devon and Cornwall to about 35 inches on the south coast. It is also fairly evenly distributed over the year, and because of this corn and hay harvests are often prolonged affairs, while the heavy nature of the soils in the northern districts of the two counties renders difficult spring and autumn cultivations. High rainfall influences both the lime and humus content of soils, and it is the leaching of plant nutrients by the high precipitation which largely accounts for the general deficiency and poverty of the higher lying areas of Devon and Cornwall.

Against this background, therefore, stock rearing appears to offer the most conducive means of obtaining a livelihood for a large section of the farming community in the South West. In fact, the uplands of Devon and Cornwall do form an important source of store cattle and sheep, with large numbers being transported annually for finishing not only on the lowlands, but even as far afield as the Midlands and Eastern Counties.

The rearing of store stock in the South West is not confined, however, to the upland regions, but is also a traditional feature of farming in the more fertile and sheltered areas of South Devon and the coastal regions of North Cornwall and North Devon. Here, however, by virtue of more favourable physical conditions there is greater flexibility which permits not only the finishing of stock, but also the successful combination of cash cropping with livestock enterprises. Farmers in these relatively favoured areas do, therefore, enjoy broader limits in respect of the adjustments which can be introduced into the farming system in times when economic forces are weighted against the production of store stock.

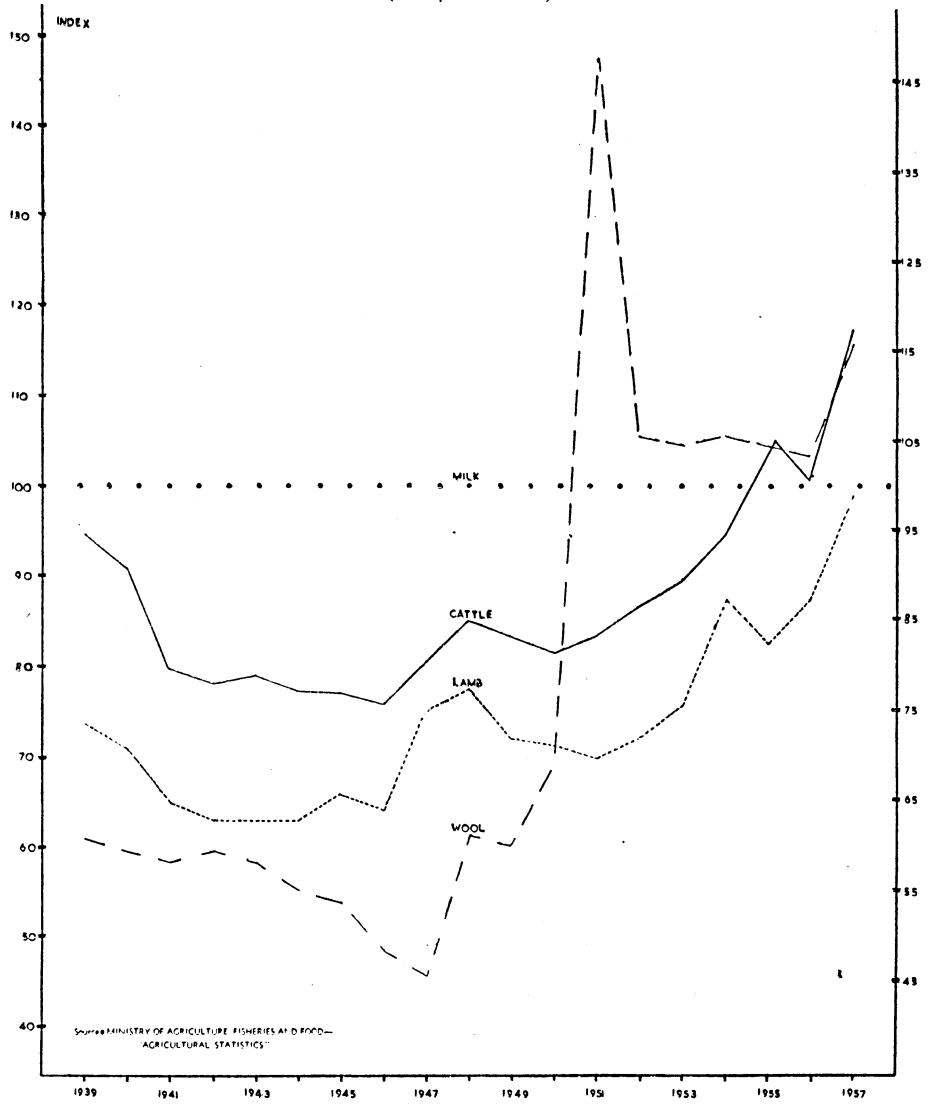
The history of the South West reveals that between the two World Wars and before 1914, many of the traditional store rearers supplemented their incomes by the manufacture of butter. Many also took advantage of the readily available and cheap supplies of imported feed for the production of pig-meat and milk and poultry products. From about the early thirties, however, the sustained depression of butter prices, relative to the price of liquid milk, encouraged many farmers to develop their herds for milking, and to abandon completely the long established practice of butter making as a supplementary source of income. Again, prices of both fat and store cattle during this period tended to become less and less favourable relative to milk prices, and this factor further encouraged the expansion of the dairy industry at the expense of the beef industry.

War-time Policy

Following the outbreak of the 1939/45 war, the tendency towards milk production became even more pronounced. During this period supplies of imported feedingstuffs were drastically curtailed, and the small quantities that were available were directed to the milking herds. Pig fattening consequently came to an end, and having thus lost a lucrative

CHART 1.

INDEX OF FAT CATTLE, LAMB AND WOOL PRICES AS A % OF MILK INDEX (1927/29 = 100)



Source: MINISTRY OF AGRICULTURE, FISHERIES AND FOOD— AGRICULTURAL STATISTICS

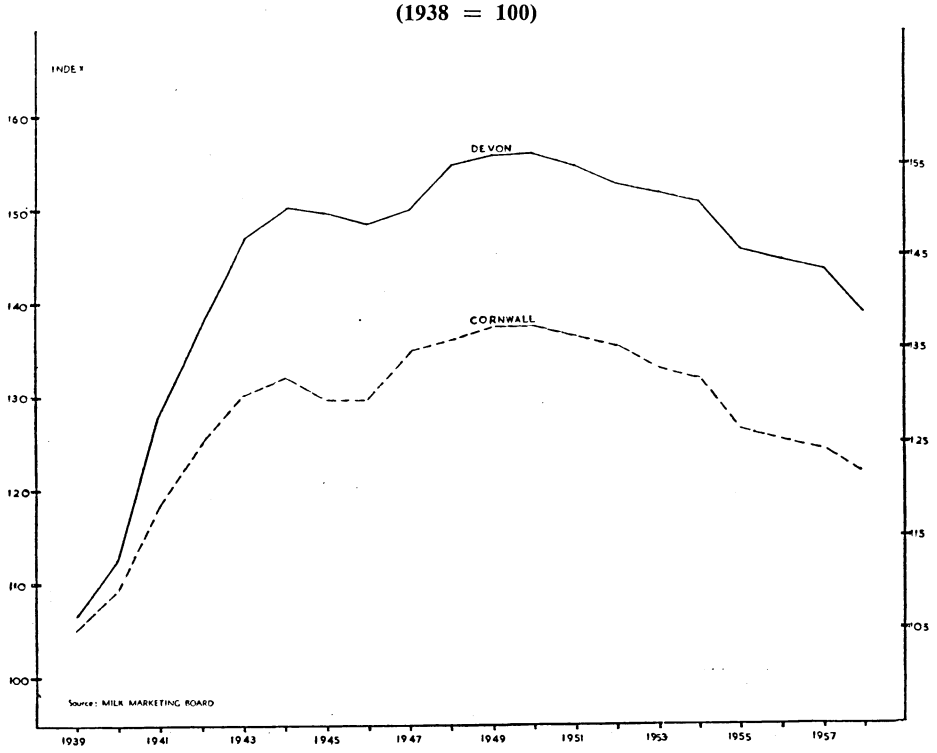
source of income, rearers turned more and more to milk production. In this respect, they were encouraged by the government's war-time decision to maintain the nation's diet principally by the production of cash crops and milk, rather than by the more expensive and slower method of food production in the form of beef.

The implementation of this policy was largely effected by raising milk prices substantially relative to fatstock and wool prices. Store stock were not similarly controlled, of course, but on the whole they moved in close sympathy with fatstock prices. From the data presented in Chart I it will be observed that fatstock and wool prices became progressively less favourable relative to liquid milk prices up to about 1946, but that date marked the turning point, and henceforth the price differential in favour of milk was gradually reduced.

As a result of official policy to place first priority on milk during the war years, cattle numbers not only increased appreciably in the two counties between 1939 and 1945 but the whole nature of the cattle herd changed because of the emphasis on liquid milk production. In Devon, the cow population rose by 14% and other cattle of two years old and over by 38%. In Cornwall, the respective rates of increase were 9% and 17%. This change in the pattern of production is reflected by the increase

CHART 2.

INDEX OF TOTAL NUMBER OF REGISTERED MILK PRODUCERS IN DEVON AND CORNWALL
(1938 = 100)



which occurred during the war and immediate post-war years in the total number of registered milk producers in the two counties. It will be observed from Chart II that between 1938 and 1949 the number of milk producers registered with the Milk Marketing Board increased by over 50% in Devon, and by 37% in Cornwall.

This pronounced switch over to milk production and its accompanying increase in cattle numbers was, in the main, achieved during the war-time "ploughing-up" campaign when the acreage of land under grass was being substantially reduced. In Devon, for example, the area of grazing land (excluding unenclosed rough grazings) was reduced by 20% between 1939 and 1945 while in Cornwall, the reduction amounted to nearly 30%. As a result of these combined factors, sheep numbers were bound to suffer, and the official statistics reveal that during the six-year period under review the number of sheep over one year old in Devon fell from 556,478 to 451,380, a decrease of nearly 18%. In Cornwall, the comparative drop was just under 28%, from 158,862 to 114,940.

Post-war Changes

From about 1946/47 onwards, however, official policy became less favourable to unlimited expansion in milk production. As indicated earlier, this date marked the turning point in the relationship between stock and wool prices and liquid milk prices. Apart from a slight drop in 1949 and 1950, and again in 1956, fat cattle and lamb prices, relative to milk, rose gradually until in 1957, the former were 20 points above, and the latter on par with milk prices. In 1951, the price of wool rocketed due to the exceptional demand for the commodity during the Korean War, but subsequent to this date, its price has remained consistently high relative to the price of milk.

But in addition to these price incentives, farmers have received further official encouragement since 1946 to direct their resources to the production of meat rather than milk. The Hill Farming Act of 1946 and the Livestock Rearing Act of 1951 were specifically introduced to benefit only the livestock rearing farms of this country. These two Acts, which were extended for a further seven years from November, 1956, provide for a wide range of grants and subsidies to the occupiers or owners of hill land, livestock rearing land or marginal land. The exact definitions of these types of land vary, but in broad terms farms which are capable of producing appreciable amounts of milk, fatstock or crops for sale are not eligible.

Some of the incentives offered by the terms of these two Acts include a grant of 50% of costs for the improvements undertaken to buildings, fences and roads, water and electricity supplies, etc. The Acts also initially provided for the payment of a Hill Cattle subsidy on all cattle which grazed for not less than sixteen weeks on prescribed types of land. Between 1951 and 1954, payment of this subsidy was at the rate of £5 per head for cows and £2 15s. for other cattle. In 1954, however, further inducement was offered by the introduction of the Hill Cow subsidy, payable at the rate of £10 per head per head on all cows and heifers kept on hill land throughout the year. At the same date the Hill Cattle subsidy was reduced to £2 per head on all other cattle maintained. At the 1959 Review, the Hill Cow Subsidy was increased by £2 to £12 per head, as a further inducement to rear beef store cattle.

A further provision made under the Acts was the payment of a Calf Subsidy on animals considered suitable for beef production. From September, 1950, the amount of the subsidy was £5 per head on steer calves only, with heifer calves being ineligible, but at the 1952 Review the subsidy was extended to heifers also. At a later review, the rate of subsidy was increased to £7 10s. per head, payable on both steer and heifer calves, while in 1956, the rate of payment was further adjusted to £8 10s. per head on steers and £7 10s. on heifer calves. These rates remained in operation up to March, 1959 when the rate of subsidy on steer calves was increased by 15s. 0d. to £9 5s. per head.

With regard to sheep, the Acts provided for the payment of a Hill Sheep subsidy in respect of breeding flocks of ewes of mountain breeds kept under natural conditions on hill land. In this case, however, the rate of subsidy in any year is determined in the light of the economic circumstances of the hill sheep industry in the preceding year. The rate of payment during 1956/57 was 5s. 0d. per ewe or shearling ewe in standard* rate flocks, and 2s. 6d. per ewe or shearling ewe in reduced rate flocks. The economic condition of the industry in 1957/58, and again in 1958/59 was considered such that payment of the subsidy was not justified.

TABLE 1

THE SEX RATIO OF CATTLE UNDER ONE YEAR OLD

At 4th June	*No. of Male Cattle under 1 year old per 100 Female Cattle*		
	Devon	*Cornwall*	*England & Wales*
1942	62	64	40
1943	54	59	32
1944	52	56	32
1945	48	49	30
1946	50	50	29
1947	46	46	28
1948	54	51	32
1949	55	54	35
1950	58	55	40
1951	58	59	41
1952	57	58	42
1953	59	62	47
1954	62	65	52
1955	65	67	57
1956	61	64	58
1957	60	64	58

To what extent have farmers in Devon and Cornwall responded to these post-war inducements to increase their production of beef cattle and sheep? With regard to beef, some measure of indication is provided by the data presented in Chart II. Here it is shown that from about 1949 onwards the total number of registered milk producers in the two counties declined annually until, at the 31st March, 1958, there were between 17% and 18% fewer milk producers in each of the two counties

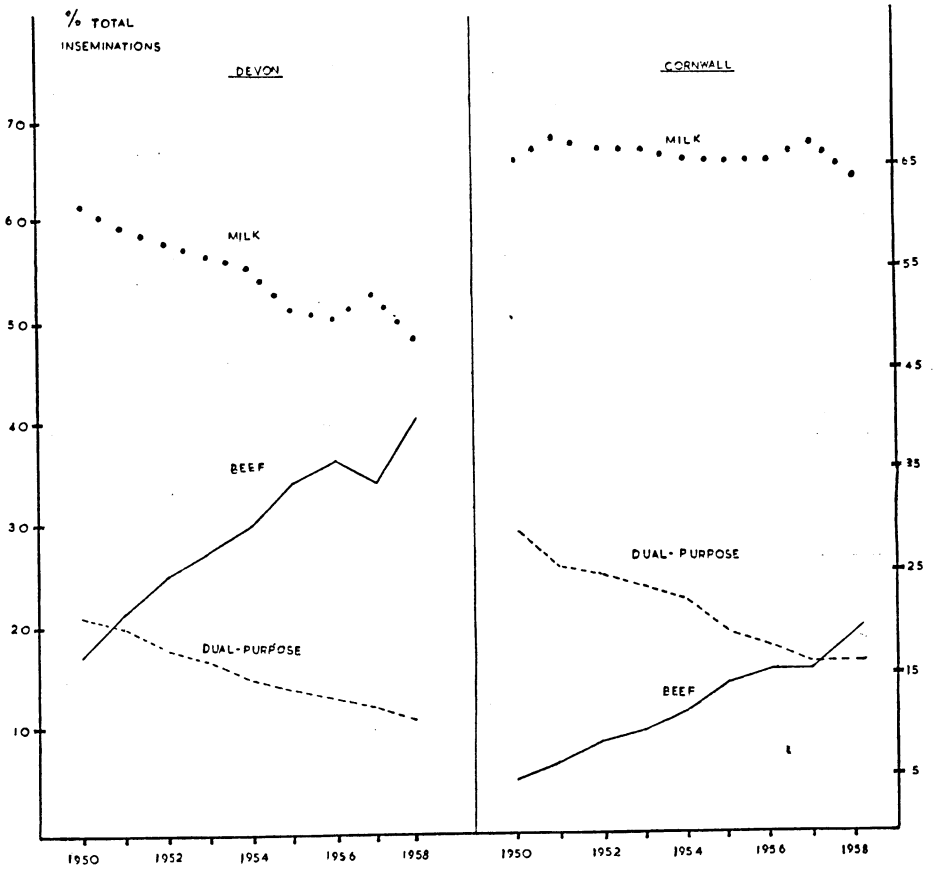
*Standard flocks are those normally maintained in regular ages and breeding and rearing sufficient ewe lambs of eligible mountain breeds to replace the older ewes. Other flocks are normally referred to as reduced rate flocks.

compared with ten years previously. This, in itself, does not necessarily mean that full-time farmers who went out of milk production during this period subsequently adopted beef rearing as an alternative. Nevertheless, the data do give rise to a certain degree of speculation.

One of the most reliable indications of any change in the attitude of farmers to beef production is provided by statistics relating to the relative number of male to female cattle under one year old. In Table 1 the numbers of male cattle under one year old (excluding bull calves for service) reared per 100 females have been set out for Devon and Cornwall and for England and Wales for the period 1942/57. These data indicate that since about 1948 a gradual swing back to beef production has been taking place. In Devon and Cornwall respectively, the numbers of male cattle reared per 100 females declined by 25% and 28% between 1942 and 1947. From the latter date onwards, however, the ratio gradually narrowed until, in 1957, it had assumed the same relationship of six males to every ten females which had existed during the early years of the war.

CHART 3.

THE RELATIVE IMPORTANCE OF ARTIFICIAL INSEMINATIONS BY BREED IN DEVON AND CORNWALL 1950 to 1958



Further evidence of farmers' attitudes to beef production in Devon and Cornwall during the past eight years is provided by data referring to the total numbers of first inseminations, by breed, conducted by the Cattle Breeding Centres in the two counties. This information, which is presented in graphical form in Chart III, shows that whereas the number of inseminations for milk and dual-purpose breeds declined by 15% and 11% respectively in Devon between 1950 and 1958, the number of beef inseminations increased by 25%. In Cornwall, on the other hand, the number of milk breed inseminations changed very little over the period, but those of dual-purpose breeds declined by 11% while beef breed inseminations increased by 15%.

The evidence, therefore, is that since about 1948 farmers in Devon and Cornwall have shown a renewed interest in the production of beef. And, indeed, it may be safe to say that this new interest has been created largely at the expense of milk production. But, along with this change, the past ten years or so have also witnessed a significant change in the numerical importance of sheep, both in absolute terms and in relation to cattle. In 1945, there were about 1·5 head of sheep over one year old to every head of cattle in Devon, and 0·5 sheep to every head of cattle in Cornwall. By 1958, however, sheep numbers in both counties had increased substantially and at this date, the ratios of sheep to cattle were 2·0 : 1·0 in Devon and 0·8 : 1·0 in Cornwall. Cattle numbers also rose appreciably during the period under review but not to such a marked extent as sheep, which increased between 1945 and 1958 by 44% and 55% in Devon and Cornwall respectively, compared with only 17% and 10% in the two counties for cattle.

At the 4th June, 1958, the cattle and sheep populations of the two counties had both increased to levels well above pre-war, and it is of particular interest to note that these increases were achieved on a grazing acreage, in 1958, almost identical with the 1939 area. This means, therefore that the stocking rate of the grassland acreage has improved significantly during the past twenty years, and some indication of this is provided by the data presented in Table 2.

TABLE 2

STOCK CARRYING CAPACITY PER 100 ACRES OF GRAZING LAND

Per 100 Acres	*Devon*		*Cornwall*	
	1939	1958	1939	1958
No. of Cattle over one year old	29	39	40	48
No. of Sheep over one year old	62	73	32	38

Future Prospects

The improved method of calculating deficiency payments, together with the Long-Term Assurances given by the Government in 1957 that guaranteed prices will not be reduced by more than 4% in any one year or by more than 9% in three years, should stimulate confidence, par-

ticularly in respect of beef production which is a lengthy process. In an appraisal of future prospects for beef and sheep production in this country, however, it must be appreciated that in the long run returns to producers will always be greatly influenced by conditions of demand and supply, the interplay of these two forces reflecting themselves in the eventual price received by producers.

In the case of beef and veal, the relevant data show that in 1957 the estimated per head consumption in the United Kingdom averaged 54 lb. which was only 1 lb. lower than in the year immediately before the war. In fact, consumption in this country has increased steadily since about 1953, due in part to higher production at home and in part to the greater availability of imported supplies, and indeed there is every possibility that demand will continue to increase. An increasing population and the desire to raise our standard of living are two important factors which support this conclusion.

At present, approximately 35% of the total beef and veal consumed in the United Kingdom is imported, and consequently any drastic curtailment in our level of imports would result—even at our current level of demand—in an acute shortage and high prices. Our beef imports come mainly from Argentina, Australia and New Zealand, but by far the most important of these is the Argentine. In 1957, just over 56% of our imports were obtained from this source, and in fact accounted for about one-fifth of our total beef and veal requirements.

Present indications suggest that whereas supplies from Australia and New Zealand are likely to remain at least at their present level during the next few years, those from the Argentine are very likely to be severely reduced. An increasing population and per-head consumption in the Argentine is one reason for this. In 1938/39 the average per-head consumption in the country was 175 lb., to-day it is nearly 215 lb. an increase of 20%. But of much greater importance is the fact that immediately following the decline of the Peron regime the new government put considerable emphasis on expanding her export beef trade. As a result, excess slaughterings took place in order to meet her overseas commitments, and in consequence stocks were considerably reduced, in fact from about 49,000,000 in 1954/55 to an estimated 37,500,000 in 1958.

It is known that in the three-year period, 1956 to 1958, slaughterings in the Argentine exceeded calvings by 9,500,000 which means that this number of females had been slaughtered from the breeding herds. Current policy, however, is to pursue a programme of herd replacement, and during the three years or so this will be in progress, it is fairly certain that the Argentine exports to the United Kingdom will be appreciably reduced.

In so far as beef production is concerned, therefore, it may be stated with comparative assurance that the future augurs well for the home producer. Although we are currently producing two-thirds of our own beef requirements, the very real threat to our imported supplies offers tremendous scope for the expansion of the home industry. It must be stated, however, that such an expansion must not be achieved regardless of cost. The aim of all domestic producers should be to produce high quality carcases economically and without the high level government support to which they have been accustomed in the past.

With regard to sheep production, it may be said that the future success of the industry depends a great deal on the ability of farmers to produce the small type of carcase of between 35 lb. and 45 lb. which the consumer demands. Of the total amounts of mutton and lamb consumed in this country at the moment, approximately two thirds is imported, most of which is produced with the definite aim of satisfying market requirements in the United Kingdom. Unlike our own commodity, which arrives on the market at varying weights and quality, the imported article is so standardised in these respects that butchers can buy by grade confidently knowing it will readily meet consumer requirements. It must be appreciated also that these imports are available throughout the year, and particularly during the early spring months when lamb is most fashionable and when only about 10% of requirements are home produced. During this period the public not only get to know the imported article, but also acquire a taste for it.

Our main supplier of imported lamb is New Zealand. Here, not only are aerial top dressings increasing the available grazing on hill land, but farmers are continually increasing their output per acre. Consequently, there is every possibility that during the next few years the available supplies of imports from this source will be substantially increased. In any event, faced with such strong competition, home producers must endeavour to supply regularly a product which, in terms of weight and quality, is consistent with consumer demand. If this can be achieved, then there is no reason why home producers should not at least maintain, if not increase, their share of the market. Smithfield wholesale prices clearly show that during the spring and early summer months, when the available supply of home produced lamb tends to be consistent with market requirements, it maintains a differential of up to 1s. 0d. per lb. over New Zealand lamb. During the autumn and winter months, on the other hand, when supplies are more plentiful and carcases invariably excessive in weight, it commands virtually the same price as the imported commodity.

In short, therefore, the need is for a more regular supply throughout the year of a carcase which will conform with consumer choice. Although this may involve certain changes and adjustments to exisisting management policies, producers may well be encouraged in this respect if the lightweight lamb carried a subsidy differential over the heavyweight lamb.

II.

GENERAL INFORMATION

This report is based on the results of a study of the economics of cattle and sheep rearing on an identical sample of 54 farms during the two-year period from 1st November, 1955 to 31st October, 1957. The farms were drawn from three areas, South Devon, North East Cornwall and North Devon. In the South Devon area are some of the most fertile soils in the South West. These soils are associated with basic igneous rocks and limestone and it is these calcarious deposits which, in the main, are responsible for the redness of the South Hams soils. In North East Cornwall and North Devon the soils are derived from the Culm Measures and Old Red Sandstones. There is a wide variation in quality from the relatively fertile soils of the coastal and river valley areas to the inherently poor soils of Exmoor and Dartmoor in Devon and Bodmin Moor in Cornwall.

(1) CLASSIFICATION AND DESCRIPTION OF FARMS

Type of Farm

Because of the variation in soils, the farms in the sample have been classified into three groups, Better-land, Poorer-land and Moorland according to fertility and location. The Better-land farms are located mainly in South Devon, principally in the vicinity of Totnes and Kingsbridge and in the coastal regions of North East Cornwall and North Devon. The Poorer-land and Moorland farms are upland farms located on and around Exmoor, Dartmoor and Bodmin Moor. Topographical and geological conditions are very similar in the latter two groups of farms, but the farmers in the Moorland group make considerable use of unenclosed common grazings which is the main reason for distinguishing between the Poorer-land and Moorland farms. The distribution of the sample farms according to this classification is as follows:—

Group	*No. of Farms*
Better-land	21
Poorer-land	21
Moorland	12
Total	54

Size of Farm

In Table 3 the farms are classified by size within the three type groups. The average size of farm, including rough grazings was 185 acres in the Better-land, 180 acres in the Poorer-land and 168 acres in the Moorland group. Although the farm size ranged from about 50 to just over 300 acres in all three groups, the size distribution pattern varied somewhat between the Moorland and the other two groups. In the Moorland group nearly 60% of the farms were 150 acres or less (excluding common grazings) and nearly three-quarters of these were under 100 acres. In the Better-land and Poorer-land groups, on the other hand, about 40% of the farms were under 150 acres, although even in these two groups, approximately three-quarters of the farms were less than 200 acres.

TABLE 3

DISTRIBUTION OF FARMS BY SIZE

Size Groups (Total Acres)	*Better-land*	*Poorer-land*	*Moorland**	*All Farms*
	No.	*No.*	*No.*	*No.*
0—100	2	4	5	11
101—150	6	4	2	12
151—200	7	9	1	17
201—250	2	1	2	5
251—300	3	3	2	8
Over 300	1	—	—	1
Total	21	21	12	54

*Excluding common grazings

Rents

The quality of the land and the amenities of farms is to some extent reflected in the rent or rental value figures, but because rents are not free to move as most other prices, the picture given is not complete. The average rental figures for the three type groups are set out in Table 4 and in Table 5 the farms are distributed by type and by rental groups. The rental per farm in the Better-land group averages £314 compared with £235 and £202 in the Poorer-land and Moorland groups respectively. Per adjusted acre the rent figure was 6s. 0d. higher on the Better-land farms than in the other two groups. When calculated on the total farm acreage without adjusting for rough grazings the differential widens to 8s. 0d. per acre between the Better-land and Poorer-land farms and 10s. 0d. per acre between the Better-land and Moorland farms.

TABLE 4

RENTS

	Better-land	*Poorer-land*	*Moorland**
Farm Size:			
Total Acres	185	180	168
Adjusted Acres ...	180	164	143
Rental:	£	£	£
Per Farm	314	235	202
Per Acre	1·7	1·3	1·2
Per Adj. Acre ...	1·7	1·4	1·4

*Excluding common grazings

Rent per adjusted acre varied widely within groups ranging from 12s. 0d. to £4 10s. in both the Better and Poorer-land groups, but in the Poorer-land group rents were less than £1 10s. per acre on approximately 60% of the farms compared with only 30% in the Better-land group. In the Moorland group rents ranged from £1 to £2 10s. per acre, but the rent recorded for three-quarters of the farms was between £1 and £1 10s. per acre.

TABLE 5

DISTRIBUTION OF FARMS ACCORDING TO RENT
Per Adjusted Acre

Rent per Adjusted Acre	*Better-land*	*Poorer-land*	*Moorland*	*All Farms*
£	*No.*	*No.*	*No.*	*No.*
Under 1	1	5	—	6
1 —1·4	6	7	9	22
1·5—1·9	9	6	2	17
2·0—2·4	1	2	1	4
2·5—2·9	2	—	—	2
3 and Over	2	1	—	3
Total	21	21	12	54

(2) LAND USE

Cropping and Crop Yields

Very little change in the pattern of cropping occurred within the groups between the two years of the study. In order to facilitate discussion and inter-group comparisons the cropping data set out in Table 6 is the average of the two years, 1955 and 1956.

With regard to the relative importance of crops, grass and rough grazings, Table 6 shows that the proportion of land in tillage in the Better-land group was nearly one-third of the total farm acreage, compared with one-fifth and one-seventh in the Poorer-land and Moorland groups respectively. In the division of this tillage acreage between cereals and root crops, the former become relatively less important as we progress from the Better-land to the Moorland group of farms. The importance of corn on the Better-land farms can be largely attributed to the greater acreage of barley grown for sale. This crop accounted for nearly 50% of the total corn acreage and was grown on over three-quarters of the Better-land farms. In the other two groups, the acreage under barley was relatively small, and on the few farms where it was grown it was almost entirely used for feeding to cattle and pigs. On the Poorer-land and Moorland farms, the greater part of the corn grown was mixed corn and oats, and these two crops together accounted for 85% of the cereal acreage in the Poorer-land, and 96% in the Moorland group. In the Better-land group, the area devoted to these two crops amounted to nearly 50% of the total land under corn. Wheat was comparatively unimportant in all three groups, and where it was grown the produce was invariably sold.

The proportion of the total acreage under roots and greenfodder were fairly comparable in the three groups. The only differences worthy of note were the somewhat higher proportions of mangolds and kale grown by the Better-land farmers, a feature which may be attributed to the greater importance of milk production in this particular group. On most of the farms a wide variety of root and greenfodder crops was grown, but in addition to the two crops mentioned above, turnips and swedes, mixed roots and rape were the more important. Cash root cropping, such as potatoes, was relatively unimportant on the survey farms.

TABLE 6

SUMMARY OF CROPPING
Average 1955 and 1956. 4th June

	Better-land		*Poorer-land*		*Moorland**	
	Acres	%	*Acres*	%	*Acres*	%
No. of Farms	*21*		*21*		*12*	
Tillage:						
Cereals	38·0	20·6	24·9	13·9	14·3	8·5
Roots and Greenfodder	16·2	8·8	11·9	6·6	9·8	5·9
Total Tillage	54·2	29·4	36·8	20·5	24·1	14·4
Grassland:						
Temporary—						
Conserved	24·9	13·5	18·4	10·3	12·5	7·4
Grazing	13·6	7·4	10·8	6·0	15·6	9·3
Total Temporary ..	38·5	20·9	29·2	16·3	28·1	16·7
Permanent—						
Conserved	9·8	5·3	13·2	7·3	17·4	10·4
Grazing	75·9	41·1	79·6	44·3	64·8	38·6
Total Permanent ..	85·7	46·4	92·8	51·6	82·2	49·0
Total Grassland	124·2	67·3	122·0	67·9	110·3	65·7
Total Crops and Grass ..	178·4	96·7	158·8	88·4	134·4	80·1
Rough Grazings ..	6·2	3·3	20·8	11·6	33·4	19·9
TOTAL FARM ACREAGE	184·6	100·0	179·6	100·0	167·8	100·0
Equiv. Acres Rough Grazings†	2·0	–	4·9	–	9·1	–
TOTAL ADJ. ACREAGE	180·4	–	163·7	–	143·5	–

* Excluding Common Grazings.
† Rough Grazings adjusted to an equivalent acreage of grazing land in proportion to the relative feeding values.

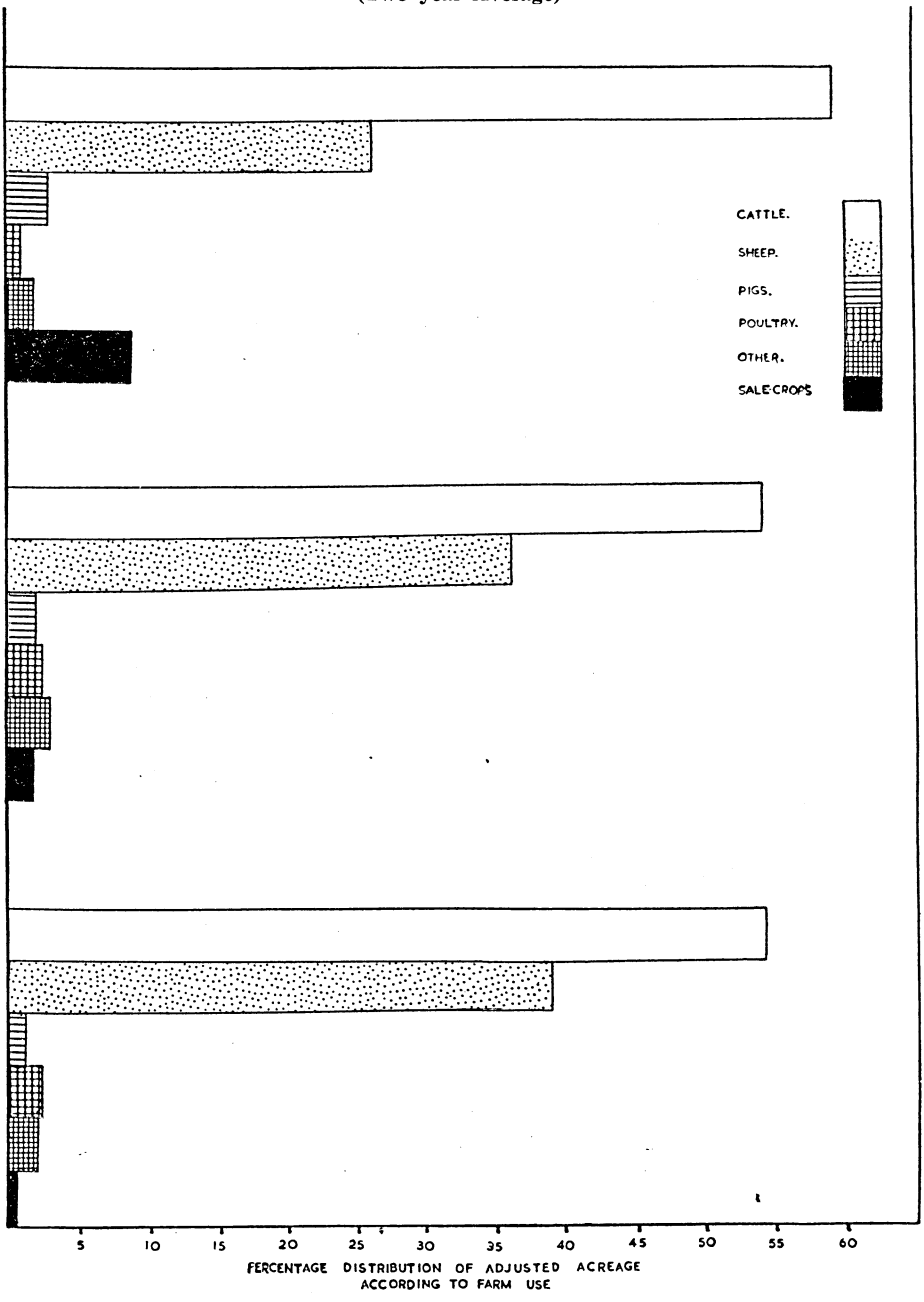
Temporary* and permanent grass accounted for approximately two-thirds of the total adjusted acreage in all three groups, with practically similar proportions of these grassland areas being set aside for conservation. In the Better-land group of farms, the proportion of total grassland returned as temporary grass amounted to approximately 30% which was only 5% higher than in the other two groups. An essential difference between the groups, however, is provided by the relative proportions of permanent and temporary grass conserved. Whereas, on average, the Better-land farmers conserved about three-quarters of their hay and silage from temporary leys, their counterparts in the Poorer-land and Moorland groups conserved one-half and one-third respectively from this source. This difference can be almost certainly ascribed to the inaccessibility of some of the re-seeded pastures on the upland farms of these two latter groups.

*For the purpose of this study temporary grass refers to leys in their first, second and third year of production.

CHART 4.

PERCENTAGE DISTRIBUTION OF ADJUSTED ACREAGE ACCORDING TO FARM USE

(Two year Average)



With regard to the comparative importance of hay and silage, it is of interest to note the insignificance of the latter crop. In each of the two years of the study, only one farmer in the Better-land, and two in the Poorer-land and Moorland groups made grass silage. Although many farmers freely admitted to the nutritional value of silage, the capital outlay required to purchase suitable equipment to conserve adequate grass in this form, coupled with the heavy labour demand associated with its feeding, were the two most common views expressed for the unpopularity of silage.

The acreage of rough grazings recorded for the Better-land group of farms was comparatively insignificant. In the Poorer land and Moorland groups, however, rough grazings constituted approximately one-tenth and one-fifth respectively of the total farm acreage.

From the crop yield data obtained on the sample farms it was found that yields were generally higher in the Better-land group, particularly in the case of cereal crops. Average crop yields on the Better-land group of farms were generally rather higher than the averages for the province but on the Poorer-land and Moorland groups rather lower. The yield data would tend to confirm the better quality of the land in the Better-land group, but for the root and green crops the differentials in yields were smaller than might have been expected.

Distribution of Land between Enterprises

In Chart IV an attempt has been made to show how the total acreage in each group was utilized by the various livestock and other farm enterprises. In the Better-land group, the cattle and sheep enterprises together utilized about 85% of the total adjusted acreage, while in the Poorer-land and Moorland groups the comparative proportions were 90% and 93%. The acreage of land devoted to pigs, poultry and other livestock was comparatively insignificant and only in the Better-land group of farms did the area devoted to cash cropping assume any proportion worthy of note.

With regard to the allocation of the individual crops, it was found that feeding practices varied appreciably between the groups, especially in the case of roots and greenfodder. In the Better and Poorer-land groups, for example, where milk production was relatively important, approximately two-thirds of the mangold and kale crops were consumed by cattle, whereas in the Moorland group these two crops were allocated about equally between the cattle and sheep enterprises. Cabbage and rape in the Better-land group were, on balance, grown largely for cattle, but in the other two groups these crops were consumed mainly by sheep. Only in the case of turnips and/or swedes and mixed roots, which were consumed almost entirely by sheep, was there complete uniformity between the three groups.

Stocking

The average number of stock carried per 100 adjusted acres is shown in Table 7. By the application of certain factors, which are given in the Appendix, all livestock have been converted in this table to a common unit, known as the animal unit, in order to facilitate comparison between the three groups of farms in terms of density of stocking. In so far as the cattle and sheep enterprises are concerned, the figures in the table are

calculated from the actual numbers on hand during each individual month of the year. They take into account therefore any significant seasonal changes in numbers which may have occurred during the costing period, as frequently happens on many upland farms where stocking density has to be adjusted to meet seasonal variation in food supplies.

TABLE 7

STOCKING—AVERAGE NUMBER OF ANIMAL UNITS PER 100 ADJUSTED ACRES 1955/56 and 1956/57

	Better-land		*Poorer-land*		*Moorland**	
	1955/56	*1956/57*	*1955/56*	*1956/57*	*1955/56*	*1956/57*
Cattle:	*Per 100 adjusted acres*					
Breeding Cows ..	10·0	10·8	9·8	10·4	18·1	19·2
2 years and over ..	6·6	6·9	4·8	5·2	7·2	7·6
1–2 years	8·8	8·3	8·1	7·3	10·2	10·2
Under 1 year	6·4	6·0	5·2	5·6	7·2	8·0
Total Cattle ..	31·8	32·0	27·9	28·5	42·7	45·0
Sheep:						
Ewes and Rams ..	14·1	14·7	14·5	15·8	19·8	20·2
Adult Sheep over 6 months	4·0	3·5	6·6	7·0	11·7	12·4
Total Sheep ..	18·1	18·2	21·1	22·8	31·5	32·6
Pigs	1·1	·9	·6	·9	·5	·8
Poultry	·9	1·0	2·0	2·3	1·1	1·3
Horses	·4	·3	·9	·7	1·6	1·5
TOTAL LIVESTOCK UNITS	52·3	52·4	52·5	55·2	77·4	81·2

* Excluding common grazings.

The overall picture is that the rate of stocking remained fairly constant within the individual groups over the two years of the study. An inter-group comparison, however, reveals immediately the significantly higher rate of stocking on the Moorland farms. Farm businesses in the Better and Poorer-land groups consisted of a known and fixed acreage of land, but the Moorland farmers had at their disposal additional areas of unenclosed common grazings for which it is difficult to make an accurate assessment of the "equivalent" farm acre value. No addition to the adjusted farm acreage has been made for common grazings. These Moorland areas were extensively grazed, both by cattle and sheep, and the relatively high rate of stocking on the Moorland farms signifies clearly the contribution which these grazings make to the economy of these farms.

In terms of cattle, farmers in the Moorland group maintained approximately twelve units more per 100 adjusted acres of farm land than those in the Better-land group, and an additional sixteen cattle units relative to the Poorer-land group of farmers. This advantage is reflected chiefly in the number of breeding cows which, on a per 100 adjusted acre basis, was twice as great as in the other two groups. On a large proportion of the farms in the Moorland group, the breeding cows

were maintained on the common grazings throughout the greater part of the year, with additional feeding only during periods of adverse weather. Although the availability of these Moorland grazings permit a greater number of stock to be carried, it must be borne in mind, however, that cows and heifers which run free in this manner do not take to the bull so regularly as those kept under more intensive conditions. Consequently, a relatively high proportion of less productive stock is carried on these Moorland farms, a point which is borne out by the calving data recorded for the groups during the two years of the study. On the Better-land farms, the number of calves reared per cow and bulling heifer averaged 0·97 for the two years, compared with 0·77 on the Poorer-land and 0·62 on the Moorland farms.

This relatively lower rate of natural increase from the breeding stock on the Moorland farms reflects itself in the relationship between cows and followers. For every ten cows carried in this group there were approximately thirteen followers compared with eighteen followers in the Poorer-land and 21 followers in the Better-land group. The relatively wide ratios between cows and other cattle in the Better and Poorer-land groups is, to a certain extent, due to greater numbers of herd replacements associated with holdings engaged in milk production.

With regard to the respective importance of cattle and sheep, the data in Table 7 show that on the Better-land farms cattle were more important, relative to sheep, than in the other two groups. Here, cattle accounted for approximately 64% of the total cattle and sheep units, compared with 56% and 58% in the Poorer-land and Moorland groups respectively.

The contribution of the common grazings is once again reflected in the somewhat higher rate of stocking with sheep in the Moorland group. Here approximately fourteen units more were carried per 100 adjusted farm acres than in the Better-land group, and ten units more than in the Poorer-land group. On the majority of these Moorland farms the customary procedure is to give the ewes and their lambs access to the moors from about mid-June to the end of July, when they are brought home for dipping. When this is completed, the lambs normally remain on the farms but the ewes are returned to the moor, where they remain until about the middle of October.

The Poorer-land and Moorland groups differ from the Better-land group in one salient respect, namely, in the relationship between the number of ewes and other adult sheep. In the two upland groups of farms, there were approximately two ewes to every one follower, but in the Better-land group, the relationship was nearer four to one. This difference is attributable to the traditional practice on these upland farms of retaining all the ewe lambs either for subsequent sale as two-tooth hoggets or for transferring into the breeding flock. On the Better-land farms, on the other hand, the ewe lambs which are surplus to replacement requirements are sold either fat or store and generally earlier than lambs on the upland farms.

With regard to other livestock, farmers in the Better-land group kept more pigs, but fewer poultry and horses than those in the Poorer-land and Moorland groups. On the latter group of farms, horses were extensively used for riding over the moors in the care and supervision of the grazing stock.

III.

THE CATTLE ENTERPRISE

The results of the detailed study of the cattle enterprise are set out in this chapter. In the following chapter the data for the sheep enterprise are presented and in a further chapter the combined results of the cattle and sheep are given, which, because of the importance of the two enterprises, account for most of the farm business on the farms studied. The financial results, some efficiency measures, physical input and output data and rearing costs have been obtained for both the cattle and sheep enterprises.

(1) FINANCIAL RESULTS

Better-land, Poorer-land and Moorland Farms

The financial results for the cattle enterprise for the two years 1955/56 and 1956/57 are presented in Table 8, for the three type groups.

The margin per adjusted acre given in Table 8 represents the management and investment income derived from the cattle enterprise. It is the return for managemnt and on capital invested. It was considerably lower in 1955/56 than in 1956/57 in all three groups. The main reason for the lower margins in the first year was the comparatively low prices of store cattle during that year. On the Better-land farms a higher proportion of the cattle was sold fat and since 1955/56 prices for fat cattle were relatively better than for store cattle, the result was that higher margins were obtained in this group than in the other two groups. By 1956/57 the relative prices of fat and store stock had changed appreciably in favour of the latter and although margins improved in all groups, much greater increases occurred in the Poorer-land and Moorland groups. In 1956/57 the highest margin was obtained in the Poorer-land group followed by the Better-land group. The changes in prices resulted in a considerable levelling of margins between groups in 1956/57 on a much higher plane than in 1955/56. Thus, in 1956/57 margins varied only by £1·4 per acre, from £5·7 to £7·1 in the Moorland and Poorer-land groups respectively compared with £2·9 per acre from £·4 to £3·3 per acre between the Moorland and Better-land groups in 1955/56.

The changes in income follow closely the changes in gross output which increased in all groups because of the higher cattle prices. The increased gross output is due largely to higher cattle output and the improvement is proportionately greater in the upland groups because of the greater rise in store cattle prices relative to fat cattle. There was a substantial fall in fat cattle prices between April and November, 1956 and supplementary guarantee payments were made and have been included in the 1955/56 sales. No such payments were made to store raisers, so that their returns remained relatively depressed and their incomes compared unfavourably with the Better-land group of farmers. Because of the depressed state of cattle prices during 1956 and because the method of calculating guarantee payments had not proved satisfactory a change in the system of calculation was introduced in April, 1957. The revised scheme safeguards fatstock producers in a large measure against violent market fluctuations and simultaneously affords the rearer a more secure outlet for store stock.

TABLE 8

THE CATTLE ENTERPRISE, GROSS OUTPUT, INPUTS AND MARGINS 1955/56 and 1956/57

Per Adjusted Acre Devoted to Cattle

	Better-land		*Poorer-land*		*Moorland**	
	1955/56	*1956/57*	*1955/56*	*1956/57*	*1955/56*	*1956/57*
Adj. Acres used by Cattle ..	105	105	89	86	76	80
Av. No. of Animal Units ..	57	58	46	46	61	64
	Per Adjusted Acre					
	£	£	£	£	£	£
Gross Output:						
Cattle	10·5	14·4	9·0	14·0	8·9	14·1
Milk	8·2	8·8	6·0	6·9	2·8	2·1
Calf Subsidy	1·1	1·3	1·0	1·4	1·9	1·9
Attested Headage ..	·7	·4	·9	·8	·2	·2
Hill Cow Subsidy ..	–	–	·6	·4	2·5	2·4
Hill Cattle Subsidy ..	–	–	–	–	·3	·1
TOTAL GROSS OUTPUT	20·5	24·9	17·5	23·5	16·6	20·8
Inputs:						
Foods—						
Purchased	2·2	2·1	1·4	1·7	1·6	1·4
Home-grown:						
Corn	2·3	2·6	2·8	2·3	1·8	1·4
Hay	2·8	3·0	2·8	3·1	3·5	3·5
Roots	1·9	2·0	1·0	1·1	0·8	·4
Total Home-grown ..	7·0	7·6	6·6	6·5	6·1	5·3
Grazing	3·1	3·2	2·3	2·7	2·5	2·8
Total Foods and Grazing ..	12·3	12·9	10·3	10·9	10·2	9·5
Labour—						
Manual	3·1	3·4	3·4	3·6	3·9	3·7
Horse and Tractor ..	·1	·1	·1	·1	·4	·3
Total Labour	3·2	3·5	3·5	3·7	4·3	4·0
Miscellaneous Costs ..	1·7	1·9	1·6	1·8	1·7	1·6
TOTAL INPUTS	17·2	18·3	15·4	16·4	16·2	15·1
MARGIN	3·3	6·6	2·1	7·1	·4	5·7

* Exclusive of Common Grazings.

In comparing the gross output for the three type-of-farming groups the main differences are in the relative importance of milk sales and subsidy receipts of the direct headage type, calf, attested headage, hill cow and hill cattle subsidies. There is a progressive reduction in the importance of milk sales from the Better-land group through the Poorer-land to the Moorland group. In the case of the subsidies the trend is in the reverse order ranging from nearly £5 per acre in the Moorland group in 1955/56 to less than £2 in the Better-land group. Because subsidy

payments are so much higher in the Moorland group, and total gross output somewhat lower, they therefore constitute a considerable proportion of the total output in this group. If these subsidies were removed the effect on profits would be severe, leaving a deficit margin of £4 10s. in 1955/56 and only a small surplus margin of £1 2s. per acre in 1956/57 in the Moorland group.

A further factor in the relative changes in margins between groups is the change in inputs. Total inputs rose by £1·1 in the Better-land group and £1·0 per acre in the Poorer-land group but actually fell by £1·1 in the Moorland group. The major portion of this decline was in the cost of foods and grazing, whereas this item rose in the other two groups. The cost changes were relatively much smaller than the changes in gross output, but whereas gross output rose in all groups, inputs increased in the Better-land and Poorer-land groups but fell in the Moorland group. The combination of reduced costs and considerably improved gross output resulted in the greatest improvement in profit margin occurring in the Moorland group.

TABLE 9

THE CATTLE ENTERPRISE, SOME EFFICIENCY MEASURES
1955/56 and 1956/57

	Better-land		*Poorer-land*		*Moorland**	
	1955/56	*1956/57*	*1955/56*	*1956/57*	*1955/56*	*1956/57*
Per Farm:						
Used by Cattle—						
Adjusted Acres	105·4	105·7	88·6	85·7	76·4	79·9
Feed Acres	111·9	113·4	91·8	90·8	80·2	83·8
Breeding Cows	18·1	19·5	16·1	17·1	25·9	27·5
Total Animal Units (Cattle)	57·3	57·6	45·8	46·7	61·3	64·6
Per Animal Unit (Cattle):						
Adjusted Acres	1·8	1·8	1·9	1·8	1·2	1·2
Feed Acres	2·0	2·0	2·0	1·9	1·3	1·3
Per Breeding Cow:						
Adjusted Acres	5·8	5·4	5·5	5·0	2·9	2·9
Feed Acres	6·2	5·8	5·7	5·3	3·1	3·1
	£	£	£	£	£	£
Gross Output per:						
Adjusted Acre	20·5	24·9	17·5	23·5	16·6	20·8
Feed Acre	19·3	23·2	16·9	22·2	15·8	19·8
Breeding Cow	119·4	135·2	96·1	117·6	49·1	60·4
Cattle Unit	37·6	45·7	33·8	43·2	20·7	25·7
£100 Feed Costs	166·8	192·1	170·0	217·0	161·4	219·1
£100 Labour Costs ..	635·9	696·0	494·3	632·3	390·7	520·3
£100 Total Costs	119·3	135·9	113·2	143·6	102·4	137·7
Margin per:						
Adjusted Acre	3·3	6·6	2·1	7·1	·4	5·7
Feed Acre	3·1	6·1	2·0	6·7	·4	5·4
Breeding Cow	19·4	35·7	11·2	35·7	1·2	16·5
Animal Unit (Cattle) ..	6·1	12·1	3·9	13·1	·5	7·0

* Exclusive of common grazings.

Some efficiency measures for the cattle enterprise are given in Table 9 for each of the three type groups. The cattle enterprise is appreciably larger on the Better-land farms, both in terms of acreage used and animal units. The adjusted acreage per animal unit is similar in the Better-land and Poorer-land groups, but considerably less in the Moorland group. The comparatively dense stocking on the Moorland farms is achieved by the extensive use of common grazings, an allowance for which has not been made in the calculations. The ratio of breeding cows to total animal units narrows from the Better-land to the Moorland group, thus the cows in the Better-land group are somewhat more productive. Some reduction in the frequency and regularity of breeding is experienced on the Moorland farms as compared with the Better-land farms, but a higher rate of stocking with breeding cows and followers is achieved because of the availability of common grazings to the Moorland farmers. The financial efficiency measures show similar trends in the results as noted in the discussion of the financial results. Both gross output and margin per breeding cow, per animal unit and per acre are lowest on the Moorland farms which emphasises the more extensive nature of this type of farming.

Milk-selling and Non Milk-selling Farms

A factor which has considerable influence on the profitability of the cattle enterprise is the extent to which milk selling is carried on. In Table 10 the whole sample has been divided into two groups, milk-selling and non milk-selling, and the financial data for each group are tabulated for the two years. The distribution of the farms between the three types of land groups shows that milk was sold on two-thirds of the Better-land and Poorer-land farms and on one-third of the Moorland farms. If the Poorer-land and Moorland groups are considered together, then the proportion selling milk is rather more than one half, so there is rather a greater tendency for milk selling on the Better-land farms. From the land use aspect the acreage used by the cattle enterprise is almost identical in both the milk selling and non milk-selling groups, but the rate of stocking is greater on the milk-selling farms. The output of cattle per adjusted acre is about £2 less on the milk-selling farms, but to be set against this there is a greater milk output of about £10 per acre. The overall result is a considerably greater total output on the milk-selling farms. On the other hand costs were also higher in the milk-selling group, total inputs being some £5 per acre greater. Almost the whole of the additional costs were for feedingstuffs, mostly purchased, and labour. In spite of the added costs, the margins on the milk-selling farms were nearly £2·6 and £3·7 per acre greater than on the non milk-selling farms in the first and second years respectively. Because of milk-selling, total output and margins are increased with relatively small additions to costs and only a small sacrifice in cattle outputs. From the national point of view it would also appear that this milk is produced comparatively cheaply although it may be rather expensive to collect from isolated farms. In comparing the results from these two groups of farms, however, some allowance should be made for the fact that rather a higher proportion of the milk-selling farms are in the Better-land category. In Table 11 the farms are classified into milk-selling and non milk-selling groups within the three farming types.

TABLE 10

THE CATTLE ENTERPRISE
MILK-SELLING AND NON MILK-SELLING FARMS
GROSS OUTPUT, INPUTS AND MARGINS 1955/56 and 1956/57
Per Adjusted Acre Devoted to Cattle

	Milk-Selling Farms		*Non Milk-Selling Farms*	
	1955/56	*1956/57*	*1955/56*	*1956/57*
No. of Farms— Better-land	14		7	
Poorer-land	14		7	
Moorland	4		8	
Total	32		22	
Adjusted Acres used by the Cattle Enterprise	91·7*	92·5*	93·5*	91·7*
Animal Units (Cattle) per Farm	51·0	53·2	57·7	57·5
	Per Adjusted Acre			
Gross Output:	£	£	£	£
Cattle	8·8	13·4	10·9	15·4
Milk	10·4	11·0	·6	·6
Calf Subsidy	1·1	1·4	1·4	1·5
Attested Headage	·8	·6	·5	·4
Hill Cow Subsidy	·4	·3	1·1	1·1
Hill Cattle Subsidy	–	–	·1	–
TOTAL GROSS OUTPUT	21·5	26·7	14·6	19·0
Inputs:				
Foods—				
Purchased	2·5	2·5	·8	·8
Home-grown:				
Corn	2·4	2·1	2·4	2·5
Hay	3·0	3·3	3·0	2·9
Roots	1·6	1·7	0·8	·9
Total Home-grown	7·0	7·1	6·2	6·3
Grazing	2·8	2·9	2·6	2·9
Total Foods and Grazing	12·3	12·5	9·6	10·0
Labour—				
Manual	3·8	3·9	2·7	2·9
Horse and Tractor	·2	·2	·2	·2
Total Labour	4·0	4·1	2·9	3·1
Miscellaneous Costs	1·8	2·0	1·4	1·5
TOTAL INPUTS	18·1	18·6	13·9	14·6
MARGIN	3·4	8·1	·7	4·4

* Exclusive of common grazings.

The results of this analysis confirm that the cattle enterprise on the milk-selling farms is more profitable in all the type groups except for the first year in the Moorland group. In this case there was very little difference in profits but in the second year in this group the milk-selling farms were substantially more profitable. Over the two-year period the greatest difference in margins between the milk-selling and non milk-selling farms was in the Better-land group with the least difference in the Poorer-land group.

TABLE 11

THE CATTLE ENTERPRISE
MILK-SELLING AND NON MILK-SELLNG FARMS BY TYPE OF FARM
GROSS OUTPUT, INPUTS AND MARGINS 1955/56 and 1956/57
Per adjusted Acre Devoted to Cattle

	Better-land Farms		*Poorer-land Farms*		*Moorland* Farms*	
	Milk	*Non-Milk*	*Milk*	*Non-Milk*	*Milk*	*Non-Milk*
No. of Farms	*14*	*7*	*14*	*7*	*4*	*8*
			1955–1956			
	£	£	£	£	£	£
Gross Output	24·7	14·3	18·7	14·1	19·6	15·3
Inputs	19·6	13·5	16·3	13·0	19·3	14·9
MARGIN	5·1	·8	2·4	1·1	·3	·4
			1956–1957			
Gross Output	29·8	17·6	24·2	21·6	24·9	19·1
Inputs	20·8	14·7	16·9	14·9	17·1	14·3
MARGIN	9·0	2·9	7·3	6·7	7·8	4·8

* Exclusive of common grazings.

The efficiency measures for the milk-selling and non milk-selling groups presented in Table 12 show that there were slightly less followers per breeding cow in the former group and the milk-selling herds required rather more acreage per animal unit. The financial measures indicate that output per acre was greater with milk selling and when measured per cow and per animal unit the output was much greater than on the non milk-selling farms. The margin over feed costs (output per £100 feed costs) was higher on the milk-selling farms, although more feed was used, thus giving a better rate of turnover on a greater volume of business. In both years output per £100 of labour was also better in the milk-selling group and margins were very much higher on an acreage basis, per breeding cow and per cattle unit.

(2) BUYING AND SELLING POLICIES AND PRICES

The total numbers of cattle bought and sold in the three groups for each year are set out in Table 13. The ratio of purchases to sales varies from about 1 : 3 in the Better-land group to approximately 1 : 5 in the

other two groups. The Better-land farmers therefore supplement the progeny of their own breeding herds with purchased cattle to a greater extent than the farmers in the two upland groups.

TABLE 12

THE CATTLE ENTERPRISE
MILK-SELLING AND NON MILK-SELLING FARMS
SOME EFFICIENCY MEASURES, 1955/56 and 1956/57

	Milk-Selling Farms		*Non Milk-Selling Farms*	
	1955/56	*1956/57*	*1955/56*	*1956/57*
Per Farm:				
Used by Cattle—				
Adjusted Acres	91·7*	92·5*	93·5*	91·7*
Feed Acres	98·0	99·8	95·7	95·4
Breeding Cows	18·9	20·1	19·2	20·7
Total Animal Units (Cattle) ..	51·0	53·2	57·7	57·5
Per Animal Unit (Cattle):				
Adjusted Acres	1·7*	1·7*	1·6*	1·6*
Feed Acres	1·9	1·9	1·7	1·7
Per Breeding Cow:				
Adjusted Acres	4·9*	4·6*	4·9*	4·4*
Feed Acres	5·2	5·0	5·0	4·6
Gross Output per:	£	£	£	£
Adjusted Acre	21·5*	26·7*	14·6*	19·0*
Feed Acre	20·1	24·8	14·2	18·3
Breeding Cow	104·2	123·0	70·9	84·3
Cattle Unit	38·6	46·6	23·6	30·3
£100 Feed Costs	174·9	213·2	152·5	189·5
£100 Labour Costs	542·9	646·9	501·2	616·0
£100 Total Costs	118·7	143·5	105·4	130·1
MARGIN per:—				
Adjusted Acre	3·4*	8·1*	·7*	4·4*
Feed Acre	3·2	7·5	·7	4·2
Breeding Cow	16·4	37·3	3·6	19·5
Animal Unit (Cattle)	6·1	14·1	1·2	7·0

* Exclusive of common grazings.

TABLE 13

TOTAL NUMBER OF CATTLE PURCHASED AND SOLD
1955/56 and 1956/57

	No. of Farms	*Purchases*		*Sales*	
		1955/56	1956/57	1955/56	1956/57
Better-land	21	179	161	527	505
Poorer-land	21	73	97	376	421
Moorland	12	48	50	255	268
Total ...	54	300	308	1158	1194

Cattle Purchases

In Table 14 the purchases for the two years have been averaged and divided into classes of cattle bought.

In all three groups calves are bought to supplement the home-reared ones. In the Better-land and Poorer-land groups they amount to nearly 60% of total purchases and in the Moorland group nearly 70%. There is a tendency for a higher number of older store cattle to be purchased on the Better-land farms which result from a greater practice of summer grazing.

TABLE 14

CLASS OF CATTLE PURCHASED BY TYPE OF FARM
Two-year Average

	Better-land	*Poorer-land*	*Moorland*
	No.	*No.*	*No.*
Bulls	3	2	1
Breeding Cows	24	16	2
Cows and Calves	5/5	2/2	2/2
Heifers in Calf	—	2	—
Stores:			
2 years and over	6	—	4
1—2 years	22	9	2
6—12 months	5	2	2
0— 6 months	100	50	34
Total	170	85	49

The average prices paid for cattle, given in Table 15, show that breeding cows were cheaper in 1956/57 by £6 per head but cows and calves only fell by £1 per head. The prices of all the other classes of stock bought were considerably higher, for example, calves under 6 months old cost on average £5 per head more and these accounted for nearly two-thirds of the number of cattle bought.

TABLE 15

CATTLE PURCHASES 1955/56 AND 1956/57
Average Price per Head. All Farms

	1955/56		1956/57	
	No. Purchased	*Price per Head*	*No. Purchased*	*Price per Head*
		£		£
Breeding Cows	43	84	40	78
Cows and Calves ...	8/8	75	11/11	74
Heifers in Calf	4	45	20	53
Stores:				
2 years and over ...	14	44	1	52
1—2 years	20	38	46	42
6—12 months ...	11	24	6	39
0— 6 months ...	192	11	173	16
Total	300	—	308	—

Cattle Sales

The relative importance of fat and store cattle sales in each of the three groups is shown in Table 16. The highest proportion of cattle sold fat is in the Better-land group, with 54%, but the Poorer-land group with 48% average over the two-year period follows very closely. Fat cattle sales in the Moorland group are not important, amounting to only 14% of sales. In both the Better-land and Moorland groups the proportions of cattle sold fat did not change between the two years, but there was a fairly wide variation in the Poorer-land group from 37% in 1955/56 to 58% in 1956/57. It is probable that climatic conditions which affect the supply of keep have a greater influence on the ability to finish cattle on the Poorer-land farms than on the Better-land farms.

TABLE 16

SALES OF FAT AND STORE CATTLE BY TYPE OF FARM

	Better-land			*Poorer-land*			*Moorland*		
	1955/56	*1956/57*	*2-year Ave.*	*1955/56*	*1956/57*	*2-year Ave.*	*1955/56*	*1956/57*	*2-year Ave.*
		No.			*No.*			*No.*	
Fat	209	206	207	104	177	140	26	28	27
Store ..	181	178	180	174	130	152	154	179	167
TOTAL ..	390	384	387	278	307	292	180	207	194
		%			%			%	
Fat	54	54	54	37	58	48	14	14	14
Store ..	46	46	46	63	42	52	86	86	86
TOTAL ..	100	100	100	100	100	100	100	100	100

TABLE 17

CATTLE SALES 1955/56 and 1956/57
Average Price per Head· All Farms
(excluding casualties and pedigree breeding stock)

	1956/57		*1955/56*	
	Number Sold	*Av. Price per Head*	*Number Sold*	*Av. Price per Head*
		£		£
Breeding Cows	24	50	31	53
Cows and Calves ...	23/23	76	29/29	87
Heifers in Calf	8	61	4	73
Store Cows	60	36	54	42
Fat Cows	77	49	79	51
Fat Cattle	333	67	402	69
Store Cattle:				
Over 2 years ...	328	52	234	63
1—2 years	193	46	223	58
6—12 months ...	—	—	10	40
0— 6 months ...	31	7	57	18
Total	1100	—	1152	—

The average prices for cattle sold, Table 17, show a general increase in all classes of stock, but the increases were small for fatstock and substantial for stores and calves. In the breeding stock classes the smallest increase was for breeding cows but the prices of cows and calves and in-calf heifers rose by an amount similar to store stock prices. This contrasts with the lower average prices paid for breeding cows and heifers-in-calf by the farmers in the whole sample. The proportions of fat and store cattle were about equal in 1955/56, but there was a greater proportion of fat cattle in 1956/57 which was approximately balanced by a small number of over 2 year-old stores.

Analysis of Fat Cattle Sales

Data relating to fat cattle sales for each group for 1955/56 and 1956/57 are set out in Table 18. The greatest number of fat cattle in each year was sold from the Better-land group. The number in the Moorland group was negligible. In both the Better-land and Poorer-land groups the age at sale and the liveweights were very similar both between groups and between years. In the Moorland group the fat cattle were rather more than one cwt. per head lighter than in the other groups but some three months older. Prices per cwt. and per head were higher in 1956/57 in all groups.

TABLE 18

FAT CATTLE SALES DATA, 1955/56 and 1956/57

By Type of Farm

	Better-land		*Poorer-land*		*Moorland*	
	1955/56	*1956/57*	*1955/56*	*1956/57*	*1955/56*	*1956/57*
No. Sold	209	206	104	177	26	28
% of Total	54	54	37	58	14	14
Average Age (months)	27	29	29	29	32	31
Average Live Wt. (cwt.)	10·5	10·4	10·8	10·4	9·2	9·2
Average Price:						
Per cwt. (£) ..	6·8	7·4	6·9	7·5	6·2	8·1
Per Head (£) ..	71·7	76·9	74·8	77·8	56·8	74·6

The monthly distribution of fat cattle sales, average age at sale and liveweights are given in Table 19, the results being the average for 1955/56 and 1956/57. The prices per cwt. received each month are given for both years. There was a tendency for a greater proportion of the fat cattle in the Moorland group to be winter fed, on the whole, than in the Better-land and Poorer-land groups. Over the whole sample there was a considerable amount of winter finishing and it is likely that about 50% of the cattle were winter finished and 50% fattened off grass. There was a trough in sales during the months of April to September inclusive, from the end of the winter feeding period till the flush of sales off grass reached a peak in October. The trough in marketings generally coincided with a peak in price per cwt. In the second year, prices on average were higher and began to rise earlier in the year. The higher summer period prices tended also to be maintained later in the year. There was a pronounced drop in price in January, 1956 with only a little improvement

in February. This resulted in lower returns and margins on the cattle which had been held over in anticipation of the seasonal rise in prices which usually occurs from January onwards. Following the experience of the winter of 1955/56 farmers in all three groups sold their cattle earlier in the second year. For the whole sample of farms in the 1955/56 year, 7·1% of the fat cattle were sold in December, 1955 and 11·5% in January, 1956. In the second year the position was reversed, 12·7% being sold in December, 1956 and 7·1% in January, 1957.

TABLE 19

MONTHLY DISTRIBUTION OF FAT CATTLE SALES AND OTHER DATA
Two-year Average
MONTHLY DISTRIBUTION OF PRICES PER CWT.
1955/56 and 1956/57

	Two-year Average				*Av. Price per Cwt.*	
	Monthly Sales		*Age*	*Livew't.*	*1955/56*	*1956/57*
	No.	%	*Months*	*Cwt.*	£	£
November	30	8·0	30	10·4	6·6	7·0
December	38	10·1	30	11·0	7·5	7·1
January	34	9·1	29	10·5	6·6	7·7
February	34	9·1	30	10·7	7·0	8·1
March ..	39	10·4	28	10·3	7·2	8·1
April ..	26	6·9	28	10·5	8·2	8·6
May ..	25	6·8	28	10·6	8·4	8·4
June ..	20	5·3	28	10·2	7·0	8·3
July ..	27	7·1	28	9·9	6·1	8·4
August	30	8·1	28	10·1	6·3	7·4
September	24	6·3	28	10·4	6·6	6·2
October..	48	12·8	29	9·9	6·2	6·9
Average	—	—	29	10·4	6·9	7·5
TOTAL	375	100·0	—	—	—	—

The information relating to method of disposal in Table 20 shows the proportion of fat cattle marketed through the three channels, the Fat-stock Marketing Corporation, Auction Markets and Private Sale. In all three groups the auction markets were the main channel of sales,

TABLE 20

FAT STEER AND HEIFER SALES, METHOD OF DISPOSAL
Two-year Average

	Better-land	*Poorer-land*	*Moorland*	*Av. Price per Cwt. All Farms*
	%	%	%	£
F.M.C.	33	14	37	6·9
Auction	60	83	56	7·2
Private	7	3	7	7·7
Total	100	100	100	7·3

accounting for from 54% of the total in the Moorland group to 83% in the Poorer-land group. The share of sales handled by the Fatstock Marketing Corporation varied from 14% in the Poorer-land group to 39% in the Moorland group. Approximately 4½% only were sold privately, but these animals realised the highest average price per cwt. liveweight, while marketing costs in the form of tolls, insurances, etc., were nil. The average price per cwt. liveweight was a little higher for the auction sales than for sales through the Fatstock Marketing Corporation.

Analysis of Store Cattle Sales

Data relevant to store cattle sales are summarised in Table 21. On the Better-land and Poorer-land farms, store cattle sales amounted to approximately one-half of the total fat and store cattle sold. In the Moorland group, the main sale product was store cattle, accounting for some 86% of the total fat and store beasts sold. The seasonal distribution of store cattle sales shows that the Better-land farmers concentrate mainly on selling stores in the spring for fattening on grass in the summer. Winter keep is more plentiful on these farms which allows the stores to be over-wintered and to reach heavier weights than in the other groups at an average age which is only a little greater. On the Poorer-land farms the sales of stores are divided almost equally between the spring and

TABLE 21

ANALYSIS OF STORE CATTLE SALES
Two-year Average
TOGETHER WITH ESTIMATED LIVEWEIGHT AND PRICES
1955/56 and 1956/57

	Better-land	*Poorer-land*	*Moorland*
Number Sold (Two-year average)			
Store Cattle	180	152	167
Fat Cattle	207	140	27
Total	387	292	194
Per Cent. Sold Store	46	52	86
Seasonal Distribution of Sales (%) ...			
February—July	75	53	32
August—January	25	47	68
Total	100	100	100
Age (2-Year average) months	24·5	24·0	22·0
Estimated Liveweight	*cwt.*	*cwt.*	*cwt.*
1955/56	9·1	8·4	7·4
1956/57	8·9	7·9	7·0
Average Prices per Head	£	£	£
1955/56	54·7	45·9	43·0
1956/57	66·0	55·7	49·0
Average Prices per Cwt. Liveweight ...	6·0	5·8	5·8
1955/56	7·4	7·0	7·0
1956/57			

autumn and the average estimated liveweights are intermediate between the Better-land and Moorland groups. In the latter group just over two-thirds or 68% of the store cattle are sold in the autumn, because of the necessity to reduce stocking for the winter period on these farms. This has given rise to the traditional pattern of autumn fairs and sales of store cattle in the upland areas. On average the stores sold in the Moorland group were about two months younger and between $1\frac{1}{2}$ and 2 cwt. per head lighter than the cattle in the Better-land group. The Better-land stores made somewhat higher prices per cwt. and because of their heavier weights the additional price per head was quite substantial in both years. Prices per cwt. were identical in the Poorer-land and Moorland groups, but the Poorer-land cattle were heavier. In all groups prices were higher in 1956/57 than in the previous year.

The two main methods of selling store cattle are by the Auction Market and by private treaty. The figures in Table 22 relating to the method of sale of store cattle show that about two-thirds of the stores were sold privately in the Better-land and Poorer-land groups, but rather less than one-half (43%) in the Moorland group. The average price per cwt. varied by about 4s. 0d. per cwt. liveweight between the two methods, the higher prices being obtained at the auction sales.

TABLE 22

STORE CATTLE SALES. METHOD OF DISPOSAL

Two-year Average

	Better-land	*Poorer-land*	*Moorland*	*Av. Price per Cwt. All Farms*
	%	%	%	£
Auction	37	30	57	6·5
Private	63	70	43	6·3
Total	100	100	100	6·4

(3) OUTPUT OF MEAT AND MILK

The quantitative output of meat has been calculated per adjusted acre used by the cattle, per feed acre and per breeding cow for each group. The gallonages of milk sold have also been calculated on a similar basis. These data are given in Table 23. The weight of meat produced on the Poorer-land farms was rather less than in the other two groups, but in the Moorland group the contribution made by common grazings is included although an adjustment to the acreage has not been made. The variation between groups was not great and approximately 2 cwt. of meat were produced per adjusted acre. The figures per feed acre show a similar relationship between the groups. The amount of milk sold per adjusted acre was highest in the Better-land group, some 50—60 gallons, and declined steadily through the Poorer-land group to the Moorland group in which it was only about 20 gallons per acre. The output of meat per breeding cow is highest in the Better-land group as also are milk sales. These figures are somewhat lower in the Poorer-land group and considerably less in the Moorland group. The breeding cows are

less productive in the Moorland group and this results from the more extensive nature of production followed on the Moorland farms. Just over 2 followers were supported to every breeding cow in the Better-land group compared with 1·8 in the Poorer-land and 1·3 in the Moorland groups and in addition, the milk sales were much higher in the Better-land and Poorer-land groups compared with the Moorland group.

TABLE 23

OUTPUT OF MEAT AND MILK SOLD
1955/56 and 1956/57

	Better-land		*Poorer-land*		*Moorland*	
	1955/56	*1956/57*	*1955/56*	*1956/57*	*1955/56*	*1956/57*
Per Adjusted Acre:						
Output of Meat (lb.) ..	227	228	197	218	219	230
Milk Sold (galls.) ...	51	60	42	44	20	18
Per Feed Acre:						
Output of Meat (lb.) ..	214	213	190	206	209	219
Milk Sold (galls.) ..	48	56	41	42	19	17
Per Breeding Cow:						
Output of Meat (cwt.) ..	11·8	11·0	9·5	9·7	6·3	6·4
Milk Sold (galls.) ..	300	327	232	223	54	48

(4) SYSTEMS AND COSTS OF CATTLE REARING

The two methods of rearing most common on the farms studied were single suckling and multiple suckling. Bucket rearing was comparatively unimportant. Single suckling was practised on all the farms in the Moorland group and on the majority of the non milk-selling farms in the other two groups. The calves were invariably spring-born with each cow rearing its own calf. Multiple suckling, on the other hand, was the normal practice on the milk-selling farms of the Better-land and Poorer-land groups, but on these farms there was a good deal of variation within the multiple suckling system. On some farms it was customary to milk the cows for the first four or five months of the lactation and to suckle calves for the remainder. On other farms the procedure was reversed, with the calves suckling for the first part of the lactation. In other cases milking was carried on simultaneously with suckling. The most common practice, however, on the milk-selling farms was to maintain a certain number of cows solely as nurse cows. The analysis of multiple-suckling costs is based on the farms on which the latter system was used. Even in these herds the practice varied, in some cases two calves were suckled simultaneously and in others the first calf was replaced by another after a period of about three or four months. On average, 1·8 calves were reared per cow in the multiple suckling herds.

When calves are reared on the cow, the bulk of the costs during the first six months are the costs of maintaining the nurse cow. In Table 24 the annual costs of keeping a nurse cow are set out for the single suckling and multiple suckling herds, and the share of these costs per calf reared have been calculated. In Table 25 the physical quantities of the resources used are given.

TABLE 24

ANNUAL COSTS OF MAINTAINING NURSE COWS SINGLE AND MULTIPLE SUCKLING HERDS, 1956/57

Costs per Cow	*Single Suckling*	*Multiple Suckling*
Costs:	£	£
Foods and Grazing—		
Cake and Corn	3·7	5·4
Hay	6·3	7·0
Roots and Greenfodder	1·7	1·7
Grazing	4·6	4·8
Total	16·3	18·9
Labour	4·1	5·6
Cow Depreciation	3·5	3·5
Sundry Costs	1·5	2·3
Total Costs	25·4	30·3
Calves Reared per Cow	1·0	1·8
Costs per Calf Reared (£)	25·4	16·8

Because the cows included in the samples of single suckling and multiple suckling herds were used solely as nurse cows, the costs per cow can therefore be divided by the number of calves reared to arrive at the share of the cow costs for each calf. The annual costs per cow were rather greater in the multiple suckling herds due mainly to higher labour and feed costs, particularly concentrates. The costs per calf however, were much lower on the multiple suckling herds because of the greater number of calves reared per cow.

TABLE 25

INPUTS USED IN MAINTAINING NURSE COWS SINGLE AND MULTIPLE SUCKLING HERDS, 1956/57

Inputs per Cow	*Single-Suckling Herds*	*Multiple-Suckling Herds*
	cwt.	*cwt.*
Cake and Corn	2·0	4·4
Hay	18·0	20·0
Roots and Greenfodder	20·0	20·0
	Hrs.	*Hrs.*
Manual Labour	22	30
Feed Acres:		
Summer	1·0	1·0
Winter	1·3	1·7
Total Feed Acres	2·3	2·7

In addition to the cow costs there are certain other costs specific to the calf and in the multiple suckling herds extra calves were purchased. These costs are set out with the share of cow costs for the 0—6 month period in Table 26, together with the costs of rearing store cattle to the age of two and a half years by half-yearly periods.

TABLE 26

PER HEAD COSTS OF REARING STORE CATTLE, 1956/57

(a) Single-Suckled Spring-born Calves

	Calves 0–6 months			*Store Cattle*				
	Share of Cow Costs	*Calf Costs*	*Total Calf Costs*	*6–12 months*	*12–18 months*	*18–24 months*	*24–30 months*	*Total*
Costs:	£	£	£	£	£	£	£	£
Foods & Grazing—								
Cake & Corn ..	3·7	—	3·7	·8	—	·6	—	5·1
Hay	6·3	—	6·3	4·9	—	5·3	—	16·5
Roots & G'fodder	1·7	—	1·7	1·3	—	1·3	—	4·3
Grazing	4·6	·4	5·0	·1	2·9	·6	2·8	11·4
TOTAL ..	16·3	·4	16·7	7·1	2·9	7·8	2·8	37·3
Labour	4·1	·8	4·9	3·6	·6	3·3	·4	12·8
Cow Depreciation	3·5	—	3·5	—	—	—	—	3·5
Sundries	1·5	·2	1·7	1·3	·2	·9	·2	4·3
TOTAL COSTS	25·4	1·4	26·8	12·0	3·7	12·0	3·4	57·9

(b) Multiple-Suckled Mainly Autumn-born Calves

Costs:	£	£	£	£	£	£	£	£
Foods & Grazing—								
Cake & Corn ..	3·0	·6	3·6	—	·6	—	·8	5·0
Hay	3·9	·3	4·2	—	5·6	—	6·3	16·1
Roots & G'fodder	·9	—	·9	—	1·5	—	1·3	3·7
Grazing	2·7	—	2·7	2·1	·2	3·0	·5	8·5
TOTAL ..	10·5	·9	11·4	2·1	7·9	3·0	8·9	33·3
Labour	3·1	1·8	4·9	·6	2·8	·4	3·6	12·3
Cow Depreciation	2·2	—	2·2	—	—	—	—	2·2
Sundries	1·0	·2	1·2	·2	1·0	·1	1·2	3·7
Calves Purchased	—	9·0	9·0	—	—	—	—	9·0
TOTAL COSTS	16·8	11·9	28·7	2·9	11·7	3·5	13·7	60·5

The cost data in Table 26 are mostly self explanatory and need little comment. The item for cow depreciation is the most important of the sundry cost items and it was found to average £3 10s. per breeding cow on both the single and multiple suckling herds. The charge per calf will therefore be less on the multiple suckling herds because of the greater number reared. The other sundry costs include veterinary and medicines, bull upkeep or service fees, and a share of the general farm overheads. The physical data relating to the costs are set out in Table 27.

TABLE 27

PER HEAD FOOD LABOUR AND FEED-ACRE REQUIREMENTS OF STORE CATTLE, 1956/57

(a) Single Suckled Spring-born Calves

	Share of Cow Requirements	*Calf 0–6 months*	*Total Calf Requirements*	*Store Cattle*				*Total*
				6–12 months	*12–18 months*	*18–24 months*	*24–30 months*	
Feed:	*Cwt.*	*Cwt.*	*Cwt.*	*Cwt.*	*Cwt.*	*Cwt.*	*Cwt.*	*Cwt.*
Cake & Corn ..	2·0	—	2·0	·6	—	·6	—	3·2
Hay	18·0	—	18·0	14·0	—	15·0	—	47·0
Roots & G'fodder	20·0	—	20·0	15·0	—	16·0	—	51·0
Manual Labour ..	*Hrs.* 22	*Hrs.* 4	*Hrs.* 26	*Hrs.* 19	*Hrs.* 3	*Hrs.* 18	*Hrs.* 2	*Hrs.* 68
Farm Feed Acres:								
Summer ..	1·0	·1	1·1	—	·7	·1	·7	2·6
Winter	1·3	—	1·3	1·0	—	1·0	—	3·3
TOTAL FEED ACRES	2·3	·1	2·4	1·0	·7	1·1	·7	5·9

(b) Multiple Suckled Mainly Autumn-born Calves

Feed:	*Cwt.*	*Cwt.*	*Cwt.*	*Cwt.*	*Cwt.*	*Cwt.*	*Cwt.*	*Cwt.*
Cake & Corn ..	2·4	·4	2·8	—	·5	—	·6	3·9
Hay	11·0	1·0	12·0	—	16·0	—	18·0	46·0
Roots & G'fodder	11·0	—	11·0	—	18·0	—	16·0	45·0
Manual Labour ..	*Hrs.* 17	*Hrs.* 10	*Hrs.* 27	*Hrs.* 3	*Hrs.* 15	*Hrs.* 2	*Hrs.* 19	*Hrs.* 66
Farm Feed Acres:								
Summer ..	·6	—	·6	·4	—	·6	·1	1·7
Winter	·9	·1	1·0	—	1·1	—	1·1	3·2
TOTAL FEED ACRES	1·5	·1	1·6	·4	1·1	·6	1·2	4·9

The main differences in resource use in the two systems of rearing are in the concentrate and farm feed acre requirements. The nurse cows in the multiple suckling herds used more concentrates and a rather greater farm acreage per head. When these are divided by the number of calves reared, the concentrates per head remain considerably higher for the multiple suckled calves and these calves were also hand fed with some concentrates, up to six months old. The feed acres per calf reared are greater for the single suckled herds. The multiple suckling system is therefore a more intensive system requiring less farm acres per store reared to $2\frac{1}{2}$ years, 4·9 compared with 5·9 farm acres in the single suckling herds, and a greater input of purchased feed. The labour and bulk feed requirements also tend to be slightly less for multiple suckled stores, but the differences are not great.

Because the single-suckled calves are spring-born and the multiple suckled calves are mainly autumn-born, some 70% being reared within the eight-month period August to March, the expensive winter and cheap summer periods will occur at different stages in the animal's life. This will have an effect on total costs per animal which will vary at particular ages for the two systems of rearing. In Table 28 the total rearing costs and farm acreage requirements are set out for the two systems at six monthly age periods. At 18 months and again at 30 months calves reared under both systems will have incurred equal numbers of cheap summer and expensive winter periods in their lives and the costs per head are fairly comparable. At 12 and 24 months however the spring-born calves show considerably greater costs per head because they have incurred an extra winter period of hand feeding after the suckling period from birth to six months of age. Thus at 12 months old the spring-born calves will have had one winter (6—12 months age period) on hand feeding compared with none for the autumn-born calves and at 24 months they will have incurred two winters of hand feeding compared with one for the autumn-born calves. It will be noted that the demand on the farm acreage per store reared is less at all stages in the case of the autumn-born multiple suckled group.

TABLE 28

PER HEAD TOTAL REARING COSTS AND FARM FEED-ACRE REQUIREMENTS FOR STORE CATTLE BY SYSTEM OF REARING AND AGE GROUPS, 1956/57

Months	*Single-Suckled Spring-born Calves*		*Multiple-Suckled Autumn-born Calves*	
	Total Costs	*Farm Feed Acres*	*Total Costs*	*Farm Feed Acres*
	£		£	
6 ...	26·8	2·4	28·7	1·6
12 ...	38·8	3·4	31·6	2·0
18 ...	42·5	4·1	43·3	3·1
24 ...	54·5	5·2	46·8	3·7
30 ...	57·9	5·9	60·5	4·9

(5) SYSTEMS OF REARING, SALE AGE AND MARGINS

The differences in costs which occur at certain similar ages according to the rearing system followed is a factor to be considered when deciding at what age to sell store cattle. In this respect, however, margin per head is not the only factor, since the main consideration is the total margin per farm acre used by the cattle enterprise. In Table 29, the returns, rearing costs and margins per head and per 100 farm acres devoted to cattle are tabulated according to the rearing system followed. The table is further divided into section (a), in which the Hill Cow Subsidy of £10 per head is excluded, and section (b), in which this subsidy is taken into account.

TABLE 29

RETURNS, COSTS AND MARGINS PER HEAD AND PER 100 FARM FEED ACRES DEVOTED TO THE CATTLE ENTERPRISE BY SYSTEM OF REARING AND AGE AT SALE, 1956/57

(a) Excluding Hill Cow Subsidy

	Single-Suckled Spring-born Calves				*Multiple-Suckled Autumn-born Calves*			
	1 Yr.	*1½ Yrs.*	*2 Yrs.*	*2½ Yrs.*	*1 Yr.*	*1½ Yrs.*	*2 Yrs.*	*2½ Yrs.*
Per Head:	£	£	£	£	£	£	£	£
Returns* ..	44	52	66	74	43	53	64	77
Costs	39	43	54	58	32	43	47	60
Margins ..	5	9	12	16	11	10	17	17
Per 100 Cattle Acres:								
Number Sold ..	30	24	20	17	50	33	27	20
Annual Margins	150	216	240	272	550	330	459	340

(b) Including Hill Cow Subsidy

Per Head:								
Returns* ..	44	52	66	74	43	53	64	77
Add Subsidy ..	10	10	10	10	5½	5½	5½	5½
Total Returns ..	54	62	76	84	48½	58½	69½	82½
Costs	39	43	54	58	32	43	47	60
Margins ..	15	19	22	26	16½	15½	22½	22½
Per 100 Cattle Acres:								
Number Sold ..	30	24	20	17	50	33	27	20
Annual Margins	450	456	440	442	825	511	607	450

* Including Calf Subsidy.

It will be observed that the margin per head generally increases with increasing sale age, but the range of increase is much greater in the single suckled than in the multiple suckled group. As age increases, however, the numbers sold per 100 farm feed acres fall rapidly. At all sale ages, however, the margins per 100 acres are greater in the multiple suckled group, although when the Hill Cow Subsidy is included, this relative advantage is much less pronounced on account of the fewer breeding cows maintained.

Under conditions where the Hill Cow Subsidy is not included, profitability per acre in the single suckled group is greatest when the stores are sold at 2½ years, and least at 1 year old. In the multiple suckled group, on the other hand, margin per acre is greatest when sale takes place at 1 year old, and lowest at 1½ years of age.

When the Hill Cow Subsidy is taken into account, profit margins per acre in the single suckled group are very similar at all sale ages. Here, the highest profit, £4 11s. per acre, is obtained when the stores are sold at 1½ years, and the lowest, £4 8s. per acre, when sale occurs at 2 years and 2½ years of age. In the multiple suckled group, profits are

highest, £8 5s. per acre, when sale occurs at 1 year, and lowest, £4 10s. per acre, at 2½ years of age. It will be noted, however, that the relative advantage of selling at 1 year old under these circumstances is far greater than when the Hill Cow Subsidy is excluded.

In practice, the study farms pursuing the single suckling method of rearing all qualified for the Hill Cow Subsidy, whereas those adopting multiple suckling did not by reason of their location and/or quantities of milk sold. Therefore, a comparison of two systems under these conditions reveals that the overall advantage of the multiple suckled group referred to earlier is not now so clear cut. Indeed, at the sale ages of 1½ years and 2½ years, the profit advantage rests distinctly with the single suckled group.

(6) CATTLE BREEDS AND BREEDING PRACTICES

To conclude the account of the cattle enterprise an analysis of breeds and breeding policies is presented. In Table 30 the breeds of cows maintained and their relative importance are shown for the three type of farm groups and in total.

TABLE 30

ANALYSIS OF BREEDS OF COWS, BY TYPE OF FARM
Two-Year Average

Breed	*Better-land*		*Poorer-land*		*Moorland*		*All Farms*	
	No. Farms	*No. Cows*	*No. Farms*	*No. Cows*	*No. Farms*	*No. Cows*	*No. Farms*	*No. Cows*
One Breed:								
South Devon	14	234	3	69	—	—	17	303
Devon ..	3	77	13	188	8	116	24	381
Total One-Breed	17	311	16	257	8	116	41	684
Two Breeds:								
South Devon		39		12				51
Friesian	2	11	1	13	—	—	3	24
Devon		11						11
Guernsey	1	10	—	—	—	—	1	10
Devon		8		14				22
Shorthorn	1	4	1	4	—	—	2	8
Devon				6				6
South Devon	—	—	1	6	—	—	1	6
Devon				7				7
Friesian	—	—	1	7	—	—	1	7
Devon				12				12
Red Poll	—	—	1	11	—	—	1	11
Devon						26		26
Galloway	—	—	—	—	1	26	1	26
Devon						54		54
Angus	—	—	—	—	2	67	2	67
Galloway						21		21
Friesian	—	—	—	—	1	10	1	10
Total Two-Breeds	4	83	5	92	4	204	13	379
TOTAL	21	394	21	349	12	320	54	1063

On the sample of farms studied the predominant breed was the Devon, commonly referred to as the Red Ruby. The Devons are primarily a beef breed and they were found either on their own or in combination with some other breed on 60% of the farms and accounted for nearly 50% of the total number of cows. They were most popular in the Poorer-land and Moorland groups, appearing on 80% of the farms in the former and on all but one farm in the latter group. In the Better-land group however, the Devon was relatively unimportant, and the South Devon, a dual purpose breed was kept on 75% of the farms, being particularly popular on the milk-selling farms. In all the South Devon appeared on 40% of the farms studied and accounted for 34% of the total cow popu-

TABLE 31

BREEDS OF BULL USED
NATURAL MATING AND ARTIFICIAL INSEMINATION
Two Year Average

	Better-land		*Poorer-land*		*Moorland*		*All Farms*		*Total*
	Bull	*A.I.*	*Bull*	*A.I.*	*Bull*	*A.I.*	*Bull*	*A.I.*	
	Number of Farms								
South Devon	6	9	1	3	—	—	7	12	19
Devon ..	4	3	4	14	2	5	10	22	32
Galloway ..	—	—	—	—	2	—	2	—	2
Angus ..	—	—	—	—	1	1	1	1	2
Hereford ..	—	—	—	—	1	—	1	—	1
Friesian ..	—	2	—	2	—	1	—	5	5
Guernsey ..	—	1	—	—	—	—	—	1	1
Shorthorn ..	—	—	—	1	—	—	—	1	1
TOTAL	10	15	5	20	6	7	21	42	63

TABLE 32

ANALYSIS OF CATTLE BREEDING PRACTICES
Two-Year Average

		Better-land		*Poorer-land*		*Moorland*		*Total*	
Cow:	*Bull:*	*No. Farms*	*No. Cows*	*No. Farms*	*No. Cows*	*No. Farms*	*No. Cows*	*No. Farms*	*No. Cows*
Devon	X Devon	5	96	17	227	8	111	30	434
	Hereford	—	—	—	—	1	31	1	31
	Angus	—	—	—	—	2	54	2	54
S. Devon	X S. Devon	15	248	4	64	—	—	19	312
	Devon	2	25	1	23	—	—	3	48
Angus	X Angus	—	—	—	—	2	67	2	67
Galloway	X Galloway	—	—	—	—	2	47	2	47
Friesian	X Friesian	2	11	2	20	1	10	5	41
Red Poll	X Red Poll	—	—	1	11	—	—	1	11
Guernsey	X Guernsey	1	10	—	—	—	—	1	10
Shorthorn	X Shorthorn	—	—	1	4	—	—	1	4
	Devon	1	4	—	—	—	—	1	4
TOTAL ..		26	394	26	349	16	320	68	1063

lation. The two native breeds together were found on all but one of the farms studied and comprised 83% of the total cow numbers. The other breeds found were Aberdeen Angus, Galloway, Friesian, Guernsey, Red Poll and Shorthorn.

On only 21 of the farms was a bull kept, 10 in the Better-land, 5 in the Poorer-land and 6 in the Moorland group. Artificial insemination only was used on the remaining 33 farms. Table 31 shows that on the male side, the Devon was the most important breed, and that either a Devon bull or Devon semen was used on 32 of the total of 54 farms. The South Devon was used on a further 19 farms. An analysis of breeding practices is presented in Table 32. Cross-breeding was resorted to on only about 13% of the cows, thus about seven-eigths of the cows were used for pure breeding.

IV.

THE SHEEP ENTERPRISE

(1) FINANCIAL RESULTS

Better-land, Poorer-land and Moorland Farms

The financial results and efficiency measures for the sheep enterprise are given in Tables 33 and 34. The calculations and presentation has been made on the same basis as for the cattle enterprise so that the results can be readily compared.

TABLE 33

THE SHEEP ENTERPRISE GROSS OUTPUT, INPUTS AND MARGINS
1955/56 and 1956/57

Per Adjusted Acre Devoted to Sheep

	Better-land		*Poorer-land*		*Moorland**	
	1955/56	*1956/57*	*1955/56*	*1956/57*	*1955/56*	*1956/57*
Adj. Acres used by Sheep	51	45	60	58	58	56*
Av. No. Animal Units (Sheep)	33	32	35	38	46	47
	Per Adjusted Acre					
Gross Output:	£	£	£	£	£	£
Sheep	13·6	18·9	12·7	18·5	15·3	19·1
Wool	6·3	7·6	5·7	6·7	7·1	7·8
TOTAL GROSS OUTPUT ..	19·9	26·5	18·4	25·2	22·4	26·9
Inputs:						
Foods—						
Purchased ..	·7	·6	·2	·4	·6	·8
Home-grown:						
Corn	·4	·3	·4	·3	·2	·1
Hay	·1	·1	·1	·1	·1	—
Roots ..	3·7	3·8	2·8	2·2	2·7	2·3
Total Home-grown	4·2	4·2	3·3	2·6	3·0	2·4
Grazing ..	4·6	4·3	3·4	3·5	4·1	3·5
Total Foods & Grazing	9·5	9·1	6·9	6·5	7·7	6·7
Labour—						
Manual	2·0	2·4	2·0	2·0	2·3	2·2
Horse & Tractor	·2	·2	·1	·1	·1	·1
Total Labour ..	2·2	2·6	2·1	2·1	2·4	2·3
Miscellaneous Costs	1·5	1·7	1·1	1·3	1·3	1·4
Total Inputs	13·2	13·4	10·1	9·9	11·4	10·4
MARGIN	6·7	13·1	8·3	15·3	11·0	16·5

* Exclusive of Common Grazings.

In all three groups profit margins were considerably higher in 1956/57, the greatest increase, nearly 100% occurred in the Better-land group, but there was also a 50% increase in the Moorland group. The gross output rose in all groups, but the least increase was in the Moorland group, some 25% compared with approximately 40% in the other two groups. The changes in costs were much smaller, total inputs increasing by only £·2 per acre in the Better-land group and falling by the same amount in the Poorer-land group. In the Moorland group the fall in total inputs amounted to £1 per acre, and this was almost entirely because of reductions in the cost of home-grown foods and grazing.

In each year, profit margins per acre were highest in the Moorland group and lowest in the Better-land group. This resulted from higher output and lower costs per acre on the Moorland farms. The higher apparent output and margins per acre are partly attributable to the use made of the common grazings which have not been included in the adjusted acreage in this group.

TABLE 34

THE SHEEP ENTERPRISE
SOME EFFICIENCY MEASURES
1955/56 and 1956/57

	Better-land		*Poorer-land*		*Moorland**	
	1955/56	*1956/57*	*1955/56*	*1956/57*	*1955/56*	*1956/57*
Per Animal Unit (Sheep):						
Adjusted Acres ..	1·5	1·3	1·7	1·5	1·2	1·2
Feed Acres ..	1·6	1·4	1·8	1·6	1·3	1·3
Per Breeding Ewe:						
Adjusted Acres ..	·5	·4	·6	·5	·5	·5
Feed Acres ..	·5	·4	·6	·5	·5	·5
	£	£	£	£	£	£
Gross Output per:						
Adjusted Acre	19·9	26·5	18·4	25·2	22·4	26·9
Feed Acre ..	18·9	25·3	18·2	24·8	21·5	25·7
Breeding Ewe ..	9·8	10·4	11·0	13·5	10·8	12·4
Animal Unit (Sheep)	31·0	36·2	32·3	39·1	28·4	32·3
£100 Feed Costs	210·6	292·4	265·4	388·6	291·8	401·1
£100 Labour Costs	884·1	1000·2	871·1	1186·0	939·3	1183·2
£100 Total Costs	150·8	197·7	180·9	254·5	196·9	259·5
Margin per:						
Adjusted Acre	6·7	13·1	8·3	15·3	11·0	16·5
Feed Acre ..	6·4	12·5	8·1	15·0	10·6	15·8
Breeding Ewe ..	3·3	5·2	4·9	8·2	5·3	7·7
Animal Unit (Sheep)	10·5	17·9	14·5	23·7	13·9	19·8

* Exclusive of common grazings.

An examination of the information in Table 33 reveals some of the reasons for the differences in profitability between the three groups. The profit advantage of both the Poorer-land and Moorland groups results mainly from lower costs, particularly in respect of food and grazing. The use of the common grazings is probably an important factor in the Moorland group. Although gross output per acre was similar in all

groups, a greater feed input was required in the Better-land group. In 1956/57 the Better-land farms obtained only £292 of gross output per £100 spent on feed compared with £389 and £401 in the Poorer-land and Moorland groups respectively. Labour requirements per £100 of gross output were also considerably greater in the Better-land group. The greatest output per breeding ewe was obtained by the Poorer-land group in both years and the lowest was in the Better-land group. The Poorer-land farms also showed the greatest output per animal unit followed by the Better-land group. The lowest output per animal unit resulted from the more extensive nature of the sheep enterprise in the Moorland group. Here a higher proportion of the sheep are kept to the hogget stage and more breeding replacements are reared to support the breeding stock sales.

(2) BUYING AND SELLING POLICIES AND PRICES

An indication of the extent of the trading in sheep can be obtained from Table 35. The Better-land farmers buy in greater numbers of sheep than those in the other two groups. In the upland groups there was little difference in the numbers bought between the two years, but in the Better-land group the numbers purchased were much greater in the first year. There was a noticeable increase in the number of sheep sold in the Poorer-land group in 1956/57 compared with the previous year.

TABLE 35

TOTAL NUMBER OF SHEEP PURCHASED AND SOLD
1955/56 and 1956/57

	No. of Farms	*Purchases*		*Sales*	
		1955/56	1956/57	1955/56	1956/57
Better-land ...	21	872	550	3043	3012
Poorer-land ...	21	354	345	2427	2819
Moorland ...	12	274	246	1806	1713
Total ...	54	1500	1141	7276	7544

TABLE 36

CLASS OF SHEEP PURCHASED AND AVERAGE PRICES PER HEAD
1955/56 and 1956/57

	Better-land		*Poorer-land*		*Moorland*		*Average Price Per Head. All Farms*	
	1955/6	*1956/7*	*1955/6*	*1956/7*	*1955/6*	*1956/7*	*1955/6*	*1956/7*
	No.	*No.*	*No.*	*No.*	*No.*	*No.*	£	£
Rams ..	9	13	14	16	21	20	21·0	24·0
Breeding Ewes	290	242	142	109	67	26	7·6	9·3
Couples ..	149	40	22	49	—	6	11·0	13·0
..	186	57	29	54	—	6		
Wether Hoggets	119	45	—	—	—	—	6·0	6·0
Lambs ..	119	153	147	117	186	188	5·7	7·3
Total ..	872	550	354	345	274	246	—	—

Sheep Purchases

In Table 36 the sheep purchases are analysed in greater detail showing the types of sheep bought in each group.

The main difference between the groups is in the number of ewes purchased which reflects differences in sheep management. In the Poorer-land and Moorland groups a higher proportion of the lambs are retained for flock replacement. In the Better-land group approximately 50% only of the flock replacements are home-reared, compared with 79% in the Poorer-land and 94% in the Moorland groups. The Moorland farmers bought rather more store lambs, probably for rearing, to augment their ewe flock replacements.

The more favourable sheep prices in 1956/57 are reflected in the averages in Table 36. Breeding stock were dearer, rams by £3, ewes by nearly £2 and store lambs by £2 per head.

TABLE 37

SHEEP SALES 1955/56 and 1956/57
Average Prices per Head. All Farms

	1955/56		*1956/57*	
	No. Sold	*Av. Value per Head*	*No. Sold*	*Av. Value per Head*
		£		£
Ewes	1327	6·3	1631	7·4
Ewe Hoggets	558	8·4	575	11·4
Fat Hoggets	2350	7·2	1877	8·2
Lambs: Fat	2428	6·8	2403	7·4
Store	551	6·2	924	6·9
Others*	62	—	134	—
Total	7276	—	7544	—

*Rams, Casualties, etc.

Sheep Sales

Sheep sales for the whole sample of farms for 1955/56 and 1956/57 together with average prices received are summarised in Table 37. Prices per head were better for all classes in the second year and this was particularly so for breeding stock. Ewe hoggets for breeding fetched on average £3 per head more in 1956/57 than in 1955/56, but the average increase for fat and store lambs was only 12s. 0d. and 14s. 0d. per head respectively. In Table 38 the main classes of sheep sold are analysed by type of farming group using average figures for the two years. The main products in the Better-land group are fat lamb and fat hoggets, accounting for 53% and 27% respectively of total sales. Hence fatstock sales amount to 80% of the total in this group. In the Poorer-land group fat sheep comprise 60% of the sales and fat hoggets, 34%, are more important than fat lambs which account for 26% of the sales. In the Moorland group fat sheep sales are much less important and comprise only 33% of the total. Here breeding ewes and ewe hoggets accounting together for 41% of the total are the main sale products. Most of the lambs sold are store wethers, the ewe lambs being retained for sale as breeding

stock later. The analysis of the sales emphasises the differences in system between the groups, the main emphasis in the Better-land group is on fat sheep production whereas the farmers in the Moorland group concentrate on the sale of breeding and store stock. The system in the Poorer-land group is intermediate between the other two. Further differences in system are illustrated by the analysis of the disposal of the 1956 lamb crop in Table 39.

TABLE 38

ANALYSIS OF SHEEP SALES BY TYPE OF FARM
(excluding casualties and pedigree breeding stock)
Two-year Average

	Better-land		*Poorer-land*		*Moorland*	
	No.	%	*No.*	%	*No.*	%
Ewes	448	15	591	23	439	26
Ewe Hoggets	64	2	239	9	265	15
Fat Hoggets	818	27	869	34	426	25
Lambs: Fat	1597	53	674	26	144	8
Store ..	74	3	220	8	444	26
TOTAL ..	3001	100	2593	100	1718	100

The low proportion of fat lamb and hogget sales in the Moorland group, the appreciable sales of store lambs and ewe hoggets and the fact that nearly one-third, 30% of the lamb crop was retained for breeding emphasises the policy of store raising and production of draft ewes on these farms. This is in striking contrast to the system in the Better-land group in which 82% of the lamb crop is fattened leaving only 18% to cover flock replacements and store sales. This difference in policy results from the varying physical conditions of the farms in the two groups. On the Better-land farms, because of higher fertility conditions, fattening is possible without resort to the purchase of large quantities of concentrate foods. The Poorer-land group occupies an intermediate position, but few store lambs were sold, 42% of the lamb crop was disposed of as fat lamb and a further 16% fattened as hoggets. A considerable proportion, 33% of the lamb crop, was destined for future breeding. In the Better-land group 71% of the lamb crop was sold as fat lamb compared with 42% and 15% in the Poorer-land and Moorland groups.

TABLE 39 **DISPOSAL OF THE 1956 LAMB CROP**

	Better-land		*Poorer-land*		*Moorland*	
	No.	%	*No.*	%	*No.*	%
Sales:						
Fat Lambs ..	1855	71	1099	42	256	15
Store Lambs ..	75	3	138	5	339	19
Fat Hoggets ..	291	11	430	16	323	19
Ewe Hoggets ..	57	2	273	10	245	14
Ram Hoggets ..	—	—	16	1	22	1
Transferred to Flock	305	12	609	23	515	30
Deaths	39	1	70	3	34	2
TOTAL ..	2622	100	2635	100	1734	100

Further details of the 1956 lamb crop sales are presented in Table 40. The monthly distribution of sales is shown together with the average estimated dressed carcase weight per head. The monthly average prices obtained are given for 1956 and 1957.

TABLE 40

MONTHLY DISTRIBUTION OF FAT LAMB SALES
1956
AVERAGE PRICES PER LB.†
1956 and 1957

	Better-land		*Poorer-land*		*Moorland*		*Av. Price per lb. e.d.c.w.**	
	% of Sales	*Average e.d.c.w.*	*% of Sales*	*Average e.d.c.w.*	*% of Sales*	*Average e.d.c.w.*	*1956*	*1957*
		lb.		*lb.*		*lb.*	*d.*	*d.*
April ..	6	40	1	42	—	—	46	46½
May	20	41½	9	40	3	35	42	41¾
June	18	42	7	42	5	40	38	40
July ..	16	43	10	43	7	45	36½	38½
August ..	9	45	8	47	5	38	36¾	38¾
September ..	5	43	15	47	16	42	36½	35½
October ..	9	50	10	51	48	41	36½	33¾
November ..	10	51	14	48	10	45	34¾	—
December ..	7	47	26	50	6	50	37¼	—
AVERAGE ..	—	43	—	45	—	42	38¼	39¼
TOTAL	100	—	100	—	100	—	—	—

* e.d.c.w. = estimated dressed carcase weight.
† Prices include guarantee payments.

The pattern of marketing varied considerably between the three groups. In the Better-land group 69% of total lamb sales occurred in the period April to August. In the two upland groups, on the other hand, the proportions sold during this period were 35% in the Poorer-land group and 20% in the Moorland group. In the Better-land group the bulk of the sales were in the April to August period when the lambs were fattened on grass and sold at an average weight of around 42 lb. The bulk of the sales was much later in the other two groups, occurring in the September to December period, when many of the lambs were finished on roots or green crops and averaged somewhat greater weight, 49 lb. in the Poorer-land group and 44½ lb. in the Moorland group.

A further variation in management practices is illustrated by the data relating to fat hogget marketings in Table 41.

In the Better-land and Poorer-land groups approximately 80% of the fat hoggets were marketed during the period January to May and these hoggets were successfully fattened during the winter months on roots and green crops. In the Moorland group little winter fattening is carried on and only 36% of the fat hogget marketings occurred during this five-month period. In this group most of the hoggets were graded off grass during the summer months with 43%, or nearly one-half of total fat hogget sales taking place in August. The majority of the Moorland

TABLE 41

MONTHLY DISTRIBUTION OF FAT HOGGET SALES
Two-Year Average
AVERAGE PRICES PER LB.†
1956 and 1957

	Better-land		*Poorer-land*		*Moorland*		*Av. Price per lb. e.d.c.w.**	
	% of Sales	*Average e.d.c.w.*	*% of Sales*	*Average e.d.c.w.*	*% of Sales*	*Average e.d.c.w.*	*1956*	*1957*
		lb.		*lb.*		*lb.*	*d.*	*d.*
January ..	43	48½	48	53	17	47	32¾	40¼
February ..	17	52	26	50	5	40	36	40¼
March ..	10	53¼	5	47½	8	53	36¾	37¼
April ..	7	48½	3	56½	4	50	35	38
May	3	58½	5	55½	2	45	34¾	34
June	5	49	7	51	4	51	27¾	32
July ..	2	56	4	49	6	48½	26¼	34
August ..	2	55	1	48	43	45½	32	34½
September ..	11	51½	1	56	6	47	31½	—
October ..	—	—	—	—	5	54	30	28¼
AVERAGE ..	—	52½	—	52	—	48	32¼	35¼
TOTAL	100	—	100	—	100	—	—	—

* e.d.c.w.=estimated dressed carcase weight.

† Prices include guarantee payments.

farmers considered it a financial advantage to clip as many of the hoggets as possible before grading, as each sheep produced from 30s. 0d. to 35s. 0d. worth of wool. They were of the opinion that this system was only possible because of the availability of common grazings, on which both cattle and the breeding ewes were accommodated during the summer period releasing the better grazing land on the farm for the hoggets and for hay.

TABLE 42

FAT LAMB AND HOGGET SALES, METHOD OF DISPOSAL
Two-year Average

	Better-land	*Poorer-land*	*Moorland*	*Av. Price/lb. e.d.c.w. All Farms*
Fat Lambs:	%	%	%	d.
F.M.C.	65	34	32	39
Auction	23	44	56	39
Private	12	22	12	39
Total	100	100	100	39
Fat Hoggets:				
F.M.C.	17	16	21	34
Auction	65	77	71	36
Private	18	7	8	36
Total	100	100	100	36

The fat sheep sales have been analysed according to the marketing channels used by the farmers in the three groups and the results presented in Table 42. For fat lambs, the F.M.C. took approximately two-thirds in the Better-land group compared with about one-third in the two upland groups. In these groups the Auction Market was the main channel, on average taking one-half of the fat lambs. The prices realised through the three channels were identical. In all groups the Auction Market was the main channel for the sale of fat hoggets, accounting for between 65% in the Better-land group to 77% in the Poorer-land group.

The data relating to store lamb sales are set out in Table 43. Store lambs are an important sale product in the Moorland group only, where just under one-fifth of the lamb crop is disposed of in store condition. The late summer and early autumn is the period for store lamb sales in all groups. Prices were rather higher in the second year on average and during most of the months quoted. A somewhat lighter store lamb is marketed in the Moorland group than in the other two groups.

TABLE 43

MONTHLY DISTRIBUTION OF STORE LAMB SALES
Two-year Average
AVERAGE VALUES PER HEAD
1956 and 1957

Month of Sale	*Better-land*		*Poorer-land*		*Moorland*		*Average Value per Head*	
	% of Sales	*Average e.d.c.w.*	*% of Sales*	*Average e.d.c.w.*	*% of Sales*	*Average e.d.c.w.*	*1956*	*1957*
		lb.		*lb.*		*lb.*	£	£
June	8	24	—	—	1	35	5·1	—
July ..	—	—	20	39	15	35	5·3	6·4
August ..	22	45	38	40	13	44	6·3	7·0
September ..	14	60	13	46	39	38	5·5	7·3
October ..	56	41	29	42	32	39	6·6	6·6
AVERAGE ..	—	43	—	41	—	39	6·4	6·7
TOTAL	100	—	100	—	100	—	—	—

(3) OUTPUT OF MEAT AND WOOL

An estimate of meat and wool output in physical terms has been made for the sheep enterprises for the two years. The data has been analysed by type of farm and in the case of wool a breed analysis is also presented. In Table 44 the meat output data is tabulated per acre and per breeding ewe.

Comparatively little variation in the output of meat per adjusted acre was found. The higher output in the Moorland group results from the use of common grazings by the sheep and no adjustment for this factor has been made. Comparing the Better-land and Poorer-land groups the output in the former is rather higher per adjusted acre, which reflects the better quality of land. When the output of meat is measured per breeding ewe, it is rather higher in the two upland groups than in the

TABLE 44

OUTPUT OF MEAT AND WOOL

1955/56 and 1956/57

	Better-land		*Poorer-land*		*Moorland*	
	1955/56	*1956/57*	*1955/56*	*1956/57*	*1955/56*	*1956/57*
	lb.	*lb.*	*lb.*	*lb.*	*lb.*	*lb.*
Per Adjusted Acre:						
Meat ..	198	217	189	212	213	231
Wool ..	32	38	27	33	33	34
Per Feed Acre:						
Meat ..	188	207	187	208	205	221
Wool ..	30	36	27	32	32	33
Per Breeding Ewe:						
Meat ..	98	94	110	115	103	110
Wool ..	15	15	16	17	16	16

Better-land group. In the upland groups a greater proportion of the lamb crop is kept on to be sold as hoggets or for flock replacements. The ratio of followers to ewes is therefore higher with the result that the output of meat per ewe is greater. The output of meat per adjusted acre varies comparatively little as between groups. The effect of the greater density of stocking with breeding ewes on the Better-land farms tends to be balanced by the effect of the higher ratio of followers to breeding ewes on the two upland groups. The output of meat per adjusted acre on the Moorland farms is also enhanced by the use of common grazings.

Although output of wool did not vary appreciably between the groups and averaged about 15½ lb. per breeding ewe maintained, there was wide variation between individual farms, the range being from about 10 to 24 lb. per ewe. The most important factors in this variation was the breed of sheep kept and the ratio of adult followers to breeding ewes. In Table 45 the weight of the wool clip is analysed by breed of sheep.

TABLE 45

AVERAGE WOOL CLIP BY BREED

Two-year Average

Breeds		*Per Animal Shorn*		
Ewe	*Ram*	*Ewes*	*Lambs*	*Hoggets*
		lb.	*lb.*	*lb.*
South Devon	X South Devon ..	14·8	4·3	13·9
Devon Longwool	X Devon Longwool ..	13·1	3·5	11·5
Devon Close Wool	X Devon Close Wool ..	8·1	1·7	8·1
Exmoor Horn	X Exmoor Horn ..	6·3	1·4	6·1
South Devon	X Down Type	11·7	3·9	10·2
Devon Long Wool	X Down Type	11·8	3·0	—

The predominant breeds on the Better-land farms were the South Devon and Devon Long Wool, and although comparatively few followers were carried in this group, the heavy wool clips associated with these two breeds assured an output which ranked very favourably with the other two groups. Here, the number of followers maintained was significantly greater, but in accordance with local conditions and environment, the smaller breeds of sheep, such as the Devon Close Wool and the Exmoor Horn were in far greater evidence.

(4) SHEEP REARING COSTS

The basic cost in sheep production is the maintenance of the ewe flock for the breeding year. If lambs are sold fat off the ewes before weaning, then the ewe flock costs are virtually the costs of raising the lamb crop. When lambs are weaned and kept on to be fattened or for flock replacement, then additional costs are incurred. In Table 46 the average annual costs of maintaining a ewe are set out, and in the

TABLE 46

COST OF MAINTAINING THE EWE FLOCK, 1956/57
Per Ewe per Annum

Inputs	*Quantity*	£ s. d.
Foods:		
Cake and Corn	·5 lb.	1
Roots and Greenfodder	8·2 cwt.	14 9
Hay	3·4 lb.	2
Grazing	—	1 8 10
Total		2 3 10
Labour:		
Manual	4·4 hrs.	15 4
Horse	·1 hrs.	1
Tractor	·2 hrs.	7
Total		16 0
Flock Depreciation		1 1 5
Share of Farm Overheads		3 10
Miscellaneous Costs		2 6
TOTAL INPUTS		4 7 7
Less WOOL SALES		2 15 0
TOTAL NET COSTS		1 12 7
Feed Acre Requirements:	*acres*	
Winter Fodder	·04	
Grazing	·32	
Total	·36	
No. of Ewes Costed	3642	
No. of Lambs Reared per Ewe	1·21	
NET COST PER LAMB REARED ...	£1 7s. 0d.	

following table the share of the ewe costs are given together with the extra costs involved in rearing a two-tooth ewe replacement. The total cost of maintaining a ewe for a year was £4 7s. 7d. The largest single item was the cost of grazing, £1 8s. 10d. per ewe with total foods and grazing amounting to £2 3s. 10d. The next largest item was £1 1s. 5d. for flock depreciation followed by 15s. 4d. for manual labour. Wool sales have been treated as a credit and amounted to £2 15s. 0d. per ewe. When this was deducted from the total costs the net figure was £1 12s. 7d. per ewe. The number of lambs reared per ewe was 1·21. Each ewe with lambs to sale or weaning stage required ·36 feed acres, which were almost entirely farm acres, because virtually no purchased feed was used. On the whole sample of farms therefore the rate of stocking with breeding ewes averaged three per acre on the land used by the ewe flock and lambs to weaning age.

TABLE 47

COST OF REARING TWO-TOOTH EWE HOGGS ON 33 FARMS 1956/1957

	Birth to Weaning (Share of Ewe Costs)		*Weaning to Tupping*		*Total*	
	Quantity	£ s. d.	*Quantity*	£ s. d.	*Quantity*	£ s. d.
Foods:						
Cake & Corn ..	0·4 lb.	1	—	—	0·4 lb.	1
Roots & G'fodder	6·8 cwt.	12 0	8·3 cwt.	15 0	15·1 cwt.	1 7 0
Hay	2·8 lb.	2	—	—	2·8 lb.	2
Grazing	—	1 4 0	—	16 5	—	2 0 5
Total ..	—	1 16 3	—	1 11 5	—	3 7 8
Labour:	*hrs.*		*hrs.*		*hrs.*	
Manual	3·6	12 8	2·9	10 0	6·5	1 2 8
Horse	·1	1	—	—	·1	1
Tractor ..	·2	7	—	3	·2	10
Total ..	—	13 4	—	10 3	—	1 3 7
Flock Depreciation		17 10		—		17 10
Share of Overheads ..		3 2		2 6		5 8
Miscellaneous Costs ..		2 1		1 9		3 10
TOTAL INPUTS		3 12 8		2 5 11		5 18 7
Less WOOL SALES		2 5 8		1 16 2		4 1 10
TOTAL NET COSTS ..		1 7 0		9 9		1 16 9
Feed Acre Requirements: ..	*acres*		*acres*		*acres*	
Winter Fodder	·03		·03		·06	
Grazing.. ..	·27		·18		·45	
TOTAL	·30		·21		·51	

The average net ewe costs per lamb reared amounted to £1 7s. 0d. The additional cost from weaning to tupping for a two-tooth ewe was £2 15s. 11d. from which £1 16s. 2d. for wool sales can be deducted leaving a net additional cost of 9s. 9d. The total net cost of rearing a two-tooth ewe hogg was £1 16s. 9d. and each one reared required 0·51 acres of land. This included 0·3 acres, the share of the ewe requirements, plus the additional 0·21 acres used by the ewe hogg from weaning to tupping.

(5) HOME-REARED OR PURCHASED REPLACEMENTS

The question of whether to breed or to purchase flock replacements is an aspect of sheep management which has commanded the attention of most farmers at one time or another. But, perhaps at no other time has this merited more thoughtful consideration than at present when consumer demand for the small joint has prompted many farmers to resort to a system of cross-breeding in order to satisfy market requirements. In consequence many farmers are nowadays confronted with the problem of whether to maintain at least part of their flocks pure for the purpose of breeding ewe replacements, or to rely completely on annual purchases for maintaining flock numbers. Some budgets have been prepared to compare the relative merits of each system and the results are set out in Table 48. The following assumptions have been made in these budgets:—

(i) Lambs sold at £7 1s. 0d. and draft ewes at £7 per head.

(ii) Replacement rate of 35%, inclusive of mortality.

(iii) Net rearing costs for two-tooth ewe hoggets from weaning to tupping, 10s. 0d. per head (i.e. costs less wool sales).

(iv) Share of net ewe costs per lamb reared £1 7s. 0d. per head. This figure has been used for each of the three levels of lamb yield, but in practice it is probable that some additional costs would be incurred in the flocks with a high lamb yield.

(v) In the flying flock system 120 ewes could be kept compared with 100 in a self-maintained flock. The differences in stocking with ewes arises because additional ewes can be kept in place of the ewe lambs being reared for replacements, 35 of which would be required. These would each need 0·21 acres during the period from weaning to tupping, which in total would be sufficient for 20 ewes.

Where a lamb yield of 100% is achieved, it appears from the table that the flying flock is more profitable only when ewe replacements cost £10 or less per head. With higher lambing percentages, however, the break-even purchase price increases. For example, at 125% lambing, profits are higher for the flying flocks when ewe replacements can be purchased for approximately £10 15s. or less per head; at 150% lambing, farmers would be able to pay up to approximately £11 15s. per head for their flock replacements and still obtain a profit similar to that which they would obtain from the self-maintained flock. It should be pointed out, however, that the cost of rearing ewe replacements in the self-maintained flock is assumed to be 10s. 0d. per head, that is net of the value of wool sales. Any extra cost above this figure would further enhance the relative profitability of the flying flock.

TABLE 48

SELF-MAINTAINED AND FLYING FLOCKS

COMPARISON OF PROFIT MARGINS AT VARYING LAMB YIELDS AND PRICES OF PURCHASED REPLACEMENTS 1956/57

Lamb Yield	*Self Maintained Flock (100 Ewes)*		*Flying Flock (120 Ewes)* — *Price per Head of Purchased Ewes*							
			£9		*£10*		*£11*		*£12*	
100% Sales:	*No.*	£	*No.*	£	*No.*	£	*No.*	£	*No.*	£
Lambs ..	65	458	120	846	120	846	120	846	120	846
Ewes ..	30	210	36	252	36	252	36	252	36	252
Total Sales	95	668	156	1098	156	1098	156	1098	156	1098
Costs: ..										
Ewes ..	100	135	120	162	120	162	120	162	120	162
Ewe Hoggs	35	18	—	—	—	—	—	—	—	—
Purchased Replacements	—	—	42	378	42	420	42	462	42	504
Total Costs	—	153	—	540	—	582	—	624	—	666
MARGIN	—	515	—	558	—	516	—	474	—	432
125% Sales:										
Lambs ..	90	634	150	1058	150	1058	150	1058	150	1058
Ewes ..	30	210	36	252	36	252	36	252	36	252
Total Sales	120	844	186	1310	186	1310	186	1310	186	1310
Total Costs	—	153	—	540	—	582	—	624	—	666
MARGIN	—	691	—	770	—	728	—	686	—	644
150% Sales:										
Lambs ..	115	811	180	1269	180	1269	180	1269	180	1269
Ewes ..	30	210	36	252	36	252	36	252	36	252
Total Sales	145	1021	216	1521	216	1521	216	1521	216	1521
Total Costs	—	153	—	540	—	582	—	624	—	666
MARGIN	—	868	—	981	—	939	—	897	—	855

(6) LAMBING, LAMB YIELDS AND MARGINS

The variation in the lambing system illustrates further the differences in conditions and systems of management. In Table 49 the dates and duration of lambing are set out for the three type groups together with the average lamb yield. In the Better-land group lambing was much earlier, and was completed during the three months January to March with approximately 50% of the lambs being born before the end of February. In the two upland groups however, lambing was concentrated

mainly in the period from March onwards, with a tendency to a little earlier lambing in the Poorer-land group. The earlier lambing pattern in the Better-land group is associated with the greater emphasis of fat lamb production on these farms. The average lamb yields are rather on the low side, particularly on the Better-land farms, where a higher increase might be expected.

TABLE 49

ANALYSIS OF LAMBING AND LAMB YIELD
Two-year Average

Lambing Dates	*Better-land*	*Poorer-land*	*Moorland*
	%	%	%
January and February ...	42	—	—
February mainly	9	—	—
February and March ...	49	35	5
March mainly	—	51	72
March and April	—	14	15
May	—	—	8
Total	100	100	100
No. of Lambs Reared per Ewe	1·08	1·20	1·15

An analysis of lamb yields and profit margins has been made and the results are set out in Table 50.

There is little doubt about the importance of lamb yield on profitability. Profits per ewe more than doubled over the range in lamb yields which occurred on these farms, while the profit per acre increased by nearly 50%.

TABLE 50

LAMB YIELDS AND PROFIT MARGINS. ALL FARMS 1956/57
Per Acre and Per Ewe

Lambing Percentage	*Average Lamb Yield Percentage*	*Profit Margins*		*No. of Farms*
		Per Acre	*Per Ewe*	
%	%	£	£	
Under 100 ...	89·0	9·4	4·1	8
100—110 ...	105·1	10·0	4·7	17
110—120 ...	114·3	11·5	5·8	10
120—130 ...	125·4	13·5	6·9	8
130—140 ...	135·5	14·0	8·5	11

(7) SHEEP BREEDS AND BREEDING PRACTICES

To conclude this section on sheep, an attempt has been made in the following tables to show how the composition of the breeding flocks varied in the groups, and to illustrate the sheep breeding practices pursued.

The analysis of the breeds of ewe maintained on the study farms, in Table 51 shows that of the fifty-four flocks costed, forty-five, or approximately 83% were composed of one breed of ewe only. A further seven flocks, 13%, were composed of two breeds, and two flocks, 4%, of three breeds of ewes. Taking the three groups of farms together the predominant breed was the Devon Closewool, closely followed by the South Devon. These two breeds accounted for 30% and 27% respectively of the total ewes costed. The Devon Longwool accounted for a further 16%, Exmoor Horn for 11% and the Improved Dartmoor for 8%. The remaining 8% were composed of Cheviots, 1%, Scotch Blackface, 1%, Cluns, 1%, and various cross-bred ewes, 5%.

TABLE 51

ANALYSIS OF THE BREEDS OF EWES. ALL FARMS

Two-year Average

Breeds	*Better-land*		*Poorer-land*		*Moorland*		*All Farms*	
	No. Farms	*No. Ewes*	*No. Farms*	*No. Ewes*	*No. Farms*	*No. Ewes*	*No. Farms*	*No. Ewes*
One Breed:								
South Devon ..	12	1087	5	416	1	55	18	1558
Devon Longwool ..	2	151	5	374	3	84	10	609
Devon Closewool ..	1	165	7	878	1	68	9	1111
Improved Dartmoor	3	451	—	—	—	—	3	451
Devon Longwool x Devon Closewool	—	—	2	214	—	—	2	214
Exmoor Horn ..	—	—	—	—	3	498	3	498
Total	18	1854	19	1882	8	705	45	4441
Two Breeds:								
South Devon ..		50						50
Improved Dartmoor	1	19	—	—	—	—	1	19
Devon Longwool				36				36
„ x Suffolk ..	—	—	1	21	—	—	1	21
Devon Longwool ..						41		41
Exmoor Horn ..	—	—	—	—	1	42	1	42
Devon Longwool ..						62		62
Cheviot	—	—	—	—	1	80	1	80
Devon Longwool ..						66		66
Scotch Blackface ..	—	—	—	—	1	74	1	74
Devon Closewool ..				231		324		555
Exmoor Horn ..	—	—	1	30	1	48	2	78
Total	1	69	2	318	4	737	7	1124
Three Breeds:								
Devon Longwool ..		100						100
Devon Closewool ..	1	39	—	—	—	—	1	39
Clun Forest		54						54
Devon Closewool ..		65						65
Devon Closewool x Suffolk	1	18	—	—	—	—	1	18
Exmoor Horn x Border Leicester		65						65
Total	2	341	—	—	—	—	2	341
TOTAL ..	21	2264	21	2200	12	1442	54	5906

TABLE 52

ANALYSIS OF THE BREEDS OF RAMS. ALL FARMS

Two-year Average

Breeds	*Better-land*		*Poorer-land*		*Moorland*		*All Farms*	
	No. Farms	*No. Rams*	*No. Farms*	*No. Rams*	*No. Farms*	*No. Rams*	*No. Farms*	*No. Rams*
One Breed:								
South Devon ..	2	2	4	7	—	—	6	9
Devon Longwool ..	1	2	2	2	2	2	5	6
Devon Closewool ..	—	—	6	18	2	9	8	27
Improved Dartmoor	2	5	1	1	1	2	4	8
Exmoor Horn ..	—	—	—	—	2	8	2	8
Dorset Down ..	4	5	3	5	—	—	7	10
Suffolk	3	5	2	4	—	—	5	9
Total	12	19	18	37	7	21	37	77
Two Breeds:								
South Devon .. / Suffolk	—	—	1	2 1	—	—	1	3
South Devon .. / Oxford Down ..	1	2	—	—	—	—	1	4
Devon Longwool .. / Dorset Down ..	1	1	—	—	—	—	1	2
Devon Longwool .. / Clun Forest	1	2 3	—	—	—	—	1	5
Devon Longwool .. / Exmoor Horn ..	—	—	—	—	1	1 1	1	2
Devon Longwool .. / Border Leicester ..	—	—	—	—	1	2 2	1	4
Devon Closewool .. / Exmoor Horn ..	—	—	1	8 1	1	1 7	2	17
Improved Dartmoor / Suffolk	1	2 3	—	—	1	1 1	2	7
Improved Dartmoor / Oxford Down ..	1	2 1	—	—	—	—	1	3
Dorset Down .. / Hampshire Down	—	—	1	2 2	—	—	1	4
Dorset Down .. / Suffolk	1	1 1	—	—	—	—	1	2
Border Leicester .. / Oxford Down ..	1	1 1	—	—	—	—	1	2
Total	7	23	3	16	4	16	14	55
Three Breeds								
South Devon .. / Suffolk .. .. / Improved Dartmoor	1	1 2 1	—	—	—	—	1	4
South Devon .. / Suffolk .. .. / Dorset Down ..	1	1 1 1	—	—	—	—	1	3
Suffolk .. .. / Border Leicester .. / Devon Longwool ..	—	—	—	—	1	1 1 1	1	3
Total	2	7	—	—	1	3	3	10
TOTAL ..	21	49	21	53	12	40	54	142

With regard to the distribution of the various breeds, the table shows that the Devon Closewool ewe was most popular in the Poorer-land group, appearing on eight out of the twenty-one farms and accounting for just over 50% of the total ewe population. In the Better-land and Moorland groups, on the other hand, this breed accounted for 12% and 27% of the respective ewe population.

The Devon Longwool ewe was of relatively equal importance in both the Poorer-land and Moorland groups, in each case accounting for about 18% of total ewes maintained. In the Better-land, however, only 11% of the group flock were comprised of Devon Longwools.

To illustrate breeding practices, the breeds of rams maintained and the kinds of crossing used are set out in Tables 52 and 53. Thirty-seven or, approximately, 70% of the farms kept one breed of ram only, while 14 farms, 26%, kept two breeds and three farms, 4%, supported three breeds. On average, one ram was maintained for every 46 ewes in the Better-land group, compared with 41 ewes in the Poorer-land and 36 ewes in the Moorland group of farms.

Table 53 shows that sheep breeding practices varied considerably in the three groups of farms, the predominant practice in any one group being consistent with the general pattern of production associated with it. Hence, in the Better-land group, only about 22% of the ewes were used for pure breeding purposes, whilst a further 25% were crossed with a Longwool type ram of a different breed and 53% with a Down type ram. In the Poorer-land group, on the other hand, 63% of the ewes were utilised for breeding pure, 5% for crossing with a Longwool type ram and 32% with a Down ram. On the Moorland farms, nearly 80% of the ewes were used for pure breeding purposes, and only 10% for crossing with each of the Longwool and Down type rams.

In so far as lamb production is concerned, the most popular rams by far were the Suffolk and Dorset Down. Indeed, these two breeds were crossed with just over 80% of the total number of ewes cross-bred to a Down type ram. The other Down rams used were the Oxford, Hampshire and Border Leicester.

TABLE 53

ANALYSIS OF SHEEP BREEDING PRACTICES

Two-year Average

Breeds	*Better-land*		*Poorer-land*		*Moorland*		*Total*	
	No. Farms	*No. Ewes*	*No. Farms*	*No. Ewes*	*No. Farms*	*No. Ewes*	*No. Farms*	*No. Ewes*
Ewe *Ram*								
S. Devon x								
S. Devon ..	4	212	5	379	—	—	9	591
Dn. Longwool	1	51	—	—	—	—	1	51
Imp. Dartmoor	3	256	—	—	1	55	4	311
Suffolk ..	3	257	1	37	—	—	4	294
Dorset Down	4	204	—	—	—	—	4	204
Oxford Down	2	110	—	—	—	—	2	110
Border Leics.	1	47	—	—	—	—	1	47
Total ..	18	1137	6	416	1	55	25	1608
Dn. Closewool x								
Dn. Closewool	—	—	6	874	2	392	8	1266
Dn. Longwool	1	39	—	—	—	—	1	39
Imp. Dartmoor	1	165	—	—	—	—	1	165
Suffolk ..	1	65	—	—	—	—	1	65
Dorset Down	—	—	2	141	—	—	2	141
Hampshire Down	—	—	1	94	—	—	1	94
Total	3	269	9	1109	2	392	14	1770
Dn. Longwool x								
Dn. Longwool	2	166	2	102	5	215	9	483
Imp. Dartmoor	—	—	1	48	1	19	2	67
Suffolk ..	1	19	2	145	1	19	4	183
Dorset Down	1	66	1	115	—	—	2	181
Total	4	251	6	410	7	253	17	914
Exmoor Horn x								
Exmoor Horn	—	—	1	30	4	503	5	533
Dn. Closewool	—	—	—	—	2	85	2	85
Total	—	—	1	30	6	588	7	618

Imp. Dartmoor x Imp Dartmoor	1	61	—	—	—	—	1	61
S. Devon ..	1	74	—	—	—	—	1	74
Suffolk ..	2	144	—	—	—	—	2	144
Dorset Down	3	161	—	—	—	—	3	161
Oxford Down	1	30	—	—	—	—	1	30
Total	8	470	—	—	—	—	8	470
Dn. Longwool x Dn. Closewool x Dn. Close-wool	—	—	1	71	—	—	1	71
x Dorset Down	—	—	1	143	—	—	1	143
Total	—	—	2	214	—	—	2	214
Cheviot x Suffolk ..	—	—	—	—	1	40	1	40
Border Leics.	—	—	—	—	1	40	1	40
Total	—	—	—	—	2	80	2	80
Sc. B'face x Border Leics.	—	—	—	—	1	74	1	74
Exmoor Horn x Bord. Leics. x Suffolk	1	65	—	—	—	—	1	65
Cl. Forest x Cl. Forest	1	54	—	—	—	—	1	54
Dn. Longwool x Suffolk x Suffolk	—	—	1	21	—	—	1	21
Dn. Closewool x Suffolk x Suffolk	1	18	—	—	—	—	1	18
TOTAL ..	36	2264	25	2200	19	1442	80	5906

V.

THE CATTLE AND SHEEP ENTERPRISES COMBINED

(1) FINANCIAL RESULTS

Better-land, Poorer-land and Moorland Farms

It is seldom, if ever, that either cattle or sheep production is found as the sole enterprise in farming in the South West, but rather both enterprises are fitted into the pattern of livestock production. On the farms investigated in this study cattle and sheep together are the main activities with little emphasis on supplementary livestock and cash crop enterprises. The combined results of the two enterprises therefore present a fairly complete picture of the overall organisation of the farms studied. The emphasis given to each enterprise will vary from farm to farm and from group to group. The cattle and sheep are to some extent joint enterprises and a certain degree of complimentary exists between the two. Costing the individual enterprises is therefore to some extent unrealistic, and the results of the combined enterprises must also be studied in order to understand more fully the economy of cattle and sheep farming as found in the South West. In this section the results of the cattle and sheep enterprises in combination are presented and an attempt has been made to analyse the main factors which determined income levels on the types of cattle and sheep farms studied.

The financial results and efficiency measures for the combined enterprises are set out in Tables 54 and 55. In 1955/56 margins in all three groups were very similar and only varied from £4.4 per adjusted acre in the Better-land group to £4·9 in the Moorland group. Gross output varied from £19.1 in the Moorland group to £20·3 per acre in the Better-land group. Although gross output was highest on the Better-land farms, total costs were also highest, £15.9 per acre compared with £14·2 in the Moorland group. Because of the relatively greater costs, the margin in the Better-land group was lower than in the other two groups. By the second year of the investigation, margins had increased substantially in all groups, and ranged from £8.5 in the Better-land group to £10·4 per acre in the Poorer-land group. The greatest increase, £5·8 per acre or 126% was in the Poorer-land group. The margin was also more than double, rising by £5·3 per acre or 108% in the Moorland group, whereas in the Better-land group the increase was rather less at £4.1 per acre or 93%. The greatest increase in costs, amounting to £1 per acre, was in the Better-land group, while in the Moorland group total costs fell by £1·1 per acre, mainly the result of reduced feed and grazing costs. Compared with the Poorer-land group, the Moorland group showed a rather smaller increase in margin in the second year. This is due to some extent to the fact that a higher proportion of the ewe lambs were retained for future breeding and that the valuation of these did not fully reflect the increase in market prices received for the greater proportion of the lambs sold in the other groups. Although gross output was rather higher in the Better-land group, this was achieved at a greater cost in feed resources than in the other two groups. Thus for every £100 of total feed costs the Moorland group obtained just over £279 of gross output compared with nearly £215 on the Better-land farms. The use of common grazings in the Moorland group is a factor in feed economy, but the Poorer-land farms, without this advantage achieved £266·5 of gross output per £100 feed costs.

TABLE 54

THE COMBINED CATTLE AND SHEEP ENTERPRISES GROSS OUTPUT, INPUTS AND MARGINS 1955/56 and 1956/57

Per Adjusted Acre Devoted to Cattle and Sheep

	Better-land		*Poorer-land*		*Moorland**	
Number of Farms ..	21		21		12	
Average Size of Farm (adj, acres) ..	180		164		143	
	1955/6	*1956/7*	*1955/6*	*1956/7*	*1955/6*	*1956/7*
Adj. Acres used by Cattle and Sheep	156	151	149	144	134	136
No. of Animal Units (Cattle and Sheep)	90	90	81	84	107	111
	Per Adjusted Acre					
Gross Output:	£	£	£	£	£	£
Cattle	7·1	10·1	5·3	8·4	5·1	8·3
Milk	5·5	6·2	3·6	4·1	1·6	1·3
Calf Subsidy ..	·8	·9	·6	·8	1·1	1·1
Attested Headage	·4	·3	·5	·5	·1	·1
Hill Cow Subsidy	—	—	·4	·2	1·4	1·4
Hill Cattle Subsidy	—	—	—	—	·2	—
Total Cattle	13·8	17·5	10·4	14·0	9·5	12·2
Sheep	4·4	5·6	5·2	7·4	6·6	7·9
Wool	2·1	2·3	2·3	2·8	3·0	3·2
Total Sheep ..	6·5	7·9	7·5	10·2	9·6	11·1
TOTAL GROSS OUTPUT ..	20·3	25·4	17·9	24·2	19·1	23·3
Inputs:						
Foods—						
Purchased ..	1·7	1·7	·9	1·2	1·2	1·1
Homegrown:						
Corn	1·7	1·9	1·8	1·5	1·1	·8
Hay	1·9	2·1	1·6	1·9	1·9	2·1
Roots	2·5	2·6	1·8	1·5	1·8	1·2
Total Homegrown	6·1	6·6	5·2	4·9	4·8	4·1
Grazing	3·6	3·5	2·8	3·0	3·2	3·1
Total Foods & Grazing	11·4	11·8	8·9	9·1	9·2	8·3
Labour—						
Manual	2·8	3·2	2·8	3·0	3·2	3·1
Horse & Tractor	·1	·1	·2	·1	·3	·2
Total Labour	2·9	3·3	3·0	3·1	3·5	3·3
Miscellaneous Costs ..	1·6	1·8	1·4	1·6	1·5	1·5
TOTAL INPUTS ..	15·9	16·9	13·3	13·8	14·2	13·1
MARGIN ..	4·4	8·5	4·6	10·4	4·9	10·2

* Exclusive of common grazings.

TABLE 55

THE COMBINED CATTLE AND SHEEP ENTERPRISES, SOME EFFICIENCY MEASURES
1955/56 and 1956/57

	Better-land		*Poorer-land*		*Moorland**	
	1955/6	*1956/7*	*1955/6*	*1956/7*	*1955/6*	*1956/7*
Per Farm:						
Used by Cattle & Sheep:						
Adjusted Acres ..	156	151	149	144	134	136
Feed Acres ..	165	160	153	150	140	143
Total Animal Units	90	90	81	84	107	111
Per Animal Unit:						
Adjusted Acres ..	1·7	1·7	1·8	1·7	1·2	1·2
Feed Acres ..	1·8	1·8	1·9	1·8	1·3	1·3
Gross Output per:						
Adjusted Acre	20·3	25·4	17·9	24·2	19·1	23·3
Feed Acre ..	19·2	23·8	17·4	23·2	18·3	22·3
Animal Unit ..	35·2	42·3	33·1	41·3	24·0	28·5
£100 Feed Costs	178·7	215·1	200·1	266·5	208·3	279·4
£100 Labour Costs	698·6	768·8	603·8	786·6	553·5	709·2
£100 Total Costs	127·9	150·5	134·2	175·7	135·0	177·2
Margin Per:						
Adjusted Acre	4·4	8·5	4·6	10·4	4·9	10·2
Feed Acre ..	4·2	8·0	4·4	10·0	4·7	9·7
Animal Unit ..	7·7	14·2	8·5	17·8	6·2	12·4

* Exclusive of common grazings.

Comparison of the Cattle and Sheep Enterprises

A comparison of the financial results and efficiency measures for the cattle and sheep enterprises has been made and the relevant data are summarised in Table 56. One of the factors affecting levels of income in the type of farming groups is the varying importance of cattle and sheep with their different levels of profitability. Before analysing the causes of the varying profitability between the three groups, the relative merits of the cattle and sheep enterprises should be considered. The results for 1955/56 and 1956/57 are shown separately because of the relative changes in cattle and sheep prices between the two years.

In spite of the improvement of cattle prices between 1955/56 and 1956/57 with the consequent rise in margins for the cattle enterprise, the profitability of the sheep enterprise and the gross output per unit of resources were substantially greater for sheep in both years. In the Better-land group the margins from both cattle and sheep approximately doubled, but in both years the margin per acre from sheep was about double the cattle margin. In the Poorer-land group in 1955/56 the margin per acre from sheep was almost four times as great as the cattle margin, and in the Moorland group it was £11 compared with £·4 per acre. In 1956/57 sheep were just over twice as profitable as cattle in the Poorer-land group and nearly three times as profitable in the Moorland group. In all measures of resource use the sheep enterprise showed a better

TABLE 56

A COMPARISON OF THE FINANCIAL RESULTS OF THE CATTLE AND SHEEP ENTERPRISES 1955/56 and 1956/57

	Better-land		*Poorer-land*		*Moorland**	
	Cattle	*Sheep*	*Cattle*	*Sheep*	*Cattle*	*Sheep*
Two-Year Averages:						
Adjusted Acres devoted to Cattle and Sheep ..	105	48	87	59	78	57
Total No. of Livestock Units	58	33	46	36	63	46
1955/56:	£	£	£	£	£	£
Per Adjusted Acre:						
Gross Output ..	20·5	20·0	17·5	18·4	16·6	22·4
Inputs ..	17·2	13·2	15·4	10·2	16·2	11·4
Margins ..	3·3	6·8	2·1	8·2	·4	11·0
Gross Output per:						
£100 Feed Costs	166·8	210·6	170·0	265·4	161·4	291·8
£100 Labour Costs	635·9	884·1	494·3	871·1	390·7	939·3
£100 Total Costs	119·3	150·8	117·1	180·9	102·4	196·9
Margin per Animal Unit	6·1	10·5	3·9	14·5	·5	14·0
1956/57:						
Per Adjusted Acre:						
Gross Output ..	24·9	26·5	23·5	25·2	20·8	26·9
Inputs ..	18·3	13·4	16·4	9·9	15·1	10·4
Margin	6·6	13·1	7·1	15·3	5·7	16·5
Gross Output per:—						
£100 Feed Costs	192·1	292·4	217·0	388·6	219·1	401·1
£100 Labour Costs	696·0	1000·2	632·3	1186·0	520·3	1183·2
£100 Total Costs	135·9	197·7	143·6	254·5	137·7	259·5
Margin per Animal Unit ..	12·1	17·9	13·1.	23·7	7·0	19·8

* Excluding Common Grazings.

return than the cattle enterprise in both years and the margin per animal unit was greater in all groups in each year. In view of the substantial differences in the profits of the two enterprises, the relative proportions of cattle to sheep is an important factor in overall farm profits.

(2) FACTORS AFFECTING MARGINS OF THE COMBINED ENTERPRISES

The relative proportions of cattle and sheep, together with other factors, are set out in Table 57 in order to explain the variation in total income between the three groups.

It would be generally expected that the intensively managed cattle and sheep enterprises on the lowland Better-land farms would be more profitable per acre used than the more extensive enterprises on the upland farms. The findings in this investigation for 1955/56 and 1956/57 do not conform to this expectation for a variety of reasons. In the first

TABLE 57

FACTORS AFFECTING THE PROFITABILITY OF THE COMBINED CATTLE AND SHEEP ENTERPRISES 1955/56 and 1956/57

	Better-land		*Poorer-land*		*Moorland**	
Density of Stocking (Two-Year average) Livestock Units per 100 Adjusted Acres ..	58·8		56·1		80·7	
Ratio of Cattle to Sheep (Two-Year average)	%		%		%	
Livestock Units:						
Cattle	64		56		58	
Sheep	36		44		42	
Total	100		100		100	
Gross Output:						
Cattle	68		58		51	
Sheep	32		42		49	
Total ..	100		100		100	
	1955/6	*1956/7*	*1955/6*	*1956/7*	*1955/6*	*1956/7*
Margin per Adjusted Acre:	£	£	£	£	£	£
Cattle	3·3	6·6	2·1	7·1	0·4	5·7
Sheep	6·7	13·1	8·3	15·3	11·0	16·5
Milk Selling:	*No.*		*No.*		*No.*	
Milk Sellers ..	14		14		4	
Non-Milk Sellers	7		7		8	
Milk as % of Gross Output	% 27·1	% 24·4	% 20·1	% 16·9	% 8·4	% 5·4
Milk as % of Cattle Output	39·8	35·4	34·6	29·2	16·9	10·3
Percentage Gross Output from Fatstock ..	48·6	41·1	33·6	36·2	21·4	15·0

* Exclusive of common grazings.

place, as already mentioned, the Moorland farms have common grazing rights which are not included in the acreage input on these farms, but the benefit derived from their use appears in the gross output. The availability of common grazings allows a comparatively high density of stocking on the Moorland farms when measured on the basis of adjusted acres of enclosed land. It has been shown that in the two years of the investigation sheep were relatively more profitable than cattle by a substantial margin. Sheep are more numerous and provide a greater proportion of the gross output on the upland farms, thus increasing the total margin relative to the Better-land farms.

In the analysis of the cattle enterprise it was found that the milk selling herds were more profitable than the non-milk selling herds. In the Better-land and Poorer-land groups two-thirds of the farms produce

milk compared with one-third in the Moorland group. The greatest emphasis on milk selling occurred in the Better-land group, but this favourable factor was not sufficiently important to outweigh the comparative benefits obtained from the greater emphasis on sheep in the upland groups. During the period of the investigation prices tended to favour store and breeding stock relative to fatstock. The highest proportion of the stock was fattened on the Better-land farms and the lowest in the Moorland group. Finally, inputs per acre tended to be greater on the Better-land farms and this was a further factor in the income situation when the premium for the finished product was at a minimum compared with store and breeding stock.

The whole situation can be broadly summed up by saying that during the period of the investigation product prices moved in such a way as to be comparatively advantageous to the more extensive system of the upland rearing farms rather than to the more intensive lowland cattle and sheep farms.

VI.

SUMMARY

1. This report presents the results of a two-year study into the economics of cattle and sheep rearing on an identical sample of 54 farms in Devon and Cornwall mainly devoted to this form of production, and relates to the period November, 1955 to October, 1957.

2. The study farms have been classified on the basis of soil type and location into three main groups, *viz.*—Better-land (21 farms), Poorer-land (21 farms) and Moorland (12 farms). The Better-land farms are situated in the relatively fertile areas of South Devon and the coastal regions of North Devon and North East Cornwall. The Poorer-land and Moorland groups, on the other hand, are composed of upland farms located on and around Exmoor, Dartmoor and Bodmin Moor and warrant separate classification only because of the extensive use made of the moorland grazings by the farmers in the moorland group.

3. The average size of the farms was approximately 180 adjusted acres in the Better-land, 164 in the Poorer-land and 143 adjusted acres in the Moorland group, exclusive of the common grazings.

4. The cropping analysis shows that the proportion of land in tillage was greatest in the Better-land group and least in the Moorland group. This was principally due to the large acreages of barley grown for sale on the Better-land farms. The proportion of land under roots and green fodder were fairly similar in all three groups, and except for the greater emphasis on barley in the Better-land group, so also was the general pattern of crops grown.

5. Details of stocking reveal a much greater density on the Moorland farms because of the extensive use made of the unenclosed common grazings by farmers in this particular group. For every 100 adjusted acres of farm land, the Moorland farmers maintained 12 more cattle units and 14 more sheep units than the Better-land farmers. Compared with the Poorer-land farmers, they maintained 16 more cattle units and 10 more sheep units.

6. On the Better-land farms, cattle were more important, relative to sheep, than in the other two groups, accounting for 64% of the total animal units compared with 56% and 58% in the Poorer-land and Moorland groups respectively.

7. With regard to the cattle enterprise the highest profits were recorded in the Better-land group during the first year and the lowest in the Moorland group of farms. In the second year, however, the advantage rested with the Poorer-land group. In both years the profit margins per cow and per cattle unit were substantially lower in the Moorland group than in the other two groups.

8. The value of milk sold was found to have a pronounced influence on the profits derived from the cattle enterprise. When the sample farms were divided into milk selling and non-milk selling, the profit margin per adjusted acre recorded for the former was £2 14s. higher than for the

latter group in the first year, and £3 14s. higher in the second year. Costs were higher on the milk selling farms, however, particularly in terms of foods and grazing, but these additional costs were proportionately lower than the additional output achieved as a result of producing milk for sale. Hence, for every £100 incurred on feed, output in the milk selling farms was approximately £22 and £24 more in the first and second study years respectively than on the non-milk selling farms.

9. Under conditions where the Hill Cow Subsidy does not apply, it appears that on an acreage basis the most profitable age at which to sell store bullocks is 2½ years for single suckled cattle and 1 year for multiple suckled cattle.

10. Where the Hill Cow Subsidy does apply, profit margins for single suckled cattle are very similar at all sale ages, but for the multiple suckled, the highest profit is still obtained when sale occurs at 1 year old.

11. Under comparable conditions multiple suckling appears more profitable at all sale ages than single suckling. However, when the Hill Cow Subsidy is associated with the latter and not with the former system of rearing, as indeed occurred in practice on the study farms, the overall advantage of multiple suckling is appreciably reduced.

12. Within the sheep enterprise, profit margins were appreciably higher during both years in the Poorer-land and Moorland groups than in the Better-land group. This advantage of the two upland groups of farmers results mainly from lower costs, particularly in terms of food and grazing, since output per adjusted acre was very similar in all three groups. Hence in 1956/57 for every £100 spent on feed, the value of gross output in the Moorland and Poorer-land groups amounted to £401 and £389 respectively, compared with £292 in the Better-land group of farms.

13. One of the most critical factors influencing the level of profit from sheep was found to be the lambing percentage attained.

14. For the two enterprises in combination, the highest profit margins were obtained by the Poorer-land and Moorland groups. The results show that in 1956/57 the profit margins per adjusted acre devoted to the cattle and sheep enterprise were approximately £2 more than on the Better-land farms. This advantage was due mainly to the lower expenditure incurred on foods and grazing. Although the value of total output was slightly lower on the upland farms, this was more than offset by the lower feed costs incurred. Hence, for every £100 spent on feed, output averaged £266 and £279 in the Poorer-land and Moorland groups respectively, compared with £215 in the Better-land group.

15. In all groups, profits were substantially higher in the second year of the study. This was mainly due to substantial increases in the value of cattle and sheep output resulting from the improved prices during this period, particularly for store stock. Within the groups, the revenue derived from the sale of milk and the various subsidies, as well as the production costs incurred, changed relatively little over the two years studied.

16. With regard to the relative profitability of the two enterprises, in all three groups the profits accruing to sheep were far in excess of those obtained from cattle. This was particularly so in the Poorer-land and Moorland groups, where sheep were more important both numerically and in relation to cattle. Although in these two groups the value of sheep gross output per adjusted acre was somewhat higher than that of cattle, in the main, the relative advantage of the sheep enterprise in all three groups resulted from the lower costs incurred on feed and labour.

17. In the second year, the value of gross output achieved per £100 spent on feed and on labour in the Better-land group was respectively £100 and £300 more for sheep than for the cattle enterprise. At different levels of output and costs, similar relationships existed in the Poorer-land and Moorland groups.

APPENDIX A.

STANDARD SUPPLEMENT OF FINANCIAL RESULTS, 1955-56

Based on 54 Herds Averaging 19 Breeding Cows

Gross Output per Breeding Cow:

	£	s.	d.	£	s.	d.
Opening Valuation:						
Bulls	1	18	10			
Breeding Cows	47	14	7			
Heifers-in-Calf	8	14	0			
Store Cows ...		7	1			
Fat Cows ...		13	4			
Fat Bullocks and Heifers ...	7	6	7			
Stores:						
2 years + ...	13	16	2			
1—2 „ ...	34	5	3			
0—1 „ ...	23	9	10			
				138	5	8
Purchases:						
Bulls		8	7			
Breeding Cows	3	10	2			
Cows and Calves		11	7			
Stores:						
2 years + ...		12	0			
1—2 „ ...		14	10			
0—1 „ ...	2	7	3			
				8	4	5
				146	10	1
Gross Output				90	10	3
				£237	0	4

	£	s.	d.	£	s.	d.
Sales:						
Bulls		8	0			
Breeding Cows	1	3	5			
Heifers-in-Calf		9	6			
Cows and Calves	1	13	10			
Store Cows ...	2	2	7			
Fat Cows ...	3	12	5			
Fat Bullocks and Heifers ...	23	16	1			
Stores:						
2 years + ...	16	10	6			
1—2 „ ...	8	19	6			
0—1 „ ...		6	10			
Casualties ...		7	5			
Milk	31	0	4			
Other Subsidies	12	13	0			
				103	3	5
Closing Valuation:						
Bulls	1	15	1			
Breeding Cows	50	16	1			
Heifers-in-Calf	9	5	1			
Store Cows ...		5	6			
Fat Cows ...		9	6			
Fat Bullocks and Heifers ...	6	1	0			
Stores:						
2 years + ...	9	11	9			
1—2 „ ...	34	8	4			
0—1 „ ...	21	4	7			
				133	16	11
				£237	0	4

Net Margin per Breeding Cow:

	Quantity	£	s.	d.	£	s.	d.
Labour:							
Manual	*Hrs.* 98·4	16	5	8			
Horse	„ 1·5		2	3			
Tractor	„ 3·2		14	6			
					17	2	5
Feed:							
Purchased:							
Concentrates	*Cwt.* 6·2	8	11	2			
Grass Keep	— —		3	8			
Home-grown:							
Corn	*Cwt.* 16·2	11	11	8			
Hay/Silage	„ 2·2	14	9	0			
Roots	*Tons* 4·2	6	7	3			
Grazing	...	13	1	4			
					54	4	1
Other Costs:							
Overheads	...	4	1	5			
Depreciation on Equipment	...		18	7			
Veterinary and Medicine	...		17	4			
Commission	...		16	5			
Haulage	...		10	1			
Service Fees	...		10	0			
Consumable Stores ...	...		6	3			
Other	...			4			
					8	0	4
Total Inputs ...					£79	6	10
Net Margin ...					£11	3	5

STANDARD SUPPLEMENT OF FINANCIAL RESULTS, 1956-57

Based on 54 Herds Averaging 20 Breeding Cows

Gross Output per Breeding Cow:

	£	s.	d.	£	s.	d.
Opening Valuation:						
Bulls	1	12	9			
Breeding Cows	47	10	2			
Heifers-in-Calf	8	13	2			
Store Cows ...		5	2			
Fat Cows ...		8	11			
Fat Bullocks and Heifers ...	5	13	2			
Stores:						
2 years + ...	8	19	4			
1—2 „ ...	32	3	8			
0—1 „ ...	19	16	11			
				125	3	3
Purchases:						
Bulls	1	5	4			
Breeding Cows	2	16	6			
Heifers-in-Calf		6	3			
Cows and Calves		14	10			
Store Cows ...		4	3			
Stores:						
2 years + ...			11			
1—2 „ ...	1	14	8			
0—1 „ ...	2	11	6			
				9	14	3
				134	17	6
Gross Output				106	19	7
				£241	17	1

	£	s.	d.	£	s.	d.
Sales:						
Bulls		13	1			
Breeding Cows	1	10	3			
Heifers-in-Calf		5	4			
Cows and Calves	2	5	11			
Store Cows ...	2	1	5			
Fat Cows ...	3	13	4			
Fat Bullocks and Heifers ...	28	19	11			
Stores:						
2 years + ...	13	7	8			
1—2 „ ...	11	13	11			
0—1 „ ...	1	5	4			
Casualties ...		3	2			
Milk	30	18	1			
Other Subsidies	11	15	5			
				108	12	10
Closing Valuation:						
Bulls	2	7	5			
Breeding Cows	52	18	6			
Heifers-in-Calf	9	8	3			
Store Cows ...		8	4			
Fat Cows ...		4	3			
Fat Bullocks and Heifers ...	5	12	6			
Stores:						
2 years + ...	12	18	0			
1—2 „ ...	28	7	0			
0—1 „ ...	21	0	0			
				133	4	3
				£241	17	1

Net Margin per Breeding Cow:

		Quantity	£	s.	d.	£	s.	d.
Labour:								
Manual	*Hrs.*	91·24	15	19	4			
Horse	„	2·25		3	5			
Tractor	„	2·98		13	5			
						16	16	2
Feed:								
Purchased: Concentrates	*Cwt.*	4·15	7	16	9			
Hay	„	·50		6	3			
Roots	„	1·78		1	5			
Grass Keep	—	—			5			
Home-grown: Corn	*Cwt.*	12·83	10	7	2			
Hay/Silage	„	63·74	14	5	0			
Roots	*Tons*	3·50	6	3	10			
Grazing	...		13	3	8			
						52	4	6
Other Costs:								
Overheads	...		4	0	0			
Depreciation on Equipment	...			17	5			
Veterinary and Medicine	...			18	1			
Commission	...			18	7			
Haulage	...			9	10			
Service Fees	...			10	2			
Consumable Stores ...	...			6	2			
Other	...			—				
						8	0	3
Total Inputs ...						£77	0	11
Net Margin ...						£29	18	8

STANDARD SUPPLEMENT OF FINANCIAL RESULTS, 1955-56

Based on 54 Flocks Averaging 106 Ewes with 1·12 Lambs per Ewe

Gross Output per Ewe:

	£	s.	d.	£	s.	d.
Opening Valuation:						
Ewes	7	13	1			
Rams		6	6			
Lambs ...	4	12	11			
				12	12	6
Purchases:						
Ewes		13	3			
Rams		3	0			
Lambs ...		9	0			
Hoggs ...		2	8			
Couples ...		6	4			
				1	14	3
				14	6	9
Gross Output				10	10	3
				£24	17	0

	£	s.	d.	£	s.	d.
Sales:						
Ewes	1	9	5			
Rams		1	0			
Lambs ...	3	10	8			
Hoggs ...	3	17	6			
Wool ...	3	6	2			
				12	4	9
Closing Valuation:						
Ewes	7	18	6			
Rams		7	4			
Lambs ...	4	5	11			
Others ...			6			
				12	12	3
				£24	17	0

Net Margin per Ewe:

	Quantity		£	s.	d.	£	s.	d.
Labour:								
Manual	*Hrs.*	6·57	1	1	11			
Horse	„	·13			2			
Tractor	„	·33		1	6			
						1	3	7
Feed:								
Purchased:								
Concentrates	*Cwt.*	·05		1	11			
Grass Keep	—	—		3	3			
Home-grown:								
Corn	*Cwt.*	·25		3	8			
Hay/Silage	„	·19		1	4			
Roots	*Tons*	1·26	1	12	6			
Grazing	...		2	2	0			
						4	4	8
Other Costs:								
Overheads	...			5	5			
Depreciation on Equipment	...				5			
Veterinary and Medicine	...			2	11			
Commission	...			2	9			
Haulage	...			1	5			
Other	...				10			
							13	9
Total Inputs ...						£6	2	0
Net Margin ...						£4	8	3

STANDARD SUPPLEMENT OF FINANCIAL RESULTS, 1956-57

Based on 54 Flocks Averaging 113 Ewes with 1·18 Lambs per Ewe

Gross Output per Ewe:

	£ s. d.	£ s. d.
Opening Valuation:		
Ewes	7 8 2	
Rams	6 10	
Lambs ...	4 0 7	
Others ...	3	
		11 15 10
Purchases:		
Ewes	11 5	
Rams	3 9	
Lambs ...	10 10	
Hoggs ...	10	
Couples ...	4 1	
		1 10 11
		13 6 9
Gross Output		12 0 11
		£25 7 8

	£ s. d.	£ s. d.
Sales:		
Ewes	1 19 10	
Rams	1 8	
Lambs ...	4 0 9	
Hoggs ...	3 13 5	
Others ...	11	
Wool ...	3 7 3	
		13 3 10
Closing Valuation:		
Ewes	7 5 6	
Rams	7 4	
Lambs ...	4 10 7	
Others ...	5	
		12 3 10
		£25 7 8

Net Margin per Ewe:

	Quantity	£ s. d.	£ s. d.
Labour:			
Manual	*Hrs.* 5·88	1 0 7	
Horse	„ ·07	1	
Tractor	„ ·21	11	
			1 1 7
Feed:			
Purchased:			
Concentrates	*Cwt.* ·06	2 0	
Grass Keep	— —	3 4	
Home-grown:			
Corn	*Cwt.* ·15	2 5	
Hay/Silage	„ ·08	7	
Roots	*Tons* ·82	1 5 3	
Grazing	...	1 14 10	
			3 8 5
Other Costs:			
Overheads	...	5 2	
Depreciation on Equipment	...	7	
Veterinary and Medicine	...	3 0	
Commission	...	2 11	
Haulage	...	1 2	
Other	...	6	
			13 4
Total Inputs ...			£5 3 4
Net Margin ...			£6 17 7

APPENDIX B.

COSTING METHOD

The accounting technique employed in determining the various cost items in this report are as follows:—

Foods (1) *Purchased*—charged at actual cost to the farmer.

(2) *Home-grown*—the production costs of all crops fed to the cattle and sheep were determined on each of the survey farms.

The rates charged are as follows:—

	Costs per Ton	
	1955/56	1956/57
	£	£
Oats	18·8	20·1
Mixed Corn ...	14·8	15·5
Wheat	17·8	18·0
Barley	13·8	13·8
Turnips/Swedes ...	1·6	1·6
Mangolds	1·8	2·0
Kale-Grazed ...	1·3	1·5
Rape	2·0	2·1
Cabbage	1·9	2·0
Mixed Roots ...	1·2	1·2
Hay	7·0	7·0
Grass Silage ...	2·2	2·4

(3) *Grazings*—the actual costs incurred on grassland were ascertained for both pasture and hay/silage land. In order to determine the total cost of grazing, one half of the costs incurred on hay/silage land, excluding harvesting costs, were charged for the aftermath grazed by livestock and added to the pasture land costs. Of the total cost thus derived, one-third was charged to the winter period (November to April) and two-thirds to the summer period (May to October).

These total winter and summer grazing costs were apportioned on the basis of the number of livestock units of the different classes of livestock grazing the pastures. The conversion factors used in arriving at these livestock units are shown below:—

	Livestock Units
Cattle—2 years and over	1·0
1—2 years	0·8
0—1 years	0·5
Sheep—Ewes and Rams	0·2
Fattening and Replacement Sheep	0·2
Lambs under 6 months	—
Horses—	1·0
Poultry—Hens	0·02
Other	0·02
Pigs — Sows and Gilts	0·60

Labour. (1) Work by adult men was charged at the rate of 3s. 4d. per hour in 1955/56 and 3s. 6d. per hour in 1956/57. These rates include allowances for employer's share of National Insurance, overtime and for time spent on work which was not directly productive.

(2) In both years, tractors were charged at 4s. 6d. per hour and horses at 1s. 6d. per hour.

Miscellaneous Costs.

(1) *General Farm Overheads*—charged at 5s. 0d. per £ of manual labour directly employed on cattle and sheep.

(2) *Charge for Buildings*—was based on the estimated rental value of those buildings occupied by cattle.

(3) *Other Costs*—such as veterinary fees, medicines, commissions, haulage and service fees were entered at the actual costs.

(4) *Bedding Straw*—was not valued since the value of the dung produced was taken and offset the cost of the straw used.

(4) *Depreciation rates.*

On Machinery—rates used as follows:—

On grassland—5s. 0d. per acre.
On arable—15s. 0d. per acre.

On Equipment—rates charged were:—

	% *of Cost*
Wooden Fencing Stakes ...	50
Wire	25
Wooden Gates	20
Sheep Hurdles	20
Sheep Troughs	10
Iron Gates	10
Sheep Clippers and Engine ...	5

Residual Manurial Values. No deductions have been allowed either in terms of artificial manures applied to the grassland and crops, or of the crops consumed by the cattle and sheep. All artificial manures were charged at Net Cost to the farmer.

The Northgate Press,
(Exeter) Ltd.
9, North Street, Exeter.