UNIVERSITY OF EXETER

Centre for Rural Policy Research

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S T Morris, G D D Davies and W J Dunford
Edited by Gordon Morris

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Introduction and Explanatory Note

During the autumn and winter of 1979 to 1980 I was living in a rural community about ten miles from Holsworthy, whilst undertaking field work for my Open University Sociology PhD about farming in the Holsworthy area. I introduced myself at the Agricultural Economics Unit, then based at Lafrowda House, and amongst those who welcomed and helped me was lecturer in Agricultural Economics, John Dunford. Amongst his many kindnesses was the loan of a draft copy of this report which I used in my thesis to provide invaluable contextual background to my study area. Having mined it for information, I then returned it to John and did not set eyes on it again for nearly thirty years. When the Centre moved out of Lafrowda House in 2007 we faced the awesome task of sifting through papers stretching back to 1968 when the AEU re-located from Newton Abbot to Lafrowda House. There was no shortage of reports and papers to examine, but a copy of the Holsworthy report did not come to light. I disturbed John Dunford in his retirement and to my great relief he had a copy amongst his own papers. This I hurriedly copied to ensure its preservation in the Centre archive. But I felt the report warranted more than that. Such a thorough piece of research deserved publication, albeit more than half a century late.

There are other motives for publishing it now. Together with my colleagues, Matt Lobley and Paul Brassley from the Centre and David Harvey from Geography, we have an ESRC funded research project covering various aspects of the history of technology adoption in farming in the West Country with particular reference to the post-war period. Contemporary material about farming economics in the 1940s, 1950s and 1960s is vital to that project. The Holsworthy report will inform that research.

I am enormously grateful to Gordon Morris, who recently completed his PhD at the Centre, for taking the time to edit the report and also to Marilyn Stephen for re-typing from the original typescript and for proof reading. Gordon found the text of the report to be substantially complete, but the same could not be said for the supporting tables and figures. Several were missing. Of those that were included, some were incomplete, and some were duplicated within the body of the report. Others appeared to be drafts, the relevance of which was not obvious. Despite this, however, the report is clearly sufficient to be both of use and of current interest.

The draft has been amended pragmatically; the aim being to ensure that it is both readable and as close to complete as possible. Where information is missing, incomplete or ambiguous this is made clear. Where no obvious sense can be made of either text, or the data contained in tables and figures, some deletions and amendments have been made, and this is also made clear, either by means of explanatory text, or of ellipses. There are gaps in the report and, in places, for example where data is missing, the “flow” is not ideal. The decision was taken, however, to keep as much as possible of the original report intact. For this reason the tables for which there is no explanatory text have, for completeness, been included in an appendix. Changes and explanatory notes are given in italic type. Although these compromises may make for some frustrations for the reader, it is hoped that what remains is both readable and useful.

We have been fortunate to have had the opportunity to discuss the work described in this report with Mr W John Dunford, a member of the original seven strong survey team[1]. It is both timely and richly appropriate that John is at last able to introduce and explain, in the foreword following this introduction, the work that he and his colleagues did in North Devon nearly sixty years ago.

Michael Winter
Centre for Rural Policy Research

[1] Dr Dénes Balogh, Ms Estelle Burnside, Mr Ceri Davies, Mr Talfryn Davies, Mr Gruffydd Davies, Mr John Dunford, and Mr Ken Tyers, all of whom were long serving members of staff at the University of Exeter..

Foreword by Mr W John Dunford

In 1954 and 1955 the then University of Bristol's Province II of the Provincial Agricultural Economics Service (then based in Newton Abbot) carried out a survey of the physical and economic conditions of farming on the Culm Measures soils of North West Devon. This survey was undertaken at the request of the Ministry of Agriculture and Fisheries (MAF)[2] in furtherance of the Government's continuing post-war policy of increasing home food production in response to severe balance of payments problems besetting the nation's economy. Part of that policy extended to a review of the potential which existed for increased output in areas of the country hitherto considered to be marginal in terms of farming. North West Devon was one such area.

A summary of the survey's findings and a number of conclusions drawn from them were duly submitted to and accepted by MAFF and the responsibilities and obligations assumed by Bristol II Province in carrying out the survey thereby discharged. However, the bulk of the material from which the summary was distilled and the conclusions drawn, was never published or otherwise released or disseminated, and has remained in the safekeeping of one of the original compilers of the survey report for some sixty years. With the passage of time, therefore, a body of data, originally assembled to provide a contemporary picture of farming conditions in one poor land area of Britain as an aid to the formulation of post-war agricultural policy, has now assumed the form of a valuable archive relating to Devon's economic and social heritage.

July 2011 W J Dunford

[2] NB The Ministry of Agriculture, Fisheries and Food – MAFF - was formed following the merger of MAF with the Ministry of Food in April 1955.

G D D Davies, Holsworthy Survey, February 1954

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SECTION 1 THE CULM MEASURES PROBLEM AREA

1.1 Introduction

The series of rocks which outcrop over wide areas of North Devon and North East Cornwall are generally referred to as the Culm Measures[3]. Underlying in all some 1,200 square miles, these rocks comprise the largest single physiographic unit in the South West peninsula. They extend from the outliers of Exmoor in the north to Dartmoor in the south, and from the Exe Valley in the east and westwards to the Atlantic coast line.

Predominantly agricultural in character, the area which the Culm Measures delineate is one of relatively poor land which has given rise to a distinctive farming landscape. Its gently undulating surface overlain with cold wet soils supports many rush-invaded pastures and areas of scrub woodland, and offers a marked contrast to other neighbouring farming regions of Devon and Cornwall, especially the red soil region of the lower Exe Valley and the hillier areas of South and East Devon.

The generally poor condition of Culm Measure farmland is attributable in the main to three adverse physical factors: a high annual rainfall; heavy intractable clay soils overlying an impermeable subsoil; and in many places an almost complete absence of run-off resulting from the lack of natural slope. None of these factors, where found in isolation, proves an insurmountable obstacle to successful husbandry, but where found in association they have given rise to a farming environment of extreme difficulty.

However, conditions are not uniformly poor throughout the whole extent of the Culm Measures. Within them areas of better land can be discerned, usually coinciding with either the absence or moderation of one or more of the physical handicaps described above. This better land is considerably more in evidence in the eastern half of the Culm Measures area where rainfall is somewhat less and slope is more pronounced. For this reason the real problem area of the Culm Measures can be considered to occupy the western half of the series in the locality of the town of Holsworthy and extending roughly from the Tamar Valley in the west to the lower Torridge and Okement Valleys in the east.

Even within this area pockets of better land exist side by side with the very worst, often within the boundary of a single farm, but on the whole the land is of a very poor quality and the problems usually associated with Culm Measure farming are found here in their most acute form. It is this Holsworthy district of North West Devon that the present enquiry sets out to study in some detail.

[3] The Culm Natural Area, a Nature Conservation Profile by Hughes and Tonkin, English Nature, 1997.

1.2 Physical Characteristics of the Culm Measures Problem Area

1.2.1 Geology, Structure and Topography

The Culm Measures which underlie the problem area were laid down in Carboniferous times and, except that actual coal seams are absent, closely resemble the Coal Measures found in other parts of Britain. They owe their name to the occasional presence of a soft sooty material known as culm but are otherwise comprised of a thick series of dark grey and greenish shales interbedded with sand stones and grit bands and scattered deposits of impune limestones.

Structurally, these rocks form part of a large syncline whose alignment is east-west across Devon and Cornwall and like many of the other formations in the South have been subjected to considerable folding especially in the proximity of Dartmoor.

Submergence of the whole Culm Measures area below the sea at an early stage of its geological history, and its subsequent re-emergence has resulted in formation of a peneplaned surface at an average elevation of some 400-500 feet above sea level which is sometimes referred to as the Mid Devon Plain. The problem area now being studied forms a large part of this gigantic raised platform.

1.2.2 Natural Drainage

As might be expected the natural drainage systems of the Culm Measures are still at a relatively immature stage of development with the result that the few steep sided valleys that are found are separated by wide tracts of plateau surface. This is especially true of the problem area itself which forms a water shed area between the head waters of the left bank tributaries of the River Tamar and the upper reaches of the River Torridge. Here drainage development is in a particularly rudimentary stage and consists mainly of small streams with intervening areas of little slope, which are characterised by many hollows and depressions with no adequate drainage outlets. In the eastern half of the Culm Measures, stream development is rather more advanced and there is a noticeable increase in the amount of slope and in the effectiveness of the natural drainage system, a fact which has contributed considerably to the amelioration of land condition experienced in this area.

1.2.3 Climate

The climate of North West Devon, with its high annual rainfall and absence of extremes of temperature, is characteristic of the maritime type of climate common to all South Western coastal districts of the British Isles[4].

The extremes of temperatures normally recorded are around 85 degrees and 20 degrees and on average about 150-160 days are liable to frost, 12th November and 11th April being the average dates of the first and last frosts at Bude.

Annual rainfall in the problem area varies between about 40º and 50º. A noticeable decline occurs however as one moves eastwards away from the problem area and it is perhaps significant that the latter is to be found entirely within the 40º isohyet. Rainfall in this region,

[4] *In the original the author intended to include a table illustrating mean monthly temperatures in the area. The temperatures were those recorded at Bude and so were not entirely representative. For interest and illustration, relatively recent data can be found here:* http://tinyurl.com/6a6nzfs

although exhibiting a typical October-December maximum and an April-June minimum, is still well distributed throughout the year and even the driest summer month can expect an average over 2" of rain. Since actual monthly rainfall figures seldom conform to the average distribution, this can have grave repercussions on the agriculture of the area as greater-than-average rainfall at critical harvest periods can frequently spell disaster[5].

The infrequency of precipitation in the form of snow serves to emphasise the temperate nature of the climate; at 600 ft it appears on average on about 17 days a year while at 200 ft and below it only appears on 9 days. Snow lying is even more infrequent and occurs on average less than five times a year.

Winds are mainly west-south-west in direction and moderate in force although gales do occasionally occur. The effect of these winds however is frequently heightened by the exposed nature of many parts of the area and where this occurs, there exists the added problem of providing adequate shelter for both crops and animals.

On average the area enjoys about 1,600 hours of sunshine a year compared with the 1,700 hours recorded along the south coast of Devon and Cornwall. This is equivalent to about 4.4 hours a day but the daily range in hours of sunshine is considerable and, while there are some 50 days in the year when the area enjoys over 9 hours of sunshine, there are about 70 days when there is none.

1.2.4 Soils

The great ice sheet which covered much of England in Tertiary times did not extend as far south as Devon and Cornwall and therefore the soils of North West Devon are not of morainic origin but derived directly from the underlying Culm clays. These rooks have been broken down into heavy retentive soils whose depth varies widely throughout the region, the varying depth below the surface of the clay subsoil being the legacy of the intense folding to which the area was at one time subjected. Where the yellow clay subsoil appears near the surface and the soil horizon is shallow, then the problem of drainage is almost insuperable and fields remain almost permanently waterlogged, but where soil depth increases drainage conditions invariably improve.

Analysis of samples taken in North West Devon show that although the soils of this region have a tendency to acidity, it cannot truly be regarded as an acid area, as some two-thirds of the samples showed a lime requirement of less than half a ton to the acre; nor does there appear to be any serious potash deficiency, the soil being classed as medium in this respect. The chief deficiency is in phosphate, a condition arising from those chemical properties of the soil which renders unavailable for plant growth much of its actual phosphatic content, and some four-fifths of the samples taken were found to be either low or very low with regard to this particular mineral. In addition, some deficiency in certain trace elements, notably magnesium, may exist in parts and this has been suggested as a possible cause of "staggers" in cows, cases of which are occasionally found.

Where they are widespread, as in the problem area being studied, conditions of impeded drainage do much to off-set the advantage of a temperate climate. Thus, although winters are seldom severe, the housing of cattle during the winter months is made necessary by the damage from poaching which would otherwise result to waterlogged pastures. In an area where farm buildings are often inadequate this need for in-wintering frequently operates as a restriction on the number of stock which a farm may carry. Also, the cold nature of poorly

[5] *Original data relating to rainfall was missing. Relatively recent information can be found here:* http://tinyurl.com/6a6nzfs

drained soils gives rise to late seasons and seriously limits the period of summer grazing; by so doing it adds greatly to the difficulties of wintering since it both extends the period of winter feeding and restricts yields of conservation crops, the harvesting of which is already rendered hazardous by the vagaries of a not inconsiderable summer rainfall.

Yet despite the many unfavourable features with which they are associated, it remains substantially true that the soils of the Culm area, if adequately drained, are above average in their fertility.

1.2.5 Vegetation and Land Use

The natural vegetation of North West Devon, like that of most other non-mountainous areas of Britain, consists of deciduous woodland and forest. After centuries of settlement and cultivation, however, most of this natural cover has been removed and the few traces that remain consist for the most part of scattered copses and scrub woodland which frequently occupy the poorest areas. Even if one includes areas of reafforestation (and these are of considerable importance within the area) am average little more than one-tenth of the surface of North West Devon is given over to woodlands. Virtually the whole of the remainder is utilised for agricultural purposes and, of this, just under a half is classed in the Returns made to the Ministry of Agriculture as permanent grass, and approximately one-sixth as rough grazing. Rather more than a third is classified as arable, of which more than a half is described as temporary grass.

Permanent grassland in the Culm region consists mainly of agrostis grass, a shallow rooting variety characteristic of poor quality heavy land with a tendency to acidity. Nevertheless, if properly managed it is capable of providing adequate pasture and at least has the advantages of possessing an excellent late growth and being resistant to treading by stock, a factor of particular importance in an area where land is prone to poaching. In wetter areas, however, a large and virulent rush population is found and agrostis tends to give way to molinia. The latter provides fair cattle pasture if its rapid growth is controlled by grazing, but where it is allowed to grow unchecked it becomes tufted and produces these bog conditions which are favoured by cotton grass. Where pockets of dry land occur, molinia is associated with nardus and heather. If these areas are neglected bracken and gorse replace the rushes of the wetter parts.

The many rush invaded areas are of little use except for rough grazings and are, moreover (since rushes spread rapidly if uncontrolled), a constant threat to neighbouring pasture, especially where the latter are neglected for any length of time. They are frequently extensive, particularly in the problem area, and where this occurs, they are known locally as moors. A number of these moors have common rights attaching to them but they tend to remain in a neglected condition as no-one has overall responsibility for them. At best they only provide a limited amount of summer grazing.

It should perhaps be noted at this stage that although just under one half of the land utilised for farming in North West Devon is already classified as permanent pasture, more might justifiably be considered as such as undoubtedly much of the acreage hitherto classified as temporary grassland is more akin in its characteristics to permanent pasture than to the true short ley. This apparent confusion arises from the nature of the rotation which is commonly practised in the area wherein grass, sown after three or four years normal field crops, is allowed to remain out for anything from three years to a dozen years or more, the exact duration depending upon the condition of the pasture. During the initial period of establishment of such pastures, sown grasses will predominate, but subsequently indigenous grasses establish themselves and, eventually, the pasture will acquire many of the characteristics of permanent grassland.

Many farmers, in the absence of instruction to the contrary, are still prepared to return as temporary grassland pastures which have been down many years solely on the grounds that they will be ploughed “some time or other”.

What proportion of the grassland hitherto classified in temporary might have been with more accuracy described as permanent is, of course, impossible to ascertain. One can only state that, in all probability, Agricultural Returns in their present form seriously underestimate the proportion of “permanent type” grassland in the area.

Less than one sixth of the problem area is in arable crops. Climatic and soil conditions effectively preclude any appreciable acreage of the accepted cash crops and the tilled acreage is mainly devoted to the provision of winter fodder crops. These will be described in detail in a later section of this report.

The greater part of the acreage under woodland in the Holsworthy district is now controlled by the Forestry Commission who first acquired land in 1921 at Halwill Moor. Since that date further acquisitions of land have been made and the area of afforested land extended so that at the present time Halwill Forest (as it is still known) comprises 3,500 acres.

Afforestation in this area has not been without its problems, particularly with regard to the establishment of the young trees in the first 10 years of their life. The difficulties encountered at this stage result from the varying nature of site conditions found in the area which in turn are largely dependent upon soil characteristics. Where on poor, dry land gorse is present, establishment has been found to be difficult if not impossible as the indigenous vegetation has proved too strong a competitor for the young trees. Moreover, the position is only aggravated by any addition of phosphate which may be made in an attempt to remedy the general deficiency in this mineral which exists in soils throughout the region, since this has the effect of stimulating the growth of the gorse at the further expense of the saplings.

On the wetter sites the growth of the young trees is frequently checked by the lack of adequate aeration of the soil. This particular difficulty however has been largely overcome by the adoption of mound and turf planting which raises the plants above the level of surface waterlogging and enables them to initially establish themselves in a clear space and subsequently suppress neighbouring vegetation.

Experience has also demonstrated that initial growth is encouraged in areas where the land at some time or another had been previously cultivated. Thus in recent years most planting has been preceded by the preparation of the land by power ploughs and this has brought about an overall improvement in early growth rate. Gorse/heather sites are an exception, and the early improvement is soon lost because of the reappearance of the gorse which eventually re-colonises the site.

Now that careful selection of site, raised planting and preparatory ploughing have substantially diminished difficulties associated with early growth, conditions in the problem area may be considered on the whole to be suitable for tree growth after establishment is satisfactory.

In addition to its woodland area the Forestry Commission also owns a few smallholdings within the problem area which are let to some of the forestry workers who are guaranteed 156 working days per year. In practice they work full time for the Forestry Commission and in their spare time on the holdings.

A few large private woodlands exist in the problem area and the owners of these sometimes obtain advice from the Forestry Commission. For the most part, however, those woodlands

which remain in private hands are small in acreage, consist of poor quality hardwood, and are frequently in a dilapidated condition.

1.3 Brief Historical Description of Farming in the Problem Area

1.3.1 Introduction

Poor physical conditions have undoubtedly played a dominant part in the history of North West Devon as an agricultural region. As long ago as Norman times, for example, it was clearly defined as a poor land area which compared unfavourably with other regions of Devon. This has been very ably demonstrated by Morgan who plotted on a map of Devon selected data from the great Domesday Survey of 1086, having previously divided the map into a number of regions according to the physical characteristics, one of which closely corresponded with the problem area delineated earlier. The result of this exercise showed clearly that in the matter of plough teams per acre, agricultural population per acre and land values, the Holsworthy district of North West Devon was inferior to most others in the country.

Unfortunately no records comparable to the Domesday Survey are available for the centuries which followed and not until the end of the eighteenth century are we again provided with a detailed picture of farming on the Culm Measures. It seems reasonable to assume, however, that during this poorly chronicled period, which was one of few technical advances in agriculture, rural conditions continue to exert a blighting effect upon agriculture in the region. In all probability in times of prosperity additional land would be brought into cultivation which would be allowed to revert to waste and rough grazing in times of depression, giving rise to the neglected appearance of much of the land which has persisted to the present day.

In 1793 a Board of Agriculture and Internal Improvement was set up and one of the first actions was to arrange a report on the state of agriculture in each county. The observer in the case of Devon was Vancouver and his report published in 1808 affords a good description of farming on the Culm Measures at that time. He points unhesitatingly to the adverse physical conditions of the area as the cause of what he refers to as “the strangely neglected condition” of the area.

The comments of later observers show that little change occurred during the remaining decades of the 19th Century. Tanner, writing in 1849 of the Holsworthy district, stressed that “the whole requires drainage, and until this is effected little hope can be entertained of its being better cultivated. It is now the most sterile, dreary and worst cultivated tract of land in Devonshire”. Punchard in 1890 draws attention to the fact that in passing from the Exe Valley into the Culm region “the appearance of warmth which the red soil overlying the old sandstones imparts to the picture visible eastwards, gives way to the grey and cold sterility of undrained clays”.

By the end of the 19th Century a fairly well defined type of farming had emerged over the whole of the Culm Measures region. In common with other upland districts of the western half of Britain this was based predominantly on livestock husbandry as physical conditions precluded the production of most cash crops. Distance from, and poor communications with, the growing urban centres of this country and the comparatively poor pastures of the area were contributing factors in discouraging any early major development of dairy production. It is perhaps not surprising, therefore, that the pattern of farming which evolved was mainly an extensive one based on the rearing of store cattle supplemented by small scale summer dairy production in the form of farmhouse butter which found a seasonal market in some of the coastal resorts of the South West. These two main enterprises were in some measure complementary to one another inasmuch as the skimmed milk obtained as a by-product in butter making was available for feeding the young calves which were being reared.

Sheep were less evenly distributed throughout the Culm Measures region being less suited than cattle to the very wet conditions which prevailed on many farms, particularly in the delineated problem area. Thus they were confined to the drier margins and for that reason were relatively more important in the eastern half of the Culm Measures where rainfall is lower and drainage better. The enterprise consisted mainly of the rearing of stores although some fattening took place on the better land.

Lack of markets prevented the keeping of pigs and poultry on any scale and, where found, were confined to domestic requirements only.

This traditional system of farming was based almost exclusively on the breeds of cattle and sheep native to the area. The indigenous North Devon breed of cattle was admirably adapted to withstand the rigours of the wet climate possessing a thick curly coat the colour of which was responsible for cattle of this breed being more familiarly known as “Red Rubies”. Moreover, it is a breed which fattens quickly and well both on grass and in yards and for that reason the export of large numbers of stores annually to graziers in the Midlands and elsewhere and to the winter fattening arable farms of Eastern England formed an integral part of the traditional pattern of farming in this area.

The native breed of sheep with which the early development of the traditional system is associated is the Devon Longwool. A large breed providing a heavy wool clip, it too was noted for its hardiness and at one time was found in considerable numbers over wide areas of the Culm Measures. More recently, however, it has lost ground in the eastern half of the Culm region to the Devon Closewool (the second indigenous Culm breed which owes its origin to the upgrading of the Devon Longwool – Exmoor Horn Cross) although it has continued to retain its popularity in the wetter half of the Culm Measures.

Since the end of the First World War the pattern of farming in North Devon – in common with that of other upland and poor land areas of Britain – has undergone considerable change. During this period many farmers have abandoned their traditional systems of farming and have turned instead, to a greater or lesser degree, to the production of liquid milk. The stimulus for such a radical changeover undoubtedly stemmed from the changed economic conditions of the inter-war period. The growing volume of imported beef from Commonwealth and other sources resulted in the production of home produced fat and store cattle becoming less and less profitable compared with that of liquid milk which in contrast to beef continued to enjoy a full measure of natural protection against overseas competition.

In addition to the decline in the relative profitability of the main enterprise of these traditional store rearing farms, farmhouse butter making which had for many years formed an important subsidiary enterprise, fast disappeared as a result of the unfavourable movement of home – produced butter consequent upon the arrival in increasing quantities of the imported commodity. Both these factors then served to render liquid milk production increasingly attractive to the store rearer of the upland areas.

However, although the stimulus to change derived from altered economic circumstances, the actual extension of milk production to such inaccessible areas as North Devon only became feasible with the development of the internal combustion engine. The advent of the motor lorry, capable of operating a daily milk collecting service to remote farms enabled milk factories to be established in these areas serviced by a fleet of lorries. The factories were, in fact, set up in North Devon. Between them these factories offered a complete coverage of the general problem area being studied.

The initial economic impetus to change was subsequently assisted by a number of other factors. The emergence of the Milk Marketing Board in 1933, for example, placed the marketing of milk on a nationwide basis and assured the producer of an outlet for his

product[6], which the introduction by the Board of a system of regular monthly remittances was an added incentive to many who were contemplating the switch to milk. Moreover, the availability of plentiful supplies of cheap imported feeding stuffs which lessened the farmer's dependence on the inherent fertility of the land, substantially reduced the relative disadvantage formerly suffered by areas of poorer land in the matter of milk production.

This swing to milk in Britain's upland areas which was already well underway by the late thirties was greatly accelerated by wartime conditions in the early forties. The encouragement of milk production at the expense of meat was now continued under the aegis of official policy. Such feedstuffs as were available were allocated to dairy herds and the system of controlled prices so constructed as to favour milk production. The unfavourable trend in beef and store cattle prices relative to that of milk observed during the 1930s continued through the war years

The priority accorded to milk production during the war years continued into the post-war period when the distribution of cheap, and in some cases free, milk became an essential part of the Welfare Service. The price of milk, therefore, fixed at annual Price Reviews, remained sufficiently high to bring about continued expansion of the dairy industry - both as the result of increased output from existing producers and the attraction of still more new entrants into the industry – despite the high cost of feeding stuffs which had persisted since the war. In this post-war expansion North Devon, along with other traditional store rearing areas, has shared to the full.

Despite the attraction of milk production over the past three decades, change to this system of farming in the problem area being studied has by no means been complete. Restraints have been present in the form of inadequate buildings, poor physical conditions and the absence of a tradition of dairying among the farmers of the region and, in consequence, the area may be regarded as a transitional one as far as milk production is concerned. The extent of change varies widely with individual farms, and side by side with the specialised dairy farm are to be found farms which have departed little from the traditional system except insofar as milk surplus to rearing requirements is now sold off the farm in liquid form instead of being made into butter. Between these two extremes there exists a gradation of farm types in which store rearing and milk production are combined in a multiplicity of combinations. This variety of systems is accompanied, not unsurprisingly, by a considerable variation in the breeds of cattle now present in the area. Although the North Devon still predominates, herds of pure dairy breeds are often to be found as well as many herds of a mixed or crossbred nature.

More recently there have been indications that economic conditions are again changing. Some overproduction of milk has already occurred at peak periods and the last Price Review saw the first serious reduction in the price of milk. Should this downward trend in milk prices continue, there can be little doubt that areas such as North Devon would be among those most immediately affected, containing as they do a high proportion of the industry's marginal producers. In such circumstances the restraints which, during the past thirty years, have hindered but not prevented the changeover to milk, may become critically operative with the result that many of the larger farms which have so recently turned to milk selling may find it advisable to return to their more traditional practices.

Yet the fact remains that for many small farms the more intensive forms of production, and in particular milk production, offer the only real possibility of adequate incomes and, for them, there can be no question of a return to an extensive system of farming based on the rearing of store stock. The manner in which the efficiency of these farms can be increased to

[6] In contrast to the marketing of beef during the 1930s.

enable them to compete effectively with other sectors of the dairy industry forms but one thread in the complicated skein of problems with which North West Devon is beset.

1.3.2 The Settlement Pattern and Social Facilities

The Holsworthy area of North West Devon forms part of an extensive region of sparse population (25-100 per square mile) which stretches across the whole of North Devon into East Cornwall. With few natural resources to attract important manufacturing industries the area has remained predominantly agricultural in character. The main sources of employment therefore are those connected either directly with agriculture or with the servicing of this basic extractive industry. A number of quarries, together with the distributive and building trades offer some additional employment.

There are few towns of any size in the area, the nearest large centres of population being the Bideford-Barnstaple conurbation on the Taw-Torridge Estuary, and Plymouth and Exeter to the south and south-east respectively. The main towns actually within the area are Holsworthy (population 1,600) and Hatherleigh (population 1,000), while Okehampton (3,900), Tavistock (6,200) and Launceston (4,600) occupy positions on the southern and south-western fringes of the area. Bude to the west is an important summer resort. Apart from these, settlements consist entirely of scattered villages and hamlets and the farm population.

The provision of adequate transport and communication facilities, essential services and social amenities in such a scattered community obviously presents many difficulties and it is not surprising to find that in each of these aspects of its economic and social structure the problem area compares unfavourably even with the modest standards of the South-West. Although the main Southern Region railway line from Exeter to Plymouth touches the southern part of the problem area the greater part of it is served only by branch services. Lines from Bude, Launceston, Okehampton and Torrington converge on Halwill Junction which occupies a roughly central position within the problem area, but they are all single track lines and offer at the best a rather intermittent service.

The area is fairly well served by roads, but they are not always in good condition. Two Class A roads cross it in a roughly southward direction: the first running from Bideford to Holsworthy and thence to Launceston; the second from Bideford to Okehampton via Hatherleigh. These two roads are linked by a third class A road which joins Holsworthy and Hatherleigh. All other roads in the area are either Class B or below, or are privately owned access roads.

Class A roads from Exeter to Barnstaple, from Barnstaple to Bude (along the coast) and from Exeter to Launceston all skirt the region and thus to some extent assist in providing access.

Despite the reasonable network of roads which exists, bus services are poorly developed. Regular daily services are operated along the Class A roads and connect the main towns but for areas off these routes services to the nearest towns are frequently restricted to one or two buses per week, usually to coincide with market days.

The provision of mains electricity and piped water in such a widely dispersed community is a costly undertaking and only a few parts of the area have as yet been able to enjoy the benefits of these services. Local medical services too are thinly spread and, although a number of cottage hospitals are located in the area, there is no adequate centrally situated hospital service. Admittance to hospital for more serious illness will therefore involve both patient and visitors in journeys to perhaps Plymouth, Barnstaple or Exeter.

Weekly shopping facilities are provided by Holsworthy and Hatherleigh (although the tradesman's van and the mobile shop have materially assisted the housewife in isolated areas in her shopping for necessities); for rather more special shopping expeditions, however, a visit to Launceston, Okehampton, or Bideford is usually required. Visits to Exeter or Plymouth are often the occasion of a yearly or half-yearly "outing".

The lack of adequate social services and amenities, therefore, at a time when rural as well as urban standards of living are rising generally, coupled with the inaccessibility of towns of sufficient size to satisfy the employment and leisure needs of an increasingly "town-minded" younger generation would seem plausibly to explain the continuous migration from North-West Devon, and indeed from the whole of North Devon and East Cornwall, which has occurred throughout the whole of this century. This trend is in striking contrast with the position in South and East Devon where population numbers have been steadily increasing during the same period.

This report is concerned mainly with the economic problems of farming in North West Devon. Yet it is evident that these problems and any suggested measures for their removal can only be discussed within the context of the overall social pattern. Wibberley, among others, has stressed the need, in many poor isolated rural areas, of a balanced population consisting not only of economically viable farming units, but of an adequate proportion of non-farm[7] population. With the primary population steady and rather too small and scattered in many rural areas to justify the heavy cost of providing physical and social services in line with modern planning standards, the long-term salvation of these areas in terms of the provision of a good life for its inhabitants seems to be closely linked with a relatively high proportion of non-farm people in the total population[8]. It is this non-farm sector of the population in particular which has steadily declined in North-West Devon (although a decline in the number of farm workers has also taken place). Any measures, therefore, which may be taken to increase the viability of the farm units in this area must ultimately depend for their success upon complementary measures designed to arrest the migration from the area of the non-farm population. To decide how this latter objective may best be achieved forms no part of this study; suffice to say that it presents the sociologist and the planning authority with a difficult and controversial task. Only by the realisation of the objectives of an economically sound farming community and a stable non-farm population of adequate proportions will the needs and desires for improved social conditions, common to both groups, be met.

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[7] Dr L Dudley Stamp has suggested the following convenient classification of the rural population:

- The "primary rural or farm population", i.e. farmer and farm workers with their families (and in some areas forestry workers).
- The "secondary rural or service population". This includes all who serve the primary group, e.g. blacksmiths, saddlers, garage proprietors, agricultural merchants and contractors, and professional people such as parsons, doctors, teachers and innkeepers.
- The "adventitious population" or those who live in the country by choice only. They include retired people of all types and urban workers who reside in the country for preference.

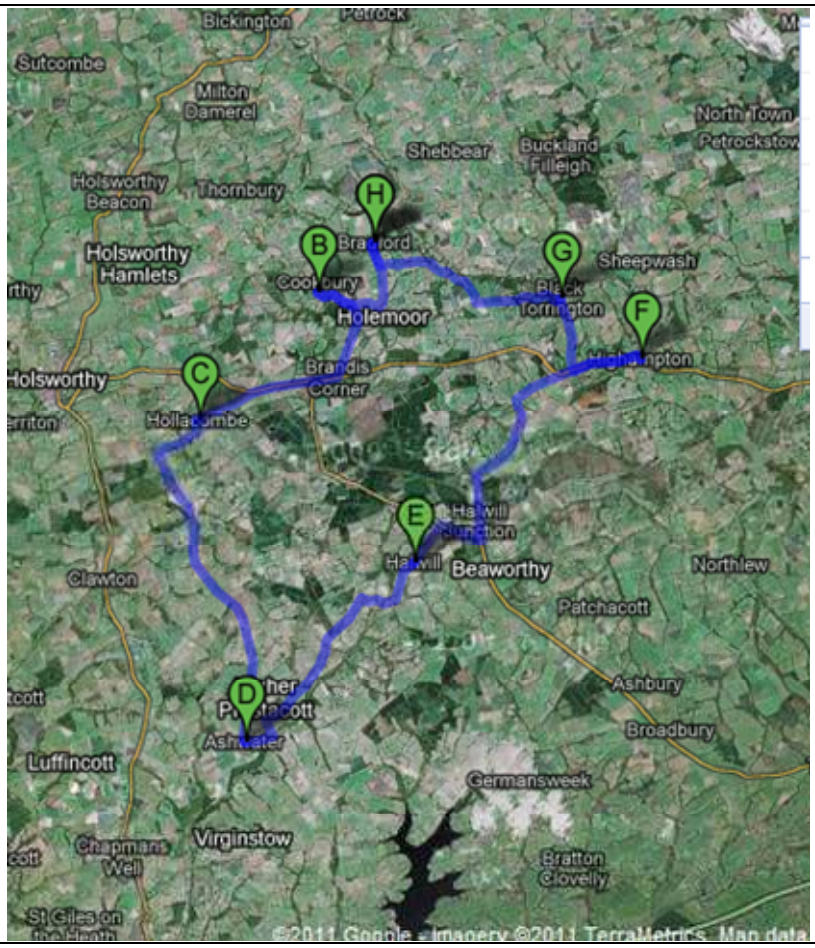
[8] 'Principles of Land Planning in Relation to Rural Development'. G P Wibberley. *Journal of Proceedings of Agricultural Economics Society*, Vol VIII, No 3, June 1949.

SECTION 2 THE ECONOMIC ORGANISATION OF FARMING IN THE CULM MEASURES PROBLEM AREA

2.1 The Survey Area

Although the problem area as defined in the previous section of this report comprises only a part of the general Culm Measures region it still constitutes a sufficiently large tract of country to make any detailed study of it, in its entirety, a formidable undertaking. For that reason it was decided to confine attention in the main to a number of selected parishes which were thought from local knowledge and report to be fairly representative of the poorest land of the problem area. The parishes chosen for survey, which numbered seven, were:- Ashwater, Black Torrington, Bradford, Cookbury, Halwill, Hollacombe and Highampton. These parishes (Map 1[9]) form a broadly contiguous area to the north and south of the road joining the two market towns of Holsworthy and Hatherleigh. They occupy a central position, within the problem region. Between them they account for some 25,000 acres of farmed land.

Map 1
Map of the General Area



[9] *The original figure was missing from the draft report.*

In addition, data was also obtained for sixteen[10] parishes selected at random from those surrounding the core of very poor land represented by the seven special study parishes and occupying a peripheral position within the overall problem area. The data though less detailed and less exhaustively treated than that collected for the seven parishes, has proved extremely useful for comparative purposes and has provided the study with a measure of perspective.

[10] Alwington, Ashreigney, Bridgerule, Brushford, Clawton, Dolton, East Putford, Frithelstock, Inwardleigh, Milton Abbot, Monkleigh, Pancrasweek, Shebbear, South Tawton, Virginstowe, Werrington.

2.2 Sources of Data

The data utilised in this section of the report to determine the pattern and organisation of farming in the Culm Measure problem has been derived from three main sources:

(i) Ministry of Agriculture, June Returns for 1953 (made by all agricultural holdings over one acre)
(ii) Milk production data for the 12 months period from April 1953 to March 1954 for all milk-selling farms in the survey parishes.
(iii) Returns of Agricultural Machinery made to the Ministry of Agriculture in January 1954.

2.3 Agricultural Holdings in the Survey Parishes

An examination of the June Returns made to the Ministry of Agriculture by all holdings over one acre revealed that in 1953 there were 345 such holdings in the seven survey parishes. Since farmers, on completing their Agricultural Returns, are instructed to include all holdings and outlying land farmed with the main holding on the same return and, in the absence of any evidence to the contrary such as the appearance of the same occupier's name on several returns, it was considered safe to regard these 345 holdings as representing 345 separate agricultural units.

A scrutiny was then made of the stocking and cropping data on these 345 agricultural units. This produced no evidence to suggest that any of them were highly specialised producers such as poultry or pig farms or market gardeners. It was therefore clear that many of the smaller units carrying a few head of stock of one kind or another, must of necessity be of a part-time or spare-time nature and, as such, outside the scope of the present enquiry.

It was, therefore, decided to exclude from subsequent analysis all agricultural units in the seven perishes which consisted of less than 25 acres of crops, grass and rough grazings[11] on the assumption that units of such size in a general farming area would be incapable of providing full-time employment for the occupier. Although this method of distinguishing full-time from part-time and spare-time farms may appear somewhat arbitrary, it was found by applying the number of man hours of work required per annum by the various crop acreages and livestock numbers of the farms thus excluded that in practice it proved a reasonably accurate basis of distinction.

Table 1 shows that of the 345 agricultural units in the survey parishes, 96 were less than 25 acres in size.

Table 1
Classification by Size of the 345 Agricultural Units in the Seven Survey Parishes

Farm Size	Farms		Acreage	
	Number	%	Acres	%
Under 25 acres	96	27.8	1,053	4.3
25 acres & over	249	72.2	23,167	95.7
Total	**345**	**100.00**	**24,220**	**100.00**

These 96 farms, however, accounted for only 4.3% of the total farmed acreage of the survey parishes. Of the 249 full-time agricultural units (henceforth referred to as "farms", nine were found to possess returns which were incomplete in some respect or other, and they too were excluded from further analysis. The greater part of the data presented in this section of the report, therefore, relate to 240 farms of 25 acres and over, which between them account for nearly 96% of the total farmed acreage of the survey parishes.

[11] Unless stated otherwise the term "acres" as used in this report implies total acreage of crops, grass and unadjusted rough grazings.

2.4 Cropping and Stocking in the Survey Parishes

Details of the cropping and stocking patterns in the seven survey parishes are set out in Tables 2 and 3.

It is not proposed to comment at length on these two tables as they are largely self explanatory, but perhaps attention may be drawn to one or two salient features. The cropping figures illustrate the relatively small acreage of land which is tilled compared with that under grass. They also show clearly the high proportion of land returned as rough grazings (the latter exceeding, in fact, the tilled acreage). The amount of wheat and barley grown is shown to be negligible and the bulk of the cereal acreage is comprised of oats and mixed corn in equal proportions.

Table 2
Analysis of Cropping Patterns
for the Seven Survey Parishes in 1953

Product	Acres	%
Wheat	133.75	0.6
Barley	123.75	0.6
Oats	1,296.00	5.8
Mixed Corn	1,300.50	5.8
Total cereals	2,854.00	12.8
Potatoes	138.75	0.6
Sugar Beet	8.50	-
Mangolds	60.25	0.3
Fodder Beet	18.75	0.1
Turnips and Swedes	97.25	0.4
Rape	224.00	1.0
Cabbage, Kale etc	159.00	0.7
Vegetables for human consumption	-	-
Other Crops	8.50	-
Bare Fallow	111.50	0.5
Total tillage	3,680.50	16.5
Grass Orchards	67.50	0.3
Temp Grass: Cut	2,605.00	11.6
Grazed*	2,397.75	10.7
Perm. Grass: Cut	2,570.00	11.5
Grazed+	7,126.00	31.8
Total Crops & Grass	18,446.75	82.3
Rough grazings	3,951.00	17.7
Total Acreage	22,397.75	100.0
Average Farm Size	93.3	-

*Includes 26.50 acres of Lucerne.
+Includes 51.1.50 acres of flooded land.
Source: Ministry of Agriculture, Fisheries & Food, June Census data, 1953.1.

Table 3 gives both the straightforward numbers of stock of the various classes in the seven survey parishes, and also the numbers of stock converted to a livestock unit[12] basis. The latter procedure enables the relative importance of the different classes of stock to be more easily assessed. The predominance of cattle in the livestock economies of these farms is

[12] *The conversion factors used in this process are not available (they were to have been included in an appendix).*

plainly demonstrated, as this class of livestock accounts for some two-thirds of the total livestock units.

Table 3
Total Livestock Numbers and Percentage Composition of Livestock Units for the Seven Survey Parishes in 1953

Class	Livestock numbers	Livestock Units[1]	
		Number	Per cent
Cows: Dairy	1,945	1,945.0	24.9
Beef	568	568.0	7.3
Heifers in calf	427	427.0	5.5
Bulls (including bulls being reared)	34	31.5	0.4
Stores: 2 years & over (Male	330	330.0	4.2
(Female	438	438.0	5.6
1 year & under (Male	563	394.1	5.1
(Female	787	550.9	7.1
Under 1 year (Male	659	197.7	2.5
(Female	948	284.4	3.6
Total cattle	6,699	5,166.6	66.2
Sows & gilts in pig	127	63.5	0.9
All other sows	67	33.5	0.4
Boars (including young boars)	16	6.4	0.0
Stores: 5 months & over	243	72.9	1.0
2 months & under 5 months	494	148.2	1.9
Under 2 months	415	-	-
Total pigs	1,362	324.5	4.2
Ewes	3,923	1,059.2	13.6
Rams (including ram lambs)	112	17.6	0.2
Other sheep over 1 year	910	182.0	2.3
Other sheep under 1 year	3,468	-	-
Total sheep	8,413	672.2	8.6
Fowls: Over 6 months	22,534	450.7	5.8
Under 6 months	17,751	177.5	2.3
Other poultry	2,201	44.0	0.5
Total poultry	42,486	672.0	8.6
Total horses	292	379.4	4.9
Grand Total (Livestock Units only)	-	7,801.5	100.0

[1] NB The conversion factors used in this process are not available (they were to have been included in an appendix).

By far the largest single category of cattle is that described as "Dairy Cows"[13] and this would seem to offer strong evidence of the growing emphasis placed on liquid milk production in the area in recent years. At the same time the number of stock in the "store cattle"

[13] It should not be supposed, however, that all cows In the category are, in fact, cows of recognised dairy breeds. Many are undoubtedly Devon's or Devon crosses providing beef type calves for rearing and producing for sale only that milk which is surplus to the requirements of the rearing calves. Obviously such cows might more correctly be described as "Beef Cow". This apparent confusion is mainly due to the classification of cows for the purposes of the Agricultural Returns, into those "for producing milk or calves for the dairy herd", and those "mainly for providing calves for beef" In practice, farmers have tended to reserve the second of category for cows whose milk goes entirely to the feeding of calves, and to include in the first any cows supplying milk for sale, even though they may be of a beef breed and the amount of milk which they contribute to off-farm sales, small.

categories testify to the continuing importance of the rearing aspect of the area's farming economy.[14]

Second in importance among the livestock enterprises is that of sheep which accounts for 16% of the total livestock units. Perhaps surprising, however, on farms whose average size is only 93.3 acres, is the relative unimportance of the intensive enterprises of pigs and poultry; between them these two enterprises comprise only just over 12% of the total livestock units.

In Tables 4 and 5 cropping and stocking data for the seven survey parishes are compared with those for the 16 surrounding parishes, and also with those for the County of Devon. Turning first to this cropping figures it will be seen that the total tillage area In the survey parishes, amounting to 16.4% of the total farmed acreage, is substantially less than in the other two areas where the proportion of tilled land is 21.2% and 22.0% respectively. This is accounted for partly by a lower acreage of roots and green crops, and partly by a smaller acreage of cereals, resulting from the virtual absence of the cash crops wheat and barley. The proportion of land under grass is approximately the same in each case and comprises about two-thirds of the total acreage; but a significant difference may be observed in the proportion of land classified as rough grazings which is considerably greater in the case of the survey parishes than in the County as a whole.

[14] This is perhaps a likely occurrence in areas like North Devon where milk selling has been superimposed on the traditional store rearing pattern.

Table 4
Cropping per 100 acres in the Seven Survey Parishes, the 16 outer zone parishes, and the County of Devon (1953 Figures)

Crop	Per 100 acres		
	7 Survey Parishes	**16 Outer Zone Parishes**	**County of Devon**
Number of farms >>>	*240*	*510*	*17,850*
Cereals			
Wheat	0.6	1.4	1.7
Barley	0.6	1.5	3.6
Oats	5.8	5.7	4.8
Mixed Corn (including Rye)	5.8	6.9	4.8
Total Cereals	**12.8**	**15.5**	**14.9**
Potatoes	0.7	1.0	1.1
Sugar Beet	-	-	0.1
Mangolds	0.3	0.6	0.9
Fodder Beet	0.1	0.1	0.2
Turnips and Swedes	0.4	0.9	1.7
Rape	1.0	1.5	0.8
Cabbage, Kale etc	0.7	1.3	1.6
Vegetables for human consumption	-	0.1	0.3
Other Crops	-	0.1	0.2
Bare Fallow	0.5	0.1	0.2
Total Tillage	**16.4**	**21.2**	**22.0**
Grass Orchards	0.3	1.5	1.5
Temporary Grass: Cut	11.6	11.4	9.1
Grazed*	10.7	12.8	8.7
Permanent Grass: Cut	11.5	7.6	10.6
Grazed+	31.8	32.2	35.5
Total Crops & Grass	**82.3**	**85.7**	**87.4**
Rough Grazing	**17.7**	**14.3**	**12.6**
Total Acreage	**100.0**	**100.0**	**100.0**

*Including Lucerne.
+ Including land temporarily flooded.

Turning now to Table 5, in which the numbers of livestock per 100 acres for each of the main classes of livestock in the three areas are compared.

Table 5
Stocking per 100 acres in the Seven Survey Parishes, the 16 Peripheral Parishes, and the County of Devon (1953 Figures)

Stocking	7 Survey Parishes	16 Peripheral Parishes	County of Devon
Number of farms >>>	*240*	*510*	*17,850*
Cattle			
Cows: Dairy	8.7	8.1	*11.5
Beef	2.5	2.0	
Heifers in calf	1.9	1.9	2.2
Bulls (including bulls being reared)	0.1	0.3	0.2
Stores: 2 years & over	3.5	6.3	4.5
1 year & under	6.0	6.6	6.6
Under 1 year	7.2	7.2	7.2
Total cattle	**29.9**	**32.4**	**32.2**
Sows & gilts in pig	0.6	1.0	1.1
All other sows	0.3	0.3	0.5
Boars (including young boars)	0.0	0.1	0.1
Stores: 5 months & over	1.1	2.1	2.2
2 months & under 5 months	2.2	4.3	4.7
Under 2 months	1.9	2.0	2.7
Total pigs	**6.1**	**9.8**	**11.3**
Ewes	17.5	33.1	32.9
Rams (including ram lambs)	0.5	0.9	0.9
Other sheep over 1 year	4.1	5.1	5.8
Other sheep under 1 year	15.5	31.7	28.9
Total sheep	**37.6**	**70.8**	**68.5**
Fowls: Over 6 months	100.6	114.5	110.4
Under 6 months	79.2	115.5	112.8
Other poultry	9.9	10.0	12.1
Total poultry	**189.7**	**240.0**	**235.3**
Total horses	**1.3**	**1.0**	**1.1**

*Separate figures for dairy and beef cows not available on County basis.

It will be seen that almost invariably numbers in the seven survey parishes are less than those either in the sixteen parishes, or in the County of Devon generally. The difference is least marked in the case of cattle, the number per 100 acres in the seven survey parishes being 29.9 compared with 32.4 and 32.2 in the other two areas. This would appear to be mainly due to smaller numbers of advanced store cattle (two years old and over) which are found in the poor land district. Reference to the number of sheep in the three areas shows a wider divergence however: numbers of sheep per 100 acres in the survey parishes are almost half those in the scattered parishes or in the County of Devon. If, as seems likely, this is a reflection of the very wet conditions prevailing in the seven survey parishes, it also suggests a rapid improvement in conditions, at least as far as the keeping of sheep is concerned as one moves outward from the area selected for special study.

The number of pigs in the two parish groupings are both below the county average, although to a lesser extent in the case of the peripheral parishes than in the case of the survey

parishes, where the figure is again almost half that of the county average. Poultry numbers in the 16 parishes are roughly the same as in the county as a whole and as such are somewhat above those found in the survey parishes.

The reason for the smaller population of pigs and poultry experienced in the seven survey parishes is rather more problematical than is in the case of sheep, since both the keeping of pigs and poultry is largely independent of physical conditions. It can only be suggested at this stage that the availability of capital may be the determining factor in this case and perhaps return to the question in the later section of this report dealing with the financial aspects of farming in the problem area.

The only class of livestock where numbers are higher in the case of the survey parishes is that of horses, a factor which is easily reconciled with one's expectations of a small scale farming in a poor land area.

The relative densities of each class of livestock in the three areas calculated on a livestock unit basis are set out in concise form in Table 6 which also shows clearly the lower total density of stocking which obtains in the seven survey parishes.

Table 6
Intensity of Stocking (Livestock Units per 100 acres) in the Seven Survey Parishes, the 16 Peripheral Parishes, and the County of Devon (1953 Figures)

	Livestock Units per 100 Acres		
	7 Survey Parishes	**16 Peripheral Parishes**	**County of Devon**
Cattle	23.1	25.3	
Pigs	1.4	2.0	*No data*
Sheep	5.6	10.1	*given in*
Poultry	3.0	3.7	*original*
Horses	1.7	1.3	
Total	**34.8**	**42.4**	

The relative importance of each class of livestock within the overall livestock economies of the three areas, again calculated on the basis of livestock units, is illustrated by Table 7. This serves to re-emphasise the lesser importance of sheep in the survey parishes.

Table 7
Percentage Composition of Livestock Units in the Seven Survey Parishes the 16 peripheral parishes, and the County of Devon (1953 Figures)

	Livestock Units per 100 Acres		
	7 Survey Parishes	**16 Peripheral Parishes**	**County of Devon**
	%	%	
Cattle	66.2	59.8	*No data given in original*
Pigs	4.2	4.8	
Sheep	16.1	23.8	
Poultry	8.6	8.6	
Horses	4.9	3.0	
Total	**100.0**	**100.0**	

Summarising, therefore, the tables which have been discussed in this section in large measure substantiate the contention of the previous section (which was based on physical evidence alone) that the main problem farming area of North Devon is not coincidental with the full extent of the Culm Measures but consists of an indeterminate area within the western half of this clay outcrop, with a core of very poor land centring on the parishes which lie between Holsworthy and Hatherleigh. Further evidence in support of this view, if this should be required, is available in Table 8 in which estimated yield for selected crops for a number of farms in the two parish groupings are compared with those for the County of Devon. Almost without exception, yields in the seven survey parishes are below the average yield for Devon; yields in the 16 parishes, on the other hand, compare favourably - and in some instances more than favourably - with the county averages.

Table 8
Estimated Yields for Selected Crops in the Seven Survey Parishes, the 6 Peripheral Parishes, and the County of Devon (1953 Figures)

Crop	Seven Survey Parishes	16 Peripheral Parishes	County of Devon
	Per Acre	Per Acre	Per Acre
	cwt	**cwt**	**cwt**
Wheat	20.0	20.8	20.2
Barley	16.5	20.4	21.3
Oats	16.6	18.4	18.4
Mixed Corn	18.2	19.0	19.1
	tons	**tons**	**tons**
Potatoes	5.6	7.4	7.0
Turnips & Swedes	10.7	22.4	14.3
Mangolds	22.4	33.2	25.6
Fodder Beet	11.5	16.9	15.3
	cwt	**cwt**	**cwt**
Hay from Temporary Grass	25.6	31.9	29.9
Hay from Permanent Grass	24.6	29.0	23.6

2.5 Farm Classification and Type of Farm

The next stage in the study of the pattern of farming in the seven parishes was the classification of the 240 farms of 25 acres and over, according to (a) the size of the farm and (b) the type of farming pursued.

First, then, the 240 farms were classified into five size groups on the basis of the total acreage of crops, grass and rough grazings. The range of these size groups and the number of farms falling in each group is shown in Table 9 together with the farmed acreage represented by each group. The preponderance of small farms in the area Is clearly shown. The largest size group is the 50-99¾ acre group which, containing as it does 90 farms, accounts for over 37% of the total number of farms. The second largest is the 25-49¾ acre group with 70 farms (or nearly 30% of the total). There are only 39 farms which are 150 acres or over and only 4 which are 300 acres or over.

Table 9
Frequency Distribution According to Size of Farm
(240 Farms in the Seven Survey Parishes)

Size Group (acres)	Farms		Acreage	
	Number	Per cent	Acres	Per cent
25 - 49¾	70	29.2	2,607.00	11.6
50 - 99¾	90	37.5	6,536.75	29.2
100 - 149¾	41	17.1	4,978.50	22.2
150 - 299¾	35	14.6	6,854.00	30.6
300 and over	4	1.6	1,421.50	6.4
Total number of farms	240	100.0	22,397.75	100.0

This same data is presented in the form of a cumulative frequency distribution in Table 10. This table shows readily that over two-thirds of the farms in the area are under 100 acres, and that these represent roughly 40% of the total farmed acreage.

Table 10
Cumulative Frequency Distribution According to Size
(240 Farms in the Seven Survey Parishes)

Size Group (acres)	Farms		Acreage	
	Number	Per cent	Acres	Per cent
Under 50	70	29.2	2,607.00	11.6
Under 100	160	66.7	9,143.75	40.8
Under 150	201	83.8	14,122.25	63.0
Under 300	236	98.4	20,976.25	93.6
Total number of farms	240	100.0	22,397.75	100.0

Acreage, however, is not the only basis on which a size classification can be made. In Table 11 the 240 farms have been classified according to the amount of labour employed

(including both hired and family workers). Again the essentially small-scale nature of farming in the seven parishes is emphasised, since 91 of the 240 farms (nearly 40%) are operated solely by the farmer and wife without any additional labour whatsoever. A further 28%, though employing some additional labour, do not find it necessary to employ a full-time adult male worker. Thus, of the 240 farms only 81 or 33.8% employ one or more full-time adult male workers, and only 18 (7.5%) more than one.

Table 11
Frequency Distribution According to Size of Labour Force[1] (June 1953) for the 240 Farms in the Seven Survey Parishes

	Acreage	
	Number	**Per cent**
Farmer and wife only	91	37.9
Farmer and wife plus some additional[2] labour other than a regular full-time man, aged 21 years and under 65	68	28.3
Farmer and wife plus 1 regular full-time man, aged 21 years and under 65	63	26.3
Farmer and wife plus 2 or more regular full-time men, aged 21 years and under 65	18	7.5
Total	240	100.0

[1] Includes both hired and family workers.
[2] Includes casual, part-time, temporary and full-time male and female workers.

2.6 Farm Classification by Type of Farming

Farms may be classified by type, on a number of bases, but perhaps the method most frequently encountered is that which classifies farms according to the nature and composition of their end products. It is this method which has been adopted for the purposes of type-classifying the 240 farms in the seven survey parishes. Ideally, of course, the information on which such a classification can be based is of the kind provided by detailed financial accounts, which are supplemented where necessary by adequate physical data relating to numbers and type of livestock, crop acreages and so on. These would show the number and nature of the farm enterprises and their relative contribution to total output. Unfortunately, however, data of this kind is almost impossible to obtain for entire populations of farms in specific areas, and it was found necessary in classifying the 240 farms for the purposes of this study to resort to the method[15] which was used in an earlier study undertaken by this Department[16]. Briefly this consists of the calculation of the milk output where applicable, from milk gallonage data supplied by the Milk Marketing Board and the application of appropriate financial standards (calculated on a per animal unit and per acre basis) to the livestock data and the crop acreage of the individual June Returns. In this way the output of each identifiable farm enterprise was estimated and its relative contribution to total output assessed.

Each farm was then allocated to one or other of the following four type groups:

Group 1 Mainly Dairy Farms. This group consists of farms which obtain 50% or more of their total output from the sale of liquid milk.

Group 2 Mixed Livestock Farms with Dairying Important. Farms in this group are those whose livestock enterprises are of a mixed nature but whose liquid milk sales still form a substantial part of total output contributing less than 50% but net less than 33% of total output.

Group 3 Mixed Livestock Farms. These farms are also of a mixed character with milk sales comprising less than 33% of total output.

Group 4 Mainly Cattle Farms. These are farms which obtain 50% or more of their total output from the sale of cattle.

All 240 farms were allocated without much difficulty into one or other of these farm groups. The least uniform of the latter is perhaps Group 3 (Mixed Livestock Farms); several of the farms in this group derive substantial proportions from enterprises other than milk or cattle, that is, from sheep, pigs or poultry. In no case, however, was the dependence upon those enterprises sufficiently great to warrant the farmer concerned being regarded as a specialist producer.

The number of farms falling into each of these groups and the relative importance of each Group is shown in Table 12. Also shown is the farmed acreage represented by each group (and the **average** farm size of each group). This table illustrates strikingly the position of importance which dairying has attained, particularly on small farms, in an area which, until comparatively recent times, comprised a traditional store rearing region.

[15] *The original text refers to an appendix (missing) containing a description of the method.*
[16] *"Farm Organisation in Dorset. an Economic Classification of the Farms in Three Rural Districts of North Dorset".* Report No. 85. University of Bristol, Department of Economics (Agricultural Economics), Newton Abbot, Devon. *Available from the British Library:* http://tinyurl.com/6zas7mv.

Table 12
Classification of 240 Farms Into Type of Farming Group

Type of Farm Group	Farms		Acreage		Average farm size (acres)
	Number	Per cent	Acres	Per cent	
Mainly Dairy	87	36.2	6,320.25	28.2	72.6
Mixed Livestock with Dairying Important	67	27.9	5,900.25	26.4	88.1
Mixed Livestock	59	24.6	7,326.25	32.7	124.2
Mainly Cattle (Store Rearing)	27	11.3	2,851.00	12.7	105.6
TOTAL (all farms)	240	100.0	22,397.75	100.0	93.3

Tables 13 and 14, which show respectively the numerical and percentage distribution of farms by type within each size group, and by size within each type group, serve to emphasise the dominance of the 'dairying' types among the farms under 100 acres.

Table 13
Distribution of Farms by Type Within Each Size Group for 240 Farms

Type Group	25-49.9		50-99.9		100-149.9		150-299.9		300 & over	
	No.	%	No.	%	No.	%	No.	%	No.	%
Mainly Dairy	33	47.1	38	42.2	8	19.5	7	20.0	1	25.0
Mixed with Dairy	16	22.9	31	34.4	12	29.3	8	22.9	0	0.0
Mixed Livestock	10	14.3	15	16.7	16	39.0	17	48.6	1	25.0
Mainly Cattle	11	15.7	6	6.7	5	12.2	3	8.5	2	50.0
TOTAL	70	100.0	90	100.0	41	100.0	35	100.0	4	100.0

Table 14
Distribution of Farms by Size Within Each Type Group for 240 farms[17]

Average Size Group	Type of farming							
	Mainly Dairy		Mixed with Dairy		Mixed Livestock		Mainly Cattle	
	No.	%	No.	%	No.	%	No.	%
25-49.9	33	37.9	16	23.9	10	16.9	11	40.8
50-99.9	38	43.7	31	46.3	15	25.4	6	22.2
100-149.9	8	9.2	12	17.9	16	27.1	5	18.5
150-299.9	7	8.0	8	11.9	17	28.8	3	11.1
300 & over	1	1.2	0	0	1	1.8	2	7.4
TOTAL	87	100.0	67	100.0	59	100.0	27	100.0

[17] *Detailed analyses of cropping and stocking data were to have been set out in appendices. In the event the information could not be found.*

The method whereby the total output of each of the 240 farms in the seven parishes was estimated in order to provide a basis for a convenient type classification for these farms can be used in another way to shed light on the structure and organisation of farming in the problem area. By the simple process of aggregating the output data of the individual farms, the relative importance of the contributions to total output of each of the main enterprises can be assessed for each size and type group, and also for the whole farm population in the seven parishes.

The results of this process of aggregation are presented in Table 15 which shows the composition of output in each size group, demonstrates the declining importance of the intensive enterprises of dairying, pigs and poultry, and the increasing importance of the extensive enterprises of cattle and sheep, as one moves from the smaller size groups to the larger. Table 16 shows the composition of output in each type group.

Table 15
Percentage Composition of Farm Output by Size for 240 Farms

	25-49¾ acres	50-99¾ acres	100-149¾ acres	150-299¾ acres	300 acres & over	All farms acres
	%	%	%	%	%	%
Milk	48.0	44.5	34.9	30.8	31.3	39.0
Cattle	18.0	20.4	30.9	32.6	33.6	25.9
Pigs	10.5	10.3	8.5	10.0	7.1	9.8
Sheep	5.7	7.7	10.1	15.5	22.1	10.5
Poultry	17.8	17.1	15.6	11.1	5.9	14.8
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0

Table 16
Percentage Composition of Output by Farm Type for 240 Farms

	Mainly Dairy	Mixed Livestock with Dairying Important	Mixed Livestock	Mainly Cattle	All Farms
	%	%	%	%	%
Milk	63.1	41.8	20.4	6.2	39.0
Cattle	14.0	22.6	32.1	61.6	25.9
Pigs	7.0	10.8	12.3	6.7	9.8
Sheep	2.3	8.7	19.5	14.2	10.5
Poultry	13.6	16.1	15.7	11.3	14.8
TOTAL	100.0	100.0	100.0	100.0	100.0

In Tables 17 and 18 milk production among the 240 farms in the seven parishes has been aggregated according to size of farm and type of farm respectively. It will be seen that the largest single contributing size group is the 50-99¾ acre group, which, comprising 37.5% of the total number of farms, contributes 36.6% of total milk produced. The second largest contribution is made by the 150-299¾ acre which with 14.6% of total number of farms, provides 21.4% of the total gallonage of milk produced. The distribution of milk production

according to type of farm reveals that nearly 50% of the milk produced came from farms other than Mainly Dairy farms thus re-emphasising the mixed nature of the livestock economies of the farms in the seven parishes. Just over 50% of total milk production, however, emanated from the Mainly Dairy farms which comprised slightly over a third of total number of farms.

Table 17
Distribution of Milk Production by Size Group for 240 Farms

Size group (acres)	Farms		Milk production	
	Number	Per cent	Gallons	Per cent
25 - 49¾	70	29.2	239,765	20.9
50 - 99¾	90	37.5	418,284	36.6
100 - 149¾	41	17.1	200,897	17.6
150 - 299¾	35	14.6	244,644	21.4
300 and over	4	1.6	40,432	3.5
All Farms	240	100.0	1,144,022	100.0

Table 18
Distribution of Milk Production by Type Group for 240 Farms

Type Group	Farms		Milk Production	
	Number	Percent	Gallons	Percent
Mainly dairy	87	36.2	578,015	50.5
Mixed livestock with dairying important	67	27.9	361,830	31.6
Mixed livestock	59	24.6	190,675	16.7
Mainly cattle	27	11.3	13,502	1.2
All farms	240	100.0	1,144,022	100.0

Finally, the 'all farm' figures contained in Tables 15 and 16 give some indication of the regional composition of the total farm output of the problem area. It would appear that the main contribution to the total output of the region, amounting to nearly 40%, is made by liquid milk sales. Next in importance is the cattle enterprise which contributes roughly 25%, followed by poultry (15%) and sheep and pigs (both approximately 10%)[18].

[18] The omission of an estimate of crop output from the calculation of individual farm outputs in no way invalidates the figures used in the foregoing section. Financial data from a sample of farms drawn from the seven survey parishes (see Section 3) revealed that output of crops amounted to less than 3% of the total.

2.7 Milk Production

It has already been estimated in a preceding section that in 1953 something like 36% of the full-time farms in the seven parishes relied on the production of liquid milk to provide half or more of their total output. The position which milk production now occupies in the farming economy of this area is further demonstrated by the data contained in Table 19. This shows that of the 240 farms studied, no less than 207 possessed contracts with the Milk Marketing Board. It will perhaps be appropriate, therefore, if a more detailed examination is made of the dairying aspect of production in this area.

Table 19
Classification of 240 Farms Into Milk-selling and Non-milk-selling Farms

Group	Farms		Acreage	
	Number	Percent	Acres	Percent
Milk-selling farms (all types)	207	86.3	19,655.50	87.8
Non-milk selling farms (all types	33	13.7	2,742.25	12.2
TOTAL	240	100.0	22,397.75	100.0

In Table 20 the 207 milk-selling farms have been classified according to the output of the dairy enterprise expressed as a percentage of the estimated total output of each farm. Here the incidence of milk production on the farms in the seven parishes is more clearly demonstrated than in the previous tables, and while it would appear that there are a number of farms which depend on milk production for more than 70% of their gross income, the most frequently encountered farms are those which obtain between 40% and 50% of their total output from milk.

Table 20
Classification of 207 Milk-Selling Farms According to the Output of the Dairy Enterprise as a Percentage of Estimated Total Output

Dairy output as percent of total output	Farms	
	Number	Percent
90% and over	2	1.0
80% and under 90%	5	2.4
70% and under 80%	15	7.2
60% and under 70%	27	13.0
50% and under 60%	35	16.9
40% and under 50%	44	21.3
30% and under 40%	38	18.4
20% and under 30%	26	12.6
10% and under 20%	9	4.3
Under 10%	6	2.9
TOTAL	207	100.0

As might be expected from the predominance of the local breed of Devon cattle among the herds of the area, the average milk yield per cow is fairly low and from data available would seem to be something under 500 gallons per cow. Average milk yield per cow for each of the five size groups and four type groups are set out in Tables 21

and 22. Yields are highest on the smaller farms reflecting the high incidence of Mainly Dairy Farms.

Table 21
Average Milk Sales per cow[1] by Farm Size Group for 240 farms

Size Group (Acres)	Number of Farms	Average Sale/cow (Gallons)
25 - 49¾	70	530
50 - 99¾	90	481
100 - 149¾	41	415
150 - 299¾	35	420
300 and over	4	323
All farms	240	455

[1] Based on total number of cows (dairy and beef)

Table 22
Average Milk Sales/cow[1] by Farm Type Group for 240 Farms

Type group	Number of Farms	Average sale/cow (Gallons)
Mainly dairy	87	598
Mixed livestock with dairying important	67	482
Mixed livestock	59	312
Mainly cattle	27	73
All farms	240	455

[1] Based on total number of cows (dairy and beef)

Among these farms there is a rapid falling off in yields as size of farm increases. Yields per cow quite naturally increase with increasing relative importance of the dairying enterprise (see Table 18) and are therefore highest on the Mainly Dairy Group of farms, which contains those farms which represent the nearest approach found in the area to specialist milk producers. The average for this group, even so, is only about 600 gallons.

It should, perhaps, be stated that it was impossible, on the basis of the data available, to determine average milk yields with any exactitude. In the first place the yields have been calculated on the basis of the total number of cows present on the 240 farms at

one point in time, that is, June 1953. The second and perhaps more serious limitation is that it was not possible to exclude for the purposes of the calculation those cows devoted solely to the rearing of calves, and which therefore made no contribution at all to milk sales; for that reason the average milk yields calculated are, in all probability, on the low side. Later stages of this investigation suggested, however, that the number of such cows was not large and the error induced by their inclusion in the calculation correspondingly small. **With some reservations, therefore**, the average milk yields in the accompanying tables are offered as a useful guide to one of the more important aspects of milk production in the seven parishes.

An analysis of 191 of the 207 milk-selling farms for which monthly gallonages were available revealed that the pattern of summer dairying practised under the traditional store rearing policy has, despite the change of emphasis and product, been essentially retained by the majority of farms. A classification of these 191 farms according to the percentage contribution to total milk production[19] of summer milk production is provided in Table 23.

Table 23
Classification of 191 Milk-Selling Farms According to Percentage Contribution to Total Milk Production of Summer Milk Production

Percent Summer Milk	Number of Farms	Percent
70% and over	4	2.1
60% and under 70%	37	19.4
50% and under 60%	102	53.4
40% and under 50%	43	22.5
Under 40%	5	2.6
TOTAL	191	100.0

The changeover from a store rearing to a milk selling policy has meant that, on many farms in North Devon, milk has often been produced in buildings which were never intended for the purpose, and are, therefore, frequently unsuitable. This fact is reflected in the low proportion of milk producers which were found in 1953 to be producing designated milk, under the then existing regulations.[20] This proportion and its level compared with a number of other areas of Devon are shown in Table 24.

[19] Summer milk production = production from April to September inclusive.
[20] These regulations were amended in October 1954 in accordance with the Milk (Special Designation) (Raw Milk) Regulations of 1949 and 1950, but the designations of "Accredited" and "T.T." (tuberculin tested) milk in force in 1953 both required conformity with statutory regulations governing the condition of buildings.

Table 24
Total Number of Registered Dairy Farmers and Numbers of Designated Producers (Accredited and Tuberculin Tested) as at 1st June 1953 in Twelve Districts of Devon

District	Total number of registered dairy farms	Number of accredited milk producers	Number of TT milk producers	Total number of designated producers	Designated producers as a percentage of total number of dairy farms
Seven parishes in Holsworthy District	260	2	10	12	4.6
Holsworthy District generally	1,185	29	109	138	11.6
Exeter District	946	56	238	294	31.1
Honiton District	1,295	128	521	649	50.1
Barnstaple District	823	24	179	203	24.7
Bideford District	881	18	152	170	19.3
Kingsbridge District	851	46	210	256	30.1
Newton Abbot District	905	50	183	233	25.7
Okehampton District	854	10	106	116	13.6
South Molton District	705	19	98	117	16.6
Tavistock District	753	31	104	135	17.9
Tiverton District	1,342	54	380	434	32.3

2.8 Machinery Use

Tables 25 and 26 enable some assessment to be made of the degree of mechanisation achieved by farms in the survey parishes. Roughly one-quarter of the farms included in this analysis were without a tractor, the majority of these farms being under 100 acres in size. Another striking feature revealed by the table is that despite the position of importance which milk production has attained in this area, only 42 farms (or just over 20%) of the milk selling farms possessed a milking machine.

Most farms of 50 acres and over appear to be fairly well equipped for the harvesting of hay. In the 25-49¾ acre group, however, over a quarter of the farms do not possess a mowing machine, while there would seem to be an even greater deficiency in equipment for the turning and carrying of hay.

The little enthusiasm exhibited in the area (at least up to 1953) for silage making is plainly apparent in the small number of farms which carry equipment for this purpose.

Table 25
Number of Farms Recorded as Having one or More Machines of the Following Types by 'Farm Size' Group for 202 farms

Size Group - acres	Number of farms	Tractors	Milking machine	Mowing machine	Swathe turner and side delivery	Hay sweep	Hay loader	Elevator	Baler	Silage sweep/buck rake	Green crop loader	Binder	Combine harvester	Thresher
25 - 49¾	52	33 63.5%	6 11.5%	37 71.2 %	8 15.4%	2 3.8%	- -	2 3.8%	2 3.8%	- -	10 19.2%	- -	3 5.8%	8 15.4%
50 - 99¾	83	60 72.3%	16 19.3%	76 91.6 %	46 55.4%	8 9.6%	5 6%	2 2.4%	5 6%	- -	41 49.4%	- -	8 9.6%	24 28.9%
100 - 149¾	37	30 81.1%	10 21%	37 100%	27 73%	3 8.1%	2 5.4%	3 8.1%	1 2.7%	- -	26 70.3%	- -	9 24.3%	15 40.5%
150 - 299¾	26	26 100%	9 34.6%	26 100%	22 84.6%	5 19.2%	10 38.5%	2 7.7%	2 7.7%	3 11.5	21 80.8%	- -	7 26.9%	16 61.5%
300 & over	4	4 100%	1 25%	4 100%	4 100%	1 25%	3 75%	1 25%	- -	- -	3 75%	- -	- -	3 75%
Total	**202**	**153 75.7%**	**42 20.8%**	**180 89.1 %**	**107 53%**	**19 9.4%**	**20 9.9%**	**10 5%**	**10 5%**	**3 1.5%**	**101 50%**	**- -**	**27 13.4%**	**66 32.7%**

Table 26
Number of Farms Recorded as Having one or More Machines of the Following by Type of Farm Group for 202 Farms

Type Group	Number of Farms	Tractors	Milking Machine	Mowing Machine	Swathe Turner and Side Delivery	Hay Sweep	Hay Loader	Elevator	Baler	Silage Sweep/Buck Rake	Green Crop Loader	Binder	Combine Harvester	Thresher
Mainly Dairy	77	60 77.9%	25 32.5%	68 88.3%	31 40.3%	40 51.9%	9 11.7%	5 6.5%	3 3.9%	3 3.9%	- -	23 29.9%	- -	3 3.9%
Mixed with Dairy	60	44 73.3%	11 18.3%	49 81.7%	17 28.3%	32 53.3%	3 5%	7 11.7%	3 5%	3 5%	1 1.7%	36 60%	- -	8 13.3%
Mixed Livestock	49	38 77.6%	5 10.2%	48 98.0%	13 26.5%	30 61.2%	4 8.2%	5 10.2%	3 6.1%	3 6.1%	2 4.1%	33 67.3%	- -	13 26.5%
Mainly Cattle	16	11 68.8%	1 6.3%	15 93.8%	5 31.3%	5 31.3%	3 18.8%	3 18.8%	1 6.3%	1 6.3%	- -	9 56.3%	- -	3 18.8%
Total	**202**	**153** **75.7%**	**42** **20.8%**	**180** **89.1%**	**66** **32.7%**	**107** **53%**	**19** **9.4%**	**20** **9.9%**	**10** **5%**	**10** **5%**	**3** **1.5%**	**101** **50%**	**-** **-**	**27** **13.4%**

2.9 Fixed Equipment and Farm Services

The last part of this section deals broadly with the condition of buildings and farm houses in the seven survey parishes and with the nature of the farm services which are available to farms in that area. It is based mainly on data supplied by the Agricultural Land Service from an analysis made by them of a sample of farms in the survey parishes which were included in the 1949 National Farm Survey. It should be remembered, however, that conditions have improved in a number of respects (particularly with regard to water supplies) since that date and for this reason, as well as the manner in which the items of fixed equipment has been classified, considerable caution should be exercised in the interpretation of the data which follows.

The condition of farm buildings was assessed on a total of 191 farms in the survey parishes and of this number, over half (56%) were given the classification of "Fair" only. Thirty percent were graded as "Good", while 14% were considered to be "Poor" (see Table 27). Despite the limitations of this type of data, it does lend considerable support to the view that the condition of farm buildings is a major problem in the area. On the whole, conditions are probably better on the milk-selling farms as there are certain minimum statutory regulations to be complied with and the general position is, therefore, likely to have improved with the expansion in milk production which has taken place (as a later section will show) since 1949. No incentive of this kind, of course, exists for the non-milk selling farms.

Table 27
Classification According to Condition of Farm Buildings, Farmhouses and Farm Cottages in the Seven Survey Parishes

	Total number of Farms in Sample		Good		Fair		Poor	
Category	**Number**	**%**	**Number**	**%**	**Number**	**%**	**Number**	**%**
Farm Buildings	191	100.0	57	30.0	107	56.0	27	14.0
Farmhouses	189	100.0	105	55.0	70	37.0	14	8.0
Farm Cottages	22	100.0	6	-	14	-	2	-

Similarly, as illustrated in Table 27, an analysis of conditions ascribed to the farmhouse in the case of 189 farms revealed that over one-half were classed as "Good", 37% were assessed as "Fair" and 8% as "Poor". Although information relating to farm cottages was incomplete, that which was available showed that of a total of 22 farm cottages classified, six were considered "Good", 14 "Fair" and two "Poor".

It should be noted that the standard adopted in the ranking procedures outlined above were those of the district; thus when compared with more prosperous areas, buildings described as "Good" might only be considered "Fairly Good" or even "Fair".

2.10 Water Supply

The nature of farm water supplies at the time of the National Farm Survey in 1949 has been analysed in Table 28.

Table 28
Water Supply

	Farmhouses		Farm Cottages		Farm Buildings		Fields	
	Number	%	Number	%	Number	%	Number	%
Piped Well	16	8.2	2	16.7	11	5.6		
Roof	179	91.8	10	83.3	26	13.2	2	1.0
Ponds					28	14.2		
Streams					6	3.0	9	4.5
None or					6	3.0	*175	88.4
unknown					126	64.0	12	6.1
Total	195	100.0	12	100	197	100	198	100

* Includes 46 farms where fields were also watered from ponds
Source: National Farm Survey 1949

This shows that out of a total of 197 farmhouses surveyed only 16 (8%) had piped water; the remainder were forced to rely on wells for their water supply, although the source was supplemented in some cases by a roof tank. Twelve farm cottages were surveyed and of this number, only two were supplied with piped water; the rest being dependent upon wells. The analysis of the water supply to 197 sets of farm buildings revealed that only 11 (5.6%) of them had piped water, while 54 (27%) were either supplied from roof tanks or wells. Six farms were dependent upon ponds or streams for the supply of water to farm buildings. An exceedingly high percentage of farms, however (64%, 126 farms), were returned as being without water supply to farm buildings. This Is perhaps misleading to the extent that many farms returned as such would have ponds or streams nearby where stock could be watered. Nevertheless, the lack of watering facilities within the farm buildings does present additional problems where stock are in-wintered, since they must be otherwise let out each day for watering. Apart from the time and labour involved this procedure brings in its train the attendant problem of “poaching”.

The nature of water supply to fields was determined in the case of 198 farms and the resulting analysis showed that 65% of these farms water their cattle solely from streams running through the fields while a further 23% supplement water from streams with water from ponds, roof tanks and wells. Nearly 90% of the farms, therefore, rely on surface water for watering stock in the fields. No farms, it should be noted, were returned as having piped water to the fields.

It must in all fairness be stated that considerable strides have been made since 1949 when the National Farm Survey (upon which the above figures have been based) was made, in the provision of an adequate water supply to this area. Several new mains, in fact, have either been laid or have been planned and these will undoubtedly do much to improve the lot of both the farmer and his wife. However, it is reported by the responsible authority – the North Devon Water Board – that the annual consumption by farmers which have been connected to the mains is low as the cost was 2s 6d *(12 1/2p)* per 1,000 gallons. They appear to exhaust their well supplies before paying for

water. Nonetheless, the mains supply is very necessary as many of the shallow wells dry up quickly in the summer.

2.11 Electricity

Analysis of National Farm Survey data (see Table 29) showed that out of a total of 198 farms surveyed only 28 of them (14%) were served by public electricity supply. In addition to these 10 (5%) generated electricity from their own plant. Over 80% of the farms surveyed, therefore, were without electricity.

Table 29
Electricity Supply

Category	Farms	
	Number	%
Public	28	14.1
Private	10	5.1
None	160	80.8
Total	198	100.0

Source: National Farm Survey 1949

Some attempt has been made since 1949 to improve the supply of electricity in the survey parishes. In 1950, for example, a Rural Development Survey was carried out by the South Western Electricity Board of those premises not already supplied with mains electricity. These were then grouped and a programme of electrification was evolved. Where the anticipated annual revenue of any group was below 20%, but not less than 10% of the capital expended, the shortfall would have to be met by the farms under a system of line rental. Where potential revenue was estimated to be less than 10% the Board, as a rule, were not prepared to undertake a scheme at all in view of the very high rental likely to be incurred.

Following upon these proposals a substantial number of requests for mains electricity were received but the cost of the majority of them proved, on investigation, to be prohibitive and as a result little or no improvement was seen in the supply of mains electricity to the survey parishes, at least up to 1955.

In April 1954, a new scheme, the Rural Development Contributions Scheme, replaced the Line Rental Scheme. Under this scheme, contributions will cease after seven years or alternatively can be paid off in a lump sum during that time if so desired.

Whether this arrangement has led to a greater number of schemes being adopted by the South Western Electricity Board cannot at present be said; certainly between April 1954 and May 1955 only three farms received electricity under this scheme. It would, however, appear to be of considerable assistance to those farms applying for Livestock Rearing Grants and more latterly Farm Improvement Grants.

There can be little doubt that the problem area now being studied would gain immense benefit from an extension of the existing electricity supply; equally there can be no doubt that the sparseness of the area's population must militate against any rapid improvement in this position whatever the inducement offered.

2.12 Farm Roads

The condition and extent of public roads is dealt with elsewhere in this report. It is intended to deal here only with private roads, and in particular with those which give access to the farms. These are often in very bad condition, being frequently long, winding and steep. The surfaces are often rutted and in wet weather become impassable to cars and lorries and only tractors or horse and carts can be used. One such 'road' with which the writer is acquainted is over a mile long, involves a steep descent and ascent across a valley with a stream and is completely impassable to a car from the point where it leaves the public road.

Poor access of this kind must inevitably handicap a farm, particularly where milk production is concerned; of no less importance is the fact that the degree of social isolation experienced must immeasurably detract from the happiness and well-being of the farm family.

2.13 Fertiliser Practice

The survey of fertiliser practice from which the data presented in this sub-section have been obtained was the first to be carried out in the Holsworthy district of the West Culm Measures since 1945. Changes which occurred in that practice between 1945 and 1954 are broadly indicated in Table 30.

Table 30
Changes in Fertilizer Consumption Over a Period of 10 Years in West Devon (Holsworthy Area)

		N	$P_2 O_5$	$K_2 O$
		cwt per arable area		
Arable land:	1945	0.05	0.36	0.04
	1954	0.08	0.54	0.10
		cwt per acre of permanent grass		
Permanent grass:	1945	0.03	0.05	0.00
	1954	0.02	0.37	0.01

Substantial increases can be seen to have taken place in the application of phosphate both to arable land and to permanent grassland. Potash consumption has risen as well although it is still at a very low level, noticeably in the case of arable land. Increase in the use of nitrogen on the other hand has been comparatively small over the ten year period in the case of arable land and has actually declined slightly in the case of permanent grassland.

The data contained in this section are derived from the report on the survey of fertiliser practice carried out jointly in 1954 by the advisory chemists of the National Agricultural Advisory Service and the staff of the Rothamsted Experimental Station.

In the course of the 1954 survey, fertiliser application during the previous 3 years was recorded for all fields which had been down to grass during that period. Despite some limitations in the data due to the fact that those relating to the earlier years were collected after a lapse of one and two years respectively, the results do provide an indication of grassland manure policy during the three year period. These results are set out in Table 31. Of the temporary grass fields, 28% received one or more applications of nitrogen, but only 16% of the permanent grass fields were so treated.

Table 31
Percentage of Grass Fields Manured 1952-1954 In West Devon (Holsworthy Area[+])

Fields	No Fertilizer During Three Years	Nitrogen			Phosphate		
		Once	Twice	Three Times	Once	Twice	Three Times
Temporary grass*	6	18	6	4	33	32	23
Permanent grass	19	12	1	3	34	26	10

[+]Survey of Fertiliser Practice 1954. Joint report of the NAAS and Rothamsted Experimental Station.
*Fields put down to grass in 1952 or earlier

While annual nitrogen dressings to grassland should be beneficial on many soils the benefit from a phosphate dressing might well be expected to extend over several years. Yet Table 31 shows that many of the grass fields to which phosphate was applied received more than one dressing during the three years.

Table 32 shows the percentage of variously utilised acreages receiving applications of fertilizer or dung in 1954, and also the average actual rates of such applications. The report from which this table is derived considers it worthy of note that only 16% of the temporary grass and 9% of the permanent grass in the Holsworthy district received nitrogen in the survey year; in addition nitrogen was used on only 56% of the roots acreage at the low level of about 0.5 cwt N per acre. The report, therefore, concludes that considerable scope exists for the increased use of this nutrient. A third of the cereals in the area received nitrogen at an average rate of 0.22 cwt N per acre but the report submits that additional yields stemming from the increased use of nitrogen may be small in such an area of high rainfall.

Table 32
Percentage of Acreage Receiving, and Average Actual*,
Rates of Application/Acre
in the Holsworthy Area of West Devon
(1954 Figures)

Category	Percentage of Average Receiving				Average Actual Rates			
	FYM[+]	N	P_2O_5	K_2O	FYM (tons)	N (cwt)	P_2O_5 (cwt)	K_2O (cwt)
All cereals	8	34	81	31	10.6	0.22	0.64	0.33
All roots	42	56	71	42	12.9	0.51	0.85	0.97
All tillage	17	39	76	33	12.1	0.32	0.69	0.54
All 2-7 yr leys	22	16	55	11	11.1	0.35	1.00	0.45
All temporary grass	22	16	55	11	11.1	0.35	0.99	0.45
All arable	20	25	63	20	11.4	0.34	0.86	0.50
All permanent grass	28	9	38	4	11.8	0.22	0.95	0.26
All crops and grass	24	17	52	12	11.6	0.31	0.89	0.47

[+] FYM = Farmyard manure
* Average dressing excluding fields receiving none of the component (or dung).

SECTION 3 RECENT TRENDS IN THE FARMING PATTERN OF THE PROBLEM AREA

3.1 Introduction

This section is concerned with the pattern of farming as it existed in the seven survey parishes in 1953, namely at one particular point in time in the recent past. Although this forms a useful and indeed indispensable part of the analysis, it is, in one important respect incomplete; it does not indicate the nature or direction of current trends in the pattern of production in relation to which the pattern in 1953 represents only a stage. This section sets out, therefore, to examine briefly some of the changes in the pattern of farming which have occurred in the seven survey parishes since the end of the Second World War. The data utilised for this purpose relates in the main to the six-year period from 1948 to 1953.

3.2 Cropping

The trend in land utilisation on 240 farms in the survey parishes from 1948 to 1953 inclusive is shown in Table 33. Cereal acreage declined by more than a quarter during the period mainly as a result of a substantial reduction in the acreage of oats which in 1948 comprised the major cereal crop. This change more than offset the increase which occurred in the acreage of mixed corn. Potatoes, too, were less important in 1953 and occupied only a third of the acreage that they did in 1948. The net effect of all changes in cropping was a decline in the tillage area of about a quarter. In all probability the higher tillage area which existed in 1948 constituted a legacy from the ploughing up campaigns of the war years and that, in part, at any rate, the decline in the tilled acreage over the period represented a return to more normal conditions. The fall in tillage has, of course, been accompanied by an increase in the acreage down to grass and in particular in the acreage returned as permanent grass.

Table 33
Trends in Land Utilisation (Cropping) per 100 acres on 240 Farms in Seven Survey Parishes, 1948-1953

Crop	1948	1949	1950	1951	1952	1953
Wheat	1.0	1.0	0.7	0.3	0.4	0.6
Barley	0.3	0.3	0.3	0.3	0.5	0.6
Oats	12.3	10.6	9.5	6.3	5.5	5.8
Mixed Corn (inc. rye)	3.9	4.1	4.7	4.9	5.6	5.8
Total cereals	**17.5**	**16.0**	**15.2**	**11.8**	**12.0**	**12.8**
Potatoes	1.8	1.3	1.1	0.8	0.7	0.6
Sugar Beet	0.0	0.0	0.0	0.0	0.0	0.0
Mangolds	0.4	0.4	0.4	0.4	0.3	0.3
Fodder Beet	**-	**-	**-	**-	0.1	0.1
Turnips and Swedes	0.6	0.5	0.5	0.4	0.4	0.4
Rape	1.0	0.9	1.3	1.3	1.2	1.0
Cabbage, Kale etc	0.3	0.5	0.5	0.4	0.6	0.7
Vegetables for human consumption						
Other Crops	0.0	0.0	0.0	0.0	0.0	0.0
Bare Fallow	0.2	0.1	0.0	0.1	0.1	0.0
	0.3	0.4	0.3	0.5	0.8	0.5
Total tillage	**22.1**	**20.1**	**19.3**	**15.7**	**16.2**	**16.4**
Grass Orchards	0.4	0.3	0.3	0.3	0.3	0.3
Temp grass: cut	11.2	11.4	10.6	11.8	11.6	11.6
grazed*	13.8	13.0	11.6	12.1	11.1	10.7
Perm. grass: cut	8.6	8.8	9.7	10.6	11.3	11.5
grazed+	26.4	29.6	30.8	30.8	31.2	31.8
Total Grass	**60.4**	**63.1**	**63**	**65.6**	**55.5**	**65.9**
Total Crops, Tillage & Grass	**82.5**	**83.2**	**82.3**	**81.3**	**81.7**	**82.3**
Rough grazings	17.5	16.8	17.7	18.7	18.3	17.7
Total Acreage	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

**Fodder Beet not shown separately in these years – included in other crops.
*Includes Lucerne
+Includes land temporarily flooded.

3.3 Stocking

Changes in the number of stock per 100 unadjusted acres of crops and grass in each of the six years from 1948 to 1953 are set out in Table 34. The numbers of cattle, pigs and sheep all increased although by varying amounts. The greatest increases were experienced in the case of pigs, which trebled in number over the period, and of sheep which increased by 75% between 1948 and 1953. Cattle increased only slightly and numbered 29.9 per 100 acres in 1953 compared with 27.7 per 100 acres in 1948. The number of head of poultry per 100 acres rose slightly in the first half of the six-year period but fell again in the second half and by 1953 had returned to almost exactly the same level as 1948. The number of horses continued to decline steadily throughout the period as one might have expected.

Table 34
Trends in Stock Numbers per 100 Acres on 240 Farms in Seven Survey parishes, 1948-1953

Cattle	1948	1949	1950	1951	1952	1953
Cows and heifers in milk and calf	9.4	10.3	10.7	9.7	9.9	11.2
Heifers in calf	1.9	1.8	1.7	1.3	2.1	1.9
Bulls (inc. bulls being reared)	0.3	0.3	0.2	0.1	0.1	0.1
Stores, 2 years & over	3.5	3.5	3.8	4.2	3.7	3.5
1-2 years	5.2	5.9	7.5	6.6	6.4	6.0
Under 1 year	7.4	8.2	7.7	7.0	6.7	7.2
Total cattle	**27.7**	**30.0**	**31.6**	**28.9**	**28.9**	**29.9**
Sows & gilts in pig	0.3	0.3	0.3	0.4	0.6	0.6
All other sows	0.1	0.1	0.1	1.2	0.2	0.3
Boars (inc. young boars)	-	-	-	-	-	-
Stores: 5 months & over	0.3	0.8	0.4	0.6	0.8	1.1
2 -5 months	0.8	1.2	1.2	2.0	2.1	2.2
Under 2 months	0.5	0.4	0.6	1.0	1.3	1.9
Total pigs	**2.0**	**2.8**	**2.6**	**4.2**	**5.0**	**6.1**
Ewes	10.2	11.9	13.2	11.5	13.7	17.5
Rams (inc. ram lambs)	0.4	0.8	0.4	0.5	0.6	0.5
Other sheep:						
Over 1 year	1.0	1.8	1.2	1.9	2.7	4.1
Under 1 year	9.9	11.7	13.3	10.5	13.0	15.5
Total sheep	**21.5**	**26.2**	**28.1**	**24.4**	**30.0**	**37.6**
Fowls:						
Over 6 months	82.0	93.7	114.2	109.5	97.8	100.6
Under 6 months	95.9	104.1	84.2	75.1	77.9	79.2
Other poultry	12.3	15.0	11.8	11.7	10.4	9.9
Total poultry	**190.2**	**212.8**	**210.2**	**196.3**	**186.1**	**189.7**
Horses (total)	**2.1**	**1.9**	**1.7**	**1.5**	**1.4**	**1.3**

The rate of change in the case of each class of livestock is more readily determined in Table 35. Here, the total number of livestock in each class, in each of the six years

from 1948 to 1953, have been converted to a livestock unit basis and then expressed as an index number with 1948 as the base year. The steady increase in the numbers of pigs and sheep during the six years is quite clearly defined.

However, descriptions of changes in the absolute levels of stock numbers can frequently be misleading and it is advisable that some assessment of the relative importance of such changes be made. Thus in Table 36 the percentage composition of the total livestock numbers has been calculated for each of the six years from 1948 to 1953. This shows that despite some quite substantial changes in the numbers of certain classes of livestock the overall pattern has been little disturbed during this period and that cattle remained by far and away the most important category of stock found on the survey area farms.

Table 35
Trends in Total Livestock Units on 240 Farms, 1948-1953

Year	Cattle		Pigs		Sheep		Poultry		Horses		All livestock	
	Livestock Units	Index Nos (1948=100)	Livestock Units	Index Nos (1948=100)	Livestock Units	Index Nos (1948=100)	Livestock Units	Index Nos (1948=100)	Livestock Units	Index Nos (1948=100)	Livestock Units	Index Nos (1948=100)
1948	4,785.5	100.0	116.3	100.0	689.3	100.0	650.5	100.0	645.2	100.0	6,886.8	100.0
1949	5,078.5	106.1	185.6	159.6	830.2	120.4	726.4	111.7	571.0	88.5	7,391.8	107.3
1950	5,488.7	114.7	159.5	137.1	884.6	128.3	771.0	118.5	532.2	82.5	7,836.0	113.8
1951	5,068.9	105.9	248.7	213.8	818.3	118.7	730.4	112.3	463.2	71.8	7,329.6	106.4
1952	5,064.0	105.8	290.3	249.6	985.0	142.9	668.4	102.8	412.4	63.9	7,420.1	107.7
1953	5,166.6	108.0	324.5	279.0	1,258.8	182.6	672.2	103.3	379.4	58.8	7,801.5	113.3

Table 36
Percentage Composition of Livestock Units, 240 Farms, 1948-1953

Livestock	1948	1949	1950	1951	1952	1953
	%	%	%	%	%	%
Cattle	69.5	68.7	70.1	69.2	68.2	66.2
Pigs	1.7	2.5	2.0	3.4	3.9	4.2
Sheep	10.0	11.3	11.3	11.4	13.3	16.1
Poultry	9.4	7.7	6.8	6.3	5.6	4.9
Horses	9.4	9.8	9.8	10.0	9.0	8.6
Total livestock	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

The changes which occurred in the cropping and stocking patterns of the seven survey parishes during the period 1948-1953 (Tables 37 and 39 respectively) may be compared with the changes which took place in the county at large. The latter are shown in Tables 38 and 40 respectively. It will be seen that although tillage also declined in the county as a whole - again, mainly as a result of the curtailment of the cereal and potato acreage - the downward trend was much less pronounced than in the case of the seven survey parishes. Cereal acreage in the county declined by roughly one eighth compared with over one-quarter in the study area, and potato acreage by a half compared with two-thirds. The one notable exception to the general downward movement in tillage acreage, namely mixed corn, was the same in both cases. It should also be noted that acreage of bulky green fodder (cabbage, kale, etc) doubled both in the county generally and in the seven parishes.

Table 37
Trends in Cropping per 100 Acres on 240 Farms in Seven Survey Parishes, 1948-1953
(From Table 33)

Cereals	**1948**	**1949**	**1950**	**1951**	**1952**	**1953**
Wheat	1.0	1.0	0.7	0.3	0.4	0.6
Barley	0.3	0.3	0.3	0.3	0.5	0.6
Oats	12.3	10.6	9.5	6.3	5.5	5.8
Mixed Corn (inc. rye)	3.9	4.1	4.7	4.9	5.6	5.8
Total cereals	**17.5**	**16.0**	**15.2**	**11.8**	**12.0**	**12.8**
Potatoes	1.8	1.3	1.1	0.8	0.7	0.6
Sugar Beet	0.0	0.0	0.0	0.0	0.0	0.0
Mangolds	0.4	0.4	0.4	0.4	0.3	0.3
Fodder Beet	**-	**-	**-	**-	0.1	0.1
Turnips and Swedes	0.6	0.5	0.5	0.4	0.4	0.4
Rape	1.0	0.9	1.3	1.3	1.2	1.0
Cabbage, Kale etc	0.3	0.5	0.5	0.4	0.6	0.7
Vegetables for human consumption	0.0	0.0	0.0	0.0	0.0	0.0
Other Crops	0.2	0.1	0.0	0.1	0.1	0.0
Bare Fallow	0.3	0.4	0.3	0.5	0.8	0.5
Total tillage	**22.1**	**20.1**	**19.3**	**15.7**	**16.2**	**16.4**
Grass Orchards	0.4	0.3	0.3	0.3	0.3	0.3
Temp Grass: Cut	11.2	11.4	10.6	11.8	11.6	11.6
Grazed*	13.8	13.0	11.6	12.1	11.1	10.7
Perm. Grass: Cut	8.6	8.8	9.7	10.6	11.3	11.5
Grazed[+]	26.4	29.6	30.8	30.8	31.2	31.8
Total Grass	**60.4**	**63.1**	**63.0**	**65.6**	**55.5**	**65.9**
Total Crops & Grass	**82.5**	**83.2**	**82.3**	**81.3**	**81.7**	**82.3**
Rough grazings	17.5	16.8	17.7	18.7	18.3	17.7
Total Acreage	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

**Fodder Beet not shown separately in these years – included in other crops.
*Includes Lucerne
[+]Includes land temporarily flooded.

Table 38
Trends in Cropping per 100 acres, County of Devon, 1948-1953

	1948	1949	1950	1951	1952	1953
Wheat	2.2	1.7	2.1	1.4	1.4	1.7
Barley	3.8	3.9	3.2	3.3	4.1	3.6
Oats	7.5	6.8	6.5	5.1	5.0	4.8
Mixed Corn (incl rye)	3.5	4.0	4.8	4.9	4.8	4.8
Total cereals	**17.0**	**16.4**	**16.6**	**14.7**	**15.3**	**14.9**
Potatoes	2.4	1.9	1.7	1.3	1.1	1.1
Sugar Beet	0.1	0.1	0.1	0.1	0.1	0.1
Mangolds	1.1	1.1	1.1	1.1	0.9	0.9
Fodder Beet	**-	**-	**-	**-	0.2	0.2
Turnips and Swedes	1.9	1.8	1.7	1.7	1.7	1.7
Rape	0.8	0.9	0.9	0.8	0.9	0.8
Cabbage, Kale etc	0.8	0.9	1.0	1.1	1.3	1.6
Vegetables for human consumption	0.4	0.4	0.4	0.4	0.3	0.3
Other Crops	0.4	0.4	0.4	0.3	0.3	0.2
Bare Fallow	0.3	0.3	0.3	0.3	0.3	0.2
Total tillage	**25.2**	**24.2**	**24.2**	**21.8**	**22.4**	**22.0**
Grass Orchards	1.6	1.5	1.5	1.5	1.5	1.5
Temp Grass: Cut	7.4	7.7	7.8	8.6	9.2	9.1
Grazed*	8.7	8.5	8.3	8.4	8.2	8.7
Perm. Grass: Cut	9.3	9.3	9.9	10.3	10.7	10.6
Grazed+	34.6	35.7	35.4	36.4	35.3	35.5
Total Crops & Grass	**86.8**	**86.9**	**87.1**	**87.0**	**87.3**	**87.4**
Rough grazings	13.2	13.1	12.9	13.0	12.7	12.6
Total Acreage	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

**Fodder Beet not shown separately in these years – included in other crops.
*Includes Lucerne
+Includes land temporarily flooded.

The trend in cattle numbers in the seven parishes and the whole county (Tables 39 and 40) is closely similar; a small increase can be seen to have taken place largely as a result of an increase in the number of cows per 100 acres. Pigs increased threefold in each case, although it should be noted that throughout the period the pig population in the seven survey parishes remained at roughly half the county level. The trend in sheep and poultry numbers, however, shows a marked departure from the county figures. Sheep numbers per 100 acres increased by approximately 75% during the 6 year period in the seven parishes with a figure of only slightly over 25% for the County of Devon, although as in the case of pigs one should remember that the overall figures for sheep in the study area are much lower than those for the County of Devon and that even after an increase of 75% sheep numbers in the seven parishes in the final year of the 6 year period amounted to only slightly over one half of those for the County in general. Poultry numbers per 100 acres for the County which in 1948 did not differ appreciably from those returned by the seven survey parishes, increased steadily during the following five years and in 1953 were 25% above the 1948 figure. In contrast to this, however, poultry numbers in the seven survey parishes, after rising in the second of the six years under review, declined again and by 1953 had returned to the level of 1948.

Table 39
Trends in Stock Numbers per 100 Acres on 240 Farms in Seven Survey Parishes, 1948-1953 (from Table 34)

Cattle	**1948**	**1949**	**1950**	**1951**	**1952**	**1953**
Cows and heifers in milk and calf	9.4	10.3	10.7	9.7	9.9	11.2
Heifers in calf	1.9	1.8	1.7	1.3	2.1	1.9
Bulls (incl bulls being reared)	0.3	0.3	0.2	0.1	0.1	0.1
Stores: 2 years & over	3.5	3.5	3.8	4.2	3.7	3.5
1-2 years	5.2	5.9	7.5	6.6	6.4	6.0
Under 1 year	7.4	8.2	7.7	7.0	6.7	7.2
Total cattle	**27.7**	**30.0**	**31.6**	**28.9**	**28.9**	**29.9**
Sows & gilts in pig	0.3	0.3	0.3	0.4	0.6	0.6
All other sows	0.1	0.1	0.1	1.2	0.2	0.3
Boars (inc. young boars)	-	-	-	-	-	-
Stores: 5 months & over,	0.3	0.8	0.4	0.6	0.8	1.1
2 -5 months,	0.8	1.2	1.2	2.0	2.1	2.2
and under 2 months	0.5	0.4	0.6	1.0	1.3	1.9
Total pigs	**2.0**	**2.8**	**2.6**	**4.2**	**5.0**	**6.1**
Ewes	10.2	11.9	13.2	11.5	13.7	17.5
Rams (inc. ram lambs)	0.4	0.8	0.4	0.5	0.6	0.5
Other sheep: Over 1 year	1.0	1.8	1.2	1.9	2.7	4.1
Under 1 year	9.9	11.7	13.3	10.5	13.0	15.5
Total sheep	**21.5**	**26.2**	**28.1**	**24.4**	**30.0**	**37.6**
Fowls over 6 months, under 6 months	82.0	93.7	114.2	109.5	97.8	100.6
Other poultry	95.9	104.1	84.2	75.1	77.9	79.2
	12.3	15.0	11.8	11.7	10.4	9.9
Total poultry	**190.2**	**212.8**	**210.2**	**196.3**	**186.1**	**189.7**
Horses	**2.1**	**1.9**	**1.7**	**1.5**	**1.4**	**1.3**

Table 40
Stock Numbers per 100 Acres, County of Devon, 1948-1953

Cattle	**1948**	**1949**	**1950**	**1951**	**1952**	**1953**
Cows and heifers in milk and calf	10.3	10.7	11.2	10.6	10.8	11.5
Heifers in calf	2.4	2.3	2.1	2.0	2.3	2.2
Bulls (inc. bulls being reared)	0.4	0.4	0.3	0.3	0.3	0.2
Stores: 2 years & over	4.2	4.3	4.8	4.7	4.6	4.5
1-2 years	5.9	6.6	7.2	7.0	6.4	6.6
Under 1 year	7.1	7.4	7.5	6.8	6.5	7.2
Total cattle	**30.3**	**31.7**	**33.1**	**31.4**	**30.9**	**32.2**
Sows & gilts in pig	0.4	0.5	0.5	0.8	0.8	1.1
All other sows	0.2	0.2	0.2	0.4	0.4	0.5
Boars (inc. young boars)	-	-	0.1	0.1	0.1	0.1
Stores: 5 months & over,	0.8	1.4	1.3	1.6	2.3	2.2
2 -5 months,	1.6	2.1	2.1	3.0	4.2	4.7
And under 2 months	0.9	1.1	1.2	1.8	2.3	2.7
Total pigs	**3.9**	**5.3**	**5.4**	**7.7**	**10.1**	**11.3**
Ewes	26.6	27.6	28.8	28.5	30.2	32.9
Rams (inc. ram lambs)	0.8	0.8	0.9	0.9	0.9	0.9
Other sheep:						
Over 1 year	3.8	3.6	4.3	5.0	5.5	5.8
Under 1 year	22.6	24.6	24.8	24.0	27.0	28.9
Total sheep	**53.8**	**56.5**	**58.8**	**58.4**	**63.6**	**68.5**
Fowls: over 6 months,	79.5	95.2	110.8	113.1	109.1	110.4
under 6 months	91.3	101.9	96.5	99.8	106.6	112.8
Other poultry	17.4	18.1	15.1	12.1	12.4	12.1
Total poultry	**188.2**	**215.2**	**222.4**	**225.0**	**228.1**	**235.3**
Horses	**1.8**	**1.6**	**1.5**	**1.3**	**1.2**	**1.1**

3.4 Milk Production

Perhaps the most striking feature of farm production in the survey area since the war has been the continued expansion of liquid milk production. Some idea of the rate of this expansion in North West Devon generally can be obtained from Table 41 which lists the annual intake of milk by one of the three large milk factories sited in the area since the early years of the second world war when war-time conditions were accelerating the swing to milk production begun in the twenties and thirties. It shows the annual intake of this factory to have been more than doubled between 1942 and 1953.

Table 41
Annual Intake of a Milk Factory in North West Devon, 1942-1953

Year	Annual intake		
	'000 gallons	Index number (1942 = 100)	Index number (1948 = 100)
1942	2,880	100.0	-
1943	3,700	128.5	-
1944	3,500	121.5	-
1945	3,900	135.4	-
1946	4,200	145.8	-
1947	4,300	149.3	-
1948	5,250	182.3	100.0
1949	5,700	197.9	108.6
1950	5,900	204.9	112.4
1951	5,450	189.2	103.8
1952	6,250	217.0	119.0
1953	6,880	238.9	131.0

As the indices in Tables 42 and 43 show, the seven survey parishes contributed a substantial share to the expansion which took place in the post-war years. Milk production, based on an identical sample of 233 farms can be seen to have increased by one quarter during the six years from 1948 to 1953, despite a severe check to the upward trend in production which occurred in 1950/51 as a result of the disastrous harvest of 1950.

Table 42
Trends in Milk Production by Size Group, 1948-49 to 1953-54
(Identical Sample of 233 Farms)

Size group	25-49¾ acres		50-99¾ acres		100-149¾ acres		150-299¾ acres		300 acres & over		All farms acres	
No. of farms	66		88		40		35		4		233	
Years	**Gallons**	**Index Nos (1948/9 = 100)**	**Gallons**	**Index Nos (1948/9 = 100)**	**Gallons**	**Index Nos (1948/9 = 100)**	**Gallons**	**Index Nos (1948/9 = 100)**	**Gallons**	**Index Nos (1948/9 = 100)**	**Gallons**	**Index Nos (1948/9 = 100)**
1948-49	185,564	100	344,333	100	160,652	100	178,723	100	12,520	100	881,792	100
1949-50	187,873	101	340,227	99	179,616	112	200,125	112	15,474	124	923,315	105
1950-51	176,337	95	311,958	91	161,449	100	194,264	109	23,304	186	867,312	98
1951-52	181,134	98	318,544	93	163,425	102	197,389	110	39,796	318	900,288	102
1952-53	198,475	107	377,330	110	187,125	116	231,415	129	34,870	279	1,029,215	117
1953-54	218,029	117	405,304	118	197,121	123	244,644	136	40,432	323	1,105,530	125

Table 43
Distribution of Milk Production by Size Group, 1948-49 to 1953-54
(Identical Sample of 233 Farms)

Farm Size	Farms		1948-49		1949-50		1950-51		1951-52		1952-53		1953-54	
	No.	%	Gallons	Index	Gallons	Index	Gallons	Index	Gallons	Index	Gallons	Index	Gallons	Index
25 - 49¾	66	28.3	185,564	**100**	344,333	**1.86**	160,652	**0.87**	178,723	**0.96**	12,520	**0.07**	881,792	**4.75**
50 - 99¾	88	37.8	187,873	**100**	340,227	**1.81**	179,616	**0.96**	200,125	**1.07**	15,474	**0.08**	923,315	**4.91**
100-149¾	40	17.2	176,337	**100**	311,958	**1.77**	161,449	**0.92**	194,264	**1.10**	23,304	**0.13**	867,312	**4.92**
150 - 299¾	35	15.0	181,134	**100**	318,544	**1.76**	163,425	**0.90**	197,389	**1.09**	39,796	**0.22**	900,288	**4.97**
300 and	4	1.7	198,475	**100**	377,330	**1.9**	187,125	**0.94**	231,415	**1.17**	34,870	**0.18**	1,029,215	**5.19**
All Farms	233	100.0	218,029	**100**	405,304	**1.86**	197,121	**0.90**	244,644	**1.12**	40,432	**0.19**	1,105,530	**5.07**

Also shown in Table 42 is the increase in milk production which occurred in each of five size groups in the period 1948/49 to 1953/54. The greatest increase was experienced in the large farm group where milk production expanded by 300%, but as this group only contains four farms and contributes only a very small proportion of the total milk production of the 233 farms it would be unwise to comment further. Data in the other columns of this table would seem to show, however, that milk production expanded during the six years at a slightly higher rate on the farms over 100 acres than on those below 100 acres. This, of course, may in part be explained by the fact that, of necessity it would have been many of the smaller farms which turned first from store rearing to the more intensive practice of milk production and that more latterly there would have been greater opportunity for an increasing emphasis on milk production on many of the larger farms.

However, throughout the whole period under review well over half the total quantity of milk produced by the 233 farms continued to come from farms of under 100 acres.

3.5 Labour Force

Trends in the number of workers, by class of worker, during the period 1948-1953 for an identical sample of 213 farms in the survey parishes, are set out in Table 44. Despite some annual fluctuation in the number of workers on these farms, the overall direction of change among regular workers would appear to be downward, while among casual workers it would appear upward. However, these numerical changes, which involve the composition of the labour force of the survey parishes, make it difficult to assess the net effect on the amount of labour available. In an attempt to overcome this difficulty, the numbers of workers in each class in successive years has been reduced to a common unit of measurement. The standard of measurement employed is the full-time regular male worker, or man equivalent. Each class of worker has been converted to man equivalents by using the conversion factors devised by Williams[21] in an earlier study. The results of this conversion which are set out in Table 45 tend to substantiate the view that the total labour force in the survey parishes has declined, but indicates that there has been some substitution of casual labour for regular labour, which has led to an overall increase in the amount of casual labour employed. The number of men equivalents represented by regularly employed workers expressed as a percentage of total man equivalents fell from 81.5% in 1948 to 73.7% in 1953.

[21] Source: *Changes in the Productivity of Labour in British Agriculture*, H T Williams, 1953.1. *Available from: http://tinyurl.com/67cco6n (May 2011)*

Table 44
Trend in Numbers of Workers Employed, 1948-53
(Identical Sample of 213 Farms)

Type of Worker		1948	1949	1950	1951	1952	1953
Regular workers employed whole-time	Males (65 years old and over	2	2	7	3	8	3
	Males (21 years old and under 65	124	131	112	101	104	100
	Males (18 years old and under 21	17	19	21	21	17	13
	Males (Under 18 years old	23	21	12	15	14	20
	Women and girls	*29	30	*20	11	15	16
	Total male and female	195	203	172	151	158	152
Casual (seasonal, part-time and temporary) workers	Males (21 years old and over	[+]53	50	55	50	68	61
	Males (Under 21 years	2	5	9	9	8	5
	Women and girls	1	2	3	5	6	6
	Total male and female	56	57	67	64	82	72
TOTAL WORKERS		**251**	**260**	**239**	**215**	**240**	**224**

*Includes one member of the Women's Land Army. [+]Includes one Prisoner of War.

Table 45
Changes in Labour Force (men Equivalents), 1948-53.
(Identical Sample 213 Farms – Seven Survey Parishes)

Type of Worker		1948		1949		1950		1951		1952		1953	
		Man Equiv	%	Man Equiv	%	Man Equiv	%	Man Equiv	%	Man Equiv	%	Man Equiv	%
Regular workers employed whole-time	Males: 65 yrs old & over, 21 yrs old & under 65, 18 yrs old & under 21, Under 18 yrs old	2.00 124.00 10.71 14.49	1.0 59.3 5.1 6.9	2.00 131.00 11.97 13.23	0.9 60.6 5.5 6.1	7.00 112.00 13.23 7.56	3.6 56.8 6.7 3.8	3.00 101.00 13.23 9.45	1.7 57.5 7.6 5.4	8.00 104.00 10.71 8.82	4.1 53.1 5.5 4.5	3.00 100.00 8.19 12.60	1.7 54.8 4.5 6.9
	Women and girls	19.14	9.2	19.80	9.2	13.20	6.7	7.26	4.1	9.90	5.1	10.56	5.8
	Total male and female	170.34	81.5	178.00	82.3	152.99	77.6	133.94	76.3	141.43	72.3	134.35	73.7
Casual Workers (ie seasonal, part-time and temporary)	Males: 21 yrs old & over Under 21 yrs	37.20 .92	17.8 .5	35.00 2.30	16.2 1.0	38.50 4.14	19.5 2.1	35.00 4.14	20.0 2.3	47.60 3.68	24.3 1.9	42.70 2.30	23.4 1.3
	Women and girls	.50	.2	1.00	.5	1.50	0.8	2.50	1.4	3.00	1.5	3.00	1.6
	Total male and female	38.62	18.5	38.30	17.7	44.14	22.8	41.64	23.7	54.28	27.7	48.00	26.3
TOTAL WORKERS		208.96	100.0	216.30	100.0	197.13	100.0	175.58	100.0	195.71	100.0	182.35	100.0

The author intended to compare graphically changes in the amount of labour employed in the survey parishes in the period 1948/53 with changes in the amount of labour employed in the County of Devon as a whole. *The data showed* the movement of indices of total, regular and casual labour (based on the number of man equivalents) for these two areas over the six-year period. *They illustrated* that the total labour force in the County as a whole declined, but that the decline in the survey parishes was rather more pronounced. When changes in the regular labour force *were* compared an even more noticeable decline *was* revealed in the case of the survey parishes. In both areas there was an increased use of casual labour to offset the declining regular labour force, although the increase was considerably more pronounced, as might be expected, in the survey parishes.

SECTION 4 ECONOMIC ASPECTS OF CULM MEASURE FARMING

4.1 Introduction

Previous sections of this report have described in considerable detail some of the main physical features of the West Culm Measures and the pattern of farming to which these conditions have given rise. While this description strongly suggests a farming environment of more than average difficulty, it does not, unfortunately, offer a ready measure of the economic problem present in the area. Attention is, therefore, turned in this section to the financial aspects of farming in North West Devon.

This economic appraisal is divided into three main stages as follows:-

Stage 1 This consists of a broad comparison of the financial results obtained from a group of farms situated on the West Culm Measures with those obtained from three groups of farms chosen to represent other broad geographical regions of Devon. The farms to which the data used in this stage of the investigation relates were all co-operating farms in the Farm Management Survey carried out annually in the South West by the Department of Economics/Agricultural Economics, University of Bristol. In particular an examination was made of the trends which occurred in output, costs and incomes of the farms in each of the four regional groups during the period 1947/48 to 1956/57.

Stage 2 This stage comprises an analysis of the financial records relating to 64 farms, also situated in the West Culm Measures, which were specially surveyed in connection with the present investigation. Twenty-four of these farms were located in the seven parishes selected for detailed study while the remaining 40 were drawn from the 16 peripheral parishes. These farms were selected at random from the total known farm population of the survey parishes. Financial records were compiled for each of these 64 farms by means of personal interview with the farmer concerned, supported where possible by bills and records. These accounts relate mainly to the calendar year 1953 although in a few cases the accounting year ended at Lady Day 1954.

The main objective of this stage of the investigation was to confirm if possible the evidence provided by the physical data of steadily worsening farming conditions as one moves from the fringe areas of the West Culm area towards the central region typically, if not exclusively, represented by the seven parishes enumerated earlier. This objective as data presented later shows, was largely achieved.

Stage 3 Having provided in Stage 2 financial evidence of the location of the main problem area of North Devon, Stage 3 consisted of a more detailed economic appraisal of the seven special study parishes. For this a sample of 61 farms was randomly chosen, giving a coverage of approximately one in every four known farms of 25 acres and over in the seven parishes. Financial records were again compiled for these 61 farms by means of personal interview with the farmer, supplemented by information obtained from bills and other records where access to these existed. In a few cases the financial year to which these accounts related ended at Lady Day 1955; the majority of them, however, related to the calendar year 1954.

This second financial survey included 19 of the 24 farms in the seven parishes which had been visited in the course of the first survey. Thus an identical two year sample was available for comparative purposes.

The three stages of the investigation into the financial aspects of farming in North West Devon have been broadly outlined; each will now be examined in detail and its findings listed.

4.2 Stage 1 Output, Costs and Net Farm Income in Four Areas of Devon and North East Cornwall

The three geographic regions of Devon chosen for comparison with North West Devon and North East Cornwall *(ie the General Culm Measures Area)* were North East Devon, East Devon and South Devon. The comparison of output, costs and net farm income in each of these four areas was based on four groups of farms selected from those Farm Management Survey co-operators which have provided continuous records for the period 1947 to 1956. The number of farms in each of these 10 year identical samples was as follows:

North West Devon and North East	27
North East Devon	19
East Devon	18
South Devon	14

Table 46 shows the average gross output costs and income over the 10-year period from 1947-1956 in each of the four regional areas. It should be noted that in calculating these average figures no adjustment has been made for changes in the value of money. To that extent, therefore, they are unreliable as guides to absolute levels of output costs and income. Nevertheless they do offer some measure of the relative levels of those items in the four areas.

Table 46
Average Gross Output, Costs and Incomes per Farm in Four Regional Groups of Farms in Devon and North East Cornwall, 1947-56

	North West Devon and North East Cornwall ***(ie the General Culm Measures Area)***	**North East Devon**	**East Devon**	**South Devon**
Average farm size	**164.8**	**128.5**	**132.4**	**133.5**
	Per farm			
	£	£	£	£
Gross income	3,518	2,525	3,978	3,160
Costs	2,607	1,833	2,898	2,240
Net Farm Income	911	692	1,108	920
Wages – farmer & wife	311	338	313	288
Management and Investment Income	600	353	795	632

On the evidence presented in Table 46, therefore, the general West Culm Measure farming area does not compare particularly unfavourably with the three other areas of Devon. Management and investment income of the group of farms representing the former area averaged £600 over the 10-year period, compared with £795 in the case of the East Devon group (the highest one), £632 on the South Devon farms and £353 on the farms with the lowest net farm income, namely those in North East Devon.

The failure of North West Devon and North East Cornwall to emerge on this comparison as a region of unduly low incomes might be thought to be due to a measure of unrepresentativeness in the sample of Farm Management Survey farms used. It is probable, for instance, that those farmers of the West Culm region who co-operated in the Farm Management Survey throughout the 10-year period represent the more progressive type of farmer to be found in the area, while the farms themselves are almost certainly considerably larger than the average for either the seven special survey parishes or the 16 peripheral parishes.[22] Since, however, the same criticism can be levelled at the groups of farms representing the other three areas, this argument cannot be pursued too far. If all four samples are unrepresentative in the same respect and to the same degree then comparison of the relative levels of output, costs and incomes will still be valid.

A more likely explanation exists in the fact that the farms comprising the North West Devon and North East Cornwall group are scattered widely over the West Culm Measures area. Many of them are therefore to be found on the better land which physical evidence indicated as existing in areas outside the main Holsworthy "hard core" region. The probability of this explanation will become more apparent when the data analysed in conjunction with Stage 2 has been presented.

Data provided by the four regional groups of Farm Management Survey farmers were used by the author to illustrate the movements of gross output costs and net farm income for each farm in each of the four areas during the ten year period 147 to 1956. Unfortunately the data are missing. According to the author, however, ... the value of production rose considerably in all four groups over the period, as did costs. While this general upward trend in both production and costs was characterised in all groups by some annual fluctuation, it is perhaps of some importance to note that the group exhibiting the greatest fluctuation in both production and costs was North West Devon and North East Cornwall.

The fluctuations of production and costs in the case of the South Devon group followed closely those of North West Devon and North East Cornwall, but, unlike the latter group, did not exhibit a similar degree of fluctuation in costs. This greater fluctuation in production and costs *was illustrated by the author in a - missing - figure. These data showed* a greater degree of variation in net farm income per farm in North West Devon and North East Cornwall, than in the other three groups.

The relative degree of fluctuation in net farm income per farm found in the four regional groups *was also demonstrated. These, again missing data, which illustrated* historical (or actual) average net farm income per farm for each group in each of the ten years, *were* scaled in relation to the retail price index *to obtain* an approximation of 'real' income. ... These 'real' net farm incomes per farm *were* then expressed as an index number with the 10-year average net farm income per farm for each group represented by 100.

Although the group of farms representing North West Devon and North East Cornwall exhibits a greater degree of income fluctuation than the other three groups all four groups nevertheless conform to a closely similar income trend with above-average and below-average incomes occurring at roughly the same points of the 10-year period. Not surprisingly these 'peaks' and 'troughs' of income seem to correspond with what are popularly described as 'good' and 'bad' years respectively. Thus the particularly poor harvest years of 1947, 1950 and 1954 are well marked, while favourable harvesting conditions of 1948, 1949, 1952 and 1953 are similarly reflected.

[22] See Section 2.

An anomaly would appear to exist however in the case of 1956. Both hay harvest and corn harvest in this year were carried out under unfavourable conditions and, following a spring growing season during which near drought conditions obtained in many areas, resulted in rather poor yields. Nevertheless in this year there was an upward trend in incomes which was particularly striking in the case of the North West Devon and North East Cornwall and the North East Devon groups. One possible explanation which may be advanced for this occurrence is that mild and equable weather conditions which existed in the late autumn of 1956 gave a protracted grazing season. This, together with the fact that the 1956 crop year was an excellent one for roots and kale, no doubt compensated in large measure foe the below-average hay and corn yields obtained.

Available evidence – though admittedly somewhat scanty – would suggest therefore that farming in the West Culm Measures area is rather more vulnerable to changing weather conditions than is the case in other drier areas. Rainfall at harvesting time means not only that harvesting operations may be prolonged and difficult but it also means that the hay and corn may not be carried at all due to the impossibility of getting the necessary machinery on to waterlogged ground. The inability of pastures badly parched in summer to recover sufficiently to provide adequate forage grazing, and the early removal of stock from waterlogged pastures in the autumn are not infrequent occurrences which greatly increase both the difficulty and cost of wintering stock. A very bad summer and autumn as in 1950 resulting in many cases in the loss of both hay and corn harvests and an attenuated grazing season, can therefore spell disaster.

4.3 Stage 2 Comparison of the General Financial Results Relating to Sample Farms in two Groups of Parishes in North West Devon.

4.3.1 Cropping and Stocking on the Sample Farms

Any comparison of the financial results of the two groups of farms now being studied will only be valid to the extent that they are representative of the total farm populations from which they have been drawn. To enable some assessment to be made of their fitness in this respect, therefore, cropping and stocking statistics relating to the two sample groups are set out in Tables 47 and 48. Although only the cropping data is directly comparable with the data presented in Section 2 (Tables 2 and 4), it can be seen that the cropping and stocking patterns of the two sample groups broadly reflect the characteristics of the known total farm populations of each of the two groups of parishes.[23] The somewhat higher proportion of rough grazing visible in the case of the 40 outer zone farms is largely due to the presence in the sample of one farm of 745 acres who returned a total of 500 acres of rough grazings. These 500 acres consisted of rented moorland over which the farmer concerned had sole grazing rights. The two sample groups do illustrate once again the slightly higher cereal acreage and greater sheep population of the ring parishes.

[23] The stocking data of the sample groups are not directly comparable with the data presented in Section 2 inasmuch as this data was obtained from opening valuation numbers, which in the majority of cases related to 1st January 1953. Moreover, the presentation of the stocking data employed in this section differs in detail from that used in the analysis of the June 4th data. With these limitations in mind, however, a broad comparison is still possible.

Table 47
Cropping per 100 Acres.
Sample Farms in two Parish Groupings, 1953

	Per 100 acres	
	Seven Survey Parishes	**16 Peripheral Parishes**
Number of farms	**24**	**40**
Wheat	0.2	1.7
Barley	1.1	2.0
Oars	6.3	5.1
Mixed corn (inc. rye)	4.2	4.5
Total Cereals	**11.8**	**13.3**
Potatoes	0.5	0.9
Sugar beet	0.0	0.0
Mangolds	0.3	0.4
Fodder beet	0.1	0.2
Turnips and Swedes	0.7	0.9
Rape	1.2	1.5
Cabbage, kale, etc	0.6	1.3
Vegetables for human consumption	0.0	0.1
Other crops	0.0	0.0
Bare fallow	0.6	0.0
Total Tillage	**15.8**	**18.6**
Grass orchards	0.1	0.4
Temporary grass - Cut	13.4	10.5
- Grazed	8.6	9.4
Permanent grass - Cut	9.7	6.8
- Grazed	36.7	27.3
Total Crops and Grass	**84.3**	**73.0**
Rough grazings	15.7	27.0
TOTAL ACREAGE	**100.0**	**100.0**

Table 48
Livestock Numbers per 100 Acres.
Sample Farms in two Parish Groupings, 1953

	Per 100 acres	
	Seven Survey Parishes	**16 Peripheral Parishes**
Number of farms	**24**	**40**
Bulls	0.3	0.2
Cows	11.0	8.5
Heifers - in calf	2.5	1.2
Stores - 2 years and over	1.8	2.6
1 – 2 years	4.6	5.0
Under 1 year	8.6	5.7
Total Cattle	**28.8**	**23.2**
Rams	0.4	0.5
Ewes	10.4	24.3
Other sheep	13.3	22.8
Total Sheep	**24.1**	**47.6**
Boars	0.0	0.0
Sows	1.0	1.0
Other pigs	5.3	6.1
Total Pigs	**6.3**	**7.1**
Hens and pullets	132.7	104.3
Chicks	0.0	0.0
Other poultry	10.4	6.8
Total Poultry	**143.1**	**111.1**
Horses	**0.7**	**0.7**

4.3.2 General Financial Results

The summarised financial results of the two groups of farms representing the seven survey parishes and the sixteen peripheral parishes respectively are set out in Table 49.

Table 49
Gross Output, Costs and Income.
Sample Farms in two Parish Groupings in North West Devon, 1953-54

	Seven Survey Parishes		**16 Peripheral Parishes**	
Number of farms	**24**		**40**	
Average size of farm (acres)	**100.4**		**139.3**	
	Per farm £	Per acre £	Per farm £	Per acre £
Gross output	1,989	20.8	2,922	21.4
Costs	1,329	13.9	1,799	13.2
Net Farm Income	660	6.9	1,123	8.2
Wages of Farmer and Wife	348	3.6	305	2.2
Management and Investment Income	**£312**	**3.3**	**£818**	**6.0**

The 1953 crop year, to which these financial results refer, was on the whole a favourable one for farming in North West Devon and North East Cornwall, although spring sowing was a little later in these wetter areas than in drier areas of the South West due to rainfall in the month of April. Once crops were tilled, however, a good rate of growth was maintained and above average yields of hay and corn were realised, despite some difficulty in harvesting the grain crop in these normally late areas.

Gross output in the 1953/54 survey year averaged £1,989 in the case of the farms in the seven survey parishes compared with £2,922 on farms in the 16 parishes. On a per acre basis, gross output in the two groups averaged £20.8 and £21.4 respectively. Costs (excluding a charge for the labour of the farmer and his wife) were also lower in the smaller group, average £1,329 per farm compared with £1,799 on the larger group. The corresponding cost figures expressed on a per acre basis are £13.9 and £13.2. Net farm income which represents the difference between gross output and costs amounted to £660 per farm (or £6.9 per acre) on the 24 farms comprising the smaller group, as against £2,123 (£8.2 per acre) on the peripheral farms. After the deduction from net farm income of a charge for the labour of farmer and wife, the return for management and investment on these two groups of farms was £312 and £818 per farm (or £3.3 and £6.0 per acre) respectively.

4.3.3 Net Farm Income

The previous paragraph discussed average incomes on the two groups of farms being compared. It is well known, however, that fairly small samples of the type employed in this study may be unduly affected by one or two extreme items. Before any conclusions are firmly drawn as to relative income levels in the two groups, therefore, it

will perhaps be advisable to examine the range of income which exists in the two groups and, in this respect, reference should be made to Table 50. While a wide range of incomes can be seen to exist in both these groups of farms, a tendency towards a higher average income is readily discernible in the case of the 16 peripheral parishes. Both groups included 10 farms with net farm incomes of less than £500 but, in the case of the smaller group, these farms comprised 41% of the total number, compared with 1% in the case of the peripheral parishes. Again, farms whose incomes were £1,000 or over comprised only 25% of the total in the group representing the seven parishes, compared with 45% in the larger group.

Table 50
Distribution of Farm by Net Farm Income per Farm.
Sample Farms in two Parish Groupings in North West Devon, 1953-54

Net Farm Income per Farm (£)	Seven Survey Parishes		16 Peripheral Parishes	
	Number	%	Number	%
Under 250	5	20.8	2	5.0
250 – 499	5	20.8	8	20.0
500 – 749	7	29.2	9	22.5
750 – 999	1	4.2	3	7.5
1,000 – 1,249	4	16.6	4	10.0
1,250 – 1,499	1	4.2	5	12.5
1,500 and over	1	4.2	9	22.5
TOTAL	**24**	**100.0**	**40**	**100.0**

Production and costs which between them determined net farm income will now be analysed in greater detail for these two groups of farms.

4.3.4 Production

Both production and costs are analysed in Table 51.

Table 51
Analysis of Gross Output and Costs.
Sample Farms in two Parish Groupings in North West Devon

	Seven survey parishes			16 Peripheral Parishes		
Number of farms	**24**			**40**		
Average size per farm (acres)	**95.6**			**136.9**		
	Per farm £	**Per acre £**	**Per cent %**	**Per farm £**	**Per acre £**	**Per cent %**
Livestock & Livestock Products	**Gross Output**					
Dairy produce	706	7.4	35.5	856	6.3	29.3
Cattle	489	5.1	24.6	627	4.6	21.5
Sheep & wool	188	2.0	9.4	417	3.0	14.3
Pigs	225	2.4	11.3	337	2.5	11.5
Poultry & eggs	290	3.0	14.6	396	2.9	13.5
Total	**1,898**	**19.9**	**95.4**	**2,633**	**19.3**	**90.1**
Crops	58	0.6	2.9	236	1.7	8.1
Sundries	33	0.3	1.7	53	0.4	1.8
Total (A)	**1,989**	**20.8**	**95.4**	**2,922**	**21.4**	**100.0**
Non Livestock	**Costs**					
Feeding Stuffs	416	4.4	24.8	505	3.7	24.0
Seeds	35	0.4	2.1	61	0.5	2.9
Manures	111	1.2	6.6	177	1.3	8.4
Rent & Rates	128	1.3	7.6	168	1.2	8.0
Power & Transport	233	2.4	13.9	270	2.0	12.8
Contract	24	0.2	1.4	41	0.3	1.9
Labour	*265	*2.8	+36.6	473	3.4	37.0
Other Expenses	117	1.2	7.0	104	0.8	5.0
Total (B)	**1,329**	**13.9**	**100.0**	**1,799**	**13.2**	**100.0**
Net Farm Income **(A-B)** less Wages of Farmer & Wife **(C) ...**	660 348	6.9 3.6	- -	1,123 305	8.2 2.2	- -
... Equals Management & Investment Income	312	3.3	-	818	6.0	-

*Excludes labour charge for farmer and wife.
+Includes labour charge for farmer and wife.

Total production per farm in the case of the seven survey parishes was well below that achieved by farms in the outer zone parishes, amounting to £1,989 per farm compared with £2,922. Production per acre, however, was only slightly larger in the case of the peripheral group and thus the difference in the per farm figure can be mainly attributed to this difference in average farm size which exists between the two groups.

The dominance of livestock and livestock products is well marked on both groups of farms. They account for 95% of gross output in the case of the seven parishes and for

90% in the sixteen parishes. The slightly reduced figure in the latter instance is due to the greater output of crops, albeit small, found in the peripheral parishes.

In both groups dairying formed the largest single enterprise, and milk and cattle output together comprised just over 50% of the total in the case of the sixteen parishes and just over 60% in the seven parishes. Pigs and poultry together accounted for about 25% of total gross output in each group, and the lesser importance of the dairy and cattle enterprises noted in the case of 40 peripheral farms was due to the increased relative importance of sheep in this area, a feature to which attention has been drawn at an earlier stage of this study.

4.3.5 Costs

Total costs (excluding a charge for labour and wife) were also lower in the case of the seven survey parishes and amounted to £1,329 compared with £1,799 per farm in the sixteen parishes. On a per acre basis the figures are £13.9 and £13.2 respectively. If a charge for work performed by the farmer and his wife is included, labour provides the largest single contribution to costs in both groups comprising approximately 37% of the total. The second most important item, again in both groups, was purchased feeding stuffs reflecting the increased importance of dairying on these former rearing farms. Together labour and feeding stuffs account for over 60% of total costs in both farm samples.

Although the structure of costs on the two groups of farms is broadly similar, one or two items are worthy of note. Purchases of feeding stuffs per acre were slightly higher in the case of the seven survey parishes, consisting of £4.4 per acre in the latter instance compared with £3.7 per acre in the 16 parishes. No doubt this resulted from the greater incidence of dairying in the centre bloc of parishes. Power and transport costs too were higher in the smaller group, amounting to £2.4 per acre as opposed to £2.0 in the larger. However, the reverse was true in the case of hired labour which amounted to £2.8 and £3.4 per acre respectively.

One striking feature of both groups of farms is the low rental figures per acre - £1.3 for the seven parishes and £1.2 for the sixteen – which reflects the poor quality of much of the land[24] of this region. Unfortunately these rental figures do not supply any corroborating evidence of improving land conditions in the peripheral parishes. In fact the rental figure per acre of the 16 peripheral parishes as shown above is actually below that of the seven parishes. It has already been stated elsewhere, however, that the sample of 40 farms representing the peripheral parishes includes one farm of 745 acres with 500 acres of rough gracing. If this farm is excluded from the calculation, the rental figure per acre becomes £1.4 per acre for this group which is probably a better reflection of relative land values in the two parish groupings.

In Table 52 total costs in each group of farms have been broken down into fixed and variable costs. Fixed costs (or overheads as they are sometimes called) can be best described as those costs which in a given production period are inescapable. They are costs which would still be incurred even if production was curtailed completely. Taking the normal farm year as the production period, therefore, farming costs which may be regarded as fixed are labour, rent and depreciation of equipment. Variable costs on the other hand are those which, as the name implies, vary with the volume of output;

[24] In cases where land was owned by the farmer, an imputed rental value based upon individual farm circumstances was employed.

usually included under this heading are items such as feeding stuffs, seeds and manures, and fuel.

Table 52
Fixed and Variable Costs and Gross Output.
Sample Farms in two Parish Groupings in North West Devon

	Seven survey parishes		16 peripheral parishes	
	£	%	£	%
Fixed costs	899	53.6	1,119	53.2
Variable costs	778	46.4	985	46.8
Total costs	1,677	100.0	2,104	100.0
Gross output	1,989	-	2,922	-
Fixed costs as a percentage of gross output	-	45.2	-	38.3

Table 52 shows that in both the groups under discussion those items which may be classed as fixed form a fairly high proportion – some 53% of total costs. When these same fixed costs are expressed as a percentage of gross output, however, they are found to amount in the case of the survey parishes to 45.2% compared with 38.3% for the 16 peripheral parishes. The achievement by the latter group of this relatively higher level of output is doubtless a significant factor in its realisation of higher net farm earnings.

4.3.6 Capital

Table 53 contains an analysis of the main classes of tenant's capital found in the two groups of farms. This purports to be only a rough guide to the total capital requirements of these farms. Based as it is on the average of opening and closing valuations it will be obvious that the figure thus arrived at for each tenant's capital will be influenced by the date that the inventories were taken. In most cases this was at 31st December. In a few instances, however, it was Lady Day when stocks of crops are probably at their lowest. In addition no attempt has been made to assess the volume of working capital required to finance the operation of these farms. Finally it should be borne in mind that in valuing machinery, depreciated values have been used. The machinery valuation cannot, therefore, be used as a measure of the capital required to equip these farms.

Table 53
Analysis of Tenants' Capital[+].
Sample Farms in two Parish Groupings
in North West Devon

Livestock	Seven Survey Parishes			16 Peripheral Parishes		
	Per farm £	Per acre £	Per cent %	Per farm £	Per acre £	Per cent %
Cattle	994	10.4	45.3	1,212	8.9	38.0
Sheep	176	1.9	8.0	515	3.8	16.2
Pigs	78	0.8	3.5	153	1.1	4.8
Poultry	76	0.8	3.5	97	0.7	3.0
Horses	30	0.3	1.4	43	0.3	1.3
Total livestock	**1,354**	**14.2**	**61.7**	**14.8**	**14.8**	**68.3**
Crops	288	3.0	13.1	3.6	3.6	15.8
Machinery	553	5.8	25.2	4.9	4.9	20.9
TOTAL	**2,195**	**23.0**	**100.0**	**23.3**	**23.3**	**100.0**

[+]Based on average of Opening and Closing Valuations.

Comparing the two groups it will be seen that measured on a per farm basis, each tenant's capital in the case of the peripheral parishes exceeds that of the seven parish farms by about £1,000, largely on account no doubt of the larger average size of the former group. On a per acre basis, the difference is far less pronounced and tenant's capital amounts to £23.3 and £23.0 respectively.

In both groups well over half of each tenant's capital is accounted for by livestock, of which cattle form the main group. Cattle represents a slightly smaller share of total tenant's capital in the peripheral parishes, however, mainly as a result of the increased importance of sheep in this group.

4.4 Stage 3 A Study of Financial Results Relating to 61 Farms in the Seven Survey Parishes

4.4.1 Introduction

In the draft the author stated his intention to set ... out the financial results relating to the 61 farms surveyed in the seven special study parishes for the 1954 cropping year. *In the event, as will be seen below, the financial information relates to a sample of 19 farms, with information about 61 farms restricted to per-acre cropping and stocking data. The author also stated that,* In most cases the records collected were for the 1954 calendar year. In a few instances, however, the accounting year ended at Lady Day 1955.

Whereas the 1953 harvest year had been a generally favourable one from the climatic point of view for the whole of the South West, that for 1954 was an exceptionally bad one. Particularly hard hit were the heavier and wetter areas of North Devon and North Cornwall where heavy losses at hay and corn harvest time were followed by a wet autumn with a consequent aggravation of winter feeding problems.

The adverse effects of poor climatic conditions on the incomes of Culm Measure farms generally has been demonstrated in an earlier section of this report. How much worse are those effects upon the incomes of those farms situated on the very poorest Culm farming land may be gauged by the contents of Table 54. This sets out the financial results for 1953/54 and 1954/55 for an identical sample of 19 farms which were common to both the 1953/54 and 1954/55 surveys. Comparison of these results shows that average net farm income per farm in the second of these two years was less than one third that of the first year, ie £212.8 compared with £645.1. This fall in income was mainly due to a fall in gross output which declined from £1,716.6 to £1,363.4 per farm, although costs rose somewhat also. Gross Output of all livestock and livestock products declined but it is perhaps significant to note that proportionately the fall was least in the case of pigs and poultry, which are the enterprises least dependent upon inherent land quality. Gross output of crops declined in the second year and indeed became a negative quantity indicating a running down of stocks. This situation is commonly associated with an increase in costs as feeding stuffs are purchased to supplement reduced home grown supplies, and in this instance an increase in the average feed bill is discernible in the second of the two years being compared. The increase visible here, however, is unlikely to represent the full effect on costs of abbreviated home-grown feed supplies as the accounting years of the majority of farms included in this identical sample ended at 31st December. Most farmers will continue to use their own feed while supplies last and for that reason the need to lean rather more heavily on purchased feeds will not reveal itself to its full extent until the latter half of the winter feed period. In this way for farms accounting to December, a poor harvest in any one accounting year will frequently leave a legacy of higher costs in the succeeding year.

Table 54
Financial Results for an Identical Sample of 19 Farms in Seven Survey Parishes, 1953-54 and 1954-55

	1953-54		1954-55	
	Per farm £	Per acre £	Per farm £	Per acre £
Gross Output				
Dairy produce	750.2	12.7	666.8	10.1
Cattle	260.4	4.4	188.9	2.9
Sheep & wool	117.4	2.0	97.0	1.5
Pigs	229.2	3.8	212.8	3.2
Poultry & eggs	282.9	4.8	248.2	3.8
Total	1640.1	27.7	1413.7	21.5
Crops	49.0	0.8	-73.4	-1.1
Sundries	27.5	0.5	23.1	0.4
Total	**1,716.6**	**29.0**	**1,363.4**	**20.8**
Costs:				
Feeding stuffs	416.7	7.0	491.9	7.5
Seeds	25.7	0.4	30.9	0.5
Manures	78.5	1.3	71.2	1.1
Rent & rates	89.2	1.5	101.9	1.6
Power & transport	193.5	3.3	201.3	3.1
Contract	17.3	0.3	13.5	0.2
Labour	162.4	2.8	151.2	2.3
Other expenses	88.2	1.5	88.7	1.3
Total	**1,061.5**	**18.1**	**1,150.6**	**17.6**
Net Farm Income **(A)**	645.1	10.9	212.8	3.2
Wages of farmer & wife **(B)**	344.9	5.8	355.6	5.4
Management & Investment Income **(A-B)**	300.2	5.1	-142.8	2.2

This two year comparison has another function in addition to re-emphasising the vulnerability to physical factors of Culm Measure farming; it provides the background against which the results appertaining to the entire sample of 61 farms included in the 1954/55 financial survey must be set. While the use of these results for comparative purposes within the sample is in no way invalidated, it will be clear that they present a picture of farming in the Holsworthy area in its least favourable aspects.

4.4.2 Cropping and Stocking *Data Comparing the 61 Sample Farms With the Total, 240, Farm Population*

Cropping and Stocking data for the 61 sample farms are set out in Tables 55 and 56 thus again permitting comparison to be made with the cropping and stocking information set out earlier for the 240 farms over 25 acres in the seven parishes (Tables 33 and 34 refer).

Table 55
Cropping per 100 Acres in the Seven Survey Parishes.
The 61 Sample Farms and Total, 240, Farm Population
1953-54 Figures Compared

Cereals	**Per 100 acres**	
	61 farms	**240 farms** (Table 33, 1953 Column)
Wheat	0.7	0.6
Barley	0.4	0.6
Oars	4.9	5.8
Mixed corn (inc. rye)	4.8	5.8
Total cereals	**10.8**	**12.8**
Potatoes	0.4	0.6
Sugar beet	0.1	0.0
Mangolds	0.3	0.3
Fodder beet	0.1	0.1
Turnips and Swedes	0.3	0.4
Rape	0.5	1.0
Cabbage, kale, etc	1.1	0.7
Vegetables for human consumption	0.0	0.0
Other crops	0.2	0.0
Bare fallow	0.5	0.5
Total tillage	**14.3**	**16.4**
Grass orchards	0.5	0.3
Temporary grass - Cut	12.9	11.6
- Grazed	11.2	10.7
Permanent grass - Cut	7.6	11.5
- Grazed	34.7	31.8
Total crops and grass	81.2	82.3
Rough grazings	18.8	17.7
TOTAL ACREAGE	**100.0**	**100.0**

Table 56
Livestock Numbers per 100 Acres in the Seven Survey Parishes.
The 61 sample Farms and Total, 240, Farm Population Compared

Livestock	Per 100 acres	
	61 farms	**240 farms** (Table 33, 1953 Column)
Bulls	0.1	0.11
Cows	12.5	11.2
Heifers - in calf	1.6	1.9
Stores - 2 years and over	2.6	3.5
1 – 2 years	6.1	6.0
Under 1 year	7.4	7.2
Total cattle	**30.3**	29.9
Rams	0.5	0.52
Ewes	16.2	17.5
Other sheep	13.6	19.6
Total sheep	**30.3**	37.6
Boars	0.1	0.0
Sows	1.1	0.9
Other pigs	4.3	5.2
Total pigs	5.5	6.1
Hens and pullets	125.4	100.6
Chicks	2.4	79.2
Other poultry	8.1	9.9
Total poultry	**135.9**	189.7
Horses	**1.0**	1.3

[1] Includes bulls being reared.
[2] Includes ram lambs.
NB Data for the 240 farms relates to June 4th and so includes the major portion of the crop from the immediately preceding lambing season, unlike the data for the 61 sample farms, which relates in the main to January 1st 1954.

As might be expected of a sample which includes approximately one in four of the farms of 25 acres and over found in the seven parishes, the 61 farms closely reflect the cropping and stocking characteristics revealed earlier by the population analysis. One or two apparent points of difference in the stocking data are explainable by the differing dates at which the inventories of stock were taken. For instance the somewhat greater number of “other sheep” present on the 240 farms is undoubtedly due to the fact that data for these farms relates to June 4th. Therefore, the figure for "other sheep” will include the bulk of the current year's lamb crop; the figures for the 61 sample farms on the other hand relate to the 1st January 1954 and consequently are not inflated by the spring lamb crop. Similarly, the figures for the 240 farms will include spring-hatched chicks while those will not be present in the data relating to the 61 sample farms.

4.4.3 Livestock Enterprises on 61 Survey Farms: Practices, Breeds, and Finances

Cattle formed the most important class of livestock on the 61 farms studied, but, within the broad livestock classification, wide variation in the type of enterprise was found to exist. Only seven of the 61 farms were discovered not to sell milk; but the importance of milk in the overall pattern of output varied tremendously with individual farms. The

practice of milk selling ranged from farms selling little or no milk to farms which obtained over 90% of their total output from liquid milk production. Over a third of the farms, however, obtained between 30% and 50% of their output from milk. Many of the farms surveyed combined milk selling with the more traditional practice of store rearing, while a considerable amount of fattening was also encountered. Even among the 24 farms classified as Mainly Dairy no less than 16 were found to have sold either fat stock (other than fat cows) or store stock of at least yearling age, although as might be expected sales of cattle in this group consisted mainly of calves. In the Mixed Livestock with Dairying group, the sale of older stores and fat stock assumed greater importance while in the Mixed Livestock Group, the sale of calves was relatively unimportant and store stock was mainly sold at two years of age or older or in fat condition.

Altogether some 50 farms of the total sample of 61 engaged in the selling of older store and fat stock, and so, to this extent, the traditional enterprise persists. Only one farm of the 61, however, was found to sell cream and this aspect of the traditional system has been largely replaced by the sale of liquid milk.

The 61 sample farms clearly revealed the wide variety of breeds present on these North West Devon farms. Although the native Devon breed was the one most frequently encountered, only 10 herds consisted entirely of cattle of this breed. Thirteen herds were single breed herds representing five other recognised breeds or first crosses and nine farms possessed dual breed herds representing six different breed pairings. On 24 farms three or more breeds or crosses were found and in all six breeds of cattle were represented on these farms in such a variety of breed and cross-breed combination that precise classification proved impossible. Breed data for 59 of the 61 farms are set out in Table 57.

Table 57
Analysis of Herds by Breeds – 59 Farms*

Breed	Number of herds (%)
Single breed herds	
Ayrshire	4
Devon	10
Jersey	1
Shorthorn	2
Devon x Shorthorn	5
Friesian x Shorthorn	1
Dual breed herds	
Devon) Ayrshire)	3
Devon) Friesian)	3
Devon) Shorthorn)	2
Friesian) Ayrshire)	1
Friesian) Shorthorn)	1
Devon) Devon x Shorthorn)	2
Mixed herds+	24
	59

***** Two survey farms possessed grazing stock only – hence only 59 of the 61 farms can be included

+ Consisting of three or more breeds or crosses from the following breed classes: Ayrshire, Devon, Friesian, Guernsey, South Devon, Shorthorn

Most farmers relied upon either artificial insemination or the use of a neighbour's bull as only eight farms in the sample carried their own bull. Data provided by the AI centre at Torrington which serves the area being studied shows how the number of inseminations has steadily increased over the period from 1948 to 1955, and it seems reasonable to assume that in recent years the majority of cows in the survey area have been inseminated artificially.

Perhaps even more significant, however, than the sixfold increase in the total number of inseminations in the 8 year period from 1948-1955, are the changes which occurred in

the popularity of the various contributing breeds. For example, in 1948 nearly half of the total of inseminations used a Shorthorn bull. In 1955 the proportion had dwindled to just over 8%. In the latter the breed recording the largest number of inseminations was the native North Devon, having increased its share of total insemination from just over 13% in 1948 to nearly 50% in 1955.

Other changes are less spectacular but among them should be noted the decline in the popularity of the Ayrshire breed which occupied the second position of importance in 1948 with 18% of inseminations; by 1955 this proportion was very nearly halved and this breed occupied third place with just under 9%.

By and large, these changes would seem to indicate a renewed interest in the rearing aspect of Culm Measure farming and suggests, since milk production also increased for 1948 to 1953, the greater use of a beef bull on milk cows. This growing popularity for beef type bulls was almost entirely reserved for the North Devon breed. In 1955 the use of other beef breeds (represented almost exclusively by the Hereford and the Aberdeen Angus), although showing some increase over the period from 1948, still contributed only a negligible share to the total number of inseminations.

More recent data suggests that the trends outlined above have been maintained since 1955.

Analysis designed to show the importance of sheep on the sample farms revealed that 34 of the 61 farms possessed a sheep enterprise. On 30 of these a breeding flock was kept, while on four farms the wintering of purchased hoggs was practised. On five of the farms with a breeding flock the wintering of purchased hoggs formed an additional sheep enterprise.

In the case of 18 of the farms maintaining a breeding flock either whole or part of the lamb crop was sold as fat lambs, while nine farms sold lambs only in store condition.

In the main lambs were sold off in the spring or summer after lambing; on four farms, however, some lambs were wintered and sold as hoggs in the following spring.

Three farms bought in ewes and sold both ewes and lambs as couples.

Two farmers of the total sample of 61, although not possessing sheep of their own, took in sheep from a neighbour on a half-crease arrangement; two further farms ran sheep under half-crease agreements in addition to their own sheep enterprise.

Breeds of sheep found an the survey farms were far less varied than the breeds of cattle. The Devon Longwool was the most popular breed and comprised 22 of the 30 breeding flocks. Four Devon Closewool flocks were found and the rest consisted of one Dartmouth, one Cheviot, one Dorset Down and one Devon Longwool-Closewool cross flock. One of the flocks while being predominantly Longwool in character (and listed as such above) also included a few Kentish ewes. Hoggs for wintering were almost entirely of the Longwool breed although one farmer favoured Closewools.

Twenty seven of the farmers running breeding flocks possessed their own ram (or rams); the remaining three utilised a neighbour's ram. The most popular breed of ram was undoubtedly the Longwool, and in the majority of cases this ram was put to ewes of the same breed. A Devon Longwool ram was, however, also used on the Dartmoor Flock, the Longwool-Closewool cross flock and on the few Kentish ewes encountered. Other rams included in the survey were three Suffolk rams (all mated with Longwools), four Closewools (three mated with Closewool and one to Longwools), three Dorset

Down rams (one put to a Longwool flock, one to a Closewool, and one to the Cheviot flock) and one Dorset Horn ram which was used on a flock of Dorset Down ewes.

Pig enterprises appeared on the sample farms with slightly greater frequency than in the case of sheep, being found on 45 of the 61 survey farms. Of these 45 farms, 27 possessed farrowing sows while the remaining 18 engaged only in the fattening of purchased stores. Nine of the farrowing farms also fattened purchased stores. Seventeen of the farms engaged in breeding sold off either all or part of the progeny as fat pigs, while 10 sold only stores or weaners. Pigs disposed of fat were sold both as baconers and as porkers, without apparent bias towards either market.

The most popular breed of sow appeared to be the Wessex Saddleback, although Large Whites and Large Blacks were also found. The boar most commonly used was the Large White and the Large White-Wessex Saddleback cross also seemed to be favoured by those farms fattening purchased stores only. Pure Large Whites and Large White crossed with Large Black were, however, also included among the pigs being fattened on these farms.

Poultry were present on all except one farm, but in few cases did it represent a very intensive enterprise. Four farms (all surprisingly in the Mainly Dairy group) kept poultry for the purpose of supplying farmhouse requirements only. Twelve farms only were recorded as keeping their flocks on deep litter, and only in one instance were batteries found to be in use. The majority of farmers kept their flocks on free range and appeared to give little serious attention to egg production as a useful subsidiary enterprise.

The breeds of poultry most frequently found on the sample farms were Rhode Island-Leghorn crosses and Light Sussex-Leghorn crosses, although flocks of Rhode Island, Light Sussex and Rhode Island-Light Sussex crosses were also in evidence.

4.5 Analysis of Financial Results

Preliminary analysis of the financial results relating to the sample of 61 farms consists of broad analyses according to size of farm and type of farming.

For the purposes of the "size of farm" analysis, the 61 farms have been divided into four groups. Three of these four groups correspond exactly with the first three size groups employed in the analysis of the cropping and stocking data in Section 2 while the fourth group of the earlier analysis has been re-styled "150 acres and over". The use of a fifth group (300 acres and over) was found to be impracticable owing to the inclusion in the sample of 61 farms of one farm only over 300 acres in size.

It was also found when classifying the 61 farms by "type of farming" that there was an insufficient number of farms which obtained 50% or more of their total output from cattle to warrant the inclusion of a "mainly cattle" Group, as was done in the type of farming classification of Section 2. Classification has, therefore, been confined in the present analysis to three groups – Mainly Dairy, Mixed Livestock with Dairying Important, and Mixed Livestock – and those few farms which obtained over 50% of their output from cattle (there were four only) included in the last named of these. It should perhaps be stated that this procedure was thought to be justified in view of the fact that in no case did the output from cattle on these four farms exceed 70%, and in all cases several livestock enterprises were present.

The definition of the three type-of-farming groups used for the financial analysis remain the same as for their counterparts in Section 2. Briefly these may be restated as follows:-

(1) Mainly Dairy Farms. Farms which obtain 50% or more of their total output from liquid milk sales.
(2) Mixed Livestock Farms with Dairying Important. Mixed farms where the sales from liquid milk comprise at least 33% but less than 50% of total output.
(3) Mixed Livestock Farms. Mixed farms with liquid milk sales contributing less than 33% of total output.

The cropping and stocking patterns of each of these three type-of-farming groups may be observed in Tables 58 and 59 and comparison made with the data obtained for the corresponding three type-groups compiled from the sample of 240 farms used in Section 2 (Tables 4 and 5). Despite a number of minor differences, the pattern of cropping remains broadly similar to that revealed by the earlier analysis of the entire population of farms. The acreage under tillage is least in the case of the Mainly Dairying group, a tendency which is reflected in the acreage in cereals which comprise the main item of tillage. The latter in all three groups were in the main confined to the feed cereals and even in the Mixed Livestock group where they feature most prominently, wheat and barley account for less than 2% of total acreage. In all groups, well over 80% of the total acreage is under grass or rough grazings.

Table 58
Cropping per 100 acres: 61 farms
in Three Types of Farming Groups, 1954-1955

	Mainly Dairy	Mixed Livestock With Dairying	Mixed Livestock	All Farms
Number of farms	**24**	**17**	**20**	**61**
	Per 100 acres			
Wheat	0.1	0.4	1.5	0.7
Barley	-	0.9	0.3	0.4
Oars	5.0	4.2	5.4	4.9
Mixed corn (inc. rye)	3.6	6.4	4.6	4.8
Total cereals	**8.7**	**11.9**	**11.8**	**10.8**
Potatoes	0.4	0.4	0.4	0.4
Sugar beet	0.0	0.2	0.0	0.1
Mangolds	0.3	0.2	0.4	0.3
Fodder beet	-	0.1	-	0.1
Turnips and Swedes	0.2	0.1	0.4	0.3
Rape	0.5	0.5	0.5	0.5
Cabbage, kale, etc	1.4	1.4	0.6	1.1
Vegetables for human consumption	0.0	0.0	0.0	0.0
Other crops	0.1	0.5	0.0	0.2
Bare fallow	0.6	0.1	0.9	0.5
Total tillage	**12.2**	**15.4**	**15.0**	**14.3**
Grass orchards	0.2	0.3	0.9	0.5
Temporary grass - Cut	11.8	16.4	11.1	12.9
- Grazed	13.5	6.8	13.0	11.2
Permanent grass - Cut	8.6	8.3	6.0	7.6
- Grazed	37.2	29.0	37.4	34.7
Total crops and grass	**83.5**	76.2	83.4	81.2
Rough grazings	16.5	23.8	16.6	18.8
TOTAL ACREAGE	**100.0**	**100.0**	**100.0**	**100.0**

Table 59
Livestock Numbers per 100 acres: 61 Farms
in Three Types of Farming Groups, 1954-1955

	Mainly Dairy	Mixed Livestock With Dairying	Mixed Livestock	All Farms
Number of farms	**24**	**17**	**20**	**61**
Cattle	**Per 100 acres**			
Bulls	-	0.2	0.2	0.1
Cows	17.0	12.2	9.1	12.5
Heifers - in calf	1.8	1.9	1.3	1.6
Stores - 2 years & over	1.0	2.0	4.1	2.6
1 – 2 years	4.2	5.7	8.0	6.1
Under 1 year	6.3	8.9	7.0	7.4
Total cattle	**30.3**	**30.9**	**29.7**	**30.3**
Rams	0.3	0.4	0.6	0.5
Ewes	12.9	12.1	22.5	16.2
Other sheep	3.9	11.4	23.5	13.6
Total sheep	**17.1**	**23.9**	**46.6**	**30.3**
Boars	0.0	0.1	0.0	0.1
Sows	1.2	1.3	0.9	1.1
Other pigs	4.6	5.4	3.2	4.3
Total pigs	5.8	6.8	4.1	5.5
Hens and pullets	99.8	155.6	121.2	125.4
Chicks	0.0	0.0	0.0	0.0
Other poultry	11.9	14.6	6.1	10.5
Total poultry	**111.7**	**170.2**	**127.3**	**135.9**
Horses	**0.9**	**0.9**	**1.1**	**1.0**

Comparison of the three type groups compiled from the farms surveyed financially for 1954/55 *(ie Mainly Dairy, Mixed Livestock With Dairying, and Mixed Livestock)* with the population analysis of Section 2 is more difficult in the case of stocking data than in the case of cropping statistics for reasons set out earlier in this section. However, comparison between groups shows that although there is little variation with regard to the density with which the respective farms are stocked with cattle, noticeable differences can be observed in the case of other classes of stock. Sheep in the Mixed Livestock group, for example, appear to be twice as important as in the Mixed Livestock with Dairying group and almost three times as important as in the Mainly Dairy Group. Both pigs and poultry are of greater importance in the Mixed Livestock with Dairying group than in the other two groups.

Reference to Table 51 will show that the average farm income in 1954/55[25] for the 24 farms in the seven survey parishes was low, amounting only to £312, thus confirming the low income level for that year suggested by the two year analysis of the results of the identical sample of 19 farms (Table 54).

[25] *The original text does not specify the year to which the data in Table 51 refer. Table 50 refers to 1953-54. Tables 58 and 59 refer to 1954-55.*

When analysed *(but not, to judge from the data available in the original draft report, tabulated)* according to size of farm, only one group – the '150 acres and over' group – revealed an average net farm income which could be considered at all adequate (£602). The remaining three size groups all possessed average net farm income per farm of less than £300. Analysis on the basis of the type of farming pursued shows that the group with the highest average net farm income was the Mixed Livestock Group with a figure of £495.1 while the Mixed Livestock with Dairying group occupied second place with an average net farm income of £352.9. The Mainly Dairying Group somewhat surprisingly possessed the lowest average net farm income per farm with a figure of only £131.7.

The conclusions which may be drawn from this form of analysis are necessarily limited, but at least two would seem to suggest themselves:

- First, it seems that although the analysis according to size of farm revealed that the group with the largest average net farm income per farm comprised ... the largest farms ... diminishing size of farm would not appear to be a determining factor in the problem of low incomes in this area, at least under the system of farming now practised.

- Second, the type of farming analysis would seem to indicate that the introduction of milk production into this traditional store rearing area has not had the effect in increasing farm incomes that is sometimes attributed to it. That is not to say that the growing milk selling policy of any of the farms in the area has had no effect; incomes may well have been much lower had it not been for the possibility afforded them of milk production. It does mean, however, that many farmers may have benefitted only to the extent that they have been enabled to make low marginal incomes instead of being forced out of farming altogether.

In the analysis which follows an attempt has been made to determine some of the factors which are responsible for the low incomes which were found to exist in the case of many of the 61 farms surveyed in respect of the 1954/55 year. For the purposes of this analysis the division of the total sample of 61 farms into three types-of-farming groups undertaken as part of the preliminary analysis just described has been retained. Each of these three type-of-farming groups has, however, been further sub-divided into two groups, one comprising farms which are defined as supra-marginal and the other of farms considered to be sub-marginal, as far as net farm income is concerned. Marginal net farm income for the purposes of this sub-division was taken as being equivalent to the minimum wage for an adult male worker for the financial year concerned plus the investment in an additional 5 per cent on tenant's capital appropriate to each farm. The actual net farm incomes of each farm was measured against the critical level of income and allotted to the supra-marginal or sub-marginal group accordingly. The numbers of farms in each type group falling into these two income groups respectively are shown in Table 60. This table, incidentally, serves to re-emphasise the unexpectedly low level of dairying farms in this area.

Table 60
Number of Farms with Supra-Marginal and Sub-Marginal Incomes* Respectively for 61 Farms in Three Types of Farming Groups, 1954-55

	Mainly dairying		Mixed livestock with dairying		Mixed livestock	
	Number	**%**	**Number**	**%**	**Number**	**%**
Supra-marginal farms	5	20.8	6	35.3	11	55.0
Sub-marginal farms	19	79.2	11	64.7	9	45.0
TOTAL	**24**	**100.0**	**17**	**100.0**	**20**	**100.0**

***** Marginal Income is defined as "£312 (minimum agricultural wage) + 6% of tenant's capital invested" in the farm concerned.

Gross output, costs and income in each of these six groups are summarized in Table 61. Each of these facets of the financial structure of the farm business will be examined in detail at a later stage for supra-marginal and sub-marginal income farms respectively in each of the three type of farming groups. For the present it is intended to make a brief skeletal comparison between these three type groups. In all three groups it will be seen that gross output per farm on the sub-marginal farms falls well below that of the supra-marginal farms. In both the Mixed Livestock with Dairying Group and the Mixed Livestock Group, some fall in gross output per farm compared with the better farms can be accounted for by smaller acreage of the sub-marginal farms, although the figure for gross output measured on a per acre basis indicates that the less intensive pattern of production employed by the sub-marginal farms was also in part responsible. On the Mainly Dairy farms, gross output was lower in the case of the sub-marginal farms despite the fact that the acreage of the latter averaged 80.4 compared with 55.3 in the case of the better farms. As a result the gross output per acre of the sub-marginal group is markedly below those of the better farms. Again, while costs in the Mixed Livestock with Dairying and the Mixed Livestock Groups are lower among the sub-marginal farms as one might expect with lower output, in the sub-marginal farm of the Mainly Dairy Group they remain at almost exactly the same level despite a substantially similar output.

Stocking and cropping data for the supra-marginal and sub-marginal income farms respectively in each of the three type groups are displayed in Tables 62 and 63. These data can subsequently be related to the detailed financial analysis which follows.

Table 61
Gross Output, Costs and Income for 61 Farms in Three Types of Farming Groups, Further Sub-Divided Into Supra-Marginal and Sub-Marginal Groups, 1954-55.

	Mainly dairying				Mixed livestock with dairying				Mixed livestock			
	Supra-marginal		Sub-marginal		Supra-marginal		Sub-marginal		Supra-marginal		Sub-marginal	
Number of farms	**5**		**19**		**6**		**11**		**11**		**9**	
Average size of farms (acres)	**55.3**		**80.4**		**139.8**		**89.7**		**135.0**		**78.9**	
	Per farm £	**Per acre £**	**Per farm £**	**Per acre £**	**Per farm £**	**Per acre £**	**Per farm £**	**Per acre £**	**Per farm £**	**Per acre £**	**Per farm £**	**Per acre £**
Gross output	1,938.0	35.0	1,162.0	14.4	3,311.0	23.7	1,457.0	16.2	2,598.0	19.2	1,073.5	13.6
Costs*	1,190.4	21.5	1,192.3	14.8	2,437.8	17.5	1,379.0	15.5	1,765.7	13.1	990.7	12.6
Net Farm Income	747.6	13.5	-30.3	-0.4	873.1	6.2	69.0	0.7	823.3	6.1	82.8	1.0
Farmer and wife	377.0	6.8	322.3	4.0	371.8	2.6	388.2	4.3	360.5	2.6	277.5	3.5
Management and Investment income	370.6	6.7	-352.6	-4.4	501.3	3.6	-319.0	-3.6	471.8	3.5	194.6	-2.5

*Excluding charge for labour of farmer and wife.

Table 62
Livestock Numbers per 100 Acres Relating to Supra-Marginal and Sub-Marginal Income Farms in Three Types of Farming Groups, 1954-55

	Mainly dairying		Mixed livestock with dairying		Mixed livestock	
	Supra-marginal	Sub-marginal	Supra-marginal	Sub-marginal	Supra-marginal	Sub-marginal
Number of farms	**5**	**19**	**6**	**11**	**11**	**9**
	Per 100 acres					
Bulls	-	-	0.4	0.1	0.2	-
Cows	23.1	15.9	12.8	11.7	10.1	6.9
Heifers - in calf	2.2	1.7	2.0	1.7	1.4	1.2
Stores - 2 years and over	2.9	0.7	1.3	2.5	5.0	2.2
1 – 2 years	1.8	4.6	7.8	3.9	9.2	5.5
Under 1 year	5.8	6.4	10.1	8.0	8.3	4.4
Total cattle	**35.8**	**29.3**	**34.4**	**27.9**	**34.2**	**20.2**
Rams	0.7	0.3	0.2	0.5	0.8	0.4
Ewes	31.9	9.4	13.2	11.1	30.0	6.8
Other sheep	0.0	4.6	15.8	7.7	24.4	21.5
Total sheep	**32.6**	**14.3**	**29.2**	**19.3**	**55.2**	**28.7**
Boars	0.0	0.0	0.1	0.1	0.1	-
Sows	3.6	0.7	1.9	0.7	1.0	0.5
Other pigs	12.3	3.2	7.3	3.8	3.7	2.3
Total pigs	**15.9**	**3.9**	**9.3**	**4.6**	**4.8**	**2.8**
Hens and pullets	257.6	75.9	155.0	156.2	111.0	142.5
Ducks	-	-	-	-	-	-
Other poultry	4.3	13.3	17.6	12.1	5.5	7.3
Total poultry	**261.9**	**89.2**	**172.6**	**168.3**	**116.5**	**149.8**
Horses	**0.7**	**1.0**	**1.2**	**8.1**	**1.2**	**8.5**

Table 63
Cropping per 100 Acres Relating to Supra-Marginal and Sub-Marginal Income Farms in Three Types of Farming Groups, 1954-55

	Mainly dairying		Mixed livestock with dairying		Mixed livestock	
	Supra-marginal	Sub-marginal	Supra-marginal	Sub-marginal	Supra-marginal	Sub-marginal
Number of farms	**5**	**19**	**6**	**11**	**11**	**9**
	Per 100 acres					
Wheat	-	0.1	0.0	0.8	2.2	-
Barley	-	-	1.9	-	-	1.1
Oars	3.4	5.3	4.9	3.5	6.3	3.6
Mixed corn (inc. rye)	7.6	2.9	6.1	6.7	5.1	3.5
Total cereals (A)	**11.0**	**8.3**	**12.9**	**11.0**	**13.6**	**8.2**
Potatoes	0.1	0.5	0.4	0.5	0.5	0.1
Sugar beet	-	-	0.4	-	-	-
Mangolds	0.4	0.2	0.1	0.2	0.4	0.1
Fodder beet	0.2	-	0.1	0.2	-	-
Turnips and Swedes	-	0.3	0.1	0.1	0.2	0.9
Rape	1.0	0.4	0.8	0.1	0.5	0.6
Cabbage, kale, etc	1.7	1.3	1.6	1.1	0.6	0.5
Vegetables for human consumption	-	-	-	-	-	-
Other crops	-	0.1	.3	0.8	-	-
Bare fallow	-	0.7	-	0.2	1.2	0.4
Total tillage (B)	**14.4**	**11.8**	**16.7**	**14.2**	**17.0**	**10.8**
Grass orchards	0.2	0.2	0.5	-	0.4	1.7
Temporary grass - Cut	15.7	11.0	16.9	16.0	13.4	6.3
- Grazed	12.1	13.8	11.5	2.9	16.5	5.5
Permanent grass - Cut	8.5	8.8	6.9	9.4	5.1	7.9
- Grazed	42.2	36.3	24.5	33.0	33.1	46.6
Total crops and grass (A+B)	**93.1**	**81.9**	**77.0**	**75.5**	**85.5**	**78.8**
Plus Rough grazings	6.9	18.1	23.0	24.5	14.5	21.2
TOTAL ACREAGE	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

4.6 Factors Affecting Incomes

4.6.1 Introduction

NB As will become apparent this section appears to be incomplete in terms of tabulated data relating, for example, to some costs and "per acre" figures. Where appropriate explanatory footnotes are provided; otherwise the figures are left, as in the original, as they, and any conclusions or inferences drawn speak largely for themselves.

A more detailed analysis of financial data will now be made, and a number of efficiency measures calculated for each of the three type groups in turn in an attempt to determine some of those factors which are associated with sub-marginality of income.

4.6.2 Mainly Dairy Farms

Detailed financial data and also some efficiency measures for the supra-marginal and sub-marginal income farms in the Mainly Dairy group are set out in Table 61. Average net farm income in these two groups differs markedly amounting to a positive income of approximately £748 in the case of the supra-marginal farms, and to a loss of around £30 in that of the sub-marginal farms.

In terms of acreage the supra-marginal income farms are smaller than the poorer group of farms, the former group averaging 55.3 acres compared with 80.4 acres of the latter. When other measures of farm size are used, however, the position is reversed. In terms of stocking, man work unit requirement and of total tenant's capital employed, the sub-marginal farms comprise smaller farm businesses than the better farms.

The figures for land use in Table 63 show that somewhat greater areas of land are tilled and cut to hay and silage in the supra-marginal group. *Similarly,* cereals were slightly more important in the supra-marginal group (11.0 acres per 100 acres of crops and grass compared with 8.3 in the sub-marginal group). The acreage in green fodder crops was also larger. A smaller acreage of both temporary grass for conservation and permanent grass for grazing is visible in the group of poorer farms where the area classified as rough grazing is nearly three times as great as in the better farm group.

The data in Table 62 relating to livestock numbers in the two groups shows that in all classes of livestock the density of stocking was substantially lower in the case of the sub-marginal group.

Reference has already been made to the striking difference in the gross output of the two groups. *Table 61 illustrates that g*ross output in the supra-marginal group averages £1,938 per farm compared with £1,162 in the sub-marginal group (Table 61), and this despite an average acreage in the former of 55.3 compared with 80.4 in the latter. Gross output per acre in the better farm group is, therefore, over twice as great as in the poorer. This higher gross output per acre, moreover, was achieved with a level of costs which, on a comparable per acre basis, was only 58% above the level which obtained on the poorer farms.

An examination of the main item of gross output shows in the case of the dominant enterprise, namely dairying, gross output per acre in the supra-marginal group was over twice as great as on the poorer farms (*£35.0* per acre compared with *£14.4* per

acre[26]). Also greater in the case of the better farms were the gross outputs per acre of all subsidiary enterprises, and in particular those of sheep and poultry. Gross output per acre from sheep in the supra-marginal group amounted on average to £3.2 per acre compared with only £0.8 on the sub-marginal farms, while respective figures for the gross output from poultry and eggs were £5.1 and £1.9[27].

Although gross output per farm on the better farms is roughly half as great again as gross output per farm on the sub-marginal farms, costs per farm on the latter remain at the same level as in the case of the more successful farms. Expressed on a per acre basis on these better farms, a gross output of well over twice that of their less successful counterparts is obtained with a level of costs only half as great.

Comparison of the two cost structures similarly reveals important differences in some of their main constituent items. Expenditure on feeding stuffs, for instance, amounts to £9.1 per acre among the better farms compared with £5.7 in the case of the less fortunate ones. However, to anticipate later observations on feeding practices, it may be said that in view of the higher stocking rate practised by the better farms, it is doubtful whether this represents as far as individual cows are concerned a greater use of purchased concentrates, a contention which is borne out by the fact that the amount spent on feeding stuffs per animal unit is less in the case of the better farms than the poorer ones. Labour costs per acre are higher on the supra-marginal farms but this is almost wholly explained by the smaller average acreage of these farms. In fact, labour costs per farm in the two groups are closely similar as might be expected of farms where the bulk of the labour is supplied by the farmer and his wife.

The other main items of cost in both groups are Power and Transport costs. On a per farm basis, these are similar in both groups although quite obviously on a per acre basis, the sub-marginal group, comprising the rather larger farms, shows a lower figure.

An analysis of total costs into those which may be deemed fixed and those which are variable in nature, emphasises the importance of achieving as high an output as possible consistent with the economic use of resources. In both the supra-marginal and the sub-marginal groups fixed costs account for over 50% of total costs. An adequate level of output is therefore essential to spread the incidence of fixed costs and thus ensure an adequate margin over costs.

The close correlation which has been found to exist generally between net farm income and gross output has resulted in the latter's use as one of a number of important measures of farming efficiency. The remainder of this section is devoted to a discussion of some of the other measures as they apply to the supra-marginal and sub-marginal income farms now being compared. These other measures *were to have been illustrated in a table* following the main body of financial data*, but the information was missing from the author's draft*. It is necessary to state here the dangers which exist in examining any one of these various measures in isolation; such a procedure might easily lead to wrong conclusions being formed. They are, by their design, intended to be complementary, and their interpretation should, for that reason, only be undertaken within the context of the farm business as a whole.

Farms vary considerably in their dependence upon purchased feeding stuffs and seeds and to remove this variable element and facilitate comparison of the productivity of the

[26] *In the original draft the figures given are £22.4 and £10.1 respectively. It is not clear where these came from, and therefore the figures have been changed to those given in Table 61.*
[27] *These figure, and those relating to expenditure on feeding stuffs and power and transport cost in subsequent paragraphs, appear to be statements of fact - there are no tabulated data similar, for example, to those given in Table 54 for 19 farms.*

actual farm area, the measure of net output has been devised.[28] This is calculated simply by restricting gross output by the amount of feeding stuffs and seeds purchased. Comparison of net output per acre of the supra-marginal farms of the Mainly Dairy Group (£25.5) with that of the sub-marginal group (£8.4)[29] shows even more clearly the deficiencies of the latter group in achieving an adequate level of output.

Both gross and net output are directly influenced by two important factors - the farm system, that is the nature of the combination of enterprises employed, and the yield obtained from those enterprises. Thus it is that output may be low because the system which the farmer has adopted is a poor one; perhaps too few acres are in cash crops, or perhaps the farm is under-stocked in respect of overall livestock numbers and for the more productive types of livestock. On the other hand, output may be low because yields are low - either as a result of poor physical yields or a failure to benefit fully from available quality premiums. In some instances low output may result from shortcomings in both factors.

A further table was to have contained a number of measures whose purpose *was* to assess the adequacy of both farm system and yields. Quite obviously such measures must be chosen with an eye to actual local conditions. No useful purpose for instance would be served in the case of the farms now being studied if the acreage under cash crops were made the basis of any measure, as the successful cultivation of the main cash crops is virtually precluded in the area where these farms are situated by physical conditions.

Since the farms under discussion, however, are of a predominantly livestock character, the density of stocking will obviously be an important consideration in any assessment of the farming system. A measure of this density *was to have been displayed in a table, but the data was not included in the draft report from which this paper has been compiled*. The calculation of an overall measure of stocking density naturally requires the reduction of the numbers of the various classes of stock to a common basis and for this purpose the generally widely used "animal-unit" (based on relative food requirements) is used. The measure is then expressed in terms of farm acres per animal unit. The difference between the two groups of farms in respect of this measure is striking: farm acres per animal unit in the sub-marginal farms amounted to 3.2 compared with a figure of only 1.8 for the supra-marginal farms.

Respective yields in the two groups may be gauged from both the physical and the monetary measures *that were to have been included in a table*. Since by definition dairying forms the major enterprise in the two groups of farms presently being studied, the yield per cow in gallons of milk immediately suggests itself as a useful measure. Analysis of the data shows that although yield per cow in the supra-marginal group was low at 640 gallons compared with national standards, it is nevertheless considerably in excess of the yield of 500 gallons per cow achieved by the sub-marginal group. This difference in physical yields is reflected in the monetary measures; both milk output per acre and milk output per cow are substantially higher on the better group of farms. Livestock output per animal unit which, as a measure embraces all classes of farm livestock is also some one third greater in the supra-marginal farm group.

In any comparison between two groups of farms, a higher rate of costs per acre does not of itself signify inefficiency. The important thing is that these higher costs should be justified in terms of output. That this is so in the case of the supra-marginal group is shown by the fact that for every £100 of total costs a gross output figure of £247 was

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[28] Full definitions of the terms used were to have been given in an appendix to this report.
[29] No tabular source – assumed to be statement of facts.

obtained compared with a figure of £14.6 in the sub-marginal group. Gross output per £100 of fixed costs in the two groups of farm exhibits a similar disparity (as one would expect in view of the closely similar proportion of total costs represented by fixed cost, in the two groups) and serves to re-emphasise the importance of a high output level to spread the incidence of fixed costs.

The two main items of costs are feeding stuffs and labour. It is obvious therefore, that the relative efficiency with which these two resources are utilised will have an important bearing on the overall cost position of the farm. A guide to the efficiency with which feeding stuffs are used may be derived from the number of feed acres[30] available on average per unit of livestock, as farms which are inefficient in the use of this input will tend to show a higher number of feed acres per animal unit than those which are more efficient. On this basis, therefore, the supra-marginal group of farms would seem to be more efficient In the use of feeding stuffs since feed acres per animal unit averages for this group of farms 2.5 compared with 3.9 in the sub-marginal group. Obviously it is essential for this measure to be interpreted in conjunction with the appropriate measures of output, since both on individual farms and conceivably a group of farms may disclose a low number of feed acres per animal unit and yet still be efficient as a result of feeding at too low a level. In the latter case, however, output would inevitably suffer, and as a check to the veracity of feed acre per animal unit as a measure of feeding efficiency, it is necessary to confirm that output has reached a satisfactory level. In this study the measure of total livestock output per total feed acre has been used and a figure of £26.1 for the supra-marginal group compared with £12.5 for the sub-marginal group would seem to substantiate the earlier conclusion regarding feeding efficiency.

A number of other measures relating to the feeding policies of these two groups of farms *were to have been set out in a table*. These reveal through successive stages that not only do the better farms appear to be more efficient in the overall aspect of their feeding policy but that they are more efficient in the use of home grown feeding stuffs and in particular in the production and utilisation of grass which in both groups forms the main supply of both summer and winter food.

Labour comprises the other main cost item, and the last efficiency measures are devoted to this resource. In terms of man work units per man equivalent there is not a great deal of difference between the two groups. Analysis reveals that man work units per man equivalent average 327 on the better farms compared with a figure of 311 on the poorer farms. These figures suggest that under-employment is not a serious problem on the poorer farms. At the same time, however, it should be borne in mind that, although the sub-marginal group of farms shows a slightly lower number of man work units per man equivalent, the full downward effect which the lower density of stocking on these farms would exert on this measure is partly masked by the labour requirements of their additional (under-stocked) acreage. The less productive use of labour which occurs on the poorer farms is clearly demonstrated by the second labour efficiency measure, namely, net output per £100 labour. In the case of the group of better farms this measures £250 against £125 for the poorer group of farms.

4.6.3 Mixed Livestock Farms with Dairying Important

Comparison is now made between the supra-marginal income farms and the sub-marginal income farms of the Mixed Livestock with Dairying group of farms in respect of detailed financial results and some efficiency measures.

[30] *The author's intention was to expand on this in an appendix.*

Average net farm income of the six supra-marginal income farms was again vastly greater than the average for the sub-marginal farms; the former averaged £873 per farm compared with £69 for the latter (Table 61).

In land area the poorer farms were rather smaller than the better farms, averaging 89.8 acres *(sic)* compared with 139.8 acres. In terms of total stock units, man work units and tenant's capital, the smaller size of the farm businesses contained in the sub-marginal income group is even more pronounced. The average number of animal units on the latter group for example is barely half the average on the better farms.

The ... more detailed cropping data contained in Table 63 ... shows a smaller acreage of temporary grass being grazed in the poorer group of farms and a corresponding increase in the grazing land in permanent grass. It will be noticed that a similar distinction can be made between the supra-marginal and the sub-marginal income groups of the Mixed Livestock group of farms. Another difference which is perhaps significant is the fact that the acreage under green-fodder crops (rape, cabbages and kale etc), although small, is twice as great in the better group of farms as in the poorer. Rough grazings are of equal prominence in the two groups.

Stock numbers per 100 acres are lower in the poorer group of farms in all the main classes of livestock except one. This one exception is poultry numbers *(hens and pullets)* which are roughly similar in both the supra-marginal and the sub-marginal groups. The main difference in the case of cattle numbers would appear to lie in the lower number of store stock carried by the poorer farms, while the numbers of sheep other than those comprising the breeding flock is also lower by half in this group. The stocking of the sub-marginal farms with both sows and store pigs is much less dense than in the case of the better farms.

Comparison of gross income on the supra- and sub-marginal farms of this second type of farming group reveals a difference of a similar order to that found in the case of the two comparable sub-groups of the Mainly Dairy Group of farms. Gross output per farm in the super-marginal group averaged £3,311, over twice that of the sub-marginal group (Table 61). On a per acre basis the gross output realised was £23.7 and £16.2 respectively. Gross output per acre in all enterprises was less in the case of the sub-marginal income group. Despite this, however, an analysis of costs shows only a small decrease in the per acre expenditure on the main cost items of feeding stuffs, power and transport and labour with the result that total costs per acre are only slightly smaller for the sub-marginal income farms (£15.5 in the latter group compared with £17.5 on the better farms).

In the rest of this section, attention is drawn to some of the more important differences which occur in the various efficiency measures relating to the two income groups of the Mixed Livestock with Dairying Group. These differences will be described without embellishment as descriptions of various efficiency measures employed, having already been included in the section dealing with the Mainly Dairy Farms.

Net output per acre among the better farms averaged £15.8 compared with £9.6 in the poorer group. Stocking was less dense in the latter group where acres per animal unit amounted to 3.1 against 2.5 on the better farms. Although physical yield per cow did not differ greatly between the two groups, milk output per cow and per acre was substantially lower in the sub-marginal group, suggesting that a greater proportion of the total physical yield was fed to livestock. The figures for milk and cattle output combined of £116.4 and £78.9 for the supra-marginal and sub-marginal groups respectively further suggest, however, that this increased supply of milk for livestock

was not transmitted into increased cattle output on these farms. The figures of £59.4 and £52.7 for the overall measure of livestock output per animal unit on the better farms and poorer farms respectively hint that output per unit of subsidiary enterprise livestock was perhaps better on the poorer farms, although low density of stocking in these enterprises still causes output per acre to be inferior to that of the subsidiary enterprises of the better farms.

Output per £100 of total costs amounted to £118 in the better farms group, but only £82 in the poorer farms group.

SECTION 5 SUMMARY AND *INITIAL* CONCLUSIONS

This report has been concerned with farming In the North Culm Measures in the vicinity of the town of Holsworthy. Descriptions in early sections have shown it to consist, in common with other areas of the Culm Measures, of heavy poorly draining clay soils. The association of these typical Culm soil conditions with a particularly heavy rainfall and an almost complete absence of slope has resulted in conditions which made it possible to distinguish this area from other areas of the Culm region which, by virtue of a lesser rainfall or the presence of more pronounced slopes providing adequate run-off, are more easily worked. Overlying these cold wet soils, therefore, the Holsworthy district of North West Devon presents a landscape of many rush-invaded pastures, while all grazing land is susceptible to poaching by stock particularly in winter. Despite the moderate climate, therefore, in-wintering of livestock is necessary with its consequent space problems.

There are no industries offering employment on any scale in the area and no large towns. Communications, particularly roads, are fair for an area so far removed from the large centres of the country's population but on the whole social amenities are poorly developed as one might expect in the case of a widely scattered rural community.

Some forestry is carried on in the area as conditions in general favour tree growth (although some difficulties are experienced in the early establishment period). But any future development of forestry, it seems safe to say, will have to be undertaken as a complement to agriculture and not as an alternative.

The twin factors of physical conditions and location which have obviously been dominating influences throughout the whole of the agricultural history of the region were clearly responsible for its becoming, by the early decades of the twentieth century, one of the traditional store rearing areas of Britain. With the changed economic climate and technical advance of the interwar period there has occurred in recent decades a gradual (although still incomplete) breakdown of the traditional pattern of farming based on the rearing of store stock and supplemented by the manufacture of farmhouse butter, and a steady extension throughout the farms of the area of the practice of liquid milk production.

For the purposes of statistical examination seven parishes occupying a central position within the main problem area were selected for special study and the June 4th Returns for 240 holdings of 25 acres and over within these seven parishes subsequently analysed.

The farms of the seven parishes were found to be small in size averaging 93.3 acres. Cropping data revealed the farming economy to be firmly based on grass, only slightly over 16% of the farmed area of these 240 farms being tilled. The remainder of the farmed acreage was either classified as temporary or permanent grassland or rough grazings (land classified as rough grazings exceeded in fact the acreage tilled). The acreage under the main cash cereals, wheat and barley, were found to be insignificant, and the small acreage of cereals grown consisted in the main of either oats or mixed corn.

When details of livestock numbers were reduced to an animal unit basis, it was found that cattle comprised by far the most important class of livestock present on these farms, providing some two thirds of the total livestock unit count. Sheep were second in importance with 16% of total livestock units, while pigs and poultry between them only accounted for 12%.

In subsequent statistical analysis cropping and stocking data for the seven study parishes was compared with similar data for 510 farms of 25 acres and over drawn from 16 parishes surrounding the central block of seven parishes selected for detailed study, and occupying a roughly peripheral situation in relation to the main problem area, and also with data for the County of Devon. This comparison tended to confirm the physical evidence of improving conditions as one moves outward in any direction away from the Holsworthy district. The acreage of tillage was found to be greater in these surrounding parishes and was also found to contain a proportionately greater acreage of wheat and barley. The density of stocking in the case of grazing livestock (cattle and sheep) was greater in the surrounding parishes suggesting improving land condition, while in particular, the greater numbers of sheep in the peripheral parishes provide a strong indication of drier conditions.

The classification of the farms in the seven central parishes by size revealed that over two thirds of the farms were under 100 acres, and nearly 30% under 50 acres. Of the 240 farms only 39 (or just over 16%) were 150 acres or over. Nearly 40% of the farms were found to be operated solely by the farmer and his wife; only 7.5% of the farms were found to employ more than one adult male.

As a result of further classification according to the type of farming pursued, 36.2% of the 240 farms were defined as Mainly Dairy farms, 27.9% as Mixed Livestock Farms with Dairying Important, 24.6% as Mixed Livestock farms and 11.3 as Mainly Cattle farms.

By aggregating the estimated output of each individual farm (used as a basis for the type of farming classification) an assessment became possible of the composition of the regional output of the seven survey parishes. The figures arrived at by this method suggested that something like 39% of the total output of the seven parishes consisted of liquid milk, which thereby became the most important single item of production. Second in importance is cattle production which comprised nearly 26%, and third poultry with nearly 15%. Pigs and sheep were roughly equal in importance both contributing approximately 10% of total output.

In view of the position of eminence which liquid milk production had thus achieved by 1953 in this traditional store rearing area, closer examination of this aspect of production was then made. Further analysis revealed that of the total of 240 farms included in the sample no fewer than 207 were contractual suppliers to the Milk Marketing Board. An analysis of these 207 farms according the percentage of total output contributed by milk production revealed that the modal group was comprised of farms supplying between 40% and 50% of their total output in the form of liquid milk. However, the range was wide, with 22 farms (10.6%) obtaining 70% or more of their gross output from milk.

Milk sales per cow off the farm are low and average only just over 450 gallons for the 240 farms. Milk sales per cow in the Mainly Dairy Group amounted to 598 gallons while the corresponding figure for the Mainly Cattle group fell to 73 gallons. The Mixed Livestock with Dairying, and Mixed Livestock groups supplied 482 gallons and 312 gallons per cow respectively.

These figures, since they are sales only and take no account of milk fed to livestock or consumed in the farmhouse, provides a useful indication of yield only in the case of the Mainly Dairy group, where the milk taken by young stock is least. Nevertheless it would seem that when due allowance is made for milk which is fed to livestock, this difference between the probable milk yields of those farms which still engage to a considerable

extent in the rearing of store cattle, and those of farms which have moved farther toward milk production is not as great as might be supposed.

An analysis of 191 farms providing details of milk sales on a monthly basis showed that the practice of summer dairying, though now based on liquid milk instead of farmhouse butter, has been retained.

A study of data relating to the machinery present on farms in the seven parishes showed that approximately one quarter of the farms were without a tractor. Despite the increase in importance of dairying in the area only 42 of 202 farms included in the sample studies possessed a milking machine.

Data collected and made available by the Agricultural Land Service indicates that the condition of farm buildings in the survey parishes was generally poor. Even by the modest standards which were employed for the assessment only 30% of the 191 farms classified possessed buildings which could be graded as “good”. The position in the case of farmhouses was slightly better and something like a half were classified as "good." Water supply to both farmhouse and farm buildings and fields were in most cases inadequate; only 16 out of 197 farmhouses surveyed were found to have piped water laid on and only 11 out of a similar number of sets of farm buildings were supplied in this way. Over 80% of the farms surveyed were found to be without either mains, or home generated electricity.

Farm roads providing immediate access to the farm are in many ways long winding, and entirely unsurfaced.

It is true that some improvement may have taken place in all or some of these aspects of the fixed equipment of farms in the survey area since the time the various surveys were made, especially in view of the recent inducements offered by the Farm Improvement Scheme, but even so it is unlikely that more than a small impression can have been made as yet upon what constitutes a very serious problem for an area so committed to milk production.

Cropping and stocking for the 6 year period from 1948 to 1953 reveals that during the period cereal acreage had decreased considerably as did the acreage of potatoes, representing in all probability a return to more normal conditions, after the ploughing up policy of the war years 1939-45. This trend was accompanied in an increase in the acreage under grass, in particular permanent grass.

Nearly all classes of stock exhibited some increase in numbers in the period from 1948-53 but the magnitude of such changes differed widely. Numbers of cattle showed only a slight increase while the numbers of pigs increased threefold. Sheep numbers rose by 75% but poultry were somewhat of an exception inasmuch as numbers, having shown a slight increase between 1948 and 1950, had by 1953 again returned to the 1948 level. Despite these changes, however, it remains true that the overall pattern was little disturbed in the period under review, and cattle continued to dominate the livestock population of the farms of the seven parishes.

Evidence of the continuing importance of cattle based simply on the relative importance of this class of livestock in the period 1948-53 conceals important changes in the main cattle products. Milk production, for example, expanded by 25% in the six year period, the main increase stemming from the farms of 100 acres and over. Throughout the period, however, more than half the total milk produced by the sample farms came from those of less than 100 acres.

Data relating to the changes in the composition of the labour force of the farms of the seven parishes from 1948-53 suggest a declining regular labour force, accompanied by an increase in the use of casual labour. Measurement of these changes in terms of man equivalents indicate, however, that the net effect was a decline in available labour. Comparison with data for the County of Devon showed that the decline in size of the labour force was relatively greater in the seven parishes than in the County at large.

Financial data for a group of Farm Management Survey farms situated in the general North West Devon and North East Cornwall region did not offer any evidence of less favourable incomes when compared with groups of farms from other broad regions of Devon, the most likely explanation of this being that the group of farms chosen to represent the Culm Measures of North West Devon were scattered widely over the area and were found in what were in many cases the better type of Culmland. The exercise did offer, however, evidence of a greater degree of year to year fluctuation in incomes, seemingly as a result of the vulnerability of the Culm region to climatic changes, and it seems reasonable to suppose that the hazards of production would be intensified in those areas of really poor physical conditions represented by the seven survey parishes.

All subsequent financial comparisons were based on the findings of two specific enquiries made in the main problem area and which in respect of the parishes surveyed, followed the pattern of the earlier analysis of physical data. The first of these two enquiries (relating to the 1953 crop year) compared incomes of 24 farms in the seven survey parishes with incomes on 40 farms in the sixteen peripheral parishes. The results showed that on average incomes were higher in the latter amounting to £1,123 per farm compared with £660 per farm in the seven parishes. These higher incomes were attributable to the higher productivity per acre (£21.4 compared with £20.8), lower costs per acre (£13.2 compared with £13.9), and the larger average size of the peripheral farms (136.9 acres compared with 95.6 acres).

Livestock and livestock products account for over 90% of gross output in each area. Dairying is the largest single enterprise in both cases. Milk production is of slightly greater relative importance in the seven survey parishes while sheep are of greater relative importance in the peripheral parishes. In both groups of farms poultry and pigs together occupy a similar position of importance accounting for 25% of gross output between them.

The structure of costs in the two parish groupings was found to be similar with labour and feeding stuffs together comprising over 60% of total costs. Expenditure per acre on feeding stuffs was found to be slightly greater in the case of the inner group of parishes (£4.4 compared with £3.7) possibly as a result of the incidence of milk production in the area.

The amount of tenant‘s capital employed per acre was roughly the same in each group of parishes (£23.0 and £23.3 per acre respectively): over half the tenant's capital in both areas is accounted for by livestock.

The second of the special financial investigations undertaken in respect of the 1954 crop year confined its attention to the seven parishes of the main study area, and records for 61 farms were obtained. Nineteen of the farms visited had also been visited in connection with the first financial investigation and these provided a useful two year comparison. The latter showed that average incomes in the second of the two years for the identical sample of farms was one-third that of the first year. Since the second year was one of extremely poor harvesting conditions and the first one generally regarded as being a good year, the data of this two year comparison lends strong

support to the earlier contention that the Holsworthy district was particularly vulnerable to climatic variation.

An analysis of the entire sample of 61 farms, grouped into three types of farming group, showed that the group possessing the lowest average income was the Mainly Dairy group, while the highest average income was experienced by the Mixed Livestock group. Analysis by size of farm revealed that only the group of farms of 150 acres and over realised anything like an adequate average income. Each of the groupings of farms below 150 acres in size exhibited average incomes of less than £300.

Sub-division of each of the three type of farming groups into those farms considered to have made supra-marginal incomes and those considered to have made sub-marginal incomes revealed that no group was without farms capable of making quite adequate incomes. Supra-marginal farms in the Mainly Dairy group had an average income of £748, in the Mixed Livestock with Dairy an average income of £873 and in the Mixed Livestock an average income of £832. Remaining analysis was devoted, therefore, to an examination of differences between the supra- and sub-marginal farms in each type group in respect of the main factors affecting income in an effort to determine those factors which appear to be associated with sub-marginal incomes in this area.

So much for the main results of the enquiry.

What conclusions can be reached on the basis of these results? First and foremost, the survey would seem to confirm the frequently made assertion that in North West Devon there exists an area which in respect of the physical conditions encountered and the level of financial returns which it offers to many farmers, may be distinguished from other farming areas of South West England. A high proportion of small farms combined with poor quality land and buildings has resulted in farm incomes which, in many cases are little more than the yearly earnings of an agricultural worker. Indeed as the financial results for 1954 showed, in a bad year, many farms may fail to achieve even this level.

Yet even to the most casual observer it is obvious that there are some farms which are more successful than their neighbours and, financially less stringently placed.

Where then does the main problem lie? It is with this question that our second main conclusion is concerned.

The analysis of the 1954 financial results relating to the three type-of-farming groups according to the level of income achieved (supra-marginal or sub-marginal) revealed that farms earning sub-marginal incomes were not confined to any single type-of-farming group. Yet closer examination of the data suggests that the problems posed by the presence of sub-marginal farms in each type of farming are not entirely similar. It will be noted that the supra-marginal farms in the Mixed Livestock with Dairy group and the Mixed Livestock group are considerably larger on average than the farms in the corresponding sub-marginal income group, lending support to the view that on farms of little more than 100 acres, adequate, if not princely, incomes can be made by less intensive methods of production. It is true that in the case of the Mixed Livestock with Dairy group, milk constitutes the largest single contribution to total output, but if the results of the Mixed Livestock group are any guide, this is not by any means an essential condition to the realisation of adequate incomes on farms which are rather above average in size.

Among the sub-marginal farms of these two less intensive type-of-farming groups, however, it would seem that even if certain aspects of management could be improved

– for example, the density of stocking and livestock yields – size of farm would still remain an insuperable obstacle to satisfactory farm incomes. It is almost imperative that these farms should adopt a system of farming which, in intensity, is more appropriate to their size, and in the circumstances of North and West Devon this must inevitably mean milk under present price/cost relationships. The important thing for these small sub-marginal income farms of the Mixed Livestock with Dairying and the Mixed Livestock groups is that the alternative of achieving a more intensive system of farming by greater concentration on milk production does exist. Having stated this, however, it will perhaps be a little disconcerting for the reader to be reminded that it was among the farms comprising the mainly Dairy farms that the greatest incidence of sub-marginal incomes was found. The fact remains, however, that it is only through milk production that these small grassland farms can hope to achieve adequate incomes, an assertion which is substantiated by the financial results of the five supra-marginal income farms of the Mainly Dairy farms (the average size of which, incidentally, was rather lower than the average size of the sub-marginal farms). The question then arises: having realised, to the extent of placing their dependence in milk production, wherein lies the solution to their difficulties, why have the small farmers of this area failed so often to attain an adequate return for their efforts? It is here among the small farms with no alternative to milk production that the main problem of this area of North West Devon is to be found.

The main reason for the low incomes of these small dairy farms is clearly the low output per acre achieved by them in relation to their size. Just how low this output is compared with similar sized farms in an area with a longer tradition of dairying may be gauged from Table 64 in which the financial results of the 24 Mainly Dairy farms in the survey sample are set out beside the results of a group of farms located in East Devon.

Table 64
Financial Results Relating to 24 Farms in North West Devon and 31 Farms in East Devon, 1954-55

	24 Mainly Dairy Farms in North West Devon	31 Dairy farms In East Devon[+]
Average size (acres)	**75¼**	**96½**
Gross Output	**Per Acre**	
Livestock & livestock products:		
Dairy produce	12.0	24.7
Cattle	1.6	5.5
Sheep & wool	1.2	0.5
Pigs	1.3	2.9
Poultry & eggs	2.4	8.6
Total	**18.5**	**42.2**
Crops	-1.1	1.6
Sundries	0.2	0.6
Total	**17.6**	**44.4**
Costs		
Feeding stuffs	6.2	13.7
Seeds	0.3	0.8
Manures	1.0	1.6
Rent & rates	1.5	2.6
Power & transport	2.7	4.9
Contract	0.2	0.6
Labour*	2.8	6.1
Other expenses	1.2	2.5
Total	**15.9**	**32.8**
Net Farm Income	1.7	11.6
Wages of farmer & wife	4.4	3.7
Management & Investment Income	-2.7	7.9
Opening Valuation	23.8	34.6
Closing Valuation	22.4	37.1

[+]FMS Results, 1954-55.
*Excludes labour of farmer and wife.

The factors which contribute to this problem of low incomes are many in number, and, moreover, closely related and interacting in their effects. It follows, therefore, that although it is essential that an attempt be made to list these factors and trace their effects, the resulting picture is likely to be an over-simplified one. Conditions vary from farm to farm, and in some cases certain factors will weigh more heavily than others; in addition, it will only be possible in the space available to hint at the full ramifications of the effects of those factors which are operative.

With these reservations in mind, however, two factors above all others seem to be associated with the low level of output on these dairy farms. They are: a low level of stocking (particularly of the more productive types of livestock), and low livestock yields. In turn, there can be little doubt that these factors are attributable in large measure to the condition of land and buildings. Many of the rush-invaded pasture give a limited amount of summer grazing only, and even where pastures are free of rushes, a high proportion of them are prone to poaching by stock and necessitate the removal of cattle during the winter months. As a result cattle numbers are restricted to those which can be satisfactorily housed during the winter. This presents difficulty enough where store cattle production is the main pre-occupation of the farmer. Where the accommodation to be provided requires adequate standings for dairy cows, the problem is very often acute, since those buildings which are available are not only limited in space but are ill adapted both in respect of condition and of layout for the hand feeding of dairy cattle.

Since the problem of water-logged pastures is one of the more evident of the many problems found in the survey area, improved field drainage is frequently suggested as a possible solution. It is proposed to return again to this question of drainage, but perhaps it should be stated here that even if carried out with complete success, the improvement of drainage is unlikely to remove entirely from these farms the need to in-winter stock and thus the latter practice seems destined to remain an unavoidable concomitant of farming in this region of the Culm Measures.

Hand in hand with the problem of winter housing goes the problem of winter feed supplies, which operates as a further limiting factor on the number of stock which can be carried by these farms. Even at the existing low levels of stocking, winter feed is often barely sufficient and failure at hay or corn harvest-time may make necessary the buying-in of expensive feeding stuffs or even the more drastic procedure of stock disposal.

Thus on many farms at the present time, winter housing space and winter supplies are geared, one with the other, at a very low level of stocking. Any proposal in respect of such farms to raise the level of stocking must contain provision for dealing jointly with the problems of additional building requirements and an increased demand for winter feed.

It is in connection with the latter problem that attention is again turned to the question of improving field drainage. It has already been stated that such improvements would be unlikely to result in the removal of the need to in-winter stock. Nevertheless, they would seem capable of playing an important role in augmenting supplies of winter fodder. First, drainage improvement should lead to a substantial reduction of the risk of losses at hay and corn harvest time. Frequently in this area crops have been lost through the inability of the farmer to get machinery on the very wet land even though crops have been fit to harvest. Second, improvement of field drainage is an indispensable preliminary to the improvement of the very worst pastures by rush eradication since it is only by the removal of the basic conditions favourable to rush growth that subsequent measures designed to remove and control this weed can hope to achieve any degree of permanent success. A number of trials have shown that the best, and most lasting, results are obtained by ploughing and reseeding carried out in conjunction with spraying. Past experience has shown that ploughing and reseeding alone have only been partially successful, and while resulting in the temporary removal of rushes, have often been followed after an interval by their reappearance in an even more virulent form. Where these measures have been carried out in association with the correctly-timed use of a selective weed-killer results have proved highly promising. Briefly the procedure consists of spraying the rushes at a time when their growth rate, and hence absorption rate is high (May-June) followed by the cutting of the rushes prior to

ploughing. Subsequent reseeding with an appropriate grass and clover mixture carried out in conjunction with a suitable manurial programme should produce effective results. The addition of lime and basic slag is usually required after ploughing and the use of a nitrogenous compound is advisable to give young grasses and clover a good start after germination.

In the preceding paragraph the importance of field drainage in dealing with one aspect of pasture improvement has been dealt with. Its importance should also be stressed, however, in connection with the whole question of improved grassland management upon which the future of most of these small dairy farms will depend. Not least among its effects is the resulting reduction in damage to pastures from treading by livestock and a consequent extension of the grazing period, which would do much to ease the winter feeding problem.

Improved field drainage may also have a useful contribution to make to winter feeding by making possible the practice of strip-grazing kale. Many of the proved benefits of the latter crop have been denied to many wet-land farms since, if grown at all, conditions would necessitate the cutting and hauling of the kale – not always a practical possibility - on the small farm where labour is at a premium.

Although improved drainage might reasonably be expected to increase supplies of winter fodder by reducing harvest losses, and also by increasing the contribution to hay stocks of many low yielding pastures, there would seem to exist, in view of the hazardous nature of harvesting in North West Devon, good grounds for farmers to re-examine the present methods of grass conservation and, in particular, considering the possibilities of silage-making. Already it has been shown that only 22 farmers out of the total sample of 61 made silage and only four out of the 24 Mainly Dairy Farms. Although discussion is at present centred on the Mainly Dairy farms, it may help, at this stage, to draw attention to the distribution of the silage-making farms among the supra- and sub-marginal income farms respectively, of the three type groups into which the sample of 61 farms was divided. Although it would be unwise to impute too much significance to *... this ...* some association between silage-making and better incomes does suggest itself.

There are of course a number of objections to the making of silage, particularly on the small sized farm of the type under review, and these were voiced by some of the farmers visited. A common objection (and one which should not be lightly dismissed) is the strong, pungent smell attaching to silage which makes its handling unpleasant for many farmers. A second, and perhaps less personal, objection, is the difficulty which is encountered in the harvesting and feeding of this bulky substance, especially on the small farm where the labour force consists solely of the farmer and his wife. Even on those farms whose general field layout and contour lend themselves to the transport of the weighty silage crop, the adoption of this method of conservation would in many cases necessitate the purchase of additional equipment, as few farms are at present adequately equipped to handle silage. In winter the hauling and feeding of silage to livestock can be both a laborious and time consuming task.

It is frequently asserted, of course, that the reluctance of farmers to change from say the traditional practice of haymaking to the newer one of silage making is due to the inherent conservatism of the country man. Although this may be partly true in some cases, it seems unlikely that this is ever the whole reason; what may often appear as conservatism to the observer may, on closer inspection, prove to have a sound basis in local conditions, or may be an understandable aversion to taking risks. In North-West Devon, for example, the cold wet Culm soils combined often with a northerly aspect and a low level of pasture management do not give an early enough bite of good grass

both to meet the requirements of cattle turned out after in-wintering, and enable a cut of silage to be taken prior to the main hay crop. Deprived, therefore, of the opportunity to make silage in the first instance as a supplement to the normal hay crop many farmers are unwilling to jeopardise their winter feed position by harvesting their main conservation crop by a new and untried method.

Finally mention should perhaps be made of instances where the farmer did not make silage and expressed dissatisfaction with this method of grass conservation having in fact made it on some occasion in the past. Although good reasons may well exist why the ensiling of grass on these particular farms was found to be unsuitable, it should also be remembered that often where silage is made without previous experience and without adequate equipment then the end product leaves much to be desired. Where this happens the farmer often becomes prejudiced against silage without really having given it a fair chance. It is essential, therefore, that where the making of silage is contemplated adequate efforts should be made to see that the correct procedure is adopted, and in this connection the advisory services available to farmers can d much to assist.

From what has been said in the preceding paragraphs, it will be realized that in North West Devon, as in the other areas, silage making is not the answer to the conservation problems of all farms. This fact should not, however, prevent its possibilities being explored, or for that matter the possibilities of other methods of conserving grass such as tripod-hay-making or the making of quick 36-hour hay, for there is no doubt that any technique which substantially reduces the risk of loss at hay making, and thus eases the winter feed position will make a valuable contribution to the problems of these farms.

So far the discussion has been concerned with the possibility of increasing output of these small dairy farms by increasing the level of stocking of the main class of livestock, namely dairy cows. There remains the question of increasing the numbers of the subsidiary classes of livestock: sheep, pigs and poultry. Physical conditions effectively preclude sheep from being kept at present on many farms, while on others farm acreage is too small to allow the inclusion of winter sheep keep in the cropping programme. However, where these two restrictions are absent, sheet are undoubtedly capable of making a useful addition to output without making too great a demand on labour.

Any proposal to increase pigs or poultry on these small dairying farms brings with it different problems. In the first place increasing the numbers of pigs and poultry (if the latter are to be kept at all intensively) will immediately present difficulties of housing. It has already been seen that existing buildings are inadequate for the main dairying enterprise. Any further demands for accommodation can only be met by the construction of new piggeries and batteries and deep litter accommodation. Again, physical conditions and acreage limitations are unlikely to permit any appreciable cereals on these farms. Thus any increase in the number of pigs or poultry will be dependent upon increased purchases of feeding stuffs.

We turn now to the question of livestock yields and in particular to that of milk yields. The latter is undoubtedly low, the average for the 24 Mainly Dairy farms of the survey being only just over 530 gallons per cow. Undoubtedly one of the principal reasons for this very low average yield per cow is the rather nondescript breed character (as far as dairying is concerned) of the herds present on these milk producing farms. The frequency with which the native Devon breed appeared was surprising in view of the position occupied by milk in their pattern of output, and was probably related to the fondness of farmers for still engaging in the rearing of store stock. Coupled with this

factor of low yielding cows was the factor of a low level of feeding, particularly noticeable in the use of purchased feeding stuffs. Important as these two factors are, however, they seem to be themselves expressions of a far more deep seated cause of the low level of dairy management achieved on these farms. Tradition, particularly in the matter of livestock husbandry, dies hard in rural areas and operates as a brake to the introduction of sudden changes. In this connection it must be remembered that the history of milk production in North West Devon is a comparatively short one and that, in addition, many farmers now selling milk have turned to this form of production through economic necessity rather than preference. In such circumstances it can hardly be a matter for surprise that many attitudes acquired in the practice of the traditional store-rearing enterprise appear to have been carried over into the newer one of milk production. Before there can be any hope, therefore, for the effective and widespread introduction of improved dairy techniques on many of the small farms of the Holsworthy area, the operators of those holdings must re-orientate their outlook to the extent of thinking of themselves as "dairy farmers" rather than as store rearers who have been reluctantly forced into dairying.

Even if the assumption is now made that the small farm community of this problem area is fully predisposed towards an intensive farming system based on the achievement of a high level of output from milk and suitable subsidiary enterprises (where the latter are feasible), there remains one over-riding obstacle to the realization of this aim which so far, in the discussion of the ways and means whereby output might be increased, has not been mentioned. This obstacle is the all-important one of capital. Almost without exception all those measures which have been discussed as possible contributors to increased output (and hence increased incomes) on these dairy farms would, if adopted, require increased capital expenditure. For example, improved drainage which might have so many beneficial results would often be a costly undertaking if carried out in a fashion likely to have a lasting effect. Mole drainage unfortunately has been found to be only temporarily successful, since the Culm clays are seldom uniform and frequently interspersed with shale, and thus the only real solution would seem to be the comprehensive tile drainage schemes which may prove to be prohibitive in cost to the small farmer with meagre resources even though as in recent years, part of the expense may be defrayed by Government grants. Similar difficulties arise in connection with the whole question of providing additional building space in order to increase the numbers of cattle which can be in-wintered. Here the cost of such a scheme would have to be added in many cases to the cost which the farmer must already necessarily incur in bringing existing buildings up to required standards of hygiene if he is to remain at all in milk production.

Increased stocking of the main dairy enterprise (or perhaps re-stocking with higher yielding cows) would also entail additional capital expenditure on the part of the farmer as would the raising of the level of stocking of the subsidiary enterprises such as pigs and poultry. In addition, the latter would lead to increased capital outlay in the form of piggeries and batteries or deep litter units. Even the introduction of new techniques such as silage-making, if found suitable, could not be achieved without incurring the expense of new items of equipment. Over and above the need for additional capital for investment in new buildings and livestock exists the need for additional working capital if the desired increase in output is to be realized.

This brief review of the capital requirements of these small dairy farms makes it plain that few of them are in a position to undertake, along and unaided, even a fraction of those improvements which are desirable. Although the financial data obtained for the sample farms did not include a record of the capital resources of these farms, it was made patently clear in the course of many interviews with the farmers concerned that these resources were extremely slender; in some cases, in fact, they appeared to be

nonexistent. Indeed on reflection it is difficult to see how they could be otherwise. Their plight is one typical of small farms situated on poor land; a long history of extensive farming has given little opportunity for the accumulation of capital on the family farm with the result that few of them have been in a position in recent years to take full advantage of the opportunity presented to them of milk production. Therefore, the efforts made in this latter direction have been of a limited nature and largely ineffectual in raising to any appreciable extent small farm incomes in the survey area. Thus it becomes apparent that the circumstances of these farms are largely self-perpetuating in character and will remain so unless the circle of cause and effect which prevents their realisation of higher income is broken by the injection of capital from outside sources.

In the past, Government assistance has been available to the farms of this area in a number of forms. They have obviously benefited for example from the general price support policies of the post-war years and also from direct production subsidies such as the fertilizer, ploughing and calf subsidies. In addition to assistance of this kind, however, help has been available in the form of a number of special grants designed to assist poorer farming areas. The more important of these grants are listed and briefly described below:

(a) Ditching and Drainage Grants. Up to 50% of the cost of approved schemes of ditching and drainage (including mole and tile drainage) can be met by a Government grant.

(b) Marginal Production Scheme Grants. Government grants have been available to meet up to 85% of the cost of such long-term schemes as land reclamation, fencing, road repair and other programmes of work, the cost of which could not reasonably be met out of income without detriment to other necessary works on the farm.

(c) Livestock Rearing Act Grants. Under the Livestock Rearing Act, grants have been available to upland farmers to enable them to carry out comprehensive schemes designed to improve the land and the fixed equipment of their farms. A condition of the grants, which have been at the rate of 50% the total cost of the approved scheme, has been that the main income of the farm should be derived from the rearing of store cattle and store sheep. Work which might be approved within the term of the Act has included the repair and modernisation of existing farmhouses, cottages and buildings, as well as the construction of new ones; the supply of water and electricity; work on roads; drainage and fencing schemes and the improvement of land by cultivation and fertilising.

(d) Farm Improvement Scheme Grants. Grants are available under the Farm Improvement Scheme (which is of rather more recent introduction than the aforementioned schemes) towards the cost of providing or improving approved permanent buildings and towards the cost of making long term improvements to land. Work may Include the erection and alteration of farm buildings (other than dwelling houses); making and altering roads, fences, walls, gates and pens; supplying electricity; and land reclamation. Grants are at the rate of one-third of either the actual cost of the work or, if the farmer prefers the prescribed standard cost for specified types of work. No conditions are laid down as to the type of farms which are eligible, the only condition being that grants should be available only to holdings which are economic or could become so with the improvements proposed.

In addition to these four main types of grant which have been and still are available for farms in North-West Devon, there are three other grants which though generally available might be of particular benefit to farms in this poorly developed area. These grants are:

(1) Grants for Improvement of Existing Houses and Cottages. Under the Housing Act of 1949, improvements to dwellings (but not repairs) costing £100 to £800 may be eligible for a 50% grant from the Local Authority, if prior approval to such improvements is obtained.

(2) Water Supply Grants. Grants are available to owners and occupiers of agricultural land for bringing water to a farm. The rate of grant is 25% where water is brought from a public main and 40% where it is brought from a private source. Other methods of improving the water supply (e.g. by sinking wells or abstraction from springs and streams) may also be eligible for grant aid.

(3) Silo Grants. Grants may now be given to farmers of up to £250 for the construction of covered silos and of up to £125 for unroofed silos. Improvements to existing silos may also qualify. Grant payments are calculated according to a scale of standard rates.

To what extent have farmers in the survey area benefited from these schemes for grant aid? From data collated and supplied by the Agricultural Land Service it is known that in the eleven year period from 1943-1953 something approaching £33,000 was paid in the form of grants to farmers in the seven survey parishes on holdings of 25 acres and over. This sum was forthcoming mainly as Livestock Rearing Act grants (£21,000) and as Ditching and Drainage Grants (see Table 65). Only 17% of this total, however, went to farms under 100 acres (among which a large proportion of the Mainly Dairy Farms are to be found) and 83% went to farms over 100 acres. The average grant per farm over the eleven year period ranged from £22 in the group of smallest farms to £2,640 in the case of the four farms of 300 acres and over. On a per acre basis, the range was from £0.60 per acre in the 25-49¾ acre group, to £7.75 in the largest size group.

Table 65
Composition of Grants Paid to 248 Farms in the Second Survey Parishes, 1943-53

Grant Type	Amount of grant £
Livestock Rearing Act*	21,001
Drainage grants) and) Other grants)	11,849
Total grants	**£32,850**

*Includes estimate for approved Livestock Rearing Act (LRA)Schemes.

If grants made under the Livestock Rearing Act (which are conditional upon the rearing of store stock) are excluded a more equal distribution of grants is revealed. In fact, a comparison of Tables 66 and 67 show that no Livestock Rearing Grants were made to farmers of less than 100 acres. Total grants excluding Livestock Rearing Grants from 1943-53 amounted to nearly £12,000 and of this 46% went to farms under 100 acres and 54% to farms of 100 acres and over. Despite the exclusion of Livestock Rearing Act Grants, however, average grants per farm over the period were still substantially lower in the case of the groups of smaller farms and ranged from £22 in the 25-49¾ acre group to £104 in the 150-299¾ acre group. When grant allocation is calculated on a per acre basis, the smaller farms are seen to fare slightly better with a figure of £0.60 per acre compared with figures of £0.45, £0.55 and £0.20 respectively for the three groups of farms of 100 acres and over.

Table 66
Distribution of Total Grants
(Including Livestock Rearing Act Grants)
by Size of Farm – 248 Farms in the Seven Survey Parishes, 1943-1953

Farm Acreage	Amount of grant £	%age of total
25 - 49¾	1,550	4.7
50 - 99¾	3,946	12.0
100 - 149¾	3,584	10.9
150 - 299¾	13,210	40.2
300 & over	10,560	32.2
Total	**£32,850**	**100.0**

Table 67
Distribution of Total Grants
(Excluding Livestock Rearing Grants)
by Size of Farm – 245 Farms in Seven Survey Parishes, 1943-53

Farm Acreage	Amount of grant £	% of total
25 - 49¾	1,550	13.1
50 - 99¾	3,946	33.3
100 - 149¾	2,291	19.3
150 - 299¾	3,750	31.6
300 & over	312	2.7
Total	**11,849**	**100.0**

Ditching and drainage grants made up the greater part of the total of grants other than Livestock Rearing Act grants, the total of such grants paid up to June 1955 amounting to £11,827 (this includes payments to farms under 25 acres). Of this sum 70% comprised grants for ditching and 30% consisted of grants for tile drainage. Altogether by June 1955 some 579 schemes had been completed at an average cost per scheme of £20. The number of schemes per farm averaged three. Of the total of 579 schemes, 192 were for tile drainage (at an average cost of £19 per scheme) and 387 were for ditching schemes (average cost per scheme £21).

Government grants, other than Livestock Rearing Act grants and Ditching and Drainage Grants consisted of relatively small ones made mainly in connection with water supply schemes (26 schemes received grant aid amounting to £1,746 up to June 1955), marginal Production Schemes, and farms eligible for the Hill Cow Subsidy (again confined to the rearing farms).

No data is available, unfortunately, in respect of grants made to farms in the area by the Local Authority for the improvement of farm houses or cottages, but on the visual evidence presented to field workers at the time of the survey it seems that no many farmers have availed themselves of the facilities provided by this scheme. Nor is data available relating to the grants made to farmers under the more recently introduced system of Silo Grants, or the Farm Improvement Scheme but, in the light of past experience, it seems unlikely that the latter in particular will lead to any marked improvement in the condition of fixed equipment on small farms in the survey area, requiring as it does that the farmer should find two-thirds of the cost of such improvements.

In reviewing, therefore, the nature and extent of Government financial assistance to the survey area in the past, two conclusions seem possible. First, in absolute terms the volume of such assistance has been small, averaging a little of £0.125 per acre per annum over the period 1953-53. Second, the distribution of this assistance has been markedly uneven, favouring the larger farms. It is recognized of course that this mal-distribution is accentuated by the incidence of grants made under the Livestock Rearing

Act since those farms which were able to avail themselves of these grants were mainly to be found among the larger holdings of the area. But, it has been shown that even if one excludes grants made under the Livestock Rearing Act, the distribution of the remaining grants still exhibits a bias toward the larger farms.

The contention is made here that both the low absolute level of Government financial assistance and its weighted distribution stem basically from the same underlying factor, namely the inability of many of the farms in the area to finance the farmer's share of the cost of any grant aided scheme. Earlier remarks have shown the great number of points at which capital expenditure is required on the small dairy farms if greater output is to be realized. It will have been noted also that for the most part contributions in the form of grants to the cost of improvements have not exceeded 50%. To have to find even 50% of the total cost of those improvement schemes which are economically sound is often beyond the scant resources of many farmers. An added difficulty, moreover, which is often forgotten is that initially in most instances the farmer must finance the whole cost of the scheme as only on presentation of receipted bills does he receive the grant for which he has applied.

Even within an area where reserves of capital are generally low, however, capital resources will show variation between individual farms and it follows, therefore, that under any system of grant aid which requires part of the cost of improvement to be borne by the farmer, that some farms will be better equipped to make use of such grants as are available than others. It seems reasonable to suggest that it is the somewhat better capital position of the larger farms in the survey parishes that is responsible for the fuller use made by them of available grants. The fact that, although they formed a minority of the total farm population in the area, those larger farms who were able to avail themselves of Livestock Rearing Act grants, did so to the extent of making those grants the largest single element in the total grant bill for the period 1943-53, largely bears out this contention.

From what has been said above, it is clear that the measure of Government financial assistance which has been given so far has left largely untouched the problems of the small dairying farmers. The findings of the financial survey carried out in 1954 after an eleven year period in which a number of schemes designed to assist poor land areas had been put into operation, substantiates this. The same survey also revealed that those farms which benefited most from Government grants are those on which better incomes were being made. It is not within the compass of this study to decide whether or not this assistance to the larger, livestock rearing farms should be withdrawn, for no body of financial data is available which is capable of determining the extent to which the better incomes of these farms are themselves due to the grant aid received. What can be said, however, is that those farms which now appear to stand in most need of assistance are those which hitherto have found themselves outside the effective scope of Government aid, mainly as a result of their inability to find the farm share of the cost of capital improvement.

Some idea of the difficulties facing the small dairy farmer in this respect *was to have been illustrated by data relating to a farm of* about 80 acres in extent, *which approximated* closely to the average size of the Mainly Dairy farms of the seven survey parishes. It consists almost entirely of heavy poorly drained Culm clay soil. The data *was* derived by re-casting the contents of the Balance Sheets of the farm business from the year in which the farm was first occupied until 1957/58. In the top half of the table, funds available to the farmer in each of the accounting years in the form of income from farming, non-trading receipts, loans and by running down assets are shown; in the bottom half the pattern of disposal of these funds is set out. The three main ways of disposing of available funds is, of course, through family drawings, by diverting funds

into various forms of saving and by investment in the farm. After meeting family living requirements which quite obviously must have priority, sufficient funds remained only for essential investment in livestock and machinery. No funds were currently available in any year to meet even the farmer's share of grant-aided improvements to land or buildings. Perhaps even more significant is the fact that no opportunity existed for modest annual savings which over a period of years might accumulate sufficiently to allow some future investment in fixed equipment or land. One might add here that although over the period to which the data refers, there has been some increase in the level of family drawings, this represents a rise from a very low level to one which can still only be regarded as modest, and it would be churlish indeed to regard this as a misdirection of funds.

The prospects for the farmer on a holding such as that just described unless some means of capital injection can be found, are simply those of a permanently low level of farm income and standard of living. The only other alternative open to him is to give up farming altogether which apart from the social dislocation involved, does little to alleviate the problem of the area since invariably the new tenant or occupier will be a man with equally slender resources at his disposal who is attracted by the low sale price or rents of these poor-land farms. In this way the problems of the area are perpetuated.

Although it has been shown that past Government assistance to poor-land areas has been largely unsuccessful in reaching the small farms most in need of it, there is now, with the announcement by the Government of its Small Farmer Scheme, some hope that this anomaly will in some measure at any rate, be rectified. This scheme is directed specifically at those farms of between 20 and 100 acres. Within that size range, however, the scheme will only apply to those farms deemed capable of providing "for the average occupier and with reasonable management, remunerative full time employment, i.e. capable of yielding a net income broadly equivalent to the average earnings of a skilled agricultural worker". Eligibility on the latter basis will be determined by calculating the number of standard man-days appropriate to each applicant. To be eligible the farm must be capable of reaching a standard labour requirement of at least 275 standard man days after the completion of the proposed 3-5 year farm business plan which must be submitted with each application, and the assumption is made that farms with a present standard labour requirement of at least 250 standard man days are capable of doing this. The upper limit has been set at 450 standard man-days and farms with existing labour requirements of more than 450 or less than 250 standard man-days will be ineligible for assistance under the scheme.

Grants of two kinds will be made; first, business grants will be given to eligible farms at a standard rate per acre up to a maximum of £360 to assist in the purchase of stock and equipment. Second, field husbandry grants will also be made at standard rates primarily with the objective of improving land under grass. Assistance will be extended to such ditching and reclamation work as is essential to the farm business plan. Total assistance to be paid under both kinds of grants, however, will be limited to £1,000 in respect of any one business plan.

It is obviously too early at the time of writing to make any final assessment of the merits of this scheme. Certainly administrative difficulties may arise, particularly in connection with determining those farms which are eligible and it may well be that even if this present system, based on standard man-days is retained, the limits now operative will need revision. Setting such difficulties aside, however, it seems certain that even in its present form the Scheme is capable of bringing assistance within the reach of needy farms which have so far fallen outside the scope of Government aid. Of the 24 survey farms classified as Mainly Dairy Farms, 10 would now seem to be eligible for

assistance under the Small Farmer Scheme. Four would be excluded on the grounds that they exceeded 100 acres; six exceed the upper limit of 450 standard man-days and four fail to reach the lower limit of 250 standard man-days.

Assuming for the moment that the conditions of eligibility for the Small Farmer Scheme are generally acceptable, then the arguments for the exclusion of those farms which do not meet those conditions would seem to be unanswerable. Thos farms with a present labour requirement of more than 450 standard man-days are considered capable, with existing stocking and cropping, of providing remunerative full time employment for the average occupier. It follows on the basis of this assumption that the realization of sub-marginal incomes on such farms results from below-average management, and it is only right if consistently low incomes are made that the farmer concerned should not be encouraged to remain in the farm and make way for another who might raise the income of the farm to somewhere nearer its potential.

Those farms with standard labour requirements of less than 250 standard man-days are deemed incapable even with assistance of becoming viable farming units. Owners of such holdings must be prepared to seek other part time employment, or give up farming the holding altogether. In the latter case, the holding would then become available either for alternative use – for example if conveniently sited, for afforestation purposes – or for amalgamation with other holdings to provide bigger farms.

It will be noted that not until this late stage in this report has mention been made of afforestation and the amalgamation of holdings as a possible solution on a regional scale to the problems of North West Devon. Their relegation to this point of the discussion however, has been deliberate since neither suggestion would seem to offer a practical solution of the problems of the area. Apart from the issue of whether the land under managed woodland would yield a higher return per acre than it does in its present agricultural use, there remains the stark fact that neither the large scale afforestation of existing agricultural land nor the amalgamation of large numbers of small holdings into larger units could be achieved in the near future without a degree of coercion and social upheaval which would be quite unacceptable in this country. This is not to say that afforestation and farm amalgamation have no part whatsoever to play in the rehabilitation of this poor-land area. But their role is surely a long term one and, as seen by the writer, consists in turning to more economic use those small holdings which, rightly denied assistance from public funds on the grounds that they do not represent viable units, fall vacant from time to time. In this respect it is suggested that further legislation might be introduced to facilitate the merging of such small farms into economic units. Already, of course, financial assistance is available under the Farm Improvement Scheme to meet the cost of equipping formerly uneconomic holdings as part of an amalgamation scheme.

SECTION 6 MAIN CONCLUSIONS

The main conclusions of this report on the Holsworthy district of North West Devon may be summarised as follows:

6.1) The poor quality of land and buildings in the area favour the traditional practice of store rearing.

6.2) A number of factors exist to encourage farms to adhere to or return to this traditional practice:

- The improved market for home produced beef which has occurred in recent years and which seems likely to continue. Higher beef prices will be reflected in better prices for store cattle.
- The more vigorous enforcement of dairy regulations means that many cattle sheds will have to be brought up to standard necessitating considerable capital expenditure. In this respect the larger farms in particular will be at a disadvantage since they will be ineligible for block grants of the kind now available to the smaller farm under the Small Farm Scheme.
- Many farmers have been induced to become milk producers in recent years as a result of the regular income afforded by the monthly milk cheque rather than from any real inclination towards dairying. Doubtless many of them would prefer, if given a choice, to confine their attentions to the traditional practice of Store rearing, and would welcome the chance to be rid of the restrictions imposed by the need for twice-daily milking if alternative means of ensuring a regular income could be found.

6.3) Many holdings In the area, however, are too small to give an adequate income from the extensive enterprise of store rearing and these would seem to have no alternative but to place their dependence in milk production (supplemented where possible by intensive subsidiary enterprises). Milk already forms the main source of income of a large proportion of these small farms but production for the most part remains at a very low level of efficiency. The need now is for the farmers on these holdings to become really efficient milk producers capable of competing successfully with dairy farms of longer standing. The main factor in achieving greater efficiency is the attainment of a higher level of output.

6.4) Although the foundations of an efficient dairying industry exist in the area, particularly in the form of a well developed milk collecting service, a major obstacle to its realisation exists in the meagre capital resources of the small farms of the area. It is obviously impossible for the majority of these farms to meet unaided the cost of carrying out improvements to land and buildings and increasing the number of productive stock, all of which are necessary if these are to become efficient dairy farms. Government assistance is, therefore, essential and in this the Small Farmers Scheme promises to be of greater value than earlier Schemes of assistance for poor land areas.

APPENDIX

Tables from original draft report which were not referred to in the text

Table A1
Cropping per 100 Acres by Size Group – 240 Farms in Seven Survey Parishes

	25-49¾ acres	50-99¾ acres	100-149¾ acres	150-299¾ acres	300 acres & over	All farms acres
	%	%	%	%	%	%
Wheat	0.2	0.5	0.6	0.8	0.6	0.6
Barley	-	0.2	0.1	0.9	3.2	0.6
Oats	3.1	4.9	6.2	6.7	8.9	5.8
Mixed Corn	5.5	7.3	6.0	4.6	4.5	5.8
Total cereals	**8.8**	**12.9**	**12.9**	**13.0**	**17.2**	**12.8**
Potatoes	0.5	0.7	0.8	0.5	0.7	0.6
Sugar Beet	-	-	0.1	0.1	-	-
Mangolds	0.2	0.3	0.2	0.3	0.4	0.3
Fodder Beet	0.1	0.1	0.1	0.1	-	0.1
Turnips and Swedes	0.5	0.5	0.3	0.4	0.7	0.4
Rape	0.5	0.9	0.7	1.1	2.5	1.0
Cabbage, Kale etc	0.9	0.7	0.6	0.8	0.1	0.7
Vegetables for human consumption	-	-	-	-	-	-
Other Crops	-	-	-	0.1	-	-
Bare Fallow	0.5	0.2	0.4	0.6	2.3	0.5
Total tillage	**12.0**	**16.3**	**16.1**	**17.0**	**23.9**	**16.4**
Grass Orchards	0.2	0.3	0.4	0.3	-	0.3
Temp Grass: Cut	11.0	12.1	10.3	12.6	10.8	11.6
Grazed*	12.3	9.0	10.8	11.3	12.4	10.7
Perm. Grass: Cut	15.1	13.7	10.4	9.6	7.3	11.5
Grazed+	38.3	35.7	29.8	26.9	32.6	31.8
Total Crops & Grass	**88.9**	**87.1**	**77.8**	**77.7**	**87.0**	**82.3**
Rough grazings	11.1	12.9	22.2	22.3	13.0	17.7
Total Acreage	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

*Includes Lucerne.
+Including flooded land.
Source: Ministry of Agriculture, Fisheries & Food.

Table A2
Stock Numbers per 100 Acres by Size Group – 240 Farms in Seven Survey Parishes

Livestock	25-49¾ acres	50-99¾ acres	100-149¾ acres	150-299¾ acres	300 acres & over	All farms acres
Cows: Dairy	13.9	10.4	7.9	6.5	4.8	8.7
Beef	3.4	2.9	1.8	2.0	4.0	2.5
Heifers in calf	1.5	1.7	2.1	2.3	0.8	1.9
Bulls (including bulls being reared)	-	0.1	0.1	0.2	0.6	0.1
Stores: 2 years & over	4.2	2.6	3.2	4.3	2.3	3.5
1 year & under	6.9	5.7	6.4	5.6	6.6	6.0
Under 1 year	6.8	7.3	7.8	6.7	7.8	7.2
Total cattle	**36.7**	**30.7**	**29.3**	**27.6**	**26.9**	**26.9**
Sows & gilts in pig	0.7	0.4	0.5	0.8	0.2	0.6
All other sows	0.4	0.4	0.2	0.2	0.1	0.3
Boars (including young boars)	0.3	0.0	0.0	0.0	0.1	0.0
Stores: 5 mths & over	1.1	1.3	1.2	0.9	0.4	1.1
2 -5 mths	4.3	2.9	1.2	1.7	1.4	2.2
Under 2 mths	2.3	2.3	1.6	1.9	0.0	1.9
Total pigs	**9.1**	**7.3**	**4.7**	**5.5**	**2.2**	**6.1**
Ewes	13.6	14.4	14.8	21.7	28.4	17.5
Rams (including ram lambs)	0.7	0.4	0.5	0.7	0.3	0.5
Other sheep over 1 year	3.7	3.0	3.1	6.3	2.1	4.1
Other sheep under 1 year	15.0	12.5	12.2	17.5	31.4	15.5
Fowls: Over 6 months	177..3	128.7	91.5	66.6	26.9	100.6
Under 6 months	143.4	102.1	73.2	50.0	19.1	79.2
Other poultry	17.5	10.4	10.1	7.1	5.0	9.9
Total poultry	**338.2**	**241.3**	**174.8**	**123.7**	**51.0**	**189.7**
Total horses	**1.8**	**1.6**	**1.1**	**1.1**	**0.4**	**1.3**

Source: Ministry of Agriculture, Fisheries & Food.

Table A3
Stock Numbers per 100 Acres by Type Groups – 240 Farms in Seven Survey Parishes

Livestock	Mainly Dairy	Mixed Livestock With Dairying Important	Mixed Livestock	Mainly Cattle	All farms
Cows: Dairy	12.0	10.0	6.4	4.6	8.7
Beef	3.3	2.8	2.0	1.9	2.5
Heifers in calf	2.0	2.2	1.8	1.4	1.9
Bulls (including bulls being reared)	-	0.1	0.2	0.4	0.1
Stores: 2 years & over	1.2	2.3	5.0	6.7	3.5
1-2 years	3.8	6.8	6.7	7.4	6.0
Under 1 year	6.5	7.9	7.1	7.3	7.2
Total cattle	**28.8**	**32.1**	**29.2**	**29.7**	**29.9**
Sows & gilts in pig	0.5	0.7	0.7	0.2	0.6
All other sows	0.2	0.4	0.2	0.2	0.3
Boars (including young boars)	-	0.1	-	-	-
Stores: 5 mths & over	0.7	1.6	1.3	0.4	1.1
2 -5 mths	1.9	2.3	2.9	0.8	2.2
Under 2 mths	1.6	2.8	1.8	0.7	1.9
Total pigs	**4.9**	**7.9**	**6.9**	**2.3**	**6.1**
Ewes	3.9	15.7	31.6	15.3	17.5
Rams (including ram lambs)	0.1	0.4	0.9	0.7	0.5
Other sheep over 1 year	1.4	4.4	7.2	1.2	4.1
Other sheep under 1 year	3.8	14.3	26.5	15.4	15.5
Total sheep	**9.2**	**34.8**	**66.2**	**32.6**	**37.6**
Fowls: Over 6 months	97.1	122.9	108.0	43.1	100.6
Under 6 months	89.5	101.8	71.9	28.7	79.2
Other poultry	9.6	11.7	10.5	9.3	9.9
Total poultry	**196.2**	**234.2**	**190.4**	**81.1**	**189.7**
Total horses	**1.3**	**1.4**	**1.3**	**1.0**	**1.3**
Number of farms	**87**	**67**	**59**	**27**	**240**

Source: Ministry of Agriculture, Fisheries & Food, June Returns 1953.

Table A4
Cropping per 100 Acres by Type Group – 240 Farms in Seven Survey Parishes

Crop	Mainly Dairy	Mixed Livestock With Dairying Important	Mixed Livestock	Mainly Cattle	All farms
	%	%	%	%	%
Wheat	0.6	0.6	0.7	0.3	0.6
Barley	0.7	0.2	0.4	1.2	0.6
Oats	4.2	6.0	7.0	5.8	5.8
Mixed Corn	5.5	7.7	5.8	2.6	5.8
Total cereals	**11.0**	**14.5**	**13.9**	**9.9**	**12.8**
Potatoes	0.6	0.8	0.6	0.4	0.6
Sugar Beet	0.1	0.1	-	-	-
Mangolds	0.4	0.2	0.2	0.2	0.3
Fodder Beet	0.2	0.1	-	-	0.1
Turnips and Swedes	0.6	0.3	0.4	0.5	0.4
Rape	0.8	0.8	1.3	1.2	1.0
Cabbage, Kale etc	1.1	0.6	0.6	0.4	0.7
Vegetables for human consumption	-	-	-	-	-
Other Crops	-	-	0.1	-	-
Bare Fallow	1.0	0.3	0.2	0.5	0.5
Total tillage	**15.8**	**17.7**	**17.3**	**13.1**	**16.4**
Grass Orchards	0.2	0.5	0.4	-	0.3
Temp Grass: Cut	9.9	14.5	11.5	9.7	11.6
Grazed*	9.5	12.4	11.1	8.9	10.7
Perm. Grass: Cut	15.9	9.4	10.0	9.8	11.5
Grazed+	30.8	27.2	33.4	39.2	31.8
Total Crops & Grass	**82.1**	**81.7**	**83.7**	**80.7**	**82.3**
Rough grazings	17.9	18.3	16.3	19.3	17.7
Total Acreage	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

*Includes Lucerne.
+Including flooded land.

Table A5
Percentage Composition of Total Livestock Units by Size – 240 Farms in Seven Survey Parishes

	25-49¾ acres	50-99¾ acres	100-149¾ acres	150-299¾ acres	300 acres & over	All farms acres
Livestock	**%**	**%**	**%**	**%**	**%**	**%**
Cows	39.0	36.8	30.4	25.7	29.8	32.2
Other cattle	28.4	29.3	38.0	38.6	35.6	34.0
Total pigs	5.1	4.7	3.5	3.9	2.5	4.2
Total sheep	10.1	12.6	14.6	21.9	27.6	16.1
Total poultry	12.0	10.5	8.6	6.0	2.8	8.6
Total horses	5.4	6.1	4.9	3.9	1.7	4.9
TOTAL	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Table A6
Percentage Composition of Total Livestock Units by Type – 240 Farms in Seven Survey Parishes

	Mainly Dairy	Mixed Livestock with Dairying Important	Mixed Livestock	Mainly Cattle	All farms
Livestock	**%**	**%**	**%**	**%**	**%**
Cows	50.3	34.4	21.4	21.6	32.2
Other cattle	25.7	31.8	35.8	52.8	34.0
Total pigs	3.8	4.9	4.6	1.9	4.2
Total sheep	4.5	14.0	26.0	14.8	16.1
Total poultry	9.9	9.9	8.0	4.5	8.6
Total horses	5.8	5.0	4.2	4.4	4.9
TOTAL	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Table A7
Some Further Measures of Relative Feeding Efficiency, 24 Mainly Dairy Farms

	Supra-marginal income farms	Sub-marginal income farms
	5	**19**
Home grown feed acres as % of total feed acres	80.4	86.2
Farm feed acres per animal unit (acres)	2.0	3.4
Livestock output per farm feed acre (£)	32.5	14.5
Purchased feeding stuffs per animal unit (£)	16.5	18.0
Starch equivalent utilized per farm feed acre	10.6	6.1
Grassland acres per unit of grazing stock	1.3	3.1

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