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Farm business analysis

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Farm management survey. Report no. 7

Profits and Problems of Farming

in

South-East England

By

J. D. SYKES and G. P. WIBBERLEY

Farm management survey report 7.

DEPARTMENT OF AGRICULTURAL ECONOMICS

1956

FARM MANAGEMENT SURVEY REPORT NO. VII

PROFITS AND PROBLEMS OF FARMING
IN
SOUTH-EAST ENGLAND

A study of success and failure in the business of farming in
Kent, Surrey and Sussex during the three years ending 1954-5

*Copies of this Report may be obtained, price 7/6 post free,
from the Secretary, Wye College, Ashford, Kent.*

MARCH 1956

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FOREWORD

IN this south-east corner of England, those who farm are a mixed crowd of people. Some are keen managers of large farm businesses and resemble in all essentials their counterparts in other industries. Others are the holders of small acreages handed down through the family and they are often persons who lack capital and business experience. The province also lives up to its reputation as the garden of England by having a number of large hops, glasshouse and fruit holdings. A few farmers are recent entrants to the industry and amongst these are some who buy farms mainly because of the attractions of the farmhouse and other rural pleasantries. There are also the week-end farmers with a variety of other professions and, sometimes, a startling array of farming ideas. Yet the main group of occupiers are people with moderate amounts of capital and land who, as their main job, farm in order to live.

This report presents the results of the activities of this solid core of "real" farmers. We are grateful to these men and women who allow us to come on to their farms and into their homes and who, out of interest and kindness, lift the curtain on their private business affairs. To them in partial repayment, we offer this report with its analysis of what has happened, together with some reasons for success and failure. It may be of interest and value to them in assessing their own position in relation to their neighbours and to show how the various types of farming are faring.

J. H. Hooper, R. F. Lord, J. D. Sykes, P. G. L. de Morpurgo and A. H. Rowe have been intimately concerned in visiting and recording these farms during the past three years. The processing of the data collected has involved a great deal of work by the clerical and secretarial staff of the Department. Mrs. Anne Ward has been responsible for the diagrams in the text. The authors take full responsibility for the form of the analysis and the way in which it has been reported.

SUMMARY

1. This report deals with a period when the ration card finally disappeared in Britain. Rising employment and earnings were responsible for a strong overall demand for home-grown food but consumers quickly began to discriminate as prices rose.

2. In the sketch of the organization of agriculture in the South-East, horticulture is shown to have contributed about 40 per cent. of the total food output of the province as against 10 per cent. in the United Kingdom.

3. During the period for which farm income results in England and Wales have been published (1944-5 to 1952-3) the results from this province compare most unfavourably with the general average (Tables XVII and XVIII). In seven years out of ten since 1944-5, dairy farms in South-East England have shown profits averaging less than one-half of those on similar farms elsewhere.

4. Between 1947-8 and 1954-5, on non-specialist farms in the South-East, the value of Total Output rose by 62 per cent. whilst Net Output was greater by 45 per cent. Expenditure showed an increase of only 34 per cent. (Fig. 1).

5. On an identical sample of 150 farms, larger numbers of pigs and poultry and heavier milk sales were mainly responsible for the greater output between 1952-3 and 1954-5. Feedingstuffs purchases rose by nearly a third. Surprisingly, despite rising wages and costs, other expenditure did not rise except by a few shillings per acre (Table XIX). Through greater efficiency, in fact, costs per unit of output declined (Table XXXV).

6. Farm profits increased from a general average of £4 8s. per acre in 1952-3, to almost £6 in 1954-5 (Table XXII). In any one year, however, between a sixth and a quarter of the farms made a loss (Table XXIII).

7. Levels of profit varied widely between farms of different type and size, as well as from year to year. On the dairy farms of less than 100 acres during the three years studied, profit per acre was only £2 3s. as compared with £8 10s. on a group of arable farms which showed the highest profits of any farms.

8. As a business, the large dairy farm appeared to be considerably more efficient than the small one. It cost nearly £13 less to produce £100 Net Output on dairy farms between 251 and 400 acres as compared with those of under 100 acres. In most years, profits do not amount to more than £450 per farm on the majority of small dairy farms in the province (Table XXIV).

9. Tenant's capital was valued at £30 per acre, with a range from £37 on the smallest dairy farms to £23 on the largest dairy farms (Table XXVII). In the three years studied, the returns on tenant's capital ranged from 6 per cent. on small dairy farms to 27 per cent. on a group of arable farms, with a general average of 15 per cent. (Table XXIX).

10. The trend towards higher output and productivity was associated with an intensification of farming systems and the number of productive livestock and acres of sale crops were increased (Table XXXVII). Likewise, crop and livestock yields were raised. On 130 dairy farms the milk yield per cow in the herd rose by 10 per cent., from 691 gallons in 1952-3 to 758 gallons in 1954-5. In general, 6 per cent. more cows were kept per farm.

If the typical small dairy farmer with his 16 cows had got the same yields and price per gallon for his milk as did his neighbour on the larger dairy farm, his milk sales would have been £225 more than they actually were and he should have been involved in no greater expense.

11. There was a slight improvement in the production and use of feed and the utilized starch equivalent rose to just over 13 cwt. per acre in 1954-5 (Table XLIII). This may be compared with an average of 29 cwt. per acre on the Wye College farm. Yet 2.8 acres of feed were required per livestock unit in both 1952-3 and 1954-5. In the

former year the estimated acreage equivalent of bought feed was 0.55 whereas in the latter year it rose to 0.75 equivalent acres.

12. Despite the rising costs of labour, power and machinery, these expenses together fell from £61 10s. per £100 Net Output in 1952-3, to £58 16s. in 1954-5 (Table XLVI).

13. "Capital per man" totalled slightly more than £1,000, of which nearly a third was in the form of machinery (Table XLIX). Machinery investment per man was highest on the smallest farms which also had high running costs, and, surprisingly, also had substantial contract expenses.

14. The low profits and economic inefficiency of the small dairy farm is shown to have been due to certain organizational and managerial weaknesses such as over capitalization in machinery and low milk yields. The continued survival of many of these farms can be explained only by reference to factors other than cash profits (Chapter VIII).

CHAPTER I

THE FARMER AND HIS MARKET

THE decade and a half since the start of World War II has been a period of unexampled prosperity in the British countryside. Never before have our farm acres and farm workers produced so much. Not in a hundred years, apart from wartime, has so much of our food been grown at home, and never has the countryside in general enjoyed such wealth. Yet there is a pressing economic problem which faces us; not merely how to reach still higher standards of material wellbeing, but rather whether we can maintain the present level. This arises because the prosperity which has been enjoyed has been of a precarious nature, balanced as it were on a knife edge. Recurrent balance of payment crises, shortages of labour and fuel, unbalanced and often excessive capital investment and tremendous defence burdens have led to a paralyzing inflation which as a nation we have until recently shrunk from tackling. In this situation Agriculture has its part to play. Its role is not merely in producing more of the nation's food. Daily it becomes more evident that it has the task of producing more of what the nation and the consumer can really afford in terms of quality and price.

To-day, more than ever, the prosperity of the countryside depends upon prosperity in the factory and the town. When urban consumers have large earnings the greater is the demand for agricultural products. But the demand is related not merely to the consumer's income, it reacts even more strongly to price. Thus a 5 per cent. *reduction* in the price of an agricultural product within limits will usually induce consumers to spend more in total on it than would a 5 per cent. *rise* in their real incomes.

Recent rises in food prices have been greater than for other living costs in Western European countries, due principally to the removal of subsidies (Table I). These rises have had considerable adverse effects on the demand for agricultural products. It is to be expected, furthermore, that gradually, or otherwise, price subsidies, except for welfare schemes, will be reduced and even removed. This would have one beneficial effect in that it would make the issues at stake much clearer to both consumers and producers (and taxpayers). The consumer would tend to revise his pattern of consumption to meet economic facts, or real costs, to the detriment, it is to be feared, of some goods and services. (The crop of television aerials and roads jammed with cars are, after all, largely indications that we have distorted consumption and production patterns by too generously

TABLE I
Index Numbers of Cost of Living and Cost of Food. United Kingdom

	Cost of living	Food costs
1947(a)	94	94
1948	100	100
1949	103	105
1950	106	113
1951	116	126
1952(b)	103	105
1953	106	111
1954	108	114

*Source: Annual Abstract of Statistics, European Agriculture
—A Statement of Problems.*

Note: (a) 1948 = 100. (b) Jan., 1952 = 100.

subsidizing food and housing.) Similarly, many farmers would have to face up to seeking out and eliminating the inefficient parts of their farms and increase output, where economic, to cut costs to maintain margins and sustain demand. There is, therefore, considerable risk that, through reducing subsidies, consumer prices of home-produced food would rise, in addition to being pushed up further through rising farm costs. Such tendencies might reduce the consumer demand for home-grown food and might result in a switch to less expensive foods, which often are those imported.

Farmers can counter these threats to their own incomes and standards of living only by producing more efficiently. By this means not only can subsidies to consumers be removed or reduced, but competition from imported foods can be met and consumer demand expanded. British farmers often appear to be unaware that they are farming on the doorstep of the largest single market in the world where demand, particularly for high value foodstuffs such as poultry, eggs, bacon, meat, fruit and vegetables, can expand enormously providing the price is right.

It is a matter of the greatest concern that we know so little about the demand position in respect of both quantity and qualities of individual foods. The extension of knowledge about, and the rate of adoption of, new production methods on the farm have been most impressive during the last decade but few scientific studies have been made of marketing and consumption problems. The lack of factual data is abysmal.

TABLE II
Estimated Food Supplies per Head of Population. United Kingdom
lbs. per Annum

	1934-8	1943	1951	1953	1954
Flour	194	230	204	193	187
Fresh and frozen meat	91	67	54	73	83
Bacon and ham	28	19	19	25	25
Liquid milk	217	299	348	335	334
Cheese	9	12	11	9	10
Eggs in shell	26	14	25	26	27
Butter	25	8	15	13	14
Margarine	9	17	19	18	18
Potatoes	182	249	240	222	221

Source: Annual Abstract of Statistics.

Such evidence as does exist (Table II) shows the important trends in consumer expenditure on foodstuffs. As "real" income per head rises, the trend is quite definitely towards the "high value" foods and away from the bulky starchy foods such as potatoes and bread (Table III). Additional evidence shows that, since de-rationing and with urban prosperity and high earnings, housewives are demanding more of the better quality commodities—such as the prime cuts of meat with a decided preference for home produced beef.

Table III shows, for the inter-war period, the percentage increase in demand for certain foodstuffs for a 1 per cent. rise in the incomes of consumers. Thus in response to a 1 per cent. increase in income, the demand for milk on average would be greater by $\frac{1}{2}$ per cent. In the case of flour and bread, however, a rise in income was associated with a decline in demand.

During the three harvest years 1952, 1953 and 1954 covered by this report, the most fundamental change on the demand side was the disappearance of the ration card.

This began with the decontrol of eggs in March 1953, and culminated with the derationing of meat in July, 1954, almost fifteen years after the first rationing had begun. In the first 12 months after rationing ended, household expenditure on food rose by 11 per cent.

TABLE III
Income Elasticity of Demand for Foods

Flour	..	..	..	..	..	..	..	..	-0.15
Bread	..	..	..	..	..	..	..	..	-0.05
Potatoes	..	..	..	..	..	..	..	..	0.21
Green vegetables	..	..	..	..	..	..	..	..	0.93
Home-produced apples	..	..	..	..	..	..	..	..	1.33
Home-produced beef and veal	..	..	..	..	..	..	..	..	0.34
Bacon and ham	..	..	..	..	..	..	..	..	0.55
Home-produced lamb and mutton	..	..	..	..	..	..	..	..	0.70
Poultry	..	..	..	..	..	..	..	..	1.17
Eggs	..	..	..	..	..	..	..	..	0.54
Milk	..	..	..	..	..	..	..	..	0.50
Cream	..	..	..	..	..	..	..	..	1.71

Source: Stone, *The Measurement of Consumers' Expenditure and Behaviour in the U.K., 1920-38*, Vol. I.

Note: Data based on Budget Studies 1937-9 and Time Series 1920-38.

Rises in price accounted for roughly 6 per cent. of this and the remaining 5 per cent. represented an increase in the quantity of food consumed. There is no doubt that in respect of some items, for example meat, consumption has not yet reached pre-war levels. For other items, such as milk, consumption is much higher than pre-war (Table II). However, for a number of years it has shown little tendency to increase.

TABLE IV
Average Daily Consumption of Milk at Full Retail Price. England and Wales
(Million Gallons)

Quarters	1951	1952	1953	1954	1955
January-March	3.21	3.22	3.17	3.19	3.18
April-June	3.29	3.23	3.19	3.18	3.16
July-September	3.22	3.18	3.14	3.14	3.15
October-December	3.21	3.17	3.14	3.14	3.16

Source: *Milk Producer*, November, 1955.

The changes which have been seen in the market, where the forces of demand and supply work themselves out, have been influenced as much by what producers have been doing as by the actions of consumers.

To some degree the farmer has limited control over his output, varying, of course, from product to product. He may be troubled by drought or excessive rain, with pests and diseases, and by the need to make estimates about prices, costs and market outlets for his produce for some date in the future.

Climatic conditions in 1952 and 1953 were on the whole favourable to farmers but

the 1954 year will long be remembered as an exceptionally wet one. However, there is evidence to show that the extra rain did much to increase grass yields, and grazing stock benefited accordingly, although harvesting was more difficult.

It is impossible to mention the 1952 farming year without referring to the scourge of foot-and-mouth disease which from the previous November swept the countryside, in particular affecting South-East England. The loss was not merely confined to the immediate one of slaughtered stock and loss of markets, but owing to the widespread disruption of the artificial insemination service the aftermath was felt for many months.

Nearly twelve months later another disease, myxomatosis, established itself in the Province and the decimation of the rabbit population began. The removal of this pest, which wrought extensive damage to crops, and thereby to stock, has had considerable repercussions in increasing productivity.

Yet, important as it is, the biological and natural physical environment is of ever-diminishing importance as a factor limiting the incomes of farmers. Every year sees on farms better cultivating machinery, more mechanical power, better fertilizers and higher yielding plants and livestock. Every year sees the growing fund of scientific knowledge increasingly applied, standards of management raised, and capital increasingly substituted for human toil and acres of land. Thus, land and labour in farming become of relatively less significance but of higher productivity. It is not, therefore, surprising that the farm acres of this country and its farm workers are producing more than at any previous time. Yet it is everywhere obvious that the optimum potentials have not been reached and this is chiefly due to the uneven adoption of new ways of farming. Nevertheless, it remains a fact that for the United Kingdom, and for Western Europe as a whole, the rate of increase in agricultural production in the last decade is the largest ever recorded in human history. Some indication of the rate of growth of agricultural output in the United Kingdom is given in the following table together with that of industrial output.

TABLE V
Index Numbers of Industrial and Agricultural Output. United Kingdom

	Industrial output	Agricultural output
Pre-war	—	73
1946	87	87
1948	100	100
1950	114	104
1951	117	109
1952	114	111
1953	121	114
1954	128	112

Note: 1948 = 100.

The period that ended about 1953-4 represents the completion of almost a quarter of a century of State intervention in agriculture. Since the early 1930's, through depression, recovery, war and peace, this had resulted in ever rising prices for the farmers' products. In 1954 and 1955, for the first time, there was a setback to this policy as some agricultural prices showed downward movements. Despite the unpopularity of these downward changes with farmers the State has not, and is not likely to, seriously overlook the position of its farming community. Nevertheless, it is quite definite that farmers are not as well off as they were in the years that closely followed the end of the war when very large incentives were being offered to obtain increased production.

TABLE VI
Agricultural Income Deflated by Cost-of-Living Index. United Kingdom

Pre-war	1948	1949	1950	1951	1952	1953	1954 estimated
49	89	95	88	104	100	97	90

Source: *The State of Food and Agriculture*, 1955. F.A.O.

Though there has been some decline in the real value of farm incomes since 1951, a comparison shows how very much higher they were than in pre-war days.

The problem of declining farm incomes is not merely confined to the United Kingdom. It is a feature apparent in almost every country of the Western World. In almost every country state intervention is required to support farmers' incomes through the medium of subsidies, tariffs, quotas and marketing organizations.

Why does this situation arise, particularly in the case of the United Kingdom which, although needing some food imports, has limited means for overseas purchases?

The answer, briefly, is related to the strength of consumer demand for food relative to other non-agricultural goods and to the relative availability of both types of commodities. If agricultural products become relatively more abundant than the other things consumers buy, then the value or purchasing power of the former will decline. More gallons of milk than previously will, therefore, need to be sold to buy an overcoat or a wheelbarrow.

In addition to the rate of expansion of production there is the rate of growth of consumer demand. Both are dynamic. The growth of demand depends upon changes in population numbers and upon the disposable incomes, tastes and habits of each group comprising the whole. It is clear that after a certain point the consumer cannot do with any more eggs, although the kind and quality bought may change. For agricultural products as a whole there is not much difference in quantity between what the consumer regards as severe rationing and what represents a surfeit. If consumers have purchasing power and if prices are attractive, however, there will be a tendency for demand to change towards better quality foods such as the better cuts of meat rather than towards a much larger total quantity of meat. Since de-rationing, just such a change has been very noticeable in Great Britain. Consumers have been demanding more home-killed meat, rather than imported, and the best cuts have been in greatest demand. If this country can afford to let consumers have unrestricted choice (and there is some doubt whether it can because they are seeking the foodstuffs which are the most expensive to produce in terms of real resources), this is an excellent thing for British farmers. It means that there exists a potential market for the higher grades of fresh food for which demand is seriously limited only by price and where demand is a good way from the point of physical satiation.

The problem then, in a world where subsidies are gradually being reduced and removed, is to reduce production costs and to improve marketing efficiency so that the price to the consumer stimulates demand, resulting in returns to producers which ensure them adequate incomes. Since 1954 efficient production rather than production at any cost has become the key to success. The problem facing farmers and their advisers is how to improve economic efficiency. The answer in general involves the production of more from the same total resources.

The resources available to individual farmers, under the general headings of land, labour and capital, vary enormously. Not only do farms vary with respect to the number of acres and quality of land but they vary even more according to the way capital has been invested in buildings, livestock and machinery and to the amount of available

labour. In particular, the ability of the farmer as an organizer and manager is a most variable quantity. A farm may have quite adequate labour and capital relative to the nature and area of the land, but if the organization and management of the farm are poor the former will be used inefficiently. The economic results of variations in the way resources have been used and combined together in South-East England form the matter discussed in this report.

THE ORGANIZATION OF AGRICULTURE IN SOUTH-EAST ENGLAND

The agriculture of South-East England, by which is meant the counties of Kent, Surrey, East and West Sussex, has distinct features associated with the resources required for production. For example, some quite distinct regions, such as the North and South Downs, the Weald Clay Plain and the Romney Marsh, can be discerned by variations in topography, soils and climate which confer substantial comparative advantage on certain types of farm production. The region is famous agriculturally, therefore, in several respects. The hop gardens and cherry and fruit orchards of Kent are world renowned. So, also, are the sheep of the South Down and Romney Marsh breeds. The Sussex breed of cattle, Kent Wild White Clover, and Isle of Thanet barley and broccoli are items of more local importance.

Studies which have been made previously show up some of the distinctive features of the rural economy of the region. For example, the value of the Gross Output of Agriculture and Horticulture in South-East England for the 1947-8 and 1948-9 years was estimated at approximately £55 millions.* Fruit and vegetables produced some 44 per cent. of this as compared with 35 per cent. from livestock and 21 per cent. from crops, including hops.† The value of Net Output‡ per acre in 1948-9 was estimated at almost £28 as compared with £20 for England and Wales.

A computation made by A. H. Rowe of Wye College for the 1952 crop year, assuming a standard output (£34) for each acre of agricultural land but valuing horticultural crops individually, showed the great importance of the latter. These crops at market values were worth, on average, £260 per acre. It is believed that marketing and distribution costs amounted to rather more than 23 per cent. of total market value and that the farm-gate value of all horticultural crops was about £30 millions. The relative importance of agricultural and horticultural production is shown in Table VII.

TABLE VII
Proportion of Total Output arising from Agriculture and Horticulture 1952 Crop Year

	Kent	South-East England	United Kingdom
	%	%	%
Horticultural products	54	41	11
Agricultural products	46	59	89
Total	100	100	100

In view of the high value per acre of horticultural products it is clear that the area devoted to them could not be equivalent to more than about 10 per cent. of the crops and grass acreage of the region. In other words 90 per cent. of the region was given over to agriculture as distinct from horticulture.

* E. B. Butler, *Regional Agricultural Output*. Part of a general study on regional output of Agriculture and Industry made by the Department of Applied Economics, University of Cambridge.

† Hops were valued at approximately 9 per cent. of gross output.

‡ This is the value of farm output after purchases of store stock, feed, seed, fertilizers, stores, etc., have been deducted from gross output.

Land Use. The four counties which comprise the South-Eastern Province of England include approximately 1.4 million acres of crops and grass. They are disposed as follows:

TABLE VIII
Area of Crops and Grass—South-East England c. 1954

	Acres	%
Kent	646,000	46
Surrey	187,000	13
East Sussex	322,000	23
West Sussex	252,000	18
Total	1,407,000	100

Source: Agricultural Returns.

According to the Agricultural Census Returns there are about 23,500 holdings of which almost 6,300 are less than five acres in size. Of the holdings over 5 acres almost one-third are between 5 and 15 acres.

Recent information is not available showing the relative importance of different types of farming. Such information as exists is provided by the National Farm Survey of

TABLE IX
Distribution of Agricultural Holdings by Size—South-East England, 1954.

Size range (acres)	Percentage distribution
5-49	57.6
50-149	26.4
150-299	11.1
300-499	3.5
500-699	0.8
over 700	0.6
	100.0
Total number of holdings ..	17,227

Source: Agricultural Returns.

1941 or the Ministry of Agriculture's Types of Farming Map of 1939. The most noticeable feature disclosed by these studies was the predominance of mixed farming types associated with dairying.

The general impression of South-East England tends to exaggerate its fertility. It is really only parts of Kent which can be regarded as the garden of England although pockets of high-value production exist elsewhere, for example tomato growing near Worthing.

TABLE X
Types of Farming in South-East England, 1939

		Acres 000's	
<i>Pasture Type</i>			
Dairying with other enterprises	.. ..	449.0	488.0
Other pasture	.. ..	39.0	
<i>Intermediate Type</i>			
Mixed with substantial dairying	.. ..	506.0	860.0
Corn, sheep and dairying	.. ..	221.0	
Other intermediate	.. ..	133.0	
<i>Arable Type</i>			
Mainly cash crops	.. ..	184.0	425.0
Market gardening	.. ..	118.0	
Other arable	.. ..	123.0	
<i>Various</i>			
Marshes	.. ..	156.0	404.0
Unclassified	.. ..	180.0	
Other land uses	.. ..	68.0	
		2,177.0	

Source: Butler, *Regional Agricultural Output*. Derived from Types of Farming Map, M.A.F., 1939.

To some extent the figures of the Land Utilization Survey throw light on the position:

TABLE XI
Classification of Land Quality in South-East England

	Kent	Surrey	Sussex
	%	%	%
Grade I	55.2	22.8	28.9
Grade II	30.2	39.7	52.7
Grade III	10.3	23.6	14.8
Principal Urban Area	4.3	13.9	3.6
Total	100.0	100.0	100.0

Source: *Land Utilization Survey of England and Wales*.

The post-war picture of land and labour use in this country began to emerge about 1948. In Table XII the results of changing economic conditions are shown in terms of crop acreages and numbers of livestock and workers.

These figures for South-East England illustrate the interplay of complex economic forces. By 1954 poultry numbers were roughly a third greater than in 1948 and sheep had increased by nearly a quarter. Cattle showed little change but the number of pigs was three and a third times greater. A considerable decline had occurred in the number of farm workers.

TABLE XII

Changes in Crop Acreages and Numbers of Livestock and Farm Workers—South-East England

	1948	1950	1952	1953	1954	1955
Wheat	100	102	86	99	108	93
Barley	100	90	132	127	123	136
Oats and mixed corn	100	108	102	104	86	76
Grassland	100	102	105	104	105	109
Cows and heifers	100	108	106	103	104	109
Total cattle	100	105	105	105	104	107
Total sheep	100	103	116	116	124	141
Total pigs	100	149	276	268	332	327
Total poultry	100	126	134	140	135	141
Total workers	100	95	93	88	84	81

Source: *Agricultural Returns, M.A.F.F.*

Note: 1948 = 100.

Labour on Farms in South-East England. The changes did not take place equally amongst all groups of workers.

TABLE XIII

Changes in the Numbers of Farm Workers—South-East England

	1948	1952	1954	1955
Regulars:				
Males 65 and over	100	81	72	68
" 21 to 65	100	94	88	83
" 18 to 21	100	71	57	58
" 18 and under	100	119	122	113
Women and girls	100	83	73	67
Casuals:				
Males	100	113	100	97
Women and girls	100	110	92	100

Source: *Agricultural Returns, M.A.F.F.*

Note: In 1948 there were also 3,600 Prisoners of War and members of the Women's Land Army.

On average there has been a yearly decline of $2\frac{1}{2}$ per cent. in the total number of workers. The decline has been most marked in respect of regular male workers of 65 and over, of 18 to 21 years, and also of regular female workers. It is very noticeable, however, that the numbers of regular youths under 18 years had increased by more than a fifth in 1954. Thus, as elsewhere in the country, it seems that a good number of young entrants are coming into agriculture. Many of them, however, do not return to farming after National Service,* which affects the number in the age group 18 to 21 years and, eventually, the group 21 to 65 years.

The structure of the labour force in South-East England is characterized by several important features. For example, in 1954 casual workers formed $27\frac{1}{2}$ per cent. of the total

* Note: The Ministry of Labour estimate that 30 per cent. do not return to farming. Quoted by Hirsch, "Labour on the Land in England and Wales", *Farm Economist*, VIII, 2, 1955.

workers as compared with 23 per cent. in England and Wales. The seasonal nature of many crops, such as fruit and hops, is obviously an important factor. In the same year, 1954, women and girls comprised almost 93 per cent. of the casual workers as compared with an average of 36 per cent. for England and Wales. They also formed a large proportion of the total regular workers, 11 per cent. compared with 8 per cent. for the whole country.

Comparison is, also, valuable with regard to the age structure of regular male workers. The significant facts are that despite the falling tendency shown in Table XIV the proportion of men aged 65 and over is much higher than the national average (6.6 per cent. compared with 4.7 per cent.). In addition, regular male workers under 21 years are

TABLE XIV
Distribution of Regular Male Workers by Age—South-East England

	Under 18	18-21	Total under 21	21 to 65	65 and over	Total
	%	%	%	%	%	%
1948	5.6	6.7	12.3	79.7	8.0	100.0
1952	7.3	5.2	12.5	80.6	6.9	100.0
1954	8.1	4.4	12.5	80.9	6.6	100.0

Source: *Agricultural Returns, M.A.F.F.*

noticeably fewer and this is especially marked in the group 18 to 21 years where the England and Wales average in 1954 was 7.1 per cent. compared with only 4.4 per cent. in South-East England.

It has been mentioned above that roughly from about 1948 the post-war organization of agriculture begins to be discernible. By this date the country was thinking of its future and realized that alongside increased exports, increased food production at home was essential. Thus came the agricultural expansion programme aimed at fulfilling this objective, accompanied by the 1947 Agriculture Act and the 1948 Agricultural Holdings Act. Very substantial inducements, mainly in the form of higher prices, were granted to farmers.

The position has to be related to prevailing economic conditions in the country and world at large as agricultural policies and prices have varied with the balance of payments position. In the second half of 1951 the terms of trade moved sharply against the United Kingdom owing to the rising prices of imported raw materials. These rising prices were, of course, associated with the outbreak of hostilities in Korea when many countries thought it prudent to build up stock piles. Drastic cuts of imports into Britain sanctioned in November 1951 began to take effect early in 1952. A gradual recovery in the balance of payments position dated from this time and was such that by March, 1954 a Conservative Government felt the time was ripe to give the consumer freedom of choice. Home agriculture was on the threshold of a phase of freer markets where the consumer could make known his requirements by what he was prepared to buy and at what price. To fulfil its pledges to agriculture the Government's guaranteed fixed prices, as they became obsolete, were replaced by guaranteed minimum prices linked with deficiency payments. For the first time for almost a decade and a half premiums for quality became an item of importance.

Economically, the climate of the country during 1952, 1953 and 1954 was generally favourable for increased agricultural production. At the agricultural price reviews of 1952 and 1953 all round increases in fixed prices for farm products were made with the

emphasis being placed on livestock and livestock products, with the exception of milk.

On the other hand the period saw some rise in farming costs. Wages, for example, increased by more than 5 per cent. in each of the two earlier years. Furthermore, through the withdrawal of the subsidy on feedingstuffs in April, 1953, the costs of those livestock products largely dependent upon them rose. The 1954 price review was probably the most critical since 1945. "For the first time costs had fallen, increases in the labour bill, rent, seeds, transport and imported livestock having been more than offset by a decline in the cost of feedingstuffs, fertilizers, fuel, machinery depreciation and repairs, and several miscellaneous items" (N.F.U. Information Service, March, 1954). The price review was conducted upon an entirely new principle, the principle of *guaranteed minimum* prices. Continued expansion was desired for mutton, lamb and pig meat and increased rate of expansion for beef. But reduced egg, milk and potato output was sought below the 1953-4 level.

The changes in the price schedule and a minor adjustment in production grants involved a reduction in the *guaranteed minimum*, but not necessarily in the actual, income of the industry of some £33¼ millions.

CHAPTER II

A SURVEY OF THE FARM BUSINESS

THE economic and financial condition of many individual farms in England and Wales has been measured since 1936 under the Farm Management Survey Scheme. The study is undertaken by the Departments of Agricultural Economics at ten university centres. Over the country as a whole detailed records are available for about two-and-a-half thousand farms. Wye College deals with about 200 farms in this survey and these are scattered throughout the four counties of Kent, Surrey, East and West Sussex. Thus for each university province, and for the whole country, a reasonably comprehensive statement can be built up which provides "a useful indication of the level of farm incomes each year, and, over a series of years, indicates the general trend."

Even more important in many respects is the detailed knowledge now available of the factors causing fluctuations in farmers' incomes. The Farm Management Survey Scheme results have proved of value nationally as independent evidence at the annual reviews of farm prices and, also, for other policy making occasions. Yet it is possibly in the provinces themselves that the greatest potential use of the information exists as it can provide the basic material for advisory and research work. Each year it illustrates the changes in the fortunes of farm businesses, thus revealing trends and fluctuations in the level of profitability between different types and sizes of farms. It provides reference data by which co-operating farmers and district advisory officers in the National Agricultural Advisory Service can make comparative assessments of individual farming problems and progress. Finally, the survey is invaluable as a stimulus to further research and as a source of teaching material.

The results of this survey for England and Wales have been published periodically since 1951 by the Ministry of Agriculture, Fisheries and Food under the title of *Farm Incomes in England and Wales**. Together, these reports now cover the period from 1944-5 to 1953-4. Detailed results and analyses have been published in the provinces by the university departments concerned. A series of six Farm Management Survey reports have been published, for example, from Wye College dealing with farming results in the counties of Kent, Surrey, East and West Sussex. These reports cover in detail the farming years from 1946 to 1951 and also include five year comparisons of identical groups of farming relating back to 1942.

The sample of 200 farms dealt with at Wye College cannot be regarded as completely representative of all farms in the South-East of England. With voluntary co-operation, it is not possible to secure representatives of all types and sizes of farms—nor is it particularly desirable to do this. Yet the relative results between the farms recorded are thought to be satisfactory. Thus, although the average size of farm in the survey has varied from 258 to 205 acres† and although some types of farming have unavoidably been omitted, the year to year fluctuations in output, expenditure and net income from groups of identical farms are of real significance and use.

The major emphasis in this report, as in previous ones, is placed on a study of the changes which have occurred in groups of identical farms over a series of years. Continuity of results is regarded more highly than absolute representativeness as the latter would require larger numbers of co-operating farmers than could be handled by this Department.

* c.f. *Farm Incomes in England and Wales*, 1953/4, No. 7. H.M.S.O., 1955. 7s.

† Acres of "farmed" land, i.e. the acreage of crops and grass.

THE RETURNS FROM FARMING

The present study deals with the financial results for an identical sample of farms in the South-East for the farming years 1952-3, 1953-4, and 1954-5. The accounts studied relate almost entirely to financial "years" ending between Michaelmas and Lady Day.

The chief value of any such analysis lies in providing some measure of the levels of performance of one group of farms or farmers against another. This involves the introduction of yardsticks or measures. Trends evident over the three-year period for an identical group of farms will be reviewed, but before this is done it is proposed to give information similar in essentials to that published in earlier reports in this series from Wye College.

Three Tables in the Appendix give the average results per farm and per 100 acres for all non-specialist farms for the 1952, 1953 and 1954 harvest years, respectively. These results are included to maintain continuity with previous reports thus enabling the reader who so wishes to have available comparable data which now covers the nine years, from the harvest of 1946 to that of 1954.

Nine Years' Results. The essentials of these results are compared in Table XV and in Fig. 1.

TABLE XV
Financial Results per 100 Acres—1946-7 to 1954-5

	1946-7	1947-8	1948-9	1949-50	1950-1	1951-2	1952-3	1953-4	1954-5
No. of farms	179	164	168	171	166	161	172	176	170
Average acreage* ..	228	233	253	258	227	230	206	208	205
	£	£	£	£	£	£	£	£	£
Total output	1,903	2,253	2,550	2,687	2,744	3,058	3,059	3,472	3,642
Net output	1,634	1,932	2,207	2,267	2,257	2,489	2,427	2,718	2,794
Expenditure	1,562	1,721	1,866	1,925	1,980	2,055	2,140	2,289	2,302
Management and investment income	72	211	341	342	277	434	287	429	492

* Area of crops and grass plus the acreage equivalent of rough grazing.

Although the number and average acreage of farms has varied, the larger part of the sample of any one year is the same as in both the preceding and succeeding year. The results can be expected to reflect some of the changes which have occurred in farming in the South-East Province during the nine-year period they cover, and the trend towards higher output, expenditure, and farm profits is likely to represent the general position.

Between the harvest years of 1947 and 1954, Total Output* increased by 62 per cent., Net Output† increased by 45 per cent. but current Expenditure‡ increased by only 34 per cent. Management and Investment Income§ showed an increase of 130 per cent., having reached a peak in 1954 when it averaged £4 18s. per acre for all the farms in the sample. There can be no doubt of the main movements; total output, and net output to a lesser extent have expanded at a rate much above the rate of expansion of expenditure, while the growth of the farmer's own remuneration has been appreciable.

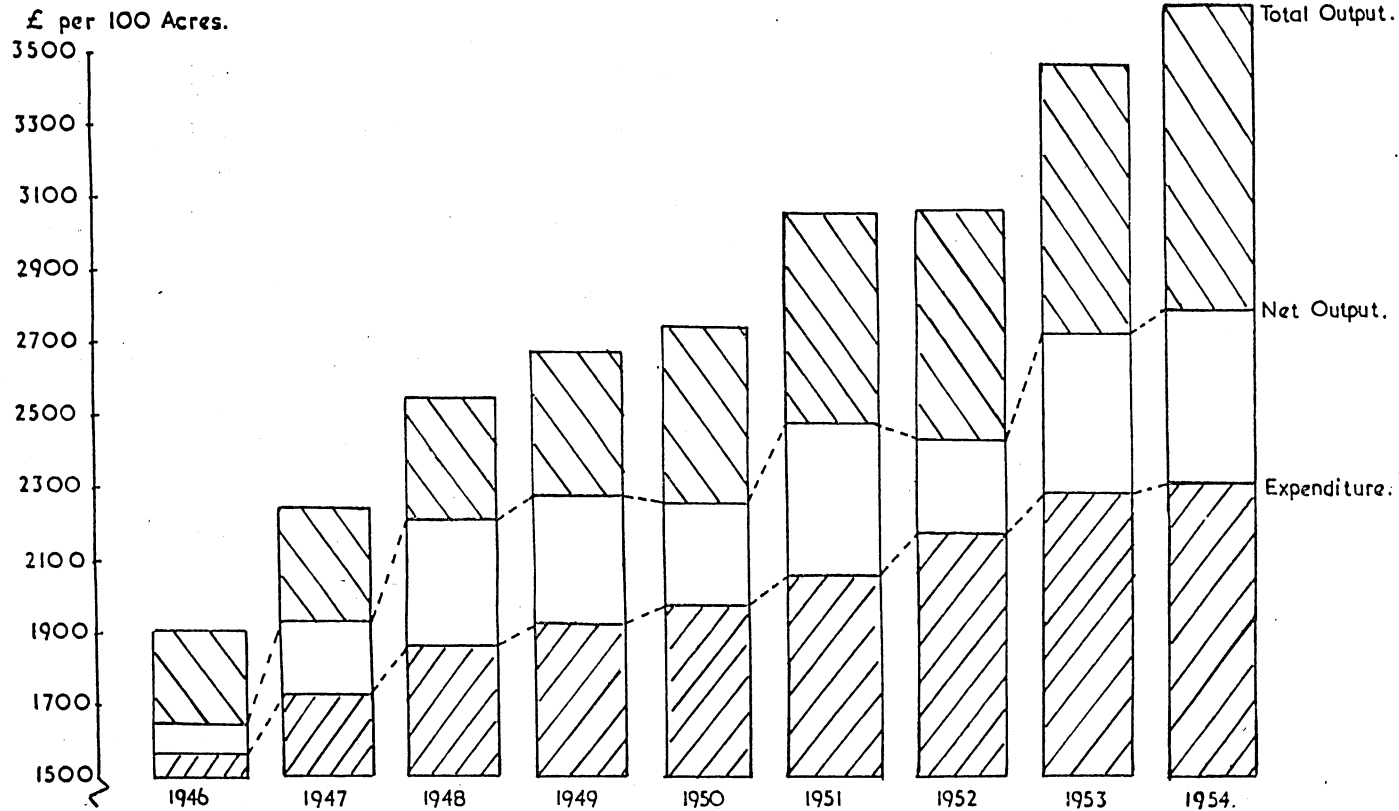
* *Total Output* is the value of crop and livestock sales and farmhouse consumption less purchases of livestock and adjusted for differences between opening and closing valuations.

† *Net Output* is obtained by deducting the value of purchased feedingstuffs and seed from total output.

‡ *Expenditure* is the sum of the remaining items of current expense incurred by the tenant farmer. It comprises fertilizers, rent and rates, power and machinery costs, labour paid and unpaid, and miscellaneous expenses.

§ *Management and Investment Income* is the difference between the value of Net Output and Expenditure. It is the sum remaining to remunerate the farmer as a manager and business man and to pay the interest on tenant's capital.

TRENDS IN FARM OUTPUT, EXPENDITURE AND INCOME. GENERAL MIXED FARMS. Harvest Years 1946-1954.



Note. The difference between Net Output and Expenditure is Investment and Management Income.

Source. Farm Management Survey South East Province.

FIG. 1

These significant changes were due to a variety of causes; to changes in the value of money, to higher prices for farm products as well as to changes in the type of production and in the efficiency of production. Although affected somewhat by the changes which have taken place in the sample, Fig. 2 gives an indication of the change that occurred in the composition of farm production. As compared with 1947, 1954 shows that livestock and livestock products accounted for 71 per cent. of total output in place of 54 per cent.; the major change being due to the increase in the output of pigs, poultry and eggs. In consequence of these changes, crop output fell in importance, from 38 per cent. of total output in 1947 down to a quarter by 1954.

Such changes in farm production were necessarily influenced by the prices which farmers had to pay for their means of production. Changes in the composition of farm expenditure, given in Fig. 3, show very clearly how farmers reacted to the increasing cost of labour and to the derationing of feedingstuffs. There was a tendency for power and machinery costs to diminish somewhat in importance as greater emphasis was placed on livestock production. Total outlay on labour and power and machinery fell from 61 per cent. of current expenditure in 1947 to 52 per cent. in 1954.

The outstanding features of Figs. 2 and 3 are the considerable expansion since 1948 of the intensive livestock enterprises, particularly pigs and poultry, in association with ever-increasing purchases of feedingstuffs. Similar evidence can be deduced from Fig. 1 where the rapid expansion in total farm output was due to the emphasis placed on the production of high-value livestock products. An ever-widening gap appears between total output and net output as the years pass because of the purchase of more and more feedingstuffs.

Some measure of the forces acting can be seen in Table XVI and in Fig. 4.

TABLE XVI
Index Numbers of Farm Product Prices (1936-8 = 100)

	1946	1947	1948	1949	1950	1951	1952	1953	1954*
All products	207	241	249	260	270	296	306	312	312
Cereals and farm crops ..	198	214	238	239	250	283	279	283	281
Livestock and livestock products	208	233	252	267	281	310	323	330	328
Bacon pigs	216	255	281	325	370	412	437	456	390
Eggs	233	249	270	285	290	311	317	312	343
Fat cattle	173	202	223	233	238	257	283	299	311
Fat sheep	184	225	253	260	270	291	309	314	337

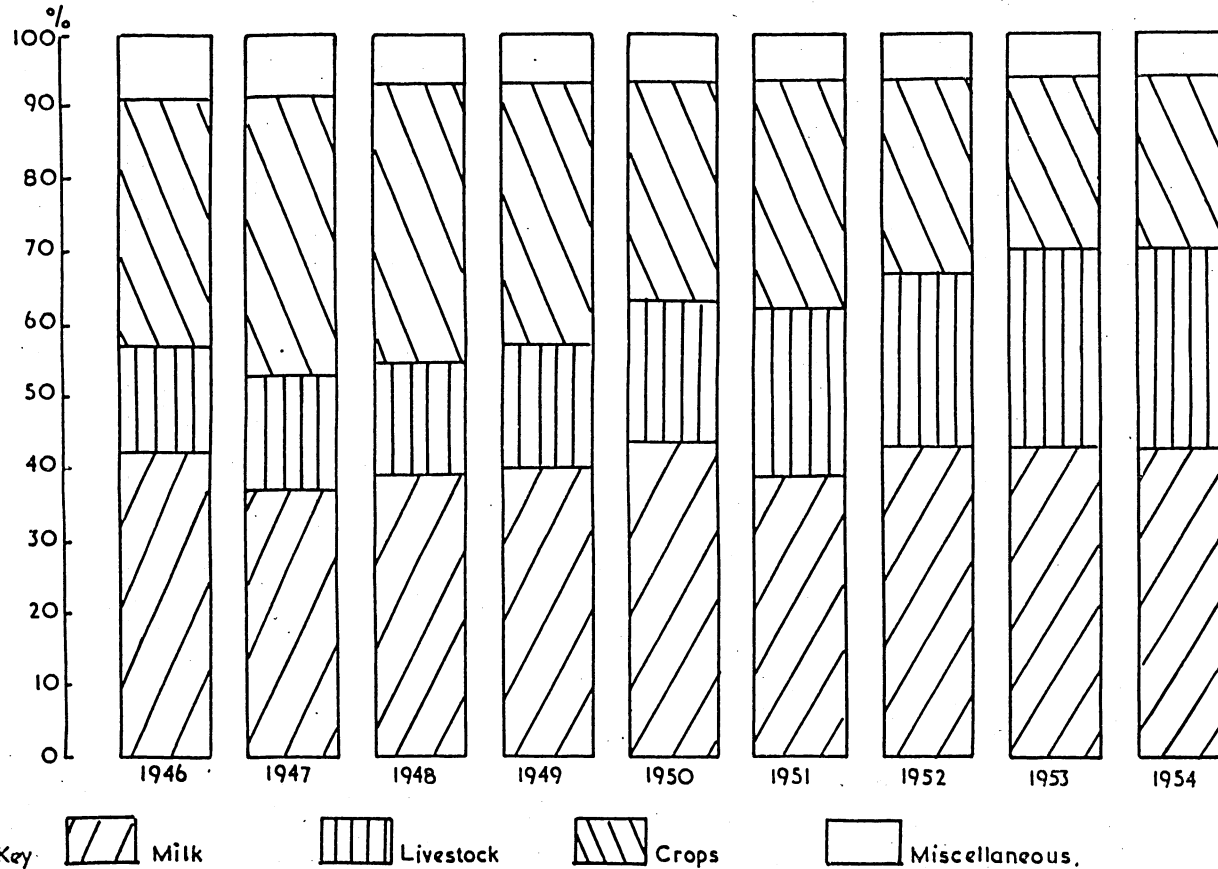
Source: *Agricultural Price Statistics, M.A.F.F.*

* Provisional figures inclusive of deficiency payments.

In brief, Fig. 4a shows the tendency, in the years after 1948, for livestock product prices to rise relatively more than those of farm crops. Fig. 4b shows, in particular, that the outstanding rise in bacon pig prices was not matched by equivalent rises in the prices of fat cattle, fat sheep and eggs.

A Comparison with Farming Results in England and Wales. At this point, it is pertinent to draw attention to farm incomes in the South-East of England as compared with national averages. To all but a few, it will come as a surprise to find that some of the poorest financial results on farms in the whole national Farm Management Survey come from South-East England and appear with the greatest consistency throughout the years. Not only do the results in the South-Eastern counties, year by year without

CHANGES IN THE COMPOSITION OF FARM OUTPUT GENERAL MIXED FARMS Harvest Years 1946-1954



Key: Milk Livestock Crops Miscellaneous.

Source. Farm Management Survey South East Province.

FIG. 2

CHANGES IN THE COMPOSITION OF TOTAL FARM EXPENDITURE GENERAL MIXED FARMS Harvest Years 1946-1954

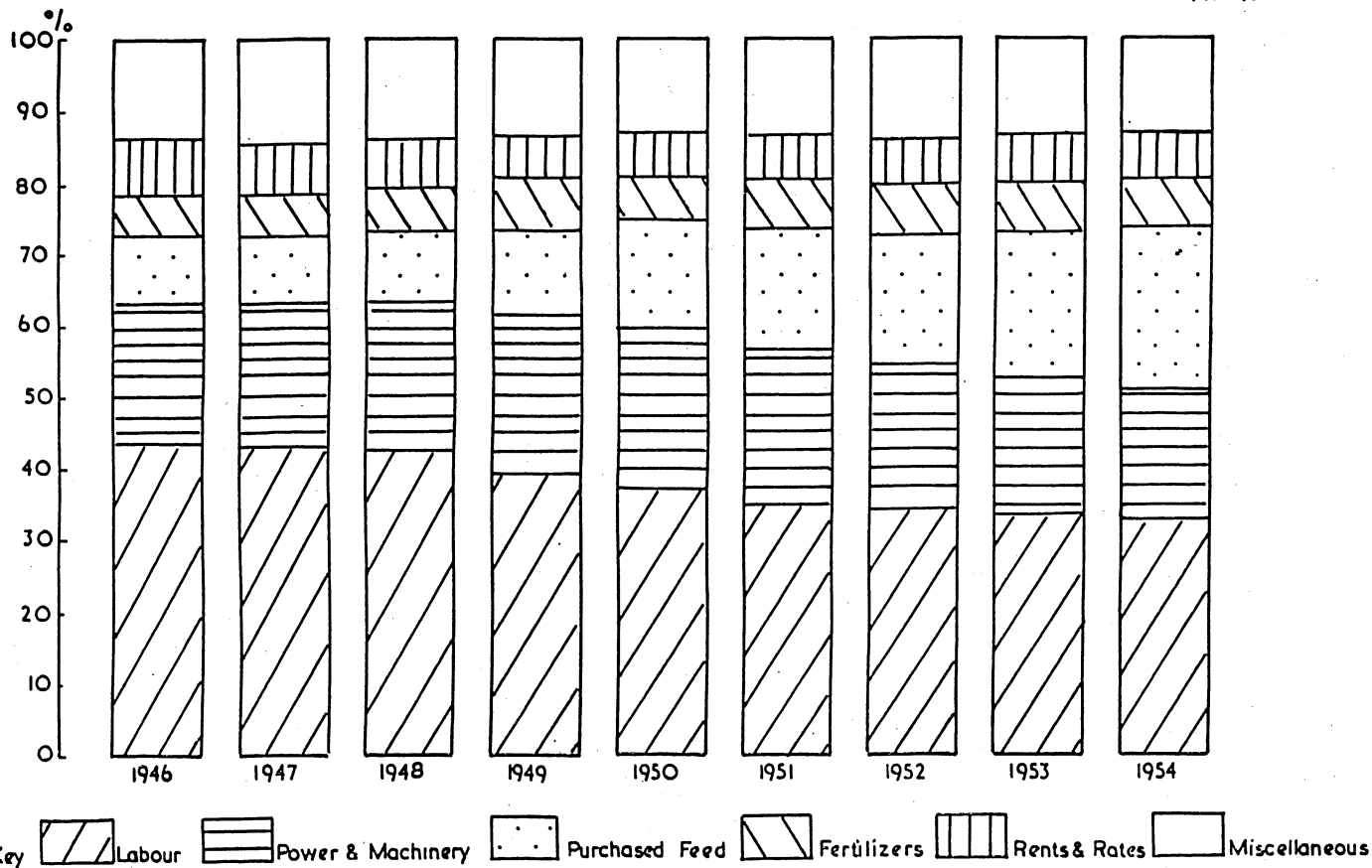
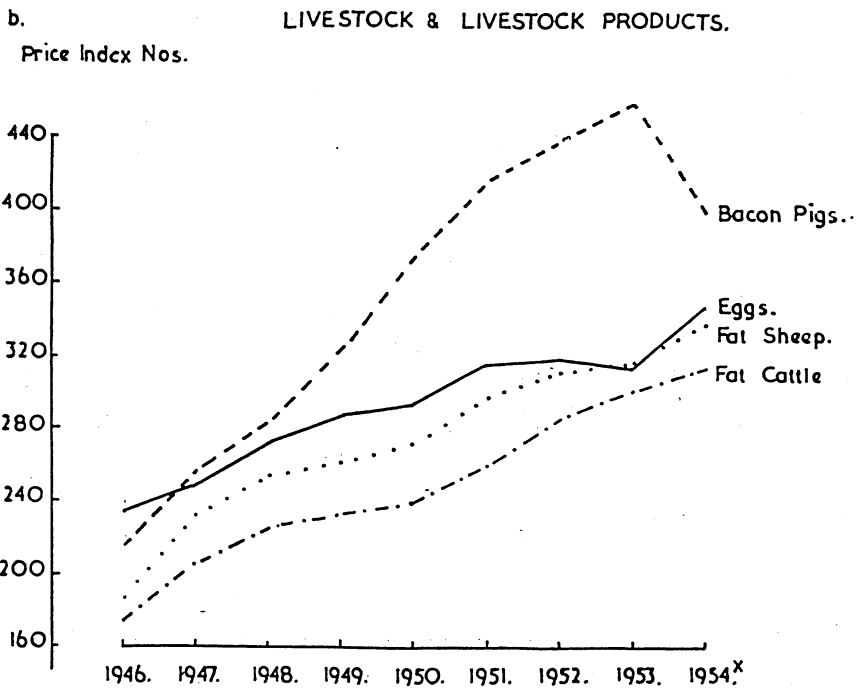
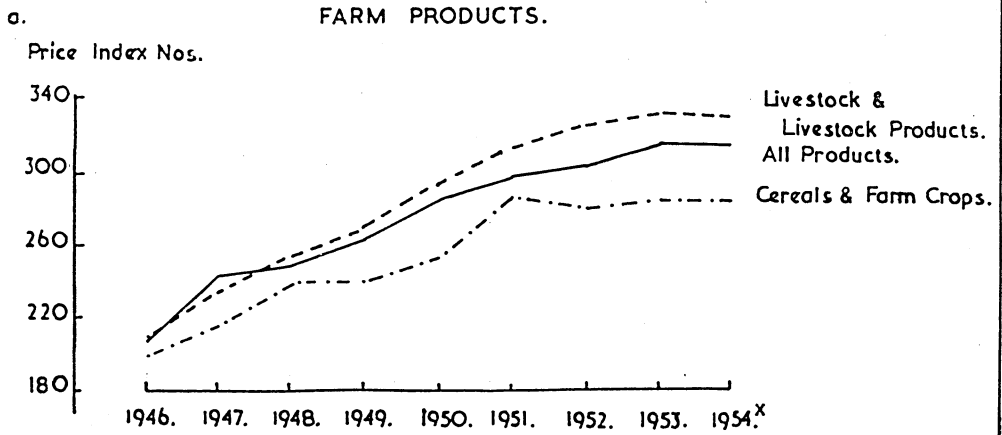


FIG. 3

PRICE INDEX NUMBERS. FARM PRODUCTS. 1936-38 = 100



^x Provisional figures inclusive of deficiency payments.

Source. Agricultural Price Statistics. M.A.F.F.

FIG. 4

exception, show the least favourable results, but each type of farming group shows the same strange and unfortunate consistency.

It is not that high levels of farm profits do not occur in the South-East; they undoubtedly exist in areas such as the Romney Marsh, Isle of Thanet, Chichester Plain and in the specialist hop and fruit districts. In areas like these, the standards of efficiency in food production can be equalled in few parts of the country. Yet for the mixed type of farm which is prevalent in Kent, Surrey and Sussex, farm incomes are often miserably low and on occasions they have fallen well below the level on poor upland farms in Wales. It is an enigma which can only be explained by reference to values of an indirect economic nature which continue to influence many farmers in the South-East so that on average they receive an income below that of the farm worker, leaving no monetary return for their personal management, or risk bearing or interest on their capital investment. More will be said about this in later pages.

Comparison with Farm Management Survey results from other parts of the country shows that, in general, not only do many farms in the South-East of England have a smaller total output than comparable farms elsewhere but, apparently, they also incur higher costs. In particular, yields from crops and stock are poorer and labour is less productive although a relatively more important farm cost. It is generally true that output from subsidiary enterprises on the farm, such as pigs and poultry, is lower than elsewhere. Heavy expenditure on seeds, fertilizers and power and machinery, with the resulting output still on the low side, may also indicate that the new intensive methods of crop and grass production have not been adopted successfully.

TABLE XVII
Revenue, Expenditure and Farm Profit on Dairy Farms in England and Wales and South-East England

*Results per 100 acres**

	Revenue		Expenditure		Farm profit†	
	Average England and Wales	Kent and Surrey	Average England and Wales	Kent and Surrey	Average England and Wales	Kent and Surrey
1950-1	£ 3,818	£ 3,679	£ 3,356	£ 3,616	£ 661	£ 280
1951-2	4,094	4,056	3,625	3,898	634	361
1952-3	4,137	3,888	3,543	3,605	731	264
1953-4	4,574	3,976	3,824	3,672	937	428

Source: *Farm Incomes in England and Wales*, No. 5, 1951-2, and No. 7, 1953-4, H.M.S.O.

* Acres of crops and grass.

† Changes in valuation have been accounted for in arriving at farm profit.

The results given in Tables XVII and XVIII are typical of different groups from the South-East Province appearing in *Farm Incomes in England and Wales*. The national average is drawn from the results of between 430 and 470 dairy farms located in various areas of the country.

Apart from attaining their highest level in the 1953-4 year, the chief item of significance is that farm profits were relatively very low in South-East England. Indeed, in every year for which results have been published, the level of farm profits for the Kent and Surrey farms is the *lowest* of any in the particular group concerned.

Perhaps even more startling is the fact that in the 1952-3 and 1953-4 years the Kent

TABLE XVIII
Profits on Dairy Farms—England and Wales Compared with South-East England.

Results per 100 acres

	Farm profit	
	Average England and Wales	Kent and Surrey
	£	£
1944-5	440	257
1945-6	447	229
1946-7	424	115
1947-8	373	74
1948-9	660	181
1949-50	597	201
1950-1	661	280
1951-2	634	361
1952-3	731	264
1953-4	937	428

Source: Farm Incomes in England and Wales—Reports No. 1, 3, 5, 7. H.M.S.O.

and Surrey Dairy Farms had, by a considerable margin, the lowest profit per farm of any group included in "*Farm Incomes in England and Wales*".

Certain evidence is available from the Farm Incomes reports which shows that there has been some difference in average acreage between the two groups compared in Tables XVII or XVIII. The average of the national group has been nearer to 110 acres as compared with 130 acres for the Kent and Surrey farms. But this is not sufficient to explain away the substantial differences in the farmer's rewards for his own management and capital. As shown in Table XVII, farm revenue has been low although farm expenditure was generally above average levels.*

The position can be put thus. In seven years out of ten since 1944, farmers in the South-East of England have been making profits less than one-half the size of those typical in the whole of England and Wales. Yet this was a period when farm prices and profits have been, in general, quite high.

Thus there can be no doubt of the mediocrity of the economic results attained by many farms in the South-East. Further evidence will be considered shortly which throws light on some of the causal factors. Meanwhile, although it is known that many farms in the South-East of England are highly profitable, serious doubts must be raised about the general position. It is highly probable that a greater knowledge of the financial position of smaller farms would reveal an even more disquieting situation. Although it is true that the fertility of the land is poor in many areas in the South-East yet the region does enjoy some advantages of climate and markets are very accessible.

Three Years' Results from 150 Farms. The object of referring to the reports on Farm Incomes in England and Wales has been to show the relative level of farm incomes on South-Eastern farms. Prior to this, some results from the Farm Management Survey have been given which were concerned with the total sample results for the last nine years (pages 19-23). These results showed an upward trend which was particularly marked in respect of the value of total farm output and less marked in respect of net output and farm expenditure. In general, an increase of approximately $7\frac{1}{2}$ per cent. per annum

* Although calculated on a somewhat different basis the F.M.S. results are fully substantiated by the results of the N.F.U. Farm Accounts Scheme. The South-East Region shows the lowest incomes, per 100 acres and per farm, of any region.

occurred in respect of total output compared with 6½ per cent. for net output and 5 per cent. for expenditure. These trends, however, suffer from the disadvantage that the basic sample of farms has changed somewhat over the period of years. But information for the three most recent harvest years of 1952, 1953 and 1954 is available for an identical group of 150 non-specialist farms.*

Table XIX shows the results per 100 acres over the three year period.

TABLE XIX
Financial Results per 100 Acres, 150 Farms

	1952-3	1953-4	1954-5
	£	£	£
Total output	3,255	3,432	3,604
Net output	2,569	2,691	2,772
Expenditure	2,220	2,235	2,284
Management and investment income	349	456	488

The trends are at a somewhat similar rate to those shown in Fig. 1 with total output rising most rapidly, followed by net output and with expenditure showing the smallest rate of increase.

The Growth of Production. The rise in the value of total output†, from an average of £32 11s. per acre in 1952-3 to £36 1s. in 1954-5, conceals changes in the relative composition of farm output. Briefly, the changes were a slight rise in favour of livestock and away from crops. The value of livestock output rose from £22 7s. per acre to £25 15s. Amongst livestock, pigs showed an increase in value of output of 17 per cent. during the three years, and poultry and eggs, an increase of 13 per cent. An upward trend was, also, evident in respect of cattle output but milk and sheep showed less change.

Increased purchases of feedingstuffs closely followed the expansion in the output of pigs and poultry. Between the harvest of 1952 and 1954 the average expenditure on these items rose from £5 7s. per acre to £7—an increase of 30 per cent. This change was one of the most significant of the whole period, reflecting the move towards the pre-war emphasis on bought in feedingstuffs. There is no doubt that a very great part of the rise in output was due to the expansion of a processing industry rather than to a more efficient use of the existing farm resources, in particular, of land and capital used to grow feed crops for livestock. Seeds and feedingstuffs purchases together, amounted to 27 per cent. of the total outlay in 1954-5, having risen from 24 per cent. in 1952-3.

Despite larger purchases of both feedingstuffs and seeds, net output‡ continued to increase. By 1954-5 the level was £27 14s. per acre compared with £25 14s. in 1952-3—an increase of almost 12 per cent. Because net output is a measure of the value of things produced on the farm itself, after allowance has been made for raw materials bought from other farms for processing, it is a useful measure of real progress in production. Unfortunately, because of changes in the level of prices and in the value of money itself, it is not clear how much of the increase is a real gain in product. It is certain, however, that the rise recorded in the value of net output does reflect a real increase in the physical output of the farms.

Changes in Farmers' Costs. The third major feature disclosed by the comparison, in addition to a large increase in total output and a small increase in net output, was the

* Of these Farms, 88 are situated in Kent, 22 in East Sussex, 26 in West Sussex and 14 in Surrey.

† Total output is the value of sales of crops, livestock and livestock products and farmhouse consumption, less purchases of livestock and adjusted for changes in the valuation level.

‡ Net output is obtained by deducting purchases of feedingstuffs and seeds from the value of total output.

stability of expenditure.* Despite the rising costs of practically all resources used on the farm, expenditure per acre hardly changed and between the harvest years of 1952 and 1954 there was only an increase from £22 4s. to £22 17s. per acre.

But the items of expenditure comprising the whole changed. It is noticeable, for example, that the value of fertilizers used declined—falling from an average of £2 4s. per acre in 1952 to £1 19s. in 1954. Unless some considerable change in the pattern of buying took place, for example, substituting cheaper materials, it would appear that less fertilizer was put on the land. Prices of fertilizers did not fall to any extent during the period. The decline, however, may in part be due to a more effective use of the fertilizer that was bought, through closer attention to crop requirements and by the more general use of improved placement techniques. It is unfortunate, nevertheless, that from an already low average rate of application, a decline took place concurrent with a large increase in the purchase of imported feedingstuffs.

Labour costs are second only in importance to purchased feedingstuffs, and attract attention because of continued rises in the wages of farm workers and the loss of workers from agriculture. A comparison over the three years shows a tendency for the total wages† bill to rise (by 6 per cent.) between 1952 and 1954. Yet as a proportion of total outlay, there was little change in the cost of labour. Furthermore, if the expenses of providing power and machinery services are combined with those of labour (as they are complementary types of expenditure), it can be shown that jointly these expenses declined in relative significance.

TABLE XX
Labour and Machinery Expenses—150 Farms

	per 100 acres			Per cent. of total outlay*		
	1952-3	1953-4	1954-5	1952-3	1953-4	1954-5
Total labour	£ 991	£ 1,033	£ 1,051	34·0	34·8	33·7
Power and machinery	588	564	577	20·3	19·0	18·6
Total labour, power and machinery	1,579	1,597	1,628	54·3	53·8	52·3

* Total outlay is total expenditure plus feedingstuff and seeds expenses.

Although it might be thought that the decrease in power and machinery costs occurred because farmers were not replacing their machinery at the same rate as in earlier years, this does not appear to be the case judging from the increased costs of depreciation.

TABLE XXI
Power and Machinery Expenses per 100 Acres—150 Farms

	1952-3	1953-4	1954-5
Machinery, repairs, vehicle tax and insurance	£ 184	£ 171	£ 172
Fuel and electricity	185	174	173
Contract services	77	71	76
Depreciation	142	148	156
Total	588	564	577

* Expenditure is the tenant's expenditure on items other than livestock, feedingstuffs and seeds which have already been accounted for in arriving at Net Output.

† This includes an estimated allowance for the manual labour of the farmer and his family.

Machinery expenses, in fact, tended to decline because repair bills were less and also because of a considerable change over from tractors using petrol and vapourizing oil to those using diesel fuel. These savings were more than sufficient to offset the tendency for dearer electricity, coal, petrol, etc. to force up the total cost of fuel. Rising costs were, in fact, powerful stimulants to improve efficiency even if this necessitated the purchase of new and expensive machinery which subsequently pushed up depreciation charges.

An examination of purchases of new machinery shows an average outlay of £568 per farm in 1952, £515 in 1953 and £610 in 1954. The size of this outlay can be appreciated when it is realized that over the three-year period the total amount of new capital investment in machinery for the 150 farms was more than a quarter of a million pounds sterling.

Farmers' Profits. The return which remains for the farmer after expenses have been met from the sales of farm products may be called Management and Investment Income. This sum remains to pay the interest on tenant's capital and to remunerate the farmer as a manager and for undertaking business risks. If the value of the farmer and his wife's manual labour is also added, the return is known as Net Farm Income or Farm Profit. This is the return from farming and is the sum available for living purposes, for payments of interest and for new investment in the farm.

TABLE XXII
Farm Profit per 100 Acres—150 Farms

	1952-3	1953-4	1954-5
Management and investment income	£ 349	£ 456	£ 488
Add farmer and wife's labour	91	100	109
Farm profit	440	556	597

As shown in Table XXII, for the identical group of 150 farms, the farm profit averaged £440 per 100 acres, or £915 per farm in 1952-3. By 1954-5, it had reached the highest level yet attained of £597 per 100 acres, or £1,278 per farm. If allowance is made for interest on tenant's capital of 5 per cent. on £6,250* then the sum remaining in 1954-5 was £966 or £18 10s. per week. It is interesting to note that during a similar period the average earnings of paid operatives in industry were £450. Thus the average financial rewards for running a 200 acre farm and providing a considerable amount of manual labour and capital appear to be quite modest. Furthermore, the need to finance new investment in the farm, particularly burdensome in times of inflation, must not be overlooked. It is hard to believe that in any other alternate use such amounts of capital, labour and management would earn such low returns.

By no means all the farms in the sample enjoyed an income as high as the average figures and in the various years studied there was a tendency for the range and distribution of profit and losses to vary. In the three harvest years 1952 to 1954, the income per acre ranged between "profits and losses" of £25, except on two farms. The vast majority (above 80 per cent.) of the farms, however, lay in the range from "losses" of up to £5 per acre and "profits" of up to £10 per acre. Nevertheless, in 1952-3, 40 farms made losses; in 1953-4 and 1954-5, 25 and 33 farms, respectively, showed losses.

* See Table XXVII, p. 38 for details of Tenant's Capital.

TABLE XXIII
The Distribution of Farm Profits and Losses—150 Farms

Management and Investment Income £ per acre		1952-3	1953-4	1954-5
		Number of farms		
<i>Profit</i>	over 25	—	—	1
	20-24	—	2	2
	15-19	4	1	4
	10-14	8	16	5
	5-9	38	43	49
	0-4	60	63	56
<i>Loss</i>	0-4	27	18	25
	5-9	7	6	4
	10-14	3	—	2
	15-19	1	1	—
	20-24	1	—	2
	over 25	1	—	—
Total		150	150	150
No. of losses		40	25	33

CHAPTER III

DAIRY, LIVESTOCK AND ARABLE FARMS—A COMPARISON

It is of interest to consider the 150 farms in the sample in rather greater detail. This can be done by separating the dairy and non-dairy farms and sorting the latter into livestock and arable types.

Four groups of dairy farms have been distinguished by size as follows:

<i>Acreage</i>	<i>No. of farms</i>	<i>Average acreage</i>
0-100	38	61
101-250	60	157
251-400	15	342
over 400	17	661
Total	130	206

The Output of Dairy Farms. The level of total farm output varied widely ranging from £48 per acre in the 1954 harvest year on the smallest farms, to nearly £29 on those over 400 acres. As compared with the 1952 harvest year, the largest increase in output per acre was on the smallest farms. This was due chiefly to an expansion of pig and poultry production, but, as on all farms, milk sales also increased. Differences in the composition of farm output were also noticeable. Although milk formed the major part of output on all of these farms, on the smallest it made up more than three-fifths of the total; on the farms of over 400 acres it was a low as a third.

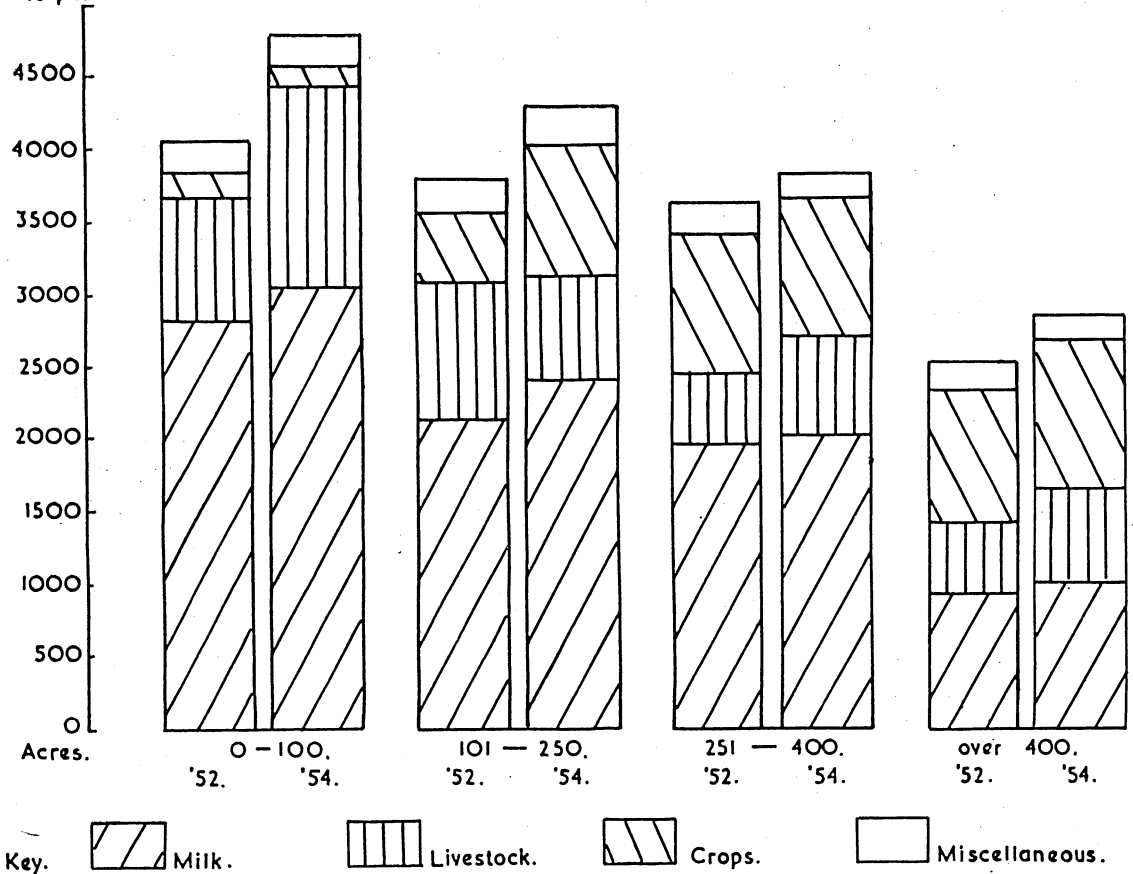
The smaller farms were highly specialized livestock producers. No less than nine-tenths of all output came from livestock on the farms under 100 acres. As size of farm increased, however, pig and poultry enterprises gave way to cattle and sheep and, in addition, the output from crops became more important. Indeed, the output from crops was second only to milk in importance on the largest farms.

TABLE XXIV
Financial Results by Type and Size of Farm, 1954-5. Average per 100 Acres

	Dairy farms				Non-dairy farms		Average all farms
	0-100 acres	101-250 acres	251-400 acres	Over 400 acres	Livestock	Arable	
Total Output	£ 4,789	£ 4,235	£ 3,821	£ 2,853	£ 2,431	£ 4,045	£ 3,604
Net Output	3,021	2,980	3,074	2,388	2,070	3,553	2,772
Total Expenditure	2,830	2,696	2,460	1,776	1,604	2,763	2,284
Management and Investment Income	191	284	614	612	466	790	488
Profit per farm	411	693	2,237	4,205	1,070	2,341	1,277

Net output per acre, unlike total output, showed a most remarkable similarity for, on all groups except that of farms over 400 acres, net output was roughly identical at £31 per acre in the 1954-5 season. Thus, although a much higher total output per acre was obtained on the smaller farms, this advantage was lost through the large purchases of feedingstuffs thought necessary to reach this level.

CHANGES IN THE VALUE OF FARM OUTPUT. 130 DAIRY FARMS. Harvest Years 1952 & 1954.
 £ per 100 Acres.



Key. Milk. Livestock. Crops. Miscellaneous.

Source. Farm Management Survey. South East Province.

FIG. 5

CHANGES IN TOTAL FARM EXPENDITURE. 130 DAIRY FARMS. Harvest Years 1952 & 1954.

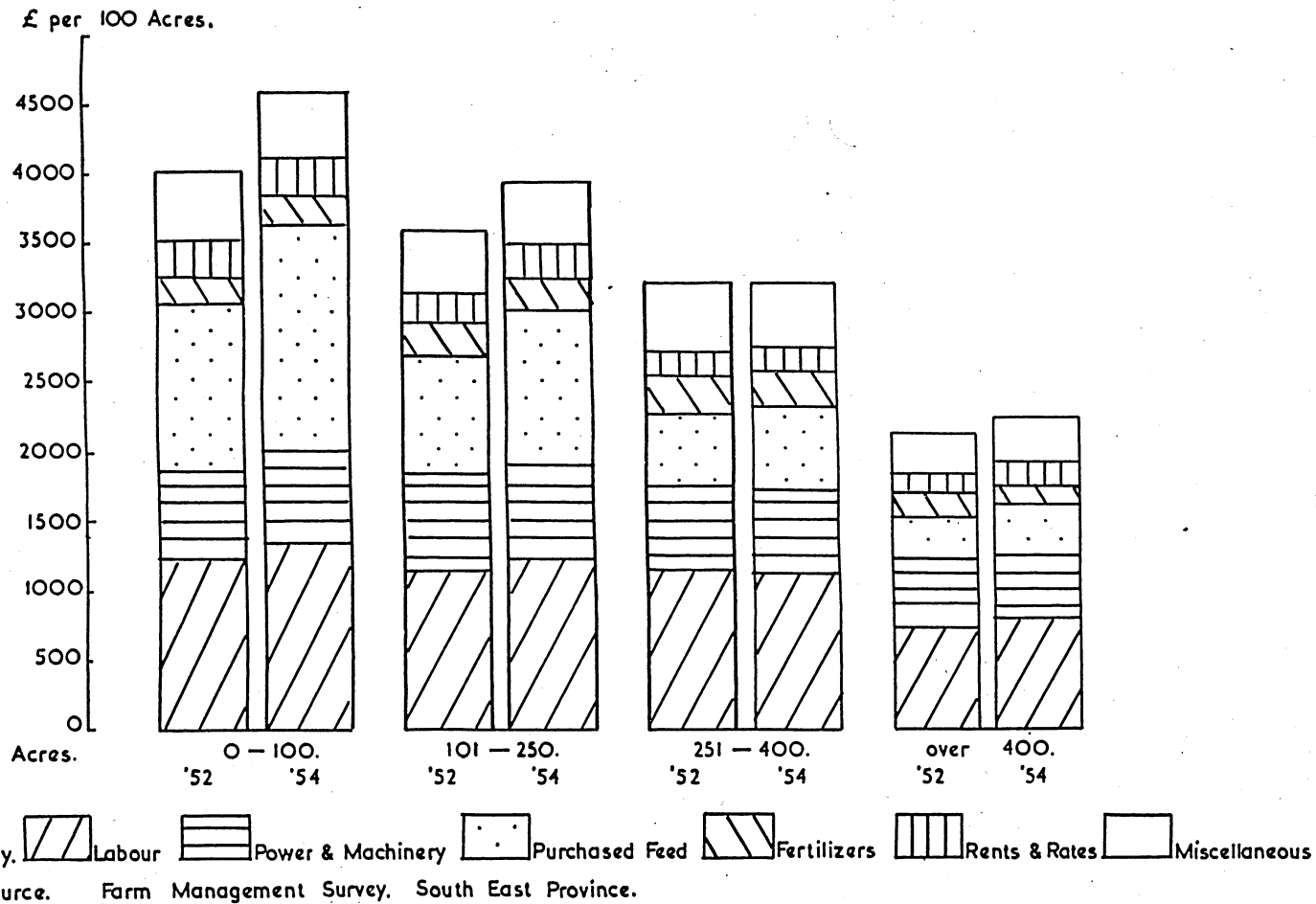


FIG. 6

Farm Expenditure. No less than a third more feedingstuffs were bought in 1954-5 on the farms under 100 acres as compared with the 1952-3 season but this was matched by an equivalent rise in livestock output. Pig and poultry production, in particular, expanded most rapidly on these small farms. At the level attained in the 1954 harvest year, i.e. £16 8s. per acre, purchases of feedingstuffs were the largest single item of expense on these farms and absorbed well over a third of the total outlay. Labour expenses were second in importance, in contrast to the larger farms where they were of prime importance. On the farms of above 400 acres, for example, labour costs accounted for almost two-fifths of the total outlay, and power and machinery expenses also were much larger than feedingstuff purchases.

Total expenditure, on an acreage basis, followed a similar pattern to that of total output, diminishing as the size of farm became larger. If, however, expenses are related to net output, expenditure on the smaller farms seems unreasonably high. On farms between 251-400 acres it cost nearly £4 per acre less to obtain the same net output as on the smallest farms.

Over the three year period there was a tendency for total outlay to rise, owing to the rising costs of labour and many raw materials, and to greater purchases of feedingstuffs. In all groups, however, total and net output per acre were raised; in particular, on the dairy farms under 100 acres, where total output rose by a fifth and net output by more than a tenth. Where the smallest rise of output occurred, on the 251-400 acre farms, expenses actually declined and on the farms over 400 acres they were held constant. In the two smallest groups, the rise in expenditure was not sufficient to absorb the increase in output. Thus in the 1954-5 harvest year all four dairy farm groups showed improved returns.

The Returns from Dairy Farming. Profits, in the form of management and investment income were, nevertheless, generally poor. Less than £2 per acre was the amount on the dairy farms under 100 acres and about £2 17s. on the farms between 101-250 acres. The two largest farm groups showed almost identical results of nearly £6 per acre.

A low level of profit per acre has serious implications for the farmer with limited acres. To secure a reasonable total profit, a large margin per acre is essential on the small farm. This was certainly not attained in any of the three years for which results are presented. Furthermore, although the average for any group expresses a general level it does not say how many farms were above or below that level. Hence it is of interest to note that no less than two-fifths of the dairy farms under 100 acres made a loss in the 1952-5 season. In addition, this group of farms showed a much higher and more consistent proportion of losses than any other group. There is every indication that large numbers of farmers on holdings under 100 acres, and also between 101 and 250 acres, do not produce enough to cover the expenses they incur.

Certainly, the results which are available indicate that on the majority of farms in the South-East province with less than 100 acres, cash incomes cannot amount to much more than £450 during most years.

LIVESTOCK AND ARABLE FARMS

In the group of non-dairy farms, 13 livestock and 7 arable farms were distinguished on the basis of the value of output from crops or stock. The livestock farms averaged 175 acres in extent and the arable farms 262 acres, as compared with a general figure of 208 acres for the 150 farms.

Throughout the three-year period, the arable farms showed the highest levels of net output and of management and investment income per acre of any group. The latter has, however, been falling from the peak of £9 6s. per acre which was reached in the 1952-3 harvest year. This was due to the failure of farm output to expand at a time when costs were tending to rise. Part of the reason for the lack of growth of output was due to falling prices for some sale crops and to the effects of bad weather. In addition, there were

changes in the type and density of stocking. It is clear from Table XXVI that although some changes in stocking did occur, their general effect was quite small.

TABLE XXV
Financial Results per 100 Acres—Arable Farms

	1952-3	1953-4	1954-5
Total Output	£ 3,971	£ 3,852	£ 4,045
Net Output	3,461	3,375	3,553
Total Expenditure	2,529	2,554	2,763
Management and Investment Income	932	821	790

The livestock farms, though producing the smallest total output and net output per acre, also showed the lowest level of expenditure, management and investment income, therefore, averaged a comfortable £430 per 100 acres for the three-year period.

Labour costs on both livestock and arable farms were the largest single item of expense, forming about 37 per cent. of total outlay. The rise of £2 per acre in this item was primarily responsible for the increased level of expenditure on the arable farms; a trend quite different from that on all other groups of farms.

TABLE XXVI
Index Numbers of Changes in Stocking—1954-5
1952-3 = 100

	Dairy farms				Non-dairy farms		Average all farms
	0-100 acres	101-250 acres	251-400 acres	Over 400 acres	Livestock	Arable	
Cattle	110	105	109	108	93	104	106
Sheep	100	100	105	101	104	100	101
Pigs	165	123	111	135	121	100	132
Poultry	122	100	112	133	83	133	110
All livestock	114	106	107	108	102	103	108

There could be no clearer example of the effect of the level or turnover, or output, farm profit than a comparison of the arable and livestock farms. Both groups of farms appear to have been operated with equal efficiency but because the volume of turnover per acre was greater on the arable farms so too was total farm profit.

CHAPTER IV

FARMING CAPITAL

In the 1954 harvest year the average valuation of tenant's capital per farm was £6,552 for the 150 farms for which records were available. This shows a rise from £5,710 in the 1952-3 season. If allowance were made for current operating capital, the figure would probably be above £7,000. There was a considerable variation in the level of tenant's capital, per 100 acres, between different groups of farms, and the differences were closely related to the level of farm output.

TABLE XXVII
Valuation of Tenant's Capital per 100 Acres—1954-5

	Dairy farms				Non-dairy farms		Average all farms
	0-100 acres	101-250 acres	251-400 acres	Over 100 acres	Live-stock	Arable	
Livestock	£ 1,985	£ 1,575	£ 1,298	£ 830	£ 1,122	£ 869	£ 1,227
Crops	434	480	826	541	474	752	569
Machinery	1,040	1,138	1,065	683	624	1,326	934
Miscellaneous	265	387	363	287	152	288	318
Total	3,724	3,580	3,552	2,341	2,372	3,235	3,048

Similarly, a considerable variation occurred between farms in the allocation of capital to different enterprises (Table XXVIII). In part, of course, the proportion varies according to seasonal factors which affect the acres of crops and number of stock on farms.

TABLE XXVIII
Distribution of Tenant's Capital 1954-5*

	Dairy farms				Non-dairy farms		Average all farms
	0-100 acres	101-250 acres	251-400 acres	Over 400 acres	Live-stock	Arable	
Livestock	% 53	% 44	% 36	% 35	% 48	% 27	% 40
Crops	12	13	23	23	20	23	19
Machinery	28	32	30	30	26	41	31
Miscellaneous	7	11	11	12	6	9	10
Total	100	100	100	100	100	100	100

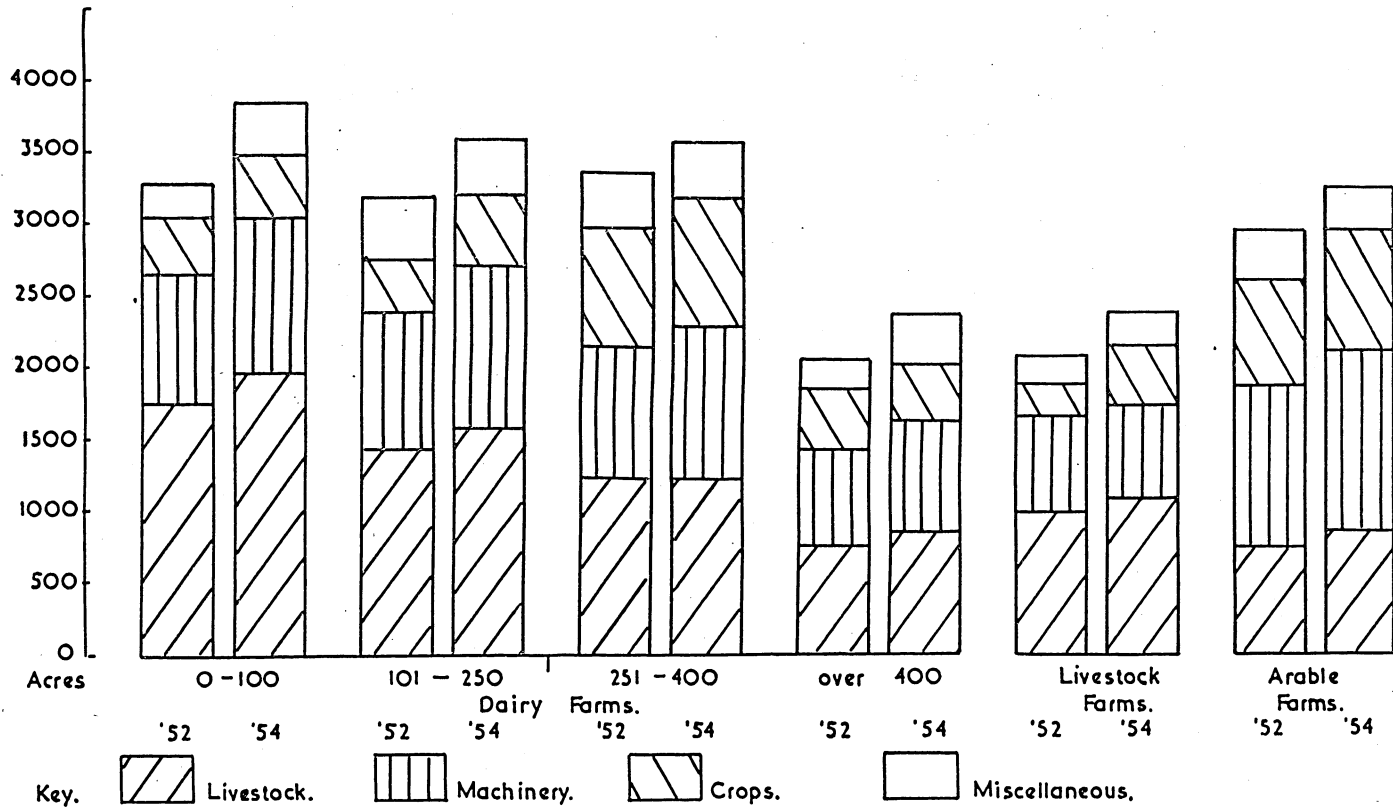
* Current operating expenses are not included.

The figures which are available on tenant's capital are not without several shortcomings. In some cases, difficulties arise because of differences in the method of valuation, also many farmers do not bother with tenant right valuations. One of the greatest difficulties, however, arises through the date of entry into farms. Farmers who have only

TENANTS' CAPITAL Per 100 Acres.

Harvest Years 1952 & 1954.

£ per 100 Acres.



Source. Farm Management Survey. South East Province.

FIG. 7

recently begun farming may have high capital investments purely because of their recent entry. Likewise, the valuation of machinery is related to rates of depreciation which may eventually completely mask the real value of an asset. The figures given in this report are influenced by all these factors and others such as errors and omissions in valuing. The results, however, are the best available, short of making a new start with completely uniform systems of valuation. Their basic merit is that, for individual farms and, therefore, for each farm group, there is uniformity for the three-year period.

The average figures given here merely serve as a guide to changes occurring on the farms concerned during the 1952, 1953, and 1954 harvest years. They do not tell any individual farmer that by investing more in a particular way he will obtain a certain return on that capital. Every judgement on the desirability of a new investment on a farm should be made by preparing a budget of the probable returns and costs of such an action. Similar budgeting can be done to judge the desirability of replacing or discarding existing capital equipment. Average figures of costs and returns are generally useless in making decisions on the farm. It is important to know what alternative investment opportunities exist on the farm concerned and what are the likely consequences of each.

The question is often asked, "What should the return be on capital invested in farming?" This question shows that the difficulties of valuing capital have not been realized. It also presupposes that whatever amount of additional capital is invested on a particular farm the return on it will be constant and average. There could be no greater fallacy. The history of farming shows many failures have arisen through over-investment. Similarly, many of the partial failures in farming, as shown by low farm profits, are due to the inability, or unwillingness of farmers to invest adequately and in a balanced fashion. In both of these types of wrong investment, the failure has often been due to lack of knowledge of how to plan the optimum level of investment on the particular farm.

It is quite clear from Table XXVII that there are grounds for suspecting unbalanced investment on some farms included in this survey. Was it necessary, for example, for small, mainly grass farms producing milk, pigs, and eggs, to have so large an investment in machinery and equipment? It would take further study to show the exact extent to which the purchase of machinery on many farms has been stimulated by the desire to offset taxation rather than by real need. Taxation relief on new farm equipment is of questionable value if the effect is to divert the limited funds farmers have available for investment away from more needed and more remunerative alternative uses. In many cases, the real effects of capital allowances have been to push farmers into making unbalanced investment, to divert potentially exportable materials to the home market and to subsidize and speed up the movement of surplus labour out of agriculture.

TABLE XXIX
*Return on Tenant's Capital**

	Dairy farms				Non-dairy farms		Average all farms
	0-100 acres	101-250 acres	251-400 acres	Over 400 acres	Live-stock	Arable	
1952-3	% 1	% 6	% 12	% 18	% 21	% 32	% 13
1953-4	11	12	14	20	18	26	16
1954-5	5	8	17	26	20	24	16
3 year average	6	9	14	22	19	27	15

* Management and Investment Income as a percentage of Total Valuation. This is the return on capital before allowing a managerial payment to the farmer.

The returns on tenant's capital are given in Table XXIX for each of the three harvest years and for each of the six farm groups. Management and investment income has been related to the valuation of tenant's capital. If it were possible to deduct the reward of management, it would be found in some cases, and in particular for the two smallest dairy farm groups, that there was in some years *no* return on the capital invested. Alternatively, if a return on capital is presupposed, then there was no return for the management services of the farmer.

For all farms, the return on tenant's capital averaged 15 per cent. for the three-year period. As far as different groups of farms are concerned, however, there were considerable differences. For example, there was a return of 32 per cent. on the arable farms in the 1952-3 year but of only 1 per cent. on the dairy farms of under 100 acres. Likewise, there was a large amount of fluctuation *within* most groups from year to year. The dairy farm group of over 400 acres and the arable farm group are noticeable for different trends. The former shows steadily increasing returns on capital whereas the latter shows a decline. Despite this, the relative position of the different farm groups remained fairly well defined. Thus, on the four groups of dairy farms, the three-year average return on tenant's capital appears to rise by about half as the size of farm increases, e.g. 6 per cent., 9 per cent., etc.

Cheveley and Price, in their study of "Capital in Agriculture in the United Kingdom",* have estimated the return on tenant's capital for the country as a whole at about 11 per cent. in 1952-3.

From the Farm Management Survey results for England and Wales, the authors also give returns on capital for ten major types of farming for the same year. There is no doubt about the unsatisfactory nature of the returns on *all* small farms. They write, "it can be seen that the returns were much lower for all types of farms below 100 acres in size—on farms under 50 acres the average return was 10 per cent. and on farms between 50 and 100 acres the return was 15 per cent. Dairy and livestock farms over 100 acres obtained a return of 20 per cent. and on arable farms over 100 acres the average return approached 30 per cent. Other enquiries suggest that investment in tenant's capital in the form it has taken in recent years is often too high on small farms." These conclusions are substantiated by the evidence from small farms in the South-East Province, the only differences being an even lower level of return and, over the three-year period a wide degree of fluctuation.

Some measure of the amount of tenant's capital invested in different types and sizes of farms is shown in Table XXVII. The general average was about £30 per acre, but there was a range from £37 to £23 on the dairy farms of under 100 acres, and of above 400 acres, respectively. There was, of course, a considerable amount of new investment and, on average, total valuations rose by 12 per cent. between 1952-3 and 1954-5. Machinery

TABLE XXX
Index Numbers of Changes in Farm Valuations—1954-5
(1952-3=100)

	Dairy farms				Non-dairy farms		Average all farms
	0-100 acres	101-250 acres	251-400 acres	Over 400 acres	Livestock	Arable	
Livestock	114	112	101	111	112	113	110
Machinery	112	119	118	104	121	120	114
Total	114	114	110	112	112	111	112

* Cheveley and Price, *Capital in United Kingdom Agriculture, Present and Future*, I.C.I., 1955.

valuations, however, increased by 14 per cent. and on the livestock and arable farm groups the increase actually was 20 per cent. Apart from dairy farms of under 100 acres and of over 400 acres, investment has been greatest in new machinery.

The level of investment per acre is of less significance than the rate of turnover of capital. Farming is well known for its slow rate of capital turnover. Cheveley and Price, again working with Farm Management Survey data, show rates of capital turnover varying from 3.43 times per year for market gardens to 0.93 times on predominantly livestock farms. On holdings in South-East England rates of capital turnover per annum varied from 1.28 times on the smallest dairy farms to 1.03 on the livestock farms. In the 1954 harvest year the general average was 1.18 times.

TABLE XXXI
Rate of Capital Turnover per annum—1954-5

Dairy farms				Non-dairy farms		Average all farms
0-100 acres	101-250 acres	251-400 acres	Over 400 acres	Livestock	Arable	
1.28	1.18	1.08	1.24	1.03	1.25	1.18

The rate of capital turnover depends not only upon the size of turnover but also upon the amount of capital invested. Thus, if the capital investment happens to lack balance either because it is excessive in some respect, or even deficient, the optimum level of earnings for the farm cannot be expected. The former position, that of excessive investment, appears to be the case on the smallest dairy farms. Although these farms have the highest rate of capital turnover, it is clear that it is not high enough and that it would have been appreciably higher if, for example, less had been invested in machinery. It is very noticeable that there was remarkably little difference in the level of investment per acre on the dairy farms between 251 and 400 acres, where the return on capital was high, as compared with those of under 100 acres and between 101 and 250 acres. Although the total valuations per acre are the same, the actual distribution amongst the various categories of livestock, crops and machinery is quite different. Table XXVIII shows the following rough position; livestock accounted for almost a half of the tenant's investment on the two smallest dairy farm groups as compared with 36 per cent. on the largest; crops were 12 per cent. and 23 per cent. of the investment, respectively. Machinery made up nearly a third of the investment on all dairy farms.

The rate of turnover per £100 of tenant's capital invested in livestock was high on the smallest farms because more pigs, poultry and other intensive forms of livestock were kept. Such stock in themselves, however, do not assure a high rate of profit. Intensive livestock need very good management if they are to be worthwhile. If average "economic yields"* are assumed, and the resultant "standard" output from livestock is compared with actual farm output, some interesting features are seen.

It is clear that livestock on the dairy farms under 100 acres and over 400 acres, and also on the livestock farms, were less productive than they might have been. The biggest difference between actual and standard output was on the dairy farms over 400 acres. Sheep, and to a lesser extent pigs, were mainly responsible for this situation. (Table XXXIII.)

* Economic yields are equivalent to average physical yields valued at average farm gate prices.

TABLE XXXII
Livestock Output per £100 Capital in Livestock—1954-5

	Dairy farms				Non-dairy farms		Average all farms
	0-100 acres	101-250 acres	251-400 acres	Over 400 acres	Live-stock	Arable	
Actual Output	£ 224	£ 228	£ 210	£ 200	£ 141	£ 120	£ 210
Standard Output	232	211	193	228	173	113	208

TABLE XXXIII
Output per Livestock Unit on Dairy Farms over 400 Acres—1954-5

Type of Livestock	Actual Output	Standard Output	Actual as % Standard Output
	£	£	%
Cattle	65	72	90
Sheep	32	45	71
Pigs	107	126	85
Poultry	191	201	95
Total	63	71	89

Sale crops, also, were not up to the expected levels of output. In the case of the smallest dairy farms, actual output per acre of sale crops amounted to rather less than two-thirds of the expected "standard" output.

Although variations arise in the level of output or turnover per unit of capital because of different types of investment, for example, sheep and poultry, these factors have been discounted in the above calculations. The differences between expected and actual levels of performance then relates to the inherent capacity of livestock and to the quality of management. Ultimately, the problem of capital investment is one of organization. In practice, this involves selecting stock which breed regularly and which have high *all-round* conversion ratios. This means that they give the greatest output for a minimum of attention,* housing and keep. It is certain that many of our animals do not measure up to these standards. Many farmers are not consciously aware that each £100 they have invested in this or that type and breed of livestock is producing much less for them than an identical amount similarly invested on their neighbour's farm. Their poultry flock is laying fewer eggs, the dairy herd produces less milk, the pig herd needs more food and produces less pork and bacon.

What is true of livestock is also true of crops although these are possibly somewhat less under human control. The fertility of the land itself, and its relationship to climate, is obviously limiting. Nevertheless, on adjacent farms, a £100 invested in fertilizers, seed and cultivations results in consistently different crop yields. In part, this is due to differences in the types of crops chosen but it is also related to choice of seed, to the type and amount of fertilizer and, particularly, to timely and adequate cultivations.

Such then are the factors which, because they affect the amount of output influence the rate of turnover on capital.

* This may be the factor determining the low output from sheep on dairy farms over 400 acres, labour rather than land or capital being the limiting factor.

The amount of capital already invested which has to be turned over each year is, of course, also important and here unnecessary investment must be watched. Much of the low rate of return on capital invested on small farms is due to weakness in this respect. In particular, there is a large amount of capital tied up in machinery. It is surprising to find the same level of investment in machinery on small farms as on larger holdings where crop production is relatively much more important. Indeed, on the smallest farms, where mechanization opportunities are limited, output from livestock amounted to more than 90 per cent. of the total output. In addition, 70 per cent. of the farm acreage was in grass and purchases of feedingstuffs averaged £32 per acre. As the small farm becomes more of a processing unit its own land becomes of less importance to it. Pigs and poultry are naturally involved here but a similar tendency is apparent with dairy stock. As ever larger numbers of livestock of this kind are kept per farm the greater becomes the dependence on outside feed supplies. Thus it is difficult to justify much of the existing investment in field machinery.

TABLE XXXIV
The Investment in Machinery on Dairy Farms, 1954-5
(Per 100 Acres)

Dairy farms			
0-100 acres	101-250 acres	250-400 acres	Over 400 acres
£1,040	£1,138	£1,065	£683

Not only was the investment in machinery on the small farms noticeably high but operating costs too were expensive. Power and Machinery expenses amounted to £22 10s. for every £100's worth of Net Output produced which was £3 more than the average for the two largest dairy farm groups. The earnings from contract work were negligible and on the smallest farms barely exceeded £10 per farm.

The unsatisfactory level of return on farming capital must be stressed. Although for the three-year period there was an average return of 15 per cent., the figure varied widely between different types and sizes of farm and fluctuated extensively from year to year. Furthermore, the figure was arrived at without any charge for the management of the farmer having been made. In many cases, either management or capital can be said to be earning no return. Finally, although the unsatisfactory nature of some returns on capital is due to the inadequacy of the investment in many more cases it is due to the lack of balanced investment.

CHAPTER V

THE STRUGGLE TOWARDS EFFICIENCY

ALTHOUGH vital and indispensable, financial results can serve only to summarize the outcome of the business of farming. The farmer and the economist need to study the underlying, causative factors if the financial outcome is to be seen in perspective.

Since the last study of farm incomes was made in 1953 from Wye College, new methods of farm analysis have been adopted, which highlight the significant features of the organization and management of farms. These factors, along with the elements of luck and weather, etc., are those determining what the farmer's profit will be. The new approach provides a rapid means of checking the performance of any farm business, using quite simple existing information, against "indicators of efficiency". In a sense, these indicators are yardsticks by which to measure efficiency in those parts of the farm where it is vital.

The word "efficiency" is used very loosely in general conversation and before any useful assessment can be made a clear understanding of its meaning is needed. It may be defined as a measure of the success achieved either in maximizing the return from a given quantity of resources or, in minimizing the quantity of resources needed to reach a set objective. The objectives set up can be many and often people try to achieve more than one at the same time. Some farmers have but one aim—the highest continuous level of profit. Others are satisfied with a moderate level of profits providing they can follow a line of farming which they personally find very satisfying, for example, the breeding of pedigree livestock. In general, however, with most businesses and most farmers, the most common objective is the single one of high and continuous profits.

Efficiency in making profits in farming involves two sets of problems. In the first place, the organization or basic plan of the farm business must be sound. This means that the balance between livestock and crops for sale or for feed must match the available resources of labour, capital and land. Secondly, within the farm system, each enterprise must be well done. Cows must be regular breeders, and good converters of food into milk, sows must regularly raise large litters of pigs which reach market weight with the least food and trouble. Similarly with crops, when the balance between sale and feed crops has been decided, it remains to ensure that the land, labour and capital expended on them produces more than if used elsewhere on the farm.

To some degree these ideas of efficiency have already been touched upon. In the consideration of output, the combined effects of efficiency of organization and of operation have, in fact, been mentioned.

Have farmers in South-East England been improving their efficiency? Productivity per acre certainly has increased and net output, for example, rose on average by 12 per cent. between the 1952 and 1954 harvest years. Because the level of total expenditure was held roughly constant during the same period, it is obvious that farmers were more efficient and were producing more for no increase in total costs.

This relationship is shown up best by considering the expenses of producing a £100's worth of Net Output (Table XXXV). Each year costs declined and the margin of management and investment income grew.

Thus two movements were occurring at the same time. Farmers were pushing up the size of their businesses, measured in output, and through greater efficiency a larger "profit" margin was made per unit of output. Farm profits tended to increase over the three years (Table XXXVI).

Not all farms shared in the general process for there were setbacks on the two groups

TABLE XXXV
Expenditure to Produce £100's Net Output—150 Farms

	1952-3	1953-4	1954-5
	£	£	£
Fertilizer	8.6	7.4	7.0
Rent and rates	7.1	7.1	7.3
Power and machinery	23.0	21.0	20.9
Labour	38.5	38.4	37.9
Miscellaneous	9.3	9.2	9.4
Total	86.5	83.1	82.5

TABLE XXXVI
Management and Investment Income per £100 Net Output

	Dairy farms				Non-Dairy farms		Average all farms
	0-100 acres	101-250 acres	251-400 acres	Over 400 acres	Livestock	Arable	
	£	£	£	£	£	£	£
1952-3	1.7	7.1	13.8	18.4	22.4	26.9	13.5
1953-4	12.8	13.8	16.1	20.0	19.1	24.3	16.9
1954-5	6.3	9.5	20.0	25.6	22.5	22.2	17.5

of smaller dairy farms, and on the arable farms the margin between output and expenditure steadily declined. Even more noticeable, however, were the variations between the groups. The two smallest dairy farm groups had margins of $6\frac{1}{2}$ per cent. and $9\frac{1}{2}$ per cent. in the 1954-5 season, whereas on the other four groups of farms, the range was between 20 per cent. and $25\frac{1}{2}$ per cent.

In general, the margin between farm output and expenditure grew year by year. Why did this change come about? Why was output able to draw away from expenditure? Was improvement going on equally in all branches of the farm?

CHANGES IN THE ORGANIZATION OF FARMS

The evidence shows that farmers were impelled to improve the organization of their farms. They were concentrating on more productive livestock and crops so that a considerable amount of new capital was invested.

TABLE XXXVII
Changes in Farm Organization—150 Farms

	1952-3	1953-4	1954-5
System index*	114	117	121
Total Livestock Units†	66.0	74.5	75.5
Sale crop acres	51.5	48.5	57.7

* This indicates the *intensity* of the business organization. Using average yields, it is a measure of the potential value of output from the existing farm system.

† A livestock unit is equivalent to 1 cow, 6 sheep, or 100 poultry, etc.

Not only was the number of animals greater but more emphasis was placed on intensive livestock. In particular, there were 25 per cent. more pigs in the 1954-5 season than in 1952-3. The investment of capital in more pigs and poultry was especially noticeable on the smallest dairy farms.

Apart from the setback in the 1953-4 year greater emphasis was also placed on sale crops and returns from them rose by nearly a fifth through a combination of more intensive crops and higher yields.

The same general trends did not occur on all farms. It has been shown earlier (Fig. 5) that on the arable and livestock farms, output as a whole showed little change. On these farms, no clear trend in intensification can be seen and there was certainly little overall change in the density of stocking. In addition, an appreciable decline occurred in the area of crops for sale on the livestock farms.

TABLE XXXVIII
Changes in the Acreage of Sale Crops (1952-3 = 100)

	Dairy farms				Non-Dairy farms		Average all farms
	0-100 acres	101-250 acres	251-400 acres	Over 400 acres	Live-stock	Arable	
1954-5	112	113	109	113	85	115	111

Root crops showed the greatest increase whilst cereals declined on the livestock farms and on the two smallest dairy farm groups (Table XXXIX).

TABLE XXXIX
Changes in Cropping—1954-5 (1952-3 = 100)

	Dairy farms				Non-Dairy farms		Average all farms
	0-100 acres	101-250 acres	251-400 acres	Over 400 acres	Live-stock	Arable	
Cereals	95	89	127	118	95	117	102
Roots	113	109	103	127	91	111	112
Grass	104	105	114	104	101	103	104

The variations in cropping and stocking show how different groups of farmers were changing the organization of their farms to make greater use of the resources becoming more available, such as feedingstuffs, and to economize on those becoming relatively more expensive, such as labour.

The whole series of changes in farm organization are contained in the System Index. A great variation occurs between farms of different size and type (Table XL). On dairy farms of different sizes, for example, the level of intensity of organization ranged from 152 to 93. The types of livestock and crops appear to be more important influences than mere numbers or acres. Thus the group of smallest dairy farms, which had the highest System Index, had, as compared with largest dairy farms, 53.5 and 41.2 livestock units per 100 feed crop acres* respectively, and 8.2 and 35.0 sale crop acres per 100 farm acres.

* The feed crop acreage is that part of the farm not used for the production of sale crops.

TABLE XL
Farm Organization Indicators—1954-5

	Dairy farms				Non-Dairy farms		Average all farms
	0-100 acres	101-250 acres	251-400 acres	Over 400 acres	Livestock	Arable	
System index ..	152	122	106	93	90	112	121
Dairy cows per 100 acres..	26.6	18.9	16.1	9.6	—	—	15.1
Other cattle per 100 acres	21.5	22.1	20.3	15.9	11.1	15.0	17.8
Ewes per 100 acres ..	—	9.1	3.2	15.3	67.5	15.9	13.5
Other sheep per 100 acres	4.3	6.9	3.9	14.2	66.0	40.6	15.4
Sows per 100 acres ..	3.1	1.7	0.6	0.7	1.7	0.4	1.0
Other pigs per 100 acres	19.5	10.6	4.8	4.5	11.6	3.2	6.6
Poultry per 100 acres ..	181	106	26	30	85	29	73
Livestock units per 100 feed acres	53.5	49.7	42.5	41.2	42.1	52.3	48.4
Sale crop acres per 100 farm acres	8.2	16.9	25.4	35.0	18.3	67.7	27.0

How widely the intensity of land use varied is shown in Table XLI. On the small dairy farms grass was of dominant importance but with increase of size, the cereal acreage expanded. On large farms more sale crops were grown and the by-products from these were fed to livestock and hence there was less need for acres to be devoted solely to feed crops for livestock. An urgent economic question still largely unresolved by many small farmers is whether, through improved grass production and utilization, a larger acreage can be devoted to sale crops or used to feed even more livestock.

TABLE XLI
Crops per 100 Farm Acres—1954-5

	Dairy farms				Non-Dairy Farms		Average all farms
	0-100 acres	101-250 acres	251-400 acres	Over 400 acres	Livestock	Arable	
Cereals	21	28	32	37	29	50	34
Roots	6	6	7	5	4	16	6
Miscellaneous	2	1	1	1	2	—	1
Grass	71	65	60	57	65	34	59
Total	100	100	100	100	100	100	100

All the evidence shows that farmers in the South-East have been intensifying their farm systems, the greatest change having occurred on the smallest dairy farms. Such changes are necessarily expensive and, in many cases involve locking up capital in forms that are not easily realizable. This action is somewhat surprising, as there is an alternate means of increasing output. This alternative, that of increasing yields from resources already on the farm, would appear to be quicker, more flexible and far less expensive.

YIELDS AND MANAGEMENT

A ready measure of the overall level of crop and livestock yields on the farm exists in the "Yield Index". This yardstick measures within the existing farm system efficiency in *producing* and in *selling* crops and livestock. By a simple means, the effects on production of things such as regularity of calving, milk yield, rate of mortality, feed conversion

rates, crop yields, etc. are combined with farm gate prices to give an overall measure of economic yield.

TABLE XLII
Indicators of Yield—150 Farms

	1952-3	1953-4	1954-5
Yield index	89	96	96
Livestock yield index	93	98	102
Milk yield per cow (gallons)	691	729	758
Milk sales per cow	£112	£118	£121

In 1954-5 the yield index for all farms shows some rise over the level of the 1952-3 year. There is no doubt that it was held back from rising further, especially in the 1954-5 season, because of bad harvest weather. Yields from livestock, however, continued to rise. Milk yields, for example, rose on average from 691 gallons to 758 gallons per cow in the herd. Despite a fall in the price received per gallon of milk sold, output per cow was £9 (or 8 per cent.) more in the 1954-5 season than in 1952-3.

Many factors were responsible for this rise. In some cases breeding by artificial insemination had improved livestock quality, in others more attention was paid to better nutrition, more purchased concentrates were becoming available and in the 1954-5 season more abundant grass was a factor. Yet whatever the cause the outcome was quite definite. A tenth more milk was produced per cow in the herd and it must not be forgotten that on average 6 per cent. more cows were kept per dairy farm.

Despite the progress made on some farms (for example, livestock yields rose by well over 10 per cent. on the dairy farms of more than 400 acres and of between 101-250 acres) others showed very disquieting features. On the smallest dairy farms the average levels of milk yield per cow were, surprisingly enough, below those obtained on much larger farms with much larger herds. Furthermore, low yields were not related to the production of high quality milk for the average price received per gallon of milk sold (3s. 2d.) in the 1954-5 season compared unfavourably, for example, with that on the 251-400 acre farms (3s. 4d.). The result of differences in price per gallon and milk yield per cow between these two groups was an advantage in output per cow of £14 or 12 per cent., in favour of the larger farms. Thus on small farms which depend primarily upon milk for their income and which surely have advantages in herd management, much remains to be done to reach an average level of efficiency. Looking at a typical herd of 16 cows, it seems that the average small dairy farm sold £225's worth less milk than might have been expected.

CHAPTER VI

THE FEED ECONOMY

THE improvement of livestock yields was associated with higher quality stock which were better fed and managed. (It seems that the same degree of improvement in sale crop yields did not occur, although more intensive crops were introduced.) It is now important to consider the changes that were occurring in the production and use of feed.

Efficiency in the production, conservation and utilization of feed is fundamental to most British farms. Yet it is in this part of the farm economy that the farmer has the greatest difficulty in keeping tight hold of the reins. It is relatively easy to keep a check on the amount of wheat sold off the farm and, therefore, to know how productive each acre under wheat has been. Similarly, a ready check can be kept on how many gallons of milk are sent away each morning. It is infinitely more difficult, however, to reckon up readily what the production from grassland or from feed crops is, or how efficiently they are being used. For example, unless close watch is kept, a relative abundance of home-grown feed may lead to extravagant feeding, to the misuse of grassland and to the rearing of an unnecessary number of young stock. It is extremely easy for a lack of balance to develop because the complex nature of farming disguises the real issues. What these are in the farm business can only be determined by repeated checking as to whether land, labour, capital and the farmer's management can be set to earn bigger returns by making changes in cropping and stocking. It is patently clear that there is a general lack of management control over the resources tied up in feeding livestock. This might show up through the waste of land in unproductive grass, in excessive capital tied up in purchased feedingstuffs or in surplus young stock. The opportunities for substituting more productive livestock or for extending the sale crop acreage are frequently overlooked with a consequent foregoing of income.

During the period covered by these results there was a marked change in the output from livestock. For the 150 farms as a whole, output rose by nearly a fifth due to a 10 per cent rise in livestock yields and an 8 per cent. rise in the number of livestock units. What changes occurred in the feed economy to make this possible? How important were more intensive crops, higher levels of crop yields and greater purchases of feedingstuffs?

TABLE XLIII
The Feed Economy—150 Farms

	1952-3	1953-4	1954-5
Livestock units per 100 feed crop acres	44.4	45.6	48.4
Utilized starch equivalent per feed crop acre*	12.6 cwt.	12.7 cwt.	13.2 cwt.
Adjusted feed crop acres per livestock unit†	2.8	2.9	2.8

* This is the residual amount of starch equivalent required to have been produced to meet the needs of livestock, assuming the efficient use of bought in feedingstuffs.

† An acreage allowance for purchased feed is added to the acreage of feed crops on the farm to obtain the adjusted feed crop acreage.

The density of stocking showed an increase over the three year period of almost 10 per cent. in relation to the acreage of home feed crops. In part, this might be a reflection of

more intensive crops or more economical feeding, or animals with better food conversion rates. It also reflects additional dependence upon bought in feedingstuffs. There is, however, evidence to show that more intensive kinds of livestock and crops were also concerned. The changes which occurred were, therefore, of a highly complex nature.

When account is taken of bought in feedingstuffs, by making an adjustment to the acreage of feed crops produced on the farm, it appears that no improvement has occurred in the physical efficiency of the feed economy. As in the 1952-3 harvest year, an area equivalent to 2.8 acres of feed crops was required per livestock unit in 1954-5. Yet in the former year an average of 2.25 acres of home-produced feed and 0.55 equivalent acres of bought feed were used per livestock unit, in 1954-5, this had changed to 2.05 home acres and 0.75 bought feed acres. Owing to the changing balance of livestock, more emphasis being placed on pigs, poultry and cows, and higher yielding animals, *the cost of the extra purchased feed was more than covered*. The value of output per livestock unit increased on average by £7, from £75 6s. to £82 6s. and although the cost of extra feedingstuffs amounted to £7, a fifth of an acre less home land was required. Thus, in part, acres were released at home for cash cropping, unless, as often happened, more livestock were kept.

From the reduced acreage of home-grown feed crops required per livestock unit it would appear that there was a rise in the utilization of starch equivalent. It is not clear whether this was a seasonal effect or a sign of improved efficiency. Despite the criticisms which have been levelled at the measure of utilized starch equivalent (because it assumes efficient use of purchased feedingstuffs), it has a value in showing up differences between identical groups of farms and for a period of years. There can be little doubt that a figure of roughly 13 cwt. of utilized starch equivalent per acre is unnecessarily low for many farms.

If acres of land have to be devoted to livestock feeding it is possible, by choice of crops and by management, to secure good yields of crops and by care in feeding, to use them to advantage. Many of the poor results are due to failure to fully use the crops grown. With new strains of grasses, with more ley farming, bigger grass crops are being produced but whether adequate conservation and utilization occurs is another matter. Much still remains to be done in improving quality and avoiding loss of nutrients through adopting better fertilizing, haymaking and silaging techniques, by strip grazing and, especially, by the rationing of feed. Much might also be done through complementary grazing of stock. On the Wye College Farm, for instance, where the utilized starch equivalent per acre is roughly 29 cwt. the effect of grazing cattle with sheep is quite appreciable. Studies made by this Department show that in mixed grazing of this character approximately 2 cwt. more utilized starch equivalent per acre becomes available.

The efficiency of the feed economy varied between different groups of farms (Table

TABLE XLIV
Efficiency in the Feed Economy

	Dairy farms				Non-Dairy farms		Average all farms
	0-100 acres	101-250 acres	251-400 acres	Over 400 acres	Live-stock	Arable	
Adjusted feed acres per livestock unit	2.8	2.8	2.9	2.8	2.6	2.2	2.8
Utilized starch equivalent per feed acre (cwt.) ..	13.0	13.1	12.5	12.7	13.9	16.2	13.2
Livestock output per adjusted feed acre ..	£31.9	£31.6	£29.2	£22.1	£18.5	£24.9	£28.9

XLIV) but there was little apparent difference between different sizes of dairy farms despite the variations in cropping and stocking. On arable farms, good results were obtained because of the use in feeding of by-products from cash crops.

It may be argued that the low level of starch equivalent utilized per feed acre is of little significance where labour and capital and not land are more limiting factors. How valid the argument is generally is open to doubt. The real costs, for example, of nutrient production from grassland are very low when adequate manuring, silage making, strip grazing and other balanced and improved techniques are employed. There can be no gainsaying the part grassland can play in reducing costs. It is more than disappointing to find such methods of low cost production receiving far less than their fair share of attention because purchased feedingstuffs are more handy. Indeed, this is the crux of the matter, farmers either do not have the ability, or do not care to involve themselves in the harder task of better grassland management. For this two penalties have to be paid; production costs are higher than they need be and the farmer also foregoes some income. To this must be added the ever-growing cost of feedingstuffs imports into this country. Farmers certainly cannot be blamed for seeking out the easiest ways of profit making and there is no doubt that feeding concentrates is an easier way of "farming" than many others. Neither can they be held responsible for the fact that purchased feedingstuffs prices may not reflect the real cost to the country of these imports.

The central problem of inefficiency in the feed economy is responsible more than any other factor for the low incomes of farmers in South-East England. From it springs the other ills—mal-feeding of stock, recourse to more expensive alternative feeds, low stocking density and, therefore, loss of potential sale crop acres. These losses show up in low productivity of land, labour and capital and, ultimately, in an extremely low level of profitability.

CHAPTER VII

THE LABOUR AND MACHINERY COMPLEX

It now remains to draw together the threads of evidence relating to the use of human labour and mechanical power. These items are jointly discussed because they are indissolubly linked and form part of the process of substitution which is becoming an ever more important feature of farm production. In fact, this is merely one facet of the substitution of capital for another resource, that of labour. Such changes make it possible for an acre of most crops to be grown with fewer man hours and with less sweat and toil, or for many more cows to be milked by one worker. Other changes of a similar nature are the substitution of capital in the form of feedingstuffs or fertilizer for acres of land. For example, owing to a variety of reasons, including the use of fertilizer, it was possible by the 1940's to grow on average 18 tons of potatoes on $1\frac{1}{3}$ acres whereas a 100 years earlier $3\frac{1}{2}$ acres were needed. Although the land requirement is now less and although fewer man hours are needed to grow the crop, much more capital and "know-how" are used. New machines have been made available whilst more and better fertilizers and improved seed have been developed.

In a similar way, changes in the use of labour and machinery were occurring throughout the three years which this study covers. The reasons are not far to seek. Farmers were changing their farming systems to meet changing prices and freer markets. Labour was competitively priced whilst machinery was readily available. Not only were the wages and actual earnings of farm workers rising but the drift of workers off the land, and the taxation reliefs on investment in new machinery, were powerful factors at work towards the substitution of men by machines.

TABLE XLV
*Indices of Annual Average Prices of Farm Inputs**
(1946-7 = 100: June-May years)

	1952-3	1953-4	1954-5†
Labour	148	158	164
Fuel (petrol, V.O., and oil) ..	184	177	176

* Source: *The Farm as a Business*. H.M.S.O.

† Provisional.

On average, for the farms in the sample, the total labour‡ bill rose by 6 per cent. between 1952 and 1954 although *earnings* per man increased by considerably more.

It is of more significance, however, to note that total labour expenses diminished in relative importance. Although they were the largest single item of expense, they absorbed a smaller share of net output in 1954-5 as compared with 1952-3.

The trend was similar with Power and Machinery expenses. Reasons have been given earlier why these expenses, in total, tended to diminish in importance. As expenses of petrol and vapourizing oil rose excessively, many farmers changed over to diesel fuel, although this involved them in the purchases of new tractors. The result was a tendency for total power and machinery costs incurred in producing a £100's worth of Net Output to be reduced.

‡ This is inclusive of the estimated value of the farmer's own labour.

TABLE XLVI
Expenditure per £100's worth of Net Output—150 Farms

	1952-3	1953-4	1954-5
Total labour	38.5	38.4	37.9
Power and machinery	23.0	21.0	20.9
Other	25.0	23.7	23.7
	61.5	59.4	58.8
Total expenditure ..	86.5	83.1	82.5

TABLE XLVII
Power and Machinery Expenses per £100's worth of Net Output—150 Farms

	1952-3	1953-4	1954-5
Machinery repairs, vehicle tax and insurance	7.2	6.4	6.3
Fuel and electricity	7.3	6.5	6.3
Contract work	3.0	2.6	2.7
Depreciation	5.5	5.5	5.6
Total	23.0	21.0	20.9

Between different types and sizes of farms, appreciable differences occurred in respect of the level of expenditure on labour and machinery and in the changing importance of these costs. Both labour and machinery expenses must be considered together and in relation to the level of output. For example, although expenditure per acre on labour and machinery was rather more than £19 in 1954-5 on arable farms and on dairy farms between 101 and 250 acres, in terms of cost per £100's worth of net output the amounts were £54 and £64, respectively.

TABLE XLVIII
Labour and Machinery Expenses—1954-5

	Dairy farms				Non-Dairy farms		Average all farms
	0-100 acres	101-250 acres	251-400 acres	Over 400 acres	Live-stock	Arable	
Labour and machinery costs per £100 net output	£67	£64	£56	£54	£56	£54	£59
Index (1952 = 100) ..	96	97	93	92	103	107	96

Judging from the index of changes in Table XLVIII the greatest improvement in efficiency of labour and machinery use occurred on the larger dairy farms. In the main, this was due to rising output but it was partly due to expenditure being held down. There appears to have been some under estimation of the value of unpaid labour on the small dairy farms and the relative importance of machinery costs was over emphasized. Nevertheless, on the small farms machinery operating expenses were very high relative

to output. If an even greater charge were made for unpaid labour it would show how inefficient was the combined use of power, machinery and labour on these farms.

The amount of capital invested in the farm, and its distribution, has an obvious bearing on the efficiency of labour and machinery use. Capital per man equivalent seems

TABLE XLIX
Capital per "Man Equivalent"—1954-5*

	Dairy farms				Non-Dairy farms		Average all farms
	0-100 acres	101-250 acres	251-400 acres	Over 400 acres	Live-stock	Arable	
Man equivalents per 100 acres	3.9	3.5	3.2	2.3	2.2	3.5	3.0
Machinery capital per man equivalent	£441	£322	£360	£291	£284	£396	£312
Total capital per man equivalent	£964	£1,018	£1,107	£997	£1,075	£935	£1,018

* The average Valuation of Tenant's Capital per £350 wages.

to have been on the low side on the small intensive dairy farms. This was hardly the case, however, and appears because current operating capital, which was extensively used on these farms to purchase large quantities of feedingstuffs, was not included in the estimates of capital. However, the amount of capital locked up in machinery was amazingly high. Something like 40 per cent. of the tenants' capital was invested in this way despite the fact that nine-tenths of the total output came from livestock and that over 70 per cent. of the farm land was in grass. This level of investment must be regarded as exorbitant and this is confirmed by the large part of net output absorbed by labour and machinery costs. In the 1954-5 year these costs on the small farms amounted to £67 per £100 Net Output compared with a general average of £59. Thus the heavy investment in machinery did not have the effect of raising output or freeing labour for other jobs, on or off the farm. It eased human toil and speeded up operations but also added to the already high burden of expense. It is noticeable also that costs of contract work were high and comprised one-fifth of the power and machinery bill. Thus, besides having a greater machinery investment per unit area, small farms still largely depended upon contract services.

TABLE L
Power and Machinery Expenses—1954-5

	Dairy farms				Non-Dairy farms	
	0-100 acres	101-250 acres	251-400 acres	Over 400 acres	Live-stock	Arable
	£	£	£	£	£	£
Power and machinery costs per 100 acres	672	693	601	464	396	715
Costs per £100 net output	22.1	22.8	19.6	19.4	19.2	20.1

Further judgment about the efficiency of labour use is possible from Table LI.

As more than 71 per cent. of the labour requirements on the smallest dairy farms were for livestock, there were limits to the possible degree of mechanization. This situation contrasts very strongly with that on arable farms where, on average, less than a fifth

TABLE LI
Distribution of Man Work Units—1954 Harvest Year*

	Dairy farms				Non-Dairy farms	
	0-100 acres	101-250 acres	251-400 acres	Over 400 acres	Live- stock	Arable
Man work units per acre	9.1	7.7	7.0	5.5	5.3	7.0
Man work units per man equivalent	237	219	219	234	241	202
Man work units per livestock unit ..	13.3	11.8	11.6	10.1	6.5	6.7
Man work units per crop acre ..	2.6	2.9	3.3	2.8	3.0	5.7
Proportion of work units spent on livestock (%)	71	62	53	49	43	18

* A "man work unit" is the equivalent of 8 man hours.

of the man work units were required for livestock. Furthermore, on the small farms the number of man work units required per acre of crops was less than half those required on the arable farms. In respect of livestock, however, the care of each livestock unit on the smallest dairy farms required twice as many man hours per year as compared with the arable or livestock farms. The weighting effect of cows and other intensive types of livestock in the calculation of livestock units makes quite a noticeable difference between dairy and non-dairy farms.

The number of work units required of each man, assuming that on each type and size of farm each cow and each acre of wheat, etc., had equivalent requirements, is also shown. The results are somewhat suspect because the assumptions made are not all in accord with fact. Thus it is obvious that high yielding stock require more man hours, that efficiency is related to layout of farm and farm buildings, and that the amount of useful mechanization varies with type and size of farm. Similarly, it can be misleading to value all "man equivalents" as £350's worth of labour. It is probable that the relatively high number of work units per "man", or per £350 of labour expense, on the smallest dairy farms was due to an underestimation of the value of unpaid family labour rather than that on these farm workers did more work for less pay. Yet, where unpaid labour was infinitesimal, as on the largest dairy farms, labour efficiency was high measured in terms of work units per "man". There is, in addition, on these larger farms evidence to show that machinery costs relative to net output were low (Table L).

In any type of production, labour and the other factors of production, land, capital and management, have to be combined together. Quite a range of combinations occurred in 1954-5 on the six different groups of farms studied. The relative importance of the items shows little change over the three years.

The value of the "land input" was highest on the small dairy farms. This was due to the higher rents and feedingstuffs expenses of these farms. Labour and machinery expenses formed the remaining large item of cost and remained at roughly the same level, per unit of total output, even though farm size and type changed. Although the composition of output changed, as dairy farms increased in size, there was no apparent economy of scale in the use of labour and machinery. In other words as size of farm increased, there was no tendency for labour and machinery costs to form a smaller outlay per £100's worth of total output. Thus as a result, and because the cost of the "land input" fell, labour and machinery costs increased from roughly a half on the smallest dairy farms to two-thirds of the total input cost, on the largest.

The amount of "capital" required to produce a £100's worth of total output also varied. But it did so largely because the purchases of feedingstuffs have been included as an item of "land input"—and not as an element of working capital. If working capital

TABLE LII
Resources Used to Produce £100's Worth of Total Output 1954-5

	Dairy farms				Non-Dairy farms		Average all farms
	0-100 acres	101-250 acres	251-400 acres	Over 400 acres	Live-stock	Arable	
"Land Input"*	£ 46.0	£ 40.1	£ 31.0	£ 27.3	£ 25.4	£ 27.0	£ 34.0
Labour and Machinery Input†	42.0	45.2	45.1	45.1	48.0	47.6	45.2
Total	88.0	85.3	76.1	72.4	73.4	74.6	79.2
"Capital"‡	77.8	84.5	93.0	82.1	97.6	80.0	84.6

* Expenditure on Rent, Costs of Feedingstuffs, Seeds and Fertilizers.

† Total Labour and Power and Machinery Expenses.

‡ Valuation of Tenant's Capital (includes Livestock, Crops and Machinery, etc., but excludes Working Capital).

is included in with the other items of capital, the total would approximate to £100 per £100's worth of total output, giving a rate of turnover of capital of one.

If the capital required per unit of turnover, or output, shows little variation between different types and sizes of farm, were different degrees of efficiency found because the combination of land and labour and machinery inputs varied? It appears so for although the composition of £100's worth of total output was not the same, on the smallest dairy farms, land, labour and machinery inputs totalled £88 whereas on the largest dairy farms they totalled only £72 8s.

This difference draws attention again to the margin that was found between net output and total expenditure. This margin, management and investment income, ranged from between 5 per cent. and 10 per cent. on the smallest dairy farms to between 20 per cent. and 25 per cent. on the remaining farms. Although the former margins appear very small this does not mean that the occupiers of small dairy farms were necessarily dissatisfied with them.

CHAPTER VIII

THE RETURNS TO SMALL FARMERS

No study which includes small farms showing consistently poor results can be regarded as complete unless it attempts to answer the question "why do these farms continue to exist?" They persist for a variety of reasons.

There is, for instance, a long queue of candidates for the role of farmer, many of whom possess limited capital and "know-how". There are many men who believe they have the ability to succeed on a smallholding and see in it a way up the agricultural ladder to the occupation of a larger farm. In particular, many persons value, as a possession beyond almost any price, the independence of the small farmer and, especially, that of the owner occupier. To gain these ends many individuals, together with their families, are willing to work for long hours when the need is pressing. Holidays are often unknown but life is full of change and there is a sense of closeness to nature.

Thus the rewards from farming, for many men, are not merely financial. It is a way of life which, while providing a means of livelihood, also has other values. Indeed, it is often possible to live with extremely low expenses because, besides providing some food, the farm also provides a home. When these two basic wants have been reasonably satisfied (though standards are ever rising), not a few are inclined to the view that they have largely met their wants.

In many farm businesses, the maximization of profits, the objective of the so-called "economic man", is replaced, particularly in the case of the older farmer, by other economic objectives. Amongst these may be mentioned the adoption of farming methods aimed at reducing risks and uncertainties, in maintaining capital intact, and in avoiding the need for constant replanning to meet a changing world.

The net returns, farm profits, shown in this report do not in themselves tell the entire story. In many cases, for example, quite a large part of farm profit may be due to the increase in valuation of tenants' capital and not to a cash surplus. But on the credit side, there are other items which have to be considered, such as the value of produce and stores consumed by the family and the rental value of the farmhouse. In many cases where the occupier is also owner of the farm, this fact will affect his outlook. He is likely to have additional income because he does not pay rent. After property taxes, tithe and landlord's expenses are deducted, this represents a return upon capital which, after making provision for improvement of the holding and re-investment, is available for living purposes. When accountants prepare accounts for the owner occupiers of smallholdings it is often not easy for the returns from farming and from land ownership to be clearly separated. This deludes many into believing that they are making quite satisfactory profits, whereas in fact these represent a combination of poor profits from farming and only a moderate return from landowning. The joint return, however, is often woefully insufficient for financing the maintenance and improvement of the holding as well as providing a reasonable income for the farmer. It is well known that the proportion of owner occupiers to tenants is much higher in South-East England than many other parts of the kingdom. This fact seems closely related to the profits which farmers make, assuming that farmers have "target" incomes which give a certain "wage" per week and which do not involve them in finding too much cash to pay Income Tax.

The profits given in this report and the figures from which they have been derived are in all cases adjusted to make them the results from farming alone. The expenses and returns from land ownership have been excluded. For this reason, rental values have been charged where the farmer is an owner occupier, but tithes, property taxes and the

expenses of landlords' repairs have been omitted. Though nearly one-half of the farms in the Wye College sample are occupied by their owners, a considerable scatter by size of farm exists. No more than a fifth to a quarter of these farms in the larger size groups are farmed by their owners.

TABLE LIII
The "Returns" from Farming in South-East England

	Dairy farms				Non-Dairy farms	
	0-100 acres	101-250 acres	251-400 acres	Over 400 acres	Live- stock	Arable
Proportion of owner occupiers (%) ..	55	48	20	23	61	43
	£	£	£	£	£	£
<i>Per 100 acres</i>						
Farm profit	673	437	652	637	615	866
"Other"* items	111	69	44	21	37	40
Total "Return"	784	506	696	658	652	906
Total "Return" per farm	478	802	2,380	4,340	1,143	2,458

* This includes the estimated value of the farmhouse, of farm produce and stores consumed by the farm family and an allowance for the private use of farm cars.

Because many items which enter into farm consumption cannot easily be assessed, the estimates for the values of produce, etc., consumed by the farm family are only approximate. The assessments definitely understate their market value. The "error" is most important on the smallest farms where these items form a considerable proportion of the total "Return" and, in many cases, amount to more than £1 per acre.

If, in addition, on the small farms an adjustment were made to take account of the net returns from land ownership, it is quite clear that this could increase the profits from farming by a substantial amount. It is not proposed to elaborate this point in this report as it would, for full treatment, require consideration of whether the farm real estate was being adequately maintained or improved. But sufficient has been said to show that the factors which enter into a farmer's calculations are more than mere "Farm Profit".

Each farmer has naturally to weigh up the advantages and disadvantages of certain courses of action. Should he aim to maximize cash profits or does a smaller regular income, possibly associated with few risks and uncertainties, meet his need? Again, how pressing is the need for income to purchase items over and above those of food and shelter largely provided by the farm? Not in all cases are the objectives rationally thought out but where they are, the means to those ends can be determined. Just as each farmer has his own individual aims and wants so can individual ways be planned for their attainment, depending upon what means are at hand. Thus each farm will differ from its neighbours according to the farmer's objectives and the means at his disposal.

The task of the farm economist, when called upon, is to suggest the best alternative ways of reaching a farmer's own objectives. Where help can be given, it lies in assisting the farmer to control his farm business by pointing out what are the issues at stake and to give help in the technique of forward planning. There is, on the smaller mixed farms of this country, usually no time or need for the more laborious control techniques involving considerable record keeping. There is a need for a rapid and moderately precise series of checks and the tools to do this are available. These involve the so-called economic "yardsticks", or indicators of efficiency, discussed in this report. No noticeable burden of records is required additional to those which any farmer already has to keep.

After the "indicators of efficiency" for any farm have been prepared, interpreted, and

understood, the way is clear to replan any part of the business shown to have shortcomings. Whether the output is too low for the existing burden of overhead costs, or whether there is under-employed labour, or maladjustment of capital investment, the need is for the use of forward planning methods. By this means the most probable outcome of various possible alternatives can be assessed. Absolute results are not sought. What are required are the relative advantages and disadvantages in real terms of any possible new undertakings.

The farmer and the farm economist can both help each other. The farmer, by supplying evidence, can help the economist to see which farming problems are in most urgent need of solution. Similarly, the farm economist can help the farmer to see the real nature of his farm business problems and suggest ways to solve them. Together the farmer, husbandry adviser and economist face the challenge of the complex and continuous business of producing food and making a decent livelihood.

APPENDIX

TABLE A
Average Results for 1952-3
Non-Specialist Farms

No. Farms 172
Average Adjusted Acreage .. 206

	Per farm	Per 100 acres	Per cent
	£	£	
<i>Output</i>			
Cattle	523	253	8.3
Sheep and wool	334	162	5.3
Pigs	478	232	7.6
Poultry and eggs	226	110	3.6
Milk	2,709	1,313	42.9
<i>Total livestock</i>	4,270	2,070	67.7
Crops	1,652	804	25.3
Hops and fruit	20	6	1.2
Miscellaneous	370	179	5.8
<i>Total output</i>	6,312	3,059	100.0
<i>Less</i>			
Food purchases	1,010	490	17.7
Seed purchases	294	142	5.1
<i>Net Output</i>	5,008	2,427	—
<i>Expenditure</i>			
Fertilizers	431	209	7.5
Rent and rates	353	171	6.2
Power and machinery	1,183	573	20.7
Miscellaneous	487	237	8.5
Labour—Paid	1,793	869	31.4
„ —Family unpaid	168	81	2.9
<i>Total expenditure</i>	4,415	2,140	100.0
<i>Management and investment income</i>	593	287	

TABLE B
Average Results for 1953-4
Non-Specialist Farms

No. Farms 176
Average Adjusted Acreage .. 208

	Per farm	Per 100 acres	Per cent.
	£	£	
<i>Output</i>			
Cattle	640	307	8.9
Sheep and wool	483	232	6.7
Pigs	537	257	7.4
Poultry and eggs	334	160	4.6
Milk	3,059	1,467	42.5
<i>Total livestock</i>	5,053	2,423	70.1
Crops	1,794	860	24.5
Hops and fruit	10	5	0.1
Miscellaneous	384	184	5.3
<i>Total output</i>	7,241	3,472	100.0
<i>Less</i>			
Food purchases	1,307	627	20.6
Seed purchases	266	127	4.2
<i>Net output</i>	5,668	2,718	—
<i>Expenditure</i>			
Fertilizers	424	204	6.7
Rents and rates	414	199	6.5
Power and machinery	1,212	581	19.1
Miscellaneous	573	274	9.0
Labour—Paid	1,940	930	30.6
„ —Family unpaid	211	101	3.3
<i>Total expenditure</i>	4,774	2,289	100.0
<i>Management and investment income</i>	1,099	429	

TABLE C
Average Results for 1954-5
Non-Specialist Farms

No. Farms 170
Average Adjusted Acreage .. . 205

	Per farm	Per 100 acres	Per cent.
	£	£	
<i>Output</i>			
Cattle	730	355	9.7
Sheep and wool	390	190	5.2
Pigs	603	294	8.1
Poultry and eggs	331	161	4.4
Milk	3,264	1,590	43.7
<i>Total livestock</i>	5,318	2,590	71.1
Crops	1,781	868	23.8
Hops and fruit	22	11	0.3
Miscellaneous	356	173	4.8
<i>Total output</i>	7,477	3,642	100.0
<i>Less</i>			
Food purchases	1,462	712	22.6
Seed purchases	278	136	4.3
<i>Net output</i>	5,737	2,794	—
<i>Expenditure</i>			
Fertilizers	410	200	6.4
Rent and rates	420	205	6.5
Power and machinery	1,192	580	18.4
Miscellaneous	542	264	8.4
Labour—Paid	1,866	909	28.8
„ —Family unpaid	296	144	4.6
<i>Total expenditure</i>	4,726	2,302	100.0
<i>Management and investment income</i>	1,011	492	

TABLE D
Average Results for 1952-3, 1953-4 and 1954-5
Identical Sample of Non-Specialist Farms

No. Farms 150
Average Adjusted Acreage .. 212

	Per 100 acres			Per cent.					
	1952-3	1953-4	1954-5	1952-3	1953-4	1954-5			
	£	£	£	%	%	%			
<i>Output</i>									
Cattle	289	303	357	8.9	8.8	9.9			
Sheep	160	161	181	4.9	4.7	5.0			
Pigs	210	247	274	6.5	7.1	7.6			
Poultry and eggs	127	142	153	3.9	4.1	4.3			
Milk	1,448	1,555	1,609	44.5	45.4	44.6			
<i>Total livestock</i>	2,234	2,408	2,574	68.7	70.1	71.4			
Crops	816	826	848	25.1	24.1	23.5			
Hops and fruit	19	21	10	0.5	0.6	0.3			
Miscellaneous	186	177	172	5.7	5.2	4.8			
<i>Total output</i>	3,255	3,432	3,604	100.0	100.0	100.0			
<i>Less</i>									
Food purchases	537	618	700	18.5	20.7	22.5	Expenditure per £100 net output		
Seed purchases	149	123	132	5.1	4.1	4.1			
<i>Net output</i>	2,569	2,691	2,772	—	—	—	1952-3	1953-4	1954-5
<i>Expenditure</i>							£	£	£
Fertilizers	220	200	193	7.6	6.7	6.2	8.6	7.4	7.0
Rent and rates	182	190	202	6.3	6.4	6.5	7.1	7.1	7.3
Power and machinery	588	564	577	20.3	19.0	18.6	22.9	21.0	20.8
Miscellaneous	239	248	261	8.2	8.3	8.4	9.3	9.2	9.4
Labour—Paid	871	909	913	29.9	30.6	29.3	33.9	33.8	32.9
„ —Family unpaid	120	124	138	4.1	4.2	4.4	4.6	4.6	5.0
<i>Total expenditure</i>	2,220	2,235	2,284	100.0	100.0	100.0	86.4	83.1	82.4
<i>Management and investment income</i>	349	456	488						

TABLE E
Average Results for 1952-3, 1953-4 and 1954-5
Identical Sample of Dairy Farms—0-100 acres

No. Farms 38
Average Adjusted Acreage .. 61

	Per 100 acres			Per cent.					
	1952-3	1953-4	1954-5	1952-3	1953-4	1954-5			
	£	£	£	%	%	%			
<i>Output</i>									
Cattle	285	312	314	7.0	6.6	6.6			
Sheep	16	21	17	0.4	0.4	0.4			
Pigs	445	530	700	11.0	11.2	14.6			
Poultry and eggs	336	418	381	8.3	8.8	8.0			
Milk	2,584	2,947	3,032	63.8	62.0	63.2			
<i>Total livestock</i>	3,666	4,228	4,444	90.5	89.0	92.8			
Crops	166	270	138	4.1	5.7	2.9			
Hops and fruit	11	24	15	0.3	0.5	0.3			
Miscellaneous	207	228	192	5.1	4.8	4.0			
<i>Total output</i>	4,050	4,750	4,789	100.0	100.0	100.0			
<i>Less</i>									
Food purchases	1,219	1,474	1,641	30.4	33.9	35.7	Expenditure per £100 net output		
Seed purchases	147	107	127	3.7	2.5	2.8			
<i>Net output</i>	2,684	3,169	3,021	—	—	—	1952-3	1953-4	1954-5
<i>Expenditure</i>							£	£	£
Fertilizers	181	185	179	4.5	4.3	3.9	6.7	5.8	5.9
Rent and rates	231	245	256	5.8	5.6	5.6	8.6	7.7	8.5
Machinery and power	649	644	672	16.2	14.8	14.6	24.2	20.3	22.2
Miscellaneous	349	354	370	8.7	8.1	8.0	13.0	11.2	12.2
Labour—Paid	735	798	758	18.4	18.4	16.5	27.4	25.3	25.2
„ —Family unpaid	493	537	595	12.3	12.4	12.9	18.4	16.9	19.7
<i>Total expenditure</i>	2,638	2,763	2,830	100.0	100.0	100.0	98.3	87.2	93.7
<i>Management and investment income</i>	46	406	191						

TABLE F
Average Results for 1952-3, 1953-4 and 1954-5
Identical Sample of Dairy Farms—101-250 acres

No. Farms 60
Average Adjusted Acreage .. . 157

	Per 100 acres			Per cent.					
	1952-3	1953-4	1954-5	1952-3	1953-4	1954-5			
	£	£	£	£	%	%			
<i>Output</i>									
Cattle	333	352	406	8.8	8.5	9.6			
Sheep	102	91	112	2.7	2.2	2.6			
Pigs	298	339	393	7.9	8.2	9.3			
Poultry and eggs	218	241	265	5.7	5.8	6.3			
Milk	2,129	2,333	2,418	56.1	56.2	57.1			
<i>Total livestock</i>	3,080	3,356	3,594	81.2	80.9	84.9			
Crops	464	549	413	12.2	13.2	9.7			
Hops and fruit	15	15	7	0.4	0.4	0.2			
Miscellaneous	234	229	221	6.2	5.5	5.2			
<i>Total output</i>	3,793	4,149	4,235	100.0	100.0	100.0			
<i>Less</i>									
Food purchases	856	958	1,128	23.8	25.7	28.4	Expenditure per £100 net output		
Seed purchases	154	140	127	4.2	3.8	3.2			
<i>Net output</i>	2,783	3,050	2,980	—	—	—	1952-3	1953-4	1954-5
<i>Expenditure</i>							£	£	£
Fertilizers	242	211	219	6.7	5.6	5.6	8.7	6.9	7.3
Rent and rates	199	206	225	5.6	5.6	5.7	7.2	6.8	7.6
Power and machinery	689	681	686	19.2	18.2	17.4	24.8	22.3	23.0
Miscellaneous	299	297	336	8.3	8.0	8.5	10.7	9.7	11.3
Labour—Paid	988	1,063	1,046	27.5	28.5	26.5	35.5	34.9	35.1
.. —Family unpaid	168	171	184	4.7	4.6	4.7	6.0	5.6	6.2
<i>Total expenditure</i>	2,585	2,629	2,696	100.0	100.0	100.0	92.9	86.2	90.5
<i>Management and investment income</i>	198	421	284						

TABLE G
Average Results for 1952-3, 1953-4 and 1954-5
Identical Sample of Dairy Farms—251-400 acres

No. Farms 15
Average Adjusted Acreage .. . 342

	Per 100 acres			Per cent.					
	1952-3	1953-4	1954-5	1952-3	1953-4	1954-5			
<i>Output</i>	£	£	£	%	%	%			
Cattle	280	330	426	7.8	8.8	11.1			
Sheep	34	37	51	0.9	1.0	1.3			
Pigs	161	180	140	4.5	4.8	3.7			
Poultry and eggs	26	28	49	0.7	0.8	1.3			
Milk	1,983	2,060	2,063	54.9	55.2	54.0			
<i>Total livestock</i>	2,484	2,635	2,729	68.8	70.6	71.4			
Crops	960	928	923	26.6	24.9	24.2			
Hops and fruit	12	2	—	0.3	0.1	—			
Miscellaneous	157	167	169	4.3	4.4	4.4			
<i>Total output</i>	3,613	3,732	3,821	100.0	100.0	100.0			
<i>Less</i>									
Food purchases	497	576	617	15.5	17.8	19.2			
Seed purchases	179	140	130	5.6	4.3	4.1			
<i>Net output</i>	2,937	3,016	3,074	—	—	—			
							Expenditure per £100 net output		
							1952-3	1953-4	1954-5
<i>Expenditure</i>	£	£	£				£	£	£
Fertilizers	271	267	243	8.4	8.2	7.6	9.2	8.9	7.9
Rent and rates	192	190	196	6.0	5.9	6.1	6.5	6.3	6.4
Power and machinery	622	621	601	19.4	19.1	18.7	21.2	20.6	19.6
Miscellaneous	284	303	297	8.9	9.3	9.3	9.7	10.0	9.6
Labour—Paid	1,112	1,098	1,062	34.7	33.8	33.1	37.9	36.4	34.5
„ —Family unpaid	50	50	61	1.5	1.6	1.9	1.7	1.7	2.0
<i>Total expenditure</i>	2,531	2,529	2,460	100.0	100.0	100.0	86.2	83.9	80.0
<i>Management and investment income</i>	406	486	614						

TABLE H
Average Results for 1952-3, 1953-4 and 1954-5
Identical Sample of Dairy Farms—Over 400 acres

No. Farms 17
Average Adjusted Acreage .. . 661

	Per 100 acres			Per cent.					
	1952-3	1953-4	1954-5	1952-3	1953-4	1954-5			
	£	£	£	%	%	%			
<i>Output</i>									
Cattle	214	232	276	8.4	9.0	9.7			
Sheep	142	159	169	5.6	6.2	5.9			
Pigs	101	128	156	4.0	5.0	5.5			
Poultry and Eggs	39	49	58	1.6	1.9	2.0			
Milk	937	983	1,002	36.9	38.0	35.1			
<i>Total livestock</i>	1,433	1,551	1,661	56.5	60.1	58.2			
Crops	921	865	1,045	36.3	33.5	36.7			
Hops and fruit	25	26	9	1.0	1.0	0.3			
Miscellaneous	158	139	138	6.2	5.4	4.8			
<i>Total output</i>	2,537	2,581	2,853	100.0	100.0	100.0			
<i>Less</i>									
Food purchases	250	316	341	11.7	14.7	15.2	Expenditure per £100 net output		
Seed purchases	114	90	124	5.3	4.2	5.5			
<i>Net output</i>	2,173	2,175	2,388	—	—	—	1952-3	1953-4	1954-5
<i>Expenditure</i>							£	£	£
Fertilizers	197	172	150	9.2	8.0	6.7	9.1	7.9	6.3
Rent and rates	143	157	163	6.7	7.3	7.3	6.6	7.2	6.8
Power and machinery	492	433	464	23.0	20.2	20.7	22.6	19.9	19.4
Miscellaneous	164	176	176	7.7	8.2	7.9	7.5	8.1	7.4
Labour—Paid	737	763	783	34.5	35.6	34.9	33.9	35.1	32.8
„ —Family unpaid	41	39	40	1.9	1.8	1.8	1.9	1.8	1.7
<i>Total expenditure</i>	1,774	1,740	1,776	100.0	100.0	100.0	81.6	80.0	74.4
<i>Management and investment income</i>	399	435	612						

TABLE J
Average Results for 1952-3, 1953-4 and 1954-5
Identical Sample of Livestock Farms

No. of Farms 13
Average Adjusted Acreage .. . 176

	Per 100 acres			Per cent.					
	1952-3	1953-4	1954-5	1952-3	1953-4	1954-5			
	£	£	£	%	%	%			
<i>Output</i>									
Cattle	231	184	270	9.9	7.7	11.1			
Sheep	777	739	830	33.4	30.9	34.2			
Pigs	333	411	361	14.3	17.2	14.8			
Poultry and eggs	242	247	241	10.4	10.3	9.9			
Milk	—	—	—	—	—	—			
<i>Total livestock</i>	1,583	1,581	1,702	68.0	66.1	70.0			
Crops	525	642	581	22.6	26.8	23.9			
Hops and fruit	24	31	24	1.0	1.3	1.0			
Miscellaneous	195	139	124	8.4	5.8	5.1			
<i>Total output</i>	2,327	2,393	2,431	100.0	100.0	100.0			
<i>Less</i>									
Food purchases	266	300	296	14.1	15.0	15.1	Expenditure per £100 net output		
Seed purchases	106	68	65	5.6	3.4	3.3			
<i>Net output</i>	1,955	2,025	2,070	—	—	—	1952-3	1953-4	1954-5
<i>Expenditure</i>							£	£	£
Fertilizers	132	130	104	7.0	6.5	5.3	6.8	6.4	5.0
Rent and rates	135	145	153	7.2	7.2	7.8	6.9	7.2	7.4
Power and machinery	409	406	396	21.6	20.2	20.1	20.9	20.0	19.2
Miscellaneous	174	188	181	9.2	9.4	9.2	8.9	9.3	8.7
Labour—Paid	577	642	591	30.5	32.0	30.1	29.5	31.7	28.6
—Family unpaid	90	127	179	4.8	6.3	9.1	4.6	6.3	8.6
<i>Total expenditure</i>	1,517	1,638	1,604	100.0	100.0	100.0	77.6	80.9	77.5
<i>Management and investment income</i>	438	387	466						

TABLE K
Average Results for 1952-3, 1953-4 and 1954-5
Identical Sample of Arable Farms

No. Farms 7
Average Adjusted Acreage .. 262

	Per 100 acres			Per cent.					
	1952-3	1953-4	1954-5	1952-3	1953-4	1954-5			
	£	£	£	%	%	%			
<i>Output</i>									
Cattle	608	555	537	15.3	14.4	13.3			
Sheep	293	308	375	7.4	8.0	9.3			
Pigs	87	138	91	2.2	3.6	2.2			
Poultry and eggs	30	47	46	0.7	1.2	1.1			
Milk	—	—	—	—	—	—			
<i>Total livestock</i>	1,018	1,048	1,049	25.6	27.2	25.9			
Crops	2,786	2,591	2,806	70.2	67.3	69.4			
Hops and fruit	29	52	33	0.7	1.3	0.8			
Miscellaneous	138	161	157	3.5	4.2	3.9			
<i>Total output</i>	3,971	3,852	4,045	100.0	100.0	100.0			
<i>Less</i>									
Food purchases	193	192	199	6.4	6.3	6.1	Expenditure per £100 net output		
Seed purchases	317	285	293	10.4	9.4	9.0			
<i>Net output</i>	3,461	3,375	3,553	—	—	—	1952-3	1953-4	1954-5
<i>Expenditure</i>							£	£	£
Fertilizers	272	230	289	9.0	7.6	8.9	7.9	6.8	8.1
Rent and rates	291	289	311	9.6	9.5	9.5	8.4	8.6	8.8
Power and machinery	688	706	715	22.6	23.3	22.0	19.9	20.9	20.1
Miscellaneous	207	247	239	6.8	8.2	7.3	6.0	7.3	6.7
Labour—Paid	971	992	1,125	31.9	32.7	34.6	28.0	29.4	31.7
„ —Family unpaid	100	90	84	3.3	3.0	2.6	2.9	2.7	2.4
<i>Total expenditure</i>	2,529	2,554	2,763	100.0	100.0	100.0	73.1	75.7	77.8
<i>Management and investment income</i>	932	821	790						

TABLE L
Indicators of Efficiency
Identical Sample of 150 Non-Specialist Farms

	1952-3	1953-4	1954-5
System index	114	117	121
Yield index	89	96	96
Livestock yield index	93	98	102
Livestock units per 100 feed acres	44.4	45.6	48.4
Output per productive livestock unit	£75.3	£79.2	£82.3
Adjusted feed acres per livestock unit	2.8	2.9	2.8
Livestock output per adjusted feed acre	£25.8	£27.2	£28.9
Utilized starch equivalent per feed acre (cwt.)	12.6	12.7	13.2
Milk yield per cow (gallons)	691	729	758
Milk sales per cow	£112	£118	£121
Milk yield per adjusted feed acre (gallons)	243	252	269
Work units per man	234	224	222
Labour efficiency index	102	98	96
Labour and machinery expenses per £100 net output	£62	£59	£59

TABLE M
Indicators of Efficiency—Dairy Farms

	0-100 acres			101-250 acres			251-400 acres			Over 400 acres		
	1952-3	1953-4	1954-5	1952-3	1953-4	1954-5	1952-3	1953-4	1954-5	1952-3	1953-4	1954-5
System index	133	143	152	116	118	122	106	107	106	87	84	93
Yield index	87	95	92	93	101	101	99	101	104	83	87	89
Livestock yield index	92	97	98	97	103	109	97	101	109	79	84	88
Livestock units per 100 feed acres	47.6	52.0	53.5	45.2	45.8	49.7	42.3	43.8	42.5	37.3	35.0	41.2
Output per productive livestock unit	£85	£90	£92	£82	£87	£91	£79	£81	£86	£57	£61	£63
Adjusted feed acres per livestock unit	2.9	2.8	2.8	2.8	2.9	2.8	2.8	2.8	2.9	3.0	3.2	2.8
Livestock output per adjusted feed acre	£28.6	£31.2	£31.9	£27.9	£29.4	£31.6	£27.4	£28.3	£29.2	£18.7	£18.2	£22.1
Utilized starch equivalent per feed acre (cwt.)	12.2	13.1	13.0	12.6	12.6	13.1	12.7	12.9	12.5	11.8	10.8	12.7
Milk yield per cow (gallons)	672	716	724	716	759	797	708	723	779	632	659	676
Milk sales per cow	£106	£112	£114	£117	£123	£129	£119	£122	£128	£100	£104	£104
Milk yield per adjusted feed acre (gallons)	232	256	259	256	262	285	253	258	269	211	206	241
Work units per man	244	235	233	226	213	213	208	209	215	237	241	230
Labour efficiency index	106	102	101	98	93	93	90	91	93	103	105	100
Labour and machinery expenses per £100 net output	£70	£63	£67	£66	£63	£64	£61	£59	£56	£59	£57	£54

TABLE N
Indicators of Efficiency—Non-Dairy Farms

	Livestock farms			Arable farms		
	1952-3	1953-4	1954-5	1952-3	1953-4	1954-5
System index	91	86	90	113	120	112
Yield Index	71	79	78	103	94	101
Livestock yield index	85	88	88	104	107	107
Livestock units per 100 feed acres	41.7	39.2	42.1	46.3	50.6	52.3
Output per productive livestock unit	£47.3	£48.7	£49.1	£54.8	£56.6	£56.7
Adjusted feed acres per livestock unit	2.6	2.8	2.6	2.4	2.3	2.2
Livestock output per adjusted feed acre	£17.7	£17.0	£18.5	£21.8	£24.3	£24.9
Utilized starch equivalent per feed acre (cwt.)	13.8	12.8	13.9	14.3	15.8	16.2
Work units per man	282	243	238	216	220	199
Labour efficiency index	123	106	103	94	96	86
Labour and machinery expenses per £100 net output	£55	£58	£56	£51	£53	£54

TABLE O
Valuation of Tenant's Capital per 100 Acres

	Dairy farms				Non-dairy farms		Average all farms
	0-100 acres	101-250 acres	251-400 acres	Over 400 acres	Live-stock	Arable	
1952-3	£ 3,267	£ 3,145	£ 3,329	£ 2,082	£ 2,124	£ 2,927	£ 2,728
1953-4	3,585	3,443	3,517	2,187	2,143	3,139	2,911
1954-5	3,724	3,580	3,552	2,341	2,372	2,235	3,048

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