AGRICULTURAL ADJUSTMENT UNIT · UNIVERSITY OF NEWCASTLE UPON TYNE

Agriculture in the United Kingdom

B. H. Davey

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THE AGRICULTURAL ADJUSTMENT UNIT
THE UNIVERSITY OF NEWCASTLE UPON TYNE

In recent years the forces of change have been reshaping the whole economy and, in the process, the economic framework of our society has been subject to pressures from which the agricultural sector of the economy is not insulated. The rate of technical advance and innovation in agriculture has increased, generating inescapable economic forces. The organisation of production and marketing, as well as the social structure, come inevitably under stress.

In February 1966 the Agricultural Adjustment Unit was established within the Department of Agricultural Economics at the University of Newcastle upon Tyne. This was facilitated by a grant from the W. K. Kellogg Foundation at Battle Creek, Michigan, U.S.A. The purpose of the Unit is to collect and disseminate information concerning the changing role of agriculture in the British and Irish economies, in the belief that a better understanding of the problems and processes of change can lead to a smoother, less painful and more efficient adaptation to new conditions.

Publications

To achieve its major aim of disseminating information the Unit will be publishing a series of pamphlets, bulletins and books covering various aspects of agricultural adjustment. These publications will arise in a number of ways. They may report on special studies carried out by individuals; they may be the result of joint studies; they may be the reproduction of papers prepared in a particular context, but thought to be of more general interest.

The Unit would welcome comments on its publications and suggestions for future work. The Unit would also welcome approaches from other organisations and groups interested in the subjects of agricultural adjustment. All such enquiries should be addressed to the Director of the Unit.

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AGRICULTURE IN THE UNITED KINGDOM

CURRENT DEVELOPMENTS AND FUTURE DIRECTIONS

B. H. DAVEY

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FOREWORD

In 1967, the Agricultural Adjustment Unit published, in its series of bulletins, a paper which described recent developments in the structure and performance of the British agricultural industry and gave an indication of the possible directions of change in the industry, assuming that the trends evident at the time were to continue.[1] Since then, a number of events have occurred which will influence markedly the agricultural sector in Britain during the present decade. The most important of these is the decision to become a member of the European Community.

The application of the E.E.C.'s Common Agricultural Policy (C.A.P.) will have significant implications for farm prices and costs in Britain, for the pattern of agricultural production on the one hand and food consumption on the other, for the marketing of farm commodities and for the volume of Britain's trade in temperate zone products. There is, therefore, a strong case for up-dating and revising the paper, which is now out of print, to take account, firstly, of developments in agricultural policy that have occurred since 1967, secondly, to trace the likely pattern of adjustment as the industry adapts to Common Market conditions and, thirdly, to up-date the statistics.

The paper is in two parts. Firstly, the current position of agriculture within the British economy is analysed and the main features of agricultural development in recent years are described. The second and major part of the paper is concerned with the development of agriculture through the 1970's. Various projections are presented, some firmly based and others rather more tentative, about the likely changes in agricultural production, resource requirements, structure and marketing arrangements. This section inevitably contains an element of speculation with which it will be possible to disagree; at all stages, however, the assumptions underlying the predictions are stated explicitly.

In this context, the Unit has undertaken over the last four or five years a series of studies designed to throw some light on the implications for British agriculture of membership of the E.E.C. Mr. Davey has drawn heavily on the results of these studies in the second part of his paper. The studies include an analysis of supply response in British agriculture undertaken by Mr. Davey himself and Dr. P. W. H. Weightman as part of a wider study by Michigan State University on the effects of enlarging the E.E.C. on U.S.A. agricultural exports, and an assessment of the potential market for British cereals carried out by Mr. I. M. Sturgess and Mr. R. Reeves for the Home-Grown Cereals Authority.

In co-operation with Cambridge and London Universities, the Unit is presently continuing its studies of U.K. agriculture in the E.E.C. The Unit's main contribution to this joint study, on which an interim report was published recently by the Trade

Policy Research Centre, is the construction of a micro-economic supply model of U.K. agriculture to form the basis of an evaluation of the impact at national, regional and individual farm level of adopting the C.A.P.

JOHN ASHTON.

May 1972.

I. AGRICULTURE IN THE 1960's

(a) Agriculture in the British Economy

In a White Paper published some ten years ago,[2] the Government described the place occupied by agriculture in the economy. Agriculture, either directly or indirectly, is the source of livelihood of a large sector of the community. In addition to the 650,000 people who obtain their living from agriculture, the industry also generates a certain amount of employment in the ancillary industries directly concerned with the production and distribution of agricultural machinery, feeding-stuffs, fertilisers, chemicals and other farming requisites and the marketing and transport of the farmers' output.

Home agriculture supplies approximately half of Britain's total food supplies or about 70 per cent of our supplies of temperate zone products. Moreover, by expanding output over the post-war period, agriculture has contributed to the country's balance of payments by making substantial savings of foreign exchange. Thus over the period 1954–55/1956–57 to 1967–68/1968–69 the volume of net output of British agriculture rose by some 40 per cent; after allowing for the import content of this extra output, it has been estimated that this additional contribution to import saving was worth over £300 million per annum[3] if it is assumed that marginal resources in agriculture are at least as productive, or more, than if those resources were used in other sectors. Agriculture also contributes, albeit indirectly and in a limited way, to Britain's export trade. In 1970, for example, Britain's exports of live animals, meat, dairy products, eggs, cereals and fruit and vegetables amounted to £124 million.[4] In addition, the agricultural machinery industry, which was built up on the base of a highly mechanised home agriculture is a large net exporter with exports of agricultural machinery and tractors totalling £160·8 million and imports of £20·2 million in 1970.[5]

Agriculture constitutes a small and relatively declining sector of the British economy. In 1970, with forestry and fishing, it accounted for £1,348 million, or 3·2 per cent, of the Gross Domestic Product of £42,307 million; by comparison, in 1960 the proportion of G.D.P. accounted for by the sector was just over 4 per cent.[6] Corresponding to this declining contribution to national income, the movement of labour out of the industry has been a continuous feature over the last twenty years. Between 1960–62 and 1971, for example, the number of persons engaged in agriculture fell by 30 per cent from 935,000 to 651,000; most of this decline is accounted for by the exodus of hired farm workers.[7] Through the 1960's workers were leaving the industry at a rate of almost 30,000 people annually, but there are now signs that this trend may be moderating. The proportion of the total working population employed in agriculture in 1970 was only 2·6 per cent compared with 3·7 per cent in 1960–62.

This decline in the labour force has been offset by a growth in productivity made possible largely through the application of technological improvements and increased use of capital. Agricultural net output has increased by around 55 per cent since the mid-1950's. Net output grew steadily until the mid-1960's but then a period of relative stagnation, corresponding to a series of poor seasons, set in; however, the upward trend in output has been resumed during the last two or three years.[8] The growth of labour productivity in agriculture, which took place at an annual rate of 5·1 per cent between 1954 and 1964, has been more than maintained. The index of agricultural labour productivity stood at 143 in 1971/72 compared with 100 for the three year period 1964/65—1966/67.[9] This represents an annual growth rate in labour productivity over the last five years of 7 per cent, partly from the extra output and partly from the reduced labour force.

So far as the output of particular commodities is concerned, the expansion in the production of cereals during the 1960's was particularly marked, and following

TABLE 1

PRODUCTION OF MAIN AGRICULTURAL COMMODITIES IN THE UNITED KINGDOM ('000 tons)

Commodity	*Average of 1960/61 to 1962/63*	*1967/68*	*1968/69*	*1969/70*	*1970/71*	*1971/72 (forecast)*
Wheat	3,158	3,841	3,414	3,311	4,169	4,759
Barley	4,996	9.069	8,140	8,527	7,410	8,440
Oats	1,876	1,364	1,202	1,287	1,198	1,346
Total cereals	10,229	14,403	12,918	13,352	13,043	14,772
Maincrop potatoes	5,981	6,503	6,156	5,707	6,918	6,558
Sugar	821	919	930	892	939	1,101
Beef and veal	850	967	898	917	987	960
Mutton and lamb	254	256	246	215	224	218
Pork	465	552	575	621	619	646
Bacon and ham	204	206	219	232	262	280
Poultry meat	324	468	533	554	563	587
Milk (million gallons)	2,481	2,599	2,629	2,670	2,721	2,790
Liquid	1,587	1,669	1,643	1,645	1,641	1,617
Manufactured	800	862	921	963	1,021	1,117
Eggs (million dozen)	1,083	1,221	1,221	1,233	1,257	1,214

Wheat, barley, oats, sugar—July/June years.
Meat, milk, eggs—April/March years.
Maincrop potatoes—August/July years.

Source: Annual Review and Determination of Guarantees 1971. Cmnd. 4623. Tables 5, 6, 7, 8, 10, 11.

a period of stability after 1967/68 reached a peak of 14·8 million tons in 1971/72. The expansion in cereal production is a consequence of higher yields on the one hand and a substantial increase in acreage, particularly for barley, on the other. Production of beef has been fairly stable. Some decline has taken place in output of mutton and lamb reflecting the poor returns from sheep production relative to competing enterprises. Production of pig and poultry meat, in contrast, grew rapidly over the decade. The output of milk for human consumption, which was relatively static during the first half of the decade, has shown some expansion in recent years, with virtually the entire increase going into manufacturing milk. As a result of this expansion in production, the degree of self-sufficiency for those commodities which can be produced domestically has increased, although the U.K. continues to import a large proportion of its total food supplies. Information on the domestic production of selected commodities and the degree of self-sufficiency is given in Tables 1 and 2.

TABLE 2

UNITED KINGDOM HOME PRODUCTION AS PERCENTAGE OF TOTAL SUPPLIES AVAILABLE FROM HOME PRODUCTION AND IMPORTS

Commodity	*Average of 1960/61 to 1962/63*	*1967/68*	*1968/69*	*1969/70*	*1970/71*	*1971/72 (forecast)*
Wheat	42	49	43	42	44	54
Barley	93	108	97	90	90	90
Oats	98	105	100	100	109	100
Total cereals	53	67	61	60	59	65
Maincrop potatoes	97	96	97	96	97	98
Sugar	30	33	34	33	33	39
Beef and veal	71	83	77	77	84	82
Mutton and lamb	42	44	42	40	42	40
Pork	96	98	98	101	100	98
Bacon and ham	34	34	35	38	42	43
Poultrymeat	99	98	99	100	99	99
Butter	12	8	11	12	14	16
Cheese	46	42	40	45	46	53
Cream	78	89	89	89	87	89
Eggs	94	99	100	99	99	98

Source: op cit.

(b) Agricultural Development

An important causal factor in the growth in agriculture's productivity has been the adoption on a wide scale by farmers of technological improvements. These improvements include the new, higher-yielding varieties of crops, the use of more fertiliser and the introduction of chemical methods of weed, pest and disease control. Similar developments have been taking place in animal husbandry where genetic improvements and new means of controlling and preventing animal diseases have contributed to the rise in productivity. Thus, as Table 3 shows, yields of most crops and livestock products have increased over the last decade.

There has been some success in breeding for improved feed conversion in pig, egg and poultry production. The amount of concentrates fed per pound of pig-meat produced declined from 5·56 lb in 1960–62 to 5·38 lb in 1967–69. Over the same period, the amount of concentrates fed per dozen eggs fell by 7 per cent, whilst for poultrymeat the improvement in feed conversion efficiency was almost 10 per cent.[10]

A second set of factors contributing to improved productivity can be grouped under the heading of structural and organisational improvement. Structural changes are of two main types. Firstly, there has been some change in the acreage size structure of British farms, as shown in Table 4. There was a fall of about 13 per cent in the number of holdings between 1960 and 1968, although part of this decline can be attributed to modifications and improvements in the statistics. It is clear that the decline has been concentrated in the smallest size groups, that is

TABLE 3

ESTIMATED AVERAGE YIELDS OF CROPS AND LIVESTOCK PRODUCTS

	Unit	*Average of 1960/61—1962/63*	*Average of 1969/70—1971/72*
Crops:			
Wheat	cwt./acre	30·5	33·5
Barley	cwt./acre	26·7	28·4
Oats	cwt./acre	21·7	27·8
Potatoes	tons/acre	8·8	10·7
Sugar*	tons/acre	2·2	2·4
Livestock Products:			
Milk†	gals./cow	767	841
Eggs‡	no./bird	191	220

* Sugar-in-beet per crop acre.
† Yield per dairy type cow per annum.
‡ Up to 1962/63, eggs per adult fowl from all flocks. From 1963/64 eggs per laying bird.
Source: Annual Review and Determination of Guarantees 1972. Cmnd. 4928. Table 2.

farms of less than 50 acres, with a slight increase being recorded in the number of large holdings.

There has also been a trend towards a greater concentration and specialisation of production. This has been reflected in an increase in the average size of enterprise and in the volume of production originating from large units. In addition, the number of producers of most of the main crop and livestock products has been falling. The figures in Table 5 illustrate the trend for the last five years.

TABLE 4

DISTRIBUTION OF HOLDINGS IN GREAT BRITAIN
BY ACREAGE SIZE GROUPS

Size Group (acres)	*Number of holdings*		*Change*
	1960	*1968*	*1960–1968*
	('000)	('000)	('000)
300+	16·5	19·5	+ 3·0
100—299¾	74·2	68·3	— 5·9
50—99¾	66·2	56·5	— 9·7
Under 50	233·2	193·4	—39·8
Total	390·1	337·7	—52·4

Source: The Changing Structure of Agriculture. H.M.S.O. 1970. Table B, page 47.

TABLE 5

AVERAGE SIZE OF ENTERPRISE PRODUCING
PARTICULAR FARM PRODUCTS

Enterprise	*Number of holdings*		*Average Size of Enterprise*	
	1967	*1971*	*1967*	*1971*
	('000)	('000)		
Dairy cows	131·7	103·5	24	31
Beef cows	109·3	101·9	10	14
Breeding sheep	103·7	78·4	125	156
Breeding pigs	79·6	63·0	10	16
Laying fowls	202·2	125·9	257	426
Broilers	4·7	2·9	7,600	16,800
Wheat	56·4	49·2	40·8	55·0
Barley	123·5	106·1	48·0	53·3
Potatoes	107·1	78·2	6·6	8·1

Source: Cmnd. 4928. Table 3.

A number of factors have contributed to this concentration of production and one should be singled out for comment. This is the pressure imposed on farmers by the adverse movement in agriculture's cost/price ratio over the last ten to fifteen years and, in particular, the pressure since 1958 of rapidly rising rents and land values. Farmers who have to meet current land charges have been compelled to intensify their farming systems to maintain their incomes.

These changes have led to a substantial increase in the volume of capital invested in agriculture. Agriculture has become increasingly capital-intensive as considerable substitution of capital for labour has taken place. Thus, as Table 6 indicates, mechanisation has proceeded apace.

Substantial investments have also been made in farm buildings and other fixed equipment, including the provision of winter housing and feed handling systems on livestock farms. As a result, gross fixed capital formation in agriculture has risen from £145 millions in 1960 to £230 millions in 1970 (see Table 7), although some of this increase is attributable to inflation.

TABLE 6

SOME EXAMPLES OF THE DEVELOPMENT OF MECHANISATION IN UNITED KINGDOM AGRICULTURE

	1961	*1970*
Farmyard manure spreaders	105,760	128,810
Pick-up balers	80,430	105,350
Combine harvesters	55,160	65,990
Drying machines	20,930	63,480

Source: Annual Abstract of Statistics No. 108. 1971. H.M.S.O. 1971. Table 220, page 200.

TABLE 7

GROSS DOMESTIC FIXED CAPITAL FORMATION IN AGRICULTURE (£ million)

Type of Asset	*1960*	*1965*	*1970*
Vehicles	24	19	20
Plant and machinery	76	86	101
New buildings and works	45	67	109
All Fixed Assets	145	172	230

Source: National Income and Expenditure 1971. Central Statistical Office. H.M.S.O. Table 57.

Much of the additional investment in buildings and works has undoubtedly been the effect of the assistance provided by the Government through its Farm Capital Grants Schemes, which were first introduced in 1958. In addition, a large amount of working capital has been required to finance the expansion in crop and livestock production which has taken place. Table 8 illustrates the trend in the amount of capital invested in U.K. agriculture.

In summary, the picture which emerges is that of an industry undergoing a process of modernisation and improving its efficiency and productivity by the adoption of new technology, the intensification of the use of capital and by sweeping organisational and structural changes.

(c) Agricultural Policy

Since the war agricultural policy in the United Kingdom has been founded on the principles of the 1947 Agriculture Act which laid down as the objective of policy the promotion and maintenance, by the provision of guaranteed prices and assured markets for the main commodities produced on farms, 'a stable and efficient agricultural industry capable of producing such part of the nation's food and other agricultural produce as in the national interest it is desirable to produce in the United Kingdom, and of producing it at minimum prices consistently with proper remuneration and living conditions for farmers and workers in agriculture and an adequate return on capital invested in the industry.'[11] The principles of the 1947 Act were reinforced by the 1957 Agriculture Act which gave long-term assurances to the industry by circumscribing the Government's scope for reducing guaranteed prices.

In the immediate post-war period, the expansion of domestic agricultural production in Britain was encouraged more or less across the board. As the world's productive capacity recovered from the aftermath of war, the emphasis switched

TABLE 8

VALUE OF CAPITAL IN UNITED KINGDOM AGRICULTURE

(£ million)

	1953	*1969*
Landlords' capital in land and buildings	1,850	5,750
Tenants' capital in livestock, crops, machinery, stocks of feed, etc.	1,615	2,150
Total	3,465	7,900

Source: 1953: Cheveley and Price: Capital in United Kingdom Agriculture Present and Future I.C.I. 1955.
1969: Capital and Finance in Agriculture, Volume II December 1970.

in the U.K. to fostering improvements in the efficiency of production. In more recent years, the Government has attached considerable importance to the import-saving role of agriculture, but the sterling devaluation of November 1967 removed much of the justification for such a policy. The Government has therefore adopted a policy of a selective expansion of agriculture, subject to a continued improvement in the industry's productivity. The aim of this policy is for agriculture to produce more of the right commodities to meet rising demand on an economic basis; the priority products are beef, pigmeat, wheat and barley. A more recent justification put forward for the selective expansion programme is that it is needed not only to save imports but to reduce the bill which will have to be paid through the adoption of the Common Agricultural Policy when Britain enters the E.E.C.

During the 1960's various modifications were made to the system of supporting product prices through deficiency payments. Under this system, a payment is made to producers by the Government to raise the average price realised on the open market to a certain guaranteed level. For some commodities, prices in the early years of the decade were unstable through the varying pressure of supplies, both home produced and imported, on demand. The Government deemed it necessary therefore, to take steps to secure greater market stability by relating supplies more closely to demand, not only to achieve a better phasing of supplies on the market, but also to limit the cost to the Exchequer of implementing the price guarantees to a reasonable level. Thus, the guaranteed prices for wheat, barley and pigs, were related to a standard quantity, defined as the amount of output which it was thought should be produced domestically consistent with commitments to overseas suppliers. Prices to producers were reduced when the standard quantities were exceeded. (It should be noted that standard quantity arrangements no longer apply to cereals.) In addition, since April 1962, butter imports have been regulated by individual country quotas, whilst in 1964 minimum import prices were introduced for cereals and a market sharing arrangement devised for bacon in an effort to control the pressure of imports on the home market. Arrangements were also introduced to achieve a more orderly marketing of eggs. The supply of milk, potatoes and sugar beet had already been regulated for many years by such means as standard quantities and farm acreage quotas.

The minimum import price and import quota arrangements for cereals, butter and pigmeat, together with voluntary restrictions on imports of cheddar cheese, have had the effect of restricting trade and the traditional open access on to the U.K. market for food imports. Thus, Britain's agricultural support system has gradually become more protectionist. Whilst in opposition, the Conservative Party announced that, when returned to power, it would take this process further by replacing the deficiency payment system with variable import levies. Such a switch in agricultural price support methods will, of course, be required as Britain adopts by 1978 the E.E.C. Common Agricultural Policy.

The White Paper on the 1971 Annual Review announced that major changes would be made in the system of agricultural support in the U.K. The Government's objective was to adapt the present system of support to one relying increasingly on import-levy arrangements under which farmers would get their returns increasingly from the market. With effect from July 1971, the Government introduced interim levy schemes in respect of cereals, beef and veal, mutton and lamb and some dairy products, but not butter or cheese. The aim was to keep prices on the home market firm by preventing the damage caused by low priced imports. These arrangements are based on minimum import prices (m.i.p.) supported by levies; if imports are offered for sale below the minimum import price, then a levy, equal to the difference between the m.i.p. and the lowest offer price, is imposed on all imports of that commodity.

For the time being, this levy scheme is operating alongside modified deficiency payment arrangements. Whilst guaranteed prices and deficiency payments remain the main method of support the deficiency payment has been limited by the introduction of target indicator prices which represent the lowest return that producers should receive in conditions of orderly marketing. The deficiency payment is the difference between the guaranteed price and the average market price or the guaranteed price and the target indicator price, whichever is the smaller.[12]

In addition to these changes in price policy, a number of measures have been introduced in recent years with the objective of achieving further increases in productivity and improving farm structure and marketing arrangements. In the White Paper following the 1965 Annual Review, the Government stated that 'if farmers are to be able to earn proper remuneration on the basis of prices consistent with an efficient industry, more must be done to help those occupying holdings capable of providing a reasonable full-time livelihood who at present find it difficult to earn such a livelihood owing to the character or situation of their business.' Steps were taken, therefore, to extend the scope of the small farmer scheme, to improve credit facilities, to encourage more co-operation between producers and to increase the special assistance given to hill farming areas. In this connection, the then Labour Government considered that it would be appropriate to secure a reorganisation and improvement of the rural economy in hill and upland areas through the establishment of Rural Development Boards which would be given the task of drawing up a programme of rural development for their area covering agriculture, forestry and other uses of land such as recreation and tourism.[13] (In the event, only one Rural Development Board was set up—in the Northern Pennines—and this was abolished in March 1971 following the election in June 1970 of a Conservative government.) In addition, in a direct attempt to facilitate an improved farm structure and to assist those units which are too small to earn a decent living at reasonable product prices, the Government

introduced legislation in the 1967 Agriculture Act which enabled schemes to be formulated which would help farmers to enlarge their farms by obtaining more land, to encourage them to join together in co-operative efforts to obtain some of the benefits of producing and marketing on a large scale, or, if they wished to give up an unrewarding struggle, to relinquish their farms or retire from farming altogether.

Finally, attempts have been made to improve the marketing arrangements for agricultural commodities. Co-operative and group marketing have been encouraged. On the horticultural side, wholesale markets have been improved and relocated and a statutory grading scheme introduced for some crops. On the farm side, steps have been taken to improve the marketing of cereals and meat. The Home-Grown Cereals Authority was established to improve the marketing of home-grown cereals; its main functions are to encourage the more orderly marketing of cereals throughout the season and to provide improved market intelligence. The 1967 Agriculture Act gave the government authority to set up an independent Meat and Livestock Commission. The Commission's remit is to bring about a wide range of improvements in the production, marketing and distribution of fatstock and meat; its functions include promoting efficiency in the production of beef cattle, sheep and pigs, providing advice on the activities and development of producer groups, the introduction of a system of carcase classification for fatstock and the certification of animals under the Fatstock Guarantee Scheme.[14]

II. BRITISH AGRICULTURE IN 1980

During the rest of the 1970's the major factor affecting British agriculture will be the challenge of adopting to the Common Agricultural Policy (C.A.P.) of the European Economic Community (E.E.C.). There will be major changes in the method of supporting farm prices and it can be expected that the marketing channels between the farm-gate and the consumer will be modified in various ways, particularly in the light of the introduction of intervention buying arrangements for the main farm products. At the same time, entry by Britain into the E.E.C. could have a considerable impact on the pattern of food consumption, on the volume and structure of domestic agricultural production and, in a wider context, on British trade patterns in agricultural produce. Some of these issues are discussed in this section. It begins with a description of the price support policy operating in E.E.C. and to which Britain will be adapting over the period 1973 to 1978.

(a) Changes in Price Support Policy

The objectives of the C.A.P., set out in Article 39 of the Treaty of Rome, are very similar to those laid down for British agriculture in the 1947 Agriculture Act. They are:

(1) to increase agricultural productivity by developing technical progress and by ensuring the rational development of agricultural production and the optimum utilisation of the factors of production, particularly labour;

(2) to ensure thereby a fair standard of living for the agricultural population, particularly by increasing the individual earnings of persons engaged in agriculture;

(3) to stabilise markets;

(4) to guarantee regular supplies; and

(5) to ensure reasonable prices in supplies to consumers.

There are marked differences between the U.K. system of guaranteed prices, deficiency payments and production grants and the E.E.C. system in the method of implementing policy. The E.E.C. policy operates to keep imports out in order to maintain domestic farm prices, but farm products are allowed to move freely within the E.E.C. itself.

The C.A.P. is based on four principles. These are:

(1) a common organisation of the market with common prices for the main farm products;

(2) free trade in agricultural products between the member countries;

(3) a single trading system with non-member countries, and

(4) joint financing of the costs of market support, the subsidisation of agricultural exports to non-member countries and a contribution by the E.E.C. to the modernisation of agriculture in the member states.[15, 16]

So far as market policy is concerned, the characteristic arrangement in the E.E.C. is that which has been devised for cereals. This arrangement is based on a system of target and intervention prices supported by a variety of devices including import levies, export subsidies and internal market support. *Target prices* represent the wholesale prices which the Community authorities would like to see achieved in the area of the Community having the greatest grain deficit; this area is centred on Duisburg in West Germany. Target prices for other areas in the Community are derived from the Duisburg price.

To ensure that the target price is not undermined by imports of grain from non-member countries, *variable levies* are applied to imports. Common *threshold*—or minimum import—prices equal to the target price less the cost of transport from Duisburg to Rotterdam, are determined and applied at all frontier points throughout the Community. The variable levy is the difference between the threshold price and the lowest c.i.f. price at Rotterdam.

If prices fall below the target level, following, for example, an expansion of production in the Community, a further price support measure can be implemented. This is the *intervention price*, the price at which national intervention agencies are obliged to buy the products offered to them. In many ways, these intervention arrangements are analogous to the support-buying programme operated at the present time by the Potato Marketing Board. The intervention price is an effective guaranteed wholesale price and, for cereals, is approximately 93 per cent of the target price. Intervention prices for the principal market centres throughout the Community are derived from the intervention price set for Duisburg primarily by allowing for differences in transport costs. Once it has acquired the commodity, the intervention agency may either store it or export it. To facilitate the export of grain from member to non-member countries an *export restitution* or subsidy, equal to the difference between Community and world prices, is payable.

Turning to the other commodities, the arrangements are similar to those for cereals, although the mechanisms differ in detail from product to product. For *dairy products*, there is a target price for milk at the wholesale level; intervention prices are determined for butter and skim milk and imports and exports of manufactured milk products are regulated by a system of threshold prices, variable levies and export restitutions. For *beef and veal*, the Community determines a *guide price*. This price level is maintained by a supplementary import levy which is imposed when the duty-paid import price is less than the guide price, and by an intervention price for beef 4 to 7 per cent below the guide price.

Similar arrangements exist for *pigmeat, poultry and eggs*. An import levy operates to offset the effect of high-price feed grains in the Community and to provide a

measure of protection. If imports are offered below a minimum import or *sluice-gate price* a supplementary levy is charged. There are also export restitutions, but intervention buying, related to a *basic price*, is restricted to pigmeat.

The E.E.C. regime for *sugar* is based on target and intervention prices for refined sugar, a system of threshold prices and variable levies on imports, export restitutions and minimum prices for sugar beet; but unlike the arrangements for other commodities production quotas are also used. There is no common agricultural policy for potatoes or sheepmeat at present.

A difficulty for farmers is that under this system returns may be more uncertain than under the present guaranteed price and deficiency payment arrangements. There is no guarantee that the target or guide price will be achieved. Where intervention buying arrangements exist there is a floor to the market, but where there are no support-buying arrangements, prices can fall to low levels when the market is over-supplied.

E.E.C. official prices for the 1972–73 farm year are summarised in Table 9; U.K. guaranteed prices are also shown for comparative purposes. This shows that there

TABLE 9

E.E.C. TARGET AND INTERVENTION PRICES, 1972–73

Commodity	*Type of Price*	*Unit*	*Price*
Soft wheat	Target	£ per cwt.	2·41
	Basic intervention	£ per cwt.	2·22
	United Kingdom guarantee	£ per cwt.	1·72
Barley	Target	£ per cwt.	2·21
	Basic intervention	£ per cwt.	2·03
	United Kingdom guarantee	£ per cwt.	1·56
Sugar beet	Producer minimum	£ per ton	7·48
	United Kingdom guarantee	£ per ton	8·00
Fat cattle	Orientation price	£ per live cwt.	15·88
	United Kingdom guarantee	£ per live cwt.	13·20
Pigmeat	Basic price	£ per score d.w.	3·12
	United Kindgom guarantee	£ per score d.w.	2·81
Milk	Target	p. per gallon	23·0
	United Kingdom pool price	p. per gallon	20·6

Source: Agra Europe, April 6, 1972; Cmnd. 4928.

is the clear prospect in the E.E.C. of higher farmgate prices for most of the major commodities produced on British farms.

So far as the rate of adaptation to E.E.C. price levels is concerned this will take place in six equal stages over a five-year transitional period with the U.K. making its sixth and final move at the end of 1977. The other five moves will be made at the beginning of the crop year for each respective product in each of the years 1973 to 1977 inclusive.

To finance C.A.P., the E.E.C. established the European Agricultural Guidance and Guarantee Fund (F.E.O.G.A.).[17] This fund is in two parts. The Guarantee section is used to finance the support buying and export restitution arrangements designed to support farm prices on internal Community markets. The Guidance section is for the supplementation of expenditure by individual member countries on such items as the structural reform of farming, the improvement of production and marketing conditions and the establishment of producer groups. In the past, annual expenditure from the Guidance section has been limited to 285 million units of account, but with greater emphasis on structural policy likely in the future, expenditure under this head can be expected to increase through the 1970's both absolutely and proportionately.

During its development, a variety of methods have been used to raise revenue for F.E.O.G.A. From 1st January, 1971, 90 per cent of the levies on agricultural imports into the Community from third countries and an increasing proportion of duties on industrial imports are paid to the Community; until 1st January, 1975, the remainder of the revenue required to make up any deficit will come from contributions from the member countries, according to a fixed scale. After 1st January, 1975, these direct contributions will cease and the revenue will then be derived from import levies, customs duties and the proceeds of a value-added tax not exceeding the yield of a 1 per cent rate.

(b) Trends in Production

This section forecasts trends in U.K. agricultural production up to 1980. During this period, entry into the Common Market and the implementation in the U.K. of the C.A.P. will have a substantial effect on the pattern of British agriculture.

In the long run, the volume of agricultural output is determined by the level of producer prices and costs, affecting crop acreages and livestock numbers, and by technical efficiency, in terms of such factors as yields, feed conversion rates, labour and capital use. There can be little doubt that the improvement in technical efficiency in agriculture described earlier will continue through the 1970's. As part of a recent study undertaken by the Department of Agricultural Economics, Michigan State University for the U.S. Department of Agriculture,[18] projections

were made of technical coefficients, including production rates and feed conversion efficiency. These projections, which were primarily extensions of past trends modified by judgement, are summarised in Table 10.

TABLE 10

PROJECTED INDICES OF TECHNICAL COEFFICIENTS IN 1980 (1968 = 100)

Item		*Index*
Milk yield per cow		107
Lamb and mutton per ewe		105
Pigmeat per sow		105
Eggs per bird		119
Barley yield per acre		121
Wheat yield per acre		119
Feed conversion efficiency:	Milk	110
	Pigmeat	112
	Poultrymeat	114
	Eggs	115

The main influence on the level of output by 1980, however, will be the changes in the level and pattern of prices and costs that will occur as Britain adapts to the C.A.P.; these are likely to lead to substantial adjustments in farm output. E.E.C. entry is likely to give a substantial boost to grain prices in the U.K. at least in the short-term. A large increase in beef prices is also in prospect, although this will be partially offset by the withdrawal of the beef cow and calf subsidies required by existing E.E.C. regulations governing fair competition between member states. There is no C.A.P. for sheepmeat at the present time, but some increase in lamb prices can be expected, mainly on the strength of higher beef prices. Higher milk prices, largely a reflection of substantially higher realisation prices for manufacturing milk, are probable. Although pigmeat prices are likely to rise on average, pig producers will face greater market instability arising from their exposure to the full effects of the pig cycle. Some improvement in prices of poultrymeat is likely to follow an increase in demand as consumers substitute other meats for the costly beef, but there is likely to be only a small increase in egg prices in view of the greater opportunities that exist for economies in egg production compared to broilers.

At the same time, some increases in the variable costs of production can be expected. In particular, prices of animal feedingstuffs will increase, primarily as a consequence of the higher prices for feed grains under the C.A.P., but also to higher prices for imported protein feeds and cereal substitutes. Fertiliser prices will

also go up following the removal of the U.K. fertiliser subsidy and also with inflation.

A number of projections have been made of the volume and pattern of agricultural production in Britain under E.E.C. conditions. The most recent are those by Sturgess and Reeves;[19] the main features of their projections, which relate to the period 1969–70 to 1977–78, are summarised in Table 11.

TABLE 11

PROJECTED GROSS PRODUCTION OF LIVESTOCK PRODUCTS, 1977–78

Product Group	*Unit*	*1969/70*	*1977/78*	*1977/78 as per cent of 1969/70*
Milk	'000 m. gal. milk equivalent	2·66	2·70	101
Beef	m. tons	0·92	0·98	106
Mutton and lamb	m. tons	0·22	0·23	104
Pigmeat	m. tons	0·91	1·16	127
Poultrymeat	m. tons	0·55	0·69	125
Eggs	'000 m. dozen	1·30	1·42	109

Source: I. M. Sturgess and R. Reeves. *The Potential Market for British Cereals.* Table 8.3.

These projections suggest that production of milk will be restricted by a combination of rising feed prices, a sluggish rise in liquid consumption and attractive prices for cull cows. High prices for beef will cause an increase in the beef breeding herd, but the effect will be damped by the loss of production subsidies and higher feed prices. In addition, any expansion in beef production will be constrained by the relative stability of the national dairy herd. Mutton and lamb production could increase marginally, primarily as a consequence of improved lambing percentages. Increases of about a quarter in both pigmeat and poultrymeat production are predicted during the projection period. Egg production is expected to increase by 9 per cent over the period, largely on account of yield improvements.

These production projections, however, were restricted to livestock products. A particularly interesting question is the effect of the C.A.P. on U.K. grain production. It is generally expected that higher cereal prices in the E.E.C. would result in an increase in U.K. cereal acreages and hence in grain production. Davey and Weightman,[20] using a technique based on the aggregation of optimal programmes for a set of representative farms, have suggested that U.K. grain production could reach just over 16 m. tons by 1977/78, compared with 13·3 m. tons in 1969/70, more on account of higher yields than any increase in acreage harvested.

Two reasons underlie the relatively modest expansion projected for U.K. grain production. First, the total cereal acreage on any farm is constrained by rotational factors which limit the frequency with which cereal crops can be grown on any one piece of land. Those farmers in the main arable areas of the country who have indulged in intensive systems of cereal production have frequently encountered disease, weed and other problems leading to a reduction in yields or increases in costs. It seems unlikely that these farmers will further extend the acreage of cereals on their farms, notwithstanding any increase in the profitability of grain production. Moreover, whilst there is scope for more grain to be grown in the western parts of the country, these areas have a comparative advantage in grazing livestock, the profitability of which will also improve under E.E.C. conditions.

Secondly, E.E.C. entry is likely to encourage a shift into systems of milk and beef production that make relatively more use of grass and grass products. It has been argued that entry into the E.E.C. would lead to an expansion in the U.K. cereal acreage—achieved through a concomitant contraction in the acreage of grassland—but at the same time higher prices for concentrate feedingstuffs would encourage the substitution in cattle-feeding regimes of rations relying more heavily on grazing and silage. For example, it has been suggested that any increase in beef production could stem not so much from an expansion of the cattle herd as from a change in the distribution of beef production between intensive concentrate-based systems and the extensive grassland systems in which cattle are finished at higher weights.[21] It is here that any conflict between grain, grass and livestock mainly arises and it seems that when it comes to a choice between grain and livestock, in terms of profit, the balance of advantage for many farmers will lie with grazing livestock.

To sum up, therefore, entry by Britain into the E.E.C. seems likely to lead to the following changes in the pattern of U.K. agriculture:

(1) A modest increase in the output of grain, but little change in the cereal acreage.

(2) Within the grazing livestock sector, relative stability in the national dairy herd and in the sheep flock, and some increase in the beef herd, coupled with a shift towards production systems with greater reliance than at present on grass and grass products.

(3) Some increase in the output of pig and poultry products.

(c) Resources in Agriculture

(i) *Land*

The pattern of resources employed in agriculture has been changing throughout the post-war period. In particular, as already observed, capital has been substituted for labour and this trend can be expected to continue into the future. At the same

time, the pressure on land for non-agricultural uses will continue to cause a reduction in the area of agricultural land.

During the present century, major changes have been taking place in the pattern of land use in the United Kingdom. The main change has been the expansion of land uses which compete with agriculture for land accompanied by a concomitant decline in the agricultural area. These changes in land use are illustrated in Table 12.

TABLE 12

CHANGES IN THE MAJOR USES OF LAND IN ENGLAND AND WALES BETWEEN 1900 AND 1965

	Percentage of Total Area					
	1900	*1925*	*1939*	*1950*	*1960*	*1965*
Agriculture	83·6	82·9	81·3	80·6	79·3	78·6
Forest and woodland	5·1	5·1	6·2	6·4	6·8	7·5
Urban land	5·4	6·2	8·6	9·7	10·8	11·5
Land unaccounted for	5·9	5·8	3·9	3·3	3·1	2·4

Source: A. M. Edwards & G. P. Wibberley. *An Agricultural Land Budget for Britain 1965–2000.* Wye College, 1971.

The figures in Table 12 refer only to England and Wales as there are no comparable data available for the whole of the U.K., but the main trends in land use have been similar. Thus the area of urban land has more than doubled since 1900 so that it now occupies almost 12 per cent of the land area of England and Wales. There has also been a speedy—but smaller—increase in the area of afforested land, particularly during the last twenty-five years. The table may suggest that the growth of these competing uses has had relatively little impact on the area of agricultural land, but the slow decline in area is, in fact, largely a reflection of improvements in the statistics which have resulted in a transfer of land, previously unaccounted for, into the agricultural category. The significance of this loss of agricultural land lies in the fact that to maintain the present level of agricultural output requires an increased production from each acre remaining in agriculture. If any expansion in output is to occur, more intensive use of agriculture's land resources is required.

Agriculture remains the major user of land in the U.K. accounting for about 80 per cent of the total land area. In the future, continued losses of land to urban uses and afforestation can be expected. In addition, the pressure on agricultural land for recreational purposes is likely to grow as our increasingly mobile and

leisured society comes to demand more outdoor recreation in the countryside. Recent work by Edwards and Wibberley has thrown some light on the impact these competing claims for rural land on land use patterns in the U.K.[22]

The expansion of the urban area in the future will be the result of a number of factors. An increase in population and economic growth together mean more land will be used for homes, shops, factories, schools, hospitals, roads, airports and so on. So far as shops are concerned, it seems unlikely that planning authorities will be able to resist indefinitely the pressure for spacious and self-contained shopping centres located away from traditional shopping areas; centres of this type are commonplace in North America and are becoming more widespread in Europe. In addition, improvement in urban space standards implies an expansion in urban development even where the rate of population increase is low. In recent years, the transfer of agricultural land to urban uses has averaged approximately 50,000 acres per annum. A continuation of this trend into the future would result in a reduction of about 1 per cent of the agricultural land area each decade. It is inevitable that the bulk of urban development has been—and will continue to be—on land of good agricultural quality. Not only is urban growth concentrated in lowland areas where most of the good agricultural land is located, but a building site, or airport should preferably be level and well drained, two characteristics of good farm-land. Thus, Edwards and Wibberley have estimated that merely to maintain the volume of agricultural output in face of the loss of agricultural land to urban uses, each acre remaining in agriculture would need to produce 2·2 per cent more each decade.

Turning to afforestation, state forests are concentrated in Scotland, Wales and the North of England with planting occurring primarily on upland rough grazing, moor and heathland. This is partly because competition with agriculture is minimal and partly because the Forestry Commission cannot afford to acquire good agricultural land in the lowlands. The Forestry Commission is currently pursuing a planting programme of 56,000 acres per annum from 1969 to 1976 and 70,000 acres per annum from 1976 onwards. On this basis, the area of State forests could expand from 1·7 million acres in 1965 to just under 4 million acres by the year 2000. The bulk of the nation's forests and woodlands currently, however, are in private hands, although felling and clearing more than offsets new planting in privately-owned woods. This trend is expected to continue in the future so that by the year 2000 the area of privately-owned forest may be no more than 2·5 million acres compared with 2·7 million acres in 1965. Some of this disafforested land will be put to agricultural uses. In terms of the loss in productivity and output of agriculture, the concentration of forestry on poor agricultural land means that a loss of 1 per cent of the agricultural area to forestry gives rise to a loss in output of only 0·5 per cent. Forestry, therefore, does not have the same impact on agricultural output as urban growth.

The demand for outdoor recreation is influenced by a number of factors including income, the length of the working week and annual holiday, level of educational attainment and the degree of mobility. Developments in the U.K. are all leading to an increase in the demand for outdoor recreation. So far as agriculture is concerned the impact takes two main forms. One is where land is devoted almost entirely to recreation and where agriculture is closely circumscribed or non-existent; this includes the use of country estates for recreational purposes as well as the establishment on farms in popular recreational areas of caravan and camping sites. The second is where land remains mainly in agricultural uses and where—apart from limited access for ornithology, fishing or rambling—recreational use of the land is light. Both kinds of recreational land use will expand in the future, although it is difficult to make any quantitative estimate of the area of agricultural land that will pass into recreational use.

The projected pattern of land use in the year 2000 is summarised in Table 13.

TABLE 13

LAND USE IN THE UNITED KINGDOM IN 1965 AND 2000

(Percentage of total land area)

	1965	*1980*
Total land area	100·00	100·00
Agricultural land	81·50	75·25
Forestry	7·54	10·86
Urban land	8·49	11·43
Unaccounted for	2·47	2·47

Source: Edwards & Wibberley. Op cit., Tables 41 and 45.

By the end of the century, the agricultural area of the U.K. may decline by nearly 8 per cent as land is transferred from agriculture to other uses. By the year 2000, both forestry and urban land could account for an additional 3 per cent of the U.K.'s total land area. In order to compensate for this transfer, each acre of land remaining in agriculture will need to produce an additional 10·7 per cent of output, or more if British agriculture is to supply part of the increased demand for food arising from increased population, income growth and, perhaps, to achieve greater self-sufficiency. In addition to the direct loss of agricultural land to other uses, it is likely that urban intrusion into rural areas and the spread of outdoor recreation in the countryside could have a dampening effect on agricultural output.

(ii) *Manpower*

Since the war there has been a continuing reduction in the size of agriculture's hired labour force, accompanied by the substitution of capital for labour in agriculture. During the present decade the manpower resources employed in agriculture will be further reduced as the attraction of higher wages and better amenities in towns continues to 'pull' workers away from rural areas with their declining population. This is a trend which will be halted only if wages and working conditions on farms—and in rural areas generally—improve relative to other occupations. A rise in wage rates, however, would tend to intensify a second set of factors affecting the movement of labour out of agriculture. This is the 'push' exerted by farmers who, under the pressure of rising labour costs, are investing capital to reduce the labour required to operate their farming systems through mechanisation and other organisational improvements.

Between 1960 and 1969, the total number of workers employed in agriculture declined, on average, by 29,000 workers per annum from 693,000 in 1960 to 433,000 in 1969. The average rate of outflow was approximately 4 per cent per annum. A continuation of this trend would imply that the size of agriculture's workforce in 1980 would be just under 300,000 workers. On the other hand there is evidence to suggest that the rate of outflow may now be slowing down since only 7,000 workers left agriculture between June 1970 and June 1971; the absolute outflow between 1969 and 1970 was of a similar order. If this more recent trend were to continue, the decline in agriculture's labour force would be arrested so that by 1980 the industry might still provide employment for about 380,000 workers compared with 423,000 in 1971. It is quite likely, however, that the relative stability in the size of agriculture's labour force over the last two or three years reflects, at least in part, the higher level of unemployment in the economy as a whole—there is little incentive for labour to leave agriculture if employment opportunities in other sectors of the economy are limited. On this argument, the recent deceleration in out-migration could represent just a discontinuity in a consistent long-run trend and the rate of labour outflow from agriculture could be expected to pick up when the general employment situation in the economy improves. A plausible forecast of the size of the agricultural labour force in 1980 might be around 350,000 workers; this is broadly consistent with the Unit's supply projection study quoted above which suggested that the annual rate of labour outflow between 1968 and 1977 would be approximately 12,500 man-equivalents.[23]

It should be noted in passing that the effects of a declining farm labour force are not confined solely to agriculture. There are also social effects in those areas where there are few alternative employment opportunities for labour displaced from agriculture. For example, if rural depopulation continues, there could be a reduction in the facilities provided by the rural transport, health and education authorities, by voluntary organisations and by tradespeople. This, in turn, could

give rise to a downward spiral with fewer farm workers resulting in less adequate amenities which could then lead to more workers leaving rural communities.

(iii) *Capital*

If agriculture is to increase its output from less land and with a smaller labour force it is clear that a further improvement in productivity will be required. This will necessitate the investment of additional capital in agriculture, partly to substitute for labour, partly to assist in structural reorganisation and to increase farm size and partly to keep pace with inflation, particularly in land values. As well as additional investment in fixed capital assets—vehicles, plant and machinery, buildings and works—a substantial amount of additional working capital will be needed to purchase livestock and other farming requisites such as feedingstuffs, seeds and fertilisers.

Given the strong equity position of the agricultural industry in general and, on average, of individual farm businesses in particular, little difficulty should be encountered in finding this additional capital. It has been estimated that in 1965 agriculture in the U.K. had total assets of £9,200 million compared with liabilities of only £1,208 million.[24] Farm Management Survey information has shown that in 1971 total liabilities (less net worth) as a percentage of total assets averaged 27 per cent for tenanted farms, 16 per cent for owner-occupied farms and 19 per cent for farms of mixed tenure.[25] Whilst not denying that some farmers may be faced with capital limitations to the expansion of their businesses, it is clear that in general the industry is in a very healthy financial state.

Much of the additional capital that will be required over the next decade will be provided by the existing and traditional agricultural credit institutions including the Agricultural Mortgage Corporation and, particularly so far as short-term working capital is concerned, the joint-stock banks. Government assistance will presumably continue to encourage investment in new farm buildings, land improvement and machinery. The farm business itself will continue to be an important source of capital as funds are set aside from current incomes for investment purposes. In this connection, it is interesting to note that farms now derive the major part of their funds for investment from within the farm business, that is from farm profits and from depreciation provisions on existing assets. Some farmers may take advantage of sale and lease-back arrangements whilst for others part at least of the revenue from sale of land for urban development—which has yielded not less than £50 million per annum and perhaps considerably more—will continue to be available for re-investment in farming. In the future capital might be invested in agriculture by food manufacturing and processing industries as they become more directly involved in the production of their raw material. It seems unlikely, however, that farmers will be able to raise a significant proportion of their capital requirements through the stock market because the returns to a shareholder to be

earned from agriculture and the risks involved often compare rather unfavourably with alternative opportunities.* A further problem could arise from the effects of taxation, particularly capital gains tax, on farming assets. It is likely that in some cases part of a farm may have to be sold off in order to meet demands for estate duty and capital gains tax. This would be contrary to the policy of encouraging, through government initiative, the growth of larger and more efficient farming units; it would also make more difficult the formation of capital from savings out of income derived from farming.

In every member country of the existing six-member E.E.C., except the Netherlands, the provision of subsidised credit is one of the most important means by which governments help farmers and growers. There has been a tendency to extend these cheap credit schemes in recent years in view of the need to modernise Community agriculture or make it more competitive. The entry of the U.K. into the E.E.C. may well lead to pressure for similar arrangements to be introduced in Britain. It seems unlikely that this pressure will succeed in view of the distortion caused by such schemes to the capital market.

(d) Farm Structure

Structural changes taking place in agriculture in recent years have meant that farms have become fewer in number and larger in size, production becoming more specialised and concentrated into fewer hands.

During the 1970's, the number of farm units will continue to fall, both as a result of the losses of land from farming to other uses and through the amalgamation of small, uneconomic holdings into larger units. This latter development is being encouraged by Government assistance to structural improvement through its schemes for grant-aiding farm amalgamations and its assistance for farmers who wish to retire from farming. Whilst the impact of these schemes has been rather limited in the first four years of operation, recent modifications could result in them being more successful, leading in turn to an acceleration in the trend towards fewer and larger farms.

In 1968, there were 203,000 full-time farms in the U.K., of which 156,000 were in England and Wales, 26,000 in Scotland and 21,000 in Northern Ireland.[26] According to the Ministry of Agriculture, the number of full-time farms declined by an average of about 4,000 a year between 1963 and 1968. The rate of decline was about 1·5 per cent per annum from 1963 to 1966 and 2 per cent per annum from 1966 to 1968. If this rate of decline continues, then by 1980 the number of full-time farms in the U.K. could have fallen to around 160,000.

Corresponding to this decline in the number of full-time farms, there will be an increase in the size of the remaining farm businesses. In spite of the hazards inherent

*Some 'city' money will undoubtedly be invested in agriculture, primarily to minimise death duty liabilities resulting from the eligibility of agricultural land for a 45 per cent abatement.

in this type of forecasting, it is suggested that if recent tendencies continue, and everything suggests that they will, then the distribution of full-time farms by size of business groups in 1980 could approximate to the pattern shown in Table 14.

TABLE 14

ESTIMATED DISTRIBUTION OF FULL-TIME FARMS IN THE UNITED KINGDOM BY SIZE OF BUSINESS. 1980

Size of Business (standard man-days)	*1968 Number ('000)*	*1980 Number ('000)*
1,200 and over	42	46
600—1,199	63	50
275—599	98*	64
Total	203	160

*Including 15,000 full-time farms with less than 275 smd's.

Although these forecasts may exaggerate the changes that will have taken place by 1980, it indicates the direction in which the structure of farming will be moving. The major changes are an increase in the number of large farms and a reduction in the number of medium and small farms. As a consequence, a much higher proportion of total agricultural output will originate on large farms, and small farms will become even less important as a source of output than they are at present. (In 1968, 16 per cent of total output was produced on small farms.)

At the same time as these changes in the size and number of full-time farms are taking place, the average size of crop and livestock enterprises will also be changing. Enterprise size in the future will depend on the interaction between trends in crop acreages and livestock numbers and the trend to fewer farms. Table 5 illustrated how average enterprise size in the U.K. had increased over the period 1967 to 1971. How the average size of enterprise on farms might develop by 1980 is shown in Table 15; the calculations have been based on the assumption that the rate of change in enterprise size witnessed over the period 1967–71 continues through the 1970's.

These changes in average enterprise size will be compounded from a combination of some producers ceasing production and others remaining in business and increasing their scale of operations. The number of producers of each enterprise will continue to fall and an increasing proportion of output will be produced in larger-scale units. Thus the current trend towards simplification of farming

TABLE 15

ESTIMATES OF AVERAGE SIZE OF ENTERPRISE IN 1980

Enterprise	*Unit*	*Average annual increase in size of enterprise 1967–71 (per cent per annum)*	*Average enterprise size*	
			1971	*1980*
Dairy	Cows	7·25	31	51*
Beef breeding	Cows	10·0	14	27
Sheep	Breeding ewes	6·25	156	244
Pigs	Sows	15·0	16	38
Wheat	Acres	8·5	55	97
Barley	Acres	2·5	53	65
Main crop potatoes	Acres	5·75	8	12

*In a recent publication (*Europe and the British Dairy Farmer*), the M.M.B. for England and Wales has projected an average dairy herd size of 50 cows for the U.K. in 1980.

systems and specialisation of production with more of the output being concentrated into fewer hands will remain a major feature of U.K. agriculture for the rest of this decade.

It could be argued that the buoyancy given to farm profitability by the C.A.P. will slow down some of these tendencies because the smaller and more marginal farms will have a breathing space. As the economic pressures build up, however, especially on the supply side, it seems doubtful whether the pressures leading to the sort of reorganisation described above can be resisted indefinitely.

(e) Marketing and Distribution

At the same time as changes in the volume of agricultural production, the resources employed in the industry and the structure of agriculture are taking place, developments will also be occurring in the marketing and distribution of food and other agricultural products. It is proposed here to review in broad terms the developments that seem most likely to take place during the next ten years or so. First, however, it is necessary to describe briefly the major features of food processing, marketing and distribution during the 1960's and to outline trends in the size of the market confronting the British farmer.

So far as food marketing and distribution in the 1960's is concerned, four main strands of change and development can be identified. First of all, technological developments in food processing, for example the prepacking of meat products and the freezing of vegetables have occurred. These developments were associated with the increased importance of national brands and the presentation of these brands to consumers in wrapped form. (It should be noted that developments in food technology could take a much more dramatic form in the years to come. For

instance, non-agricultural, that is synthesised, food products have gained a foothold in the American food market so that these products are now fairly commonplace on the shelves of American supermarkets. This development is expected to accelerate and spread to the U.K. over the next 10 to 15 years, especially following the present commitment of large U.K. firms to the business of manufacturing synthetic animal feed.)

Linked to this has been the housewife's increased demand for standardised and predictable products which can be prepared and served quickly with the minimum of trouble. This is a reflection partly of different habits on the part of the new generation of food purchasers and partly the growing affluence of households in the U.K. An indication of the expanding market for these convenience foods is provided by the results of the National Food Survey which showed that purchases of all convenience foods by households increased in real terms by almost 19 per cent between 1963 and 1969, whilst purchases of quick-frozen convenience foods rose by 75 per cent over the same period. By comparison, the real value of all food purchased increased by only 2·4 per cent.[27]

Third, there have been major changes in methods of food retailing in recent years. In particular, there has been a rapid increase in the number of supermarkets and self-service stores and, as pointed out above, the development of prepacked and branded food items of consistent quality. There has also been a movement into self-service food retailing by large national chainstores formerly not concerned at all—or to only a limited extent—with the sale of food at retail. Some indication of the trends in food retailing over the period 1950 to 1966 is given in Table 16.

TABLE 16

NUMBER OF FOOD RETAILING ESTABLISHMENTS IN THE UNITED KINGDOM ('000)

	1950	*1957*	*1961*	*1966*
Grocers and provision dealers	146	152	151	123
Other food retailers:				
Dairymen	10	8	7	4
Butchers	42	42	44	38
Fishmongers, poulterers	10	8	8	5
Greengrocers, fruiterers	44	40	42	27
Bread and flour confections	24	18	18	18
Off-licences	8	9	9	11
Total other	138	123	127	104

Source: Annual Abstract of Statistics No. 108. 1971. Table 234.

Whilst the figures in Table 16 clearly indicate the fall in the number of retail food outlets which has occurred over the post-war period, and particularly since 1971, they do not bring out the full measure of the concentration in food retailing that has taken place. For example, whilst the weekly average sales of all food retailers increased by 22 per cent between 1966 and 1970, weekly sales of multiple retailers—that is organisations with 10 or more establishments—rose by 40 per cent, compared with 16 and 9 per cent respectively for independent retailers and co-operatives.[28] Moreover, it has been estimated that, although representing only 18 per cent of the total number of shops, multiples and co-operatives accounted for 56 per cent of total grocery turnover in Britain in 1969.[29]

This concentration in the structure of food retailing has been matched by greater concentration in food processing. These developments have changed considerably the marketing environment in which farmers operate and they have reacted to the new situation in a number of different ways. In particular, production has become more closely geared to the needs of the market. Contract production, with the requirements of the processor or retailer specified to the producer in terms of both quantity and quality—and even management—has become an integral part of poultrymeat, pig, vegetable and some fruit production. There has also been a trend towards the more orderly marketing of other commodities, including grain, meat and eggs, through the establishment of contractual arrangements between producers—or organisations acting on their behalf—and processors, and in a few cases between producers and retailers.

The first point to consider, so far as the future is concerned, is the size of the market facing the British farmer. By 1980, Britain will be fully integrated into E.E.C., but whilst there will be opportunities for exporting British agricultural products to Europe, the main market for the U.K. farmer will continue to be within these islands.

The level of food consumption in Britain in 1980 will depend on a number of factors, including the trend in population, the growth in incomes and changes in relative prices of the different food items. Some light has been thrown on this question by the results of the Agricultural Adjustment Unit study referred to earlier in this paper.[30] Projections of the consumption in 1977–78 of the main grain and livestock products produced in the U.K. are given in Table 17. So far as livestock products are concerned, the main features of these projections are a marked decline in butter consumption and hence in consumption of all dairy products, a switch in meat consumption away from beef towards other carcase meats and poultrymeat, a virtually static consumption of bacon and ham and a small rise in consumption of eggs. Consumption of grains commonly grown in the U.K.—broadly speaking, barley, oats and soft wheat—is projected to be between 1·7 and 2·9 m. tons less in 1977/78 than in 1969/70. This estimate is based on a decline in usage of these grains for animal feed of 3·2 to 3·7 m. tons, which

will outweigh increases in usage of grain for human food of 0·8 to 1·5 m. tons. It is projected that grains other than maize will take a smaller share of a slightly expanded total use of concentrated animal feed. On the other hand, soft wheat for human food will increase its share of a declining market, whilst the market of barley for human consumption will continue to expand and home grown barley will maintain its dominant share of this market. The reduction in consumption of grains for feed springs mainly, of course, from the replacement of cereals by cereal substitutes.

Turning now to future developments in food marketing and distribution, it seems inevitable that the trends evident throughout the 1960's will continue. Thus, the trend to increased purchases of convenience foods noted above can be expected to carry on and perhaps even to accelerate. The number of self-service

TABLE 17

PROJECTED CONSUMPTION OF LIVESTOCK PRODUCTS AND CEREALS IN THE UNITED KINGDOM, 1977–78

Commodity	*Unit*	*1969–70*	*1977–78*
Beef	m. tons carcase wt.	1·19	0·98
Lamb and mutton	m. tons carcase wt.	0·53	0·65
Poultrymeat	m. tons carcase wt.	0·56	0·73
Pork	m. tons carcase wt.	0·61	0·76
Bacon and ham	m. tons	0·62	0·66
Eggs	'000 m. dozen	1·25	1·40
Liquid milk	'000 m. gallons	1·68	1·74
Butter	m. tons	0·48	0·27
Cheese	m. tons	0·28	0·29
Cream	m. tons	0·08	0·09
Other milk products	m. tons milk equiv.	1·12	1·07
Barley, oats, wheat and mixed corn for animal feed	m. tons	11·49	High 8 27[2] Low 7·75[3]
Soft wheat for human food	m. tons	1·65	High 2·57[4] Low 2·06[5]
Oats and barley for human food	m. tons	1·51	High 2·06[6] Low 1·92[7]
Total cereals[1]	m. tons	14·65	High 12·90 Low 11·73

Source: I. M. Sturgess and R. Reeves. *The Potential Market for British Cereals.* Tables 2.1 and 6.3.

[1]This refers to consumption of grains commonly grown in the U.K. only.
[2]Assumes that the maize : barley price ratio is raised by 8 per cent.
[3]Assumes that the maize : barley price ratio is unchanged.
[4]Assumes that the gap between actual and potential use of soft wheat for human food is closed.
[5]Assumes that the gap between actual and potential usage is halved.
[6]Based on high estimate of whisky production.
[7]Based on low estimate of whisky production.

retail food outlets will continue to grow, whilst concentration in food retailing will cause the total number of outlets to decline. Farmers will be faced with even fewer buyers for their output than at present and these buyers will be dominated by a few relatively large retailers and processors with clearly defined requirements in terms of quantities, qualities and timing of delivery.

This all points to a substantial increase in the influence of the marketing and distribution system on the pattern and type of production. An increasing volume of production will be produced on contract terms and the contract farming of the future could well include farmer-retailer agreements as well as farmer-wholesaler/processor arrangements. Under these circumstances, farmers are likely to find it increasingly advantageous to increase their market power by forming corporate groups to deal directly with large-scale producers. Such groups, acting on behalf of producers, are more likely to cope with negotiating contracts, ensuring that produce fully matches requirements in terms of both quality and timeliness and, in return for this service, obtaining for the producer the appropriate premium for the quality article.

But no matter what the precise arrangements are, the development of a more integrated marketing and distribution chain from the producer of the raw material right through to the consumer of the final product seems certain to be a major feature of the food and agricultural industries in the U.K. for the remainder of this decade.

In addition, entry into the E.E.C. itself has a number of implications for agricultural marketing in Britain. First of all, British agriculture will be facing more direct competition from the members of an enlarged E.E.C.—including Denmark and Ireland—than it does at the present time. This implies strict adherence to the quality standards and delivery obligations laid down by buyers if the market is to be held. In this respect, producer marketing organisations could have a key role to play. In any event, these organisations are likely to receive a boost in the E.E.C. because E.E.C. policy is favourable to an extension of their powers and influence.

Membership of the E.E.C. will involve the establishment in Britain of an organisation to handle the intervention arrangements for those commodities for which provision for intervention buying has been made in C.A.P. These include cereals, dairy products, beef, pigmeat and sugar. The government has announced its intention of establishing an overall intervention board for the U.K. to handle arrangements for support buying, export subsidies and other payments, such as denaturing premia for wheat. One advantage of the type of umbrella organisation proposed is that support buying is often sporadic in character so that a single body has flexibility and economy in sharing and deploying its resources as appropriate to meet the demands made on it. At the time of writing, however, the detailed way in which the intervention arrangements will operate is not known.

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