ERS-FOREIGN-50

SUMMARY AND EVALUATION OF

UNITED KINGDOM:

Projected Level of Demand, Supply, and Imports of Farm Products in 1965 and 1975

(ERS-Foreign-19)

U.S. DEPARTMENT OF AGRICULTURE / ECONOMIC RESEARCH SERVICE / Regional Analysis Division

PREFACE

The United States Department of Agriculture published in January 1962, ERS-Foreign-19, United Kingdom, Projected Level of Demand, Supply, and Imports of Farm Products in 1965 and 1975. This independent unabridged research study was prepared for the Economic Research Service and the Foreign Agricultural Service, USDA, by the Institute for Research in Agricultural Economics, Oxford, England, Colin Clark, M. A., Director.

This original report contains 89 pages of single-spaced text, plus 42 pages of statistical appendix. It is a comprehensive study utilizing accepted techniques of methodology and based on generally realistic assumptions. The United States Department of Agriculture found this study to be a competent and significant contribution to its world-wide program of development of long-range projections of the supply of and demand for agricultural products.

This "Clark study" provides a rational projection of the import demand in the United Kingdom for 1965 and 1975 for selected agricultural products. This information together with similar studies in other countries will help form a basis for making decisions with reference to resource adjustment and general agricultural policy in the United States. Such studies are planned for 32 countries representing over 80 percent of the market for U. S. agricultural exports. Eight of the studies have been completed, and four of them have been published; 13 are underway and 11 more are planned. An overall world report on supply, demand, and trade in farm products is planned for the latter half of 1965. This work throughout the world is under the general supervision of the Director, Regional Analysis Division, Economic Research Service, United States Department of Agriculture, Washington 25, D. C. Inquiries as to the status of the work, studies completed, and availability of reports may be sent to the Director.

In this abridged report, Dr. Eric Englund (for several years, United States Agricultural Attache to the United Kingdom) and Alexander Bernitz of the Regional Analysis Division, Economic Research Service, present a summary and evaluation of the original study, and a short analysis of what this study implies for the future exports of United States agricultural products to the United Kingdom.

July 1963

CONTENTS

SUMMARY AND EVALUATION OF "UNITED KINGDOM: PROJECTED LEVEL OF DEMAND, SUPPLY, AND IMPORTS OF FARM PRODUCTS IN 1965 AND 1975" (ERS-Foreign-19)

by

Eric Englund and Alexander Bernitz, Regional Analysis Division
Economic Research Service

SUMMARY OF MAIN FINDINGS

The main findings in the original research report relate directly to the central purpose, that is, of estimating the probable agricultural import requirements of the United Kingdom in 1965 and 1975, and thereby giving some indication of export prospects for U. S. farm products in the U. K. market.

The most striking feature of the import projections for 1975 is the very modest increase over the levels of 1960-62 in aggregate value despite increased population and consumer real income. The most favorable import projection, from the standpoint of agricultural exporters, was of an increase of 10 percent over 1960-62. The least favorable projection actually was of a small decline from the aggregate value of annual imports during 1960-62. These projections illustrate the tendency of agricultural production in advanced areas to increase more rapidly than agricultural consumption. Both supply (technological improvements) and demand (shifts and limits in food consumption) are involved here.

1. Gross imports of grain are expected to advance, in volume, 7 percent by 1965 and to decrease 9 percent by 1975. 1/ The cost of these imports would fall 10 percent by 1965 and 22 percent by 1975 (table 9 or report table 56). 2/ Despite increased output of U. K. agriculture, some room is expected for increased imports of farm products above the 1958/59 level. But the fall in grain imports would be compensated for by a rise in imports of animal products.

2. Net imports of fruit of all kinds, except dried, are expected to rise, in volume, 19 percent by 1965 and 34 percent by 1975. The corresponding advance in cost of these imports is put at 15 and 29 percent.

3. Imports of vegetables--dried pulses, tomatoes, canned and fresh vegetables--are expected to increase 8 percent by 1965 and 12 percent by 1975.

1/ Substantial exports of products are based on grain. The report gives as major examples of such exports £ 14 ($39.2) million of cereal products and £ 54 ($151.2) million of whisky. As the years of these exports are not specified, the figures are assumed to represent 1959 or 1960 as probably the latest available when the study was being made.

2/ Unless otherwise indicated, page references in this abridgment relate to pages in the Clark report (ERS-Foreign-19). Statistical tables in that report are referred to by number as (report table __) and tables in this abridgment as table __).

4. Imports of meat, cattle, fish, and eggs are expected to rise 7 percent in volume by 1965 and 12 percent by 1975, but real cost is expected to rise by only 2 percent by 1965 and 7 percent by 1975 (p. 76 and report table 49-b).

5. Net import of milk products, including butter and cheese, is expected to fall 10 percent in volume and cost by 1965 and 1975.

6. Table 11 shows a substantial increase in projected imports of tobacco, coffee, and barley and corn for distilling; but in the case of raw cotton, a decrease of 25,000 tons from 1955-59 to 1965 and 53,000 from 1955-59 to 1975, attributed chiefly to substitution of artificial fibers.

7. As to food imports in general, the report draws attention to the rise of 21 percent in the volume of food imports from 1954 to 1960. This is considered abnormal because of the easing of import restrictions and "the very sharp fall in the real price of imports." If volume of food imports should continue to rise at the same rate in the next 3 or 4 years "then these forecasts must be substantially incorrect." - "Our own view," Clark et al., conclude, "would be that the rate of growth of imports at present 3/ is too sharp to be carried by the growth of productivity, and cannot last." (p.79) 4/

8. The acreage of agricultural land (47,915,000 acres in 1955-59) is expected to decline less than 1 percent by 1965 and about 2 percent by 1975 (table 7). Continued increase in the productivity of agriculture is predicted, in yield per acre and product per animal (table 5). Also, a higher rate of productivity increase per worker in agriculture is expected than in the non-agricultural sector. Concluding one aspect of their mathematical adjustments of provisional forecast of home production, the authors find that "agricultural output is likely to rise twice as fast as demand at constant prices" (p. 43). 5/

A Word of Caution

The above summary items and other forecasts in the report are results of mathematical processes based on assumptions with respect to the future. The figures, as end results of these processes, may be easy to grasp; but, without some explanation of their bases, they could be misleading. Clark, et al., serve the reader well when they draw attention to the fact that forecasts, which of necessity must be based on certain assumptions, "give the impression of too much certainty" (p. 72) and that "mathematical calculations do not alter the fact that the forecasts themselves are an opinion concerning the future."

It is necessary, therefore, to draw attention, in Section III, to these assumptions. They are basic to the mathematical process of arriving at the forecasts.

3/ It is assumed that "at present" here refers to the time of the study, March 1959 to August 1961.

4/ Clark, et al., expect an annual growth of 1.3 percent in productivity per worker in the civilian labor force. (See paragraph 2, "Basic Assumptions," Part II of this Abridgment.)

5/ According to official index (p. 36), net output of U. K. agriculture in 1950/51 was 145 (prewar average = 100), advancing to 156 in 1955/56, to 178 in 1960/61 (provisional figure), and to 183 in 1961/62 (forecast). "Annual Review and Determination of Gurantees, 1962" presented to Parliament, by command of Her Majesty, March 1962.

IMPLICATIONS FOR U. S. AGRICULTURAL TRADE

Within the framework of the import needs outlined in the Institute's study and under the assumption that the United States will maintain its share of the United Kingdom market for agricultural products, the following implications for U. S. agricultural trade are suggested.

Total Agricultural Imports

Between 1960 and 1962, the United Kingdom imported annually approximately 5 billion dollars of agricultural products. The United States during this period supplied about 10 percent of these imports compared to 9 percent during 1955-59. In terms of value (c.i.f.) cereals and preparations were most important, averaging $185 million; second was tobacco, averaging $128 million; then cotton, $61 million; fruits and vegetables, $53 million; lard and miscellaneous foods (mainly lard), $35 million; and oilseeds and nuts, averaging $11 million. Among other agricultural products imported by the United Kingdom from the United States were wool and hair, animal and vegetable oils, rice, sugar and preparations, and feeds and wastes.

In the original study, there are 12 projections of the value of total agricultural imports for 1965 and 12 more for 1975. The reader may make his own judgement as to which projection appears more realistic depending on his choice of either a low or high feed price, a low or high population growth, and a low, middle, or high annual rate of increase in productivity. The lowest import value projection for 1965 and 1975 assumes a high feed price, a low population growth, and a low rate of annual increase in productivity. The highest projection assumes a low feed price, a high population growth, and a high rate of annual increase in productivity. Thus, for 1965 and 1975, assuming the U. S. share of the United Kingdom market remains at 10 percent, the projected value of agricultural exports would be as shown in table 1.

Table 1.--Projected agricultural imports of United Kingdom, total and U. S. share, 1965 and 1975

	1965		1975	
	High projection	Low projection	High projection	Low projection
	Million U. S. dollars			
Total value of United Kingdom agricultural imports	5,127	4,925	5,547	4,925
Value of U. S. share	513	493	555	493

Commodity Implications

The United States share of the United Kingdom market for various commodities is not a constant factor. From the period 1955-59 to 1960-62, the U. S. share of the separate commodity markets have either risen, gone down, or remained stable for those commodities examined in the study. For continuity with the original study, the same commodity listing has been adopted.

Table 2.--U. S. share of United Kingdom imports, by quantity, 1955-59 and 1960-62, for selected commodities

Commodity	1955-59	1960-62	Change
	Percent	Percent	Percent
Wheat	16	33	+17
Corn	66	66	+ 0
Apples and pears	6	9	+ 3
Vegetables	5	9	+ 4
Citrus (in all forms)	2	2	+ 0
Lard and animal fats	49	57	+ 8
Cotton 1/	36	34	- 2
Tobacco 2/	66	45	- 21

1/ In the Clark study, cotton is listed as "retained imports," thus the percent calculated is the percent of U. S. total imports of retained U. K. total cotton imports. For 1960-62, the percent is imports from U. S. of total U. K. cotton imports.
2/ For 1955-59, the percent is imports from the United States of total U. K. tobacco consumption. For 1960-62, the percent is tobacco imports from the U. S. of total U. K. imports of tobacco and manufactures.

It is unrealistic to assume that the share of the U. K. wheat imports from the United States will expand at the same rate during the projection period as was experienced from 1955-59 to 1960-62. It may be equally unrealistic to assume that this share will decline to or below the 1955-59 level. However, by utilizing both percents for wheat and the respective percents for the other commodities, a range of possible U. S. exports in 1965 and 1975 can be calculated.

The resultant projections of U. S. exports based on the 1960-62 average share indicate for the period from 1960-62 to 1975 an upward trend in the quantities of wheat, citrus, vegetables, and lard and animal fats; a downward trend for corn, apples, and pears; and a sustained level of exports for cotton and tobacco after a slight decrease in 1965 (table 3.)

Based on the 1955-59 average share, the projections indicate an upward trend, above the 1960-62 level, for exports of citrus and tobacco, a sustained level for cotton, and a downward movement for the remaining categories.

The large variations in the projections of U. S. exports for each commodity group can be directly traced to the particular assumption used relative to the U. S. share of the United Kingdom market. Where the precentage has remained constant over the years (in the case of corn and citrus) or has changed insignificantly (apples and pears, vegetables, and cotton) the quantity levels of the projections show little variance between the assumption of the 1955-59 share and the 1960-62 share. However, where the U. S. share has changed significantly during these periods, the quantity levels of the projections vary considerably. Thus, the 1965 projection of U. S. exports of citrus is rounded at 16,000 long tons regardless of the assumption used. U. S. exports of citrus for 1975 are similarly forecast between 18,000 and 20,000 long tons not because of a change in the U. S. share but because total citrus imports into the United Kingdom are forecast at different levels for 1975.

Table 3.--United Kingdom: Imports of selected commodities, total and from the United States, average 1955-59, 1960-62, and projected 1965 and 1975

Commodity	Average 1955-59 1/	Average 1960-62 2/	1965 Import projection High	1965 Import projection Low	1975 Import projection High	1975 Import projection Low
			1,000 long tons			
Wheat, total	4,470	3,986	4,890	4,640	4,620	4,270
From U. S.	708	1,315				
Based on 1955-59 share			782	742	739	683
" " 1960-62 "			1,614	1,531	1,525	1,409
Corn, total	2,050	3,601	3,450	2,500	3,110	1,400
From U. S.	1,346	2,359				
Based on 1955-59 share			2,277	1,650	2,053	924
" " 1960-62 "			2,277	1,650	2,053	924
Apples and pears	238	268	237	224	292	238
From U. S.	15	25				
Based on 1955-59 share			14	13	18	14
" " 1960-62 "			21	20	26	21
Citrus in all forms	634	582	814	783	1,015	881
From U. S.	14	13				
Based on 1955-59 share			16	16	20	18
" " 1960-62 "			16	16	20	18
Vegetables	1,348	1,073	1,422	1,396	1,463	1,405
From U. S.	61	95				
Based on 1955-59 share			71	70	73	70
" " 1960-62 "			128	126	132	126
Lard and animal fats	175	260	275	271	285	266
From U. S.	86	147				
Based on 1955-59 share			135	133	140	130
" " 1960-62 "			157	154	162	152
Cotton 3/	302	321	306	275	321	249
From U. S.	110	106				
Based on 1955-59 share			110	99	116	90
" " 1960-62 "			104	94	109	85
			million pounds			
Tobacco 4/	243	332	282	274	343	302
From U. S.	161	148				
Based on 1955-59 share			186	181	226	199
" " 1960-62 "			127	123	154	136

1/ Total import data from Clark study, tables 52, 54-48, pp. 125-131. Imports from U. S. from Annual Statement of the Trade of the U. K. with Commonwealth Countries and Foreign Countries, Her Majesty's Printing Office, London, England. 2/ 1959-61 average for apples and pears, citrus, and lard and animal fats. Source: Official U. K. statistics. 3/ Total cotton imports, except for average 1960-62, refers to retained cotton imports. Imports from U. S. refer to all cotton imported from this source whether retained or not. For 1960-62, total imports are actual cotton imports.
4/ Total tobacco imports except for average 1960-62, refers to tobacco consumption. Tobacco imports from U. S. are actual quantities imported. For 1960-62, total tobacco imports are imports of tobacco and manufactures.

Conversely, the U. S. share of United Kingdom wheat imports increased from 16 percent in 1955-59 to 33 percent in 1960-62. The 1965 projections of U. S. exports of wheat range from 742,000 to 1,614,000 long tons showing considerably more variance than the projected total United Kingdom wheat imports of 4,640,000 to 4,890,000 long tons. The main difference in the projected U. S. quantity levels thus lies in the assumed U. S. share of the import market.

American agriculture is a rich source of efficiently produced food and fiber upon which the United Kingdom can continue to draw to feed and clothe its population. However, U. S. exporters face severe competition in this market as it currently exists and probably will face even more competition if the United Kingdom joins the European Economic Community. To meet this competition, United States farmers and exporters must produce and market the highest quality, competitively priced agricultural commodities delivered in consistently uniform standards and packaged as demanded by individual marketing regions.

Further Considerations

The Clark study acknowledged that should the negotiations concerning the entry of the United Kingdom into the European Economic Community (EEC or Common Market) be successful, "many of the assumptions on which we (Institute for Research in Agricultural Economics of Oxford University) have based our forecasts will immediately disappear." (p. 87) The negotiations were discontinued on January 14, 1963 thereby eliminating the need for any current reappraisal of the underlying assumptions of the study. However, it may reasonably be assumed that before 1975, the United Kingdom will become a member of the Common Market. But the entry of the United Kingdom into the Common Market does not necessarily dictate that the entire set of projections need then be discarded for there are enough combinations presented in the study to accomodate a large number of situations. "Probably the assumption of high population, high feed prices and low productivity would give the quantities of food consumed that would fit most closely to conditions with the U. K. inside the Common Market. But there is no real substitute for revising the estimates completely when the results of the negotiations are known." (p. 88) 6/

If the United Kingdom enters the Common Market at some time between 1965 and 1975, what does this imply for United States agricultural exports to the United Kingdom? As is the current situation with the present members of the EEC, the United States will be a third country with respect to the trading regulations outlined in the Common Agricultural Policy (CAP) of the EEC. Some observers had originally expressed the opinion that the United Kingdom would impose a more liberal attitude toward agricultural trade than is currently the situation in the EEC. However, it is now realized that the United Kingdom must first be a Common Market member and to do this, must accept the Rome Treaty and the CAP as they are written and enforced at the time of her application. The same difficulties that are currently arising with respect to U. S.-EEC agricultural trade may thus be extended to the United Kingdom.

Under the CAP regulations now in force and expected to be enforced in the near future, United States agricultural traders over the long run to 1975 can be optimistic as to prospects for exports of cotton, soybeans and soybean cake and meal, tallow, hides and skins, and some fruits. Considerable uncertainty is indicated for exports of wheat and wheat flour, feed grains, rice, tobacco, vegetable oils, and some fruits.

6/ Clark, et al., referred to negotiations which broke down on January 14, 1963.

METHODOLOGY AND FINDINGS

Basic Assumptions:

Throughout the Report frequent use is made of certain assumptions of which the most prominent relate to population growth, productivity, increase per worker, and price of feed.

1. Population growth is subject to two assumptions. The higher, from official sources, puts population in 1965 at 3.6 percent and in 1975 at 7.7 percent above 1957 when United Kingdom population was 51,456,000. The lower, previously made by Colin Clark, Director of the Study, assumes the population at 2.3 percent above the base year by 1965 and 4.3 percent by 1975. While using both in the computations with results of each shown, the authors regard the official as the more likely because recent increase in number of births has forced some upward modification of Clark's estimates.

2. Productivity increase per worker, i.e., per head in the civilian labor force, is subject to three assumptions 1.3 percent per annum, presumably the authors' based on U. K. trends in recent years, and 2.0 and 2.8 percent by less restrained forecasters. In most of the relevant tables appended to the report, results of these three are given under each of the two population assumptions.

3. Feed prices are subject to two assumptions, low and high. The low is based on an assumed domestic price decline, from 1955-59 to 1965 and 1975, of 15 percent in feed grain and 10 percent in oil cake and fish meal; and the high, an assumed recovery of feed grain prices to their 1955-59 level and a recovery in prices of oil cake and fish meal to 5 percent above their 1955-59 prices.

Clark, et al., stress the point that, from the standpoint of domestic production and imports, much depends on international prices of grain for human consumption, as well as of feed grain and high-protein feed. After much study, however, they found "no clear indication as to whether prices were going up or down" .....So, they decided to prepare two sets of forecasts of home production and imports based on high and low prices of grain and highprotein feed (p. 41). The reader may be interested in the apparent difference between the two choices offered him. This difference, in terms of home supply and imports, is shown in table 9.

Population and productivity 7/, often interrelated in the analysis, also call for some additional explanation. They are identified by the letters A and B for population, and by (a), (b), and (c) for productivity. The following is the meaning of the letters:

A. - "High population" in the United Kingdom, 53,283,000 in 1965 and 55,416,000 in 1975. These are projections by the Registrar General and the Government Actuary, and may be regarded as official.

B. - "Low population" of 52,625,000 in 1965 and 53,645,000 in 1975, forecast by Colin Clark, Director of the Study. (Population of the United Kingdom in the base year 1957 was 51,456,000).

7/ Gross national product (GNP) divided by the projected number of civilian workers. No allowance is made for unemployment. This omission is probably based on the assumption that, in the 5-year periods on which 1965 and 1975 are centered, the percentage of unemployed may not vary significantly from the base period, 1955-59.

The letters (a), (b), and (c) represent three assumed per annum rates of increase in productivity per worker:

(a) 1.3 percent, (b) 2.0 percent, and (c) 2.8 percent. The authors of the report hold to 1.3, regard 2.0 as "optimistic," and dismiss 2.8 as unlikely.

These alternative assumptions as to productivity increase are used freely in the forecasts, in combination with assumptions A and B as to growth of population. This offers the reader as many as six forecasts of total productivity upon which much depends in forecasting demand for food and other agricultural products. The authors generally concede to the higher of the two estimates of population, but hold fast to the lowest of the three assumed rates of productivity growth.

Forecasts shown in the statistical appendix are generally based on the two assumptions as to population, each of them in combination with the three productivity assumptions. This assures the reader of six choices as to the United Kingdom's requirements to be met by domestic production and imports of this or that agricultural product in 1965 and 1975.

Expected growth of population and income are basic elements in the background of the forecasts (p. 2).

Civilian labor force is projected from the "observed" (actual) labor force of 24,761,000 in 1957, less those in armed forces, 8/ and those of "working age" devoting full time in acquiring more education. 9/ The result is a civilian labor force of 24,053,000 in 1957, 25,289,000 in 1965, and 25,578,000 in 1975 based on forecast A, the official estimate, as to population growth.(Report table 2) 10/

Gross domestic product, with 1957 as 100, is projected to 116.4 in 1965 and 134 in 1975, based on assumptions A as to population growth and (a) as to productivity increase per worker.

Under the same assumptions, net investment per annum, 8.2 percent of gross domestic product in 1957-65, is given as 7.7 percent in 1965 and 6.3 percent in 1975, averaging 7.0 percent per annum in 1965-75. (Report table 3)

Trend of demand from 1957 to 1965 and 1975 is based on a statistical structure including total population, consumer units by age groups, and compound rate of growth of consumer expenditures per consumer unit, expressed in percent per annum.

Economic growth is projected from 1957 to 1965 and 1975, as is the above-mentioned civilian labor force. It is recognized that the productivity of the resulting number of workers

---

8/ Figures for the armed forces, given as 708,000 in 1958, are assumed at 400,000 in 1965 and 250,000 in 1975. These assumed reductions are "a result of the disappearance of overseas commitments." (p. 7)

9/ Those engaged in "more education," statistically at zero in 1957, are assumed at 150,000 in 1965 and 620,000 in 1975.

10/ Colin Clark's earlier figures are lower than the official by 122,000 in 1965 and by 352,000 in 1975, or 0.5 percent and 1.4 percent respectively, a difference possibly within "error of estimate" on either side.

is, in turn, affected by investment. The gross domestic product, with 1957 as 100, is projected to 116.4 in 1965 and 134.0 in 1975. This is based on the lowest of three assumed rates of increase in productivity, and the higher of the two assumptions as to population growth.

Based on the same assumptions, estimated consumer expenditures are given at 119.1 in 1965 and 140.2 in 1975, based on the lowest of the three levels of increase on productivity, the levels accepted by the authors as the most likely of the three.

The estimated total expenditure per consumer unit, similarly based, is put at 115.4 for 1965 and 131.0 in 1975, with 1957 as 100. This also is based on the lowest of the three assumed rates of productivity increase, and on the higher of the two estimates of population growth. On the basis of the highest assumed rate of productivity increase (2.8 percent), the corresponding levels of consumer expenditures would be 122.06 in 1965 and 162.37 in 1975.

Forecasts of demand for individual food products, at constant prices, are shown in tons or volume for 1965 and 1975, again at three levels of assumed rate of productivity increase within each of the two assumed rates of population growth. While the differences between these levels seem small enough to fall within "probable error of assumptions," it could be of interest to note the six forecasts of demand for all food items in 1965 and 1975, at assumed constant prices, based on 1955-59 as 100 (from Report table 5).

	1965 11/	1975 11/
A (a)	106.9	113.0
(b)	107.6	115.7
(c)	108.4	118.5
B (a)	106.2	110.7
(b)	107.0	113.2
(c)	107.7	116.0

Expenditures and Consumption:

Total consumer expenditures (in the private sector) is assumed to change in proportion to the gross domestic product less gross investment. (Report table 3 and page 10) The "coast is cleared" for this assumption by further assuming (1) no important change in the terms of trade, (2) no differences in the terms of trade corresponding to assumptions (a), (b) and (c) as to rate of increase in productivity, and (3) invisible income from abroad and net investments abroad will be in balance. 12/

11/ Whatever may be said of the differences between the figures in each of these columns as refined statistics, they do not seem large enough to be significant from the standpoint of actual demand for food products in the United Kingdom especially, as would be expected, in 1965. Moreover, this small difference in total demand for food, even between the highest and the lowest assumed rates of productivity increase, may be typical of countries that have reached a relatively high level of productivity and a generally satisfactory standard of food consumption.

12/ Recognizing that assumption (3) is "chiefly a matter of convenience," Clark, et al., find a reasonable backing for it in that "in many cases" the invisible income and overseas investments are sides of the same coin.

In their analysis of the effect of consumer expenditures on consumption of food stuffs, Clark, et al., "have relied heavily on elasticities in 1958, calculated by the National Food Survey." These calculations have been adjusted in the light of other budget data, with the result that the elasticities shown in the Food Survey "have usually been marked up about 40 percent in order that they may be measured with respect to total expenditures rather than declared family income."

The projected effect of total expenditure on quantities of food stuffs consumed is shown in Report table 5 for each of the six assumptions relating to productivity and population growth. It is summarized in table 4 on two assumptions, the higher population increase and the lowest and the highest of the three assumed rates of productivity increase.

In this connection, the following generalization appears especially noteworthy:

"It is probably fairly well established that the income elasticities decline as the income increases. We consider that they decline at least as fast as the proportionate rise in consumption, and probably faster in the case of some commodities." (p. 11)

Some indications of the tendencies noted in the above generalization are discernible in table 4, "Consumption Forecasts at Constant Prices."

Forecasting Domestic Farm Production at Constant Prices:

The Report divides production into scale and intensity. This means for crops, acreage and yield, and for livestock, number of producing animals by kind and amount of their respective products.

The forecasting of production "at constant prices" is a step in the method of anlaysis, not an assumption that prices will remain unchanged. Accordingly, this Abridgment deals lightly with the resulting provisional forecasts. It aims instead to put the main emphasis on the final forecasts and the principal grounds on which they are based.

In forecasting intensity of production, the Report puts strong emphasis on technological progress: "We considered the intensity of production as a matter of technical progress in the majority of cases, and made estimates of the likely rates of increase of yields on the basis of past trends supplemented by a study of the likely effect of increased fertilizer application....." (p. 16)

The result is illustrated in table 5, showing per annum change in yield per acre and in product per animal, from 1957 to 1965 and from 1965 to 1975.

In forecasting agricultural production in the United Kingdom, the Report puts this further emphasis on technological advance:

"In fact, it is probably fair to allow well over half the improvement to technical factors... and rather less to the economic factors and the support policy for agriculture. It is of course difficult entirely to separate the two," 13/

13/ This paragraph means (1) that the greater part of the increase in production of U. K. agriculture is due to technological advance, and the lesser part to "economic factors" and public payments (a) of the difference between market price and guaranteed price and (b) production subsidies (table 8); and (2) that it is hardly possible to attribute to each - the "technical" on one hand, the "economic factors" and "support policy" on the other - a specific part of the total advance in production.

Table 4.--Consumption forecasts at constant prices

(From Report table 5)

Commodity	Units	Consumption 1955-59	Forecast for 1965 (a)	Forecast for 1965 (c)	Forecast for 1975 (a)	Forecast for 1975 (c)
Fluid milk	000,000 gallons 1/	1,519	1,621	1,636	1,721	1,776
Butter 2/	"	2,151	2,308	2,351	2,448	2,604
Cheese 2/	"	498	536	543	575	600
All milk	"	4,431	4,758	4,830	5,067	5,328
Beef and veal	000 tons	1,162	1,222	1,236	1,271	1,324
Mutton and lamb	"	544	600	612	652	696
Bacon and ham	"	549	578	589	597	637
Poultry meat	"	194	259	278	317	387
All meat	"	3,251	3,520	3,592	3,744	4,011
Fish 3/	"	454	490	497	525	549
Lard and compound fat	"	247	248	246	249	237
All fats	"	1,243	1,285	1,286	1,326	1,316
All cereals 4/	"	4,358	4,265	4,244	4,102	3,974
Fruit 5/	"	2,315	2,683	2,773	3,035	3,427
Dried fruit 6/	"	145	155	157	166	174
Potatoes	"	4,771	4,652	4,659	4,381	4,365
Fresh tomatoes	"	300	341	351	383	425
Other vegetables 7/	"	2,360	2,573	2,602	2,794	2,919
Coffee beans 8/	"	36	44	45	52	57
Tobacco 9/	000,000 pounds	243	274	282	302	341
Sugar for food 10/	000 tons	2,650	2,748	2,751	2,847	2,833
All food items	Index	100	106.9	108.4	113.0	118.5

1/ Sales through Milk Marketing Board only. (Most probably Imperial Gallon, which equals 1.2 U. S. gallon. 2/ Milk equivalent at U. K. conversion rates. 3/ Filleted weight. 4/ Flour equivalent; no breakdown of "all cereals." 5/ Commercial supplies in all forms except dried fruit (000 tons are assumed although units not specified for this item in source table). 6/ Dried weight. 7/ Commercial supply including fresh vegetables for canning and freezing and any imported canned vegetables. 8/ Including coffee in coffee essences. 9/ If manufactured tobacco is included, raw tobacco equivalent is assumed. 10/ Including all "other sugar", honey, glucose, etc.

NOTE: For purpose of summarization, table 4 includes only 16 of the 36 entries of individual commodities and certain groupings of those that are closely related, shown in Report table 5. Table 4, however, includes all of the summary entries, such as "all meat" and "all cereals", and the index of "all food items." For the same purpose it omits the eight columns of data showing the projected effects of the intermediate productivity assumption (b) applied to the higher population forecast on assumption B.

Table 5.--Per annum increase in yield per acre and in product per animal

(From Report table 6)

	1957-65	1965-75	
	Percent	Percent	
Yield per acre			
Wheat	1.75	1.50	
Barley	1.75	1.50	
Oats	1.25	1.25	
Mixed grain	1.50	1.25	
Pulses	No change		
Sugar beets	0.80	0.80	
Potatoes	0.30	0.30	
Vegetables	No change		
Dessert apples and pears	3.0	2.5)	
Plums	1.5	1.5)	Trees over 7 years
Other orchard fruit	2.0	2.0)	of age
Soft fruit	2.0	2.0	
Product per animal			
Milk per cow	1.0	1.0	Subject to further response to price
Beef per calf reared	No change		
Mutton per breeding ewe	0.5	0.5	Due to change in number of lambs per ewe
Pork per sow	0	0.25	Due to increase in size of litter
Eggs per hen	2	1.5	

"There seems to be every reason to expect that technical progress will in a general sense be as rapid from 1955-59 onward as it was in the period 1938 onward. In fact, on the livestock side, the war may well have hindered progress . . . .

"The kind of progress that has been made does not seem to have reduced the opportunity for more progress. The gap between the most efficient and the least efficient farms in terms of output per acre is at least as large as it was in 1925. While some diminishing returns to fertilizer application on crops can be expected, the returns from application to grass appears to be only just beginning to be appreciated. Intensive methods of keeping livestock also seem to be developing more rapidly at present than in the past." (p. 40)

"From this indication of an inevitably large increase in agricultural production coupled with the decline foreseen in the number of farm workers, it follows that the rate of increase in the productivity per worker in agriculture will be higher than in the general economy of the United Kingdom."

A word on reconciliation of forecasts of supply and demand is in order before turning to final forecasts, which are the end product of the whole study and the main part of this summary.

It may be helpful to recall the alternative assumptions already mentioned, relating to population and productivity. The assumptions have an important if not decisive bearing on calculated consumer demand.

Other alternatives, which also leave the users of the report a wide range of choice, will be referred to in connection with "final forecasts."

Section II of the Clark Report and 23 tables (Nos. 20-43) in the statistical appendix are devoted to reconciliation of supply and demand forecasts, of which this Abridgment will touch upon only a few.

Reconciliation of supply and demand forecasts is a mathematical determination, for a given commodity or group of commodities, of the supply (domestic production and imports), the price, and the demand at which these three may be assumed to be in a state of equilibrium. Notwithstanding that these three are interrelated in the market, it is necessary, in the reconciliation process, to treat them as if they were separate.

At this point it may be useful to bring together from various parts of the report some of the notes of caution and clarifying remarks.

"The aim in presenting these forecasts is to show a reasonable expectation of a normal state of supply, demand and imports... These forecasts correspond to an equilibrium between supply and demand... consistent with the assumptions made and similar to the long run equilibrium assumed to exist by the classical economists." The forecasts are made in this form "not because a state of balance is expected in 1965 or 1975, but because the deviations from this state seems to be quite unpredictable." (p.4)

Clark, et al., decided to reconcile supply and demand forecasts by the price mechanism in the case of 21 commodities. The number would have been much smaller if no distinction had been made between home and imported produce. In fact they dealt with home and imported meats, fruit, tomatoes, vegetables, and fish; with home produced wheat, barley, oats on the assumption that imported grain prices were given; eggs, butter and cheese were treated as if there were no distinction between home and imported produce. (p. 54)

"For all other products the forecast of production and consumption has been determined entirely by demand or by some more arbitrary judgement." (p. 54)

Complications of analysis with related necessity for arbitrary judgment, may well be greater in the case of commodities with supply and demand interrelated with other commodities.

These and other complexities are well recognized in the report and need not be elaborated upon here. This Abridgment is chiefly concerned with the final forecasts of demand, domestic production, and imports of products which have a reasonably close relation to export opportunities for U. S. farm products.

That central purpose of the study was to provide quantitative projections, to 1965 and 1975, of United Kingdom requirements for principal agricultural products, domestic production, imports together with their availability, and related trends - all to the implied purpose of a clearer view of prospective market outlet for United States farm products in the United Kingdom.

Effect of High and Low Feed Prices

In summarizing the principal forecasts, emphasis is put on commodities which have significant bearing on the basic purpose of the study. They include U. K. requirements, home production, and imports of commodities having substantial market interest to U. S. agriculture. Other commodities are included to illustrate the broad scope of the commodity analysis contained in the published report.

This summarization requires that directly applicable data be excerpted from the statistical appendix of the Report and presented either as condensed tables or as part of the text of this summary. In any case it is deemed necessary to cite the assumptions 14/ which Clark, et al., give as basis for the projection.

The Report makes frequent reference to the alternative assumptions of "low feed prices" and "high feed prices". This calls for a summarization of the background and contents of these assumptions, perhaps recalling that, according to Webster's, "assumption is that which is taken for granted without proof."

Considering numerous perplexities, including population trends, income, and grain production at the international level for human consumption and for feed, it is hardly surprising that Clark. et al., "got no clear indication as to whether prices were going up or down." (p. 41) Assuming a modest income increase in the poorer countries, however, they find "no reason to expect a decline in wheat prices."

In the feedgrain situation, they see "no inevitable decline in price." Noting that "prices have declined since 1955," they do not feel sufficiently confident of their analysis of the international situation to predict a recovery to the 1955-59 price level. In oilcake, the price situation also appears uncertain, perhaps influenced by a decline in the price for fishmeal.

After close consideration of this picture puzzle of feed prices, Clark, et al., decided to offer two sets of production forecasts, based on the two assumptions of low and high price of feed. The reader may have his choice.

The assumed low price is that price of wheat and feedgrain will fall 15 percent and oilcake and fishmeal 10 percent from 1955-59 to 1965 and 1975. The alternative assumption of high price for the same period is that grain prices will have recovered to their 1955-59 level, while oilcake and fishmeal recover to 5 percent above their level in 1955-59. 15/ (p.41)

Prices changes assumed in these alternatives would have "immediate and obvious effects on the output of livestock products" in the absence of other prices changes. Clark, et al., "do not expect the full force of a change in grain prices on the world market to be felt by grain prices within the U. K."

14/ Explained under Basic Assumptions, of this Abridgment.

15/ "The forecasts themselves should be understood as estimates for the 1963-67 period rather than 1965 and the 1973-77 period rather than 1975, and will be based on the period 1955-59." (p. 1)

Their study of time series suggests that grain prices within the U.K. would fall "7 percent for each 10 percent fall in imported grain prices and 3 percent for each 10 percent rise in home supplies." After considering "imperfect competition" among various grains, it was "decided to allow a fall of 10.5 percent in U.K. prices corresponding to 15 percent fall in prices of imported grain." (p. 42)

Price changes such as those just described would affect government price policy. Assuming that, as a long-run objective, the U.K. government leans toward price support at a certain percentage rate of market price, which Clark, et al., are inclined to believe is the case and quite possible under Act of 1957, the fall of 10.5 percent would be transferred to the standard price before 1965.

All this would be further complicated by the demand situation, especially under a fairly optimistic assumption as to increase in population and in general productivity.

Somewhat loosely related to the foregoing, Clark, et al., conclude their dissertation by a reversion to their expectation of strong advance in the productivity of U.K. agriculture: "Even with these adjustments, it still appeared that agricultural output was likely to rise twice as fast as demand at constant prices." (p. 43)

The main results of the application of the alternative price assumptions to livestock numbers and requirements for concentrated feed are shown in table 6, based on Report table 44a.

The direction of apparent effects of the assumed low and high feed prices are about as would be expected. Four of the five kinds of livestock shown in table 6 increased less in numbers with high than with low feed prices. Breeding ewes showed a somewhat greater increase with the assumed high feed prices than with the low. The indicated requirements of concentrated feed appear lower, as would be expected, under the assumed high feed prices than under the low.

Table 6 represents an attempt to clarify the difference between the two alternative price assumptions, as shown by the projections to 1965 and 1975. Hence this table shows the changes attributed to the assumed high feed prices compared with the low.

Of the total requirements of concentrated feed, the home grown shows an increase of about 6 percent on the assumed high prices over that of the low in both "target years", 1965 and 1975.

The effect on imports is also as expected as to direction of change. The amount for 1965 declined from 8,528,000 tons with prices low to 7,387,000 with high prices, a drop of 13.4 percent. In 1975 the indicated drop is from 8,634,000 to 6,505,000, or nearly 25 percent. This is consistent with the greater price sensitivity of imports than of home production.

The significance of the difference is a matter of judgment. Taking into account only the two price assumptions, the change seems logical enough. High feed prices would tend toward fewer livestock, lower feed requirements, increased domestic feed production, and substantially reduced imports.

Some of the quantitative results may serve to emphasize the importance of the statistical process. This is suggested by the lower part of table 6. United Kingdom imports of concentrated feed would rise from 7,378,000 tons in 1955-59 to 8,634,000 tons in 1975 if feed prices are low,

Table 6.--Principal kinds of livestock and concentrated feed required for all livestock

Forecasts for 1965 and 1975 compared with 1955-59 actual

(Based on Report table 44a)

	Actual 1955-59 June and Dec. av.	1965		1975	
		Low feed prices	High feed prices	Low feed prices	High feed prices
	000	000	000	000	000
Cows	3,892	4,289	4,147	4,393	4,242
Total cattle	10,906	12,044	11,774	12,426	12,143
Breeding ewes	9,767	10,485	10,800	11,034	11,249
Breeding sows	728	799	765	824	788
Fowls (over 6 mo.)	66,408	67,788	66,220	66,508	65,012
	Concentrated Feed Required 000 tons				
Low protein 1/	11,934	13,651	13,061	14,308	13,716
High protein 2/	2,096	2,449	2,349	2,574	2,460
Total	14,030	16,100	15,410	16,882	16,176
Home grown 1/	6,652	7,572	8,023	9,148	9,671
Imports 3/	7,378	8,528	7,387	8,634	6,505

1/ Almost entirely low protein feed.
2/ Nearly all imported.
3/ Difference between total required and home grown.

and decline to 6,505,000 tons if they are high. Meanwhile the home grown would advance from 6,652,000 tons in 1955-59 to 9,148,000 with prices low and to 9,671,000 if high.

Bearing on the relative significance of some of the assumptions, Clark, et al., have this to say:

> "The alternative assumption of high or low feed prices make more difference to the pattern of production than the assumptions concerning income or population."

The importance attributed to feed prices in the projections is further illustrated by the emphasis which Clark, et al., put on concentrated feed in the general agricultural economy of the United Kingdom. This may be illustrated by a few quotations. "The major cost of United Kingdom agriculture is the concentrated feeding stuffs, amounting to about 14 million tons annually in the base period 1955-59. Of this, nearly all high protein feeds must be imported."

Clark, et al., have assumed that "grazing and concentrates are responsible each for half of the production ration." In "grazing " they include "all kinds of feed which are not concentrated." Hence, oat straw, root crops, hay, etc., make a contribution to the supply of grazing. It may be assumed that pasture of all kinds is the main component in the remainder of total grazing.

Further substitution of grazing for concentrates is recognized as possible, but this depends on available grass land and the trend of its productivity. As will be pointed out later, it may be assumed that the authors consider substantial increase in the productivity of grass land as quite possible.

Table 7, a minor shortening of Report table 44b, does not suggest any large modification of the land use pattern in 1965 and 1975, from the base period 1955-59. By 1965 and 1975 acreage for all grain would be about 5 percent larger with high feed prices than with low. Compared with the base period, 1955-59, land in temporary grass (rotation pasture) would increase somewhat at the expense of acreage in permanent grass. The yield of grass and forage is expected to increase 10 percent by 1965 and 20 percent by 1975, slightly more than indicated requirements.

Table 7.--Forecast of cropping pattern in terms of acreage for specified uses 1/

(Adapted from Report table 44b)

Crops and other uses 2/	1955-59 acreage in June	1965		1975	
		Low feed prices	High feed prices	Low feed prices	High feed prices
	1,000 acres	1,000 acres	1,000 acres	1,000 acres	1,000 acres
Wheat	2,158	1,867	1,969	1,916	2,018
Barley	2,520	3,067	3,209	3,621	3,767
Oats and other grain	2,803	2,317	2,434	1,881	2,005
All grain	7,481	7,251	7,612	7,418	7,790
Fodder crops	1,357	1,174	1,167	1,044	1,038
Potatoes	865	805	805	746	746
Sugar beets	432	432	432	432	432
Vegetables	479	458	457	491	491
Fruit	305	305	305	305	305
Crops and fallow	11,352	10,816	11,169	10,792	11,158
Temporary grass	6,327	6,995	6,858	7,571	7,449
Permanent grass	13,383	12,868	12,652	11,918	11,796
Rough grazing	16,853	16,853	16,853	16,772	16,650
Agricultural land	47,915	47,532	47,532	47,053	47,053
Grass and forage					
Required production (index)	100	110.3	110.6	117.6	117.2
Expected production (index)	100	110.0	110.0	120.0	120.0

1/ Based on assumptions of high population growth and a low rate of productivity increase. 2/ Does not include all crops and uses listed in Report table 44b. Fodder crops and vegetables have been entered as totals of items in each group, and several individual items have been omitted. Hence a total of entries in this table above the caption "Agricultural land" would not equal the totals shown with that caption.

Improved productivity of grass land is possible, and the study holds that the estimate of 10 percent improvement by 1965 seems reasonable.

Clark, et al., came to this conclusion: "It may well be technically possible to carry the present livestock population on half the land or to reduce the use of feed from 14 to 10 million tons without loss in output of livestock products...but all that can be said here is that it seems unlikely." (p. 64)

Final Forecasts of Requirements, Domestic Supply and Imports

The report treats in extenso the relation of price to supply of agricultural products, and the prospective level of U.K.'s price supports, applied chiefly in the form of price supplements. As indicated earlier, this summary is mainly concerned with the end results related to the purpose of the study. These have to do chiefly with probable requirements, domestic production, and imports of principal agricultural products, in 1965 and 1975, taking into account the basic assumptions underlying the projections.

Summary table 8 shows the yearly average of the deficiency payments and associated grants from 1954 to 1959-60 to the producers of each of the 11 products listed. It also shows the forecast for 1965 and 1975, and expected price changes.

Table 8.--Deficiency payments in relation to prices received by farmers

(Adapted from Report table 9)

	1954/55 to 1959/60 average	Forecast support rate 1/		Expected change in percent	
		1965	1975	1965	1975
	Percent	Percent	Percent	Percent	Percent
Wheat	27	17	14	-10	-13
Barley	19	17	14	- 2	- 5
Oats	11	17	14	6	3
Fat cattle	2/17.3	25	18	7.7	0.7
Fat sheep	23)				
Fat lamb	17)	20	17	No change	- 3
Pigs (hogs)	19.5	15	12	- 4.5	- 7.5
Eggs	25.2	16	12	- 9.2	-13.2
Milk	3/3.5	1.5	None	- 2.0	- 3.5
Wool	4/16	16	16	No change	
Potatoes	5.7	5.7	5.7	No change	

1/ Deficiency payments in percent of price received by farmers.
2/ Includes associated grants, average annual calf subsidy £11.8 million, and hill cattle subsidy £2.8 million, for the base period 1954-55 to 1959-60.
3/ Average of 1957/59 to 1959/60.
4/ Hill sheep subsidy £0.5 million.

The following quotations are indicative of the authors' judgment as to trend of quantities and value of livestock products:

> "The quantity of poultry meat, chiefly broilers, is likely to increase very rapidly - doubling by 1965 and rising by about 150 percent by 1975 (p. 69). The quantity of livestock products will probably increase by 20 percent in 1965 and 33 percent by 1975. The total value of livestock products is expected to rise by less than 10 percent by 1965 and less than 20 percent by 1975." (p. 70)

The projected change by 1965 and 1975 in requirements, home produced and imported cereals and some related items, are shown in table 9. The forecasts are shown separately on the assumptions of low and high feed prices.

In table 10, a similar but somewhat more abbreviated account is given of the projections for fresh fruit, fruit juices, canned fruit, etc. These data suggest a substantial increase in U. K. imports of several kinds of fruit.

Summary table 11 shows projections for U. K. imports of raw cotton, tobacco, sugar, wool, and some other products. A modest increase is shown in most items; a substantial percentage increase in coffee compared with tea; and a decline of 53,000 tons, 17.5 percent, in retained imports of raw cotton for which a decline of 15 percent in real price is projected.

Consideration of the Validity of the Forecasts:

The following is derived chiefly from, "The Implications of the Forecasts and their Historical Context," Part IV of the Report.

1. The aim of the study is to provide forecasts that are consistent among themselves and with the major assumptions concerning population, economic growth, international feed grain prices, and policy of the Government toward agriculture and trade.

2. No assumptions or forecasts are advanced in the Report with respect to Britain's possible entry into the Common Market. The question of entry is unresolved, says the Report, and the conditions of entry in the event of membership are unknown. Should Britain become a member, "many of the assumptions on which we have based our forecasts will immediately disappear." Clark, et al., offer, however, a few categorical statements:

> (a) Should the United Kingdom enter the Common Market, it would not increase the consumption of food in the U. K.
>
> (b) Whatever may be the advantages of joining the Common Market, they are unlikely in themselves to raise general productivity as much as from the assumed 1.3 percent per annum to 2.0 percent, an increase which would hardly be enough to offset the fall in food consumption that would occur if a cheap food policy gave place to a dear food policy. (p. 88)
>
> (c) "Probably the assumption of high population, high feed prices, and low productivity would give the quantities of food consumed that would fit most closely to conditions with the U. K. inside the Common Market. But there is no real substitute for revising the estimates completely when the results of the negotiations are known." (p. 88)

Table 9.--Forecasts of home produced and imported supply of cereals, grain products and molasses; and their uses: 1965 and 1975 compared with base period 1955-59 1/

(Derived from Report table 56)

	1955-9	1965		1975	
		Low feed prices	High feed prices	Low feed prices	High feed prices
	Million tons	Million tons	Million tons	Million tons	Million tons
Wheat: total required	7.53	7.45	7.39	7.60	7.66
Imported for food 2/	4.53	4.49	4.49	4.32	4.32
Home wheat milled	1.20	1.12	1.12	1.06	1.06
Imported for feed	0.43	0.40	0.20	0.30	0.20
Home wheat for feed	1.37	1.44	1.58	1.92	2.08
Total home grown	2.57	2.56	2.70	2.98	3.14
Total imported	4.96	4.89	4.69	4.62	4.52
Barley: total required 3/	3.73	4.37	4.47	5.58	5.71
For food and drink	1.02	1.15	1.17	1.29	1.31
Exports for malting	0.13	0.13	0.11	0.10	0.08
Home grown for feed	1.77	2.78	2.96	4.03	4.24
Imports for distilling	.06	.06	.06	.04	.04
Imports for feed	.94	.44	.34	.26	.16
Home grown	1.77	2.78	2.96	4.03	4.24
Imported	1.00	.50	.40	.30	.20
Oats, rye and Mixed 4/	2.58	2.37	2.48	2.16	2.20
Rice (not home grown)	0.09	0.08	0.08	0.07	0.07
Corn (maize) (not home grown)	2.05	3.20	2.52	2.46	1.60
Other imported grain and by-products	1.07	1.23	1.13	0.96	0.86
Total imported grain, molasses, and by-products	9.68	10.39	9.33	9.07	7.93
Feed derived from these imports	5.4	6.2	5.2	4.9	3.8
Home production of concentrated feed 5/	6.6	7.6	8.0	9.1	9.7
Home produced cereals for food and drink	2.45	2.49	2.49	2.55	2.55
Imported cereals for food, drink and industry	5.19	5.29	5.24	5.11	5.06

1/ Based on assumptionsof high population growth and a low rate of productivity increase. 2/ Includes wheat equivalent of imported flour. 3/ Items under this total (same as in Report table 56) add up in all five columns to more than the total shown. The difference varies from 0.14 to 0.22, i.e. 140,000 to 220,000 tons. 4/ All home produced, from 92 to 98 percent used for feed and remainder for food. 5/ Exclusive of fishmeal and dried milk.

Table 10.--Imports of citrus, other fresh fruit and nuts projections for 1965 and 1975 1/

(Derived from Report table 52)

	1955-59	1965	1975
	Thousand tons		
Fresh fruit			
Oranges	364	444	482
Grapefruit	47	50	59
Lemons, limes, etc.	31	28	29
Total citrus	442	522	570
Bananas	314	351	400
Apples and pears	238	224	244
Other	91	97	107
Total fresh fruit	1,085	1,194	1,321
Fruit juices	201	273	332
Citrus	161	218	266
Non-citrus	40	55	66
Canned fruit	196	263	292
Citrus	31	45	58
Non-citrus	165	218	234
Fruit pulp, etc.	65	81	88
Citrus in all forms	634	785	894
Other fruit in all forms	913	1,026	1,139
Nuts	65	73	80
Dried fruit	145	155	166
Vine fruit	109	115	120
Other	36	40	46

1/ These projections are based on the higher of the two assumptions as to population trend and the lowest of the three assumptions on rate of economic growth. In Report table 52 from which these data are drawn, projections based on alternative assumptions are shown.

3. "The details of the original framework (of the study) are a matter of great uncertainty.... The subsequent mathematical calculations do not alter the fact that the forecasts themselves are an opinion concerning the future." That is, opinion as to the way people concerned with the demand and supply of agricultural products will behave under specified conditions. "If people behave differently.....it will be our mistake - not theirs."

4. Productivity of U. K. agriculture is predicted to continue at a rate ahead of that of the rest of the country, but not with commensurate reward. Little progress is likely up to 1965 in reducing agricultural supports or in increasing farm income. Considerable progress will be

Table 11.--Projections of consumption: Cotton, wool, tobacco, sugar, tea, coffee, and barley and corn for distilling 1/

(From Report tables 55 and 58)

	Report table	Units	1955-59	1965	1975
Raw cotton:	No. 58				
Retained imports 2/		000 tons	302	277	249
Tobacco:	No. 55				
Consumption		Mil. lb.	243	274	302
Sugar:	No. 55				
Consumption in all forms		000 tons	2,727	2,832	2,938
U. K. production from beets		000 tons	662	688	721
As honey and glucose 3/		000 tons	93	100	100
Refined sugar from imports 4/		000 tons	1,972	2,044	2,117
Wool, retained imports 5/	No. 58	Mil. lb.	416	430	425
Tea	No. 55	000 tons	224	232	241
Coffee	No. 55	000 tons	36	44	52
Barley for distilling 6/	No. 55	000 tons	245	329	406
Corn (maize) for distilling 7/	No. 55	000 tons	140	197	236

1/ These projections are based on the higher of the two assumptions as to population growth and the lowest of the three assumptions on rate of economic growth. Projections in the other assumptions are shown in source tables.
2/ A fall in real prices of 10 percent by 1965 and 15 percent by 1975 is expected.
3/ Subject to increase of 20,000 tons with low grain prices.
4/ Requirements from imported raw and subject to decrease of 20,000 tons with low grain prices.
5/ Imports of raw wool as clean wool equivalent.
6/ Subject to increase of 20,000 tons with high grain prices.
7/ Subject to decrease of 20,000 tons with high grain prices.

made in achieving a more efficient agriculture. After 1965, progress should be feasible in all three directions - increasing farm income and efficiency, and reducing support costs.

5. The volume of imports of food, beverages and tobacco into the U. K. since 1954 have increased by over 3 percent per annum. The Report finds it "impossible to see how such a rate of expansion can continue," but only "modest room for further expansion." (p. 89)

COMMENTS

The Clark Report gives mixed impressions on first reading. It is a large body of material with text often difficult to follow; mathematical treatment of data based on different assumptions, yielding an assortment of apparently specific forecasts from which the reader may choose for his own conclusions as to United Kingdom requirements, production, and imports of agricultural products by 1965 and 1975.

By and by, however, the reader finds encouragement. Clark, et al., do more than merely present him with an assortment of choices. They often indicate which assumption appears to them most probable, with reasons for their choice. He also discovers that Clark, et al., are well aware of the limitations of the seeming certainty of the mathematical findings. For example, they find, as a reasonable objection to the process that the forecasts ".....give the impression of too much certainty," and note that "mathematical calculations do not alter the fact the forecasts themselves are opinions concerning the future." (p. 88) Finally, in the statistical appendix the reader finds clarification of many points that seemed obscure in the text.

The movements of population and income are recognized as "the main background of the forecasts." No comments are offered here on the forecast of population, but the conversion of population into overall consumption units seems to call for a few observations.

The classification of persons by age groups, and the consumption of each group by categories of foods, show some interesting variations. But when total population is converted into general consumption units, the difference seems small enough to come well within the zones of uncertainty of the forecasts. This suggests that the consumption units may be a refinement of uncertain value for practical judgment of U. K.'s requirements, production, and imports of agricultural products in 1965 and 1975. 16/

This comment is not intended to suggest that the size of a figure necessarily proves, or disproves, its significance in forecasting. Depending on what else goes into the equation, a small difference could be the short end of a lever lifting a big load. From the standpoint of consumer buying power, the difference of 0.7 of a percentage point between numbers of population and of consumer units may not make much difference. On the other hand a comparatively small difference, on paper, between two assumed rates of annual productivity increase could make a big difference in consumer income and demand.

The Clark Report gives three alternative rates of increase in United Kingdom productivity per civilian worker - (a) 1.3, (b) 2.0, and (c) 2.8 percent per annum in the periods 1957-65 and 1965-75. Assuming corresponding rates of increase in consumer income, expenditures per consumption unit in 1965 could be 2.4 percent higher than in 1957 on assumption (b) and 4.70 percent higher on (c) than on (a), the lowest of the three productivity assumptions. The corresponding differences for 1975 would be 9.6 and 21.4 percent.

The estimates of expenditures per consumer unit together with assumed constant prices, show significant differences in expected buying power, depending upon which of the three assumed

---

16/ Population in 1965, on the higher of the two estimates, is predicted at 3.6 percent and in 1975 at 7.7 percent above 1957. The corresponding increase in general consumption units is projected at 3.2 percent and 7.0 percent, respectively. This puts the difference in percentage points between population and consumption units at 0.4 percent in 1965 and 0.7 percent in 1975. On the lower population estimate, the corresponding differences are 0.3 percent and 0.4 percent, respectively.

rates of productivity increase is used. A difference of over 21 percent in 1975 obviously would have a significant bearing on overall demand for food products and on pattern of consumption.

The crux of the matter is in the rate of increase in productivity. Clark, et al., accept the lowest, 1.3 percent per annum, as the most probable. Some parts of the report indicate that they may even regard this rate as tinged with optimism. Be this as it may, "a 1.3 percent growth of general productivity appears to be very much more likely than a rate of growth of 2.0 percent." (p. 72) While the difference between 1.3 and 2.0 percent in productivity could have a significant bearing on consumer demand, Clark, et al., find that it could easily be offset by opposing influences if Britain should join the Common Market.

"Whatever the advantages of joining the Common Market may consist of, they are unlikely in themselves to be sufficient to raise general productivity trends as much as from....1.3 percent per annum to 2.0 percent..... Such an increase would hardly be sufficient to offset the fall in consumption of food that would occur if a cheap food policy gave way to a dear food policy." (p. 88)

The Report does not explain the grounds for the strong adherence to the assumption of continued low productivity in the United Kingdom. One is tempted to conclude that the level of recent years is assumed to be lasting.

Without attempting to advance a view contrary to that of Clark, et al., and with due awareness of the question of comparability of data for various countries, a few observations may be of interest.

The rate of growth in output per worker varies greatly among nations, even among Western European countries, the United States, Canada, and Japan, as shown in table 12.

Table 12.--Annual percent growth of output per worker, selected countries, 1950 to 1958 1/ (at constant prices)

	Percent per annum 2/
Japan	5.5
Germany (Fed. Rep.)	5.3
Italy	4.5
Netherlands	3.3
France	3.7
United States	2.3
Norway	2.6
Belgium	2.6
Sweden	2.5
Denmark	1.9
Canada	1.8
United Kingdom	1.3

1/ Adapted from Table III.-Growth of Productivity in EEC, EFTA, United States, Canada, and Japan. Page 24 of The European Economic Community and the United States. Subcommittee on Foreign Economic Policy of the Joint Economic Committee. Joint Committee Print, 87th Congress, 1st Session. 1961 (76810)

2/ No attempt is made in these comments to consider the influence which differences in levels of production, even in these advanced countries, may have on percentage differences in rate of growth.

The Clark, et al., assumption that the increase in United Kingdom productivity will remain at about 1.3 percent seems to suggest a static rate of advance. That they find little hope of higher rate in the possibility of U. K. joining the Common Market is indicated by the above quotation from page 88 of the report.

Those who may be more optimistic as to Britain's economic future are free to adopt one of the two more cheerful assumptions offered. Should they do so, they would find helpful projections in the report.

Clark, et al., stress the effect of technological progress on agricultural production, and point to a strong likelihood of a higher rate of productivity growth per person than in the non-agricultural sector of the economy.

This likelihood appears supported by the official statistics on Agricultural Net Output in the United Kingdom, Annual Review and Determination of Guarantees, 1962. H. M. Stationery Office, London, Cmd. 1658. (Table 13)

Assuming that possibilities of greater productivity of grassland are as bright as Clark, et al., portray it, the carrying capacity for grazing probably could be increased enough to permit the release of a substantial grassland acreage for crops including feed grain. 17/

Table 13.--United Kingdom: Indexes of agricultural net output, 1950/51 to 1961/62 1/

Year beginning June 1	New index 2/ 1954/55-1955/56 = 100	Old index 3/ Pre-war = 100
1950/51	---	145
1951/52	---	149
1952/53	---	153
1953/54	103	156
1954/55	95	152
1955/56	98	156
1956/57	107	161
1957/58	105	162
1958/59	102	161
1959/60	112	169
1960/61 (provisional)	119	178
1961/62 (forecast)	122	183

1/ Includes estimated production from units under one acre.
2/ The new index measures year to year changes in the value added at constant prices by farmers, land owners and farm workers to all the goods and services purchased from outside the agricultural sector.
3/ Index of net output at 1945/46 prices.

17/ Mr. Englund shares the optimism regarding possible increase in the productivity of grassland. This is based on his observations in England, Scotland and Northern Ireland in 1952-57 while serving as Agricultural Attache stationed in London. He had opportunity to ask the well-informed how far they though it feasible to increase the productivity of grassland, and usually received as reply that an increase of about 50 percent would be feasible.

rates of pro...

...y increase postulated for the non-agricultural sectors should ... could have wide economic ramifications, including greater balance-of-payment difficulties. This could generate more pressure for increased agricultural production in order to help ease the pressure on scarce foreign exchange. This was a strong factor in shaping Britain's postwar agricultural policy and her exchange restrictions on imports. The pressure abated somewhat toward the middle of the 1950's, but has not altogether disappeared.

If Britain should join the Common Market without receiving major concessions with respect to its external tariff on agricultural products and if that tariff should remain as high as now planned, it appears certain that food prices in Britain would rise. This, too, would strengthen internal pressure for increased farm production.

Whether or not Britain joins the Common Market, it seems unlikely that the assumed continuation of the low rate of increase in productivity in the non-agricultural sector would provide the necessary basis for an export balance sufficient to release her from the necessity of looking to her own agricultural potential as a means of husbanding her foreign exchange. The better release would come if events should prove the assumed low-rate advance in productivity much too pessimistic.

* * * * *