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CENTRE FOR
EUROPEAN AGRICULTURAL STUDIES

THE DEVELOPMENT OF AGRICULTURE IN GERMANY AND THE UK:

3. COMPARATIVE TIME SERIES 1870-1975

DAVID ANDREWS
MARK MITCHELL
ADOLF WEBER

WYE COLLEGE
(University of London)
ASHFORD, KENT
1979

CENTRE FOR EUROPEAN AGRICULTURAL STUDIES

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Miscellaneous Study No. 4

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INTRODUCTION

This report is primarily intended to provide comparable statistical data on agricultural development for Germany and the UK during the period 1880-1975.

Foreword translated into French and German.

Préface

Hintergründe und Kurzfassung

FOREWORD

Agriculture plays a fundamental role in the social, economic and political development of nation states, and is, therefore, seen by the Anglo-German Foundation as a field of research appropriate to its general terms of reference: to study the problems of western industrial society. This has additional relevance today because Western Society is concerned with the role of agriculture in not only the nation-state but also in the supranational organisation of the European Economic Community. Furthermore the contrasting traditional political attitudes towards the agricultural sector which are currently manifest in West Germany and the United Kingdom give added point to the story contained in these companion reports.

The reports are aimed at increasing our knowledge of the historical background behind the attitudes and positions taken by their respective citizens, farmers, politicians, businessmen and government officials in the development of the Common Agricultural Policy of the EEC. By that deeper knowledge it is hoped to foster a more tolerant understanding.

Agriculture is a supplier of resources as well as a competitor for them, and as such is a fundamental element in the increasing urbanisation and industrialisation of Western Society. In studying agriculture as a competitor for resources, one is led directly into the problems of marginal productivities, net added value and the mobility of resources between economic sectors. Questions of relative efficiency arise.

Efficiency, however, may be defined in relation to technical, economic or social goals. It can be defined as a measure of the relationship between inputs and outputs in an economic or technical sense. It can also be defined as the degree to which stated aims have been achieved. The aims can be stated by the individual entrepreneur. They may also be set down in the statements of policy agreed to by the legislature and government of a country. It is this latter definition of efficiency which led to the decision that it was necessary to study the development of agricultural policy and hence of government

intervention before one could pronounce upon the current comparative efficiency of the two agricultural sectors.

The task of describing the development of agriculture and its adherent policies was entrusted to two authors. The German story is told by Robert Cecil, the British by John Kirk. The difference in their professional experience has inevitably led to differences in approach, content and presentation. Robert Cecil served in the Foreign Office from 1936 until 1967 including a period at the British Embassy in Bonn. In 1968 he was appointed Reader in Contemporary German History and finally became Chairman of the Graduate School of Contemporary European Studies, University of Reading. Here is a picture of Germany as seen by an "outsider", trained to analyse the political, social and economic significance of events and ideas.

John Kirk joined the Ministry of Agriculture and Fisheries (as it was then named) in 1932, just when there was a fundamental change in attitude with a consequent outburst of government intervention in British agriculture. He remained with that Ministry for some thirty years, becoming head of the Economics and Statistics Division, and was then appointed the first Professor of Marketing at Wye College. Thus his story is that of an "insider" who was closely associated with the discussions and decisions throughout the period when government intervention became a dominant feature in the development of British agriculture. His contribution is therefore a unique record and of immense interest to economic and political historians.

In any historical review, a starting date is required. With regard to the development of agriculture and agricultural policy in West Germany and the United Kingdom, circa 1870 is a convenient point. Both countries were faced with a common external phenomenon - the advent of cheap grain from North America and livestock products from the Southern Hemisphere. In the event, each nation took a different decision as to how it should deal with this common externality.

The United Kingdom chose the path of Free Trade and a cheap food policy, which would strengthen its competitiveness in manufactures as well as its ties with its overseas Empire which was a major supplier of

primary products and foodstuffs. The legacy of this mode of thought can be seen in the system of Imperial Preference of the 1930s and even in the special arrangements made for New Zealand dairy products and Commonwealth sugar in the negotiations for UK accession to the European Economic Community.

Germany pursued a policy of Protectionism in both agricultural and its manufactured goods. As Cecil points out "the Tariff Acts of 1879-80 brought both heavy industry and the great estates into line behind Bismarck. The effect was to affirm the political power of the Junkers, as well as to preserve a substantial agricultural sector within the economy".

One hundred years later, the fundamental attitudes of those divergent policies remain. They are strongly represented in the postures and statements made in the Council of Agricultural Ministers of the European Communities. Josef Ertl and John Silkin, the Ministers of Agriculture in the Federal Republic of Germany and of the United Kingdom respectively, are both prisoners of their countries' histories as well as being spokesmen of current political power.

If Free Trade is taken to represent a policy where the forces of a market economy are allowed to dominate, then, in the words of John Kirk, "the most important general cases in which the market may be over-ridden, and often has been, seem to be these:-

a) to achieve greater self-sufficiency, primarily as an insurance against war-time blockade;

b) to bolster up a weak economy by substituting home food production for imports;

c) as a matter of equity or social justice, to achieve higher incomes for farmers or farm workers;

d) to remedy the inadequacies and inefficiencies of various social or economic institutions, inadequacies that have developed within a market economy and persisted as a result of either inertia or privilege;

e) to correct the tendency of market decisions to be unduly short-term."

The common thread of these two very different presentations of developments in German and British agriculture is, in fact, the story of why and by what means the market forces have been over-ridden and how these forces have shown themselves in the structure of agriculture and its adherent institutions.

In the period 1870 to 1933 successive German governments intervened in ways which directly affected the development of agriculture. Subsequently Germany set about developing an economic autarky in preparation for war. Its whole economy became managed by the State to a degree unknown in peacetime by any other Western nation. German agriculture and its institutions came in for detailed regulation and regimentation, such as to suggest, from Robert Cecil's description, German rather than French or Dutch parentage for the shape and form of the managed market regimes of the Common Agricultural Policy.

Kirk makes the point that over the same period, the UK's agricultural policies did not accept self-sufficiency as a virtue in itself or that the home farmer is entitled to absolute priority in the home market. Such attitudes are thought to be derived from the longstanding relative political power of agricultural interests in continental Europe. It could be suggested, however, that closer relationships with continental Europeans may, however, have begun to influence British attitudes towards the priority of British agriculture in its home market. One has only to cite potatoes and milk.

Where the endowment of natural resources is relatively similar between two countries, differences in the social, economic or political objectives set for the agricultural sectors of the two countries are bound to give rise to differences in their structures and in their use of resources. If, for example, one of them is striving to achieve a higher degree of self-sufficiency in temperate food stuffs than the other, this will almost inevitably lead to higher relative prices being offered to its farmers to bring forth these increased supplies and to compensate for the higher marginal costs which such action will incur. Such is now the situation in the case of West Germany and the United Kingdom.

In 1870 the land areas, populations, and resource endowments were significantly different as between the German Empire and the United Kingdom. But for the past thirty years, there has been a remarkable similarity in these basic factors, including the level of technology available to agriculture and other parts of the two economies. Total population is 61m in West Germany, 56m in the UK, and total land area devoted to agriculture and forestry differs by only some 6000 hectares. Bearing in mind these basic similarities, comparisons of resource use and resource productivities in agriculture in the two countries are all the more interesting and instructive.

The third companion report brings together 38 "pairs" of statistical time series relating to the development of the agricultural sectors of West Germany and the United Kingdom during the period 1870-1975. Forty such series for Germany had already been constructed by Professor Adolf Weber of Kiel University.[1] It was therefore decided to attempt the compilation of comparable series for the United Kingdom and to extend both series to 1975. The reader may enhance his understanding of the first two reports by reference to the relevant time series. The study sets down the ways in which comparability has been achieved (or not as the case may be).

The problems associated with the statistical analysis of multiple time series, particularly when these are aggregates, are formidable, and fall outside the scope of this study. However, the narrative attempts to explain, with the use of certain additional data, the relevance of this information to a comparison of agricultural development in Germany and the United Kingdom. In addition, it is hoped that this data will be a valuable source for further research.

The starting point of our commentary was the entry of a common economic factor - cheap grain from North America. It ends with the introduction of a common political factor - the Treaty of Rome and the establishment of the European Economic Community with its Common Agricultural Policy. The overall problem for the future is how the divergent agricultural policies of West Germany and the United Kingdom can be fitted into the CAP. The UK reliance upon imported food coupled with a deterioration in industrial competitiveness, despite its cheap

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[1] Weber, A., Productivity Growth in German Agriculture: 1850-1970. University of Minnesota, Department of Agriculture and Applied Economics, 1973.

food policy, have led to a constantly recurring balance of payments deficit, relieved only temporarily by North Sea oil.

West Germany, on the other hand, has brought with it, as have the majority of other Member States, the unresolved agricultural problems of structure, high cost production and income disparity. However, to quote Cecil, "in general high cost agriculture and high cost food are not regarded in West Germany as intolerable, so long as industrial production flourishes, high wages can be maintained and an expanding labour market offers absorptive capacity for those wishing to leave the land. Any major setback to the economy, however, could soon precipitate a reappraisal of agricultural policy".

The persistence of the general economic recession in western industrial society could well be the harbinger of such a reappraisal of the CAP and of the national agricultural policies of individual Member States.

SECTION 1

Commentary on, and description of,
the comparative time series

COMPARATIVE TIME SERIES DATA - WEST GERMANY AND THE UK

Gross agricultural production (columns 1-3)*

This was defined by Weber as being the marketed and non-marketed output of agricultural products (less seed, feed and processing by products) valued at average market prices and deflated by the index of agricultural prices (1913 = 100). The series did not seem to correspond very closely to the 'Geldwert der Nahrungsmittelproduktion', in the Statistical Yearbook. Since this series was discontinued in the 1960s it seemed appropriate to continue Weber's series using the Statistical Yearbook's new definition of Produktionswert (value of agricultural output including feed and seed retained or sold) and subtracting the relevant items of 'Vorleistungen' (costs) i.e. Saatgut (home grown and imported seeds); 'Futtermittel' (imported and home grown animal feeds including by-products).

Since Weber had not subtracted any imported intermediate products from gross agricultural output, the data available from 1964 to the present is not comparable with his data prior to 1964. Thus, in appendix columns 1-3 the data for both countries is inclusive of imported feed and seeds to 1964 and excludes these products thereafter. The data is at current market prices.

For the United Kingdom, the marketed and non-marketed output for human and industrial consumption was valued at average market prices (i.e. subsidies excluded) to derive a series comparable to the German Geldwert der Nahrungsmittelproduktion. By subtracting the CIF values of imported animal feed a parallel series for Geldwert der Net Nahrungsmittelproduktion was calculated. The UK data was available from 1939/40 onwards.

The series are undeflated and calculated at average market prices, i.e. excluding production grants and deficiency payments. They are available for crops and livestock.

The discontinuity is necessitated by the aggregation of home grown and imported animal feeds (in value terms) in the German Statistical Yearbook, and the consequent loss of data on the value of food production (gross) i.e. (Geldwert der Nahrungsmittelproduktion).

* see Page 55

The series given in the appendix (cols.1-3) would thus give comparable estimates of the value of production (total to 1963; domestic from 1964) in any year if appropriate deflation and exchange rates were used.

Value added in agriculture (column 4)

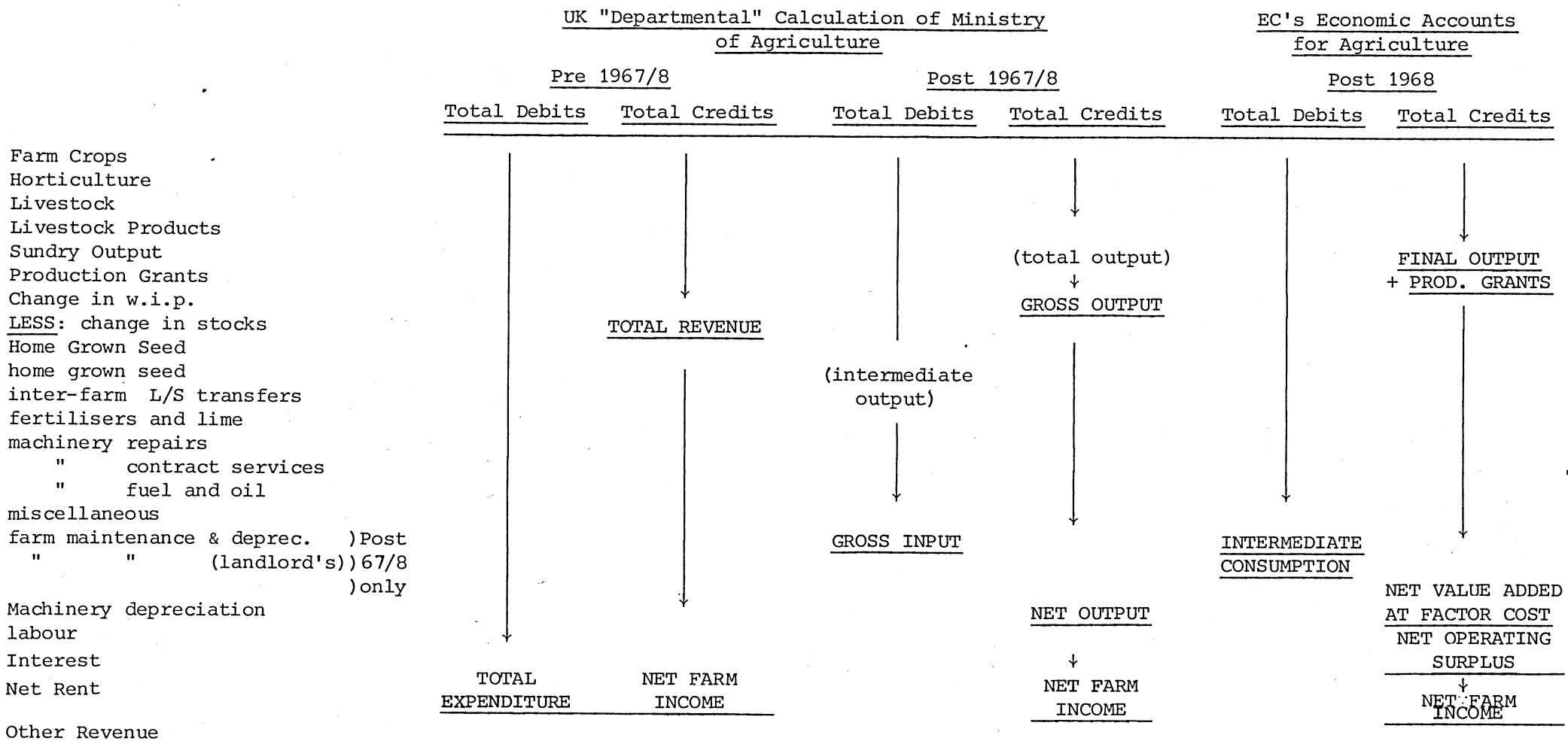
Weber's series for 'Value Added' refers to Net Value Added at factor cost. His series has been extended from 1959 to 1975 using Eurostat and German Statistical Yearbook data. Up until 1959 and from 1962, the data is in calendar years, the intervening years being in harvest years.

In the United Kingdom the Ministry has never explicity calculated Net Value Added in agriculture, although its estimate of Net Output is very close to the SOEC's definition of Net Value Added at factor cost, any discrepancies in the estimates given in Eurostat's Agricultural Accounts for Value Added and in the Annual Review for Net Output being due to slight differences in definitions, particularly of production grants and taxes. Their definitional equivalence is shown in Table 1, and in the following comparison of Value Added and Net Output, post 1967/8.

	Net Value Added at Factor Cost (Eurostat) £m	Net Output (Annual Review) £m	Discrepancy (%)
1968/9	901	902	0
69/70	964.1	994	+ 3
70/1	988.8	1072	+ 8.4
71/2	1124.9	1173	+ 4.3
72/3	1293.9	1279	- 1.2
73/3	1573.2	1545	- 1.8
74/5	1635.1	1597	- 2.3
75/6	1940.6	2068	+ 6.6

Net Output was not defined prior to this period and total farm maintenance and depreciation was included in 'Rent'. It is not possible to estimate total capital depreciation (i.e. machinery and buildings) and farm maintenance from the available sources. The figures for Net Value Added at factor cost before 1968/69 are therefore an overestimate to the extent that they include the depreciation of buildings and landlords' capital. This is probably no more than a 10% overestimate. In view of the quality of the data it would perhaps be better to derive a series on Gross Value Added at Factor Cost by simply adding machinery depreciation to NVA up to 1967/8 and adding total depreciation thereafter. However, this would deviate from Weber's series which explicitly excludes depreciation.

TABLE 1. SCHEMATIC REPRESENTATION OF THE CHANGES IN METHODOLOGY USED IN NATIONAL FARM ACCOUNTING

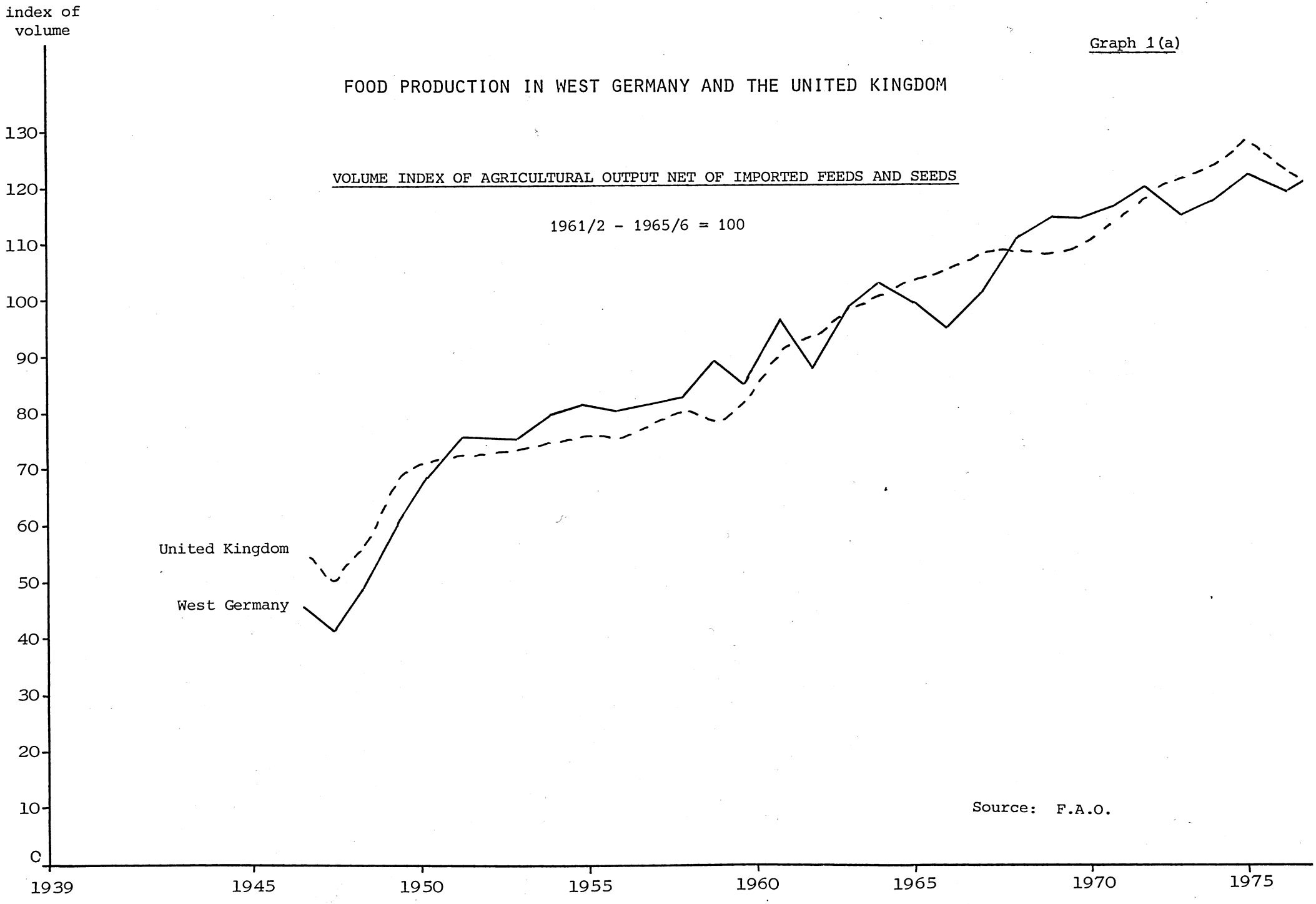


Notes: 1. Home Grown Feed and Seed not distinguished from total prior to 1967/8.
2. Fertilisers and Lime are exclusive of subsidies.
3. Net Rent excludes landlord's share of farm maintenance and depreciation.
4. Prior to 1967/8 Farm maintenance not distinguished from Net Rent.

Sources: Columns 1 & 2. Century of Ag. Stats.
Annual Reviews.
Annual Abstract of Statistics.
Columns 3 & 4. Annual Reviews.
Columns 5 & 6. Eurostat "Agrarstatistik" 1967, No.4.
" " 1974, No.4.
" Agricultural Accounts 1976.

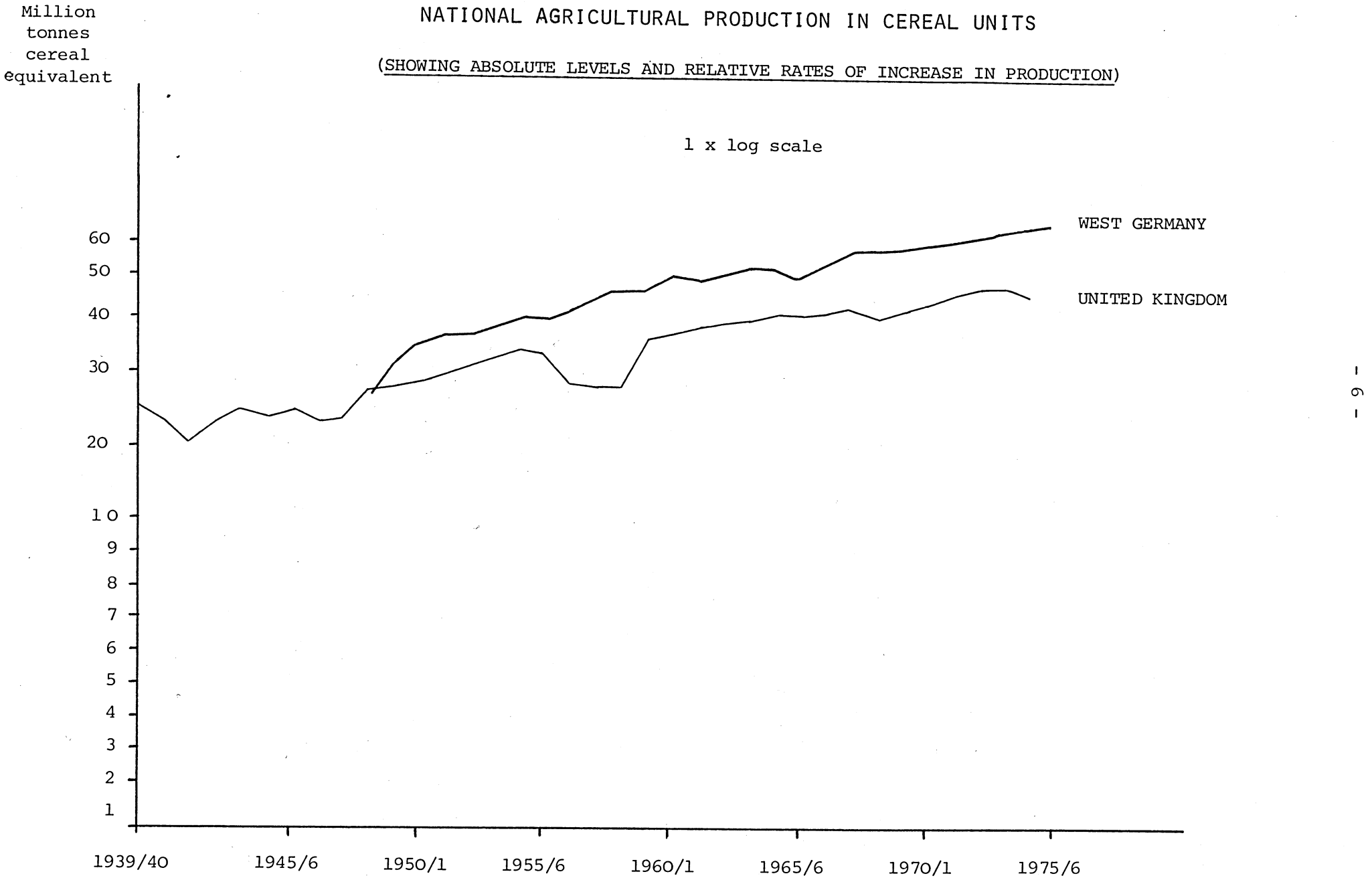
Graph 1(a)

FOOD PRODUCTION IN WEST GERMANY AND THE UNITED KINGDOM



NATIONAL AGRICULTURAL PRODUCTION IN CEREAL UNITS

(SHOWING ABSOLUTE LEVELS AND RELATIVE RATES OF INCREASE IN PRODUCTION)



Some Improvements upon Comparisons of Total Values:-

Quantum indices of agricultural output (Graph 1)

To measure movements in output over time within each country, exclusive of inflationary effects, the OECD and the FAO have used price relatives applied to the volume of different agricultural products. It seemed appropriate to do this in the present case, since an index of agricultural prices with which to deflate the UK series on the value of agricultural production would need to be based on the same products as the German index in order to make the deflated series comparable. The FAO's volume indices are available from 1946 to 1976, with 1961/5 as the base year - both gross and net of imported feed and stores.

Cereal units of agricultural output

To compare the physical quantity of agricultural output at any point in time between UK and West Germany, net agricultural output was calculated according to cereal units per tonne. This gives the starch equivalent (S.E.) of the various products as a fraction of the starch equivalent of wheat. Applying these S.E. factors (given in the West German Statistical Yearbook for Food, Agriculture and Forestry)[1] to the UK net agricultural production, results in a time series directly comparable to the German series "Nahrungsmittelproduktion in Getreideeinheiten" available from 1948.

This is not a measure of value or of the contribution of agriculture to GNP or standard of living, since it assumes that all products are perfect substitutes according to their energy contents. Since relative prices alter when supplies change we know that there is a degree of inelasticity in the demand schedule for certain products which is a direct measure of the extent to which consumers put a value on the characteristics of foods other than the energy content.

In Table 2 output has been aggregated into 'crops' and 'livestock', deducting processing by-products fed to livestock from crops, and only counting that part of crop production entering into human and industrial consumption (marketed and non-marketed) as gross crop production. Imported

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[1] Statistisches Jahrbuch ELF. 1976, p.124.

feedstuffs have been deducted from livestock production (in cereal equivalent units) to arrive at a net (i.e. domestic) agricultural output. As with the German figures changes in 'work-in-progress' or inventories have been included as output, and certain non-food crops, such as tobacco, hops and vines are included.

The conclusion from the following tables and graphs is that total food production has been increasing steadily in both countries since 1945, although Germany's output increased much more quickly than the UK's during the early 1950s, and was subject to fewer and smaller fluctuations than the UK's. Since the mid-1950s, the trends have been roughly in parallel. The early lead gained by Germany was never recaptured by the UK. Thus Germany now produces over a third more food than the UK, most of the difference being due to animal production from domestically produced feedstuffs. However, the most remarkable increase has been in Germany's production of animal products from imported feedstuffs which has increased eightfold since 1948, and in 1965 exceeded the level in the UK for the first time. The production of crops for human and industrial consumption has been double that of the UK in occasional years, and recently has been running at around 180% of the UK's.

In both countries animal production from domestic feeds has represented over 60% of food production since 1945 and the increasing level of feed imports has not reduced this share. Domestic food production, however, has declined as a proportion of total food output.

From Graphs 2 and 3, showing the contribution of total animal production to total food production, it is clear that without the 74% increase in milk production in Germany, from 9.5 to 16.5 million cereal units since the early 1960s, the picture would have been very different. German milk production is now 50% higher than the UK's. Pig production, at more than double that of the UK probably accounts for most of the difference in feed imports.

On the crop side, the higher output in Germany has, since 1959 at least, been mainly due to wheat, sugar beet and fruit.

TABLE 2. AGRICULTURAL PRODUCTION IN CEREAL EQUIVALENT UNITS

	Food production (gross) m. tonnes cereal equivalent						Animal production from imported feed		Net (domestic) food production			
	CROPS		LIVESTOCK		TOTAL				LIVESTOCK		TOTAL	
	WG	UK	WG	UK	WG	UK	WG	UK	WG	UK	WG	UK
1939/40		3.45		21.7		25.15		6.69		15.00		18.46
40/1		4.46		19.1		23.56		4.70		14.4		18.95
41/2		4.40		16.39		20.79		2.13		14.26		18.66
42/3		6.20		16.85		23.06		1.51		15.35		21.55
43/4		7.02		17.27		24.29		1.01		16.26		23.28
44/5		6.31		17.59		23.9		1.26		16.33		22.63
45/6		6.04		18.37		24.41		1.66		16.72		22.75
46/7		5.92		17.22		23.15		1.56		15.66		21.59
47/8		4.95		18.45		23.4		1.77		16.68		21.63
48/9	8.53	6.03	17.4	21.03	25.93	27.06	1.28	2.65	16.12	18.38	24.65	24.41
49/50	8.30	5.64	22.46	22.3	30.76	27.94	2.31	3.18	20.15	19.12	28.45	24.75
50/51	9.05	6.06	24.97	22.6	34.02	28.66	1.82	3.06	23.15	19.54	32.2	25.60
51/2	9.61	5.64	26.8	23.86	36.41	29.5	1.92	3.73	24.88	20.13	34.49	25.77
52/3	9.46	5.58	27.4	25.0	36.86	30.57	2.64	3.67	24.76	21.33	34.22	26.89
53/4	9.92	5.74	28.94	26.86	38.86	32.6	2.65	5.69	26.29	21.17	36.21	26.91
54/5	9.93	5.07	30.08	28.68	40.01	33.75	3.23	6.79	26.85	21.89	36.78	26.96
55/6	9.41	5.20	30.34	28.05	39.75	33.25	3.25	5.96	27.09	22.09	36.5	27.3
56/7	9.62	5.05	31.5	23.68	41.12	28.73	4.33	5.85	27.17	17.83	36.79	22.88
57/8	8.88	4.47	35.64	23.47	44.52	27.95	3.95	5.46	31.69	18.01	40.57	22.48
58/9	10.01	4.56	36.11	23.29	46.12	27.86	4.15	7.03	31.96	16.26	41.97	20.83
59/60	8.93	5.24	37.25	29.92	46.18	35.16	5.06	6.29	32.19	23.63	41.12	28.87
60/1	10.76	5.42	38.45	30.83	49.21	36.25	3.91	6.55	34.54	24.28	45.3	29.71

TABLE 2 (Contd.) AGRICULTURAL PRODUCTION IN CEREAL EQUIVALENT UNITS

	Food production (gross) m. tonnes cereal equivalent						Animal production from imported feed		Net (domestic) food production			
	CROPS		LIVESTOCK		TOTAL				LIVESTOCK		TOTAL	
	WG	UK	WG	UK	WG	UK	WG	UK	WG	UK	WG	UK
1961/62	8.13	5.03	39.93	32.91	48.06	37.95	5.44	7.34	34.49	25.57	42.62	30.61
62/3	9.32	5.33	40.2	33.05	49.52	38.38	5.23	6.59	34.97	26.46	44.29	31.8
63/4	10.63	5.12	40.83	33.96	51.46	39.08	5.32	5.81	35.51	28.15	46.14	33.27
64/5	10.81	5.65	41.38	34.46	52.19	40.11	6.57	6.74	34.81	27.73	45.62	33.38
65/6	8.88	6.13	40.96	34.39	49.84	40.52	8.48	7.09	32.48	27.33	41.36	33.43
66/7	9.35	6.58	42.88	34.07	52.23	40.65	7.95	6.39	34.93	27.67	44.28	34.25
67/8	10.99	6.57	44.44	34.73	55.43	41.29	8.27	6.69	36.17	28.04	47.16	34.61
68/9	11.31	5.42	45.26	35.03	56.57	40.01	8.45	6.42	36.81	28.58	48.12	33.59
69/70	10.95	5.69	46.24	35.84	57.19	41.48	8.82	6.92	37.42	28.88	48.37	34.57
70/1	10.98	5.65	47.37	37.11	58.36	42.73	10.14	6.94	37.24	30.12	48.22	35.79
71/2	11.89	6.32	46.51	38.41	58.4	44.7	9.21	6.02	37.3	32.26	49.19	38.68
72/3	11.52	6.23	47.45	39.71	58.97	45.91	8.91	6.53	38.54	32.14	50.06	39.38
73/4	12.3	7.15	48.67	39.02	60.97	46.14	8.91	5.63	39.76	33.36	52.06	40.51
74/5	12.59	7.0	48.69	37.32	61.28	44.31	9.0	5.14	39.69	32.16	52.28	39.16
75/6	12.15		49.8		61.95		10.4		39.4		51.55	

Note: Conversion factors revised 1957/8

TABLE 3. WEST GERMAN AGRICULTURAL PRODUCTION AS A PERCENTAGE OF UK AGRICULTURAL PRODUCTION IN EACH YEAR

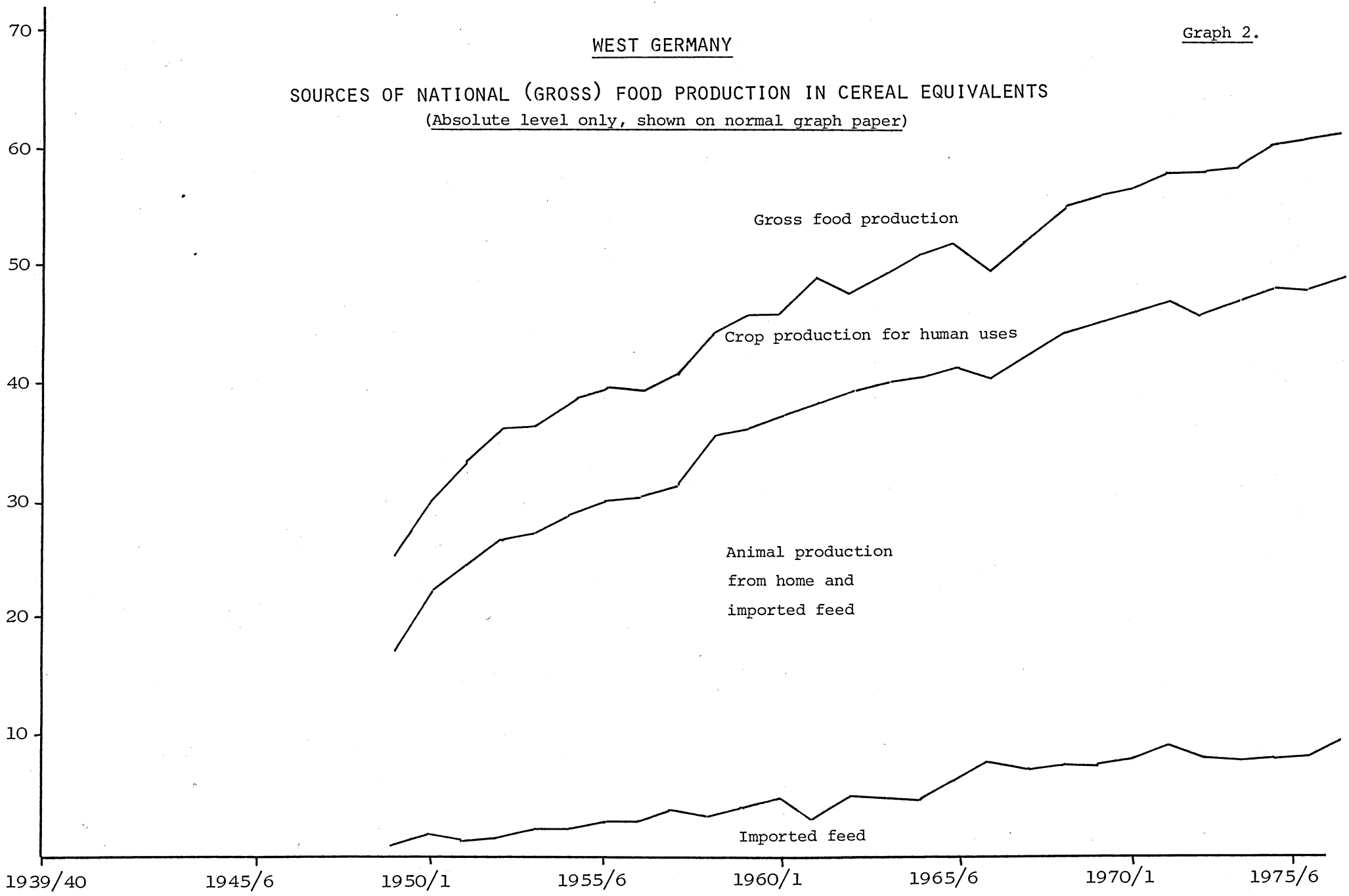
	Crop production		Animal production	
			From imported feed	From domestic feed
	WG	(UK=100)	WG (UK=100)	WG (UK=100)
1939/40				
40/1				
41/2				
42/3				
43/4				
44/5				
45/6				
46/7				
47/8				
48/9	141.5		48.3	87.7
49/50	147.2		72.6	114.9
50/1	149.3		59.5	125.8
51/2	170.4		51.5	133.8
52/3	169.5		71.9	127.3
53/4	172.8		46.6	134.6
54/5	195.9		47.6	136.4
55/6	181.0		54.5	133.7
56/7	190.5		74.0	160.8
57/8	198.7		72.0	180.5
58/9	219.5		59.0	201.5
59/60	170.4		80.4	142.4
60/1	198.5		59.7	152.5
61/2	161.6		74.1	139.2
62/3	174.9		79.4	139.3
63/4	207.6		91.6	138.7
64/5	191.3		97.6	136.7
65/6	144.9		119.6	123.7
66/7	142.1		124.4	129.3
67/8	167.3		123.6	136.3
68/9	208.7		131.6	143.3
69/70	192.4		127.5	139.9
70/1	194.3		146.1	134.7
71/2	188.1		153.0	127.2
72/3	184.9		136.5	127.1
73/4	172.0		158.3	128.5
74/5	179.9		175.1	123.4
75/6				

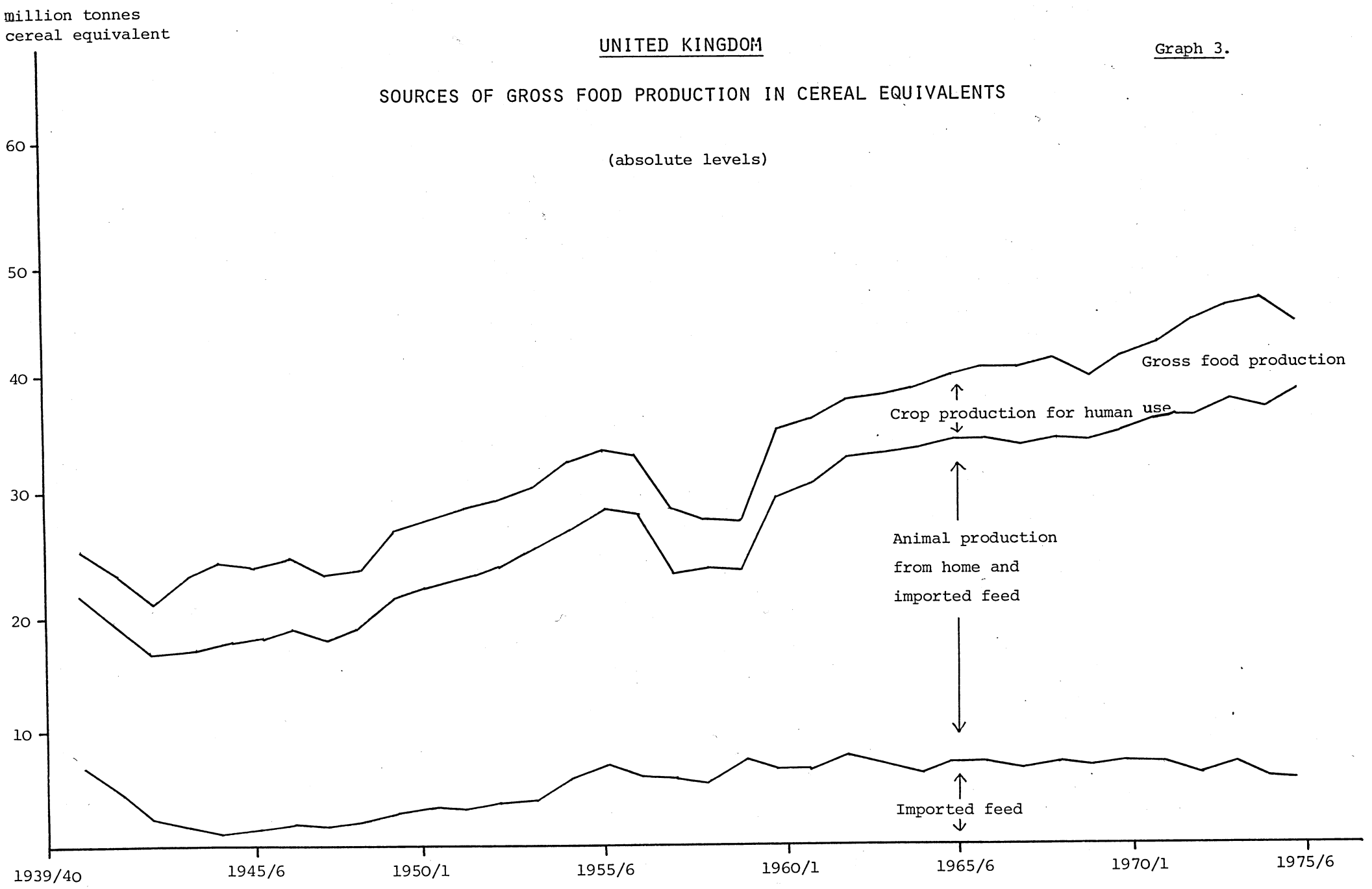
Graph 2.

WEST GERMANY

SOURCES OF NATIONAL (GROSS) FOOD PRODUCTION IN CEREAL EQUIVALENTS

(Absolute level only, shown on normal graph paper)



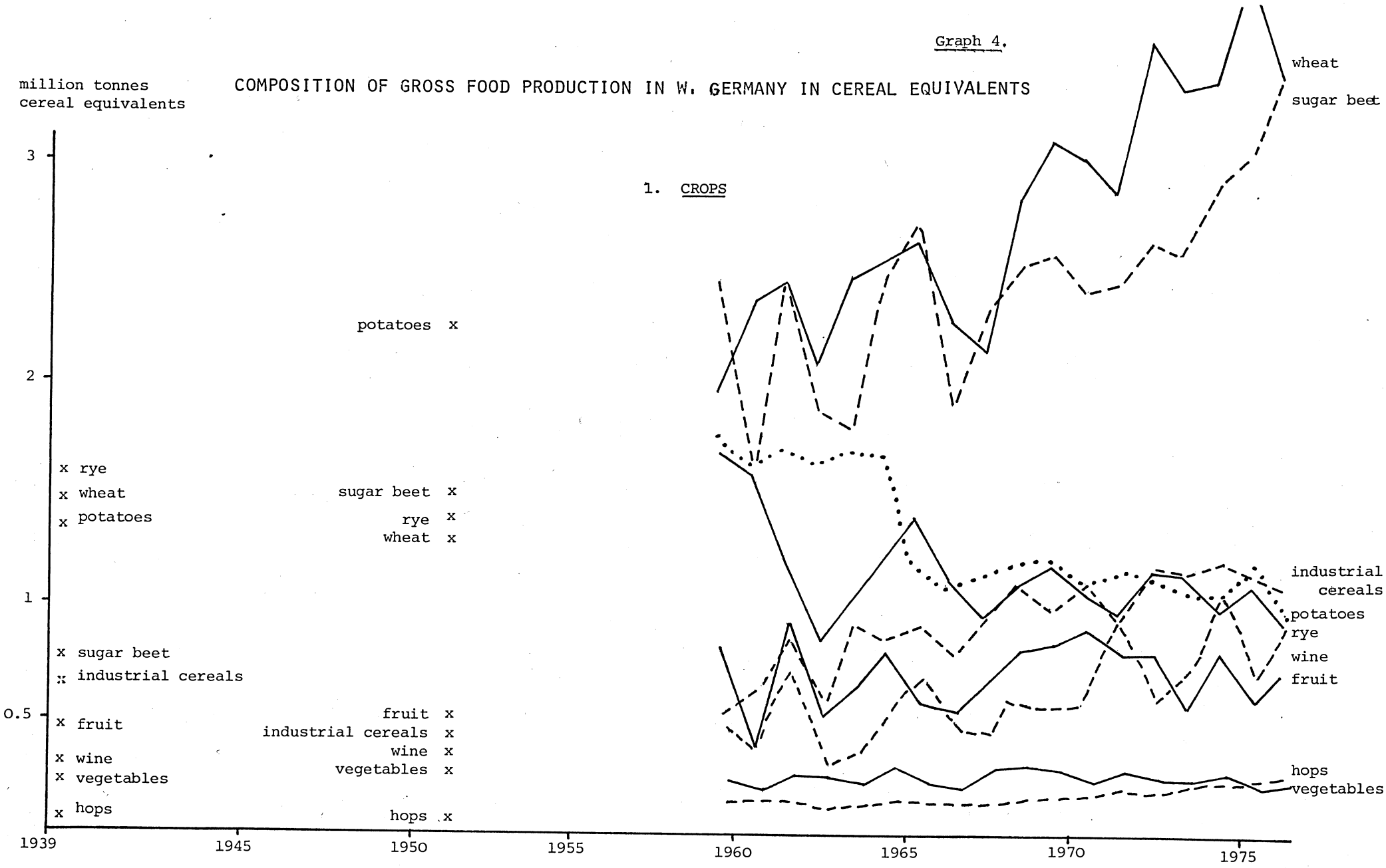

million tonnes
cereal equivalent
UNITED KINGDOM
Graph 3.
SOURCES OF GROSS FOOD PRODUCTION IN CEREAL EQUIVALENTS
(absolute levels)
60
50
40
30
20
10
Gross food production
Crop production for human use
Animal production
from home and
imported feed
Imported feed
1939/40
1945/6
1950/1
1955/6
1960/1
1965/6
1970/1
1975/6

Graph 4.

million tonnes
cereal equivalents

COMPOSITION OF GROSS FOOD PRODUCTION IN W. GERMANY IN CEREAL EQUIVALENTS

1. CROPS

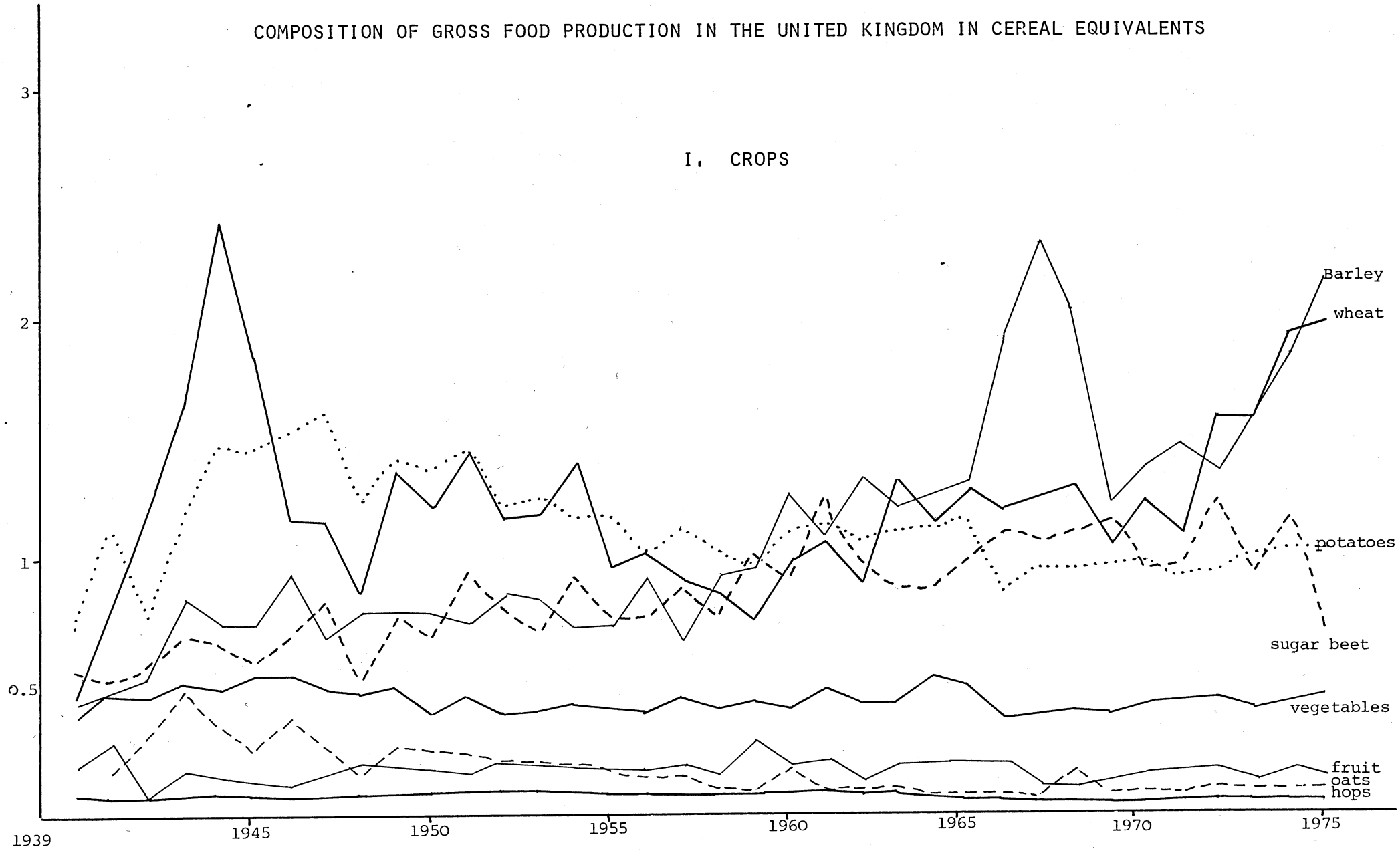


Source: MAFF, "Output & Utilisation"

Graph 5.

million tonnes cereal equivalent

COMPOSITION OF GROSS FOOD PRODUCTION IN THE UNITED KINGDOM IN CEREAL EQUIVALENTS

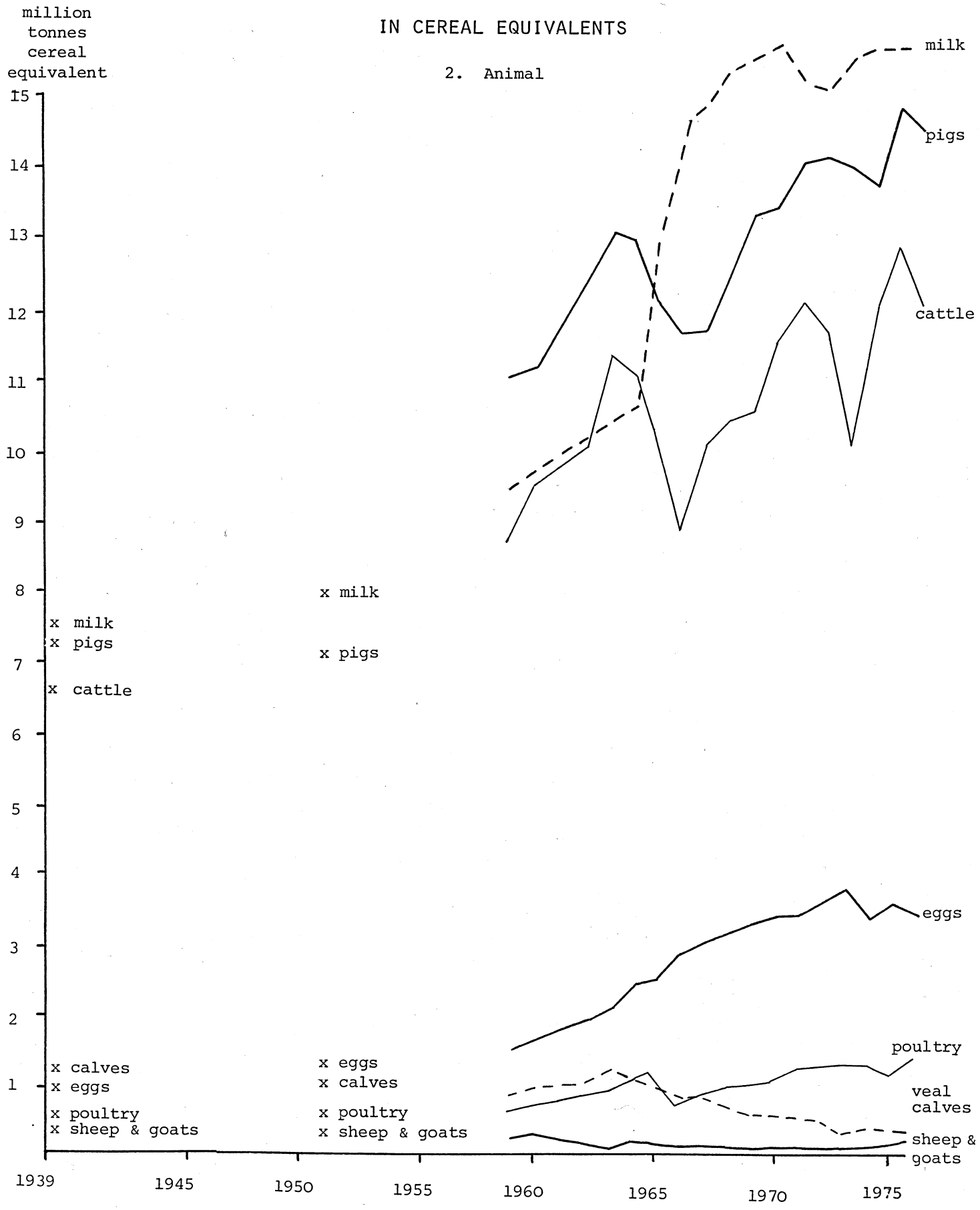


Graph 6.

COMPOSITION OF DOMESTIC FOOD PRODUCTION IN WEST GERMANY

IN CEREAL EQUIVALENTS

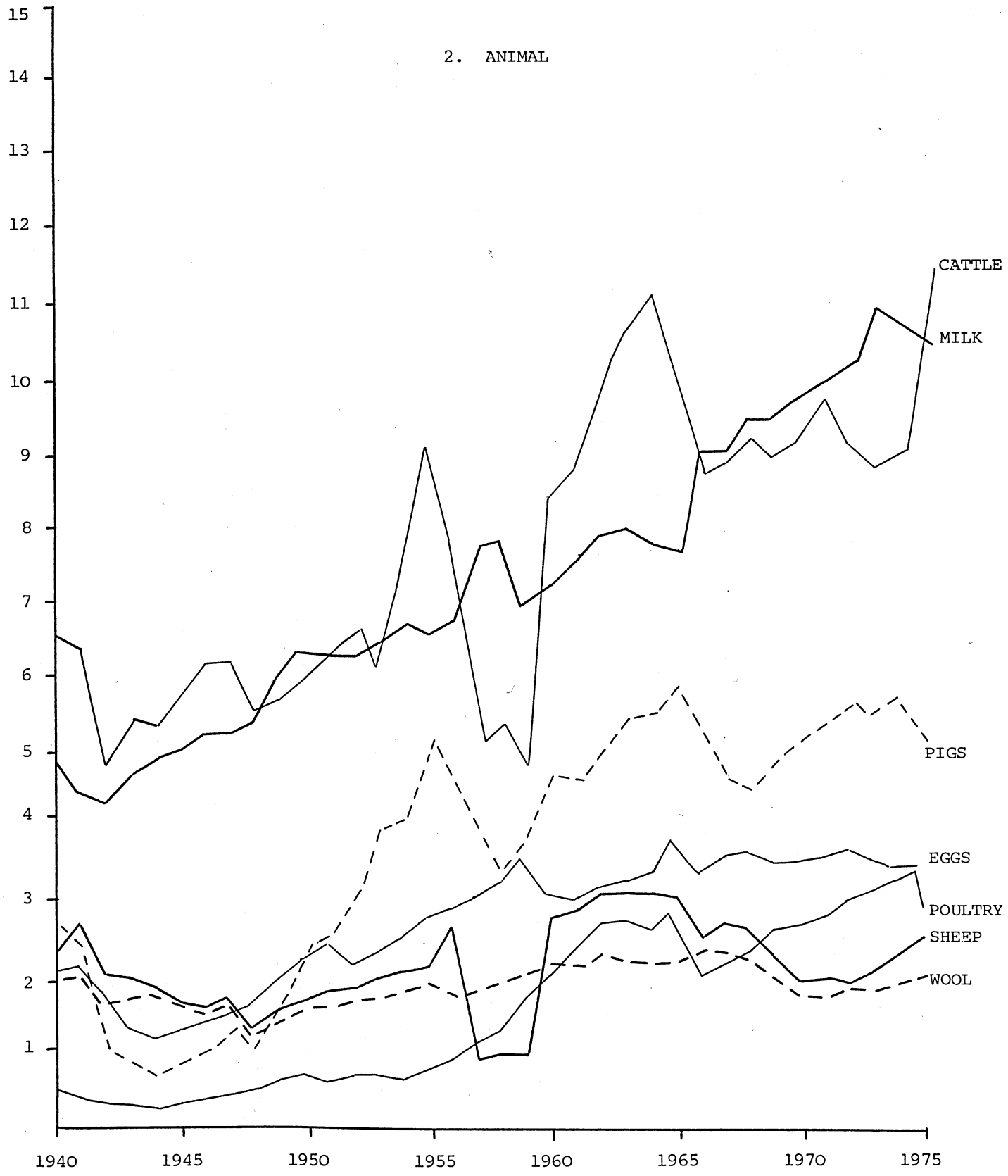
2. Animal



Source: St.Jb.ELF.

Graph 7.

COMPOSITION OF DOMESTIC FOOD PRODUCTION IN THE UNITED KINGDOM IN CEREAL EQUIVALENT



Source: MAFF, St.Jb.ELF.

Labour (columns 5 & 6)

Weber's figures for 'workers' in agriculture, forestry and fishing correspond very closely to the TOTAL CIVILIAN EMPLOYMENT figures in the OECD manpower statistics series. This gives total numbers from 1950 onward, and male numbers from 1954 onward. OECD have no comparable UK figures for male employees excluding farm occupiers prior to 1954. Unlike the series in the German national publications, the OECD enumerate the agricultural labour force by WAGE EARNERS, EMPLOYERS AND UNPAID FAMILY LABOUR. The German Yearbook enumerates the whole agricultural population, which includes persons non-active in agriculture, while the MAFF figures have until recently only included wage earners. Furthermore, there are no figures relating to agriculture exclusive of forestry and fishing for Germany. Comparison of the MAFF figures for agricultural employment only with total employment in agricultural forestry and fishing shows a less than 1% difference in 1975, and since the net output of German agriculture, forestry and fishing was 3½% greater than for German agriculture alone in 1965 it can be assumed therefore that (given similar labour productivities) the German labour force figures quoted here overstate the agricultural work force by about 3½%.

The average[1] rate of migration from the sector during the last ten years was 4.9% p.a. in Germany and 3.6% p.a. in the UK. The highest rate of outflow was amongst unpaid male family workers in Germany (8.5% p,a,) and male wage earners in the UK (4.5% p.a.). Farmers have left the industry at the lower rates of 4.2% p.a. in Germany and 3.1% in the UK[2].

Leaving aside the related problems that full-time and part-time workers (their ratio is much lower in Germany than the UK) work different hours, and that the family farming nature of German agriculture affects the attitudes too and hence the intensity of work done, Germany undoubtedly employs well over twice those employed in UK agriculture. This conclusion is not altered when one allows for a certain amount of non-enumeration of farmers' spouses in the UK figures (24% of farmers according to the 1977 Census). When assessing labour productivity, it is to be remembered that, as

---

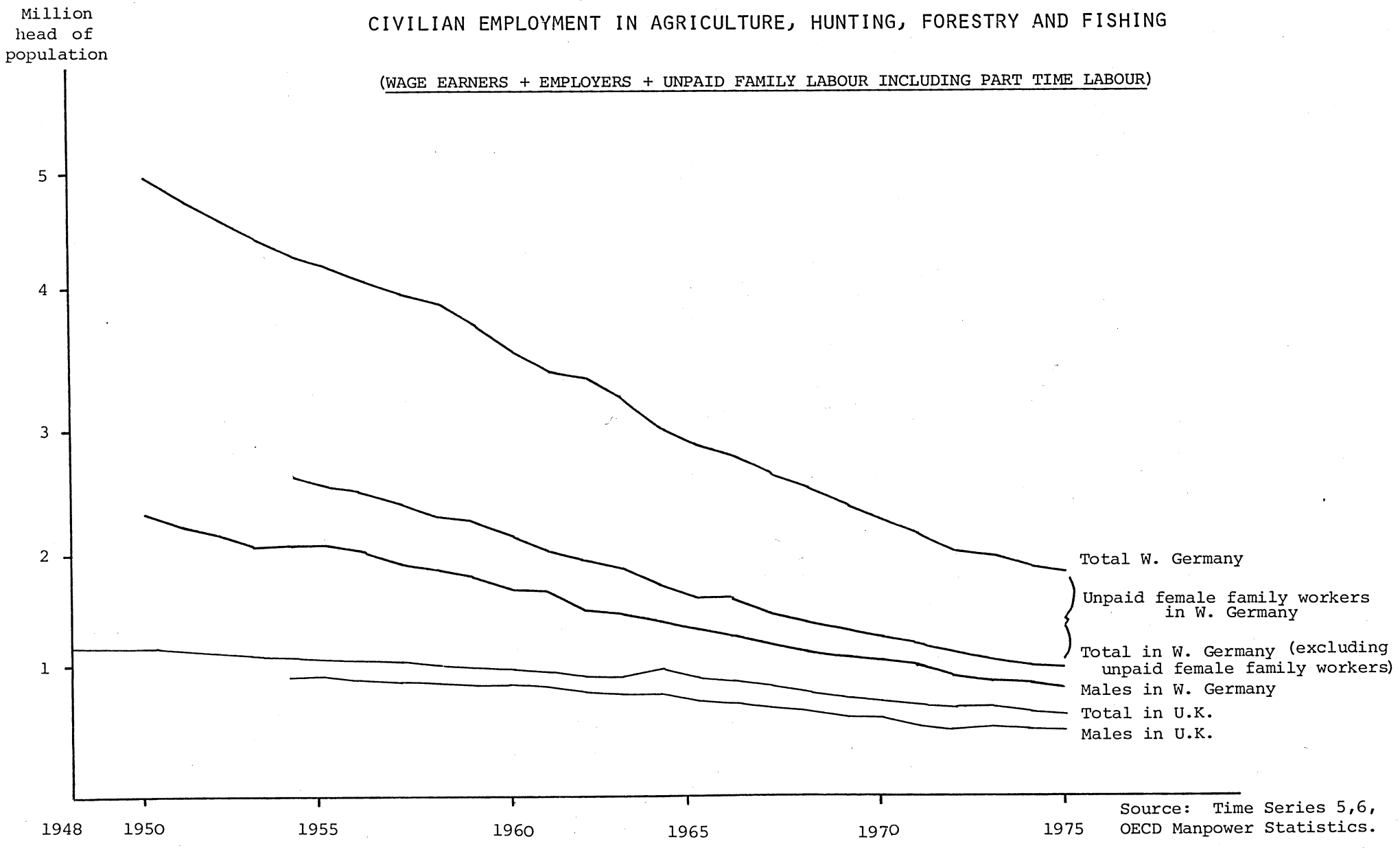
1 Estimated using $y = ae^{xt}$.

2 The relative rates of outflow of all farm labour, if maintained, would imply equal sized agricultural labour forces by the year 2150. If the net outflow ceases in the UK - and recent Annual Reviews have suggested a slowing down in the rate of out migration, it would take 25 years for Germany's labour force to fall to the UK level, at current rates of German net outflow.

Graph 8.

CIVILIAN EMPLOYMENT IN AGRICULTURE, HUNTING, FORESTRY AND FISHING

(WAGE EARNERS + EMPLOYERS + UNPAID FAMILY LABOUR INCLUDING PART TIME LABOUR)



Source: Time Series 5,6, OECD Manpower Statistics.

the following table 4 and graph 9 show, only 60% of those employed in UK agriculture and only 13.3% of those in German agriculture are wage earners. Furthermore, 44% of the German workers are unpaid female family workers. (How many more female family workers would be brought into the UK figures if the German definition of 'farm work' were to be used, is pure conjecture). The desirability of adjusting the figures in this way is very much open to doubt since it is likely that most of the German farmers' wives are engaged in subsistence (i.e. non-marketed) food production and therefore eligible to be considered farm workers within the context of German agriculture, whilst UK farmers' wives in the main are not, within the context of UK agriculture.

Thus, dividing total agricultural output by persons employed will show a very different picture of labour productivity than dividing its value by the total cost of labour. In theory a shadow wage (which would be much less than the average agricultural wage) would have to be imputed to the unpaid female workers in Germany while the wage rate in the UK would need to be applied to the hours spent by UK employers, in manual work, to derive a comparable labour productivity index. Table 5 shows a comparison of average physical productivity based on cereal equivalents of output and labour force data.

TABLE 4. CIVILIAN EMPLOYMENT IN AGRICULTURE, FORESTRY AND FISHING ('000s)

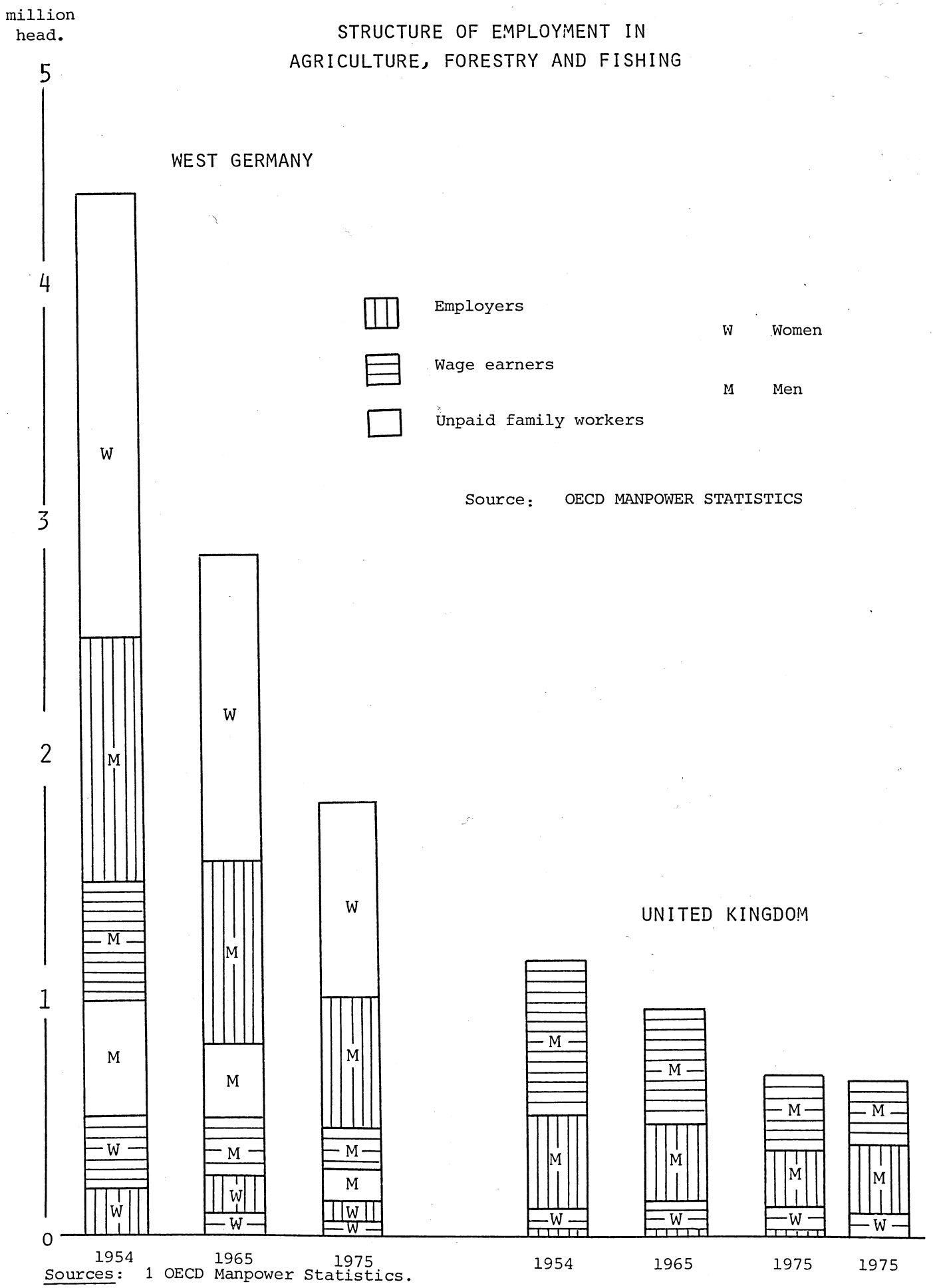
	WEST GERMANY								UNITED KINGDOM							
	TOTAL MALES								TOTAL MALES							
	Total	Wage earners	Employers	Unpaid family labour	Total	Wage earners	Employers	Unpaid family labour	Total	Wage earners	Employers	Unpaid family labour	Total	Wage earners	Employers	Unpaid family labour
1950	5020	1000	1285	2735					1262	822	440					
51	4850	935	1280	2635					1234	796	433					
52	4695	885	1270	2540					1204	774	430					
53	4535	830	1260	2445					1178	750	428					
54	4400	785	1150	2365	2000	500	1010	490	1161	741	420		1039	641	398	
55	4285	740	1245	2300	1950	470	1000	480	1150	721	429		1029	622	407	
56		705	1230	2240	1905	445	985	475	1115	692	423		996	594	402	
57	4098	667	1212	2219	1852	455	964	433	1106	683	423		987	585	402	
58	3972	611	1203	2158	1786	425	949	412	1082	662	420		968	569	399	
59	3820	582	1187	2046	1758	404	931	423	1074	656	418		960	563	397	
1960	3623	529	1158	1931	1662	374	905	383	1053	635	418		940	543	397	
61	3445	578	1072	1895	1614	384	853	377	1017	604	413		906	514	392	
62	3383	460	1066	1857	1497	292	858	347	993	580	413		883	491	392	
63	3230	445	1041	1744	1446	292	836	318	978	566	412		865	474	391	
64	3002	390	971	1641	1393	273	803	317	1014	657	357		848	520	328	
65	2876	369	928	1579	1320	256	769	295	952	605	347		793	476	317	
66	2790	358	926	1506	1293	250	763	280	916	582	334		758	454	304	
67	2638	324	886	1428	1221	230	725	266	883	542	341		729	419	310	
68	2523	302	834	1387	1154	215	679	260	858	519	334		700	397	303	
69		297	802	1296	1107	211	656	240	816	492	324		665	373	292	

TABLE 4. (Contd.) CIVILIAN EMPLOYMENT IN AGRICULTURE, FORESTRY AND FISHING ('000s)

	WEST GERMANY								UNITED KINGDOM							
	TOTAL MALES								TOTAL MALES							
	Total	Wage earners	Employers	Unpaid family labour	Total	Wage earners	Employers	Unpaid family labour	Total	Wage earners	Employers	Unpaid family labour	Total	Wage earners	Employers	Unpaid family labour
1970	2262	295	767	1200	1073	216	630	227	784	468	316		638	354	284	
71	2144	285	736	1123	1025	207	613	205	736	434	302		598	329	269	
72	2038	267	700	1071	961	194	589	178	711	429	282		576	327	249	
73	1954	258	670	1026	912	185	568	159	715	434	281		566	318	248	
74	1882	247	649	986	879	179	553	147	683	417	266		543	309	234	
75	1822	243	645	934	934	166	549	138	667	401	266		533	299	234	
Annual % of rates of decrease 1965-1975:																
	-4.5	-4.1	-3.6	-5.1	-4.3	-4.2	-3.3	-7.3	-3.5	-4.0	-2.6		-3.9	-4.5	-3.0	

Source: OECD.

Graph 9.



Sources: 1 OECD Manpower Statistics.

TABLE 5. AVERAGE PHYSICAL PRODUCT OF LABOUR

	Cereal equivalent+ per person employed* million tonnes		Annual % increase
	1965	1975	
WEST GERMANY	18.15	33.63	6.36
UNITED KINGDOM	30.39	51.95	5.51

Sources: + Table 3.

* Table 4.

Agricultural land (column 7)

The total land areas of the two countries are almost identical at 24.3 million hectares. The classified agricultural areas are widely different, being just over half of the land area in Germany (i.e. 13.3m. ha.) and nearly three-quarters in the UK (19.1m. ha.). These proportions have tended to fall slightly since pre-war years. Between 1965 and 1975 800,000 hectares of land went out of agricultural use in Germany. This is an annual decline of 0.6%. In the UK the annual decline was 0.2%. The sources for the up-dated German statistics are the FAO Production Yearbook (total land area) and Eurostat's Agricultural Statistics (agricultural area). The UK statistics on agricultural area are available in unbroken series from 1884, with a few periods when mountain land or rough grazings in Northern Ireland were excluded. The figures for Ireland (less Ulster) have been subtracted from the UK figures for the period up to 1922 when the Free State was formed.

A serious source of distortion is present in a comparison of the two series on agricultural land. This is that forestry land is excluded from the German figures, while 'rough grazings' (as defined by farmers, not by any objective criteria) are included in the UK figures. Thus, the difference between the two countries in terms of land of equal fertility is much less than the 6 million hectares suggested by a comparison of the statistics. The economic relationship between forestry and agriculture is much closer in Germany than in the UK. In Germany forest operations employ farm workers during the winter months and, forests being older established, occupy more fertile land and are therefore more part of a rotational system than in the UK.

The product of forestry - timber - ought also to be included in the output of German agriculture since its major input, labour, is included as an input with all labour in agriculture. This procedure would be less valid for the UK since forestry is generally less competitive with agriculture in the sense that it is a more distinct 'sector', employs mostly specialist workers, and takes place in remoter areas where soils are poorer and opportunities for cultivation (though not livestock grazing) are small.

The lack of any 'rough grazing' category in the German figures would

lead one to suspect that land is being classified as permanent pasture in Germany that would be classified as rough grazing in the UK. Harmonisation of definitions - or the use of more objective definitions is needed before land (just as much as labour) productivity can be compared.

Crops and grass area (column 7a)

Germany appears to have 1 million hectares more of crops and grassland (that is, arable and permanent crops and pasture) than the UK, but a small shift here of land from 'rough grazing' to 'permanent pasture' would be sufficient to wipe out this supposed advantage. The statistical sources are MAFF 'Century of Agricultural Statistics' and Eurostat.

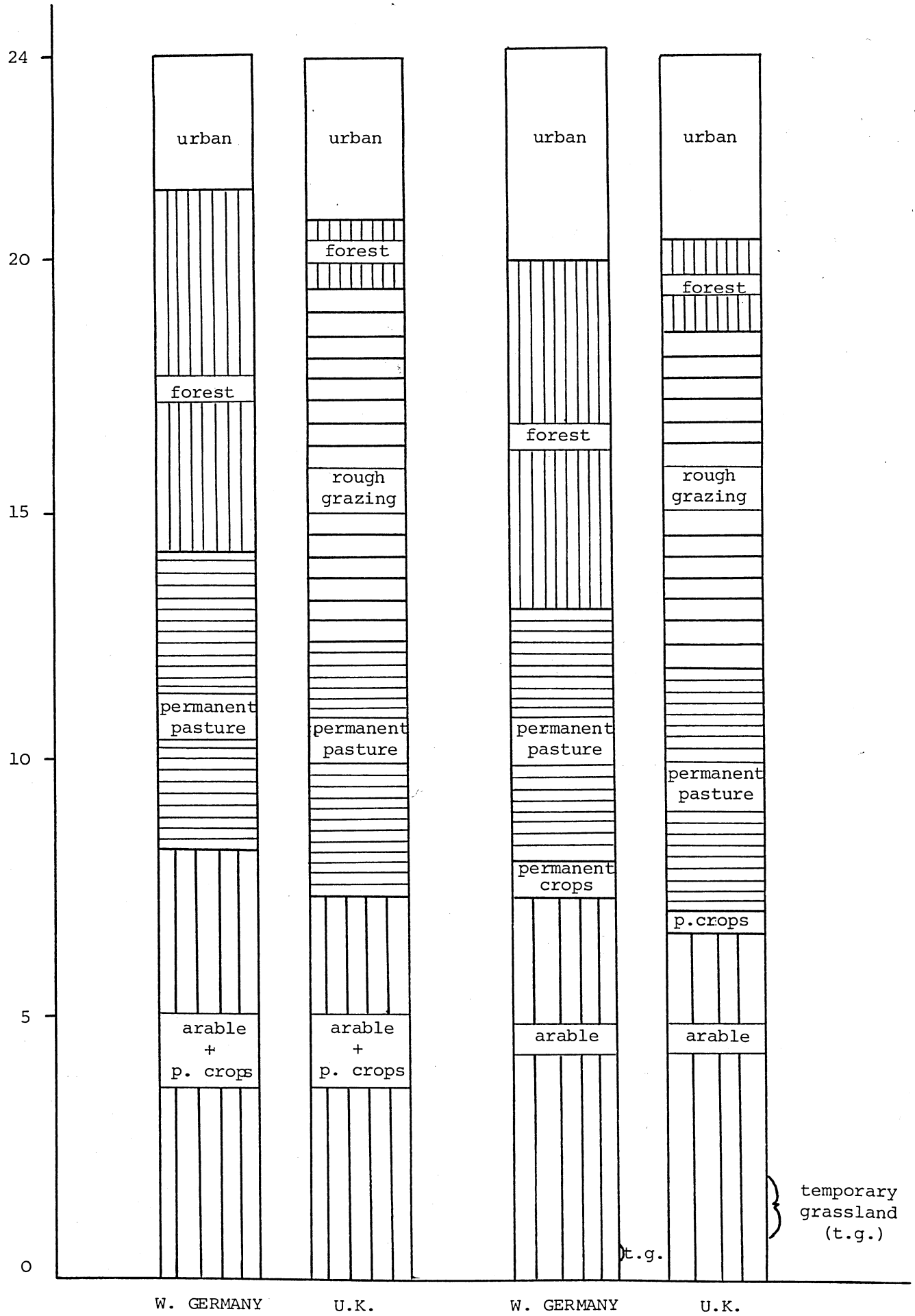
Arable area (column 8)

A more accurate measure of resource endowment is the arable area on which it can be shown that yields are similar and similar crops are grown. In 1976 Germany had 7½ million hectares while the UK had 7 million. In some years there was no difference; in other years as much as 1 million hectares.

Columns 9 and 10 - Value of Livestock Inventory and Machinery Stocks is not available for the UK.

Graph 10.

CHANGING LAND USE IN WEST GERMANY AND THE UK



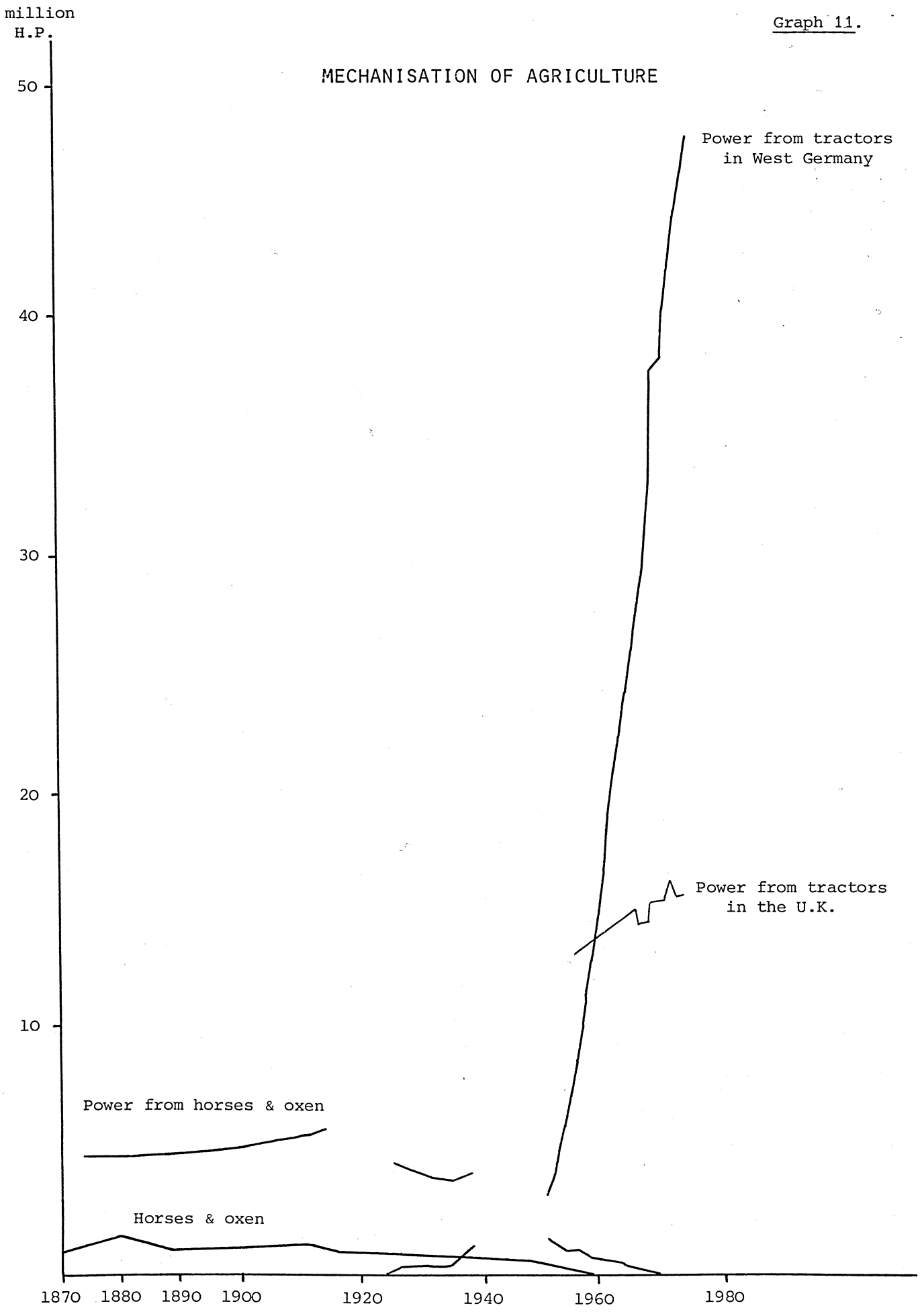
Sources: MAFF, StJG ELF, Eurostat

POWER WORKSTOCKS

Horse and oxen (column 11)

Data is available, with breaks, from 1870, for the numbers of horses and oxen used in agriculture. The German data is taken from Weber and SEJELF; the drastic changes in boundaries must be taken into account in assessing the numbers in comparison to the UK. The graph showing the numbers per hectare of arable land is more applicable to comparisons of absolute level. The UK data is that for Great Britain and Northern Ireland for the whole period.

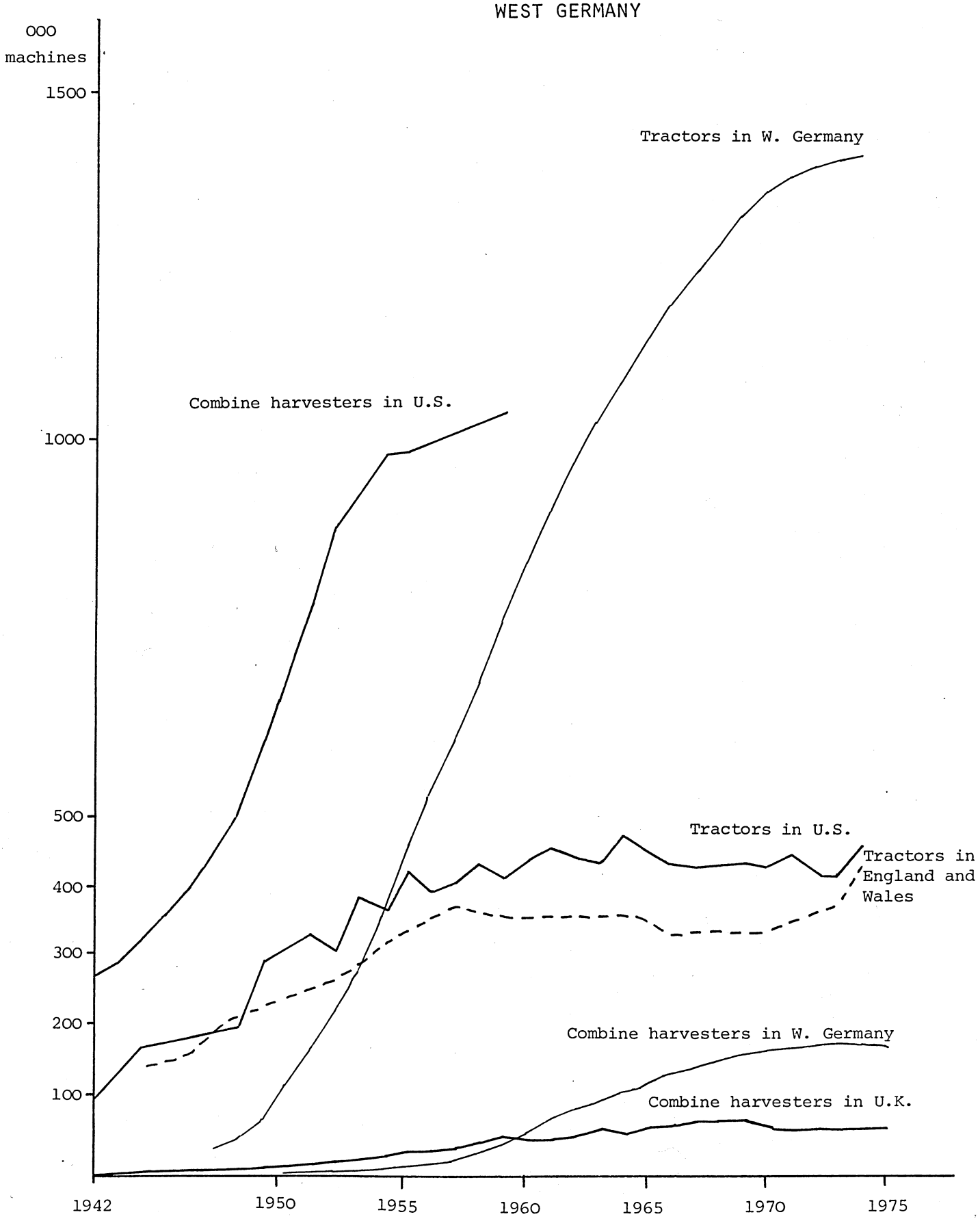
Graph 11.



Sources: Time Series 11,12,13.

Graph 12.

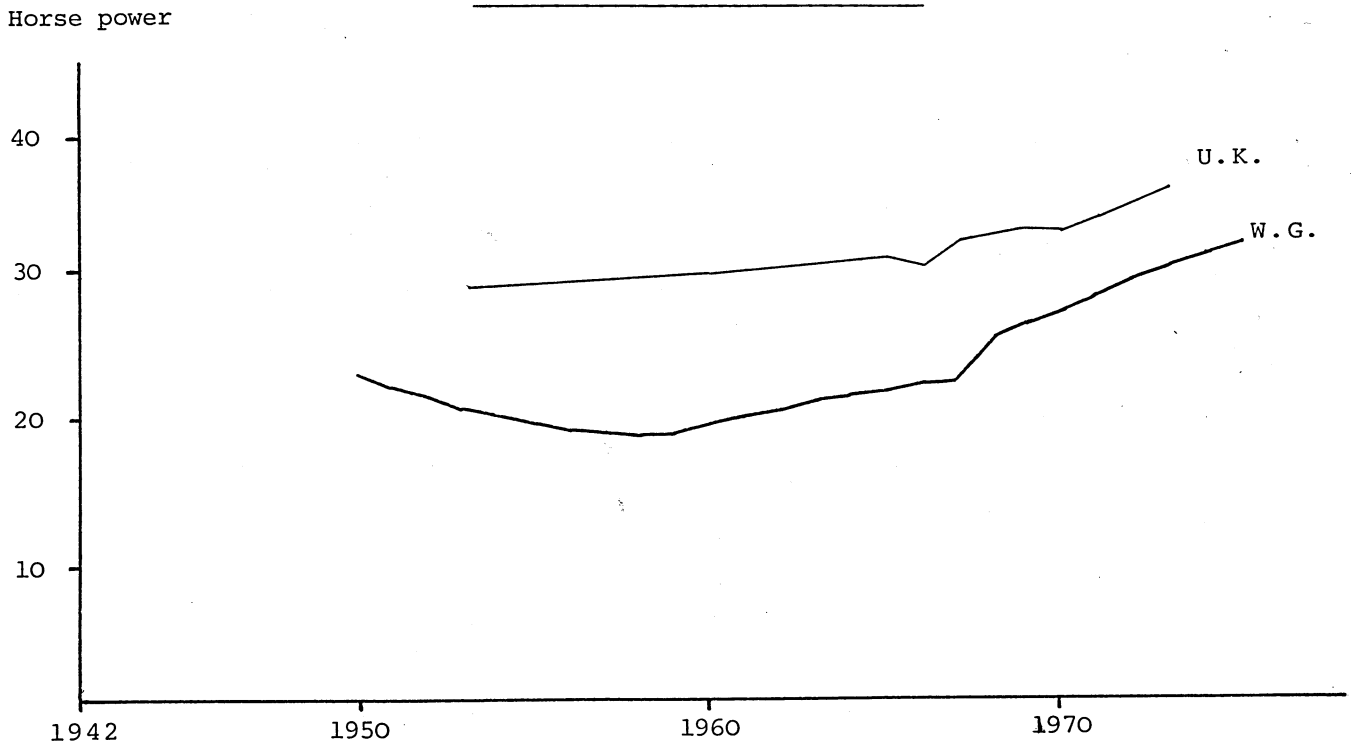
MACHINES IN USE ON FARMS IN THE U.S., U.K. AND WEST GERMANY



Sources: MAFF, Eurostat, StJG ELF, StJG BRD, Rosenberg

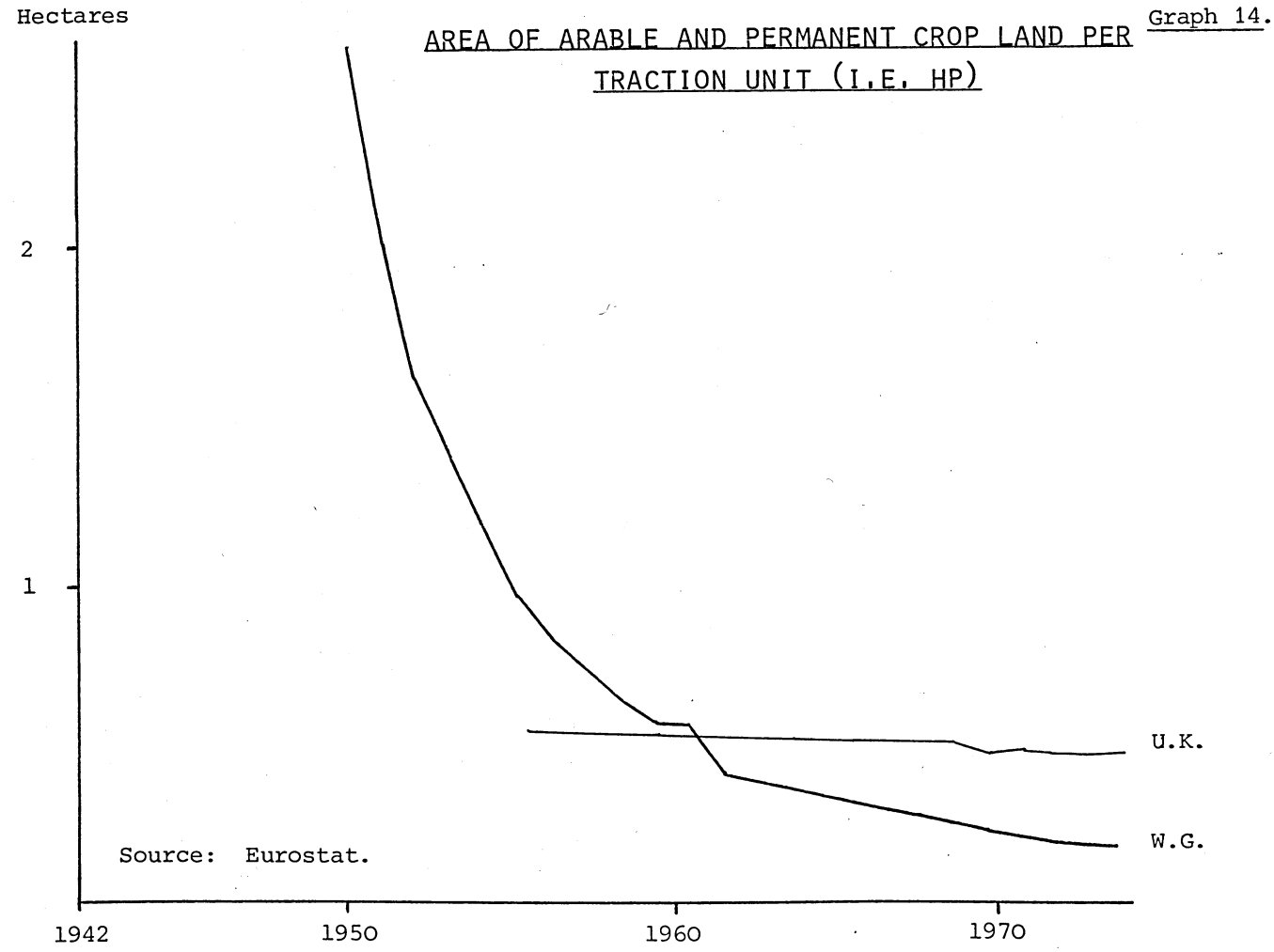
Graph 13.

AVERAGE POWER OF TRACTORS



Graph 14.

AREA OF ARABLE AND PERMANENT CROP LAND PER TRACTION UNIT (I.E. HP)



Source: Eurostat.

Tractor horsepower (column 12)

Taken from Weber (Germany) and Eurostat (UK). After 1969 the definition of horsepower changed from brake horsepower to pto[1] horsepower.

Graphs 11 and 12 show that the mechanical revolution has hardly ceased in Germany, yet seems to have slowed down in the UK. The traction power of tractors under 10 hp have been excluded from the UK figures but since they represent only about 10% of all the tractors in use, this is not of great importance.

Most of the difference in the rate of increase of mechanisation is due to more tractors being sold in Germany than in the UK and only partly due to the average power of tractors increasing faster in Germany than the UK although, as Graph 12 ('machines in use') shows, there has been a flattening in the growth curve which is not reflected in the graph of 'total tractor, hp (Graph 11). Thus whereas in 1955 and for several years thereafter, German tractors were only two-thirds as powerful as British, in recent years German tractors have become, on average, 80% of the power of British. The ratio of tractor power to arable land is now twice that of the UK (see Graph 14).

Unfortunately no data on the total horsepower of tractors in use (as opposed to new tractors) could be found for the UK prior to 1955, although it has been estimated[2] that between 1947 and 1965 the total horsepower of the tractor stock increased from 4.45 million (c.f. Germany's 3.3 in 1950) to 18 million (c.f. Germany's 26 million in 1965). During the same period the average size of tractor increased from 22 to 32 hp in the UK but the average in Germany remained at 24 hp. Since 1965, however, the latter has risen to reach 33 hp by 1975. The average power for the UK is now almost 40 hp (see Graph 13).

Rayner (op.cit.) has shown that for the UK at least, this increase of 50% in average power from 1947 to 1965 underestimates the improved productivity of tractors over this period since an index of quality change increased two-fold over the period.

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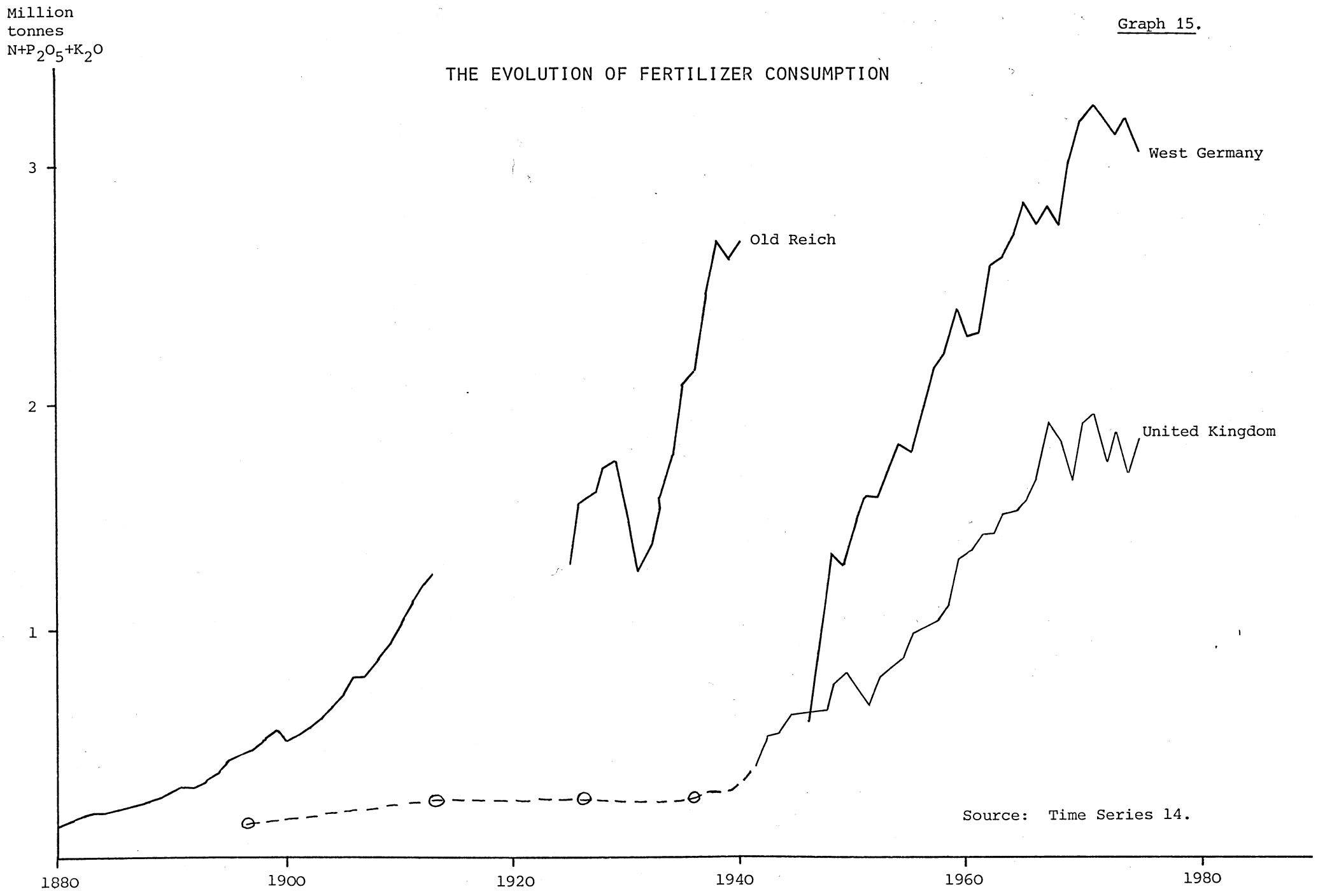
1 Power Take-off.

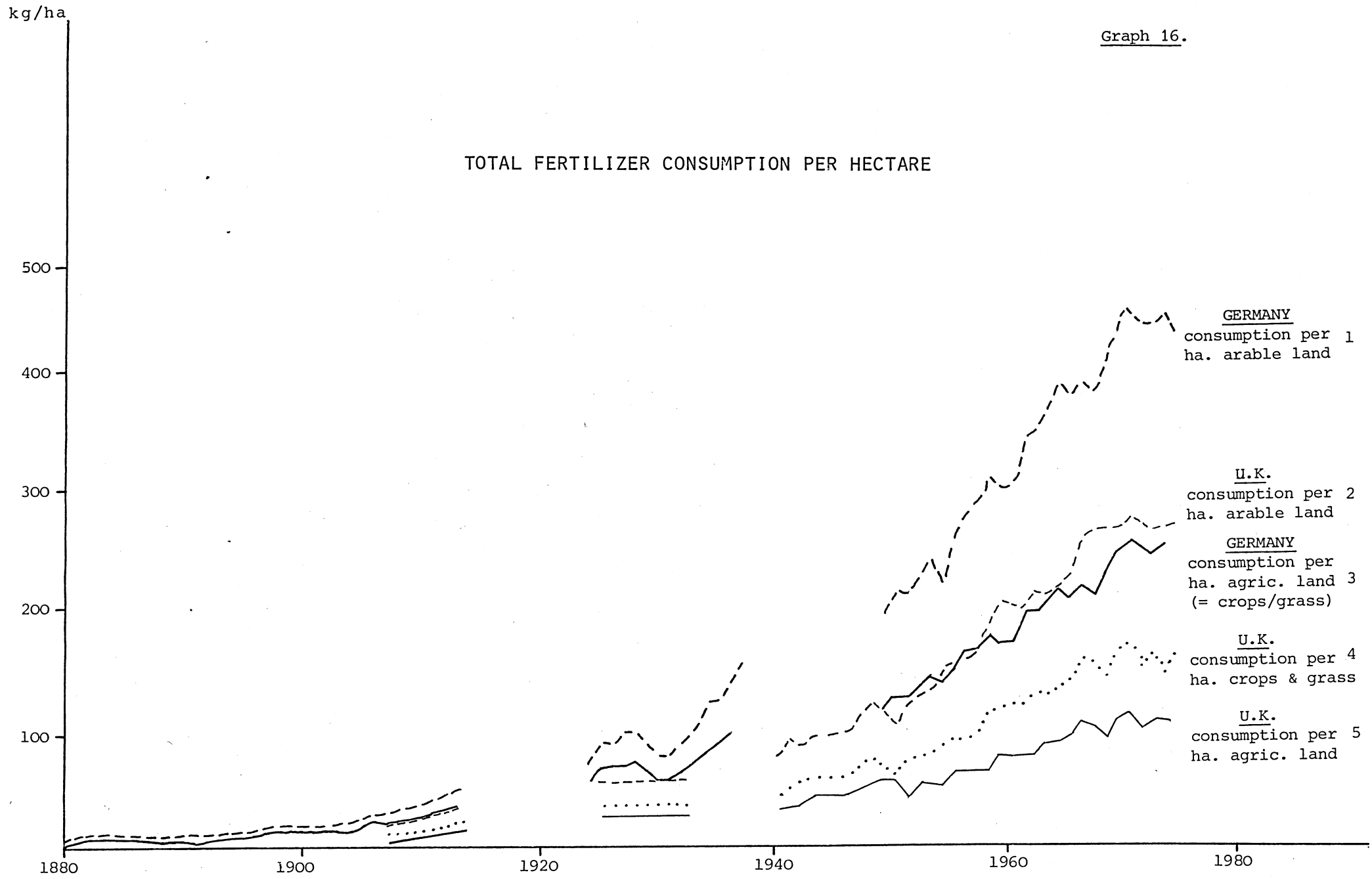
2 A.J. Rayner and Keith Cowling, "Demand for a durable input: an analysis of the UK market for farm tractors". The Review of Economics and Statistics, vol.XLIX, Nov. 1967.

Graph 15.



Source: Time Series 14.

Graph 16.


kg/ha
TOTAL FERTILIZER CONSUMPTION PER HECTARE
500
400
300
200
100
1880
1900
1920
1940
1960
1980
GERMANY consumption per ha. arable land 1
U.K. consumption per ha. arable land 2
GERMANY consumption per ha. agric. land (= crops/grass) 3
U.K. consumption per ha. crops & grass 4
U.K. consumption per ha. agric. land 5

Fertiliser consumption (columns 14-17)

Regular statistics of fertiliser consumption are not available for the UK as far back as 1880 but a few isolated years - 1897, 1913, 1926 and 1933 are available. This information is sufficient to show that Germany, as a result of her early lead in chemical manufacturing, was applying fertilisers in the latter quarter of the 19th and early 20th centuries at a level not equalled by the UK until the 1940s.

The German statistics are taken from Weber and the Statistical Yearbook. The UK stats. are as recorded in the production census and relate to home deliveries (1941-1948) and consumption (1949-1975). They are published in the Annual Abstract of Statistics (1941-1948) and the FAO's Annual Fertiliser Review (1949-1975). The figures are of metric tonnes of pure plant nutrient.

An analysis of fertiliser usage in the two countries cannot be made by reference to Graph 15 alone since Weber's data relates to consumption in three different phases of German development during which drastic boundary changes occurred. Furthermore, the consumption per hectare cannot be compared unless the area upon which fertilisers are applied is known. Assuming that permanent grassland received no treatment until the most recent period, one should compare usage per hectare of arable land (lines 1 and 2 in Graph 16) until 1960, and usage per hectare of crops and grass (which is identical to agricultural land in West Germany) thereafter, (lines 3 and 4). Since a great deal of permanent grass probably still receives no fertiliser in the UK, line 4 is likely to be an underestimate of usage on treated land and ought to be shifted upwards toward line 2, so that a realistic comparison with line 3 can be made.

Whatever the true picture is, it is certainly not valid to say that Germany is twice as intensive in her fertiliser usage as the UK, which a comparison of lines 3 and 5 might suggest. The extent to which Germany's higher total consumption is due to a different cropping pattern is considered below.

The largest component of the trend towards increased fertiliser usage has been nitrogen consumption. From being 30% of plant nutrients in 1950 it is now 57% in the UK. In Germany it increased from 25% to 37% in the

same years. For most of this period it was the most expensive of the nutrients although in recent years phosphate prices have increased to twice the level of nitrogen. In the UK, nitrogen consumption per hectare more than doubled between 1970 and 1975 but in Germany only increased by 12%. This is a reflection of the high levels of nitrogen application already reached by Germany (estimated at 99 kg. per hectare on all crops and grass) by 1970. Despite having the same proportion of EEC agricultural area (14-15%) as the UK, Germany now uses 70% more plant nutrients. There are four reasons for this:-

1) The arable area is a much larger proportion of the total agricultural area in Germany than it is in the UK and within the arable area a very different mix of crops with different nutrient requirements is grown.

2) Output prices, as measured by cereal prices, have been consistently higher in relation to fertiliser prices than in the UK, thus raising the 'optimum' or profit maximising level of application per hectare above that in the UK.

3) As a result of much higher land prices in relation to fertiliser costs than in the UK, it has been economical to substitute fertiliser for land area to a greater extent.

4) For some crops, and in some areas, the response of plants to fertiliser application is different in the two countries. This appears to be due to differences in soil type.

Table 7 shows the comparative distribution of land between crops (excluding rough grazings) in 1975 and 1976. Table 8 is derived by multiplying the German and UK hectarages by the average 1974 UK rates of nutrient application (as estimated by the Rothamsted Surveys of Fertiliser Practice) and summing. This shows that German farmers would be expected to apply 22% more fertiliser than UK farmers (compare 'circled' numbers) given their large areas of all crops except barley, pulses, horticulture and grass. But German farmers actually applied 70% more fertiliser per hectare (compare "squared" numbers). This discrepancy could be due to higher rates of application on similar crops as Table 9 (column 1) which shows the actual rates of nitrogen application, derived from a sample of German farmers[1] would seem to indicate.

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[1] 'Stikstof', no.17, 1974 Neths. Nitrogen Fertiliser Industry, N.V.

TABLE 7(a). CROPPING PATTERNS

(000 ha.)

	West Germany		United Kingdom	
	1975	1976	1975	1976
Wheat	1569	1632	1035	1231
Barley	1756	1735	2345	2182
Oats	920	855	233	235
Rye	651	663	6	8
Mixed Corn	300	287	35	28
Maize	96	103	1	1
TOTAL CEREALS	5292	5275	3655	3685
Pulses	28	22	70	75
Potatoes	415	415	204	222
Turnips, swedes, mangolds	255	240	114	109
Sugar beet	426	440	197	206
Industrial crops (oilseed rape, hops, tobacco)	116	119	48	58
Arable fodder (green maize, kale, cabbage)	430	470	139	133
Horticulture	69	66	233	234
Other crops (seeds, fallow)	32	25	156	78
TOTAL TILLAGE	7063	7072	4816	4800
Temporary grass (incl. clover)	465	458	2138	2156
TOTAL ARABLE	7528	7530	6954	6956
Permanent grass	5244	5219	5074	5064
Permanent crops: Vineyards	100)	203	0	0
Orchards	100)		53	52
House gardens	322	320		
TOTAL CROPS AND GRASS	13299	13272	12081	12072
Rough grazings	0 (or included under 'permanent grassland')	0	7072	7028
TOTAL AGRICULTURAL AREA:	13299	13272	12100	12100

Sources: Eurostat: Land use stats. 1976.
MAFF: Agricultural stats. UK 1975.

TABLE 7(b) DIFFERENCES IN CROPPING PATTERNS

	West Germany minus UK '000 hectares		West Germany minus UK % UK	
	1975	1976	1975	1976
Wheat	534	401	152	132
Barley	-589	-447	75	79
Oats	687	620	395	364
Rye	645	655	10850	8288
Mixed corn	857	1025	857	1025
Maize	95	102	9600	10300
TOTAL CEREALS	1637	1590	145	143
Pulses	-42	-53	40	29
Potatoes	211	193	203	187
Turnips, swedes, mangolds	141	131	224	220
Sugar beet	219	234	216	214
Industrial crops (oilseed rape, hops, tobacco)	68	61	242	118
Arable fodder (maize, kale, cabbage)	291	337	309	353
Horticulture	-164	-168	30	28
Other crops (seeds, fallow)	-124	-53	20	32
TOTAL TILLAGE	2247	2272	147	147
Temporary grass	-1673	-1698	22	21
TOTAL ARABLE	574	574	108	108
Permanent grass	170	155	103	103
Permanent crops: Vineyards	100	c100		
Orchards	52	c 51	198	198
House gardens	322	320		
TOTAL CROPS AND GRASS	1218	1200	110	110
Rough grazings				

Sources: As for Table 7.

TABLE 8.

	HYPOTHETICAL CONSUMPTION IN GERMANY USING UK RATES OF APPLICATION OF N. P & K				UK AREAS X ESTIMATED UK RATES OF N. P & K			
PLANT NUTRIENT:-	N	P_2O_5	K_2O	Total	N	P_2O_5	K_2O	Total
CROP AREAS	'000 tonnes							
Wheat	143	59	51	253	96	40	34	170
Barley	145	69	66	280	184	90	88	362
Oats	59	36	31	126	15	9	8	32
Other cereals	73	35	34	142	2	2	1	5
TOTAL CEREALS	420	199	182	801	297	297	131	569
Potatoes and horticulture	79	75	103	257	54	47	64	165
Roots	80	55	215	350	38	26	40	104
Rape and industrial crops	23	5	4	32	9	2	2	13
Fodder, maize, kale, arable	47	27	27	101	16	11	37	64
Temporary grass	63	15	13	91	291	71	58	420
TOTAL ARABLE	712	376	544	1632	705	298	332	1335
Permanent grass and crops	448	138	141	727	368	97	77	542
Total grass and crops	1160	514	685	(2359)	1128	395	409	(1932)
Actual 1975 fertiliser use	1228	780	1099	[3107]	1045	391	399	[1835]
Discrepancy due to higher rates of application in FRG	68	266	414	748				
Discrepancy due to sampling error in UK					8%	1%	2.5%	5%

Sources: MAFF: Agricultural statistics for UK.
Eurostat: Land use statistics.
Rothamsted report on fertiliser practice in E.& W., 1975.

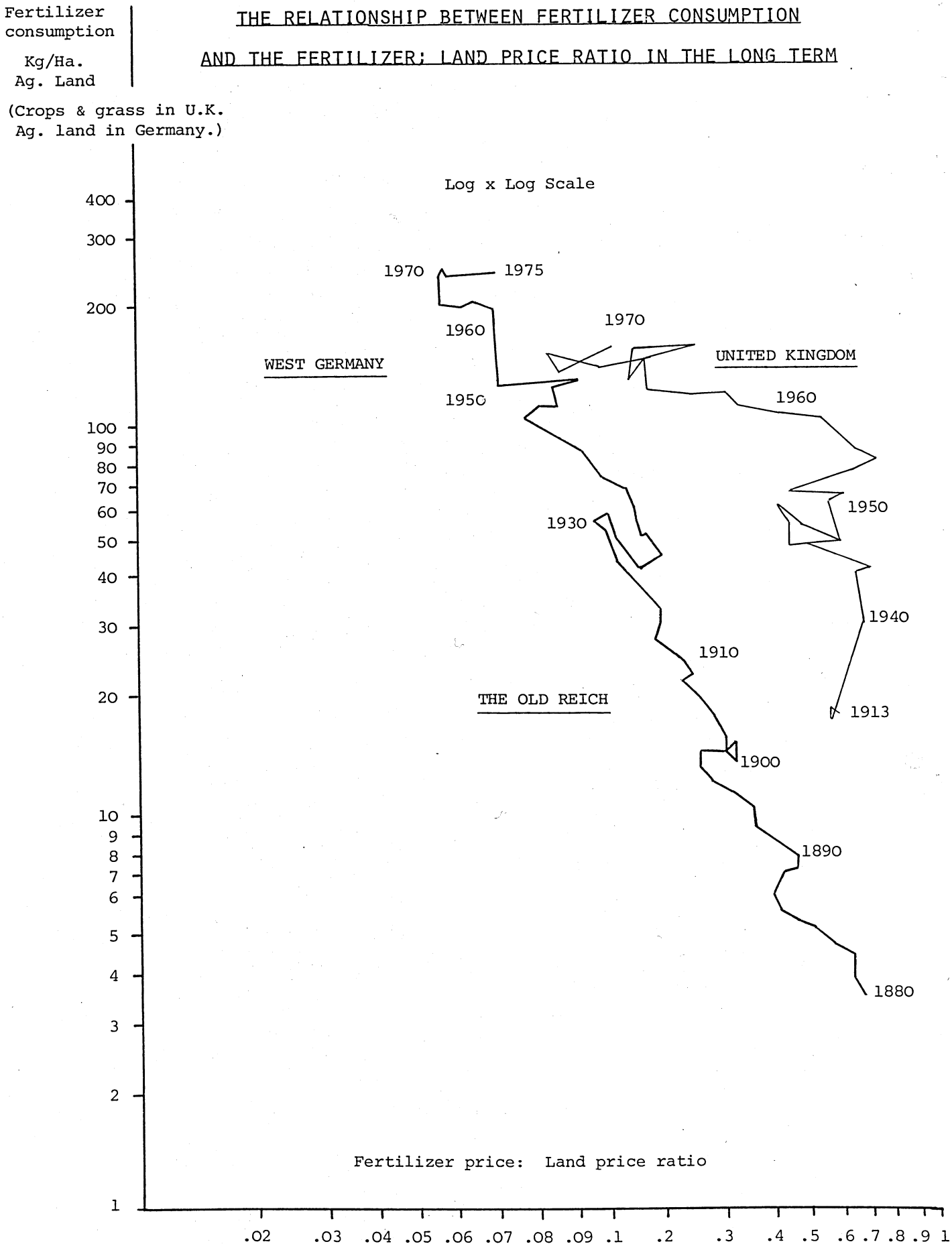
TABLE 9. COMPARATIVE RATES OF NITROGEN DRESSING

	Sample estimate of FRG rates 1976	Sample estimate of UK rates 1976	FRG cropping pattern 1976	FRG consumption @ FRG rates	- FRG consumption @ UK rates	= Extra N applied in FRG due to higher dressings
	Kg N/ha.	Kg N/ha.	'000 ha.	'000 tonnes		
Wheat	106	101	1632	173	165	8
Winter barley	106	97	795	84	77	7
Summer barley	65	78	941	61	73	-8
Rye	65	71	663	43	47	-4
Mixed corn	65	49	287	19	14	5
Oats	65	69	855	56	59	-3
Potatoes	115	176	415	48	73	-15
Roots	154	104	680	105	71	34
Industrial crops	130	212	119	15	25	-10
Fodder crops	110	136	928	102	126	-24
Permanent grass (Wiesden)	52	71	3854	200	371	-28
Permanent Pasture (Wieden)	105		1366	143		
Orchards	99	?	523	486	?	
Vineyards & gardens	110	?			?	

Sources: 'Stikstof' No.17, 1974. Neths. Nitrogen Fertiliser Industry, N.V.:
Rothamsted Survey (op.cit.):
Eurostat Land Use Stats.:
MAFF Ag. Stats.

Graph 17.

THE RELATIONSHIP BETWEEN FERTILIZER CONSUMPTION AND THE FERTILIZER; LAND PRICE RATIO IN THE LONG TERM



Source: Time Series 14 ÷ 7 & 30 ÷ 29.

It seems that roots and wheat receive considerably higher dressings than in the UK and this would be sufficient to 'explain' the residual discrepancy, at least for nitrogen usage. Unfortunately this data is rather out of date and probably not very reliable since the sample is smaller than that used by the Rothamsted Survey of England and Wales.

Another factor affecting the rate of fertiliser usage is the relationship between crop and fertiliser prices. Table 10 shows the ratio between the prices of cereals and fertiliser and the usage of fertiliser in Germany as a percentage of that in the UK. However, considering the years since 1969 the decline in the price ratio difference between Germany and the UK is not reflected in changes in fertiliser usage; clearly other influences are at work.

Fertiliser is a substitute for land in the production of cereals and other crops, and high and rising land prices are a stimulus to more intensive cultivation and hence more use of fertiliser. Since land prices in Germany have been and still are higher than the UK's (using the appropriate exchange rates) one could expect ceteris paribus a higher level of fertiliser usage. The historical development of land and fertiliser prices is traced in Graph 17.

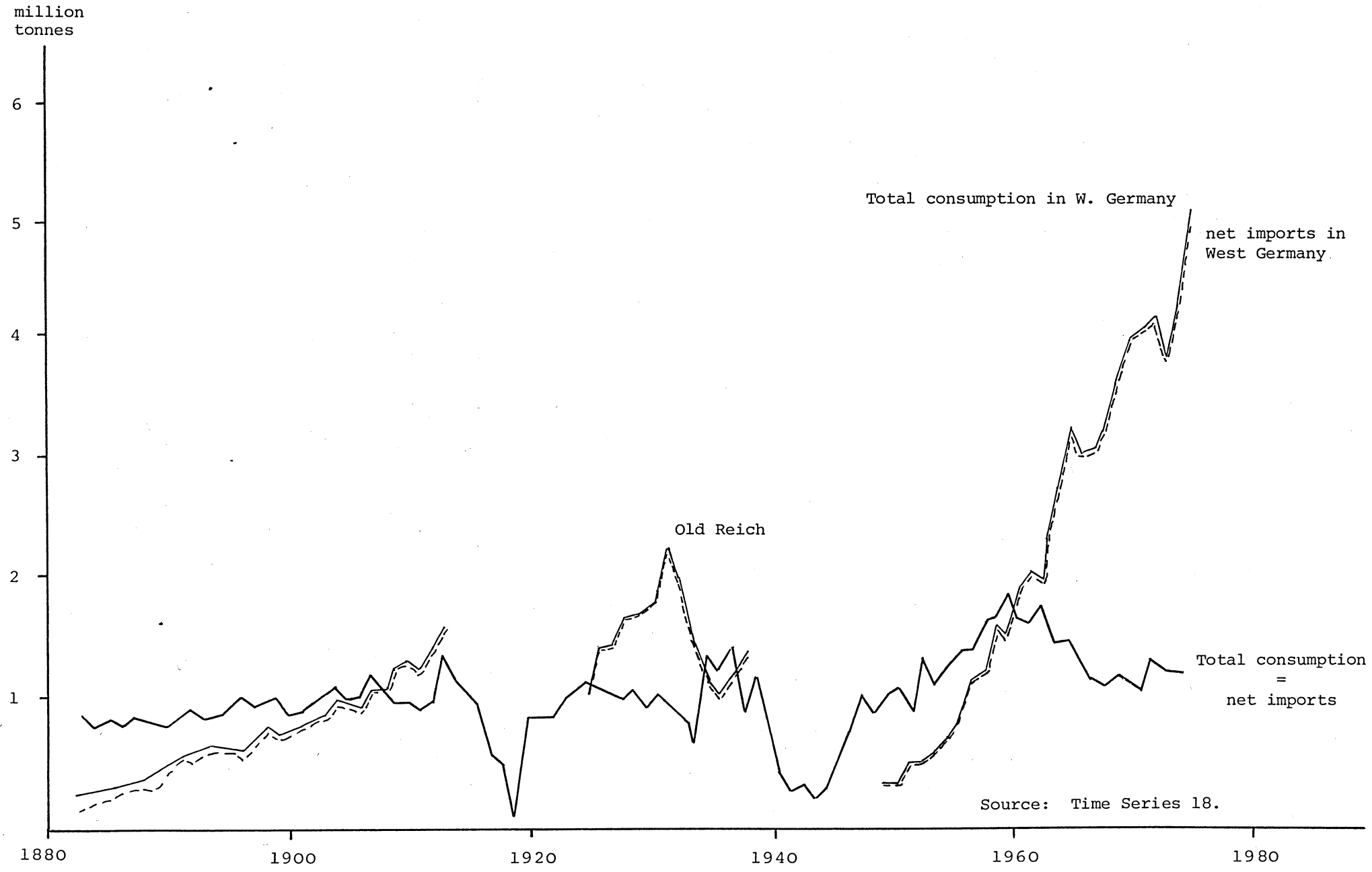
At this point, however, it is necessary to point out that the rate of fertiliser usage, the price of fertiliser, crop prices, the price of land and other variables (e.g. livestock prices, levels of irrigation, government intervention through subsidies or taxes) are all interrelated. The rate of fertiliser usage may be seen as a dependent or an independent variable and a full exposition would require the construction of a complex economic model which is not the intention here.

TABLE 10.

	Ratio of price of cereals: fertiliser costs per tonne		Germany's ratio as a % of the UK's ratio	Actual fertiliser usage per ha. arable land in Germany as a % of the UK's
	GERMANY	UK		
1880	0.189			
1900	0.316			
1925	0.457			
1940	0.458	0.378	121.2	205.6
1950	0.71	0.469	151.	183.1
1960	0.689	0.304	226.6	149.
1961	0.695	0.306	227.1	152.
1962	0.685	0.314	218.2	174.
1963	0.628			167.
1964	0.643	0.304	211.5	179.
1965	0.624	0.292	213.7	185.
1966	0.608	0.3	202.7	166.
1967	0.552	0.28	197.1	151.
1968	0.555	0.3	185.	145.
1969	0.551	0.3	183.7	184.
1970	0.533	0.32	166.6	166.
1971	0.524	0.24	218.3	166.
1972	0.504	0.39	129.	181.
1973	0.458	0.4	144.5	166.
1974	0.403	0.34	118.5	187.
1975	0.436			

Graph 18.

OILCAKE CONSUMPTION



Oilcake consumption (column 18)

The data refers to consumption of oilcake produced from home grown or imported raw materials (e.g. oilseed rape) or imported as such. For the UK the data up until 1918 were taken from the Trade and Navigation Accounts (which included Ireland) and from the Annual Statement of Trade of the UK for the years 1919 to 1963. After 1964 (and for a few years between 1952 and 1964) the Ministry of Agriculture estimated the raw material content of concentrated feed deliveries, and these figures have been used here. The UK data are thus more reliable for the last ten years than for previous years. Since the Trade Statistics only give imports of oilcake, meal and oilseeds for crushing, no record exists of the annual 'crush' prior to 1952/3 and so I have calculated this on the assumption that cocoa beans were the only imported 'oilseeds' not to be utilised for animal feed. I have applied the average extraction rates quoted in the Commonwealth Secretariat's (formerly CEC) 'Grain Crops' bulletin, to the imports of the various oilseeds.

Re-export figures were unavailable for 1923-1934 so for these years I have used the gross import figures. Re-exports were a small proportion of imports and were falling in the years surrounding this period.

Weber's statistics were updated by using Eurostat's Supply Balance Sheets.

Price Indices (columns 19-27)

All the eight indices used by Weber have been re-expressed with 1970 or 1970/1 as the base year and updated from recent issues of the General and the Agricultural Statistical Yearbooks (St.Jb.BRD and St.Jb.ELF).

Machinery Prices (column 19)

For Germany this series refers to general equipment prior to 1913 and includes tractors thereafter. For the UK only a series for moving machines is available from 1963 onwards, furthermore it excludes tractors, for which the Department of Trade and Industry have compiled a separate price index.

All agricultural product prices (column 20)

For the UK an unbroken series is available from the early 19th century to the present day by linking the 'Rousseaux' index (to 1906) to the Ministry of Agriculture's published price index statistics. The weighting scheme used by Rousseaux is not available but MAFF have used 1906/8 weights for the years 1909-41, the 1936-38 weights for the years 1942-54, 1954-56 weights for 1955-68, and 1968/71 weights for 1969-75. Up until 1954 the prices utilised are those in English and Welsh markets only. The UK prices are inclusive of subsidies.

Crop prices (column 21)

Rousseaux's "Vegetable Products Price Index" is utilised until 1906 - the earliest year for which MAFF published a price index of all crops (first published in the 1917 "UK Agricultural Statistics").

Meat prices and other animal product prices (columns 22, 23)

Until 1898 Rousseaux's index (covering meat and other animal products) was used for the UK. From this point onward carcass meat prices (at the farm gate) could be grouped separately from poultry and other animal products using the indices and weights compiled and published by MAFF, but since milk was only included in 1909, the other animal product price index really only begins then. Since the 1950s a separate index for 'livestock' and 'livestock products' has been published by MAFF. The composition of the two series is much the same in both countries, although the weights differ.

Wholesale food prices (column 25)

For Germany the most recent statistics are available from the General Yearbook and refer to the selling (Grosshandels preise) of the food, drink and tobacco manufacturing industries. For the UK the Board of Trade's Statistics of wholesale prices are available from 1871 to 1946 and they were later published by the Statistical Office in the Monthly Digest of Statistics. Prices are on an 'ex works' basis and refer to home deliveries only.

Retail food prices (column 26)

Weber's data applied to the years 1881 to 1913 only, so no link could be established with the later series available from 1950 in the General Yearbook under index der Einzelhandels preise. This index is for retail prices of food, drink and tobacco. The UK figures are for comparable products and taken from various issues of the Monthly Digest of Statistics.

Cost of living index (column 27)

The 'Preisindex der Lebenshaltung' (from St.Jb.BRD) is available from 1925 for Germany and its equivalent in the UK is available from 1917. For the years 1917 to 1947 the Ministry of Labour calculated a 'working class cost of living index' (mainly comprising coal and food) and from 1947 to 1956 an 'interim' index of retail prices was used prior to the establishment of a general retail price index (by what is now the Department of Employment and Productivity) measuring the change in the average level of prices of the goods and series purchased by most households in the UK. Weights are revised each year according to expenditure changes.

Prices (columns 28-34)

The absolute level of prices of six major farm inputs was compiled by Weber from a variety of sources, the most recent being the General Yearbook.

Farm wages (column 28)

Statistics of weekly farm wages for specialised farm workers including overtime bonuses and the monetary value of emoluments is available for Germany from 1850. From 1880 to 1914 average weekly earnings for male agricultural workers is available from A.L. Bowley "Wages and Income in Great Britain since 1860". From 1920 to 1938 average money incomes in agriculture is available in Chapman and Knights "Wages and Salaries in the UK". From 1938 to 1947 the UK Ministry of Labour Gazette and from 1947 to 1975 the Monthly Digest of Statistics give average weekly earnings of full time males in agriculture.

Direct comparisons between the countries cannot safely be made however since the 'specialised' farm worker in Germany refers to a dairyman (or equivalent) employed on a farm of more than 50 ha. and is thus unrepresentative of the typical agricultural worker in Germany who is not a wage or a salary earner, is not highly skilled and is employed on a farm of around 10 ha.

Land (column 29)

The series on land prices for Germany refers to transactions in land consolidation programmes (from 1950 onward). The series from 1850 to 1938 is not reliable due to the small number of transactions in those years and is estimated by Weber by dividing the total value of land by the total area of land. The UK data from 1880 to 1940 is drawn from J.T. Ward's 'Farm Sales Prices over 100 years' in the Estates Gazette 3rd May, 1958 and from 1937 to 1965 from G.H. Peters' 'Recent Trends in Farm Real Estate Values' in the Farm Economist vol.XI 2, 1966. The last ten years are taken directly from the Country Landowners' Association's statistics of land prices.

The comparison of absolute levels is somewhat hindered by the fact that the German figures are exclusive of the value of buildings while in the UK only since 1969 have transactions which exclude buildings been separately monitored. As there is only a 3½% difference between the prices inclusive and exclusive of buildings, the UK time series is for the price of land (vacant possession) inclusive of buildings and fixtures.

Fertilisers (columns 30 to 33)

The data on fertiliser consumption and prices in Germany is much more easily available, in a form more easily analysed and for a longer span of years than the UK data.

The German price, on average, for all fertiliser is derived from a division of farmers' expenditure by volume purchased of the three main plant nutrients, N, P_2O_5 and K_2O. This is taken from Weber from 1880 and updated from St.Jb.ELF 1977. The comparative UK data is taken from "Century of Agricultural Statistics" and the Annual Review White Paper (expenditure data) and the Annual Abstract of Statistics (volume purchased data) from 1941 onwards. However, the expenditure data is in crop years and the volume data is in calendar years, which introduces 4-5% inaccuracy as evidenced by a reworking of the volume data by crop years where monthly data is available.

No data could be found for UK farmers' volume purchases of fertiliser prior to 1941 but an index of fertiliser prices has been constructed by MAFF which, when applied to the average prices and weights in the base year (1911-13) enabled the series to be extended back to 1911.

Weber's series for the prices of the individual plant nutrients are not the mean levels but the prices of the cheapest available plant nutrients in Germany, i.e. the price of N is calculated from that of ammonium sulphate P_2O_5 from 16% "Thomas" phosphate, and K_2O from the wholesale prices of the cheapest fertilisers in the UK up until 1949 (namely ammonium sulphate, 30% superphosphate and 14% kainite). There are a few gaps in the series but the trends are discernible.

From 1950 the mean price of N, P_2O_5 and K_2O from all sources became available for Germany and it seemed appropriate to use data from only three types of fertiliser. Thus the German figures can be updated more easily and give a better picture of the relative prices of nutrients in Germany than Weber's figures which, in the latter period, seriously under-estimated the average potash price. Unfortunately no similar data is available for the UK and I have therefore used the prices of the three most important fertilisers (i.e. those on which expenditure in total is greatest) namely ammonium nitrate (25%N), superphosphate (19% P_2O_5) and potassium chloride (6)% K_2O).

The prices are inclusive of subsidies which, for the UK, were substantial at up to 50% for N and P_2O_5 until 1971 (when they ceased). Subsidies on these nutrients in Germany were first available in 1958 at 20% of wholesale bag price and declined to zero in 1963.

Oilcake (column 34)

The General Yearbook was the source of German oilcake prices until 1959 when the journal "Agrawirtschaft" began its annual appraisal of the agricultural economy. Weber's time series was updated from this source.

The figures for oilcake prices were drawn directly from the overseas trade statistics by dividing c.i.f. prices of oilcake by the volume of imports. From 1953/4 onwards, MAFF calculated the import value and volume of oilcake in the "Output and Utilisation of Farm Products" series. It is likely that the UK figures thus calculated are biased upward by the exclusion of cake available as a by-product of imported seeds and in recent years by the exclusion of cake crushed from home grown rapeseed.

The figures for the UK refer to average c.i.f. prices, rather than farm gate prices and thus transport costs should be added to c.i.f. prices for comparison. The economic significance of comparisons of actual levels is dubious in any case since the substitution possibilities of other forms of protein and energy have been different both between countries and over time, making the oilcake price an unreliable estimator of price per tonne of energy in animal diets.

Net national income (column 35)

Although Weber's data on N.N.I. is explained as being at market prices of 1913 linked with prices of 1962, the data corresponds to Net Social Product at factor cost at constant 1913 or 1962 prices. For comparison purposes I have utilised Hoffman's time series for the years 1880-1912 (see Statistical appendix to the Fontana Economic History of Europe by B.R. Mitchell) and the General Yearbook of Statistics for the years 1925 to 1975. (St.Jb.BRD 1975, p.508). Unlike Weber's series the period from 1925 to 1959 refers to the territory of West Germany throughout. The time series is for Net Social Product (i.e. GNP) less capital consumption at factor cost at current prices.

The UK figures are for Net National Income (i.e. GNP less capital consumption) at factor cost and current prices and the sources are Deane and Cole's 'British Economic Growth 1688-1959', for the years 1880 to 1913, and the British Government's 'National Income and Expenditure' for 1914 to 1975. The data refers to calendar years throughout.

Population (column 36)

Population, measured at mid-year, is taken from the Monthly Digest of Statistics for the UK and covers all persons in the UK excluding H.M. forces overseas and resident foreign forces. For the period 1921 the UK consists of Britain and Ireland and excludes the Irish Free State/Republic after 1921. During the years 1940 to 1947 the figures are only for the civilian population. The German figures are taken from the yearbooks and refer to the population within the boundaries existing at the time.

Imported oilcake consumption (column 38)

For Germany domestic production has regularly fluctuated around 2% of total supplies, but the recent increase in rapeseed production has been too small to appear in the MAFF balance sheets so the UK time series for net imports is equal to that for total consumption, i.e. column 18.

Imported cereals consumption (column 39)

In line with the German figures, the UK data refers to consumption of wheat, rye, oats, barley corn and millet for human, industrial and animal food. Since wheat flour is included in the trade statistics under 'wheat' in recent years and in previous years involved a larger expenditure than oats and rye, it is also included.

The data (taken from the Annual Statement of Trade of the UK post 1964 and the Trade and Navigation Accounts before then) are of imports net of exports and re-exports.

Cereals (column 40)

Instead of utilising prices recorded at various markets in England and Wales whose representativeness could be in question, the total value of imported wheat, barley, corn, oats and rye was divided by the total volume, both being recorded in the overseas trade statistics for the years 1880 to 1938. From 1938 the MAFF recorded total revenue from grain crops, and this was divided by total output to give average prices to producers. This methodology is the same as that adopted for computing the German statistics from 1950.

S E C T I O N 2

Time series data

NOTE ON TIME SERIES

The following time series were constructed to facilitate comparisons between agricultural development in Germany (later West Germany) and the UK. The inspiration for their construction was "Productivity Growth in German Agriculture 1850 to 1970" by Adolf Weber published by the University of Minnesota Institute of Agriculture (Staff Paper P73-1), 1973.

The data is normally given to the same level of accuracy as in the sources which accounts for the variation in level evident in some series.

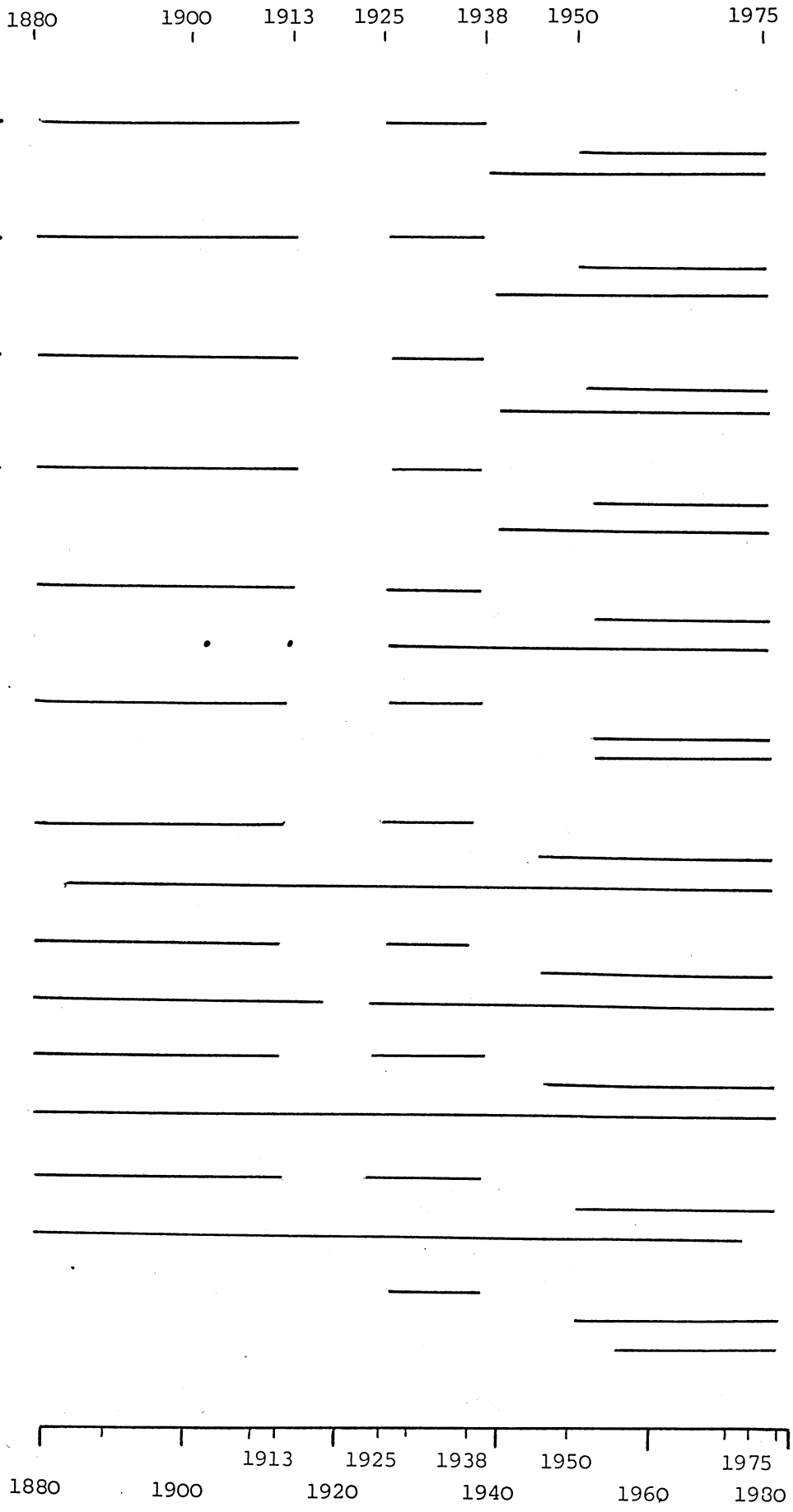
The numbers above each pair of time series correspond to those used by Weber, however some constructed by him are not available for UK and these were excluded. Weber's numbers all start with "G" and are so described under "sources".

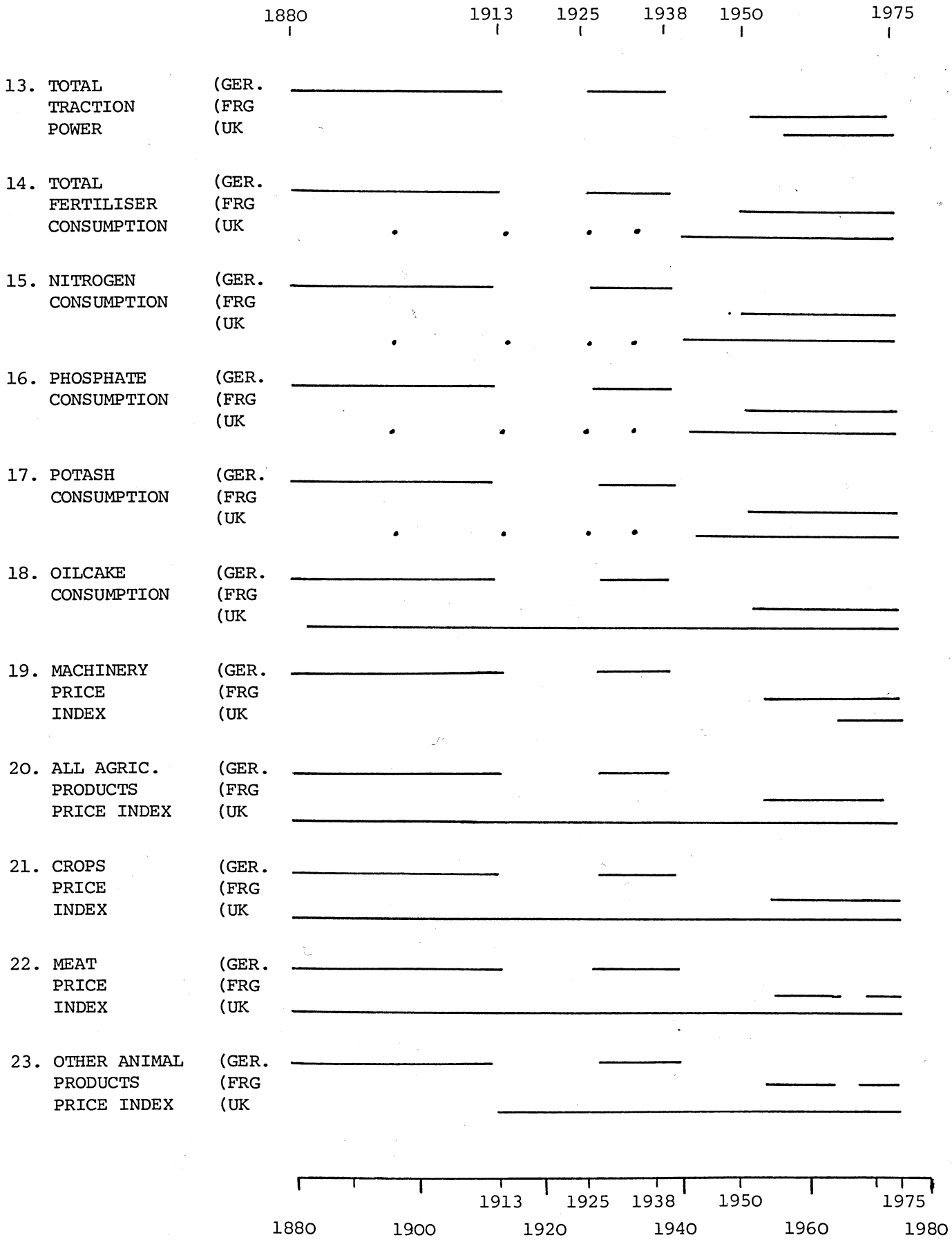
Two additional time series were inserted where these were thought to contribute to a "realistic" comparison. These were 7(a) (area of land under) crops and grass and 38(a) which shows the quantities of fish and meat meal fed to animals. The latter was included since this has become an important element in animal feed.

Abbreviations used in Sources

AA	Annual Abstract of Statistics (UK)
CEC	Commonwealth Economic Committee (later Commonwealth Secretariat)
CLA	Country Landowners' Association (UK)
CSO	Central Statistical Office (UK)
FAO	Food and Agricultural Organisation of the United Nations
MDS	Monthly Digest of Statistics (UK)
hp	Horse power
pto	Power take-off (horse power)
St.Jb.ELF	(West Germany) Statistisches Jahrbuch Über Ernährung Landwirtschaft und Forsten
St.Jb.BRD	(West Germany) Statistisches Jahrbuch für die Bundesrepublic Deutschland
m	Millions
M	Marks (pre-1946)
DM	Deutschmarks (1946 onwards)
£	Pounds sterling

CONTENTS AND DATA AVAILABILITY

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1938
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16. PHOSPHATE CONSUMPTION (GER. (FRG (UK
17. POTASH CONSUMPTION (GER. (FRG (UK
18. OILCAKE CONSUMPTION (GER. (FRG (UK
19. MACHINERY PRICE INDEX (GER. (FRG (UK
20. ALL AGRIC. PRODUCTS PRICE INDEX (GER. (FRG (UK
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22. MEAT PRICE INDEX (GER. (FRG (UK
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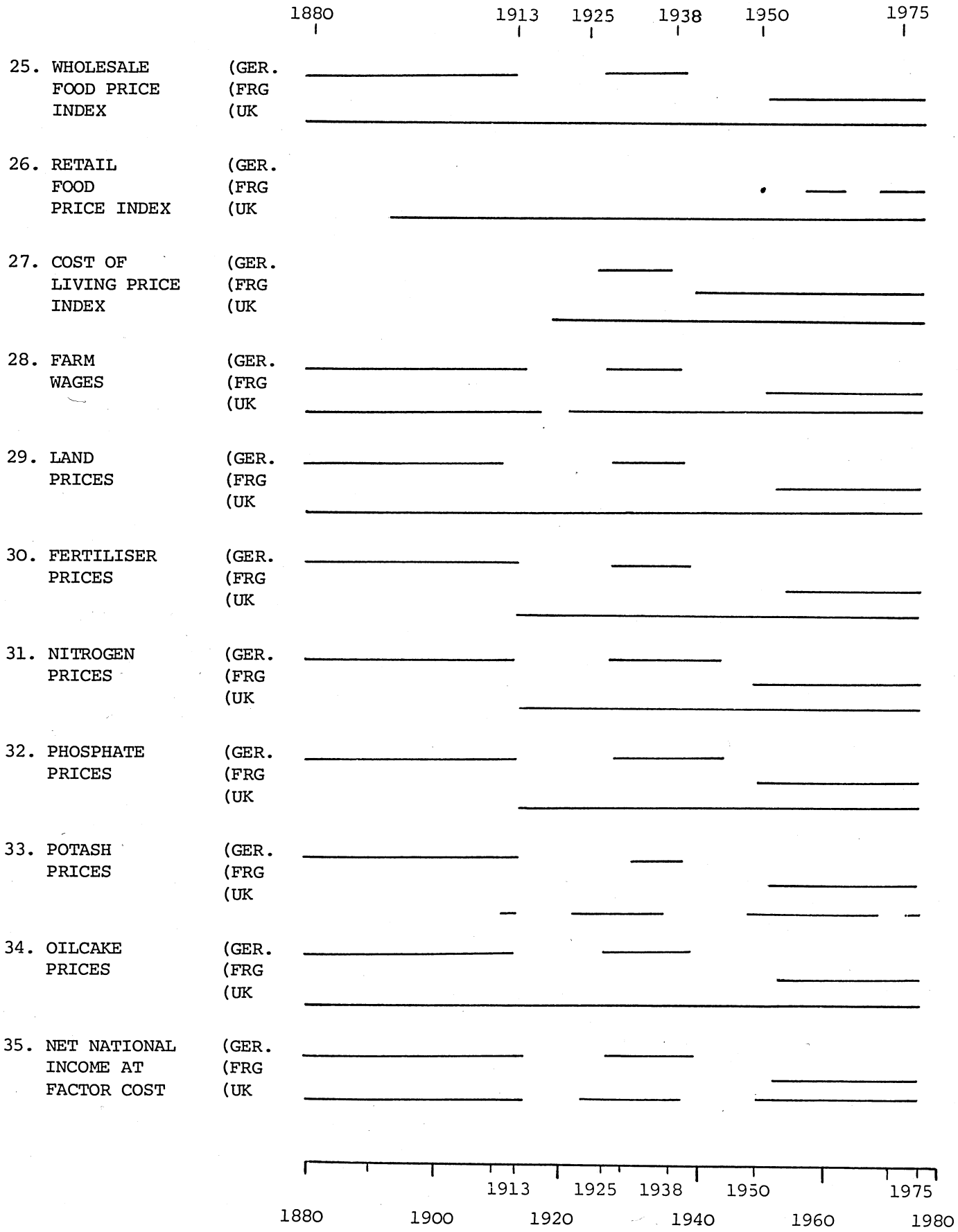
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26. RETAIL FOOD PRICE INDEX
27. COST OF LIVING PRICE INDEX
28. FARM WAGES
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30. FERTILISER PRICES
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33. POTASH PRICES
34. OILCAKE PRICES
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1960
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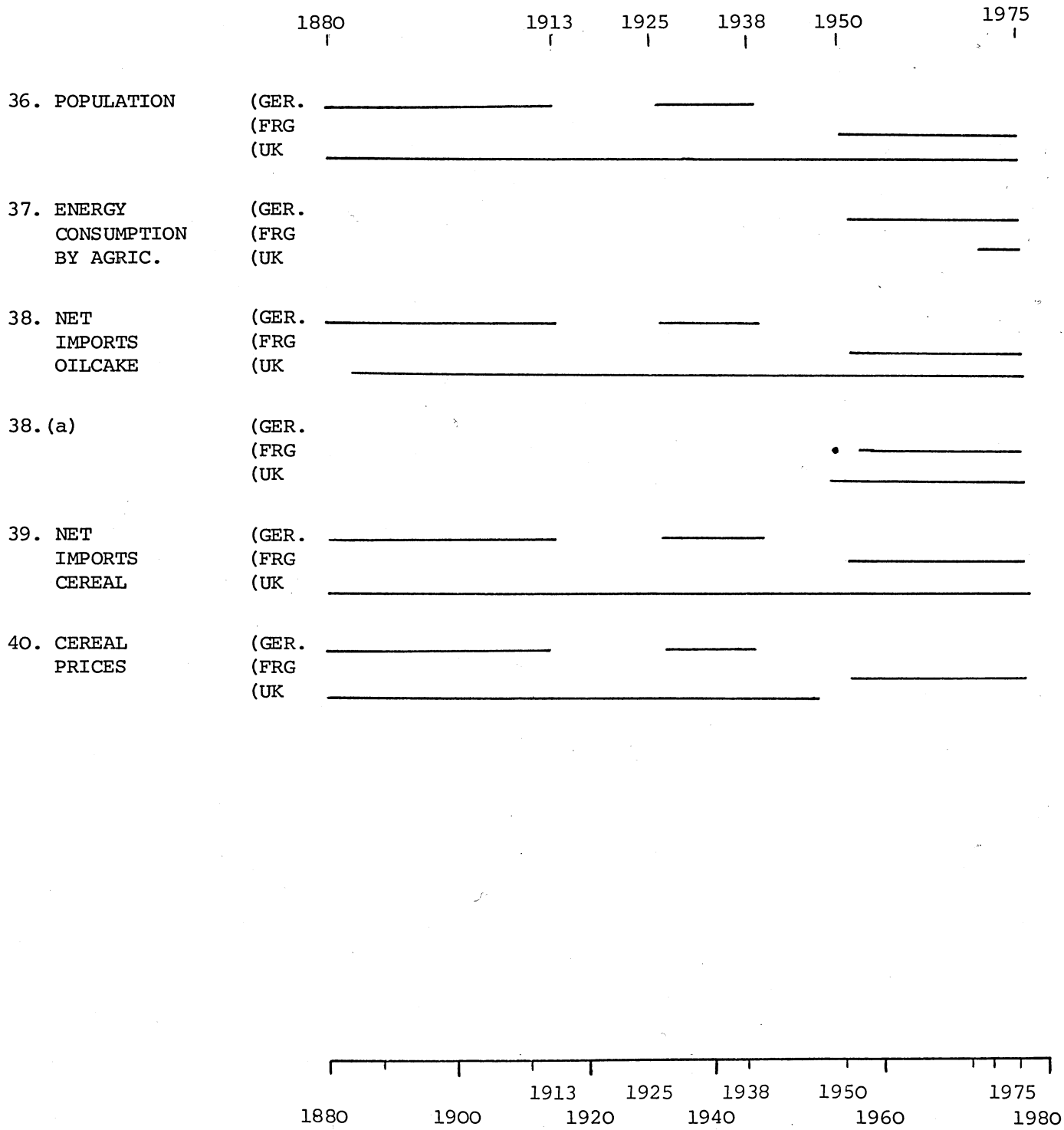
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37. ENERGY CONSUMPTION BY AGRIC.
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38. NET IMPORTS OILCAKE
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39. NET IMPORTS CEREAL
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40. CEREAL PRICES
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1940
1950
1960
1975
1980

	(1)		(2)		(3)		(4)	
	AGRICULTURAL PRODUCTION						Agric. net value added at factor cost and current market prices.	
	Gross		Crop		Livestock			
	Germany	UK	Germany	UK	Germany	UK	Germany	UK
			mM or	m£			mM	m£
1880	5422		1867		3555		4993	
81	5429		1951		3478		4958	
82	5247		1866		3381		4815	
83	5545		2038		3507		5128	
84	5492		1934		4046		5094	
85	5298		1971		3326		4921	
86	5214		1873		3341		4847	
87	5448		1929		3783		5035	
88	5624		1908		3569		5071	
89	6703		1845		3858		5242	
90	6511		2271		4241		5991	
91	6079		1888		4190		5544	
92	6499		2293		5157		5965	
93	6382		2402		3980		5884	
94	6284		2276		4008		6072	
95	6192		2150		4042		6792	
96	6317		2108		4209		5808	
97	7051		2230		4821		5759	
98	7743		2467		5277		7110	
99	7409		2349		5060		6812	
1900	7599		2522		5076		6977	
1	7427		2308		5119		6686	
2	7925		2727		5198		7106	
3	7915		2649		5266		7312	
4	8229		2712		5517		7575	
5	9037		2832		6204		8272	
6	9307		2843		6464		8466	
7	9628		2982		6646		8632	
8	10102		3239		6863		8798	
9	10471		3121		7350		9060	
10	10699		3123		7576		9471	

	(1)		(2)		(3)		(4)	
	AGRICULTURAL PRODUCTION						Agric. net value added at factor cost and current market prices.	
	Gross		Crop		Livestock			
	Germany	UK	Germany	UK	Germany	UK	Germany	UK
			mM or m£				mM	m£
1911	10908		2807		8101		9699	
12	12383		3672		8711		10469	
13	11740		3540		8200		10744	
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25	11957		3480		8477		8672	
26	11239		2510		8729		8380	
27	12972		3117		9855		10517	
28	14520		4014		10506		11036	
29	14210		3831		10379		10425	
30	12314		3019		9295		10102	
31	10777		2691		8086		8731	
32	9699		2631		7068		6985	
33	10001		2896		7105		8178	
34	10949		2913		8036		8020	
35	11462		2955		8507		8363	
36	12025		3144		8880		10082	
37	12519		3192		9327		8942	
38	13246		3597		9649		9849	
39		313		75		238		228
40		388		107		281		331
41		430		161		269		372
42		501		211		290		409

	(1)		(2)		(3)		(4)	
	AGRICULTURAL PRODUCTION						Agric. net value added at factor cost and current market prices	
	Gross		Crop		Livestock			
	Germany	UK	Germany	UK	Germany	UK	Germany	UK
			mM or	m£			mM	m£
1943		536		237		299		434
44		580		263		317		413
45		599		216		383		439
46		587		221		366		454
47		682		229		453		505
48		843		257		586		588
49		868		247		632		608
50	12991	934	3704	244	9287	690	7690	579
51	15821	1028	5219	257	10602	770	9790	651
52	15731	1114	5075	260	10656	854	9770	675
53	16435	1178	4839	259	11596	919	9863	685
54	17062	1205	4923	240	12139	965	10185	654
55	18000	1192	5105	269	12895	923	10850	704
56	19076	728	5303	231	13773	497	11794	707
57	20353	789	5715	281	14638	508	11780	756
58	21812	1107	6297	260	15515	847	12573	726
59	22559	1308	6342	269	16217	1038	12502	758
60	23435	1135	6242	256	17193	879	13808	799
61	24031	1367	5900	313	18131	1054	13020	840
62	25564	1410	6741	311	18823	1099	14097	873
63	27731	1431	6852	283	20879	1148	15828	850
64	25499	1422	9342	329	16878	1092	15116	924
65	25286	1467	9128	343	15778	1123	15381	927
66	27252	1491	9606	375	18115	1116	15935	935
67	27115	1507	9870	355	17736	1151	15815	925
68	29013	1604	10115	358	19404	1246	16550	901
69	30365	1676	10473	376	20045	1299	16361	964
70	29385	1828	10308	400	18539	1428	16447	989
71	33194	1999	11581	425	20904	1575	17480	1125
72	35797	2480	12276	530	22938	1950	19249	1294
73	37952	3036	13203	715	23838	2321	18832	1573
74	38518	2916	13254	844	24492	2072	17390	1635
75	44049		14763		28255		20384	1941

	Sources	Year	Definition
(1)	Weber, for Germany	1880-1938	(G.1) x (G.20) ÷ 100
	Statistisches Jahrbuch Über Ernährung, Landwirtschaft und Forsten	1950-1963	Geldwert der Nahrungs-mittel Produktion
		1964-1975	Produktionswert
	MAFF "Output & Utilisation of Farm Products, UK"	1939-1963	National output (less h.g. feed and seed)
		1964-1975	Domestic output (less all feed and seed)
(2) & (3) - as for (1)			
(4)	Weber, for Germany	1880-1938	(G.1) x (G.20) ÷ 100
	Eurostat, for Germany	1960-1975	(Agri. Accounts, 1967, 73, 76)
	MAFF for UK	1939-1967	Net farm income - capital-interest-rent-labour
	Eurostat, for UK	1968-1975	Net output

	(5)		(6)		(7)		(7a)		(8)	
	LABOUR ('000s)				LAND (million hectares)					
	Total in Ag. For.Fish		Male in Ag. for Fish		Agricultural Crops & Grass				Arable	
	Germany	UK	Germany	UK	Germany	UK	Germany	UK	Germany	UK
1880	9565		5664		36.3		36.3	14.2	25.8	7.6
81	9609		5691		36.0		36.0	14.2	25.8	7.5
82	9665		5730		35.8		35.8	14.3	25.8	7.5
83	9711		5760		35.6		35.6	14.3	25.8	7.4
84	9698		5730		35.6	19.5	35.6	14.3	25.8	7.3
85	9700		5715		35.5	19.6	35.5	14.4	25.8	7.4
86	9740		5738		35.5	19.6	35.5	14.4	25.8	7.3
87	9720		5702		35.4	19.5	35.4	14.4	25.8	7.3
88	9645		5610		35.4	19.5	35.4	14.4	25.8	7.3
89	9638		5586		35.4	19.6	35.4	14.4	25.8	7.2
90	9565		5496		35.3	19.6	35.3	14.5	25.8	7.2
91	9551		5466		35.3	19.7	35.3	14.5	25.8	7.0
92	9543		5441		35.2	19.4	35.2	14.4	25.8	6.9
93	9656		5537		35.2	19.4	35.2	14.4	25.8	6.9
94	9765		5929		35.2	19.5	35.2	14.4	25.8	6.9
95	9788		5635		35.2	19.9	35.2	14.4	25.8	6.8
96	9778		5588		35.2	19.6	35.2	14.4	25.8	6.8
97	9728		5501		35.1	19.6	35.1	14.4	25.8	6.8
98	9720		5456		35.1	19.6	35.1	14.3	25.8	6.8
99	9709		5408		35.1	19.6	35.1	14.3	25.8	6.8
1900	9754		5416		35.1	19.6	35.1	14.3	25.8	8.0
1	9825	2243	5450		35.1	19.6	35.1	14.3	25.8	8.0
2	9947		5534		35.0	19.6	35.0	14.3	25.8	7.9
3	9987		5537		35.0	19.6	35.0	14.3	25.7	7.8
4	9999		5512		35.0	19.5	35.0	14.4	25.7	7.8
5	9926		5402		35.0	19.5	35.0	14.3	25.7	7.7
6	9888		5327		35.0	19.6	35.0	14.2	25.7	8.0
7	9897		5298		35.0	19.7	35.0	14.2	25.6	8.0
8	10096		5460		35.0	19.6	35.0	14.2	25.6	7.9
9	10350		5677		34.9	19.6	34.9	14.2	25.6	7.9
10	10542		5832		34.9	19.6	34.9	14.1	25.6	8.0
11	10627	2205	5880		34.8	19.3	34.8	14.1	25.5	8.0
12	10663		5879		34.8	19.3	34.8	14.1	25.5	8.0
13	10701		5880		34.8	19.5	34.8	14.1	25.5	7.9

	(5)		(6)		(7)		(7a)		(8)	
	LABOUR ('000s)				LAND (million hectares)					
	Total in Ag. For. Fish		Male in Ag. for Fish		Agricultural Crops & Grass				Arable	
	Germany	UK	Germany	UK	Germany	UK	Germany	UK	Germany	UK
1914										
15										
16										
17										
18										
19						18.9				8.6
20						18.8				8.4
21						18.6				6.7
22						18.6				6.5
23						18.7		13.5		6.4
24						18.7		13.5		6.3
25	9778	1400	4808		29.2	19.6	29.2	13.4	20.5	6.2
26	9680	1400	4751		29.3	19.6	29.3	13.4	20.5	6.1
27	9590	1400	4701		29.4	19.7	29.4	13.4	20.7	5.9
28	9500	1400	4651		29.4	19.7	29.4	13.4	20.6	5.9
29	9410	1400	4601		29.4	19.7	29.4	13.3	20.6	5.8
30	9310	1300	4541		29.4	19.7	29.4	13.3	20.5	5.8
31	9220	1300	4491		29.4	19.6	29.4	13.3	20.5	5.7
32	9139	1300	4450		29.4	20.0	29.4	13.2	20.5	5.5
33	9034	1300	4385		29.4	20.0	29.4	13.2	20.5	5.5
34	9030	1300	4166		29.3	19.7	29.3	13.1	20.4	5.5
35	9030	1300	3951		29.8	19.7	29.8	13.1	19.4	5.5
36	9020	1200	3726		28.7	19.7	28.7	13.1	19.4	5.4
37	9010	1200	3500		28.7	19.7	28.7	13.0	19.4	5.3
38	9010	1200	3285			19.7		13.0	19.2	5.3
39		1200				19.6		13.0		5.3
40		1100				19.7		12.9		5.9
41		1200				19.7		12.8		6.6
42		1200				19.7		12.8		7.1
43		1200				19.6		12.7		7.6
44		1200				19.7		12.7		7.9
45		1200				19.7		12.7		7.8
46		1200			14.13	19.7	14.13	12.7	7.9	7.8
47		1200			14.2	19.7	14.2	12.7	8.0	7.6

	(5)		(6)		(7)		(7a)		(8)	
	LABOUR ('000s)				LAND (million hectares)					
	Total in Ag. For. Fish.		Males in Ag. For. Fish.		Agriculture		Crops and Grass		Arable	
	Germany	UK	Germany	UK	Germany	UK	Germany	UK	Germany	UK
1948		1300			14.2	19.7	14.2	12.7	8.1	7.6
49		1300			14.2	19.7	14.2	12.7	8.0	7.5
50	5020	1262			14.0	19.7	14.0	12.7	7.9	7.5
51	4850	1234			14.1	19.7	14.1	12.7	8.0	7.4
52	4695	1204			14.2	19.7	14.2	12.7	8.1	7.4
53	4535	1178			14.2	19.6	14.3	12.7	8.1	7.4
54	4400	1161	2000	1039	14.3	19.6	14.3	12.7	8.2	7.3
55	4285	1150	1950	1029	14.3	19.6	14.3	12.7	8.8	7.2
56	4175	1115	1905	996	14.3	19.5	14.3	12.7	8.1	7.2
57	4098	1106	1852	987	14.3	19.5	14.3	12.7	8.1	7.2
58	3972	1082	1786	968	14.2	19.5	14.2	12.7	8.0	7.2
59	3820	1074	1758	960	14.3	20.1	14.3	12.6	8.1	7.3
60	3623	1053	1662	940	14.3	20.1	14.3	12.6	8.0	7.3
61	3445	1017	1614	906	14.2	19.9	14.2	12.5	7.9	7.3
62	3383	993	1497	883	14.2	19.9	14.2	12.5	7.9	7.4
63	3230	978	1446	865	14.2	19.9	14.2	12.5	7.9	7.4
64	3002	1014	1393	848	14.1	19.8	14.1	12.5	7.8	7.5
65	2876	952	1320	793	14.1	19.8	14.1	12.5	7.7	7.6
66	2790	916	1293	758	14.0	19.8	14.0	12.5	7.6	7.5
67	2638	883	1221	729	14.0	19.7	14.0	12.5	7.6	7.5
68	2523	853	1154	700	13.9	19.6	13.9	12.4	7.6	7.0
69	2395	816	1107	605	13.8	19.8	13.8	12.4	7.6	7.3
70	2262	784	1073	638	13.6	19.3	13.6	12.2	7.5	7.3
71	2144	736	1025	598	13.5	19.3	13.5	12.3	7.5	7.3
72	2038	711	961	576	13.5	19.2	13.5	12.2	7.6	7.3
73	1954	715	912	566	13.4	19.1	13.4	12.2	7.5	7.2
74	1882	683	879	543	13.3	19.2	13.3	12.2	7.5	7.2
75	1822	667	853	533	13.3	19.1	13.3	12.1	7.5	7.0
76					13.3	19.1	13.3	12.1	7.5	

	Sources	Year	Definition
(5)&(6)	Weber for Germany	1880-1938	As for (G.5) and (G.6)
	OECD "Manpower Statistics"	1954-1975	Employers + wage earners + unpaid family workers
(5)	MAFF June Census', UK	1901,1911 1925-1949	Employers + employees
	OECD "Manpower Statistics"	1950-1975	Employers + wage earners
(6)	OECD "Manpower Statistics"	1954-1975	Male employers + wage earners
(7)	Weber for Germany	1880-1937	= (G.7))
	Weber for W. Germany	1946-1968	= (G.7)) excludes forestry
	Eurostat. Ag.Stats. W. Germany	1968-1976	)
	MAFF Ag.Stats.I	1880-1976	Includes 'rough grazings'
(7a)	Same as (7)		
	for Germany		= agricultural land
	for UK		excludes 'rough grazings'
(8)	Weber for Germany	1880-1937	= (G.8)) excludes 'permanent
	Weber for W. Germany	1946-1968	= (G.8)) crops & grass and
	Eurostat Ag.Stats.	1968-1976	) rough grazing'
	MAFF Ag.Stats. I	1880-1976	Crops + temporary grass

	(11)		(12)		(13)	
	HORSE POWER					
	Workstock millions		Tractors m. hp.		Total m. hp.	
	Germany	UK	Germany	UK	Germany	UK
1880	5.18	1.08	0	0	5.18	1.08
81	5.17	1.09	0	0	5.17	1.09
82	5.16	1.09	0	0	5.16	1.09
83	5.13	1.09	0	0	5.13	1.09
84	5.18	1.09	0	0	5.18	1.09
85	5.21	1.07	0	0	5.21	1.07
86	5.23	1.08	0	0	5.23	1.08
87	5.26	1.13	0	0	5.26	1.13
88	5.29	1.12	0	0	5.29	1.12
89	5.32	1.13	0	0	5.32	1.13
90	5.34	1.14	0	0	5.34	1.14
91	5.37	1.19	0	0	5.37	1.19
92	5.4	1.19	0	0	5.4	1.19
93	5.42	1.18	0	0	5.42	1.18
94	5.45	1.18	0	0	5.45	1.18
95	5.47	1.19	0	0	5.47	1.19
96	5.49	1.19	0	0	5.49	1.19
97	5.52	1.17	0	0	5.52	1.17
98	5.54	1.18	0	0	5.54	1.18
99	5.57	1.19	0	0	5.57	1.19
1900	5.59	1.18	0	0	5.59	1.18
1	5.61	1.18	0	0	5.61	1.18
2	5.63	1.17	0	0	5.63	1.17
3	5.65	1.02	0	0	5.65	1.02
4	5.67	1.22	0	0	5.67	1.22
5	5.72	1.22	0	0	5.72	1.22
6	5.77	1.22	0	0	5.77	1.22
7	5.82	1.21	0	0	5.82	1.21
8	5.87	1.22	0	0	5.87	1.22
9	5.92	1.23	0	0	5.92	1.23
10	5.97	1.23	0	0	5.97	1.23
11	6.02	1.18	0	0	6.02	1.18
12	6.07	1.15	0	0	6.07	1.15
13	6.12	1.04	0	0	6.12	1.04

	(11)		(12)		(13)	
	HORSE POWER					
	Workstock millions		Tractors m. hp.		Total m. hp.	
	Germany	UK	Germany	UK	Germany	UK
1914		1.03	0	0		
15		0.95	0	0		
16		1.00	0	0		
17		1.03	0	0		
18		1.06	0	0		
19		1.06	0	0		
20		1.03	0	0		
21		1.06	0	0		
22		1.05	0	0		
23		1.04	0	0		
24		1.02	0	0		
25	4.8	1.00	0.25	0	4.95	
26	4.68	0.98	0.21	0	4.89	
27	4.61	0.97	0.26	0	4.87	
28	4.52	0.95	0.31	0	4.83	
29	4.37	0.92	0.36	0	4.73	
30	4.29	0.89	0.38	0	4.67	
31	4.22	0.87	0.40	0	4.62	
32	4.27	0.86	0.42	0	4.69	
33	4.29	0.85	0.45	0	4.74	
34	4.1	0.79	0.43	0	4.53	
35	4.1	0.78	0.46	0	4.56	
36	4.1	0.75	0.71	0	4.81	
37	4.21	0.74	0.95	0	5.16	
38	4.22	0.75	1.20	0	5.42	
39		0.73		0		
40		0.72		0		
41		0.75		0		
42		0.67		0		
43		0.69		0		
44		0.65		0		
45		0.62		0		
46		0.58		0		
47		0.55		0		
48		0.52		0		
49		0.46		0		

	(11)		(12)		(13)	
	HORSE POWER					
	Workstock millions		Tractors m. hp.		Total m. hp.	
	Germany	UK	Germany	UK	Germany	UK
1950	1.85	0.4	3.27		5.12	
51	1.71	0.34	4.22		5.93	
52	1.59	0.29	5.39		6.98	
53	1.46	0.25	6.3		7.76	
54	1.33	0.21	7.53		8.86	
55	1.23	0.19	8.99	13.1	10.22	13.29
56	1.13	0.15	10.5	13.3	11.63	13.45
57	1.05	0.1	11.9	13.5	12.95	13.06
58	0.97	0.08	13.21	13.7	14.18	13.78
59	0.87	0.07	14.9	13.9	15.77	13.97
60	0.75	0.07	16.9	14.1	17.65	14.17
61	0.66	0.07	19.2	14.2	19.86	14.27
62	0.58	0.06	20.9	14.4	21.48	14.46
63	0.51	0.05	22.5	14.6	23.01	14.65
64	0.43	0.04	24.2	14.8	24.63	14.84
65	0.37	0.03	26.0	14.9	26.37	14.93
66	0.31	0.02	27.8	14.6	28.11	14.62
67	0.28	0.02	29.5	14.6	29.78	14.62
68	0.26	0.02	33.1	14.9	33.36	14.92
69	0.21	0.02	35.5	15.4	35.71	15.42
70	0.19	0.01	38.0	15.3	38.19	15.31
71	0.20	0.01	40.3	16.2	40.05	16.21
72	0.21	0.01	42.15	15.7	42.36	15.71
73	0.17	0.01	44.25	15.7	44.42	15.71
74	0.15		45.79	19.3		
75	0.15		47.85	22.2		
76			50.19	21.7		

	Sources	Year	Definition
(11)	Weber for Germany	1880-1968	Horses and oxen
	St Jb.ELF for various issues	1969-1976	
	MAFF Century of Ag.Stats.	1880-1966	Working horses in agriculture in GB & Ulster
	Ag.Stats.	1967-1973	
(12)	Weber for Germany	1880-1968	Brake horsepower, all tractors
	EUROSTAT Ag.Stats.		
	1974 Germany	1969-1973	pto horsepower, all tractors
	1974 UK	1965-1973	pto " , tractors above 10 hp. (pto - power take-off).
	EUROSTAT Ag.Stats.		
	1978 Germany	1974-1976	
	" UK	1974-1976	

	(14)		(15)		(16)		(17)		(18)	
	Fertiliser consumption ('000 tonnes)								oilcake consumption	
	Total		N		P_2O_5		K_2O		('000 tonnes)	
	Germany	UK	Germany	UK	Germany	UK	Germany	UK	Germany	UK
1880	129		28		70		31		223	
81	143		30		81		32		254	
82	157		33		91		33		262	
83	171		35		102		34		307	942
84	185		38		112		35		320	847
85	199		40		123		36		322	901
86	212		42		133		37		333	875
87	226		45		143		38		355	925
88	240		47		154		39		378	914
89	254		50		164		40		488	886
90	268		52		175		41		504	
91	282		55		185		42		576	957
92	296		57		196		43		599	992
93	332		60		219		53		645	910
94	367		63		243		61		676	920
95	403		66		266		71		641	992
96	438	158	69	31	289	122	80	5	628	1078
97	474		72		313		89		711	1017
98	509		75		336		98		803	1047
99	545		78		360		107		780	1060
1900	481		88		274		119		810	955
1	519		95		291		133		812	973
2	557		102		322		133		862	1087
3	610		106		354		150		901	1177
4	661		108		364		189		1008	1111
5	714		116		395		203		983	1096
6	794		126		441		227		966	1115
7	786		129		405		252		1182	1297
8	860		140		437		283		1136	1157
9	904		147		453		304		1299	1055
10	1004		150		495		359		1364	1046
11	1097		163		540		394		1336	1000
12	1180		188		557		435		1441	1075
13	1245	262	185	29	570	180	490	53	1649	1436

	(14)		(15)		(16)		(17)		(18)	
	Fertiliser consumption ('000 tonnes)								oilcake consumption	
	Total		N		P_2O_5		K_2O		('000 tonnes)	
	Germany	UK	Germany	UK	Germany	UK	Germany	UK	Germany	UK
1914										1262
15										1168
16										1028
17										615
18										557
19										111
20										952
21										950
22										925
23										1060
24										1166
25	1291		334		348		609			1211
26	1574	254	401	44	456	163	717	47	1107	1199
27	1605		391		509		705		1492	1175
28	1727		432		531		764		1508	1104
29	1743		415		547		781		1708	1166
30	1497		355		474		668		1785	1032
31	281		326		395		560		1511	1107
32	1368		351		399		618		1871	1029
33	1559	243	382	54	461	139	714	50	2296	938
34	1787		425		545		817		2051	727
35	2087		491		652		944		1581	1429
36	2159		571		631		957		1226	1304
37	2479		633		690		1156		1157	1482
38	2717		718		745		1254		1258	972
39	2291	310	704	61	453	173	1134	76	1487	1264
40	2438	358	676	77	396	195	1366	86		914
41		409		128		233		48		480
42		515		168		287		60		329
43		547		171		303		73		398
44		630		182		344		104		275
45		633		172		346		115		351

	(14)		(15)		(16)		(17)		(18)	
	Fertiliser consumption ('000 tonnes)								oilcake consumption	
	Total		N		P_2O_5		K_2O		('000 tonnes)	
	Germany	UK	Germany	UK	Germany	UK	Germany	UK	Germany	UK
1946	609	634	185	165	129	358	295	111		
47	881	628	261	164	215	357	405	107		
48	1303	759	330	186	404	396	569	177		
49	1260	809	328	194	342	419	590	196		
50	1439	731	362	219	418	278	659	234	390	1130
51	1582	656	387	175	472	255	723	226	394	1184
52	1584	796	419	234	394	327	771	235	544	987
53	1726	846	440	250	456	352	830	244	553	1414
54	1829	868	452	252	518	366	859	250	621	1238
55	1798	976	472	296	479	369	847	311	735	1355
56	1977	1007	527	307	572	357	878	343	898	1470
57	2147	1024	567	315	594	355	986	354	1201	1485
58	2213	1100	575	346	634	372	1004	382	1317	1694
59	2401	1291	625	421	729	436	1047	434	1719	1742
60	2286	1339	618	463	662	426	1006	450	1643	1958
61	2291	1390	621	496	634	452	1036	442	1953	1794
62	2585	1399	768	541	718	417	1099	441	2169	1719
63	2636	1490	747	581	764	457	1125	452	2147	1886
64	2785	1494	785	696	816	464	1184	434	2840	1579
65	2897	1548	874	690	833	422	1190	436	3363	1571
66	2767	1655	899	760	801	439	1070	456	3191	1303
67	2875	1873	950	909	806	464	1119	500	3208	1267
68	2781	1787	933	855	802	447	1046	485	3374	1212
69	3061	1612	1085	690	857	460	1120	462	3723	1294
70	3228	1878	1131	801	913	543	1185	535	4108	1238
71	3299	1938	1131	930	935	512	1233	497	4216	1177
72	3239	1710	1189	789	903	462	1148	459	4330	1415
73	3181	1850	1101	874	917	478	1163	498	4009	1360
74	3248	1668	1201	927	877	368	1170	373	4434	1327
75	3107	1835	1228	1045	780	391	1099	399	5210	

Source	Year	Definition
(14)-(17) Weber, for Germany	1880-1938	As for (G.14)-(G.17)
Statistisches Handbuch	1939-1940	"
St.Jb.ELF 1957 W.G.	1946-1949	"
St.Jb.ELF 1958,65,70,77	1950-1975	"
MAFF Ag.Stats.	1896-1933	Total plant nutrient consumed
UK Board of Trade (in AAS)	1941-1948	" " " delivered
FAO Annual Fertiliser Review	1949-1975	" " " consumed
(18) Weber, for Germany	1880-1938	As for (G.18)
" , for W.Germany	1950-1968	"
St.Jb.ELF various issues	1969-1975	Oilcake from all sources
UK trade and navigation accounts	1883-1918	Incl. Ireland
UK Annual Statement of Trade	1919-1963	Excl. Ireland. Part 21(as above)
MAFF output and utilisation of farm Products 1964/5-69/70, 1968/9,-74/5 CSO Economic Trends No.130 8/64	1964-1975	Deliveries of cake imported Home manufacture from imports or from Home grown rape seed. Harvest years.
CEC "Oilseeds & Oilseed Products"		Various issues

PRICE INDICES

	(19)		(20)		(21)		(22)		(23)	
	1970 - 1970/1 = 100 Calendar or crop years									
	Agricultural machinery		All agricultural product prices (farm gate)		Crops (farm gate)		Meat (and poultry) (farm gate)		Other animal products (farm gate)	
	Germany	UK	Germany	UK	Germany	UK	Germany	UK	Germany	UK
1880	20.4		26.7	25.0	39.7	30.8	24.9	28.4	32.2	
81	18.9		26.9	24.0	38.9	29.7	25.1	23.4	30.1	
82	20.2		26.4	24.5	34.9	29.4	24.7	30.15	29.8	
83	18.9		26.9	25.0	33.0	30.3	25.2	30.15	32.4	
84	17.3		26.7	23.1	32.9	28.1	24.9	27.9	31.0	
85	16.0		26.6	20.8	24.4	25.0	24.8	25.9	28.4	
86	15.0		26.5	19.7	28.7	23.7	24.7	23.9	26.7	
87	16.0		25.2	18.8	29.0	22.8	23.5	22.5	30.5	
88	17.9		25.0	19.7	28.7	24.2	23.3	23.0	28.6	
89	20.7		28.1	19.5	32.2	23.7	26.2	23.6	30.2	
90	24.1		30.0	20.8	34.5	25.0	28.0	23.0	35.0	
91	20.7		28.3	21.1	38.5	26.4	26.4	23.3	32.0	
92	19.1		28.5	19.9	33.1	23.9	26.6	24.1	29.8	
93	17.9		27.2	19.7	28.8	23.4	25.4	24.7	32.0	
94	17.6		29.2	17.9	27.5	21.0	27.2	22.7	32.2	
95	18.1		27.6	16.9	29.0	20.1	25.8	21.3	28.1	
96	18.9		26.5	16.5	27.7	20.4	24.7	20.2	28.1	
97	19.9		29.0	17.9	31.8	21.7	27.0	21.0	32.0	
98	19.9		30.4	18.8	34.9	23.4	28.4	21.0	33.3	
99	24.8		28.3	18.5	32.8	23.1	26.4	21.9	29.9	
1900	30.0		27.4	19.9	32.3	24.8	25.5	22.9	30.2	
1	23.8		29.4	19.2	32.4	23.7	27.5	22.2	30.0	
2	20.7		29.9	19.9	31.7	24.2	27.9	23.3	33.8	
3	21.5		28.6	19.5	31.9	23.9	26.7	22.4	33.0	
4	21.5		28.2	18.5	34.3	22.6	26.3	21.7	30.6	
5	22.0		32.8	18.3	36.0	22.8	30.6	21.5	34.7	
6	25.1		35.4	19.0	34.3	25.1	33.0	21.4	37.8	
7	23.2		32.4	20.4	39.9	25.1	30.2	22.0	37.8	
8	23.5		32.2	19.9	38.6	25.1	30.1	22.5	35.4	
9	21.2		34.1	20.3	39.8	24.4	31.9	22.8	39.0	23.7
10	22.3		36.0	21.3	37.4	25.6	33.6	23.6	42.8	23.7
11	22.3		35.6	21.7	42.5	29.6	33.2	22.3	43.9	24.8
12	24.8		40.9	22.9	44.6	30.0	38.2	24.5	45.4	25.5
13	25.9		42.0	22.9	39.0	27.5	39.2	24.9	41.0	25.4

PRICE INDICES

	(19)		(20)		(21)		(22)		(23)	
	1970 - 1970/1 = 100 Calendar or crop years									
	Agricultural machinery		All agricultural product prices (farm gate)		Crops (farm gate)		Meat (and poultry) (farm gate)		Other animal products (farm gate)	
	Germany	UK	Germany	UK	Germany	UK	Germany	UK	Germany	UK
1914				22.8		28.6		25.4		25.9
15				28.7		37.5		32.5		36.4
16				36.1		55.0		37.7		37.7
17				45.3		57.8		49.2		46.8
18				52.3		59.1		26.6		67.1
19				58.2		86.2		35.6		72.1
20				65.8		63.9		37.6		66.4
21				49.4		47.7		41.6		46.8
22				38.1		37.2		36.6		43.0
23				35.5		42.1		36.4		40.7
24				36.3		44.8		36.1		41.5
25	34.2		54.2	35.9	48.2	41.9	45.2	34.9	65.3	40.2
26	34.4		52.5	34.0	49.4	38.9	47.5	31.3	60.5	39.7
27	34.5		56.3	32.4	63.7	40.4	44.3	32.3	61.0	36.2
28	36.1		55.0	33.4	59.2	38.9	43.4	35.0	60.8	38.0
29	36.6		53.0	32.4	49.8	35.8	50.4	33.7	56.5	38.2
30	36.1		46.2	29.7	44.7	30.2	44.8	31.3	48.9	37.0
31	33.8		42.5	27.5	43.4	29.9	32.8	29.6	41.7	31.7
32	30.0		36.6	26.4	41.4	29.1	26.1	25.6	36.2	28.7
33	28.9		33.6	25.2	37.8	28.5	25.1	25.25	39.6	28.9
34	28.7		37.0	25.4	41.3	30.5	27.7	23.6	41.4	30.9
35	28.7		41.6	26.9	44.8	31.1	31.4	23.9	43.22	30.8
36	28.9		42.9	27.1	45.6	39.1	33.2	25.9	45.6	33.0
37	29.2		42.9	29.7	46.7	34.6	32.8	28.6	46.0	35.0
38	28.8		43.7	29.5	48.3	31.1	33.3	26.9	47.0	35.4
39				29.7		40.2		35.1		42.6
40				41.2		54.0		37.1		57.2
41				49.6		65.7		42.0		62.0
42				52.9		70.2		43.6		62.5
43				54.0		67.8		44.0		65.2
44				55.2		67.1		45.3		66.5
45				56.9		69.2		47.0		70.6

PRICE INDICES

	(19)		(20)		(21)		(22)		(23)	
	1970 - 1970/1 = 100 Calendar or crop years									
	Agricultural machinery		All agricultural product prices (farm gate)		Crops (farm gate)		Meat (and poultry) (farm gate)		Other animal products (farm gate)	
	Germany	UK	Germany	UK	Germany	UK	Germany	UK	Germany	UK
1946				59.8		69.2		51.0		78.0
47				69.7		74.8		57.0		84.8
48				72.0		83.2		61.7		86.4
49				75.1		83.5		65.0		93.2
50	50.8		72.6	78.0	73.7	87.4	75.9	69.0	78.9	99.1
51	59.8		83.9	85.6	85.3	98.9	80.0	76.0	85.8	108.3
52	62.7		82.2	88.4	91.5	97.5	76.0	79.0	88.0	109.7
53	62.1		80.9	90.2	88.7	98.9	81.9	81.0	84.6	107.3
54	62.6		84.4	87.0	88.7	91.9	78.5	79.5	89.8	105.9
55	64.7		89.2	89.2	93.7	99.4	82.7	80.9	95.9	107.9
56	67.2		92.7	85.6	98.5	88.5	83.9	78.4	100.5	105.2
57	69.4		93.6	88.7	112.8	105.0	80.3	80.3	109.5	102.0
58	70.4		94.4	88.3	92.2	109.1	88.9	79.0	104.2	100.7
59	70.8		96.6	84.1	112.7	90.3	88.4	79.4	104.5	98.8
60	73.4		92.2	81.6	92.6	87.3	88.8	78.8	104.3	95.3
61	76.6		96.6	83.4	111.5	91.5	88.0	78.0	104.9	92.8
62	77.9		98.4	84.2	111.5	101.4	86.3	79.5	110.9	90.3
63	78.3	78.4	101.4	84.4	99.3	99.9	95.6	77.6	115.8	92.6
64	80.9	80.1	104.3	85.5	110.4	91.2		82.9		95.1
65	83.3	82.1	111.1	86.2	120.5	90.6		83.0		96.2
66	85.3	83.9	106.3	88.5	110.4	94.2	105.1	83.5	119.5	96.7
67	87.2	84.8	99.4	89.8	97.0	97.0	95.1	85.3	113.9	95.0
68	90.3	88.2	105.3	90.5	102.6	89.4	101.1	91.0	113.6	96.2
69	95.7	91.6	107.0	94.1	112.5	102.2	105.0	95.2	104.9	97.3
70	104.3	100.0	98.9	100.0	98.8	100.0	95.0	100.0	104.9	100.0
71	111.0	109.4	108.5	104.2	108.9	101.8	102.4	109.8	116.8	108.6
72	117.2	119.2	119.2	120.6	119.2	114.3	118.8	140.8	119.3	113.1
73		131.0	121.0	152.2	117.8	166.8	118.0	158.1	128.6	151.9
74	138.3	159.0	120.5	172.1	116.1	187.6	114.8	173.4	132.2	175.3
75	144.8	200.4		224.1	140.7	262.8	133.4	220.8	143.9	203.4
76		237.8		343.9						

	Sources	Year	Definition
(19)	Weber for Germany	1880-1968	1970=100 - As for G.19
	St.Jb.BRD W.Germany	1969-1975	" " - Wholesale prices
	UK Dept. of Trade and Industry	1963-1976	1970=100 - excl. tractors
(20)	Weber for Germany	1880-1968	1970=100 - As for G.20
	St.Jb.ELF W.Germany	1968-1975	i.e. producer prices
	UK Statistical Appendix to the Fontana Economic History of Europe by B.R. Mitchell ('Rousseaux Index')	1880-1906	1970/1=100
	UK MAFF Ag.Stats.	1907-1975	1970/1=100
(21)	Weber for Germany	1880-1968	1970/1=100 - producer prices
	St.Jb.ELF W.Germany	1968-1975	
	UK Rousseaux Index	1880-1906	1970/1=100 - 'veg.products'
	MAFF Ag.Stats.	1907-1975	1970/1=100 - all crops
(22)	Weber for Germany	1880-1968	1970=100 - (G.22)
	St.Jb.ELF W.Germany	1969-1975	" "
	UK 'Rousseaux' Index	1880-1906	1970/1=100 - meat + other animal products
	MAFF Ag.Stats.	1899-1975	
(23)	Weber for Germany	1880-1968	1970=100
	St.Jb.ELF for W.Germany	1969-1975	
	MAFF Ag.Stats.	1909-1975	1970/1=100 - poultry, milk, eggs, butter, cheese, wool.

PRICE INDICES

	(25)		(26)		(27)		(28)		(29)	
	1970-1970/71 = 100 (Calendar or crop years)						Prices (M/£)			
	Wholesale food		Retail food		Cost of living		Farm wages (per day)		Land prices per ha.	
	Germany	UK	Germany	UK	Germany	UK	Germany	UK	Germany	UK
1880	32.7	20.8					1.34	0.15	1321	105.4
81	32.0	20.5					1.36	0.14	1315	93.1
82	30.5	20.8					1.35	0.14	1307	85.8
83	30.1	20.6					1.34	0.14	1234	85.8
84	29.4	18.3					1.35	0.14	1230	80.9
85	28.2	17.0					1.33	0.14	1239	75.95
86	27.1	16.2					1.35	0.13	1319	75.95
87	27.5	15.7					1.35	0.14	1345	66.2
88	28.2	16.3					1.36	0.14	1355	63.7
89	30.9	16.3					1.36	0.14	1355	66.2
90	32.7	16.0					1.39	0.15	1317	61.3
91	32.4	17.2					1.04	0.15	1290	58.8
92	30.1	16.2		15.6			1.41	0.15	1259	51.5
93	29.0	16.1		14.9			1.41	0.14	1256	49.0
94	27.5	15.1		14.2			1.45	0.14	1248	46.6
95	27.1	14.6		13.8			1.48	0.14	1240	46.6
96	27.1	13.8		13.8			1.05	0.14	1257	46.6
97	28.6	14.4		14.3			1.53	0.14	1283	49.0
98	29.7	15.1		14.9			1.06	0.15	1312	49.0
99	31.2	14.5		14.3			1.65	0.15	1338	49.0
1900	33.9	14.8		15.0			1.07	0.16	1368	49.0
1	31.2	14.8		15.0			1.71	0.16	1398	49.0
2	30.5	15.0		15.0			1.73	0.16	1426	49.0
3	30.9	14.9		15.8			1.76	0.16	1476	49.0
4	30.9	14.9		15.8			1.78	0.16	1528	49.0
5	32.4	14.9		15.8			1.83	0.16	1581	51.5
6	34.6	14.9		15.8			1.89	0.16	1625	49.0
7	36.5	15.6		16.5			1.94	0.16	1718	51.5
8	33.9	15.8		16.5			1.97	0.16	1716	51.5
9	34.2	16.1		16.5			2.03	0.16	1794	53.9
10	35.0	16.1		16.5			2.06	0.16	1870	53.9
11	35.4	16.5		17.3			2.12	0.16	1945	53.8
12	38.4	17.7		17.3			2.18	0.17	2022	58.8
13	37.6	17.4		18.0			2.27	0.17	2100	56.4

PRICE INDICES

	(25)		(26)		(27)		(28)		(29)	
	1970-1970/1 = 100 (Calendar or crop years)						Prices (M/£)			
	Wholesale food		Retail food		Cost of living		Farm wages (per day)		Land prices per ha.	
	Germany	UK	Germany	UK	Germany	UK	Germany	UK	Germany	UK
1914		17.9		18.0						56.4
15		22.8		23.3						56.4
16		28.0		27.8						58.8
17		36.4		34.6		48.9				61.3
18		38.5		37.6		56.4				66.2
19		41.3		38.3		59.7				68.6
20		49.4		45.1		69.1		0.44		68.6
21		38.0		40.6		62.7		0.46		71.1
22		30.0		30.8		50.8		0.33		68.6
23		28.1		30.1		48.3		0.03		68.6
24		30.2		30.1	43.1	48.6		9.03		68.6
25	52.3	30.2		30.1	46.8	48.9	3.7	0.33	2730	68.6
26	48.5	28.1		29.3	46.9	47.8	3.35	0.33	2788	66.2
27	50.8	27.6		28.6	48.7	46.5	3.56	0.33	2850	61.3
28	51.2	27.7		27.8	50.0	46.1	3.85	0.33	2778	58.8
29	49.3	26.4		27.1	50.7	45.5	4.17	0.33	2745	56.4
30	42.9	23.0		25.6	48.8	43.9	4.36	0.34	2432	51.5
31	36.9	20.4		23.3	44.9	40.9	4.14	0.34	2014	49.0
32	32.4	20.2		22.6	39.7	40.0	3.04	0.33	1760	53.9
33	30.9	19.1		21.0	38.9	38.9	3.18	0.33	1749	53.9
34	32.7	19.6		21.8	39.9	39.1	3.25	0.32	1865	56.4
35	34.6	20.0		22.6	40.6	39.7	3.03	0.33	2027	58.3
36	35.7	21.1		23.3	41.0	40.9	3.37	0.34	2125	61.3
37	36.1	23.6		24.1	41.2	42.8	3.43	0.35	2132	58.8
38	35.7	22.4		24.1	41.4	43.2	3.05	0.38	2188	61.3
39		22.4		29.3	41.6	44.1		0.39		61.3
40		30.6		29.3	42.9	50.9		0.49		61.3
41		33.7		30.8	43.9	55.2		0.55		77.2
42		36.1		31.6	45.0	55.6		0.67		77.2
43		36.9		31.6	45.6	55.2		0.67		77.2
44		36.4		32.3	46.6	55.6		0.72		95.6
45		36.4		33.0	48.2	56.5		0.71		92.9
46		36.5		33.0	52.7	56.5		0.84		95.3
47		37.9		35.3	56.3	40.2		0.87		104.6
48		41.7		37.6	69.7	42.8		0.93		84.8
49		45.2		39.8	68.9	44.1		0.98		120.3

PRICE INDICES

	(25)		(26)		(27)		(28)		(29)	
	1970-1970/1 = 100 (Calendar or crop years)						Prices (DM/£)			
	Wholesale food		Retail food		Cost of living		Farm wages (per day)		Land prices per ha.	
	Germany	UK	Germany	UK	Germany	UK	Germany	UK	Germany	UK
1950	74.1	51.0	75.3	42.1	64.5	45.3	7.56	1.00	4359	134.5
51	89.6	56.9		47.4	69.6	49.8	9.18	1.08	4604	139.7
52	94.8	65.4		54.9	71.0	56.0	10.44	1.15	4849	147.2
53	92.6	68.9		57.9	69.8	56.7	11.25	1.24	5095	140.6
54	92.9	68.7		59.4	69.9	59.3	11.43	1.31	4340	185.2
55	95.2	70.1		63.2	71.0	62.7	12.06	1.41	5585	134.5
56	97.8	72.7	82.0	66.2	72.8	64.7	13.59	1.51	5830	123.4
57	99.3	73.6	83.7	68.4	74.4	66.7	14.04	1.59	6076	138.4
58	98.6	72.0	84.6	69.9	75.9	66.7	15.67	1.69	6321	142.8
59	98.6	73.4	86.3	70.7	76.7	66.7	16.02	1.73	6567	166.6
60	98.6	73.4	86.3	69.9	77.8	67.4	17.37	1.81	6812	200.9
61	98.6	73.6	86.3	70.7	79.6	69.6	19.35	1.09	7057	237.7
62	98.2	76.3	90.5	73.7	81.9	72.6	21.69	1.99	7302	242.6
63	99.3	78.4	91.4	75.2	84.4	74.1	23.94	2.13	7882	257.3
64	101.6	81.5		77.4	86.4	76.3	27.00	2.27	7615	325.9
65	104.3	83.3		79.7	89.3	80.0	30.69	2.44	8820	406.7
66	105.7	84.6		82.7	92.4	83.0	33.57	2.61	10180	401.8
67	102.9	86.2	97.3	85.0	93.8	85.2	33.84	2.71	11156	428.8
68	97.4	89.8	96.2	88.7	94.9	89.6	34.56	2.89	10776	455.7
69	100.1	93.0	98.2	94.0	96.7	94.1	37.44	3.14	11251	475.3
70	100.0	100.0	100.0	100.0	100.0	100.0	42.12	3.47	11356	487.6
71	101.0	109.2	104.0	111.0	105.3	109.0	47.43	3.96	11529	463.1
72	106.3	114.1	109.3	121.0	111.1	117.0	50.67	4.44	11856	573.3
73	114.6	132.6	116.8	139.0	118.8	128.0	56.07	5.01	120095	1239.7
74	117.9	165.4	123.6	164.0	127.1	148.0	60.00	6.09	12163	1423.5
75	127.1	199.8	131.3	206.0	134.7	184.0	65.00	8.03	12546	1100.0
76		230.8	136.8	247.4	140.8	215.0		9.94		1066.0

(25)	Weber + St. Jb.BRD, 74,77	1880-1975	1970=100 'Grosshandel Spreise'. Food, drink, tobacco.
	UK Board of Trade	1871-1946	Board of Trade Wholesale
	MDS	1947-1975	Price Index 1970=100
(26)	St. Jb.BRD, 1953, 60,65, 70,77.	1950-1975	1970=100 - Retail food, drink, tobacco
	UK Monthly Digest of Statistics	1892-1975	1970=100
(27)	Weber	1924-1969	1970=100 - Food, coal, clothing as in (G.27)
	St. Jb.BRD 'Preis index der Lebenshalting', 74,77	1970-1975	1970=100
	UK Min.of Labour Stats. in MDS (Working Class Cost of Living Index)	1917-1947	1970=100 - Food, coal, clothing
	Min.Labour Stats. 'Interim index of Retail Prices'	1947-1956	1970=100 - Food, + unspecified
	Dept. Employment and Productivity in MDS 1967 onwards	1957-1975	1970=100 - Retail prices
(28)	Weber for Germany	1880-1938	(G28)
	Weber for W.Germany	1950-1969	i.e. Daily Earnings of 'Facharbeiter'
	A.L. Bowley 'Wages & Income in GB since 1960	1880-1914	Average Weekly Earnings (day rate)
	Chapman & Knight, 'Wages & Salaries in UK'	1920-1938	Average Weekly Earnings (day rate)
	Min. Labour Gazette	1938-1947	Average Weekly Earnings (day rate)
	Min. Labour Gazette in MDS	1947-1975	Full-time male average weekly earnings (day rate)
(29)	Weber for Germany	1880-1938	(G.29) - Calculated
	" " W.Germany	1950-1968	" Consolidation prices
	J.T. Ward 'Farm Sale Prices over 100 years' in Estates Gazette 3.5.58.	1880-1940	All transactions
	G.H. Peters in Farm Economist Vol.XI.2.'66.	1940-1966	Vacant possession prices
	CLA Land price stats.	1966-1976	" " "

	(30)		(31)		(32)		(33)		(34)	
	Fertiliser prices per tonne (M/£)								Oilcake	
	Total		N		P_2O_5		K_2O		Per tonne (M/£)	
	Germany	UK	Germany	UK	Germany	UK	Germany	UK	Germany	UK
1880	950		2111		830		192		161	8.0
81	892		1944		780		192		161	7.98
82	895		1768		830		216		161	7.67
83	779		1502		720		216		161	7.55
84	707		1321		660		204		161	7.56
85	611		1330		500		194		138	7.18
86	579		1258		470		194		132.2	6.37
87	561		1259		440		194		118.5	5.87
88	594		1265		490		194		142.6	6.24
89	613		1206		540		180		149.5	6.65
90	632		1061		610		180		138	6.17
91	639		1094		610		180		147.2	6.81
92	568		1093		500		180		146	6.83
93	475		1151		360		180		138.0	6.84
94	467		1156		360		180		101.2	6.22
95	411		984		330		180		98.9	5.11
96	370		966		280		180		110.4	5.02
97	346		923		260		180		126.5	5.45
98	370		979		290		180		127.7	5.85
99	435		1130		360		180		130	6.78
1900	458		1144		360		180		140.3	6.45
1	432		1099		330		180		131.1	6.36
2	454		1208		330		180		138	6.38
3	443		1262		310		180		131.1	5.81
4	426		1244		310		180		133.4	5.72
5	435		1281		320		180		146.1	6.17
6	434		1236		330		190		150.6	6.56
7	436		1214		340		190		151.8	6.47
8	430		1197		340		190		148.4	6.37
9	420		1170		330		190		154.1	6.48
10	404		1224		310		190		146.1	6.65
11	428	35	1378	65.6	320	8.3	180	17.5	158.7	5.81
12	445	35	1434	65.6	330	8.3	180	17.5	169.1	6.45
13	440	35	1369	65.6	360	8.3	180	17.5	164.4	6.25

	(30)		(31)		(32)		(33)		(34)	
	Fertiliser prices per tonne (M/£)								Oilcake	
	Total		N		P_2O_5		K_2O		per tonne (M/£)	
	Germany	UK	Germany	UK	Germany	UK	Germany	UK	Germany	UK
1914		34.3		52.2		8.6				6.03
15		40.3		66.7		10.2				7.7
16		54.7		81.0		13.9				10.9
17		68.7		76.3		18.7				17.1
18		73.9		75.1		19.6				
19		75.3		82.2		22.0				20.9
20		90.7		100.6		24.5		44.4		16.1
21		56.0		67.3		14.5		21.3		11.0
22		45.5		68.6		11.4		14.4		9.6
23		41.3		70.6		10.6		15.3		8.7
24		40.3		66.3		10.4		16.5		9.3
25	481	39.6	1058	61.2	313	9.7		19.6	189.7	9.5
26	459	39.6	999	56.5	340	9.5		19.4	158.7	7.6
27	429	35.4	938	49.9	289	8.6		20.9	202.4	7.9
28	448	33.9	914	49.6	250	9.1	75	21.3	213.9	9.3
29	440	34.3	890	47.1	317	9.7	75	21.6	236.9	9.2
30	424	34.7	834	43.5	313	9.6	75	21.6	173.7	6.5
31	392	31.5	788	31.0	255	8.8	74	23.3	123.1	5.2
32	381	31.5	732	29.8	226	8.7	67	23.4	113.9	5.5
33	366	31.2	701	33.9	256	8.8	67	20.9	100.7	5.3
34	354	31.2	675	34.0	249	8.7	67	19.0	92.0	4.8
35	354	31.2	653	34.0	213	8.7	67	19.3	92.0	5.1
36	329	31.2	663		210		67		87.4	5.3
37	298	31.2	467	34.8	213	16.6	56		115.0	6.4
38	299	31.2	457	36.2	213	16.9	51		110.4	5.9
39		32.0	457	36.2	211	17.2				5.9
40		43.0	453	45.3	198	24.3				7.6
41		54.0	454	47.2	211	25.9				7.7
42		52.0	454	47.2	212	25.1				9.0
43		56.0	454	47.2	216	25.1				
44		48.0	454	47.2	201	25.4				12.8
45		47.0		47.2		25.4				14.4
46		49.0		47.4		26.2				28.9
47		48.0		47.9		27.0				34.4
48		51.0	735	49.5		27.0		22.8		31.6
49		51.0	831	49.5		27.0		22.8		20.0

	(30)		(31)		(32)		(33)		(34)	
	Fertiliser prices (per tonne)								Oilcake	
	Total		N		P_2O_5		K_2O		per tonne (DM/£)	
	Germany	UK	Germany	UK	Germany	UK	Germany	UK	Germany	UK
1950	448	65	925	68.3	380	41.7	230	24.8	344	21.0
51	528	86	1059	82.8	558	63.8	234	29.8	407	34.7
52	594	84	1127	102.5	629	78.0	290	32.7	417	32.7
53	599	88	1174	101.8	613	72.0	292	30.9	413	30.3
54	601	87	1175	115.6	615	71.5	292	31.0	437	34.0
55	489	95	944	103.1	497	76.0	235	32.7	439	32.0
56	504	96	954	115.6	495	80.9	241	35.9	432	32.0
57	510	106	972	116.7	519	81.2	241	36.1	389	25.9
58	522	94	993	116.9	533	78.3	245	36.0	398	27.5
59	567	92	1062	113.2	562	78.6	275	35.8	392	31.1
60	539	86	1054	113.2	590	75.2	280	35.8	420	28.5
61	587	85	1047	108.2	623	74.4	290	35.8	439	29.4
62	606	82	1037	101.9	627	73.8	292	37.5	473	33.6
63	658	82	1143	99.3	680	73.8	322	36.7	480	
64	650	83	1118	98.1	677	73.7	324	40.4	483	35.7
65	662	82	1112	98.2	676	73.8	323	39.3	499	35.2
66	688	81	1124	98.1	688	77.3	329	37.3	493	27.9
67	679	86	1082	88.0	696	89.0	326	35.1	479	36.5
68	690	87	1066	88.5	708	85.7	342	37.3	494	39.1
69	690	87	1029	88.2	713	88.5	344		476	40.3
70	709	91	1056	92.5	745	94.0	352		470	45.1
71	723	124	1070	103.2	784	103.7	359		482	43.7
72	764	84	1096	103.3	815	96.8	379	40.2	621	64.2
73	863	136	1190	118.0	1001	103.2	419	47.3	801	90.7
74	1030	166	1332	146.4	1389	200.0	451	66.0	586	71.4
75	1063	185	1397	159.6	1345	271.1	489	94.2	581	75.1

	Source	Year	Definition
(30)	Weber for Germany " " W.Germany St.Jb.ELF	1880-1938) 1950-1968) 1969-1975)	As G.30 i.e. total expenditure ÷ total volume nutrient
	UK MAFF Ag.Stats II: Prices and supplies 1920,22,28,34,35	1911-1933	Weighted Average price in 1911-13, multiplied by general price index of fertiliser prices
		1934-1938	Interpolated
	MAFF Ag.Stats II: 1940-44	1939-1940	Index for fertiliser prices
	FAO Production Yearbook) MAFF Century of) Ag.Stats.)		1937-1944 applied to total expenditure ÷ total volume '41
	MAFF Century of Ag.Stats.	1941-1945	Total expenditure
	FAO Production Yearbook		÷ Total volume nutrient
	MAFF Annual review of Ag. 'Resource Structure of Ag.'- Cowling	1946-1966	"
	MAFF 'Output & Utilisation of Farm Products in the UK' 1964/5, 1970/1971	1967-1970	
	Fertiliser Manufacturers' Association 'Fertiliser Statistics'	1971-1975	Weighted average prices
(31)	Weber for Germany	1880-1938	As G.31 price/tonne N as ammonium sulphate
	Statistical Handbook for Germany	1939-1944	Price/tonne N as ammonium sulphate
	St.Jb.ELF 1957,65,76	1948-1975	Not as G.31 i.e. total nitrogen expenditure ÷ volume
	UK MAFF Ag.Stats.II: prices & supplies. 1919,21,23,26,27,36, 40,50.	1911-1949	Price/tonne N as ammonium sulphate
	FAO Production Yearbook	1950-1975	Price/tonne N as ammonium nitrate
(32)	Weber for Germany	1880-1938	As G.32 price/tonne P_2O_5 As 16% phosphate
	Statistical Handbook for Germany	1939-1944	"
	St.Jb.ELF 1957,65,76	1948-1975	Total phosphate expenditure ÷ volume
	UK MAFF Ag.Stats.II: various issues	1911-1935	Price/tonne P_2O_5 from 30% superphosphate

	Source	Year	Definition
(32)	UK MAFF Ag.Stats.II: various issues	1937-1949	Price/tonne P_2O_5 from 18% superphosphate
	FAO Production Yearbook	1950-1975	"
(33)	Weber for Germany	1880-1938	As G.33 i.e. price/tonne K_2O from 14% kainite
	St.Jb.ELF 1957,65,76	1950-1975	Not as G.33 total potash expenditure ÷ volume
	UK MAFF Ag.Stats.II: various issues	1911-1935	Price/tonne K_2O from 14% kainite
	FAO Production Yearbook	1948-1975	" " " " 60% muriate of potash
(34)	Weber for Germany " " W.Germany	1880-1938 1950-1968	As for (G34)
	'Agrarwirtschaft' 1972, 73,74	1969-1973	Farm deliveries value ÷ volume
	UK Trade & Navigation Accounts	1880-1918	Cake imports of " ÷ "
	UK Annual Statement of Trade	1919-1953	" " " " ÷ "
	CSO Economic Trends No.130 8/64	1953-1964	" " " " ÷ "
	MAFF 'Output & Utilisation of Farm Products in the UK' issues 1964/5-75/6	1964-1975	" " " " ÷ "

	(35) Net national income at factor cost and current market prices ('000m M/£)		(36) Population (millions)		(37) Energy consumption (million M or £)	
	Germany	UK	Germany	UK	Germany	UK
1880	16.9	1.87	45.1	34.62		
81	17.33	1.82	45.4	34.94		
82	17.49	1.16	45.7	35.21		
83	18.01	1.15	46.0	35.45		
84	18.54	1.12	46.4	35.72		
85	18.73	1.12	46.7	36.02		
86	18.94	1.14	47.1	36.31		
87	19.28	1.19	47.6	36.06		
88	20.72	1.26	48.2	36.88		
89	22.25	1.35	48.7	37.18		
90	23.68	1.39	49.2	37.49		
91	22.62	1.37	49.3	37.08		
92	24.1	1.34	50.3	38.13		
93	24.4	1.34	50.3	38.49		
94	24.4	1.42	51.3	38.86		
95	25.3	1.45	52.0	39.22		
96	26.9	1.43	52.8	39.06		
97	28.7	1.54	52.6	39.99		
98	31.0	1.62	54.0	40.38		
99	31.8	1.07	55.2	40.77		
1900	32.5	1.75	56.0	41.15		
1	31.6	1.73	56.9	41.54		
2	31.9	1.74	57.8	41.9		
3	34.4	1.72	58.6	42.2		
4	36.3	1.07	59.5	43.6		
5	38.9	1.78	60.3	43.9		
6	40.6	1.87	61.1	43.4		
7	43.0	1.97	62.0	43.7		
8	42.4	1.88	62.9	44.1		
9	44.4	1.91	63.7	44.5		
10	45.8	1.98	64.6	44.9		
11	48.1	2.08	65.4	45.3		
12	51.6	2.18	66.1	45.4		
13	52.4	2.27	67.0	45.7		

	(35) Net national income at factor cost and current market prices ('000m M/£)		(36) Population (millions)		(37) Energy consumption (million M or £)	
	Germany	UK	Germany	UK	Germany	UK
1914		2.21		46.0		
15				44.33		
16				43.71		
17				43.28		
18				43.12		
19				44.6		
20				46.47		
21		4.66		43.37		
22		3.77		44.37		
23		3.64		44.6		
24		3.76		44.9		
25	34.0	3.98	63.1	45.1		
26	35.6	3.76	63.6	45.2		
27	39.9	3.98	64.0	45.4		
28	42.9	4.01	64.4	45.6		
29	42.9	4.15	64.7	45.7		
30	39.3	4.15	65.0	45.9		
31	31.9	3.76	65.4	46.1		
32	25.3	3.61	65.7	46.3		
33	26.1	3.07	66.0	46.5		
34	29.9	3.98	66.4	46.7		
35	33.7	4.15	66.9	46.9		
36	37.9	4.36	67.3	47.1		
37	42.4	4.06	67.8	47.3		
38	47.3	4.82	68.5	47.5		
39				47.8		
40				46.0		
41				44.8		
42				44.2		
43				43.7		
44				53.6		
45				43.7		
46				46.8		
47				47.9		
48		9.62		49.6		
49		10.31		49.9		

	(35) Net national income at factor cost and current market prices ('000m DM/£)		(36) Population (millions)		(37) Energy consumption (million DM or £)	
	Germany	UK	Germany	UK	Germany	UK
1950	76.9	10.8	47.0	50.2	285	
51	93.2	11.84	47.5	50.3	305	
52	105.7	12.75	47.7	50.4	359	
53	113.9	13.56	48.2	50.6	392	
54	122.5	14.47	48.7	50.8	454	
55	121.0	15.53	49.2	51.0	520	
56	156.5	16.67	49.8	51.2	572	
57	171.3	17.55	50.5	51.4	614	
58	133.3	18.03	51.1	51.7	676	
59	198.5	19.35	51.7	52.0	765	
60	235.7	21.05	55.4	52.4	866	
61	358.0	22.26	56.2	52.8	904	
62	277.5	23.32	56.9	53.3	900	
63	295.8	24.88	57.6	53.6	737	
64	324.3	26.96	53.3	54.0	904	
65	355.3	28.92	59.0	54.4	1346	
66	377.1	30.16	59.6	54.7	1359	
67	376.0	32.03	59.9	55.0	1497	
68	416.9	34.18	60.2	55.3	1618	81.7
69	460.7	36.06	60.8	55.5	1697	83.1
70	529.2	39.51	61.0	53.4	2075	93.1
71	585.7	44.67	61.5	55.6	2231	102.1
72	639.2	49.63	61.8	55.7	2410	112.8
73	713.9	58.28	62.1	55.9	2036	145.1
74	765.2	66.51	62.0	56.0	3186	189.9
75	794.3	82.18	61.6	55.9	3540	202.2

	Source	Year	Definition
(35)	W.G. Hoffmann. Das Wachstum der Deutschen Wirtschaft seit der Mitte des Jahrunderts	1880-1912	Net Social product at factor cost and current prices
	St.Jb.BRD 1953,1958 for W.Germany	1925-1959	"
	St.Jb.ELF 1975 for W.Germany	1960-1975	"
	P. Deane & Cole 'British Economic Growth'	1880-1913	Net national income at factor cost and current prices
	Alford, Atkinson et al. The British Economy Key Statistics 1900-1970	1914-1969	Net national income at factor cost and current prices
	National income and expenditure	1970-1975	
(36)	Weber for Germany	1880-1938	Total population
	Weber for W.Germany	1950-1969	
	St.Jb.BRD 1974,1977	1970-1974	" "
	UK Monthly Digest of Statistics	1880-1974	
		Crop years	
(37)	Weber for W.Germany	1950-1968	As for (G.37) i.e. oil, gas
	St.Jb.ELF 1977, p.143	1969-1975	Electricity expenses of agriculture
	Eurostat Agricultural Statistics, 1974, no.4 and 1975, no.3	1968-1975	'Energy' consumption

	(38) Oilcake Net imports '000m T.		(38a) Disposals of Fish and meat meal for Animal Feed		(39) Cereals Net imports '000m T.	
	Germany	UK	Germany	UK	Germany	UK
1880	88				898	
81	124				1232	6060
82	145				1809	6328
83	200	942			1783	7321
84	197	847			2424	5738
85	192	901			1943	6993
86	212	875			1187	6922
87	222	925			1830	6835
88	265	914			1590	7161
89	405	885			2467	7282
90	387	833			2468	7598
91	452	957			2589	7334
92	481	992			2505	7770
93	544	910			2013	7926
94	575	920			2136	8726
95	540	992			3264	8843
96	532	1078			4042	9359
97	615	1017			3330	8687
98	705	1047			3676	9354
99	682	1060			2892	9480
1900	730	955			2928	9262
1	788	973			3942	9587
2	765	1087			4273	9485
3	890	1137			4282	10296
4	914	1171			3522	10030
5	909	1096			4845	9678
6	894	1115			4710	9711
7	1129	1297			4822	9825
8	1068	1157			3379	9523
9	1246	1055			4643	9493
10	1301	1046			4602	9499
11	1278	1000			5991	9566
12	1397	1075			4802	10210
13	1607	1436			4501	10314

	(38) Oilcake Net imports '000m T.		(38a) Disposals of Fish and meat meal for Animal Feed		(39) Cereals Net imports '000m T.	
	Germany	UK	Germany	UK	Germany	UK
1950	345	1130	80	112	3733	5581
51	349	1184		157	4759	7031
52	576	987		184	4113	7167
53	536	1372		228	3666	6749
54	613	1238		300	4951	2647
55	734	1518	174	308	3922	3402
56	871	1470	210	339	5308	3117
57	1165	1552	225	319	4225	8872
58	1286	1694	226	344	4316	9957
59	1688	1845	276	380	4666	8749
60	1583	1958	332	385	3040	8922
61	1914	1794	415	460	6925	9698
62	2110	1719	408	488	4346	8592
63	2097	1886	448	528	3770	8509
64	2764	1579	534	598	4336	8077
65	3315	1571	490	611	5717	8775
66	3143	1303	528	586	5544	7220
67	3149	1267	640	685	6050	7237
68	3284	1212	680	801	6035	8483
69	2639	1294	627	759	2671	8887
70	4020	1238	588	685	7212	9075
71	4135	1177	649	655	5146	8107
72	4209	1415	382	703	4676	8531
73	3914	1300	345	293	5527	7267
74	4312	1327	458	317	4402	7012
75	5118	1494	481	327	3771	7153
76				312		

	(38) Oilcake Net imports '000m T.		(38a) Disposals of Fish and meat meal for Animal Feed		(39) Cereals Net imports '000m T.	
	Germany	UK	Germany	UK	Germany	UK
1914		1262				9257
15		1168				8888
16		1028				8765
17		615				7879
18		557				5929
19		111				6566
20		952				8867
21		950				7905
22		925				8615
23		1060				8786
24		1111				9597
25	1062	1211			2569	7669
26	1457	1194			6782	7812
27	1480	1115			3262	9206
28	1689	1104			3833	8200
29	1768	1166			3153	8689
30	1497	1632			1966	8716
31	1861	1107			2402	10342
32	2290	1029			637	8985
33	2046	935			131	9601
34	1533	727			1597	9626
35	1169	1429			220	9502
36	1019	1304			1988	10209
37	1181	1482			3950	9913
38	1394	972			2777	9473
39		1264				9497
40		914				3870
41		480				2014
42		329				4062
43		398				4107
44		275				3691
45		351				4832
46		642				4152
47		827				5868
48		1109				7534
49		996				6701

(40)

CEREALS PRICE

(M/DM/£ per tonne)

	Germany	UK		Germany	UK		Germany	UK
1880	179	9.22	1913	169	7.35	1946		18.99
81	183	9.49	14		7.76	47		22.85
82	162	8.77	15		11.07	48		24.19
83	149	8.86	16		13.37	49		23.93
84	149	7.95	17		18.58	50	317	
85	146	7.29	18		20.39	51	426	
86	133	4.08	19		20.01	52	413	
87	130	6.76	20		24.32	53	405	
88	144	6.88	21		15.65	54	393	
89	156	6.74	22		11.02	55	404	27.14
90	170	6.77	23		9.89	56	396	27.62
91	196	8.11	24		10.97	57	410	27.39
92	162	7.02	25	220	12.64	58	408	26.86
93	144	6.16	26	216	11.41	59	411	26.46
94	129	5.34	27	248	10.93	60	899	26.18
95	130	5.36	28	243	10.55	61	408	26.04
96	137	5.39	29	235	9.82	62	415	25.73
97	148	5.86	30	194	7.59	63	413	
98	162	6.43	31	250	4.77	64	418	25.28
99	150	5.95	32	186	5.06	65	413	23.98
1900	145	6.08	33	165	5.01	66	418	24.36
1	152	6.09	34	174	4.98	67	375	24.16
2	138	6.32	35	193	5.03	68	383	25.75
3	144	6.19	36	198	6.16	69	380	26.61
4	155	6.25	37	202	10.25	70	378	29.03
5	135	6.51	38	202	4.76	71	379	29.35
6	136	6.34	39		13.67	72	385	32.74
7	182	6.95	40		15.86	73	595	54.71
8	185	7.61	41		20.41	74	415	56.55
9	164	7.99	42		21.00	75	463	
10	182	7.33	43		19.92			
11	198	7.01	44		20.00			
12	198	7.75	45		20.37			

	Sources	Year	Definition
(38)	Same as 18		
		Crop year	
(38a)	West Germany St.Jb.ELF	1950-1977	Net balance of fish and meat meal consumption.
	UK - AA Statistics	1950-1977	(Available from 1935). Annual 'disposals' of fish meal and meat meal for animal feed
		Year	
(39)	Weber for Germany	1880-1938	Grain imports less exports (for all uses) i.e. (G.39)
	Weber for W.Germany	1950-1968	
	St.Jb.ELF 1974,77	1969-1975	
		Calendar years	
	UK Trade & Navigation Accounts	1881-1964	Grain, flour, meal imports less exports
	UK Annual Statement of Trade	1965-1975	
		Crop years	
(40)	Weber for Germany	1880-1938	Simple average producer price
	Weber for W.Germany	1950-1968	Weighed average producer price
		Calendar years	
	UK as for 39	1881-1938	Value imports ÷ volume imports c.i.f.
		Crop years	
	UK MAFF Utilisation + output of farm products 38/39-73/74	1938-1975	Total farm revenue from sales (inc. subsidy) ÷ total output = average producer price.

PREFACE

L'agriculture joue un rôle fondamental dans le développement social, économique et politique des nations. Elle est, par suite, considérée par la "Anglo-German Foundation" comme un terrain de recherche lié à son centre d'intérêt: l'étude des problèmes des sociétés industrielles occidentales.

Ceci est d'autant plus important aujourd'hui que les sociétés occidentales sont concernées par les problèmes agricoles non plus seulement dans un cadre national, mais dans celui, supra-national, de la Communauté Economique Européenne.

De plus, les traditionnelles différences d'approches des problèmes politiques des secteurs agricoles en République Fédérale Allemande et en Grande-Bretagne constituent une justification supplémentaire pour la rédaction de ces deux rapports parallèles.

Ceux-ci visent, avant tout, à développer notre connaissance des déterminants historiques des positions prises par les différentes fractions des sociétés britannique et allemande, agriculteurs, hommes d'affaire, hommes politiques, et représentants des gouvernements, dans l'élaboration de la Politique Agricole Commune menée par la C.E.E. Par là même, les auteurs espèrent encourager une plus grande compréhension des politiques réciproques.

L'agriculture fournit des ressources autant qu'elle en absorbe, et constitue en tant que telle un élément fondamental de l'urbanisation et de l'industrialisation croissantes des sociétés occidentales. L'étude de l'agriculture comme l'un des secteurs économiques concurrents pour ce qui est de l'attribution de ressources, nous mène à celle de la productivité marginale, de la valeur ajoutée nette, et de la mobilité des ressources entre les différentes branches de l'économie. Au cours de cette étude surgit le problème de l'efficience relative.

L'efficience, ou l'efficacité, peut cependant être définies en relation avec des objectifs tant techniques, qu'économiques ou sociaux. Elle peut être définie comme une mesure de la relation inputs/outputs dans un sens économique ou technique. Elle peut être également définie

comme le degré d'achèvement d'objectifs pré-définis. De tels objectifs peuvent être établis par un "entrepreneur" individuel. Ils peuvent également se trouver dans des programmes politiques approuvés par la législature et le gouvernement d'un pays. C'est cette dernière définition de l'efficience qui a amené les auteurs à penser qu'il était nécessaire d'étudier l'évolution de la politique agricole et des formes d'intervention du gouvernement avant de pouvoir se prononcer sur l'efficience comparée des deux agricultures.

La tâche qui consiste à décrire le développement de l'agriculture et des politiques agricoles a été confiée à deux auteurs. L'agriculture allemande est décrite par Robert Cecil, la britannique par John Kirk; leurs différentes expériences professionnelles a inévitablement débouché sur des différences dans l'approche, le contenu, et la présentation. Robert Cecil a servi dans le corps diplomatique de 1936 à 1967, notamment à l'ambassade britannique à Bonn. En 1968 il fut nommé Maître de Conférénces en histoire allemande contemporaine et devint finalement Président de l'Ecole des Etudes Européennes Contemporaines de l'Université de Reading. Le tableau qu'il dresse de l'Allemagne est celui d'une personne extérieure à la realité qu'elle étudie, mais habitué à analyser la signification politique, sociale et économique des événements et des idées.

John Kirk rejoignit le Ministère de l'Agriculture et des Pêcheries (c'est ainsi qu'il s'appelait alors) en 1932, au moment d'un changement fondamental d'attitude du gouvernement vis à vis de l'agriculture qui se traduisit par un développement considérable de son intervention dans celle-ci. Il resta dans ce Ministère pendant quelque trente ans, et devint chef de la Division des Etudes Economiques et Statistiques et fut alors nommé Professeur de Marketing à Wye College. Par suite, son histoire est celle d'un acteur de la scène agricole, étroitement associé aux discussions et à la prise des décisions au cours d'une période où l'intervention de l'Etat est devenue l'un des traits dominants de l'évolution de l'agriculture britannique.

Dans toutes les recherches historiques, il faut avoir une date de départ. En ce qui concerne l'étude des agricultures et des politiques agricoles britanniques et ouest-allemandes, 1870 semble s'imposer. Les pays sont alors confrontés à un même phénomène extérieur, à savoir l'arrivée

de céréales à bon marché du Nord de l'Amérique et de produits du bétail de l'hemisphère Sud. Chaque nation adopta en fait une attitude différente face à ce nouveau facteur.

Le Royaume-Uni choisit alors la voie du Libre Echange et de l'alimentation à bon marché, qui développerait sa compétitivité dans le domaine industriel et ses liens avec son Empire d'outre-mer qui était un très important fournisseur de matières premières et de produits alimentaires. La traduction de ce mode de pensée peut être constatée dans le système des Préférences Impériales des années trente et même dans les arrangements particuliers avec la Nouvelle Zélande dans le secteur laitier, et avec le Commonwealth pour le sucre, lors des négociations en vue de l'accession du Royaume-Uni à la Communauté Economique Européenne.

L"Allemagne a poursuivi une politique de Protectionnisme à la fois dans le secteur agricole et dans l'industrie. Comme Cecil le souligne, "La Loi sur les Tarifs Douaniers de 1879-1880 a amené l'industrie lourde et les grands domaines à se ranger derrière Bismarck. Leur effet était d'affirmer la pouvoir politique des Junkers et de sauvegarder un secteur agricole substantiel au sein de l'économie".

Cent ans plus tard, les modes d'expression fondamentaux de ces politiques opposées existent toujours. Il n'est que de voir les prises de position et les déclarations des Ministres de l'Agriculture de la Communauté. Josef Ertl et John Silkin, les Ministres de l'Agriculture ouest-allemande et britannique, sont tout autant prisonniers de leur histoire nationale que portes-parole de leur gouvernement.

Si le Libre Echange est un des traits dominants d'une politique où les forces de l'économie de marché sont laissées libres de dominer, alors, pour reprendre les mots de John Kirk, "les cas dans lesquels on ne tient pas compte du marché semblent être en général les suivants:

a) Pour réaliser une plus grande auto-suffisance, en premier lieu comme une assurance contre le blocus au cours d'une guerre;

b) pour soutenir une économie faible en substituant les produits alimentaires nationaux aux produits alimentaires importés;

c) sur un plan d'égalité ou de justice sociale, en vue d'assurer aux agriculteurs ou aux ouvriers agricoles, de plus hauts revenus;

d) pour remédier aux défauts de différentes institutions économiques et sociales, défauts qui se sont developpés au sein d'une économie de marché, et se sont maintenus comme le résultat de l'inertie ou des privilèges;

e) pour corriger les tendances des décisions du marché trop orientées vers le court terme."

Le trait commun de ces deux présentations des agricultures britanniques et allemandes, est en fait l'histoire qui explique pourquoi et par quels moyens on n'a pas tenu compte des forces du marché et comment ces mèmes forces se sont manifestées au sein des structures et des institutions agricoles.

Dans la période qui va de 1870 à 1933, les différents gouvernements qui se sont succédés en Allemagne sont intervenus sous des formes qui ont directement affecté le développement de l'agriculture. Par suite de celles-ci, l'Allemagne a entrepris de développer une autarcie économique en vue de se préparer pour une querre. Son entière économie passa sous la direction de l'Etat, à un degré jusqu'alors inconnu en temps de paix en occident. L'agriculture allemande et ses institutions représentatives firent l'objet d'une réglementation détaillée voire d'une enrégimentation, qui font apparaître, de par la description de Robert Cecil, une parenté plutôt allemande que française ou néerlandaise, pour ce qui est de la forme et des caractères des marchés dirigés de la Politique Agricole Commune.

Kirk note pour sa part qu'au cours de la même période les politiques agricoles britanniques n'ont jamais considéré l'auto-suffisance comme une vertu en soi ou encore que l'agriculteur national devait avoir une priorité absolue sur le marché national. De telles attitudes peuvent être considérées comme la conséquence de la permanence de la relative influence des intérèts agricoles sur le continent européen. On pourrait cependant suggérer que le développement des relations avec le continent européen a pu exercer une influence sur les attitudes des Britanniques vis à vis de la priorité à accorder à l'agriculture britannique sur le marché national. Il n'est que de citer l'exemple des pommes de terre et du lait.

Alors que l'équilibre des ressources naturelles est relativement similaire dans les deux pays les différences existant au niveau des objectifs sociaux, économiques ou politiques des agricultures des deux pays tendront à développer des différences dans la structure de celles-ci et leur utilisation des ressources existantes.

Si par exemple l'un d'entre eux s'efforce de réaliser un plus haut degré d'auto-suffisance que l'autre, dans les produits agro-alimentaires "tempérés", cela aboutira presqu'inévitablement à une hausse relative des prix offerts aux agriculteurs pour produire ces quantités supplémentaires et compenser l'importance des coûts marginaux qui découlera d'une telle politique. Tel est le cas actuellement en Allemagne Fédérale et en Grande Bretagne.

En 1870, l'Empire Allemande et le Royaume Uni avaient un territoire, une population et des ressources naturelles très différentes. Mais pour ce qui est des trente dernières années, il y a eu une remarquable similarité au niveau de ces facteurs de base, y compris à celui de la technologie agricole et non-agricole. La population totale ouest-allemande est de 61 Millions, la britannique 56 Millions, et la S.A.U. totale des deux pays ne diffère que de 6000 hectares. Si l'on garde en tête cette relative similitude, les comparaisons dans le domaine de l'utilisation des ressources, et de leur productivité dans l'agriculture sont des plus intéressantes et instructives.

Le troisième rapport regroupe 38 "paires" de séries statistiques chronologiques relatives au développement des secteurs agricoles en Allemagne de l'ouest et au Royaume-Uni pour la période 1870-1975. Quarante séries similaires avaient déjà été construites pour l'Allemagne par le Professeur Adolf Weber de l'Université de Kiel. Il fut alors décidé d'élaborer des séries comparables pour le Royaume-Uni et d'étendre les deux catégories de séries jusqu'en 1975. Le lecteur pourra améliorer sa compréhension des deux premiers rapports en se référant aux séries statistiques correspondantes. Cette étude établit les zones pour lesquelles on a réussi à faire la comparaison (ou bien celles où l'on a échoué, suivant les cas).

Les problèmes liés à l'analyse statistique de multiples séries chronologiques, en particulier dans le cas des aggrégats, sont énormes, et

dépassent le cadre de cette étude; cependant, la description historique tente d'expliquer à l'aide de certaines données supplémentaires la pertinence des informations relatives à la comparaison du développement des agricultures allemandes et britanniques. Nous nous permettons, d'autre part, d'espérer que ces informations constitueront une base solide pour des recherches futures.

Nous avons commencé ce commentaire par une référence à l'apparition d'un facteur économique commun aux deux pays - les céréales à bas prix de l'Amérique du Nord. Il se terminera par la référence à un facteur politique commun - le Traité de Rome et la création de la Communauté Economique Européenne et de la Politique Agricole Commune. Le problème général quant au futur est de savoir comment les politiques agricoles si différentes de l'Allemagne de l'ouest et du Royaume-Uni peuvent être en quelque sorte introduites dans la P.A.C. Le recours aux importations de produits alimentaires en Grande-Bretagne lié à une déterioration de la competitivité industrielle, en dépit des bas prix alimentaires a abouti à une balance de paiements déficitaire temporairement améliorée par le pétrole de la Mer du Nord.

La République Fédérale Allemande, pour sa part, a, comme la majorité des autres Etats membres de la Communauté, continué à trainer le boulet des problèmes de structure, des hauts coûts de production, et des disparités de revenus. Cependant, comme le remarque Cecil, "en général, l'agriculture chère et l'alimentation chère ne seront pas considérées en Allemagne de l'ouest comme des fardeaux intolérables tant que la production industrielle sera florissante, que les hauts salaires pourront être maintenus, et que le marché du travail aura une capacité d'absorption suffisante pour intégrer ceux qui désirent quitter la terre. Cependant des difficultés majeures de l'économie pourraient précipiter une réappréciation de la politique agricole."

La persistance de la récession générale des économies occidentales pourrait bien être un signe avant-coureur d'une réappréciation de la P.A.C. et des politiques agricoles nationales des différents Etats membres.

VORWORT

Die Landwirtschaft spielt in der gesellschaftlichen, wirtschaftlichen und politischen Entwicklung von Nationalstaaten eine zentrale Rolle und wird von der Deutsch-Englischen Stiftung deshalb als Forschungsbereich behandelt, der in den Rahmen ihrer allgemeinen Aufgabenstellen gehört. Diese Aufgaben sind dem Studium der Probleme in der westlichen Industriegesellschaft gewidmet. Ganz besonders ist dies heute von Bedeutung, denn die westliche Gesellschaft hat an der Rolle der Landwirtschaft nicht nur in ihrer Eigenschaft als Nationalstaaten Anteil, sondern nimmt auch innerhalb der überstaatlichen Organisation der Europäischen Wirtschaftsgemeinschaft Einfluss. Darüberhinaus verleiht die traditionell gegensätzliche politische Einstellung zum Agrarsektor, die sich gegenwärtig in der Bundesrepublik und in Grossbritannien manifestiert, dem Inhalt der vorliegenden Berichte zusätzliches Gewicht.

Die Berichte haben zum Ziel, unser Wissen um die historischen Hintergründe der Einstellung von Bürgern, Bauern, Politikern, Geschäftsleuten und Staatsbeamten im Laufe der Entstehung einer Gemeinsamen Landwirtschaftspolitik der EG zu vermehren. Mit dieser tieferen Kenntnis hoffen wir, Toleranz und gegenseitiges Verständnis zu fördern.

Ressourcenmässig ist die Landwirtschaft gleichzeitig Lieferant und Mitbewerber und somit ein Grundelement in der zunehmenden Verstädterung und Industrialisierung der abendländischen Gesellschaft. Das Studium der Landwirtschaft in ihrer Rolle als Mitbewerber bei Ressourcen führt direkt zum Kern der Problemkreise Grenzproduktivität, Nettomehrwert, und Mobilität der Ressourcen zwischen verschiedenen Wirtschaftssektoren. Ausserdem erheben sich Fragen des relativen Nutzeffekts.

Den Nutzeffekt kann man allerdings im Lichte technischer, wirtschaftlicher oder gesellschaftlicher Ziele umschreiben. Er lässt sich definieren als Mass für die Beziehung zwischen Input und Output im wirtschaftlichen oder technischen Sinn, oder auch als der Grad, in dem die gesteckten Ziele verwirklicht worden sind. Die Ziele lassen sich entweder vom einzelnen Unternehmer abstecken, oder sie können auch Bestandteil einer Politik sein, auf die sich Legislative und Exekutive eines Landes einigen. Diese letztere Definition des Nutzeffektes führte zur Einsicht, dass ein Studium der

Entwicklung der Landwirtschaftspolitik und damit der staatlichen Intervention nötig war, bevor man sich zu einem Vergleich des heutigen Nutzeffekts in den beiden Landwirtschaftssektoren aussprechen konnte.

Die Aufgabe, die Entstehung der Landwirtschaft und der sie begleitenden politischen Methoden zu beschreiben, wurde zwei Autoren anvertraut. Die deutsche Geschichte schildert Robert Cecil, die britische wird von John Kirk dargestellt. Die unterschiedlichen beruflichen Erfahrungen der beiden Autoren führten notgedrungen zu Unterschieden in der individuellen Aufgabenlösung, den Inhalten sowie der Darstellungsform. Robert Cecil gehörte von 1936 bis 1967 dem britischen Aussenministerium an und wurde während dieser Zeit vorübergehend an die Britische Botschaft in Bonn beordert. 1968 nahm er eine Lehrtätigkeit als Dozent für deutsche Gegenwartsgeschichte auf, und schliesslich wurde er zum Präsidenten der Graduiertenschule für Europäische Gegenwartsstudien an der Universität Reading ernannt. Er vermittelt uns ein Deutschlandbild aus der Sicht eines Aussenseiters, der die politische, gesellschaftliche und wirtschaftliche Bedeutung von Ereignissen und Ideen von Berufs wegen studiert.

John Kirk führte seine Karriere 1932 ins britische Landwirtschafts- und Fischereiministerium (so hiess es damals) - zu einer Zeit, als sich ein grundsätzlicher politischer Haltungswandel vollzog, dem eine Welle staatlicher Intervention in die britische Landwirtschaft folgte. John Kirk gehörte dem Ministerium etwa dreissig Jahre lang an und wurde während dieser Zeit zum Leiter der Wirtschafts- und Statistikabteilung befördert und schliesslich zum ersten Professor für Marketing am College Wye ernannt. Seine Darstellung ist daher die eines "Eingeweihten", der während der gesamten Zeit, in der die Staatsintervention eine vorherrschende Rolle in der Entwicklung der britischen Landwirtschaft spielte, mit allen Diskussionen und Entscheidungen engsten Kontakt hatte. Sein Beitrag kann daher als einmaliges historisches Dokument angesehen werden, das für Wirtschafts- und Politikhistoriker unermesslichen Wert darstellt.

Ein historischer Überblick beginnt stets an einem bestimmten Ausgangspunkt. In der Entwicklung der Landwirtschaft und Landwirtschaftspolitik in Deutschland und England bildet 1870 etwa einen geeigneten Einschnitt. Damals wurden beide Länder erstmals mit einem gemeinsamen

externen Phänomen konfrontiert: billigem Getreide aus Nordamerika und Schlachtvieh aus der südlichen Hemisphäre. Schliesslich traf jede Nation ihre eigene Entscheidung darüber, wie mit diesem gemeinsamen Einfluss von aussen zu verfahren war.

England wählte den Weg des Freihandels und einer billigen Nahrungsmittelpolitik, die seine Wettbewerbsfähigkeit in der Produktion sowie die Bande zu seinem überseeischen Empire, einem wesentlichen Lieferanten von Grundstoffen und Grundnahrungsmitteln, stärken sollte. Das Vermächtnis dieses Denkkonzepts zeigt sich im Präferenzzollsystem der 30er Jahre zwischen England und seinen Dominions und auch heute noch in den Sonderabkommen über neusseeländische Molkereiprodukte und Zuckerimporte aus dem Commonwealth, die während der Beitrittsverhandlungen zwischen Grossbritannien und dem Gemeinsamen Markt getroffen wurden.

Deutschland verfolgte eine Politik des Protektionismus sowohl bei landwirtschaftlichen Erzeugnissen wie bei Fertigprodukten. Wie Cecil ausführt, "gelang es Bismarck mit seinen Zollgesetzen zwischen 1879 und 1880, die Schwerindustrie und die Grossgrundbesitzer auf seine Seite zu bringen. Das Ziel bestand darin, die politische Macht der Junker zu festigen und den wichtigen landwirtschaftlichen Sektor der Volkswirtschaft am Leben zu erhalten."

Hundert Jahre später sind die so unterschiedlichen politischen Ansätze der beiden Länder im wesentlichen erhalten geblieben. Sie kommen in den Stellungnahmen und Erklärungen vor dem Rat der Landwirtschaftsminister der Europäischen Gemeinschaften deutlich zum Ausdruck. Josef Ertl und John Silkin, die Agrarminister der Bundesrepublik und Grossbritanniens, sind nicht nur Gefangene der Geschichte ihrer Länder, sondern auch Wortführer politischer Mächte der Gegenwart.

Wenn der Freihandel als Stellvertrater einer Politik gedeutet werden soll, in der die Kräfte einer Marktwirtschaft dominieren dürfen, dann scheinen, mit den Worten John Kirks, "die wichtigsten Fälle, bei denen der Markt ausser acht gelassen werden darf - und so oft wurde -, sich wie folgt zu präsentieren:

a) Erzielung grösserer Autarkie, in erster Linie als Absicherung gegen Kriegsblockaden;

b) Unterstützung einer schwachen Wirtschaft durch heimische Nahrungsmittelproduktion an Stelle von Importen;

c) Verfechtung einer Billigkeits- oder sozialen Gerechtigkeitspolitik zur Erzielung eines höheren Einkommensniveaus für Bauern und landwirtschaftliche Arbeitskräfte;

d) Abhilfe gegen die Mängel und Unfähigkeit verschiedener sozialer oder wirtschaftlicher Institutionen, die sich innerhalb einer Marktwirtschaft entwickelt und sich aus Trägheits- oder Privileggründen erhalten haben;

e) Korrektur der Tendenz von Marktentscheidungen, unangemessen kurzfristig zu sein."

Der gemeinsame Faden in diesen beiden sehr unterschiedlichen Darstellungen der deutschen und britischen landwirtschaftlichen Entwicklung ist genau genommen ein Bericht dessen, weshalb und mit welchen Mitteln die Marktkräfte ignoriert wurden und wie diese Kräfte in der Struktur der Landwirtschaft und ihrer Institutionen zum Ausdruck kamen.

In der Zeit zwischen 1870 und 1933 intervenierten sukzessive deutsche Regierungen in einer Weise, die von direkter Auswirkung auf die Entwicklung der Agrarstruktur war. In der Folge schickte sich Deutschland an, als Vorbereitung für den Krieg eine wirtschaftliche Autarkie aufzubauen. Seine gesamte Wirtschaft wurde vom Staat in einem Masse gelenkt, das in Friedenszeiten keine andere westliche Nation je gekannt hatte. Die deutsche Landwirtschaft und ihre Institutionen wurden peinlich genauen Regeln und Vorschriften unterworfen, die unter anderem nach der Beschreibung von Robert Cecil für die Gestaltung der gesteuerten Marktregimes der Gemeinsamen Agrarpolitik statt einer französischen oder holländischen eine deutsche Vaterschaft vorsahen.

Kirk weist darauf hin, dass im gleichen Zeitraum die britische Agrarpolitik Autarkie nicht als Tugend an sich akzeptierte und auch nicht zugab, dass der einheimische Bauer auf dem Binnenmarkt ein Anrecht auf absolute Priorität hat. Eine derartige Einstellung bildet sich nach allgemeiner Ansicht aus der relativ starken politischen Macht der

Agrarinteressen, die so lange im kontinentalen Europa vorherrschte. Es lässt sich allerdings vermuten, dass die engeren Beziehungen zum europäischen Festland die britische Haltung zur Priorität der britischen Landwirtschaft auf dem Binnenmarkt allmählich beeinflussen werden. Man denke nur an die Beispiele Kartoffeln und Milch.

Dort, wo die Ausstattung mit natürlichen Kraftreserven in den beiden Ländern ähnlich gelagert ist, führen Unterschiede in den gesellschaftlichen, wirtschaftlichen und politischen Zielen für den Agrarsektor der beiden Länder naturgemäss zu unterschiedlichen Strukturen und unterschiedlicher Nutzung der Ressourcen. Wenn zum Beispiel ein Land nach grösserer Selbstversorgung mit Lebensmitteln strebt als das andere, ergeben sich hieraus so gut wie unvermeidlich höhere Preisangebote an seine Bauern, damit die zusätzlichen Vorräte beschafft und die höheren Grenzkosten aufgefangen werden können, die durch solche Massnahmen entstehen. Dies ist heute in der Bundesrepublik und in Grossbritannien der Fall.

1870 unterschieden sich die Landgebiete, Bevölkerungszahlen und Ressourcen im Deutschen Kaiserreich und im Vereinigten Königreich bedeutend. In den letzten dreissig Jahren allerdings vollzog sich hier ein Wandel zu einer bemerkenswerten Parallelität, die sich auch auf das technische Niveau der beiden Volkswirtschaften auf dem Agrar- und anderen Sektoren erstreckt. In der Bundesrepublik lebt eine Gesamtbevölkerung von 61 Millionen, in Grossbritannien leben 56 Millionen, und die auf die Land- und Forstwirtschaft entfallende Fläche weist eine Abweichung von nicht mehr als etwa 6000 Hektar auf. In Anbetracht dieser grundsätzlichen Ähnlichkeiten gestalten sich Vergleiche zwischen der Ressourcennutzung und der Ressourcenproduktivität in der Landwirtschaft der beiden Länder umso interessanter und lehrreicher.

Der dritte Bericht enthält 38 "Paare" statistischer Zeitreihen zur Entwicklung der Agrarsektoren in der Bundesrepublik und dem Vereinigten Königreich zwischen 1870 und 1975. Vierzig solcher Reihen waren für Deutschland bereits von Professor Adolf Weber von der Universität Kiel zusammengestellt worden.[1] Man beschloss daher,

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[1] Weber,A., Produktivitätssteigerung in der Deutschen Landwirtschaft: 1850-1970. Universität Minnesota, Abteilung für Landwirtschaft und Angewandte Volkswirtschaft, 1973.

vergleichbare Reihen für England zu erstellen und den gesamten Zeitraum bis 1975 zu verlängern. Eine Bezugnahme auf die entsprechenden Zeitreihen mag dem Leser das Verständnis der ersten beiden Berichte erleichtern. Die Untersuchung beschreibt die Methoden, mit denen eine (bzw. keine) Vergleichbarkeit erzielt wurde.

Die Probleme im Zusammenhang mit der statistischen Auswertung mehrfacher Zeitreihen, insbesondere wenn diese in summarischer Form erscheinen, sind beträchtlich und sprengen den Rahmen dieser Untersuchung. Jedoch versucht die historische Darstellung, mit Hilfe einiger zusätzlicher Daten Licht auf die Bedeutung dieser Information für einen Vergleich der Agrarentwicklung in Deutschland und England zu werfen. Daneben hoffen wir, dass diese Daten sich für weitergehende Forschungsarbeiten als wertvolle Quelle erweisen werden.

Den Ausgangspunkt unseres Berichts bildete das Erscheinen eines gemeinsamen wirtschaftlichen Faktors - billiges Getreide aus Nordamerika. Er schliesst mit dem Auftreten eines gemeinsamen politischen Faktors - dem Vertrag von Rom und der Gründung der Europäischen Wirtschaftsgemeinschaft mit ihrer Gemeinsamen Agrarpolitik. Das Hauptproblem in der Zukunft wird sein, die verschiedenen agrarpolitischen Interessen der Bundesrepublik und Grossbritanniens unter den Hut einer Gemeinsamen Agrarpolitik zu bringen. Die Abhängigkeit Grossbritanniens von Nahrungsmittelimporten in Verbindung mit einer Einbusse der industriellen Wettbewerbsfähigkeit - trotz seiner billig orientierten Nahrungsmittelpolitik - haben zu einem laufenden Zahlungsbilanzdefizit geführt, das von den Erdölvorräten in der Nordsee nur vorübergehend gemildert wird.

Die Bundesrepublik andererseits brachte wie die meisten anderen Mitgliedsstaaten die ungelösten Probleme ihrer Agrarstruktur, kostenintensiven Produktion und Einkommensdisparität mit sich. Nach Cecil allerdings "gelten eine kostenintensive Landwirtschaft und Lebensmittelpolitik in der Bundesrepublik nicht als untragbar, so lange die industrielle Produktion blüht, hohe Löhne beibehalten werden und ein expansiver Arbeitsmarkt den Auswanderwilligen genügend Aufnahmefähigkeit bietet. Ein grösserer wirtschaftlicher Rückschlag könnte allerdings bald einer Neueinschätzung der Agrarpolitik Vorschub leisten."

Die allgemein anhaltende wirtschaftliche Rezession in der westlichen Industriegesellschaft könnte sich sehr wohl als Vorbote einer solchen Neueinschätzung sowohl der Gemeinsamen Agrarpolitik wie der innerstaatlichen Agrarpolitik einzelner Mitgliedsstaaten ankündigen.

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