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STRUCTURAL CHANGES IN WEST GERMAN AGRICULTURE

ABSTRACT

Structural changes in West German agriculture in the past two decades and the role of Government programs in bringing about these changes are discussed. These changes include those related to the agricultural labor force, farm size and farming structure, land tenure and consolidation, part-time farming, and marketing systems. The report compares West German agriculture with that of other European Community countries. Other subjects include trends in farm productivity and income and public expenditures for agriculture. The outlook for West German agriculture for the rest of the decade of the seventies is also discussed.

Key Words: West Germany, European Community, Agriculture, Farm labor force, Farming structure, Land tenure.

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SUMMARY

In West Germany, as in other European Community (EC) countries, a sharp decrease in the farm labor force and number of small farms has taken place during the past two decades. However, despite the resulting increase in the average farm size, German agriculture still consists predominantly of small owner-operated family farms. Other significant structural changes include consolidation of fragmented holdings, relocation and modernization of farmsteads, and improvements in the rural infrastructure and in the marketing system for farm products.

Since 1950, West Germany's farm labor force has declined by nearly two-thirds, with hired workers showing the greatest relative decrease. Farms decreased in number by more than one-third, but their average size, which rose by nearly one-half, is still only about 10 hectares. Excluding farms under 5 hectares in size, most of which are now part-time operations, the average size of West German farms in 1970 was only 17 hectares (42 acres).

Slightly more than one-tenth of the agricultural area of West Germany is in farms larger than 50 hectares, compared with nearly one-third in France. Although agricultural technology in West Germany is more advanced than in France and yields per land and livestock unit are generally high, German labor productivity is lower. Without further declines in the farm labor force at rates higher than in the other EC countries, it will be increasingly difficult for German farmers to compete in the Common Market.

Membership in the EC has led to near elimination of protection of West German agriculture against competition from other EC members (although not from the rest of the world). By the late 1960's, the necessity of restructuring West German agriculture was acknowledged even by the Bauernverband (German Farmers' Association), which, at the same time, continues its demands for higher prices and protection of farm products. Several plans have been developed to encourage land disposal to make additional land available for farm enlargement. Under current West German agricultural programs, farmers who meet specific standards based on farm size and potential productivity of their farm operations are entitled to Government financial assistance for farm modernization. Operators of farms not considered potentially viable are eligible for financial assistance to retire or shift to other occupations. Similar provisions are also in effect for EC financial assistance under the Mansholt plan for structural reform of EC agriculture, adopted in 1971.

Developments in the nonagricultural sectors of West Germany's economy will probably continue to have greater effect on domestic agriculture than government programs. If full employment is maintained and nonfarm incomes

continue to rise faster than farm incomes, nonagricultural employment undoubtedly will continue to attract an increasing proportion of the younger farmers. Except when land is kept for part-time farming, this should result in more land becoming available for enlargement of full-time farms. Older farmers are being encouraged to retire early by special premiums given only if they release their land for long-term lease or sale.

An economic recession or the fear of recession could slow down the exodus of rural youth from agriculture--at least temporarily. Also, the decline in the farm labor force and increase in farm sizes might be slowed down as a result of changing attitudes toward the environment. If, as this new philosophy advances, farmers are paid directly for their "landscape management" services, many small holdings that would otherwise become part of larger farms might be preserved as full- or part-time farms. On the other hand, Government support of industry decentralization under regional development programs aimed at making jobs available in rural areas and preventing their depopulation could help accelerate the decline of the agricultural labor force.

Whatever structural changes occur, West German agricultural production will not continue to increase at the rapid rate of the past two decades. According to a recent projection, the average annual increase in total farm production during the 1970's may be slightly above $\frac{1}{2}$ percent, compared with more than 2 percent in the 1960's and over 3 percent in the 1950's.

West Germany depends more on imports for most farm products than do other EC countries. With a declining rate of population growth and low income elasticities for farm products, the country's overall level of self-sufficiency probably will not change appreciably. West Germany is the major EC market for U.S. farm products. During the 1960's, West Germany's agricultural imports from the United States increased but by substantially less than its imports from EC members, resulting in a sharp rise in the share of EC countries in the West German market. Assuming no substantial change in EC agricultural policies, the share of EC countries in West Germany's agricultural trade will probably continue to rise.

STRUCTURAL CHANGES IN WEST GERMAN AGRICULTURE

by

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INTRODUCTION

Agriculture in West Germany, as in other EC countries, has undergone major structural changes since 1950. The changes discussed in this report include those in size and layout of farm holdings, location and structural equipment of farmsteads, size and composition of the farm labor force, the infrastructure of rural areas, and the marketing system for farm products. They exclude technological improvements such as increased use of machinery, fertilizer, pesticides, and other inputs which may or may not be related to structural changes.

From 1955 to 1969, EC's labor force in agriculture (including forestry and fishing) decreased by more than two-fifths, with the share of the total active labor force in this sector declining from 26 to less than 14 percent. Many of those leaving agriculture were marginal farmers and the number of small farms also decreased substantially. Most of the remaining farms, however, are still too small for efficient farming--by far the main structural problem of EC agriculture, especially in West Germany and Italy.

The attraction of nonagricultural jobs and the retirement of older farmers without heirs willing to operate their farms will cause further reductions in the number of small, nonviable farms. However, without intensified efforts on the part of EC or of member countries in their territories, the process is not fast enough to prevent widespread unrest among the farmers left behind with incomes well below those of nonagricultural workers.

Problems of restructuring EC agriculture have been receiving increased attention since Sicco Mansholt, now President of the EC Commission, proposed his plan for structural reform of EC agriculture in 1968. The European Agricultural Guidance and Guarantee Fund (EAGGF), as conceived in 1962, was to serve as a means of aiding structural improvements in producing and marketing EC farm commodities, as well as supporting their prices. In practice, however, because prices were set at levels which encouraged the production of surpluses, over 90 percent of EAGGF funds have been used for price support, mainly for

export subsidies. In addition, all the EC member countries have carried out structural reform programs. While these have been small compared with problems to be solved, they have been much more important than those financed by the EAGGF. The impetus for these programs was the need not only to increase the income of farmers, but also to improve the competitive position of domestic agriculture, especially after the Common Agricultural Policy (CAP) was adopted and domestic agriculture was no longer protected against competition from other EC countries.

The rapid development of the West German economy after the post-World War II recovery was undoubtedly the major cause of structural improvements in agriculture in that country. Most of the hired workers left agriculture to take more remunerative jobs in West Germany's booming industry, and many small farmers have done the same, either leaving agriculture entirely or continuing to farm only on a part-time basis. The programs carried out by the West German Federal Government and State governments have had a considerable role in improving the agricultural situation. It is generally agreed, however, that until recently structural improvements have been given less emphasis than desirable.

Two German plans aimed primarily at structural improvements were announced in 1968 before the EC Mansholt proposal was published--one by the Minister of Agriculture and the other by the Minister of Economics. Both plans called for an accelerated decline in the number of farmers and, in a sense, prepared the way for German acceptance of some of the basic ideas of the Mansholt plan. The current West German structural reform program, under the Social Democratic Administration, adopted late in 1970, is likely to have considerably greater effect on the structure of West German agriculture than the Mansholt plan, finally adopted on a somewhat reduced scale in March 1971.

WEST GERMAN AGRICULTURE AND ITS REGIONAL VARIATIONS

West Germany encompasses an area of about 248,000 square kilometers (95,700 square miles)--slightly larger than that of the States of New York and Pennsylvania combined. Its population of over 61 million is about twice as large.

Only the northern third of West Germany has extensive lowland areas (fig. 1). The rest consists mainly of hilly lands, interspersed with plains, valleys, and low mountains, rising to higher plateaus and mountains in the south--to the northern fringe of the Alps in the extreme south, the Böhmer Wald along the Czechoslovak border in the southeast, and the Black Forest in the southwest.

The territory of West Germany consists of 11 administrative regions, called Länder ^{1/}, including three city-States--Bremen, Hamburg, and West Berlin. The northern lowlands, which are mainly below 100 meters in elevation, include all of Schleswig-Holstein, more than half of Niedersachsen, and the northwestern part of Nordrhein-Westfalen. The plateau and mountainous areas above 500 meters in elevation lie mostly in Baden-Württemberg and Bavaria, largely south of the Stuttgart-Munich line. Elevations in the rest of the country range

^{1/} These regions are called States in this report.

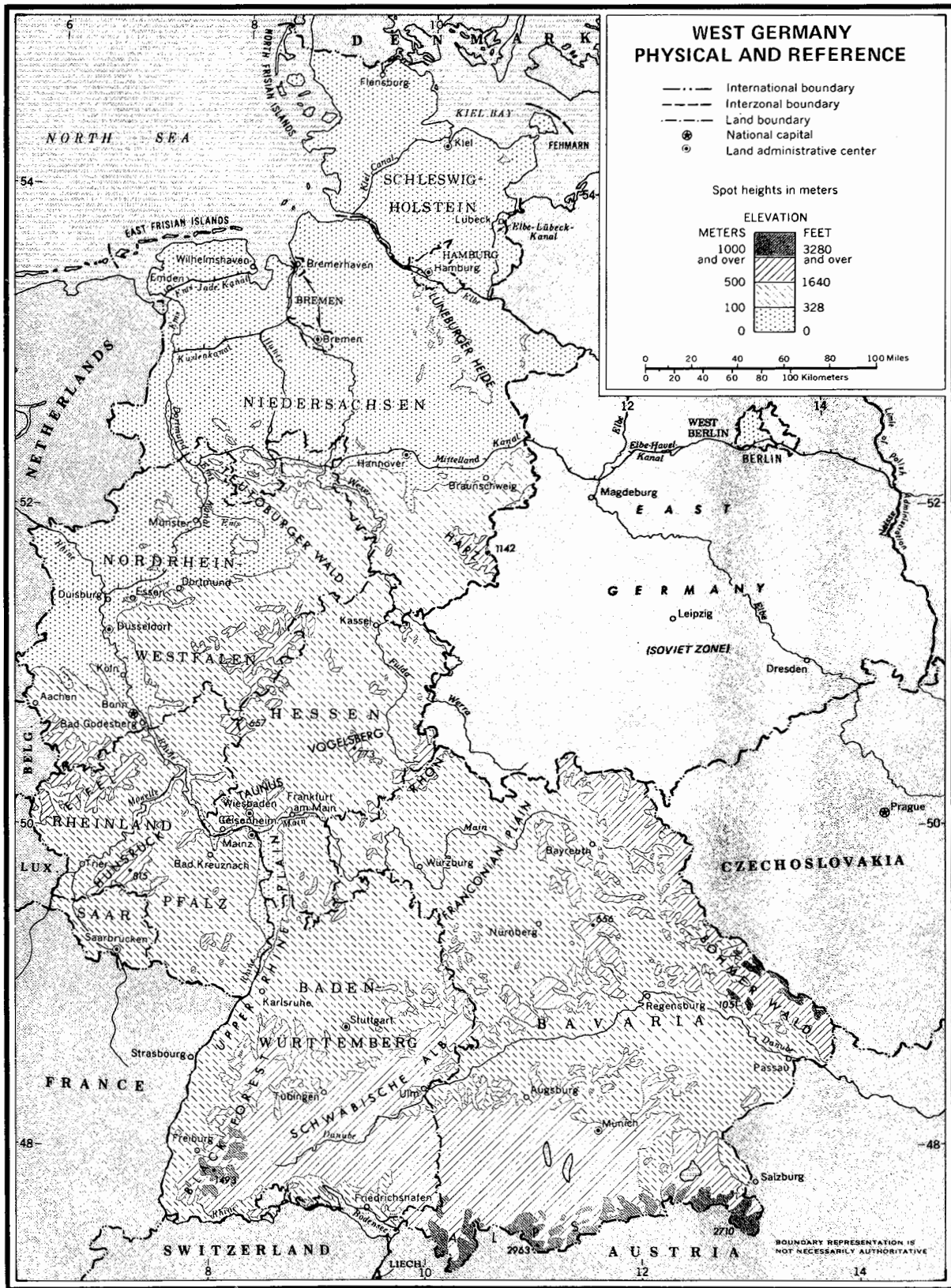


Figure 1

mainly from 100 to 500 meters, with few mountains rising above 600 to 800 meters. The only lowlands of any larger extent in the central and southern parts of the country are the valleys along the Rhine River and its tributaries.

West Germany has a temperate climate, transitional between the marine climate of the northwest European fringe countries and the continental climate of central and eastern Europe. The seasonal differences in temperature are nowhere as extreme as those prevailing in the northern parts of the Atlantic Region of the United States. The warmest region of West Germany is the Upper Rhine Valley. Numerous smaller protected valleys also have temperatures above the regional average.

Prevailing winds are westerly, and precipitation occurs throughout the year, tending everywhere to be somewhat higher in summer months. It ranges annually from 20 to 30 inches in the northern lowlands and from 24 to 40 inches in the central and southern hilly and low mountainous areas. In some higher altitudes, precipitation totals about 40 inches; in the German part of the Alps, it reaches 80 inches and more. At elevations above 500 meters, snow cover can accumulate 1 meter. Spring generally arrives fairly late in most of West Germany, except in such sheltered areas as the Upper Rhine Valley.

The soils of West Germany are not, in general, of high natural fertility. Much of the land, however, is responsive to good management and has become highly productive after generations of use.

Differences in both physical characteristics and historical development have led to considerable variations in farming patterns--not only among the States but also within them. ^{2/} About 55 percent of the total area of West Germany is used for agricultural production (fig. 2). ^{3/} Schleswig-Holstein has the highest proportion of agricultural land; Hessen and Rheinland-Pfalz, the lowest. Nearly three-fifths of West Germany's agricultural area or one-third of its total area is arable land (including gardens and permanent crops, which together comprise less than 7 percent of the arable land or 4 percent of the total agricultural area). The proportion of total area in arable land is highest in Schleswig-Holstein and lowest in Hessen and Baden-Württemberger. Over one-fifth of the country's area consists of permanent meadows and pastures, with the highest proportion again located in Schleswig-Holstein and the lowest in Rheinland-Pfalz.

Over two-thirds of the arable land (excluding gardens and permanent crops) is planted to grains--mainly wheat, barley, oats, and rye. Summer meslin (mixed barley and oats) is also important, and corn, though still a very minor grain, is growing in significance. All the grains produced, including wheat and rye, are used in large part for livestock feed. Other major crops, in order of area devoted to them, include fodder crops--mainly fodder beets,

^{2/} Statistics for the States included in this report show only totals or averages of somewhat heterogenous conditions. Nevertheless, these data give a useful overall picture of the main structural differences in the farming organization of the various parts of the country.

^{3/} This percentage excludes nearly 1 percent of the country's area which still is classified as agricultural land but no longer is used for agricultural production.

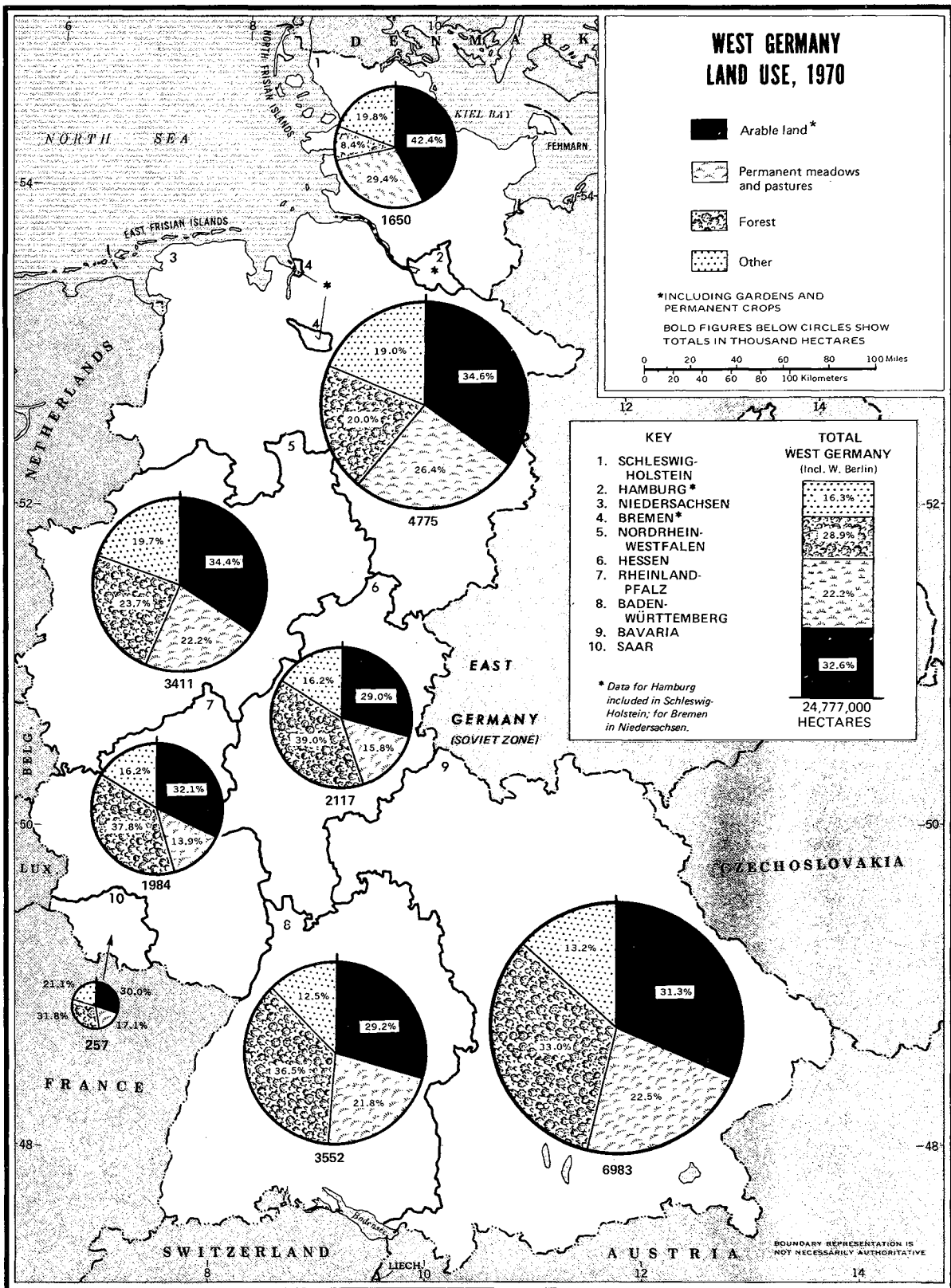


Figure 2

temporary meadows (clover or mixtures of clover with grass or alfalfa), and corn for silage; potatoes--of declining importance; and sugarbeets. Including the share of bread grains used for feed, over two-thirds of the arable land is devoted to feed crops. Including permanent meadows and pastures, over three-fourths of the country's agricultural area is used for feeding livestock (53,54).^{4/}

Nearly three-tenths of West Germany's area is in forests, ranging from a maximum of nearly two-fifths in Hessen (and proportions above average in all of the southern States) to a minimum of less than one-tenth in Schleswig-Holstein (fig. 2). Over half the total forest area belongs to the States and communities; two-fifths is privately-owned, most being part of holdings used mainly for agricultural production. The rest belongs to the Federal Government, corporations, or cooperatives (56). All the forests have been used and managed quite intensively for years. They are managed not only for wood production but also for watershed and erosion control, recreation (about 14 percent of the forest area is in natural parks), and wildlife.

The predominant type of rural settlement in West Germany is the clustered village, which consists of three main types: (1) small, loosely clustered village with seldom more than 300-400 inhabitants--found mainly in less fertile regions of Niedersachsen and Schleswig-Holstein; (2) closed clustered village with populations up to 1,000 and farmsteads close to one another--found mainly in southeastern Niedersachsen, Nordrhein-Westfalen, northern Hessen, and the village areas of Bavaria; and (3) industrial village, some with populations as large as 3,000 to 5,000--common in Baden-Württemberg, northwestern Bavaria, southern Hessen, the Saar, and a large part of Rheinland-Pfalz. The main disadvantage of the clustered villages is that fields generally are not adjacent to the farmsteads, often lying at considerable distances from them. The problem is most serious in the industrial villages, which often are so crowded that expansion or modernization of the farmstead in the village is virtually impossible (92).

Other types of villages--such as the strip or pie-shaped village--where the farmer has direct access to his fields, are found in some areas but are much less common. Single farms are found mainly in northeastern Schleswig-Holstein, western Niedersachsen, northwestern Nordrhein-Westfalen, and southern and northeastern Bavaria (92, pp.24-28).

Most farms in West Germany range in size from small to medium, the latter still small by U.S. standards. The differences in farm size structure among the various parts of the country reflect, in large part, differences in traditional inheritance customs among areas. In Schleswig-Holstein and Niedersachsen and in most of Nordrhein-Westfalen and part of Bavaria, farms generally have been passed on intact to the Anerbe (principal heir), who generally is the oldest son. Under this custom, the rest of the children have the right to an appropriate education, a share of available assets not required for successful operation of the farm, and often the right to return to the farm temporarily in case of extreme need. The goal of this undivided inheritance custom is to keep the farm in the same family through succeeding generations. While this

^{4/} Underscored numbers in parentheses refer to items listed in the Bibliography.

form of inheritance has helped to prevent splitting up of farms, it tends to make it more difficult to enlarge the size of farms considered too small by present-day standards, as few parcels of land become available for rent or purchase in regions where this form of inheritance is customary (72, pp. 21-29).

In the rest of the country, Realteilung--the practice of dividing land among the heirs--has been the custom for centuries. This practice not only accounts for the small size of most farms in these areas, but also for their excessive fragmentation.

Since World War II, the sharp differences between undivided farm inheritance customs of the northern and southeastern areas and the divided farm inheritance customs of the rest of the country have been reduced. In industrialized areas where undivided inheritance has been the custom, some or even all the land is divided sometimes among the heirs. On the other hand, in areas where divided inheritance is traditional, there has been a trend toward undivided inheritance. Under the land transfer law of 1961, permission for distribution of land among heirs may be denied if it would result in uneconomic holdings (72, p.28).

Nearly two-thirds of West Germany's farms had less than 10 hectares of agricultural land in 1970 (fig. 3). The only State with a proportion of such small farms lower than half is Schleswig-Holstein. At the other extreme, nearly four-fifths of Baden-Württemberg's farms were smaller than 10 hectares, and only 1.3 percent had 30 hectares or more.

Of the total agricultural area of West Germany's farms, less than three-tenths was in farms of 30 hectares and more (fig. 4). Farms of medium size (10-30 hectares) had about half of the country's agricultural area. Only in Schleswig-Holstein and Niedersachsen is the area in farms 30 hectares and over greater than that in medium-sized farms. At the other extreme, less than one-tenth of the agricultural area in Baden-Württemberg was in farms of 30 hectares and larger.

In 1969, nearly 10 percent of West Germany's labor force was still engaged in agriculture, including forestry and fishing (fig. 5). The highest percentage was in Rheinland-Pfalz and Bavaria; ^{5/} the lowest was in Rheinland-Westfalen (which includes the industrial Ruhr) and the Saar, where over half the labor force consisted of industrial workers.

In Baden-Württemberg, where over half the labor force also consists of industrial workers, the share of the labor force in agriculture is nevertheless above the average, probably because there are so many part-time farms operated by families headed by a man with full-time industrial employment. Under such circumstances, the wife, who may do the major share of the farmwork and also run the household, is classified in official employment statistics as a full-time agricultural worker.

^{5/} In Niedersachsen, excluding Bremen, the share of the labor force in agriculture was 15.2 percent; in Schleswig-Holstein, excluding Hamburg, it was 11.8 percent.

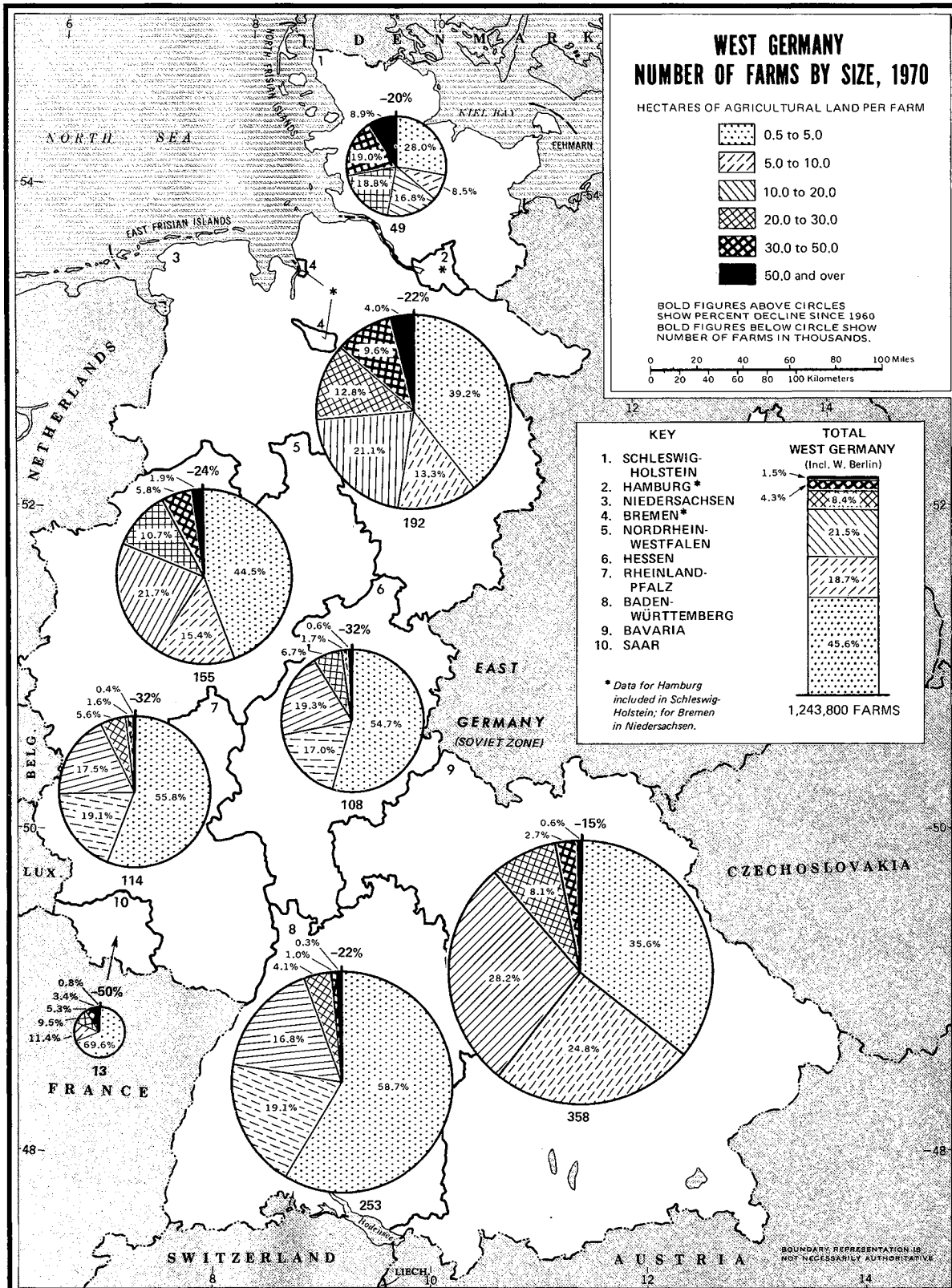


Figure 3

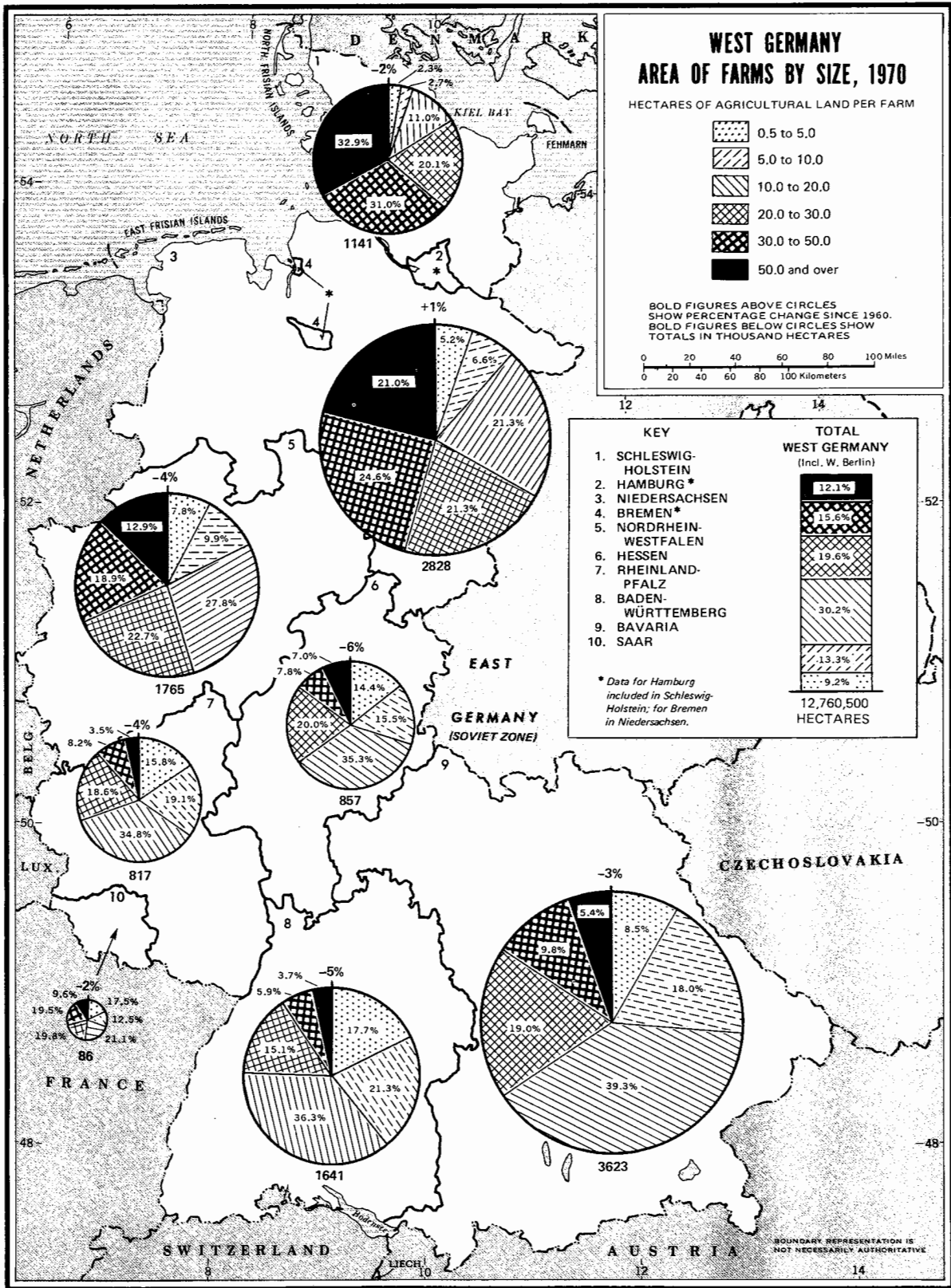


Figure 4

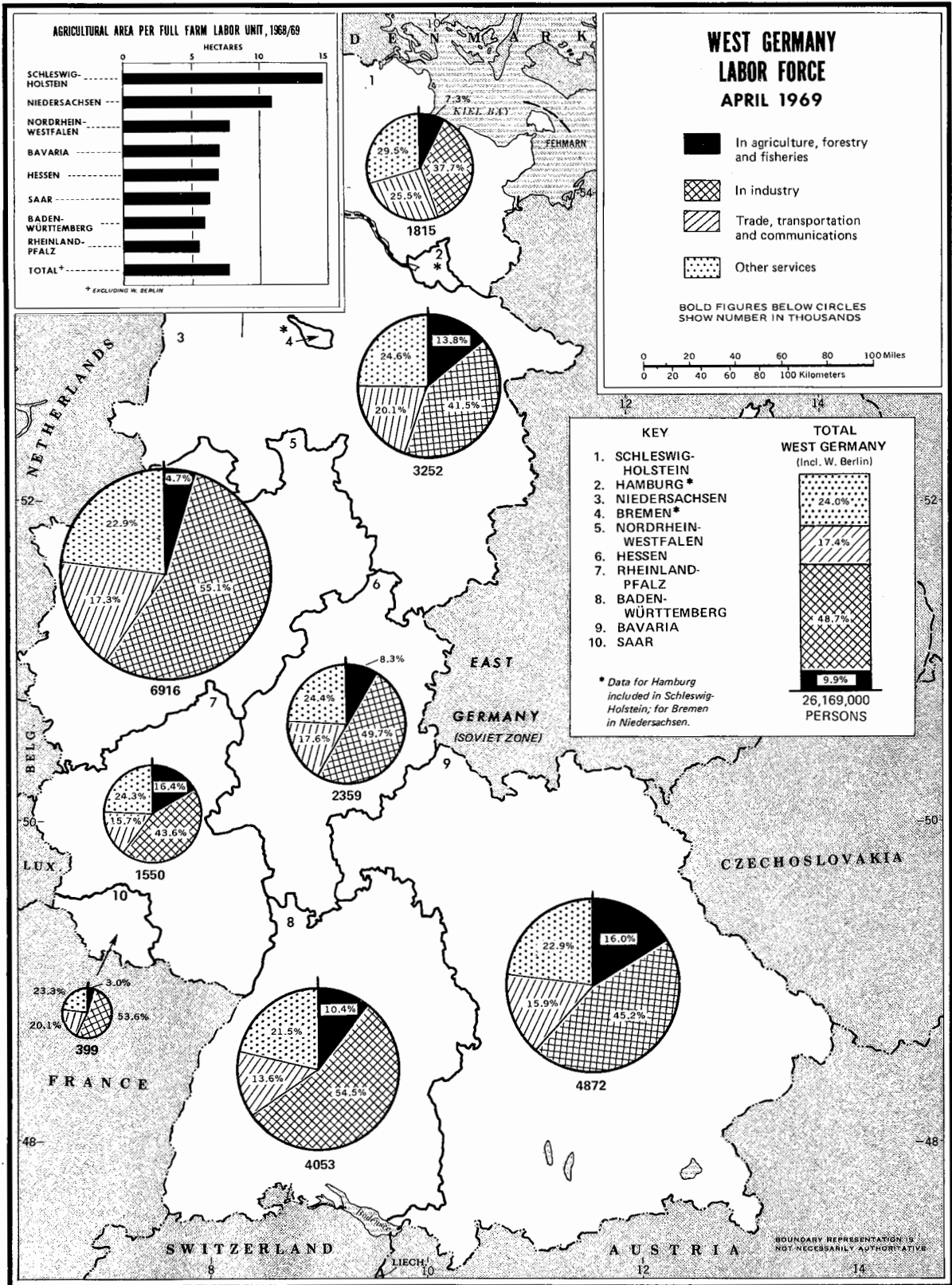


Figure 5

As indicated by the data in the upper inset of figure 5, the agricultural area available per farmworker is much higher in the northern States, especially in Schleswig-Holstein, than in the south. It is lowest in Rheinland-Pfalz and Baden-Württemberg.

Although West Germany is one of the world's most highly industrialized countries, its agriculture continues to supply a large share of its food requirements, despite the loss of the agricultural hinterland of East Germany and the former German territories east of the Oder-Neisse after World War II. With a total population of about 450 per 100 hectares of agricultural land, West German farmers, on the average, produce food for nearly 270 persons per 100 hectares, excluding livestock items produced from imported feed--about 340 including such livestock products. ^{6/} West Germany imports about one-fourth of its food, not counting feed, or nearly two-fifths including the livestock product equivalent of imported feed.

Excluding the United States, West Germany is the world's second largest importer of agricultural products, in value terms, after the United Kingdom. Its agricultural imports range from one-fifth to one-fourth of its total imports; its exports of agricultural products are small but increasing.

West Germany is the fourth largest customer for U.S. agricultural exports, following Japan, Canada, and the Netherlands. In fact, she is the third largest, since the ultimate destination of a substantial part of agricultural products sold to the Netherlands is actually West Germany. U.S. farm products exported directly to West Germany in 1969-70 consisted mainly of soybeans and soybean cake, tobacco, and grains--mainly corn and wheat. Other items of lesser importance include poultry and variety meats; fruits, nuts, and vegetables; and cotton and cottonseed oil.

COMPARISON OF AGRICULTURE IN WEST GERMANY AND OTHER EC COUNTRIES

The predominance of small farms is characteristic not only of West Germany but also of the entire EC except France, where the average size of farms is larger--though still very small by U.S. standards. Nearly one-third of the agricultural area of France is in farms of 50 hectares and more, compared with little more than one-tenth in West Germany (table 1).

More farm operators in West Germany than in any other EC country augment their farm income with nonagricultural earnings or depend on farming only as a supplementary source of income. According to the 1966/67 EC structural survey, ^{7/} 34 percent of West Germany's operators of farms 1 hectare or more in size were part-time farmers, compared with an average of 23 percent in the rest of the Community. A larger share of West German farms consisted of family farms operated entirely or mainly with family workers than of farms in any other EC country--94 percent, compared with an average of 75 percent in the rest of the Community. The proportion of the total agricultural area which was owner-operated was also higher in West Germany than in any other member country--78 percent, compared with 57 percent in the rest of the Community (32).

^{6/} Computations based on grain unit values (53, 1970, p. 149).

^{7/} Data for West Germany in the EC structural survey are not fully comparable with official West German statistics given elsewhere in this report.

Table 1.--Number, agricultural area ^{1/}, and average size of farms of 1 hectare and more, European Community, 1966/67 ^{2/}

Category	West Germany	France	Italy	Netherlands	Belgium	Luxembourg	Total EC
Number of farms:	----- <u>1,000</u> -----						
All farms	1,136	1,576	2,567	203	151	8	5,641
Size of farm (in hectares of agricultural land)	----- <u>Percent</u> -----						
1-2	12.2	8.1	30.7	14.3	12.4	7.0	19.6
2-5	24.4	15.7	38.1	20.4	25.4	17.1	28.1
5-10	23.9	19.5	18.1	24.2	27.5	16.5	20.1
10-20	25.7	26.2	8.3	27.2	23.1	25.5	17.9
20-50	12.3	23.6	3.4	12.8	10.1	31.1	11.4
50-100	1.3	5.4	.9	1.0	1.3	2.7	2.2
100 and over . . . . .	.2	1.5	.5	.1	.2	.1	.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Agricultural area:	----- <u>1,000 Hectares</u> -----						
All farms	12,631	30,048	17,685	2,215	1,561	133	64,273
Size of farm (in hectares of agricultural land)	----- <u>Percent</u> -----						
1-2	1.6	0.6	6.3	1.9	1.7	0.6	2.4
2-5	7.4	2.8	17.4	6.1	8.3	3.4	7.9
5-10	15.6	7.5	18.1	16.4	19.4	7.3	12.6
10-20	32.7	19.8	16.4	35.0	31.4	22.7	22.2
20-50	31.5	37.5	14.4	33.5	27.7	55.3	29.7
50-100	7.4	18.8	8.6	5.6	8.7	9.7	13.1
100 and over	3.7	12.9	18.9	1.5	2.8	.9	12.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Average size:	----- <u>Hectares</u> -----						
All farms	11.1	19.1	6.9	10.9	10.3	16.9	11.4

^{1/} Includes only area actually used for farming.

^{2/} Data for West Germany, Netherlands, Belgium, and Luxembourg are for 1966; for France and Italy, 1967. Data for West Germany are not comparable with historical series shown elsewhere in this report.

Source: (31).

In discussing the problems of European agriculture, the press commonly describes West German agriculture as inefficient. Undoubtedly, this is true if efficiency is measured in terms of labor productivity. West Germany's share of EC's gross domestic product (GDP) from agriculture is somewhat lower than its share of the agricultural labor force, in contrast to the considerably higher ratio of the share of agricultural GDP to the share of the agricultural labor force of France, and the much higher ratios of the Netherlands and Belgium-Luxembourg (table 2). In 1969, West German GDP from agriculture including forestry and fisheries) per employed person in that sector was nearly 25 percent below that of France and less than half that of the Netherlands and Belgium (35). All these countries, however, have more agricultural land per person engaged in agriculture than West Germany; France has twice as much. Italy, with a somewhat smaller area of agricultural land per farmworker, has an even lower level of farm labor productivity than West Germany.

Although the increase in West Germany's agricultural labor productivity during the 1960's was approximately the same as that of France and the Low Countries, in terms of constant prices, 8/ the disparity in terms of current prices and exchange rates between West German agricultural GDP per employed person and that of the other countries was considerably greater than it was in 1960. This disparity would have increased even more had Germany not re-valued its currency twice--in 1961 and 1969--and France devalued its currency in 1969. 9/

The increase in disparity between agricultural labor productivity in Germany and in France and the Low Countries resulted because West German prices for farm products, which were generally much higher than those of the other EC countries in 1960, had risen little by 1969, while those in the other countries had shown sharp increases. 10/ The following indices of prices in the agricultural sector (including forestry and fisheries) were computed from national accounts data (1960 = 100):

	<u>1967</u>	<u>1968</u>	<u>1969</u>
West Germany	105	102	106
France	125	125	136
Italy	132	129	138
Netherlands	127	na	na
Belgium	122	128	138

Undoubtedly, agricultural technology is further advanced in West Germany than in any other EC country except the Netherlands and Belgium. West German

8/ The increase, as in all EC countries, was greater than for other sectors of the economy. In Italy, the rate of increase in the agricultural sector was considerably greater than that in Germany.

9/ The Netherlands also raised the value of its currency in 1960, but not in 1969. Belgium, Luxembourg, and Italy made no changes. Changes that occurred after November 1971, when this report was completed, are not covered.

10/ See p. 18 for discussion of prices in the Common Market.

Table 2.--Selected data for EC countries, various years or periods

Category	Period or year	West Germany	France	Italy	Netherlands	Belgium- Luxembourg	Total EC
Area and population:		<u>Percent of total EC</u>					
Total area	1969	21.3	46.9	25.8	3.1	2.8	100.0
Agricultural area in use	1969	19.4	47.2	27.7	3.2	2.5	100.0
Population	1969	32.3	26.8	28.8	6.8	5.3	100.0
Labor force and GDP:1/							
Total labor force	1969	35.6	27.3	25.8	6.2	5.1	100.0
Agricultural labor force 2/	1969	25.5	28.7	40.3	3.4	2.1	100.0
Total GDP 1/	1969	35.9	32.8	19.2	6.6	5.5	100.0
Agricultural GDP 1/ 2/ 3/	1969	22.6	34.2	32.3	6.5	4.4	100.0
Fertilizer consumption:4/		<u>Kilograms per hectare of agricultural land</u>					
Nitrogen	1968/69	68.4	36.2	26.5	151.5	102.0	45.1
Phosphate	1968/69	58.8	48.8	24.1	46.4	108.9	45.3
Potassium	1968/69	76.7	36.6	9.2	55.9	108.4	39.2
Farm machinery:							
Tractors	1968	<u>Number per 1,000 hectares agricultural area</u>					45.9
Combines	1968	<u>Number per 1,000 hectares grain area</u>					14.9
Milking machines	1968	<u>Number per 1,000 milk cows</u>					n.a.
Average yields:		<u>100 kilograms per hectare 5/-</u>					
Wheat	1965-69	37.4	34.0	22.8	44.0	37.1	30.0
Barley	1965-69	33.8	31.9	15.4	38.0	35.6	32.1
Potatoes	1965-69	270	204	117	319	276	226
Sugarbeets	1965-69	433	430	366	456	434	417
Fodder beets	1965-69	734	566	440	741	867	635
Wine	1965-69	87.3	50.9	44.3	6/	7/	48.3
Milk	1965-69	<u>100 kilograms per milk cow</u>					32.8

--Continued

Table 2.--Selected data for EC countries, various years or periods--Continued

Category	Period or year	West Germany	France	Italy	Netherlands	Belgium- Luxembourg	Total EC
Production-consumption ratio for:							
		----- Production as percent of domestic utilization -----					
Wheat	1968/69	92	161	95	54	63	112
Rye	1968/69	104	112	106	103	90	104
Barley	1968/69	82	159	20	79	64	106
Oats	1968/69	95	104	60	138	86	96
Corn	1968/69	11	156	45	-	0	55
Potatoes	1968/69	93	103	95	124	98	99
Sugar	1968/69	88	138	81	90	148	103
Vegetable oil <u>8/</u>	1968/69	7	19	43	<u>6/</u>	1	23
Vegetables <u>9/</u>	1969/70	52	94	110	184	114	99
Fruit (except citrus) <u>9/</u>	1969/70	60	98	115	82	71	88
Wine	1968/69	56	98	97	2	<u>7/11</u>	93
Meat	1968/69	86	93	79	167	108	93
Milk products:							
Dried milk	1968/69	140	222	61	55	165	148
Cheese	1968/69	85	109	90	226	48	102
Butter	1968/69	104	118	63	350	109	113
Agricultural imports:							
		----- Million dollars -----					
Total <u>10/</u>	<u>11/1965-69</u>	4,988	2,752	2,630	1,508	1,251	<u>9/13,129</u>
From EC countries	<u>11/1965-69</u>	1,784	569	601	384	511	3,846
From United States	<u>11/1965-69</u>	586	216	276	357	159	1,594
From other countries	<u>11/1965-69</u>	2,618	1,967	1,753	767	581	7,689

n.a. = Data not available.

1/ Gross domestic product at market prices. 2/ Includes forestry and fisheries. 3/ Partly based on preliminary estimates. 4/ Plant nutrient content. 5/ For wine, hectoliters per hectare of vineyards in production. 6/ Insignificant, if any. 7/ Production almost entirely in Luxembourg; yields there averaged 111 hectoliters per hectare.

8/ Production from domestic seed only. 9/ Including canned as fresh. 10/ Total does not represent EC imports, since it includes intra-EC trade. 11/ Average. Sources: (29, 35, 40, 41, 53).

farmers apply more fertilizer per hectare of agricultural land than farmers in the rest of the Common Market, except for the Netherlands and Belgium (table 2). The level of mechanization is much higher than that of any other member of the Community--often too high for economic use of the machinery on smaller farms. West German yields per hectare of most crops, as well as yields per milk cow, are above average for the EC. However, without a further sharp decline in the number of farms (that is, increase in their average size), accompanied by a further decline in the agricultural labor force--substantially greater than the decline in France and the Low Countries--West German labor productivity cannot be expected to reach their levels, much less the level of the United States.

West Germany is more dependent on imports for most of its agricultural products than other Common Market countries, as indicated by the data in table 2 showing production in percentage of domestic utilization. The problem of butter, wheat, and sugar surpluses in the Common Market in recent years has been largely solved--at least for the time being--by heavily subsidized exports. Without some form of supply control or price reductions, however, such problems will recur and may even become aggravated in the enlarged Common Market if U.K. and Danish farmers react as expected to the incentive of higher prices.

Intra-EC trade has accounted for an increasingly large share of the agricultural imports of West Germany and other member countries. From 1958 to 1969, the value of West Germany's total imports of food, beverages, and tobacco from other member countries nearly quadrupled--their share of West German imports of such products increasing from 24 percent to 43 percent. While the level of West Germany's agricultural imports from the United States has also increased substantially in value terms, the U.S. share of its growing agricultural imports has declined as the intra-EC share has increased. During 1965-69, West Germany took some 46 percent of total intra-EC agricultural imports, 37 percent of EC agricultural imports from the United States, and 34 percent of EC agricultural imports from other countries (table 2).

REVIEW OF AGRICULTURAL POLICY SINCE WORLD WAR II

For some time after the late 1940's, when the postwar period of widespread food shortages came to an end, ^{11/} the major goal of the agricultural policy of the new West German Government continued to be to provide the population with adequate food at reasonable prices. In June 1949, the Ministry of Agriculture set up a marketing commission to advise the Government on future agricultural policy (⁷⁶, p. 36). The commission members, while agreeing that controls would have to be continued until more normal conditions prevailed, disagreed on the most beneficial policy in the long run. Hence, the opinions of both factions are presented in the commission's report (⁵⁰). One group, consisting of several leading agricultural economists from academic circles, supported the viewpoint that agriculture, like the rest of the economy, should eventually return to a competitive economic system, subject to Government regulation to ensure maintenance of competition and protected from foreign competition essentially only by tariffs, except when measures to counteract dumping were required. ^{12/} The

^{11/} Rationing was discontinued in spring 1950.

^{12/} According to one member (⁷⁶), in autumn 1949, even the Bauernverband (German Farmers' Association)--the main farmers' organization in West Germany--had supported a proposal for such a policy.

other faction, consisting in considerable part of agricultural economists with experience in the Reich Food Estate (Reichsnährstand) during prewar and wartime periods, supported a system of market control including some major features of the system in use during the National Socialist era. The Government took the advice of the latter group, and during 1950 and 1951, four laws regulating grains, milk and fat, livestock and meat, and sugar were passed. Under these laws, import and storage agencies were set up which used a system of variable import levies to protect domestic producer prices. Essentially, this system was the same as that adopted later by the Common Market.

The next major step in postwar agricultural policy was the passage of the Agricultural Law of 1955. The first agricultural policy statement of the new West German Government in September 1949 had already emphasized the need for maintaining stable production and marketing conditions for agricultural products at prices covering the costs of efficient average farms. The leaders of the Bauernverband in a meeting with the Government in February 1951, called for a system of parity prices at levels to cover average production costs and to provide the farm population with a standard of living comparable to that of industrial workers (89, p. 25). This declaration was subsequently changed to a demand for equality of farmers' incomes with those of comparable industrial (semiskilled) workers (89, p. 37).

The Agricultural Law of 1955, as finally passed, stated that, to secure agriculture's participation in the continuing development of the German economy and the best possible supply of food for the population, the means of general economic and agricultural policy--especially trade, tax, credit, and price policy--were to be used to overcome the "natural and economic disadvantages of agriculture as compared with other economic sectors" and to increase agricultural productivity. The law provided for an annual report (known as the Green Report), to be submitted by February of each year, on the income and cost situation of West German agriculture, based on accounting data of 6,000-8,000 representative farms. On the basis of data from these farms--classified by size, type, farming system, and location--the report estimates the average amount efficient farmers receive for their labor, including the labor of their families, after deducting from income allowances for interest on capital investment and an appropriate entrepreneurial remuneration. This income is then compared with average wages of nonagricultural workers covered by the social security system (41, p. 376). The law also called for an annual report (known as the Green Plan) of past and future measures of the Government to improve the farm income situation (73, p. 179). Sixteen annual reports 13/ (40, 41, 43) have been issued since this law was passed, and a total of over 26 billion DM has been made available to German agriculture under this law. The Bauernverband, however, has been generally dissatisfied since it interprets the law as a promise of parity income.

The Common Market Treaty took effect in January 1958, and the first tariff reductions were made a year later. However, agriculture was not greatly affected until early 1962 when the Community's CAP was decided on and began to be implemented.

13/ The seventeenth report was issued in February 1972 after this report was completed.

In mid-1962, a joint report--the so-called Professors' Report--by members of the Advisory Council of the German Ministry of Agriculture and advisors of the EC Commission on the possible effect of reductions in agricultural prices on agricultural income in West Germany (37), was published and received wide attention. The report, based in large part on a study with a model projecting supply and demand to 1975 (87), concluded that agricultural incomes could not keep pace with nonagricultural incomes without a further substantial reduction in the farm labor force, accompanied by an increase in the size of farms. Even without the Common Market, agricultural incomes could not have been maintained by means of price policy without strong protection from outside competition and subsidies. The report stated that under the Common Market, with its greater degree of self-sufficiency and production potential, the possibilities for price policy as a means of maintaining income were much smaller. The Bauernverband sharply criticized the conclusions of the report, especially the projection of a continuing rapid decline in the farm labor force to a total (in man-year equivalents) of 1.55 to 1.74 million by 1975/76. 14/

In December 1964, a decision was reached on unified grain prices in the six EC countries, to go into effect in 1967. The Bauernverband had urged the West German Government to refuse to accept reductions in German grain prices. The final, agreed-upon reductions--about 11 percent for wheat and barley and 13 percent for rye--also meant lower grain price levels for Italy and Luxembourg, but increases for France, Belgium, and the Netherlands. Farmers in the former higher price countries received special compensation from the Community during 1968-70 for accepting these reductions. West Germans received over 1.1 billion DM--about two-thirds of the total compensation paid. Moreover, the German Government promised the Bauernverband to make funds available to German agriculture as additional compensation for the reductions. These were provided for a 5-year period, 1965-69, in a special law, the EEC-Adaptation Law (EWG-Anpassungsgesetz). This law was passed to place German agriculture in a better position to meet intensified competition from other Common Market countries. During the period this law was in effect, some 4.1 billion DM were made available to German agriculture by the Federal Government, in addition to funds provided under the Agricultural Law of 1955 and other appropriations for German agriculture. According to one German observer, the Bauernverband, through its "offensive tactics" during negotiations for unified grain prices, was at least able to drive a hard bargain (1, p.89). The Bauernverband, however, still maintains that it has not been dealt with fairly by the Government, and that funds actually provided under the EEC-adaptation law were less than originally promised (20, June 30, 1971, p. 159).

Although the need for restructuring agriculture was not specifically mentioned in the 1955 Agricultural Law, since its enactment some funds provided under the law have been spent on structural improvements--mainly on land consolidation, enlarging the size of farms, relocating farmsteads outside of villages, water control, farm roads, and homes for farmworkers. During the 1960's expenditures on structural improvements--both absolute and in relation to the growing total amount spent on agriculture--considerably increased, even without including items for rationalization of the marketing system and for

14/ Subsequent experience has shown that the Professors' Report even underestimated the changes that would occur. By 1969/70, 6 years before the final year of the projection, the farm labor force had dropped to only 1.48 million man-year equivalents (see table 3).

old-age pensions to encourage retirement of farmers, which should be counted as expenditures for structural improvement of agriculture in the broader sense.

By the late 1960's, even the Bauernverband began to acknowledge the necessity of restructuring agriculture, and in June 1968, issued its own guidelines for structural policy (21). The guidelines stated that structural policy could not be substituted for price policy, but could supplement it to help farmers obtain incomes on a par with those in other sectors. The goal of structural policy should be to give farm operators and their families and workers a secure income in the rural areas in which they live, whether as full-time or part-time farmers or as nonagricultural workers. Thus, the Bauernverband clearly was accepting the necessity of further reductions in the farming population--a considerable change from its reaction to the Professors' Report in 1962.

On July 1, 1968, a "work program for long-term agricultural policy in the Federal Republic," which had been approved by the Cabinet, was published (48). This program--generally referred to as the Höcherl plan after the Minister of Agriculture who served at that time--contained, for the first time, a statement of official policy acknowledging the need for a further decline in the farm labor force: "In view of the limited demand for agricultural products, the demand for increased income must be met in the first place by a further reduction in the number of persons engaged in agriculture." It was emphasized, however, that migration from rural areas should be prevented by making available nonagricultural jobs, under a regional economic policy, in areas of surplus farm labor.

The Höcherl plan provided that beginning in 1970, investment funds at subsidized interest rates were to be provided only to full-time farmers or farmers whose holdings could be enlarged to adequate size for full-time farming, who kept accounts, and whose development plans showed that under the anticipated market and price situation the farm would be viable. Part-time farmers were to be assisted by promoting cooperation among farmers to help them convert to a more extensive labor-saving type of agriculture, to leave time for nonagricultural employment.

The plan also included the following measures designed specifically to help make land available for enlargement of full-time farms: (1) land disposal pensions (Landabgaberenten, that is, pensions at higher rates than the normal old-age pension for farmers, beginning at age 60 instead of 65 and, in some cases if alternative employment were not possible, even at age 55, for farmers willing to lease or sell their land); (2) land disposal premiums of 500 DM per hectare (up to 1,500 DM per hectare in the case of perennial specialty crops) for farmowners who do not develop their land and lease it for at least 12 years; (3) retraining assistance to prepare farmers for nonagricultural employment; and (4) grants or low-interest loans to assist farmers in establishing themselves in nonagricultural occupations when they sell their land or make it available on long-term leases. The plans also called for: (1) other social and educational measures and expanded research; (2) a German position in the Common Market in favor of maintaining current prices of surplus products but increasing prices for products still imported; and (3) structural improvements in marketing.

In September 1968, Karl Schiller, Minister of Economics, announced a program for "intensification and coordination of regional structural policy." Like the Höcherl plan, the Schiller plan recognized the inevitability of further substantial decreases in the farm labor force, and called for promotion of industry in areas with surplus farmworkers to provide employment at reasonable commuting distances for them (64, 109).

The Mansholt plan for structural reform of EC agriculture, as originally proposed in December 1968 (24) went considerably further. It called for specialized "production units" large enough for efficient production and for larger "modern agricultural enterprises." Financial assistance after 1975 would be limited to farms reaching the standards set for such types of operation. Production units could consist of single farms or be set up by a number of farmers who agreed to joint production of a given commodity, but they would have to reach the following minimum sizes to qualify for assistance: (1) For staple crops such as grains or root crops, 80-120 hectares; (2) for dairy farms, 40-60 cows; (3) for meat production, 150-200 head of cattle, or 450-600 hogs; (4) for poultry meat production, 100,000 birds; and (5) for egg production, 10,000 laying hens. Modern agricultural enterprises could be formed by enlargement of single farms or by amalgamation of the land, livestock, and equipment of several farms in a joint venture.

Several other provisions in the Mansholt plan were similar to those in the Höcherl plan; for example, the requirement that applicants for assistance must maintain accounting systems and set up development plans designed to achieve minimum targets; old-age pensions to encourage early retirement of elderly farmers; bonuses for farmers willing to give up their land; and retraining assistance. The Mansholt plan called for reduction of the EC's agricultural area by 5 million hectares (about 7 percent) and of the number of persons engaged in agriculture by 5 million (50 percent) by 1980.

Because it followed the two plans introduced earlier in 1968 by the West German Government, the Mansholt plan was probably not as great a shock to German farmers as it otherwise would have been. Nevertheless, it was criticized sharply in West Germany and other EC countries. As pointed out in the memorandum in which the plan was submitted, the EC Commission presented its recommendations in the form of proposals in the hope of promoting a broad exchange of views in EC circles and farm organizations.

In April 1970, after nearly 1½ years of discussion, the EC Commission revised its proposals for the Mansholt plan (25). Some features of the original plan which had aroused the greatest opposition--in particular, the physical size requirements for a farm to obtain financial assistance and the emphasis on production units and modern agricultural enterprises--were omitted. Investment assistance was to be limited to individual farmers or groups of farmers working together who had sufficient professional competence, kept accounts, and had prepared development plans under which the farming unit could, within a period of 3-6 years, achieve a gross output (after deducting seed and feed) of \$10,000-\$12,500 per year per full-time worker, in a maximum of 2,300 hours annually for at least two full labor units. Other provisions included measures to reorient production toward deficit commodities and encourage farmers to market their commodities through producer organizations. In addition, farmers willing to give up farming and make their land available for farm enlargement,

reforestation, or recreation, would receive pensions at age 55 or older, special grants based on the rental value of their land, and retraining assistance (for younger farmers).

In May 1970, Minister of Agriculture Joseph Ertl, who had come into office with the change of administration in the fall of 1969, published the first draft of his own structural reform program for West Germany (47). This plan, which became effective on January 1, 1971, 15/ (1) set up new rules for Government-assisted investment to farmers with viable farms; (2) provided old-age pensions at 60, or in some cases at 55 (as in the Hocherl plan), but with an increase in the amount received; (3) provided assistance to younger persons leaving agriculture to accelerate the reduction of the labor force and make land available for farm enlargement and other purposes; and (4) for the first time, provided special transitional assistance until their retirement to those remaining in agriculture who could not qualify for assistance either as operators of viable farms or under the provisions for farmers leaving agriculture (84, 95).

Like the revised Mansholt plan, the Ertl plan required that the applicant's development plan must demonstrate his ability to achieve a specified result measured in value terms. The basic requirement is that within 4 years (in exceptional cases, 6) the applicant must be able to achieve a "development threshold" (Förderschwelle) income of 24,000 DM per farm (16,000 DM per worker). This minimum could be reduced as much as 10 percent to allow for regional differences, and/or by 5 percent to take account of the applicant's special circumstances. The threshold income, as defined in the Ertl plan, includes not only farm income (after deduction of an allowance for interest on capital investment) received by the farm operator and family members, but also wages paid to other farmworkers, income from subsidiary enterprises, interest, and rents, as well as income (up to 3,200 DM per farm) from work done outside of the farm or from capital which is not part of the farm and its subsidiary operations.

The Ertl plan mainly differs from the Höcherl plan as follows: (1) Requirement of a threshold income as qualification for investment assistance rather than the more vague requirement that the farm assisted must be potentially viable; (2) possibility of investment assistance to part-time farms (though they must be farms which provide most of the operator's income); (3) somewhat higher inducements for releasing land; and (4) system of transitional assistance to prevent undue hardship which might otherwise result from these structural policies.

The Mansholt plan, in the form in which it was adopted late in March 1971 (26), differs considerably from the original draft and the revised plan published in April 1970. EC's contribution to financing structural reform, which had been calculated as 50 percent of total cost of assistance for most of the provisions, was reduced to 25 percent in the final plan, except for 65 percent for early retirement pensions in backward regions (mainly in Italy). To qualify for investment assistance under the final Mansholt plan, the applicant's development plan must show that, within a maximum of 6 years, 16/ his

15/ Except for the section on investment assistance which became effective on July 1, 1971.

16/ Member countries may extend this period under some circumstances.

farm will yield earnings comparable with those obtained by nonagricultural workers in the same region for at least one or two persons working no more than 2,300 hours during the year, as well as an adequate interest rate on capital invested. Under the directives of the Mansholt plan, the member countries establish the minimum number of workers per farm, the comparable income of non-agricultural workers to be used as a standard for the region, and the rate to be used in deducting interest on capital investments in computations of earned income.

The applicant for investment assistance may be an individual whose main occupation is farming or several persons who have agreed to operate jointly; member countries are not permitted to discriminate between them. Assistance may take the form of (1) Priority access to land made available for sale or rent by persons leaving agriculture; (2) subsidies at a maximum rate of 5 percent for a maximum period of 15 years to reduce interest to a 3-percent minimum ^{17/} for investments to carry out development plans, except for purchase of land or animals other than cattle or sheep; (3) guarantees for loans and interest when insufficient collateral is available; (4) special grants for a 3-year period for farmers shifting to beef and lamb production; and (5) subsidies of a maximum of \$100 for a 3-year period to set up accounting systems. Subsidies up to a \$5,000-maximum may be granted to groups of farmers making cooperative use of machinery and equipment. The plan also calls for EC financial assistance for land consolidation and irrigation measures contributing substantially to enlargement of farms.

Other types of assistance which may be given by member countries without EC financing to farmers remaining in agriculture are: (1) Interest subsidies or low interest loans or the equivalent as capital subsidy to farmers not qualifying for assistance on the basis of their development plans, provided that the interest paid by the beneficiary is at least 6 percent; and (2) transitional aid for a 5-year period to farmers not qualifying for development assistance who are under 55 years of age.

Farmers who leave agriculture and make available their land for structural improvement may receive an annual allowance of \$600 (or a lump sum payment) if they are 55 to 65 years of age or, at any age, a grant equivalent to at least eight times the rental value of the land made available. Paid workers and full-time family workers 55 to 65 years of age, employed on farms whose operators are leaving agriculture under one of the above plans, may also receive an annual allowance. Beneficiaries who are owner-operators must make their farming area available for sale or for at least an 18-year lease to farms with approved development plans, or make it available for nonagricultural purposes. Benefits may be limited to certain regions, and the amounts paid may vary by region. Persons shifting from agriculture to other occupations may also receive retraining assistance. Other provisions of the final Mansholt plan include measures for further training of farmers remaining in agriculture and for improvement of marketing of farm products through assistance to producers' associations and federations of such groups applying common rules for production and marketing.

^{17/} More than 5 percent maximum subsidy and as little as 2-percent minimum interest under some circumstances.

The Mansholt plan, as finally adopted, is more similar to the Ertl plan, which preceded its adoption, than it is to its first two versions. The plan gives the member governments a great deal of decision-making responsibility, ensuring enough flexibility to permit great regional variations within the EC. Most features of the original and revised Mansholt plans that had been criticized in West German farm, government, and academic circles were eliminated from the final plan adopted. The physical size requirements in the original draft of the plan and the value of gross output requirements in the revised draft--both of which had been uniform for all member countries--were rejected in favor of much more flexible requirements. Instead of qualifications for assistance being the same throughout the Community--from Sicily to Schleswig-Holstein--the final plan leaves the selection of criteria, within certain limits, to the member governments. Hence, considerable variation is possible, not only among countries but also among regions within the same country.

The annual payments provided to 55-65 year-old farmers leaving agriculture are uniform throughout the EC insofar as they are eligible for EAGGF financing. No limitation, however, is placed on additional assistance which member countries may provide. Under the Ertl plan, married couples receive 350 DM and single persons 230 DM per month--substantially more than the \$50 (approximately 180 DM) called for by the Mansholt plan.

A German objection to the original Mansholt plan was that it did not provide for assistance to part-time farmers. However, under the final plan, they can qualify for investment assistance if agriculture is their main occupation and they meet the other criteria. The final plan makes no mention of the controversial "production units" and "modern agricultural enterprises" which, under the original plan, eventually were to be the only farms entitled to EC investment assistance. Thus, the Mansholt plan, as finally adopted, has dropped the goal of completely restructuring the Community's agriculture by 1980 in favor of a more gradual and socially acceptable approach.

The adoption of the Mansholt plan is of considerable importance for agriculture in both West Germany and the rest of the Community, because it has established guidelines under which member governments may assist their agriculture to make structural changes. The plan also provides for financial aid, which probably will be fairly small for West Germany, through EAGGF. As noted above, however, it gives a great deal of latitude to individual countries and is likely to have little direct effect on West German structural reform policy. The major change in structural policy that has occurred in recent years, so far as German farmers are concerned, undoubtedly is the provision of the Ertl plan whereby, except for short-term assistance under some circumstances, only farmers who meet the standards of the plan will be entitled to investment assistance from the government. If executed as written, the plan is likely to accelerate considerably the decline in the number of farms and farmers in West Germany.

STRUCTURAL CHANGES IN WEST GERMAN AGRICULTURE SINCE WORLD WAR II
AND THE ROLE OF GOVERNMENT PROGRAMS

Agricultural Labor Force

The major structural change in West German agriculture in the past two decades has been the sharp decline in the farm labor force. From 1950/51 to 1969/70, the number of full-time farmworkers (including permanent hired workers) decreased from over 5.1 million to some 1.8 million (41, p. 42). In terms of man-year equivalents (full labor units), the farm labor force (including part-time and temporary workers) has declined by more than three-fifths since 1950/51 (fig. 6 and table 3). While the size of the labor force at the beginning of the 1950's still reflected, to some extent, the after-effects of World War II--especially the large number of refugees from former German territories and East Germany--the average annual rate of decline from 1950/51 to 1956/57, at 4.2 percent, was less than the rate of over 4.6 percent from 1956/57 to 1963/64 and the rate of 5 percent (for commercial farms) from 1964/65 to 1969/70. From 1968/69 to 1969/70, the decline rate reached a record level of 9 percent.

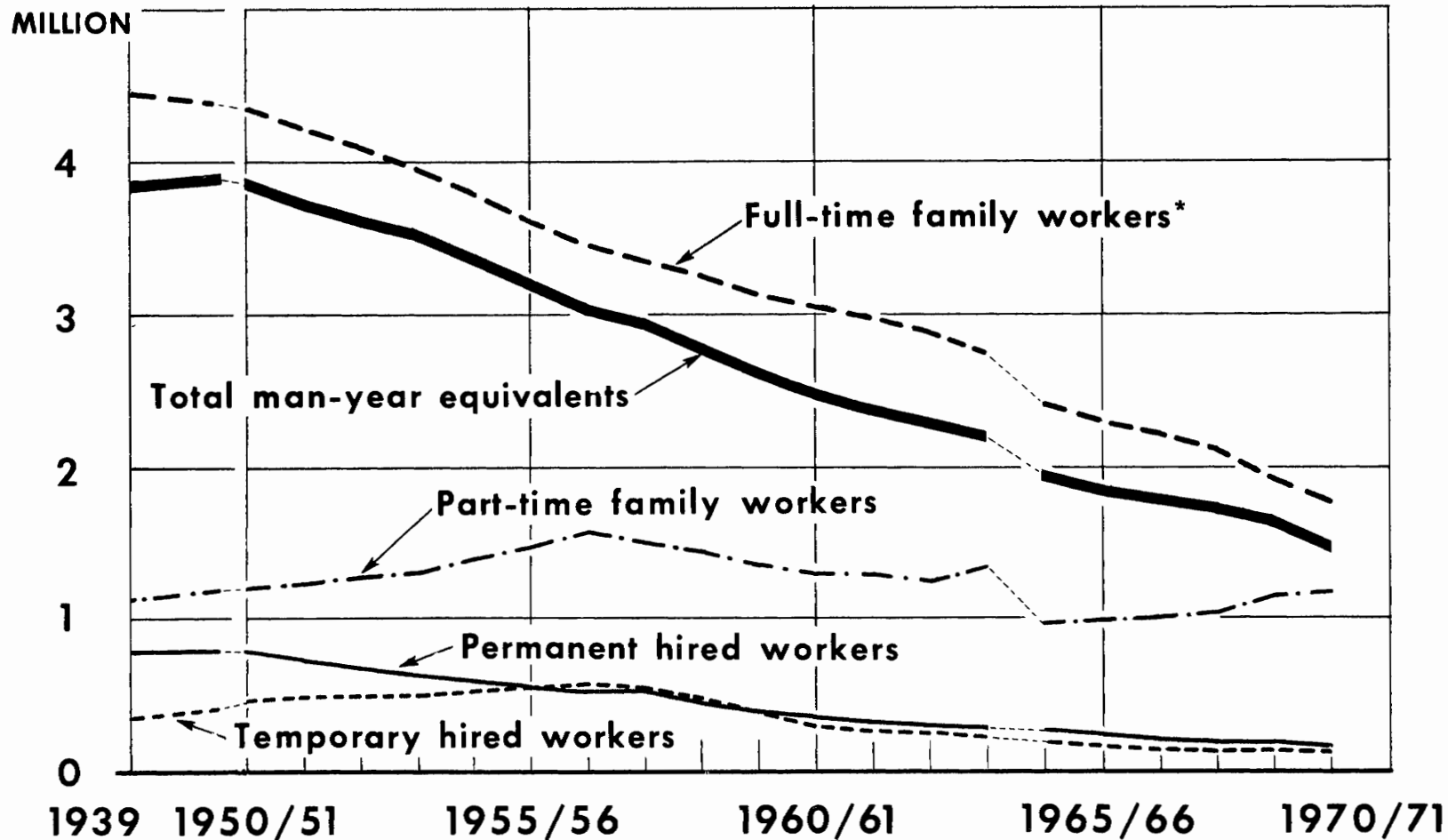
For centuries, family farms have been characteristic of German agriculture, and the relative importance of family members in farm employment has been increased by the sharp reduction in the number of hired workers since World War II. The number of permanent hired workers decreased by 82 percent from 1950/51 to 1969/70, while temporary (seasonal) hired workers declined by 64 percent (41, p. 42). In terms of man-year equivalents, hired workers accounted for less than one-tenth of the farm labor force in 1969/70. Some 65 percent of the permanent hired workers are employed on farms of 20 hectares and more in size (36 percent on farms of 50 hectares and over), but about 63 percent of the temporary hired workers are employed on farms of less than 20 hectares.

The number of farm operators and assisting family members working full time in agriculture decreased by over three-fifths from 1950/51 to 1969/70; by nearly one-half after 1956/57. ^{18/} For commercial farms, the decline was 28 percent for the last 5 years. In contrast, the number of part-time family workers has shown no such decrease. Indeed, during the 1950's, the number of part-time family workers actually increased, followed by some decline after 1956/57. From 1964/65 (when noncommercial farms were first excluded from the statistics) to 1969/70, the number of part-time family workers increased by nearly one-fifth. About 90 percent of them work on farms less than 20 hectares in size, 43 percent on farms of less than 5 hectares. On farms of less than 5 hectares, the number of part-time family workers is substantially greater than those working full time.

On farms less than 20 hectares in size, the number of women working full time in agriculture and in farm households exceeds the number of full-time male workers. In contrast, the number of men working part time exceeds the number of part-time female workers. While this pattern may still, to some extent, be the result of wartime casualties, the importance of part-time farms in smaller size groups is probably the major factor. (See subsection below on Part-Time Farming.)

^{18/} Data are not entirely comparable because noncommercial farms are excluded in 1969/70 figure (see footnote 2, table 3).

WEST GERMANY: NUMBER OF FARM WORKERS



*FROM 1964/65 DATA EXCLUDES WORKERS ON FARMS FROM 0.5 TO 2 HECTARES WITH FARM SALES UNDER 1,000 DM PER YEAR.

U.S. DEPARTMENT OF AGRICULTURE

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Adapted from (41, p. 45).

Figure 6

Table 3.--Farm labor force, by type of worker and size of farm, 1/ West Germany, selected years

Category or year	Size of farm (in hectares of agricultural land)						Total
	0.5-2 <u>2/</u>	2-5	5-10	10-20	20-50	50 and over	
	<u>1,000</u>						
1969/70: <u>3/</u>							
Full-time family workers <u>4/--</u>							
Male	10	46	121	273	199	21	670
Female	56	217	237	303	190	19	1,022
Total	66	263	358	576	389	40	1,692
Part-time family workers <u>4/--</u>							
Male	70	251	190	133	50	5	699
Female	45	123	102	107	57	6	440
Total	115	374	292	240	107	11	1,139
Permanent hired workers--							
Male	4	7	7	9	29	39	95
Female	4	5	5	6	11	10	41
Total	8	12	12	15	40	49	136
Temporary hired workers--							
Male	5	8	7	12	14	7	53
Female	7	11	12	19	18	8	75
Total	12	19	19	31	32	15	128
All categories:							
	<u>1,000 man-year equivalents</u> <u>5/</u>						
1950/51	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	3,885
1956/57	432	624	728	651	409	153	2,997
1959/60	350	488	613	615	363	132	2,561
1963/64	269	369	478	588	341	103	2,148
1964/65	98	348	452	581	335	97	1,911
1969/70 <u>3/</u>	59	232	311	469	333	73	1,477
	<u>Man-year equivalents</u> <u>5/</u> per 100 hectares						
1950/51	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	29.0
1956/57	73.1	40.0	27.1	17.5	12.2	11.3	22.6
1959/60	66.1	35.9	24.1	15.7	10.5	9.7	19.4
1963/64	61.2	32.0	21.1	14.3	9.2	7.6	16.5
1964/65	83.2	31.9	21.2	14.2	8.7	7.0	15.1
1969/70 <u>3/</u>	52.0	26.3	17.6	11.9	7.6	4.9	11.8

n.a. = Not available.

1/ Data exclude Hamburg, Bremen, and Berlin and, before 1960/61, the Saar. 2/ From 1964/65, workers on farms with less than 2 hectares with farm sales under DM1,000 are excluded. 3/ Preliminary. 4/ Farm operators and assisting family members working full time on the farm and in the farm household. 5/ Man-year equivalents computed as follows: Full-time farm operators, hired workers, and assisting family members between 16 and 65 years of age counted as man-year equivalents; full-time assisting family members over 65 years of age, 0.3, and under 16 years of age, 0.5 man-year equivalents. Computations for part-time workers based on hours actually worked. Housekeeping activities in farm household excluded.

Source: (41, pp. 43 and 46).

The number of man-year equivalents per 100 hectares of agricultural land is much larger on smaller farms, reflecting their labor-intensive farming systems. In all size groups, however, there has been a substantial decline in labor per hectare. On farms 50 hectares and over in size, man-year equivalents per 100 hectares decreased by nearly three-fifths from 1956/57 to 1969/70. With the increasing shortage of hired workers and the rapid rise in their wages, operators of large farms accelerated mechanization, expanding their acreage in more easily mechanized crops. In all smaller size groups (excluding the smallest, for which data for the period are not comparable), declines in man-year equivalents per 100 hectares from 1956/57 to 1969/70 were 30-40 percent; in 1969/70, man-year equivalents per 100 hectares ranged from 7.6 in the 20 to 50-hectare size group to 26.3 in the 2 to 5-hectare group. Not only is the use of machinery for crop production generally less economic the smaller the farm, but livestock raising tends to be relatively more important on smaller farms because it makes greater use of available labor and yields greater income per hectare. 19/

Past Government efforts to improve the structure of German agriculture have had only an insignificant role in bringing about the reduction in the farm labor force. It may well be argued that the Government's policy of maintaining prices has actually slowed down the exodus of farm workers. Other economic sectors have undergone rapid expansion resulting in such a tremendous demand for labor that about 2 million foreign workers were employed in Germany by fall 1970, compared with less than 300,000 in 1960.

No data are available on the number of agricultural workers actually shifting to other occupations. From 1950 to 1970, nonagricultural employment increased by about 9.4 million, while the farm labor force decreased by about 1.6 million. 20/ A considerable part of the drop in farm employment was due to the retirement of elderly farmers who were not replaced or were replaced by part-time farmers whose main occupation had already been nonagricultural.

The first German law providing pensions for elderly farmers, passed in 1957, undoubtedly brought about some increase in the number of retirements from agriculture. The law required operators of farms capable of supporting a peasant family (the minimum size varying by locality but usually around 4.5 hectares) to pay premiums, and provided a pension at age 65 for farmers (or their widows or widowers) covered by the law who gave up operation of their farms. According to a study of pensioned farmers made in 1962 (18, p. 158), the number of farmers who retired at age 65 and older in 1957, when a pension at age 65 first became available, was much higher than in earlier years, and most pensioners who retired in the following years (1958-61) were 65 years of age. In 1965, the agricultural pension law was extended to cover assisting family members on such farms.

Under the Höcherl plan, the pension law was extended in July 1969 to furnish a special land disposal pension to farmers at age 60, or in some cases

19/ On some part-time farms, however, production may be shifted to less labor-intensive commodities. See subsection below on Part-Time Farming.

20/ Based on population census data which vary somewhat from the data shown above.

at age 55, or to disabled farmers at any age (65, p. 121). Only farmers whose farms were not more than twice as large as the minimum size required under the pension law (that is, 8-10 hectares) were entitled to this special pension, which amounted to 275 DM per month for a married couple, and 180 DM for a single person. At age 65, the normal old-age pension of 175 DM for a married couple and 115 DM for a single person was to count against the special pension, still leaving a premium of 100 DM or 65 DM per month over the normal pension. To obtain the premium pension, farmers were required to give up their farm for the sake of improving the agricultural structure, leasing their land for at least 12 years or selling it. Until the end of 1970, however, only 2,282 farms with a total area of 13,049 hectares were released under this law (20, 9/15/71, p. 216).

On January 1, 1971, another amendment to the pension law (part of the Ertl plan) went into effect (40, p. 28). It raised the land disposal pension to 350 DM a month for a married couple and 230 DM for a single person, and increased the maximum size of a farm rented or sold to qualify its operator for a pension to five times the minimum size required under the old-age pension law (that is, 20-25 hectares). Since around three-fourths of all full-time and part-time farmers, whose main income comes from agriculture, fall within this limitation, considerably greater response is anticipated than occurred under the earlier law. During the first half of 1971, a total area of 22,508 hectares was released by 2,774 farmers, including 20 with more than 20 hectares (20, 9/15/71, p. 216).

Another measure in the new law to encourage farmers to leave agriculture is the Government contribution of 70 percent of the cost of paying for periods back as far as 1956 into the old-age pension system under which a former farmer is covered in his new nonagricultural employment, provided he has given up his farm for structural improvement under the same conditions as for the land disposal pension. The contribution to the pension fund may also be paid for full-time assisting family members on such farms who take other employment. As of mid-1971 applications for such assistance had reportedly been made by 31 farmers, but no contributions had as yet been granted (20, 9/15/71, p. 216).

A major factor deterring farmers from seeking nonagricultural employment is the lack of suitable jobs within commuting distance. The importance of this factor is shown by the substantial differences between the development of the farm structure near urban areas and in the more remote rural regions (110, p. 38). In areas close to cities where employment opportunities are available, the decrease in the number of farms has been much greater than in more remote regions. In the latter regions, where it is usually necessary to move to urban areas to obtain nonagricultural employment, the shift is likely to take place considerably later. The Government's increasing emphasis on regional economic policy--a major goal of which is to attract industry to rural areas so that farmers will not have to leave their homes to find a job (see Review of Agricultural Policy above)--should help to accelerate the decline in the farm labor force.

Farm Size

The influx of millions of refugees from former German territories and from East Germany after World War II further complicated the structural problems of West German agriculture. From 1949 to 1968, nearly 184,000 refugee farm families were resettled under government programs on a total of 740,000 hectares--mostly on small part-time farms--over half on farms of less than 0.5 hectare. They were settled on land obtained by reducing the size of the relatively few large farms, on Government land, on farms which became available for preemptive purchase because of the retirement or death of farmers without heirs, or on reclaimed land. New farms also were established for nearly 50,000 West German families (53, 1970).

While the Government's various resettlement programs set up mostly small farms, which tended to increase the predominance of such farms, the programs also have included assistance to farmers wishing to enlarge their farms. From 1945 to 1968, some 62,000 were assisted in obtaining a total of about 110,000 hectares to enlarge their farms--an average of about 1.8 hectares per farm (53, 1970). The Government's land consolidation program and the program to move farmsteads from crowded villages to open country or the village edge helped a considerable number of farmers to increase the size of their farms. Government-subsidized low interest rate loans also have helped many farmers to enlarge their holdings. The land disposal pensions granted since August 1969 resulted in a relatively small increase in land available for farm enlargement up to mid-1971 (see Agricultural Labor Force above).

Many farmers, even without Government assistance, were able to obtain additional land to expand their farm operations and income. A considerable part of the land of farmers who moved to other occupations became available to remaining farmers, either for rent or purchase. The indebtedness of farmers after World War II and the 1948 currency reform was extremely low and many farmers, having profited considerably from postwar food shortages, were in favorable financial circumstances, able to expand their operations without Government assistance.

On balance, the Government's programs to provide farms for settlement have had much less effect on the size structure of German agriculture than its assistance in farm enlargement and, above all, the rapid expansion of other economic sectors which accelerated the exodus of farmers to nonagricultural occupations. The 1967 law requiring administrative approval of all changes in ownership of agricultural land also has tended to limit further partition of farms. Its purpose is to improve or at least prevent deterioration of farm size structure (73, p. 66).

During the past two decades, the proportion of small farms has declined substantially. The total number of farms with 0.5 hectare and more of agricultural land decreased by more than one-third from 1949 to 1970--by nearly one-fourth from 1960 to 1970 (table 4). The greatest relative decline since 1960 has been in the Saar, Rheinland-Pfalz, and Hessen (fig. 3). The agricultural area in farms also has decreased in all States except in Niedersachsen, where land reclamation has resulted in a small net increase (fig. 4).

Table 4.--Number and agricultural area ^{1/} of farms, by size of farm, West Germany, 1949, 1955, ^{2/}1960, 1965, and 1970

Size of farm (in hectares of agricultural land)	1949	1955 ^{2/}	1960	1965	1970
----- <u>1,000</u> -----					
Number:					
0.5 to 2.....	598.0	553.7	462.8	393.1	315.5
2 to 5.....	553.5	487.5	387.1	321.8	251.0
5 to 10.....	403.8	382.3	343.0	292.4	232.7
10 to 20.....	256.3	262.6	286.5	292.1	267.8
20 to 30.....	72.1	(114.0	79.2	(135.0	104.1
30 to 50.....	40.3	(	42.8	(	53.4
50 and over.....	15.6	15.8	16.3	17.1	19.3
Total.....	1,939.6	1,815.9	1,617.7	1,451.6	1,243.8
----- <u>1,000 hectares</u> -----					
Agricultural area:					
0.5 to 2.....	650.7	611.8	497.5	419.3	335.0
2 to 5.....	1,832.8	1,657.4	1,290.2	1,071.2	837.2
5 to 10.....	2,858.9	2,746.0	2,483.3	2,124.2	1,691.4
10 to 20.....	3,540.8	3,633.2	3,990.5	4,123.1	3,848.1
20 to 30.....	1,737.4	(	1,903.6	(	2,507.6
30 to 50.....	1,505.4	(3,293.2	1,600.9	(3,844.9	1,987.9
50 and over.....	1,361.3	1,350.4	1,334.6	1,397.7	1,553.2
Total.....	13,487.3	13,292.0	13,100.5	12,980.4	12,760.5

^{1/} Data include all area within farms (1949 also outside of farms) available for agricultural use, except in 1970, when area no longer used for farming excluded.

^{2/} Excludes the Saar, which had 36,900 farms with 106,600 hectares in 1949, and 26,300 farms with 87,600 hectares in 1960.

Sources: (41; 43, 1958).

The average size of all farms increased from 7.0 hectares in 1949 to 10.3 hectares in 1970. Excluding farms under 2 hectares in size, which, except for truck farms and vineyards, are almost all operated part-time by persons whose main occupation is nonagricultural, the average farm size rose during the same period from 9.6 to 13.4 hectares. Farms that were 20 hectares and more in size accounted for nearly one-fifth of the total number and half the total area of farms of 2 hectares and more in size in 1970, compared with barely one-tenth of the total number and well under two-fifths of the total area of such farms in 1949.

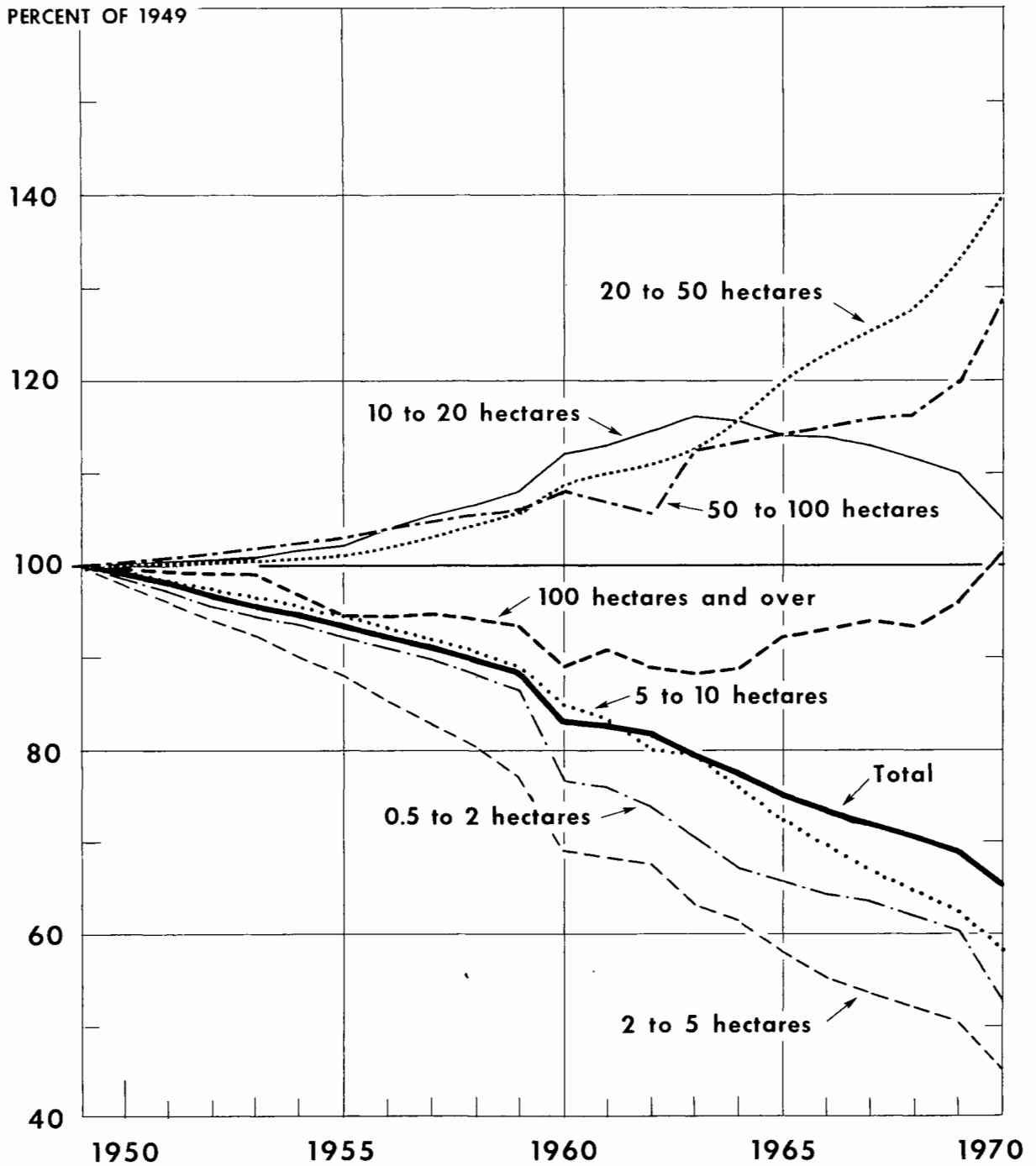
The number of small farms less than 10 hectares in size has steadily declined, while the number in the 20 to 50-hectare size has steadily increased, especially in the 1960's (fig. 7). The number of 10 to 20-hectare farms rose to 1963, but has declined since then. In Schleswig-Holstein, where the average farm size is largest, even the number of farms in the 20 to 50-hectare size group decreased in 1969 and 1970 because of declines in farms under 30 hectares. In contrast, the number of 50 to 100-hectare farms, except in the early 1960's, has increased steadily. Farms of 100 and more hectares declined during the 1950's, as a result of the Government's resettlement programs, but have risen since then.

Expanding farm operations by increasing the number of livestock, made possible by greater reliance on purchased feed (commonly referred to in Germany as inner enlargement--innere Aufstockung), also has been an important means of increasing farm income. Both the average number of livestock per farm and the share of the total number in larger herds and flocks have risen substantially in recent years (table 5). The number of small farms under 10 hectares with milk cows dropped sharply (table 6) by substantially more than the number of such farms. This decrease is not surprising in view of the increasing importance of part-time farms in these categories. Nevertheless, over one-fourth of all milk cows were still held on these small farms in 1969. A further decline in small herds took place in 1970 under the Common Market program, in which premiums were paid for slaughter of milk cows. Some 151,000 cows were slaughtered in West Germany under this program (41, p. 63).

The Ertl plan provides for financial assistance for the purchase of additional livestock only for beef cattle and sheep. Purchase of beef cattle is covered only for farms with more than 50 percent of their land used for permanent pasture or with more than 80 percent in feed crops, thus effectively cutting off many small farms from assistance in inner enlargement. The Mansholt plan prohibits member countries from providing aid for purchase of any livestock other than cattle or sheep; assistance for purchase of cattle and sheep may be given only when their products are expected to account for less than 60 percent of the farm's total sales. It also prohibits investment aid for production of hogs, eggs, or poultry unless at least half of the feed is produced on the farm itself.

There appears to be a strong consensus among German farmers and agricultural economists that only farmers who operate holdings considered large enough to be full-time farms should be permitted to engage in large-scale livestock production; the country's tax laws, however, tend to encourage livestock production on small farms. West German tax regulations distinguish between agricultural and industrial production of livestock, based on the number of large

WEST GERMANY: CHANGES IN NUMBER OF FARMS BY SIZE GROUPS*



*FARM SIZE BASED ON AGRICULTURAL AREA THROUGH 1969, BUT ONLY ON AGRICULTURAL AREA ACTUALLY USED IN 1970.

U.S. DEPARTMENT OF AGRICULTURE

NEG. ERS 8404-71(7) ECONOMIC RESEARCH SERVICE

Adapted from (40, p. 16).

Figure 7

Table 5.--Distribution of milk cows, hogs, and laying hens, by number per farm, West Germany, selected years

Type of livestock: and year	Percentage of total number of livestock on farms with a head count of--								Total : number : of : livestock	Average : number : of : livestock
	Percent										1,000	Units
Milk cows:	<u>1</u>	<u>2-3</u>	<u>4-5</u>	<u>6-10</u>	<u>11-20</u>	<u>21-50</u>	<u>51-and over</u>	<u>Total</u>		
1960.....	2.5	18.2	22.1	33.9	17.1	6.1		100.0	5,806	4.8
1963.....	2.1	14.0	18.8	36.5	21.1	6.4	1.1	100.0	5,835	5.4
1965.....	1.7	11.9	16.3	36.3	24.5	8.1	1.2	100.0	5,854	5.9
1967.....	1.5	10.1	14.5	36.1	27.3	9.4	1.1	100.0	5,865	6.3
1969.....	1.2	8.3	12.2	33.6	31.4	12.0	1.3	100.0	5,846	7.0
Hogs:	<u>1-9</u>	<u>10-19</u>	<u>20-49</u>	<u>50-199</u>	<u>200-599</u>	<u>600-999</u>	<u>1,000 and over</u>			
1965.....	16.1	14.7	31.4	31.6	5.2	0.6	0.4	100.0	17,735	13.1
1967.....	14.2	13.2	29.9	33.4	7.5	1.0	.8	100.0	19,022	14.9
1969.....	11.3	11.1	26.6	37.8	11.0	1.4	.8	100.0	19,324	17.8
Laying hens:	<u>1-19</u>	<u>20-49</u>	<u>50-249</u>	<u>250-999</u>	<u>1,000-4,999</u>	<u>5,000-9,999</u>	<u>10,000 and over</u>			
1961.....	28.8	22.8	23.3	13.2		11.9		100.0	61,662	
1963.....	24.3	21.0	22.7	16.0		16.0		100.0	60,774	26.9
1965.....	20.4	18.5	19.0	17.3	16.2	4.0	4.6	100.0	62,232	31.9
1967.....	18.9	15.8	15.6	14.4	18.6	6.3	10.4	100.0	62,515	35.8
1969.....	15.6	12.6	11.3	10.5	18.7	8.6	22.7	100.0	62,842	44.1

1/ Counting only farms with the type of livestock indicated.

Sources: (53, 54).

Table 6.--Milk cows, by size of farm, West Germany, 1949, 1959, 1960, 1963, 1965, 1967, and 1969

Item and year	Size of farm (in hectares of agricultural land)						Total
	Under 2	2-5	5-10	10-20	20-50	50 and over	
	<u>1,000</u>						
Number of farms with milk cows:							
1949	258	514	394	251	110	15	1,542
1959	156	347	339	274	117	16	1,248
1960	136	335	331	281	119	15	1,217
1963	110	272	295	277	121	15	1,090
1965	88	233	263	278	126	14	1,001
1967	75	201	242	269	129	13	929
1969	58	167	209	255	136	13	837
Number of milk cows:							
1949	336	1,123	1,313	1,274	987	306	5,339
1959	225	830	1,362	1,699	1,207	347	5,670
1960	193	807	1,369	1,809	1,273	355	5,806
1963	169	683	1,312	1,947	1,373	352	5,835
1965	141	585	1,194	2,060	1,520	354	5,854
1967	126	530	1,148	2,102	1,626	333	5,865
1969	109	443	1,009	2,114	1,836	336	5,846
Share of total number:	<u>Percent</u>						
1949	6.3	21.0	24.6	23.9	18.5	5.7	100.0
1959	4.0	14.6	24.0	30.0	21.3	6.1	100.0
1960	3.3	13.9	23.6	31.2	21.9	6.1	100.0
1963	2.9	11.7	22.5	33.4	23.5	6.0	100.0
1965	2.4	10.0	20.4	35.2	26.0	6.0	100.0
1967	2.1	9.0	19.6	35.8	27.7	5.8	100.0
1969	1.9	7.6	17.2	36.2	31.4	5.7	100.0
Average number per farm:	<u>Units</u>						
1949	1.3	2.2	3.3	5.1	8.9	20.8	3.5
1959	1.4	2.4	4.0	6.2	10.3	22.1	4.5
1960	1.4	2.4	4.1	6.4	10.7	23.2	4.8
1963	1.5	2.5	4.5	7.0	11.3	23.6	5.4
1965	1.6	2.5	4.5	7.4	12.1	25.5	5.9
1967	1.7	2.6	4.7	7.8	12.6	25.6	6.3
1969	1.9	2.7	4.8	8.3	13.5	25.8	7.0

Sources: (53, 54).

livestock units 21/ per hectare of land. It is possible, for example, to raise 50 large livestock units on a 5-hectare farm and 120 on a 15-hectare farm and still be considered an agricultural producer who receives certain tax advantages not available to industrial producers--despite heavy dependence on purchased feed. This gives operators of small farms a chance to survive as farmers, although it would generally be to their longer term interest to leave agriculture (7, p. 492). Furthermore, as in other countries, investments in livestock production, especially in the poultry industry, have been made increasingly by persons who are not farmers.

Part-Time Farming

The share of small farms in the total number and area of farms declined appreciably during the 1950's and 1960's and their role in German agricultural production probably declined even more. Undoubtedly, there was a substantial shift from full-time to part-time farming during this period, but no comparable data are available prior to 1965. From 1965 to 1970, the number of full-time farmers decreased from 512,000 to 467,000, but their share of the total number of farms actually increased (table 7). Even on holdings with less than 5 hectares (mostly truck gardens and vineyards), the share of full-time farmers increased during that period. In 1965, a considerable number of farms in these size groups were still operated by persons with occupations other than farming but whose main source of income was agriculture (Zuerwerbsbetriebe). These farms commonly are considered to be transitional, since their operators are likely either to leave farming entirely or to continue farming only as a source of supplemental income (Nebenerwerb). The number of these transitional farms dropped sharply from 1965 to 1970. The number of full-time farms with 5 to 20 hectares also decreased substantially from 1965 to 1970, as did the number of transitional farms in the same size groups, many of them moving into the supplemental income category. Farms over 20 hectares in size also began to move into part-time categories.

As used for the data shown in table 7, a farm is determined to be full-time by the actual activities of the farm operators concerned, based on information obtained from labor and land use surveys and special surveys on truck gardening, vineyards, and livestock production. Several other estimates of the number of full-time farms, defining these farms as large enough to provide an adequate income for 1-1/2 to 2 full labor units, have been made which are considerably lower than the 467,000 farms classified as full-time in 1970 (used for table 7). These range from a low of barely 200,000 (all farms of 20 hectares and more in size plus most of the smaller units with truck gardens and vineyards) (116) to a high of 380,000 (7, p. 487-9). In the latter estimate, it is assumed that 400,000 part-time supplemental income farms, averaging 3 hectares in size, and 40,000 truck gardens and vineyards, averaging 1 hectare in size, will leave enough agricultural area for some 340,000 full-time farms 20 hectares or more in size with an average size of 31.4 hectares. All other farms now classified as full-time are considered to be transitional; eventually they should be operated as part-time supplemental income farms or be incorporated in full-time farms.

21/ One large livestock unit = one milk cow = one boar and two sows = three sows = 50 young pigs = six pigs for fattening raised on the farm or seven purchased = 50 laying hens.

Table 7.--Number and area of holdings operated by full- and part-time farmers, by size of farm, West Germany, 1965 and 1970

Size of farm (in hectares of agricultural land)	Holdings operated by						Total	
	Full-time farmers		Part-time farmers whose holdings are their main source of income		Part-time farmers whose main income is from other earnings			
	1965	1970	1965	1970	1965	1970	1965	1970
	----- Percent of number of farms -----							
0.5-2	3.3	5.2	5.5	2.8	91.2	91.9	100.0	100.0
2-5	3.5	4.6	36.4	29.8	60.1	65.7	100.0	100.0
5-10	32.4	27.7	48.5	41.5	19.1	30.9	100.0	100.0
10-20	82.4	81.9	14.5	14.4	3.1	3.7	100.0	100.0
20-50	100.0	86.0	--	9.6	--	4.4	100.0	100.0
50 and over	100.0	100.0	--	--	--	--	100.0	100.0
Total	35.3	37.5	22.2	18.8	42.5	43.7	100.0	100.0
	----- Percent of agricultural area ^{1/} -----							
0.5-2	3.5	4.3	6.5	4.8	90.0	90.9	100.0	100.0
2-5	4.5	5.3	38.6	32.1	56.9	62.6	100.0	100.0
5-10	33.1	32.1	49.5	39.3	17.4	28.6	100.0	100.0
10-20	81.1	83.0	15.2	13.5	3.7	3.5	100.0	100.0
20-50	100.0	87.5	--	7.6	--	4.9	100.0	100.0
50 and over	100.0	100.0	--	--	--	--	100.0	100.0
Total	72.1	72.8	16.3	14.2	11.6	13.0	100.0	100.0

^{1/} Data include all area within farms available for agricultural use, except in 1970, when area no longer used for farming is excluded.

Source: (41, 43)

Many German observers support part-time farming as being beneficial from both social and environmental viewpoints, since it is considered better to keep land in use than to abandon it. By 1970, some 220,000 hectares or 1.6 percent of the country's agricultural area was no longer in use (classified as Sozial-brache, that is, fallow for social reasons). 22/ The farm of the individual part-time farmer can provide him with additional income, a degree of security against food shortages and economic crises, and, of increasing importance as living standards rise, a hobby. Moreover, continuing to operate the land permits the farmer to hold on to his land, possession of which is rated high in Germany from standpoints of tradition and social position. The land also serves as a hedge against inflation and, at least near urban areas, a speculative investment. The main difficulty of part-time farming is the burden it often places on women, many of whom do most of the farmwork while their husbands are employed elsewhere.

The problems of part-time farmers are receiving increasing attention from German research and extension services (43, 1969; 110). Accordingly, a special committee to support the interests of part-time farmers was set up in 1969 by the Bauernverband, which included among its members a large share of part-time as well as full-time farmers (20, Dec. 15, 1969). Probably, in the future, many part-time farmers will carry out a less intensive form of agriculture to reduce the family workload.

During the years 1966/67 to 1968/69, about 13 percent of the total value of farm sales was estimated to come from part-time farmers whose main occupation was nonagricultural. Their share of vegetable sales was 44 percent; fruit, 32 percent; wine, 36 percent; tobacco, 32 percent; hops, 13 percent; poultry and eggs, 19 percent; hogs, 12 percent; beef cattle and milk, 11 percent; potatoes, 7 percent; and grains and sugarbeets, 5 percent (116, p. 11). As many of these farms become more of a hobby than a source of supplemental income, the share of these farms in total farm sales is likely to decline.

Land Tenure

West German farmland traditionally has been owner-operated. In 1960, about 95 percent of all agricultural and forest holdings 0.5 hectare or larger consisted entirely or partly of owner-operated land. The share of such holdings that were entirely or partly rented declined from 57 percent in 1949 to 53 percent in 1960. This decrease, however, was caused completely by the sharp drop in the number of small farms with rented land. Excluding holdings under 5 hectares in size, the share of farms with rented land increased from 52 percent in 1949 to 60 percent in 1960 (55).

The proportion of the total area of agricultural and forest holdings rented, including 0.5 to 5-hectare holdings, increased from about 12 percent in 1949 to nearly 15 percent in 1960. Assuming that all the rented area was agricultural land, nearly 24 percent of Germany's total agricultural area was rented in 1960. From 1949 to 1960, the rented area of agricultural and forest holdings increased by 13 percent, while their total area declined by 4 percent and owner-operated area by 6 percent (table 8). The differences in the rates of change among the

22/ As of 1970, no German legislation existed which required the owner to keep such areas in shape (72, p. 18).

various size groups indicate the importance of leasing in the process of farm enlargement during this period.

Table 8.--Changes in total, owner-operated, and rented areas, by size of farm, West Germany, 1949-60 (1949 = 100).

Size of farm (in hectares of total area)	Total area	Owner-operated area	Rented area
0.5 - 2.....	82	94	53
2 - 5.....	73	76	66
5 - 10.....	85	81	100
10 - 20.....	109	101	162
20 - 50.....	105	98	173
50 - 100.....	98	93	142
100 and over.....	95	95	82
Total.....	96	94	113

Source: (72, p. 38).

Slightly more than 5 percent of all agricultural holdings were entirely rented in 1960, the proportion being highest in the larger size groups (table 9). About half of all farms were partly rented, the share of such farms being highest in the 5- to 15-hectare size groups. The extent and significance of rented land vary considerably by area. The proportion of the total area rented is highest in the northern States--Schleswig-Holstein, Nierdersachsen, and Nordrhein-Westfalen--where the farms are generally larger.

Table 9.--Distribution of owner-operated, partly rented, and entirely rented farms, by size of farm, West Germany, 1960

Size of farm (in hectares of agricultural land)	Total number ^{1/} (=100)	Fully owner- operated	Partly rented	Entirely rented
	<u>1,000</u>	- - Percent of total number - -		
0.01-2.....	503.6	63.7	31.4	4.9
2-5.....	363.0	37.5	58.4	4.1
5-7.5.....	186.6	30.2	65.6	4.2
7.5-10.....	139.6	29.1	66.4	4.5
10-15.....	182.4	33.9	60.5	5.6
15-20.....	96.2	42.8	50.1	7.1
20-30.....	78.0	51.0	39.6	9.4
30-50.....	42.4	54.8	32.8	12.4
50-100.....	13.5	49.4	35.5	15.1
100 and over.....	2.6	39.2	40.3	20.5
Total.....	1,607.8	45.1	49.6	5.3

^{1/} Excludes holdings with total area less than 0.5 hectare. Data do not add to total because of rounding.

Source: (72, p. 39).

No comparable data for farm ownership are available for years later than 1960. ^{23/} The 1971 agricultural census probably will show a further considerable increase in the area of rented land. Partly because of its speculative value, land generally sells for well above the capitalized value of its rent, making purchase of land for enlarging farms uneconomic--at least when land for lease is available.

Data on the role of leases in the transfer of agricultural and forest land are available only for Schleswig-Holstein. They indicate that more transfers took place through lease than through sales in almost all years from 1951 to 1966. By far the most important form of land transfer was by inheritance (72, p. 11).

Most of the land to be made available under the provisions of the Ertl plan, designed to induce farmers to give up land for enlargement of farms to be developed, is expected to be leased. The provisions for low-interest investment loans for the farms to be developed specifically rule out loans for purchase of land to increase farm size unless such land is available under the land consolidation law or no suitable areas are available to lease for at least 12 years, since "leases are to be given precedence over land purchase" (52, No. 3). The Mansholt plan, as adopted, also prohibits aid for the purchase of land except when land under long-term lease is not available for enlarging farms to be developed (26).

Land Consolidation

Except in the northern States and part of Bavaria, where inheritance customs have tended to keep holdings intact, most farms consist of numerous, often widely scattered parcels of land. The small size of many of the parcels hinders the use of machinery, and the time that farmers spend traveling from field to field could be used to better purpose on more compactly arranged farms.

According to the agricultural census of 1960 (55), the average number of separate parcels of agricultural land per farm for the entire country was 9.6, ranging from 4.0 in Schleswig-Holstein to 13.8 in Baden-Württemberg and 16.8 in Rheinland-Pfalz. The average number of parcels was highest on small farms of 5-15 hectares and lowest (except for dwarf holdings) on 50- to 100-hectare farms (table 10). Nearly 29 percent of all holdings had more than 10 parcels, 11 percent more than 20, and 1.3 percent or 22,000 farms--almost all in the 5- to 20-hectare size groups--had more than 50 parcels each. The 1960 agricultural census was taken after the Government's post-World War II land consolidation program had already reduced the degree of fragmentation considerably in some areas (see below). The total number of parcels in West Germany declined by about 18 percent between the 1949 and 1960 censuses.

^{23/} The EC structural survey, based on a 20-percent sample, gives data for 1966/67 which would indicate a decrease in rented area. This decline is believed to be contrary to the development that actually occurred (32).

Table 10.--Agricultural and forest holdings, by average number and size of separate parcels of agricultural land per holding, West Germany, 1960

Size of holding (in hectares of agricultural land)	Average number of parcels per holding	Average size of parcel
	<u>Number</u>	<u>Hectares</u>
0.01 - 2.....	4.4	0.22
2 - 5.....	9.7	.34
5 - 7.5.....	13.3	.47
7.5 - 10.....	14.8	.59
10 - 15.....	14.4	.84
15 - 20.....	12.8	1.34
20 - 30.....	10.7	2.24
30 - 50.....	9.0	4.14
50 - 100.....	8.6	7.51
100 and over.....	9.1	19.00
All farms.....	9.6	.81

Source: (55, p. 20)

Programs to consolidate fragmented farms are not new in Germany. Even in the 19th century, excessive fragmentation of farms was recognized as a handicap to efficient farming, and consolidation programs were undertaken in some areas. In the early 1950's, before passage of the Land Consolidation Law of 1953 under which most of the postwar land consolidation has taken place, consolidation programs were under way in a number of areas.

According to statistics of the Federal Ministry of Agriculture, over half of the country's area requiring consolidation had been consolidated by the beginning of 1969, but much of this area was in need of further consolidation (table 11). Less than one-third of the area considered to be excessively fragmented had been consolidated to the extent that no further consolidation was required. The nearly 8.5 million hectares included in the area still requiring consolidation was over three-fifths of the country's total agricultural land. Proceedings were under way for consolidation of nearly 3.8 million hectares.

During 1961-68, the area consolidated each year averaged over 250,000 hectares. Most of the consolidations were carried out under the 1953 law, but some were done under legislation designed, under some circumstances, to bring about speedier rearrangement of parcels. In villages in which consolidation was completed during 1968, the number of parcels was reduced, on the average, to about one-fifth of their original number, not counting parcels which, because of their location or use, could not be included in the consolidation. The average size of the parcels was increased from 0.34 to 1.0 hectare.

Although land consolidation is financed to a large extent by the Federal Government, the agencies of the Agriculture Ministries of the States have the main responsibility for implementing the programs. The primary purpose of the

Table 11.--Status of land consolidation, West Germany, January 1, 1969

Status	Area <u>1/</u>
	<u>1,000 hectares</u>
Consolidated or requiring consolidation.....	15,137
Not requiring consolidation.....	9,474
Total area.....	24,611
Previously consolidated:	
No further consolidation required.....	4,771
Further consolidation required.....	3,385
Total previously consolidated.....	8,156
Still requiring consolidation:	
Further consolidation required--	
Agricultural land.....	2,783
Other land.....	602
Total requiring further consolidation.....	3,385
First consolidation required--	
Agricultural land.....	5,706
Other land.....	1,275
Total requiring first consolidation.....	6,981
Total still requiring consolidation --	
Agricultural land.....	8,489
Other land.....	1,877
Total still requiring consolidation.....	10,366

1/ Excluding Hamburg, Bremen, and Berlin.

Source: (46, 1968/69, p. 26).

land consolidation law is to merge fragmented holdings to promote agricultural production and improve the rural structure in general (66). The law has been interpreted so broadly that land consolidation programs have become the main instrument for redeveloping rural areas (66). In addition to consolidation of fragmented farms, land is made available for farm enlargement and resettlement and for such other purposes as housing, industry, schools, and highways. Since passage of the Land Use Planning Law (Raumordnungsgesetz) in April 1965, all measures involving structural changes require preliminary plans which, before approval, must be coordinated with other plans for the region in which the affected areas are located.

Opinion in Germany differs considerably on the usefulness of large expenditures on land consolidation during the past two decades. ^{24/} Some argue that consolidation of small fragmented farms without enlargement to adequate size serves to retard the necessary process of farm enlargement and labor mobility. Improving the structure and productivity of small farms tends to deter their operators from leaving agriculture and making land available for enlargement of the remaining farms (7, p. 493). Measures necessary to make land consolidation effective, such as those providing for new or improved roads and drainage ditches built for a network of small farms, will prove useless or even a hindrance when farms are made larger--as they must be in the future (7, p. 484).

On the other hand, defendants of the land consolidation program maintain that consolidation has resulted in the enlargement of many farms. In many areas of excessive fragmentation, land consolidation is an important requirement of farm enlargement. Even when good possibilities for renting land exist, they may not materialize when the available land is in too many parcels. Consolidation proponents point to areas with farms of inadequate size, where consolidation has caused some farmers to convert to part-time farming for supplemental income while others have been able to enlarge their farms (98, pp. 531-543).

In villages where land consolidation was completed in 1968, the number of farms declined from 35,686 before consolidation to 34,153 afterward (4 percent decrease) (46, 1968/69, p. 30). Although the number of farms less than 10 hectares in size declined by over 5 percent, they still represented 83 percent of the total number. There was no change in the number of 10- to 20-hectare farms, and little more than a 1-percent increase in the 20-or more-hectare farms, which were still only 6.3 percent of the total number. These data show that the contribution of land consolidation to farm enlargement is not impressive. The relative decline in the number of farms in the land consolidation areas was twice as great as that for the entire country, but in absolute terms it represented little more than 5 percent of the average annual decline in the total number of farms in West Germany in the latter 1960's.

Other Changes in Farming Structure

Since World War II, a number of other changes have been made on farms and in rural areas to improve the farming structure, such as new or improved roads,

^{24/} Per hectare costs for consolidation completed in 1968 were estimated from 1,550 DM in Schleswig-Holstein to 2,800 DM in Hessen and the Saar (46, 1968/69, p. 33).

farm buildings, water supplies, and drainage and irrigation facilities. The degree of accomplishment is difficult to determine, however, not only because the same types of measures have been included in various Government programs (for example, in land consolidation programs and regional programs for specific areas), but also because a great deal has been done by individual farmers--in some cases, without financial assistance from the Government--to improve the structure of their farming operations.

Some indication of the need for construction and modernization of farm buildings may be gleaned from 1960 agricultural census data (55, p. 49). Of over 2.8 million farm residences and other buildings reported in 1960, some 56 percent were built before World War I (42 percent before 1900); 21 percent between 1915 and 1944; and 23 percent after World War II. The situation was somewhat better for outbuildings than for residences: 25 percent had been built between 1915 and 1944, and 29 percent between 1945 and 1960. In over half of the farm residences, over 60 percent of which were built before 1900, stables or barns were attached to the house. Nearly half of the residences built from 1945 to 1960 were also such combined buildings. The types of buildings for which newer construction (built after World War II) was important were machine sheds (47 percent built in 1945 or later) and poultry houses (50 percent). These census data are, of course, not only out of date but also give only part of the story. Many older buildings, constructed to stand for generations, have been remodeled or modernized--especially since 1960. Government-subsidized loans at low interest rates, as well as direct subsidies, have long been available for such purposes. Under the Ertl plan, not only will farmers with approved development plans receive such assistance, but also part-time farmers, who do not qualify for investment assistance so far as farmyard improvements are concerned, will be able to obtain financial assistance for modernization of their residences, provided their farms qualify as such under old-age pension legislation (75).

Many new highways, which give easier access to formerly remote areas, have been constructed in West Germany in the past two decades. In rural regions, farm roads have been built and improved. Under the land consolidation program, during 1961-68 over 104,000 kilometers of roads were built or improved, including hard-surfacing of over 60,000 kilometers. Other improvements under the land consolidation program during the same period, in addition to consolidation itself, included completing over 20,000 kilometers of water channels, draining 142,000 hectares, building 285,000 small bridges or culverts with a minimum diameter of 0.60 meters; and relocating nearly 4,300 farmsteads out of crowded villages (46, 1968/69, p. 25).

Marketing System

Structural improvements to achieve more efficient production of agricultural commodities are not enough to meet the problems of West German agriculture. More efficient marketing methods are needed to make domestic agriculture competitive, even within West Germany. With free movement of commodities within the Common Market, West German farmers must meet much stiffer competition from other member countries, for example, the Netherlands, a traditional exporter of some products offered to West German markets, with a more efficient marketing system.

Even without the Common Market, West German agriculture would have been faced with the necessity of rationalizing and modernizing its marketing system to meet the changing needs of the market for its products. As in most of West Europe, rapid changes have occurred in food trade during the past two decades. These changes have radically altered the character of the demand for agricultural products.

As a result of the country's economic growth and rise in the standard of living, the marketing system has undertaken numerous additional activities. Because of increasing concentration of the population in large cities and industrial regions and its growing food demands, agricultural commodities must be brought in from more distant regions, necessitating not only longer delivery routes, but often also additional middlemen. At the same time, increasingly more activities which were formerly the function of the farmer or the consuming household, for example, sorting, processing, storing, and packaging, now are handled by the marketing system. Often, such large organizations as chains of supermarkets handle all functions from purchases at the farm level to sales to the consumer. Moreover, consumer demand for such services, especially convenience foods processing, is increasing rapidly. Institutional markets, such as restaurants and canteens, also are growing in importance because of greater distances between residence and employment, increasing employment of women, and increased leisure time (67, 115).

Rationalization of as many marketing activities as possible can reduce costs, raise farmers' return, and lower consumer price (115, p. 5). Rationalization at the point of production, however, is also essential because large buyers of farm products wish to purchase in large quantities and are likely to turn to imports from other Common Market countries when West German farmers can deliver their products only in small quantities, not at the time required, or not in standardized qualities (115).

The West German Government has provided funds to improve the marketing structure under the Green Plan and, from 1965 to 1969, under the EEC-adaptation law. At first, these funds were used primarily for improving productivity and quality, for example, for building and improving testing stations for milk cows and poultry; for measures to produce and promote use of improved seeds, especially for fodder crops; for shifting sheep raising from wool to meat production to adjust production to changing demand; and for improvement of control and standardization of qualities. Since the early 1960's, however, the main emphasis has been placed on improving the marketability of farm products through various measures, especially financial support for new producer and marketing organizations and facilities. These measures are classified in the West German budget under horizontal and vertical integration.

Horizontal integration programs, aimed at promoting cooperation among farmers to improve their bargaining position in the marketing of their products, have included financial support for the following measures: (1) Setting up producer organizations for seed and food potatoes (including construction of storage facilities) and for quality grains; (2) construction of potato-drying facilities and drying and storage facilities for grain and fodder crop seed; (3) expansion of cooperative wine cellars; and (4) support of producer organizations for farrowing pigs, for fattening hogs, cattle, and lambs, and for egg production.

Under vertical integration are included measures to help finance improvement of processing and marketing facilities, for example, fruit and vegetable packing houses; storage, marketing, and processing facilities for cattle, hogs, poultry, and eggs; cooperatives for marketing flowers and decorative plants; improved milk processing facilities; and improved sugar-producing plants. Under the term vertical integration, as used in the budget, the various levels of the marketing system are not necessarily parts of the same organizational setup (43, 1969 and 1970).

In 1969, two new laws were passed to implement measures to improve the marketing structure called for in the Höcherl plan--the law "to adapt agricultural production to marketing requirements," passed in May 1969 (generally called the marketing structure law), and a law "to create a central fund for marketing agricultural, forest and food products," passed in June 1969 (60).

The main purpose of the marketing structure law was to promote producer associations and unions of such associations to improve the quality and centralize supplies of agricultural commodities to make possible regular deliveries and improve the farmers' bargaining position. Only actual producers (including those not classified as farmers, such as operators of livestock feedlots) of farm items coming under this law may become members of producers' associations. Unions of producers' associations are formed to coordinate sales of farm products of their member associations but are not permitted to handle sales themselves.

Producers' associations and their officially recognized unions may receive Government subsidies for costs of organization for a 3-year period, decreasing each year, as well as for costs of investments considered necessary to carry out their functions. Commercial marketing and processing firms that enter into long-term contracts with approved organizations also are eligible for starting and investment subsidies. Producer associations and their unions are not subject to the provisions against limitation of competition in the 1957 cartel law insofar as the relevant measures apply to the products for which the organizations have been established. However, producers' associations that would eliminate market competition are not given official approval.

As of the end of 1970, regulations implementing the marketing structure law had been issued for establishment of producer associations for slaughter cattle and hogs, fishery products, milk, poultry and eggs, wine, high quality grains, and flowers and decorative plants. Some 490 producer' associations had been organized, of which 265 had applied for official recognition and 131 had been officially recognized (68 for slaughter cattle and hogs, 22 for wine, 18 each for quality grains and fishery products, four for poultry and eggs, and one for potatoes) (40, p. 48; 41, p. 358).

The Mansholt plan, as approved in 1971, also provides for aid for the formation of producer groups and their unions in member countries, on terms similar to those provided under the German law of 1969. Associations in existence at the time the EC regulation went into effect are not ordinarily eligible for EC starting subsidies, but they may be officially recognized by the EC and become eligible for subsidized-interest investment aid for construction and improvement of marketing facilities.

The purpose of the agricultural marketing fund law of 1969 was to develop and maintain domestic and foreign markets for West German agricultural products, as well as for forest and fishery products, by "modern means and methods" through a central agency. Under this law, the Centrale Marketing Gesellschaft der deutschen Agrarwirtschaft (CMA) was established. CMA, with its main office in Bonn, is authorized to advertise in West Germany and abroad; to participate in fairs, exhibits, and other market promotion activities at home and abroad; to conduct market research, analysis, reporting, and other activities designed to improve the "transparency" of the market; to promote publicity indicating origin and quality of products and the development of new products; and to develop market strategies and promote all efforts to obtain new markets at home and abroad (60, pp. 294-295). Because of the near saturation of the West German food market, CMA is placing increasing emphasis on exports, especially to Italy and Japan (20, June 15, 1971).

TRENDS IN FARM PRODUCTIVITY AND INCOME

Labor productivity has increased substantially in all sectors of the West German economy since 1950. Measured in terms of GDP at constant prices per person employed, it increased by over 70 percent from 1950 to 1960, and by nearly 50 percent from 1960 to 1969 for the economy as a whole (table 12). For agriculture, including forestry and fisheries, the comparable increase was even greater--nearly 90 percent from 1950 to 1960, and 67 percent from 1960 to 1969. The only sector for which the increase was greater than for agriculture was part of the industrial sector--mining and energy production--for which the increase was 105 percent from 1960 to 1969.

In terms of current prices, however, the increase in GDP per employed person was much greater for nonagricultural sectors than for agriculture; that is, prices for farm products did not increase as rapidly as those for nonagricultural products. The following price indices are based on the data used to compute the indices shown in table 12:

<u>Year</u>	<u>Agriculture, forestry, and fisheries</u>	<u>All other sectors combined</u>
1960	100	100
1961	100	105
1962	105	109
1963	106	112
1964	106	115
1965	116	119
1966	119	124
1967	105	126
1968	102	128
1969	106	132

As shown by these indices, prices in the agricultural sector continued to increase until 1966, though at a slower pace than those in the rest of the economy. In 1967, when the price regulations of the Common Market went into effect,

Table 12.--Gross domestic product at market prices per person employed, by economic sector, West Germany, 1950 and 1960-69 (1960 = 100)

Year	Agriculture, forestry, and fisheries		Industry		Services <u>1/</u>		Public administration		Total of all sectors <u>1/</u>	
	At	At	At	At	At	At	At	At	At	At
	constant prices <u>2/</u>	current prices	constant prices <u>2/</u>	current prices	constant prices <u>2/</u>	current prices	constant prices <u>2/</u>	current prices	constant prices <u>2/</u>	current prices
1950 <u>3/</u>	53	42	<u>4/</u>	<u>4/</u>	<u>4/</u>	<u>4/</u>	<u>4/</u>	<u>4/</u>	58	43
1960	100	100	100	100	100	100	100	100	100	100
1961	105	105	104	108	104	108	100	108	104	109
1962	105	111	108	115	107	118	100	112	108	117
1963	116	123	111	121	109	125	100	119	111	124
1964	129	137	120	132	112	136	99	126	118	136
1965	119	138	127	144	118	148	100	138	124	147
1966	126	150	131	152	121	158	102	150	128	157
1967	145	153	136	158	122	162	102	155	131	163
1968	157	160	148	176	125	172	106	165	140	177
1969	167	177	157	193	132	186	106	180	148	194

1/ GDP from rental of dwellings is excluded in services sector but included in total of all sectors.

2/ Data for 1960-69 based on 1963 prices. Data for 1950 based on earlier series using 1954 prices.

3/ Data exclude West Berlin.

4/ Comparable data not available.

Sources: (35; 53, 1964).

the price index for farm products made a substantial drop, while the cost of nonagricultural inputs for their production continued to rise. Despite the exodus of many agricultural workers to nonagricultural jobs and the substantial increase in agricultural labor productivity measured in constant prices, agricultural incomes have not kept pace with those in other sectors of the economy, much less caught up with them.

Some observers believe, however, that data such as these reflect, in part, the statistical problems of classifying farmworkers (88, pp. 27-34). According to the labor force data on which table 12 is based, the number of persons employed in agriculture (including forestry and fisheries, which together comprised 5-6 percent of the total) decreased by 29 percent from 1960 to 1969.

Using man-year equivalent figures (see table 3), the decline was over 38 percent during the same period. Applying these figures to the GDP data on which table 12 is based, the agricultural GDP per man-year equivalent on a constant price basis rose 93 percent from 1960 to 1969, that is, substantially more than shown in table 12. On a current price basis, it rose 105 percent, or by more than the rise of GDP per employed person in the total economy. Furthermore, agricultural GDP per man-year equivalent in agriculture is considerably higher than per employed person, though still well below GDP per employed person in other economic sectors.

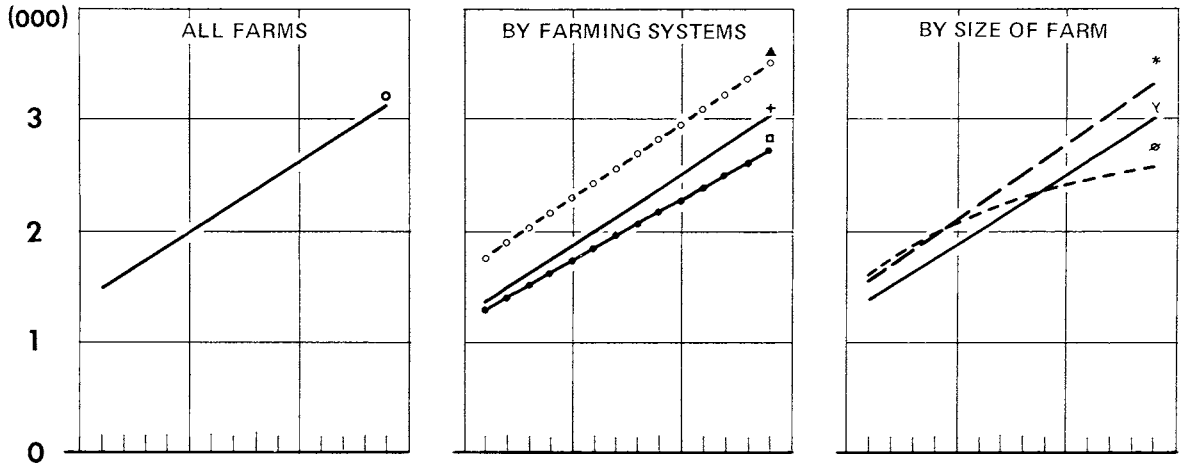
As required under the Agricultural Law of 1955, the Government in its annual Green Report gives estimates of the value of farm production and farm income on the basis of accounts kept by some 8,000 representative farms located throughout the country, and compares them with nonagricultural incomes. According to these estimates, substantial disparities exist among farms, depending on farming system and farm size, as well as the operator's ability. Farms growing mainly root crops have a substantially higher farm production and income 25/ per hectare and per man-year equivalent than farms growing mainly grains; the latter, in turn, show better returns than farms with mainly feed crops (fig. 8). Production value per hectare and farm income per man-year equivalent showed a sharp upward trend from the mid-1950's to the late 1960's, but the increase in farm income per hectare showed a declining rate of increase from the early 1960's for all farming systems.

The value of production per hectare for farms over 50 hectares in size, still slightly larger than for 20- to 50-hectare size farms and for smaller farms in the mid-1950's, became substantially smaller than for the other size groups by the end of the 1960's. This decrease was the result of sharp increases in costs of hired labor which made it essential to maximize labor productivity rather than per hectare yields. The increase in farm income per man-year equivalent has been much steeper for the larger farms; in 1969/70, farm income per man-year equivalent for farms 50 hectares and more in size was about 25 percent greater than for 20- to 50-hectare farms, and over 50 percent greater than for farms under 20 hectares in size.

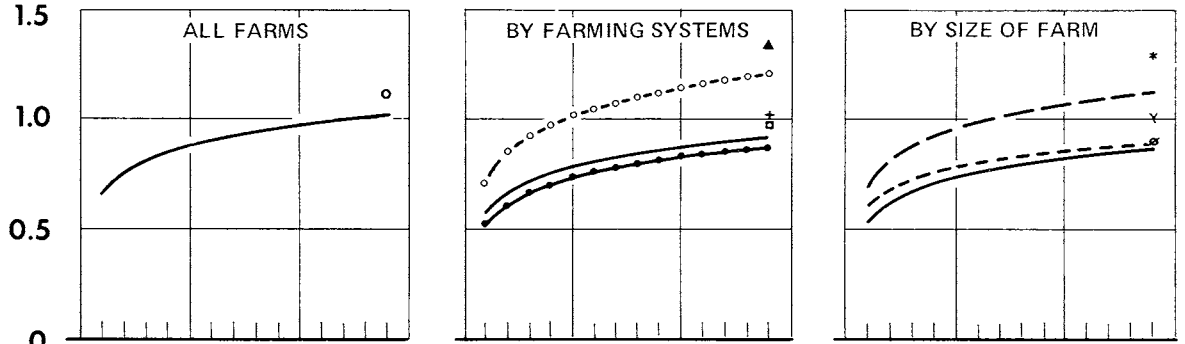
25/ The term farm income (Betriebseinkommen), as used here, is defined as the value of farm production less costs, but not deducting wage costs, interest on capital, or entrepreneurial profit from the farm, assumed to be owner-operated and free of debt. Earned income (Arbeitseinkommen) consists of farm income less interest on capital.

WEST GERMANY: FARM OUTPUT AND FARM INCOME

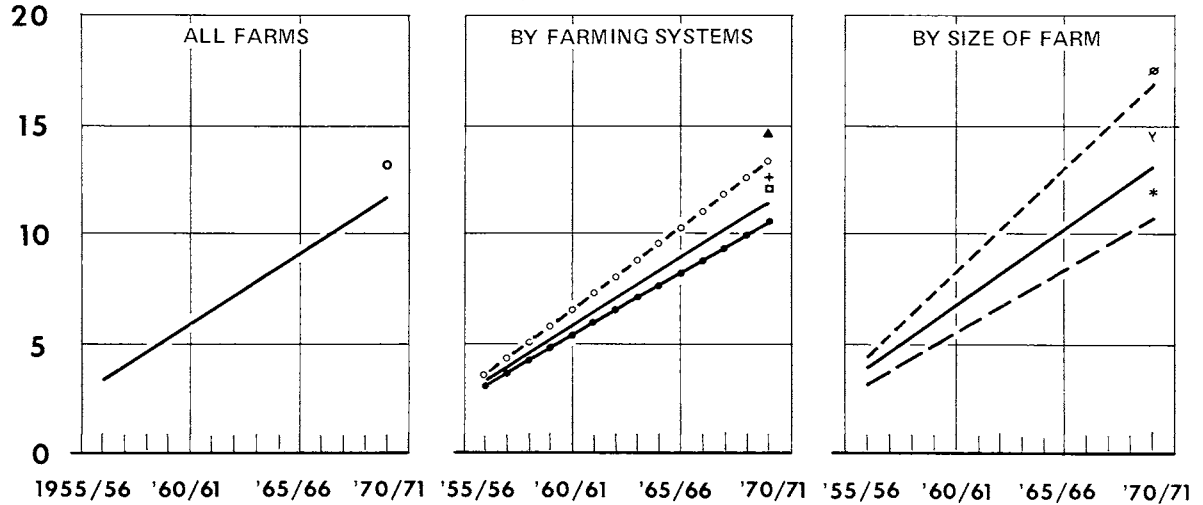
VALUE OF FARM PRODUCTION, DM PER HECTARE OF AGRICULTURAL AREA



FARM INCOME, DM PER HECTARE OF AGRICULTURAL AREA



FARM INCOME, DM PER MAN YEAR EQUIVALENT



▲ ○—○—○— Mainly root crops
 + ——— Mainly grain crops
 □ ——— Mainly feed crops

* ——— Under 20 hectares
 Y ——— 20 to 50 hectares
 □ ——— 50 hectares and over

SYMBOLS SHOW ACTUAL VALUE FOR 1969/70

TREND WAS SELECTED WHICH REFLECTS DEVELOPMENT MOST ACCURATELY

U.S. DEPARTMENT OF AGRICULTURE

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Adapted from (40, p. 35).

Figure 8

Regional differences in the results of farm operations per hectare of agricultural land and per man-year equivalent are also considerable. Mainly because of the larger size of most farms, the outturn was larger for the Northwest than the South in all categories except farm income per hectare. During 1967/68-1969/70, for example, average annual results were as follows (41):

<u>Category</u>	<u>Northwest 1/</u>	<u>South 1/</u>	<u>Total country</u>
	- - - - - <u>DM</u> - - - - -		
Farm production per hectare	3,091	2,887	2,988
Farm income per hectare	1,037	1,067	1,051
Farm production per man-year equivalent	40,631	28,568	33,730
Farm income per man-year equivalent	13,623	10,549	11,857
Earned income per man-year equivalent	10,175	7,950	8,897

1/ The Northwest includes Schleswig-Holstein, Niedersachsen and Nordrhein-Westfalen; the South, all States south of these.

According to comparisons published in the Green Report, farm incomes during 1967/68-1969/70 averaged 25 percent lower than comparable nonagricultural incomes on farms under 20 hectares in size, 18 percent lower on 20- to 50-hectare farms, and 5 percent lower on farms of 50 hectares and larger. Differences were substantial depending on location and farming system. The only type of farm for which average farm income exceeded the comparable nonagricultural income was root crop farms 50 hectares and larger in size.

PUBLIC EXPENDITURES FOR AGRICULTURE

As in many other industrially developed countries, West German agriculture has received substantial financial support from government--not only from the Federal Government, but also from the States and, to some extent, from the local governments. 26/ The Federal Government has collected import levies, which covered a small part of these costs. 27/ Agriculture also has benefited from tax concessions 28/ and protected producer prices--originally under West German regulations and now under Common Market provisions.

26/ The European Recovery Program and the Equalization of Burdens funds, which were fairly important sources of funds in the early 1950's, are now of minor significance.

27/ Since the beginning of 1971, all import levies are received by the EAGGF. In addition, the Fund receives increasing portions of member countries' tariff duty collections--specifically, in 1971, one-half of the sum of levy and duty receipts; in 1972, five-eighths, and so on, until all levy and duty receipts will go to the Fund beginning in 1975. However, 10 percent of these amounts are returned to the member countries to finance collection costs. See Amtsblatt der europäischen Gemeinschaften, L 94, April 28, 1970, p. 20.

28/ In 1968/69, agriculture, forestry, and fisheries accounted for 1.06 percent of total taxes paid by enterprises and self-employed persons, compared with 7.75 percent in 1950/51 (53, 1970, p. 142).

The total annual cost of food, agriculture, and forestry to the government at all levels reportedly averaged nearly 5.5 billion DM during 1962-67 and rose to over 8 billion DM in 1968 (table 13). The Federal Government's expenditures for agriculture were budgeted at 5,564 million DM for 1969, 7,711 million DM for 1970, and 6,986 million DM for 1971 (40, p. 87). Agriculture's share of the total Federal Government's budget was 8 percent in 1970 and 7 percent in 1971 (40, p. 86).

Table 13.--Government expenditures for food, agriculture, and forestry, West Germany, average 1962-66, annual 1967 and 1968

Category	Average 1962-66	1967	1968
- - - - - Million DM - - - - -			
Federal Government ^{1/}	3,237	3,723	6,185
State governments	1,646	1,545	1,402
Local governments	322	308	342
Special funds	51	14	15
Total government expenditures	5,256	5,590	7,944
Estimated value of tax concessions	905	na	1,081
Total of above	6,161	na	9,025
Import levies	-732	-1,069	-863
Total government cost	5,429	na	8,162

na = not available.

^{1/} Amounts include the cost of market intervention under EC market regulations (0.8 billion DM in 1967 and 1.4 billion DM in 1968) which are credited toward West Germany's share of contributions to the EC Agricultural Fund (EAGGF). These contributions are included in the budget under another allocation.

Sources: (43, 53, 56).

German economists have estimated that the cost to West German households of protecting agriculture by maintaining producer prices above world levels rose from 3.6 billion DM in 1956 to 7.9 billion DM in 1966, averaging nearly 7.4 billion DM annually during 1962-66 (70, p. 194). Based on these estimates and the above data on Government expenditures, the cost of West German agriculture to the public (governments and consumers) averaged 12.8 billion DM during 1962-66 and was equivalent to nearly two-thirds of the contribution of agriculture (including forestry and fisheries) to GDP at current prices. ^{29/} Even

^{29/} Omitting programs costing around 2 billion DM, which are of more general public benefit or are of a type also provided for nonagricultural sectors, would still leave nearly 11 billion DM (equivalent to well over half of agricultural GDP) for agricultural support measures.

assuming the cost to consumers of agricultural protection in 1968 at slightly less than that in 1966 (owing to the decline in grain prices), the total cost to the public of West German agriculture rose to about 16 billion DM in 1968, equivalent to nearly four-fifths of agricultural GDP in that year. Excluding the cost to consumers of protected prices, the cost of Government support for agriculture was equivalent to well over one-fourth of agricultural GDP during 1962-66 and nearly two-fifths in 1968.

Most of the Federal Government's expenditures for agriculture since the mid-1950's, especially those involving structural improvements, have been made under the Agricultural Law of 1955 and, during 1965-69, under the EEC-Adaptation Law. The data shown in table 14 for expenditures from 1956 to 1969 under these laws give some indication of the importance attached to various types of structural improvements over the years. All the measures listed, except those for improvement of farm income and for subsidies of accident insurance, represent expenditures for structural improvement in the broader sense of the term, since the funds have been made available to improve the efficiency of producing and marketing farm products. This is true even of old-age pensions, a major purpose of which is to encourage earlier retirement of farmers.

According to the budget data shown for 1969-71, which cover all the Federal Government's expenditures for agriculture except for market intervention (see table 14), measures to improve farm income, first grain price equalization payments and, from 1970, payments to indemnify farmers for losses on account of the revaluation of the mark have reduced the relative importance of expenditures aimed directly at structural improvements.

As indicated previously, many programs supported by the Federal Government are also supported by State governments. In 1969, for example, the programs listed under improvement of agricultural structure received funds from State governments totaling 648 million DM, and those under market rationalization, 62 million DM.

In addition, some funds for structural improvements have been obtained from the EAGGF. For the period 1964-69, nearly 378 million DM were granted for a total of 367 projects, mostly for improvement of both the agricultural structure (especially for land consolidation, water control, replanting vineyards, and reforestation) and marketing structure (especially dairy, meat, and fruit and vegetable marketing facilities) (40). West Germany, however, has paid much more into the EAGGF than it has received from it. Most of the EAGGF funds have been used for price guarantee purposes--largely for export subsidies to dispose of surplus products--and, since France's surpluses are the largest, it receives most of these funds (45 percent through 1968/69, compared with 13 percent for West Germany) (53, 1970, p. 337). West Germany has taken second place to Italy in receipt of "guidance" (structural improvement) funds. It has, however, received most of the funds for grain price equalization payments provided under the EAGGF. By the beginning of 1970, West Germany had made payments to EAGGF totaling over 3.9 billion DM and received 2.6 billion DM, leaving a net contribution to the fund of about 1.3 billion DM (53, 1970, p. 337).

Table 14.--Federal Government expenditures for agriculture, West Germany, 1956-71 1/

Category	Agricultural Law and EEC-Adaptation Law		Other <u>2/</u>		Total (excl. market intervention)		
	Total 1956-64	Total 1965-69	1969	1969	1969	1970	1971
	----- DM million -----						
Improvement of agricultural structure:							
Land consolidation	1,169	1,419	245	0	245	232	245
Relocation of farmsteads, farm enlargement, farm buildings, and other special measures	1,991	1,749	250	0	250	239	249
Interest subsidies	632	1,705	395	0	395	392	402
Other measures <u>2/</u>	1,439	438	37	234	271	242	264
Total for improvement of agricultural structure	5,231	5,311	927	234	1,162	1,105	1,160
Modernization of farm operations (investment subsidies)	0	744	136	0	136	65	65
Social measures for agriculture:							
Old-age pensions	499	2,588	673	0	673	639	675
Accident insurance	255	997	190	0	190	215	260
Land disposal payments and pensions	0	12	12	0	12	25	38
Total for social measures	754	3,597	875	0	875	879	973
Market rationalization:							
Horizontal and vertical integration	156	713	209	0	209	173	195
Marketing funds	0	40	40	0	40	23	23
Other	402	140	30	0	30	0	0
Total for market rationalization	558	893	279	0	279	196	218
Improvement of farm income:							
Petroleum subsidy	637	317	0	410	410	425	430
Payment for quality milk	3,809	1,775	0	0	0	0	0
Other measures <u>3/</u>	1,787	0	0	374	374	1,109	923
Total for improvement of farm income	6,233	2,092	0	784	784	1,534	1,353
Other measures to assist agriculture <u>4/</u>	561	37	2	171	173	233	230
Grand total <u>5/</u>	13,337	12,674	2,219	1,189	3,408	4,013	3,999

--Continued

Table 14.--Federal Government expenditures for agriculture, West Germany, 1956-71 1/--Continued

1/ Data are for fiscal years, which began April 1 through 1960 and were calendar years from 1961. For 1956-64 data include only expenditures under the Agricultural Law, as EEC-Adaptation Law was in effect only during 1965-69. Data through 1968 are actual expenditures, for 1969 and later, budgeted expenditures. All data exclude expenditures for fisheries, commonly included with agricultural expenditures, and for market intervention.

2/ Includes expenditures for settlement programs, farm roads, water control, special regional programs, and for subsidizing farm workers' dwellings.

3/ The amount shown for 1956-64 consists of fertilizer subsidies, discontinued during 1963. For 1969 it consists of grain price equalization payments; for 1970 grain price equalization payments (DM187 million) and revaluation payments (DM922 million); and for 1971, revaluation payments.

4/ Includes expenditures for coastal protection program and for research and extension services.

5/ Data do not add to all totals because of rounding.

Sources: (40; 41; 43, 1970; 53, 1970).

OUTLOOK FOR THE 1970's

Several publications have appeared recently discussing prospects for West German agriculture in the decade of the seventies (44, 64, 88, 105, 108). The annual agricultural reports for 1970 and 1971 (40, 41, 43), required under the Agricultural Law, also include projections to 1975 and 1980. 30/

All observers agree on one point: The necessity of further sharp reductions in West Germany's farm labor force. According to the 1971 Agricultural Report, the number of persons employed in agriculture (including forestry and fisheries), based on the trend during 1963-70, will decline by two-fifths, from 2.4 million in 1970 to about 1.4 million in 1980, an average decline of some 5.2 percent annually. An earlier study by Professor Heidhues (64) projected a decline, based on a 1963-70 trend, of full-time farmworkers (excluding forestry and fisheries) from 2.3 million in 1968 to 1.3 million in 1980. The total farm labor force, in terms of man-year equivalents, was expected to decrease from 1.7 million in 1968 to 1.0 million by 1980 and, not counting the labor force on farms less than 5 hectares in size which are mainly part-time operations from 1.3 million in 1968 to 840,000 in 1980. Of the total decline of nearly 1 million full-time workers from 1968 to 1980, about 70 percent were expected to retire on account of age.

Since most of the remaining full-time farms are family farms run by husband and wife, usually with only occasional help from retired parents still living on the farm, a reduction in labor force is likely to be associated more closely than in the past with a reduction in the number of farms (40, p.65). According to the Heidhues study cited above, the number of farms with commercial sales of at least 1,000 DM may be expected to decline by 1980 to 830,000 (compared with 1.1 million in 1968 and 1.0 million in 1970)--to 565,000 farms over 5 hectares in size, and about 400,000 over 10 hectares. Assuming that at least 100,000 farms over 10 hectares in size would be part-time farms (the number of the part-time farms in that size category was already 70,000 in 1970) and that, with the exception of farms producing specialty crops, no smaller farms would be full-time operations, the number of full-time farms by 1980 may drop to as few as 300,000.

A considerable increase in the size of the remaining full-time farms is expected, depending on the extent to which present full-time farmers taking nonagricultural jobs rent or sell their land rather than continue to operate it on a part-time basis. The Federal Government's measures to encourage land disposal may be an important factor in making additional land available for farm enlargement. However, the amount of land available, even if much of the land is transferred to full-time farmers, is insufficient for 300,000 farms of adequate size. In 1970, the average size of all farms over 10 hectares in size was less than 20 hectares, 23 hectares counting only full-time farms. On the unlikely assumption that all agricultural land now in farms over 10 hectares in size would become available for 300,000 full-time farmers in 1980, average size of these farms would be 33 hectares or, adding all land in 5- to 10-hectare farms, nearly 39 hectares. Since a substantial share of the available agricultural land (likely to continue its gradual decline of some 0.2 percent annually)

30/ The 1971 report also provides projections for the rest of the European Community.

undoubtedly will be used by part-time farmers, it is clear that, with 300,000 full-time farms, many would be smaller than 30 hectares, and that few would reach the minimum size of 80 hectares suggested in the original version of the Mansholt plan. Thus, even if the number of full-time farms declined to 300,000 by 1980, the structural problems of West German agriculture would still not be fully solved. A much greater decline in the number of full-time farms is needed to make possible a size structure on which an efficient, truly competitive agriculture could be based. Furthermore, enlarging a farm may involve additional cost not only for the land but also for new buildings and equipment, making such an enlarged farm less profitable than an existing farm of similar size (44, p.196).

The chances of further accelerating structural adjustments in agriculture depend on many factors. Foremost among these is the employment situation in other sectors of the economy. Continuing full employment, especially if regional economic development programs are successful in creating employment opportunities within commuting distance in rural areas where surplus labor is available, would provide favorable conditions for enticing farmers away from farming as the only or main source of income. The shift in value standards since World War II toward increased emphasis on material goods also encourages many farmers, especially the younger generation, to depart from family tradition and take up a new way of life. Changes in the system of rural education also have an important role in this development.

On the other hand, there are strong indications that a change in attitude toward rural development is taking place in West Germany and other West European countries, with environmental factors receiving increasing attention. This change could result in a shift in agricultural policy, including direct payments to farmers to compensate them for "landscape management." For the first time, the 1971 Agricultural Report (40) listed "intensification of nature conservation and landscape management with the goal of maintaining the cultural landscape" as a goal of West German agricultural policy. Minister of Agriculture Ertl has emphasized, on at least two occasions, the role of agriculture in protecting the landscape; in both cases, he indicated that, in the future, farmers must be paid for services they thus render to the general public (23). In a speech made in Zurich in June 1971, he stated that, especially in hilly and mountainous regions, "land utilization can no longer be considered only from the standpoint of economic profit, since agriculture takes over the care of the landscape as a service for the recreational needs of society--a service which the government should pay for." This viewpoint has long been the attitude of the Swiss Government, which justifies the cost of subsidizing unprofitable mountain farming by the value of these regions to the tourist industry.

A recent study of agriculture in the Common Market by the Atlantic Institute (4, p.24) stated that at the present state of industrial development it is becoming urgent to prevent the formation of deserted regions. Agricultural policy, merged with regional policy, "provides an opportunity to create a new service industry devoted to the conservation of natural resources, made more necessary by the frightening progress of pollution, and more profitable because of the growth of tourism from the cities associated with greater leisure and higher incomes."

While this new environmental approach to the problems of agriculture is becoming increasingly popular, ^{31/} no measures are known to have as yet been taken in West Germany or elsewhere to compensate farmers directly for their environmental services to the public. The strong support given in West Germany to part-time farming can be attributed, however, in part to the fear of depopulation and consequent deterioration of the landscape, especially in presently attractive but fairly unproductive regions.

All projections for West German agriculture through the 1970's indicate continued overall growth of production, but at a considerably slower pace than evidenced during the 1950's and 1960's. According to a recent projection by Professor Plate, the volume of agricultural production, measured at 1968/69 prices, may be expected to show an average annual increase of only about 0.6 percent from 1968/69 to 1980, compared with an average annual rate of 3.4 percent from 1951/52 to 1960/61, and 2.3 percent from 1960/61 to 1968/69 (44, p. 52). If the rapid decline of the farm labor force continues or is further accelerated, labor productivity will continue to increase at a rapid rate. However, assuming a continuing rise in the cost of nonfarm inputs in agriculture and given the sharp limitations on price increases for farm products resulting from low demand and price elasticities, as well as EC agricultural policy, farm incomes will probably continue to lag behind incomes in other economic sectors.

^{31/} According to a report in the Neue Zurcher Zeitung (February 26, 1972), Fernausgabe No. 56, Mansholt has suggested to the EC Commission that the EC should lead the struggle to maintain ecological equilibrium in the world.

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