

# The value-added chain in the German food sector<sup>1</sup>

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## **Introduction**

Given the current conditions of agriculture, it must be recognised that the success of the sector does not chiefly depend on efficient production and adequate structure of agricultural enterprises. In particular the concept of Total Quality Management is focussing on the fact that the agrofood chain will only be successful if each component works well. On the one hand, the degree of satisfaction the consumer derives from products he buys depends not primarily on agriculture but on decisions made by the downstream elements of the food chain. The product characteristics consumers expect must be traced from distribution and processing back to the producer of the raw materials. On the other hand, for farmers it is vitally important that the downstream subsectors of the food chain are able to transform agricultural products into value-added products which can be sold at a reasonable price.

The enterprises in each subsector along the food chain have their specific functions and problems. The strategies of the actors in the production area and distribution channel are partly different and sometimes contradictory. There are also significant differences in the structure of enterprises in the different subsectors of the food chain. Despite insufficient structures, farmers' bargaining power has developed quite satisfactorily since World War II. Recently however, their marketing power has started to gradually decline due to the increasing degree of concentration in the food processing industry, and especially in the food retail trade. The surplus situation for most food products and the policy decisions made related to the CAP and WTO are further explanations for farmers becoming the weakest element in the food chain.

In this chapter the characteristics and developments of the different subsectors of the value-

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<sup>1</sup> This contribution is published in: Weindlmaier, H. (2000): The value added-chain in the German food sector. In: Tangermann, St. (Ed.): Agriculture in Germany. Frankfurt am Main: DLG-Verlag, p. 283-312. A short version of the contribution has been presented at the XXIV. International Conference of the International Association of Agricultural Economists (IAAE), Berlin, August 16, 2000.

added chain in the agricultural and food sector will be analysed and major problem areas will be addressed. In this context the emphasis will be put on the most important subsectors besides agriculture, namely the food industry and the food retail trade.

### **Structure and subsectors of the value-added chain in the agricultural and food sector**

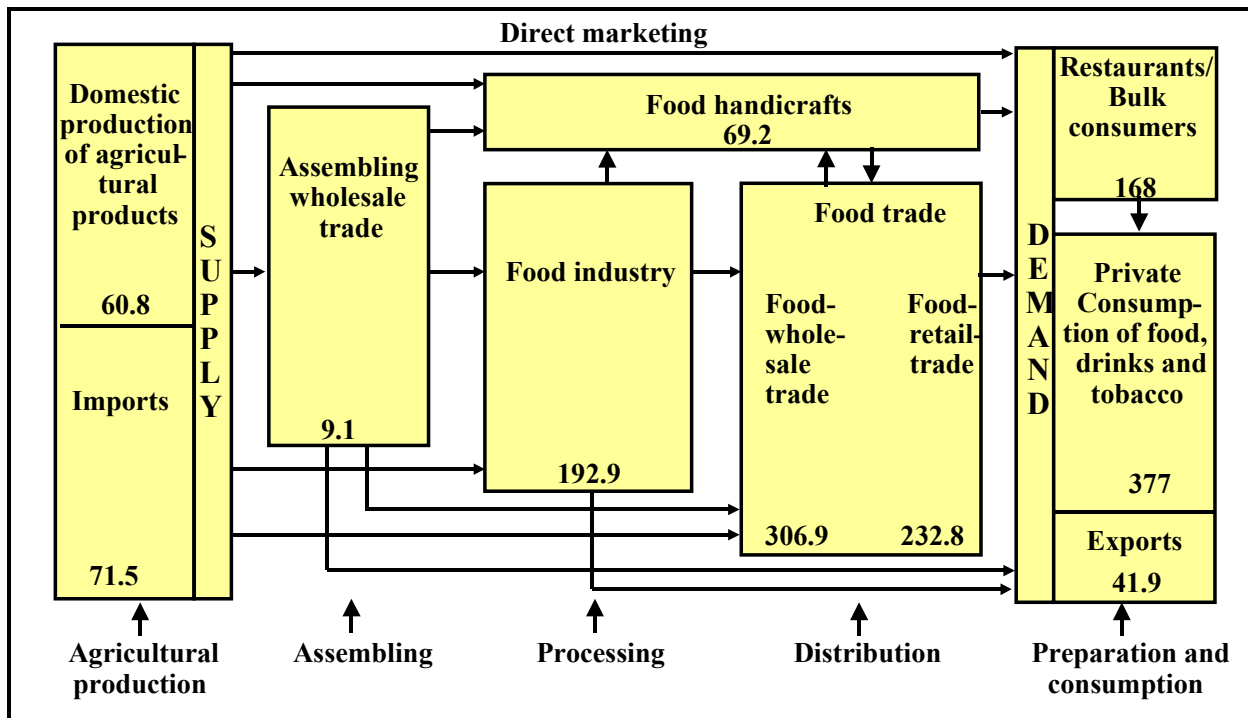
#### *The structure of the value-added chain*

The value-added chain in the agricultural and food sector can be divided into several subsectors (see also Besch, 1993). The left side of figure 1 shows agricultural production at the beginning of the food chain. In 1997 sales for the agricultural sector amounted to 60.8 billion DM in Germany. For further processing, the agricultural goods then are assembled by the wholesale trade, by the food processing industry, and/or by food handicraft enterprises. Only a small percentage of agricultural products is directly sold to private and bulk consumers. While the food handicraft enterprises sell most of their products directly to consumers, the industrially processed food reaches the final consumer via the food wholesale and/or retail trade. The total value of private consumption of food, drinks, and tobacco totals 377 billion DM in 1997 compared with 340 billion DM in 1991.

Table 1 shows that the German food sector has been quite successful during the last decades in providing food for the continually growing German population; in spite of 4.4% population growth during this period, for most product groups the degree of self-sufficiency increased quite remarkably, especially for cereals, potatoes, sugar, and milk products. On the right the table shows marketing margins calculated as the difference between farm sales and consumer expenditures for food of domestic origin (see also Besch, 1993: 29-31). It is obvious that the farmer's share in consumer food expenditure is constantly decreasing while marketing margins have increased accordingly. This development can be observed for all food products with varying intensity, although the decrease of the farmer's share becomes especially evident with regard to vegetal products and meat.

According to Wöhlken (1991: 123), the increase of marketing margins is due both to the range of built-in services and the costs of these services. The changes in the marketing margins clearly indicate the shift of the added value within the food chain in recent decades.

Figure 1. Structure and components of the value-added chain in German agriculture<sup>1)</sup>



<sup>1)</sup>In general, the numbers (billion DM, without value-added tax) refer to 1997. The numbers of the assembling wholesale trade refer to 1997/98.

<sup>2)</sup>Source: Statistisches Bundesamt (1999).

<sup>3)</sup>Source: Ernährungsdienst (1999).

<sup>4)</sup>Sources: Statistisches Bundesamt (1999); Deutscher Fleischer-Verband (1988); Zentralverband des Deutschen Bäckerhandwerks (1998).

<sup>5)</sup>Source: CMA Mafo Briefe (1999).

<sup>6)</sup>Private consumption of food, drinks and tobacco in billion DM. Source: Statistisches Bundesamt (1998: 664).

Table 1. Indicators for the development of the German food sector, 1975/76 to 1996/97

Product / group of products	Degree of self sufficiency (%)			Share of agricultural sales in % of consumer expenditures for products of domestic origin		
	1975/76	1992/93	1996/97	1975/76	1992/93	1996/97
Cereals	81	117	120	18.8 <sup>2)</sup>	6.8 <sup>2)</sup>	4.5 <sup>2)</sup>
Potatoes	90	97	102	53.4	23.0	19.2
Sugar Beets and sugar	110	141	150	42.3	37.1	38.2
Meat and meat products <sup>1)</sup>	82	82	85	51.7	28.7	30.4
Fresh milk and fresh milk products	100	108	116	} 60.7 <sup>3)</sup>	} 48.7 <sup>3)</sup>	} 45.7 <sup>3)</sup>
Cheese	91	96	102			
Butter	136	87	77			
Eggs and products made of eggs	80	75	72	85.2	68.0	74.7

<sup>1)</sup> Data for animal products refer to calendar years, that means 1975/76 refers to 1976.

<sup>2)</sup> Data refer to cereals for bread and products made of bread grains.

<sup>3)</sup> Data refer to milk and milk products.

Source: Statistisches Bundesamt and Bundesministerium für Ernährung, Landwirtschaft und Forsten.

### *Importance and development of agricultural and food imports and exports for the German food chain*

Imports and exports of commodities and processed food play an important role in Germany as can be seen from figure 1. Imports of commodities and processed food amount to 71.5 billion DM in 1997. Worldwide Germany ranks first place importing agricultural and food products. Major imported products are fruits and vegetables, meat and fish, cacao products, dairy products, coffee, and tea. However, Germany also ranks fourth worldwide in exporting agricultural and food products. Between 1991 and 1997 exports increased from 35.8 billion DM to 41.9 billion DM. During this period the negative trade balance decreased from 32.1 to 29.6 billion DM. Important export goods are dairy products, fresh and processed meat, fruits and vegetables, tobacco, and tobacco products.

German trade in agricultural and food products is primarily concentrated on the intra-EU trade: in 1997 62.6% of the imports and 67.9% of the exports were realised with EU Member States. During the 1990s, exports to East Europe increased remarkably. Although this positive development has been interrupted due to the economic crisis in these countries, it is expected that in the middle and long run these countries will be important partners for the German food sector.

### *Importance and characteristics of cooperatives and the assembling wholesale trade*

The assembling wholesale trade is an important intermediary, especially for vegetal products (42% of sales in 1997/98), while animal products are often assembled by the food industry itself. The assembling wholesale trade consists of two legal forms. In 1997/98 about 1,070 private wholesale companies and 1,205 cooperatives were buying products from farmers, but also supplying them with feedstuffs, fertiliser, pesticides/insecticides, and agricultural machinery (Ernährungsdienst, 1999). In general, deliveries to farmers account for about 70% of total sales of the assembling wholesale trade.

During recent decades, the number of companies in the assembling wholesale trade significantly decreased, affecting both the private and the cooperative sectors. The decreasing number of farms coupled with economic pressure were the main driving forces for this concentration process.

Cooperatives play a very important role in addition to their wholesale trade in providing inputs to farmers and assembling agricultural products. Traditionally, cooperatives are also active in processing agricultural products, specifically in the dairy sector, the slaughterhouse sector, in the processing of fruits and vegetables, in wineries, and in the production of feed mixes. While in 1960 20,926 cooperatives with 3.6 million members served the agricultural and food sector in Western Germany (Deutscher Raiffeisenverband, 1999), there were less than 4,221 cooperatives with about 3 million members in the reunified Germany in 1998. The total turnover of cooperatives involved in assembling and processing activities amounted to 75 billion DM in 1998.

Recently, cooperatives in some areas have lost market share to capital-oriented forms of enterprises such as Plc (AG) and Ltd (GmbH). Cooperatives are facing several problems. One of their major shortcomings is connected with the procurement of equity capital. Because of the actual income situation, the farmer-members are often economically unable or unwilling to increase their shares or to provide additional needed equity capital to finance growth and long-term strategies (Weindlmaier, 1994). Another problem is associated with the structure of the managing and supervisory boards of the cooperatives. By law they may consist only of members of the cooperative. Therefore, quite often decisions are strongly influenced by the members' short-term objectives, i.e. to gain high prices for the products they supply instead of being oriented toward long-term strategic needs of the processing cooperative. Hence, deficiencies with respect to investments in marketing activities like branding, product innovation, advertising, and internationalisation are frequently found in German cooperatives.

The cooperatives' union is aware of these problems. In a joint initiative with the German farmers' union, new strategies and measures were formulated and discussed. Their objective is to regain the position the cooperative sector formerly had in the German food chain (Deutscher Raiffeisenverband e.V. et al., 1998).

#### *Contract farming and vertical integration*

Some subsectors of the food industry are confronted with high market risk resulting from inelastic supply and high fixed production costs. In these fields contract farming has a long tradition in Germany (Besch, 1993: 25). Contracts should guarantee that the products delivered by the farmers meet the processors' needs with regard to quantity, quality, time of deliv-

ery, etc. Contract farming plays an important role in the vegetable, potato processing, and sugar industry as well as in the canning industry. Furthermore, contract farming is common between the processing industry and poultry and milk producers.

Vertical integration also became an important strategy in integrated production and marketing programs, especially for branded meat during the last years. These programs, based on modern quality management standards (such as ISO 9000), aim at improving and guaranteeing the quality of the final products by preventive controls through the entire production and marketing process (Weindlmaier et al., 1997). The BSE crisis and quality problems with pork and veal have marked the introduction of these programs. Ottowitz (1997) reported 94 branding programs for beef and/or pork in 1996.

Despite these developments some experts criticise that in other European countries (e.g. The Netherlands, France, Denmark and the United Kingdom) contract farming and vertical integration is much more widespread than in Germany (Kallfass, 1993). Consequently there are competitive disadvantages for the German food sector.

The establishment of producer groups according to the market structure law of 1969, mark another institutional development at the interface between agricultural production and food processing. Their formation should help to adjust the disequilibrium between farmers' fragmented supply of goods on the one hand and increasing concentration in the subsequent sectors on the other. The producer groups' objective is to improve the farmers' bargaining power and to collect and standardise the small supply quantities of individual farmers. To encourage the establishment of producer groups, subsidies are provided by the government.

The number of governmentally recognised producer groups in Western Germany peaked in 1990 with 1,479 groups. Since then, the number decreased to 1,027 in 1997. However, in the 1990s an additional 202 producer groups were founded in Eastern Germany. The market shares of producer groups in Western Germany in 1996 totalled 39.8% for wine, 21.9% for potatoes, 17.6% for slaughter pigs, 16.5% for cereals, and 10.3% for slaughter cattle. In Eastern Germany relatively high market shares have been reached for slaughter animals, i.e. 48.5% for pigs, 38.3% for cattle (Bundesregierung, 1998: 12-13).

According to the results of analyses by Elsinger (1991) producer groups have not yet been able to satisfy the high expectations of their promoters with respect to improving the farmers'

marketing position. Instead, producer groups are quite often additional competitors, only increasing regional price struggles. The main reasons for this development are the insufficient market shares of producer groups, the fact that members often do not offer their total production to the producer group but sell to other buyers as well, and management deficiencies. In spite of these shortcomings, experts still assign producer groups an important contribution in the necessary process of intensifying vertical coordination in the German food chain (Halk, et al. 1999).

### *Direct marketing of agricultural products*

While most farm output is processed and reaches the consumers via the trade channel, for some products (potatoes, eggs, apples, milk, wine, and vegetables) direct marketing to consumers has gained some importance. From the farmers' point of view the potential advantages of direct marketing are higher product prices, lower price variability, and the possibility of employing excess labour capacity at the farm. Prerequisites of direct marketing are a farm location easily reached by a sufficient number of consumers, excess labour capacity, entrepreneurial skills, and marketing measures specifically designed for the target groups.

Wirthgen and Maurer (1992) estimated that at the beginning of the 1990s only about 5% of German farmers were active in direct marketing. In a recent study Wirthgen and Kuhnert show that the share of direct marketing sales in total sales of farms accounts for about 9% (Kuhnert, 1998: 59-76). According to this study about 70% of the farmers who are active in direct marketing offer processed food as well. Table 2 shows the development of the market shares for the two main directly marketed goods, i.e. potatoes and eggs. The figures point out that the percentages vary year by year depending mainly on the annual yields. The numbers indicate however, that direct marketing of these product groups is gradually decreasing.

Table 2. The development of direct marketing shares of potatoes and eggs, 1991/92 to 1996/97

<b>Product</b>	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
Potatoes	21.5	26.7	26.4	27.2	17.9	19.1
Eggs to bulk consumers	28.9	22.4	22.0	20.4	18.0	17.8
Eggs to individual consumers	19.4	8.0	7.2	6.9	6.7	6.7

Source: Statistisches Bundesamt (1999: 174).

Currently a renaissance of direct marketing is seen with respect to the sale of biological products. It is estimated that about 80% of farmers producing according to specific ecological criteria are involved in direct marketing. The products offered include grains, potatoes, fresh vegetables, fruits, milk, etc.

#### *Role of food handicraft enterprises in the value-added chain of German agriculture*

Food handicraft enterprises still have a relatively high importance in Germany. They offer a wide range of high quality products and regional specialities. As there is no strict legal differentiation between the food industry and food handicraft enterprises, it is statistically impossible to exactly split these two sectors.

In 1997 butchers had a turnover of 35.9 billion DM. Their market share of the total sales of meat and meat products is about 50% (Deutscher Fleischer-Verband, 1998). In spite of the rapid ongoing concentration process leading to a reduction in the number of enterprises, the competitiveness of butchers improved in recent years. This is primarily caused by the BSE crisis and by a diversification of their activities. Many butchers established branch outlets. In addition to selling meat and meat products to consumers, butchers increasingly use additional market channels. In 1997 84% of the butchers offered a party/catering service. Furthermore, more than half of the butchers are also selling products to bulk consumers like restaurants and nearly half of them offer fast food.

With regard to market share, bakeries have been even more successful although the concentration process continues rapidly. Turnover for bakeries amounted to 26.5 billion DM in 1997. The market share of bakeries in the German bread market is still about 65 to 70% (Zentralverband des Deutschen Bäckerhandwerks, 1998). Based on numerous innovations, bakeries are offering a diversified range of bakery products.

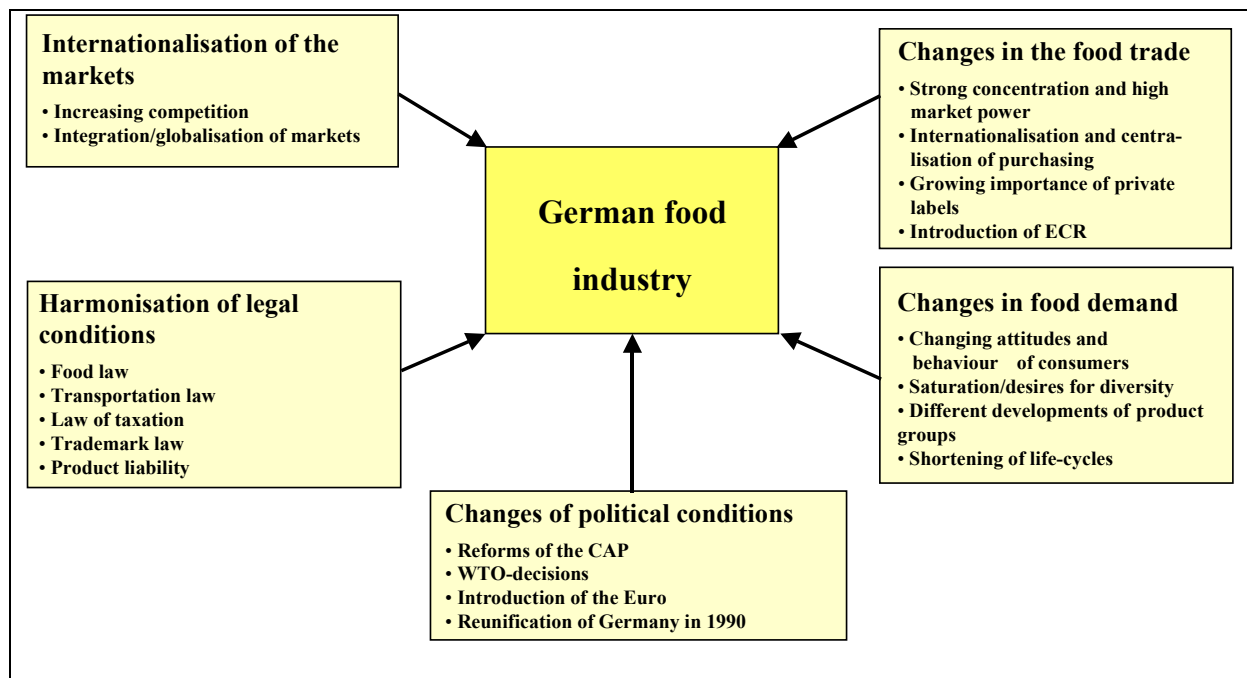
### **Developments in the German food industry**

#### *Changes in the underlying conditions for the food industry*

The conditions for the food industry significantly changed in recent years. In figure 2 some of the most important conditions for the food industry are listed. A first important factor is the

growing internationalisation of markets. This process has accelerated by the Single European Market established in 1993 which aims at full integration of goods, capital, services, and labour. For the food industry this has led to a further increase of competition within the EU, and especially in Germany. The large potential market of about 80 million consumers, the high purchasing power of German consumers, and the good infrastructure are the main reasons for this effect. Even companies which mainly sell their products regionally or nationally are confronted with a growing number of competitors. Therefore, further internationalisation is also a very important strategic objective for German food enterprises. Another important development is the harmonisation of legal conditions for the food industry (e.g. the food law, the transportation law, the trademark law, etc.) in the EU (see Wendt, 1991). In recent years the food industry has been forced to make many adjustments to be in line with the new legal framework. Also of great importance is the fast-growing concentration process in the food trade and the changes in consumer behaviour and food demand (see Nienhaus, 1995; Nestlé, 1999).

Figure 2. Conditions for the German food industry



Recent trends in consumer attitudes and behaviour are the growing polarisation of consumer requirements (the so called hybrid consumer), a constantly high consideration of the quality, taste, and freshness of food, and consumers highly sensitive to raw materials and additives used, techniques employed for processing, and food safety. Furthermore consumers show

growing sensitiveness with respect to the price-quality relationship. Even for people with high incomes, price is an important buying criteria; they seek to buy high quality brands as cheaply as possible ('smart shoppers'). It can also be noted that the regionalism regained importance for some consumers.

These behavioural changes led to modifications in food demand and to new challenges for the actors in the food chain. The general saturation of food demand on the one hand and the consumers' longing for variety and novelty on the other is remarkable. The demand for basic food is decreasing while the demand for value-added products (convenience products, for biological, ethnical, or functional food) is steadily growing. The life cycle of food products, however, steadily diminishes. Meanwhile out-of-home consumption has become an important issue in food demand; it is estimated to have a market share of more than 40% in Germany (CMA Mafo Briefe, 1999). In general, in the demand-driven food market of Germany, only those food suppliers who strongly focus on consumers' desires and who manage to consider those desires in product development and marketing will be successful.

Last but not least there have been major changes in the general policy framework of the food industry. The changes in the CAP, the Agenda 2000, and the developments in GATT and the WTO are just some important issues (for further details see the policy-oriented chapters of this book). It is expected that the introduction of the euro will lead to further price competition in the European food sector.

A change in the policy framework of specific importance for the German food industry has been the reunification of Germany in 1990. In 1991 the food industry in Eastern Germany had an annual turnover of about 16.7 billion DM which means that about 7.8% of the total turnover of the German food industry were realised by Eastern German companies (Bundesministerium für Ernährung, Landwirtschaft und Forsten, 1993: 116). The main part of the East German food industry was not competitive under Western economic conditions. The main reasons for this were marketing deficits, obsolete buildings and equipment only enabling very low productivity, severe shortcomings in the quality of products, and a product assortment which did not meet modern consumer demands.

Since reunification, an enormous selection process has taken place in the food industry of Eastern Germany. Many companies were confronted with financial problems and had to be

liquidated. Modern processing facilities have been built. Often, the cooperation with partners from Western Germany or other Western countries resulted in these partners acquiring the capital majority or becoming the principal owner of the enterprises. This restructuring program has been supported with subsidies by the Governments of the Laender, by the federal government, and by the European Union totalling up to 50% or more of total investment costs. Nowadays the food industry of Eastern Germany is one of the most modern in Europe.

*Important sectors of the food industry and their structure*

Table 3 shows the most important branches of the German food industry ranked by their turnover. By far the most important branch is the dairy industry with an annual turnover of about 40 billion DM. It is followed by the industrial preparation and preservation of meat and meat products, the manufacturing of malt and beer, and of bread, pastry, and cakes. In 1998, about 16.4% of the turnover was realised with exports.

Table 3. Turnover and employment in the German food and drink industry, 1998

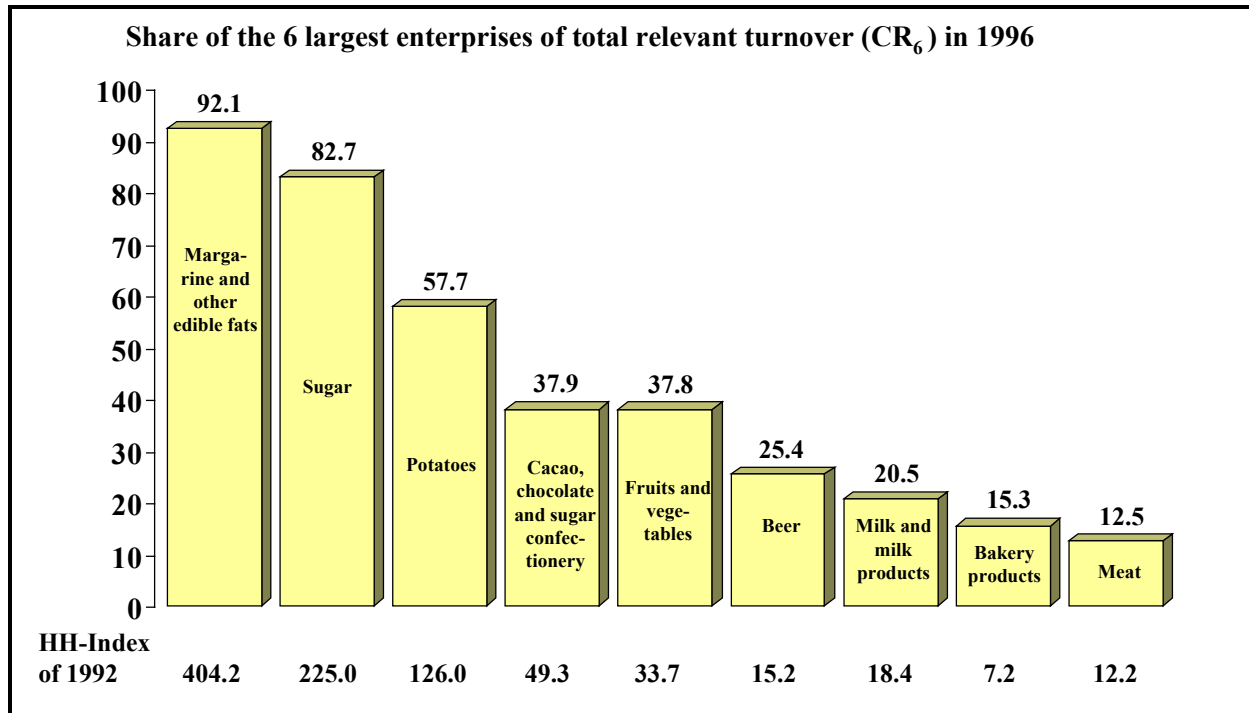
Rank	Area of economic activity	Turnover		Employees
		(billion DM)	(%)	
1.	Dairies, cheese making, preserved milk products and processed cheese	39.626	17.38	43,901
2.	Industrial preparation and preserving of meat and meat products	23.353	10.24	84,153
3.	Manufacture of malt and beer	19.501	8.55	42,689
4.	Manufacture of bread, pastry and cakes	16.927	7.42	150,481
5.	Slaughterhouses	15.749	6.91	23,696
6.	Manufacture of cocoa, chocolate and confectionery	14.263	6.26	32,294
7.	Processing and preserving of fruit and vegetables	13.156	5.77	27,674
8.	Production of mineral water and lemonades	11.573	5.08	23,915
9.	Manufacture of animal feedstuffs	9.808	4.30	11,660
10.	Manufacture of distilled potable alcoholic beverages and wines	9.051	3.97	8,236
11.	Processing of coffee and tea	8.945	3.92	6,239
12.	Manufacture and refining of sugar	6.258	2.75	6,981
13.	Other	39.765	17.44	82,390
<b>Food and drink industry</b>		<b>227.975</b>	<b>100.00</b>	<b>544,309</b>

Source: Bundesvereinigung der Deutschen Ernährungsindustrie (1999: 13).

The number of enterprises in the food industry is steadily decreasing because of the extensive

concentration process. In 1998 altogether 5,911 enterprises were counted.<sup>2</sup> If we look at figure 3 we notice that the concentration levels in the different branches vary considerably. In this figure, two different methods to measure the concentration rate were employed.

Figure 3. Concentration measures of enterprises in German food manufacturing



Source: Bundesministerium für Ernährung, Landwirtschaft und Forsten (1999)

First, for some important branches the Concentration Rate 6 (CR<sub>6</sub>) is shown representing the market share of the six largest enterprises in the branch with respect to total turnover. In addition, at the bottom of figure 3 the Herfindahl-Hirschmann Index for 1992 is presented (Herrmann et al., 1996: 193).<sup>3</sup>

The figure shows that in some branches the largest six companies have already attained an extremely high market share. However, the still rather small Herfindahl-Hirschmann indices indicate that even in these branches there many small companies yet exist. A relatively high concentration rate can be found in branches with a high potential for realising economies of scale, a rather homogeneous product range, and few processing stages. Examples are the manufacturing of margarine and sugar. Concentration is still small in branches with a pre-

<sup>2</sup> Due to changes in the statistical sample in 1997 it is not possible to show the long-term development.

<sup>3</sup> In the Herfindahl-Hirschmann Index, 1,000 indicates maximal concentration.

vailing regional orientation, which is true for the manufacturing of beer and, at least in some regions, of milk. Concentration is also minor in branches with a long food handicraft tradition. Typical examples are the preparation and preservation of meat by butchers and the manufacturing of bread, pastry goods, and cakes.

Even in some branches that show low concentration rates in figure 3, we recently observe a rather high growth in concentration. This is true, for example, for dairies and cheese production, for the manufacturing of prepared foodstuffs, for slaughterhouses, for the manufacturing and refining of sugar and of macaroni and noodles. This rising concentration may reflect the pressure in these markets to make efforts in realising economies of scale and in increasing market power. Experience shows, however, that despite these concentration processes, the food industry was unable to significantly improve bargaining power.

Table 4 shows the top twenty enterprises in the German food industry in 1998/99. As can be seen, the top enterprises like Tchibo, Südzucker, and Oetker are conglomerates producing a variety of food products. Furthermore, among the largest companies are subsidiaries of multinational food companies like Campina, Nestlé, Unilever, Coca-Cola, Procter & Gamble, and Kraft Jacobs Suchard. The top ten enterprises of the German food industry have a market share in terms of total turnover of food of about 35%. In comparison, the top ten enterprises in the German food trade have a market share of about 83.5% of total food sales.

### *Competitiveness of the German food industry*

The competitiveness of the German food industry plays an important role for the further development of the value-added chain. Yet, recent investigations regarding competitiveness in Germany draw a picture with lights and shadows (Hartmann, 1993; Weindlmaier, 2000). Table 5 shows the values for the Relative Export Advantage Index (RXA), the Relative Import Penetration Index (RMP), the Relative Trade Advantage Index (RTA), and the ratio of unit-values of exports and imports for selected product groups (Weindlmaier, 2000).<sup>4</sup> Positive ratios of the unit-values indicate that primarily high value-added products like specialities and

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<sup>4</sup> Values greater than 1 for the RXA and RTA are interpreted as relative competitiveness compared with other sectors of an economy while values less than 1 are indicators for the opposite. For the RMP, values less than 1 mean high market shares of imports and values greater than 1 point at low proportions of imports in the relevant product area, i.e. high competitiveness of domestic products.

branded products are exported while commodities are imported. The calculations are based on the COMTEX database of the EU and refer to intra-EU trade only.

Table 4. Top twenty enterprises in the German food industry

No.	Firm / Firm group	Turnover (billion DM)	Main product areas
1	Tschibo Holding AG, Reemtsma, Eduscho	18.600	Coffee, cigarettes, nonfood
2	Südzucker-Gruppe Südzucker AG; Schöller	8.800	Sugar, ice cream, sweeteners, frozen food, biscuits and cakes
3	Oetker-Gruppe; Binding- Gruppe, Henkell & Söhnlein	8.197	Frozen food, beer, wine, ice cream, champagne, liquors
4	Campina Melkunie b.v.	8.100	Dairy products
5	Nestlé-Gruppe Deutschland	7.850	Coffee, baby food, chocolate and confectionery, beverages, meat products and sausages
6	Deutsche Unilever	7.660	Margarine, dairy products, sausages, frozen food
7	Coca-Cola Germany	6.300	Beverages
8	Procter & Gamble Germany	5.900	Detergents, cosmetics, fruit drinks
9	Nordmilch eG	4.700	Dairy products
10	Kraft Jakobs Suchard Germany	4.200	Chocolate and confectionery, coffee, cheese
11	Pfeiffer & Langen-Gruppe, Intersnack; Krüger	3.680	Sugar, snacks, instant products
12	Moksel-Konzern	3.320	Meat and meat products
13	CG Nordfleisch-Konzern	2.800	Meat and meat products
14	Südfleisch-Konzern	2.737	Meat and meat products
15	Humana Milchunion	2.700	Dairy products
16	Schwartau-Gruppe	2.660	Marmalade, beverages, cereal products, baby food, meat
17	Haribo-Gruppe	2.600	Confectionery
18	Ferrero Germany	2.600	Confectionery
19	Melitta-Gruppe	2.240	Coffee, nonfood
20	Molkerei Müller	2.230	Dairy products

Source: Lebensmittelzeitung (1999a: 10)

The numbers of the indicators RXA, RMP, and RTA in table 5 emphasise the competitiveness of branches like the processing of liquid milk, yoghurt and other fresh dairy products, skimmed milk powder, sausages, and cocoa mass. For most of the other products the numbers point out deficits in competitiveness. High ratios of unit values can be found for the same products but also for butter, for pigs, pork and processed products of pork, and for cacao products.

These results, which are derived from trade statistics, are confirmed by the analysis of the competitive potential and competitive processes according to Porter's diamond. There are several facts that indicate a high competitive potential of the German food industry but there are also significant disadvantages as table 6 shows.

Table 5. Measures of the competitiveness of the German food industry

Product group	RXA		RMP		RTA		Unit Values	
	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø
	88-90	95-97	88-90	95-97	88-90	95-97	88-90	95-97
Dairy products								
Liquid milk	1.15	2.25	0.12	0.03	1.03	2.22	0.84	0.76
Cream	2.93	1.06	0.23	0.28	2.70	0.79	0.83	0.95
Skimmed milk powder	3.07	3.51	0.35	0.18	2.73	3.33	0.87	1.03
Yoghurt, buttermilk and kefir	1.89	1.88	0.22	0.27	1.67	1.61	1.53	1.08
Hard cheese	0.92	1.01	0.43	0.61	0.49	0.40	0.81	0.86
Semihard cheese	0.41	0.65	2.97	2.38	-2.55	-1.73	0.97	0.86
Soft cheese	0.45	0.21	2.78	4.54	-2.33	-4.33	0.86	0.93
Quark	1.10	1.01	1.52	1.56	-0.43	-0.56	0.55	0.61
Butter and butterfat	0.22	0.25	0.96	1.30	-0.74	-1.05	1.02	1.04
Pigs, pork and processed products	0.20	0.23	1.24	1.58	-1.04	-1.36	1.21	1.18
Processed and canned products of pork	0.17	0.21	0.48	0.51	-0.30	-0.30	0.93	0.99
Sausages	1.16	1.14	0.85	0.92	0.31	0.21	0.84	0.91
Slaughter cattle, calves, beef, veal, and processed products	0.78	0.74	0.56	0.52	0.22	0.22	0.94	0.89
Processed and canned products of beef	0.02	0.15	1.41	0.63	-1.39	-0.48	0.76	0.89
Vegetable fats and oils for human consumption	0.65	0.49	0.66	0.41	-0.01	0.08	0.76	0.68
Margarine etc.	0.80	0.70	0.30	0.47	0.49	0.23	1.09	0.89
Cacao products (except cacao beans and -butter)	0.68	0.87	0.79	0.86	-0.11	0.01	0.98	1.05
Chocolate and confectionery	0.57	0.82	0.87	0.95	-0.30	-0.13	1.01	1.06
Cacao mass	4.37	2.66	0.26	0.33	4.12	2.33	1.16	1.21

Source: Weindlmaier (2000).

Important advantages are the excellent endowment of production factors, the good infrastructure, the large home market with high purchasing power and demanding and sophisticated consumers, the good domestic image of German food, and the existence of competitive suppliers in the related and supporting industries.

Disadvantages for the German food industry are high labour costs and social security charges combined with rigid labour market regulations and small wage differentiation, deficits in the strategic orientation and strategic marketing in the food industry, structural deficits with respect to the size of companies, plants, and farms, and high taxes and public charges. Addi-

tionally past agricultural and food policies have hindered the development of appropriate measures and strategies to improve competitiveness.

Table 6. Competitive advantages and disadvantages of the German food industry

<b>Competitive advantages of the German food industry</b>	<b>Competitive disadvantages of the German food industry</b>
<ul style="list-style-type: none"> <li>◆ Good education, professionalism, and motivation of employees</li> <li>◆ Availability of capital at low interest rates</li> <li>◆ Very good infrastructure</li> <li>◆ Great importance of measures for the protection of the environment</li> <li>◆ Extensive competition, demanding and sophisticated consumers</li> <li>◆ Good domestic image of German food</li> <li>◆ Large home market and high purchasing power at the domestic market</li> <li>◆ Foreign markets with fast growing food demand in surrounding countries</li> <li>◆ Production of high quality raw materials by German agriculture</li> <li>◆ Competitive suppliers in the related and supporting industries</li> </ul>	<ul style="list-style-type: none"> <li>◆ High costs of labour and social security</li> <li>◆ Rigid labour market regulations and small wage differentiation</li> <li>◆ High costs of energy</li> <li>◆ Limited availability of venture capital</li> <li>◆ Partial lack of professionalism in decision making</li> <li>◆ Deficits in the strategic orientation of the food industry and strategic marketing</li> <li>◆ Structural deficits with respect to the size of companies and plants</li> <li>◆ Poor farm structure and comparatively high costs in the production of agricultural raw materials</li> <li>◆ High taxes and public charges</li> <li>◆ Policy measures (CAP, etc.) which hindered the development of appropriate activities and measures to improve competitiveness</li> </ul>

Source: Weindlmaier (2000).

## **Food trade in Germany**

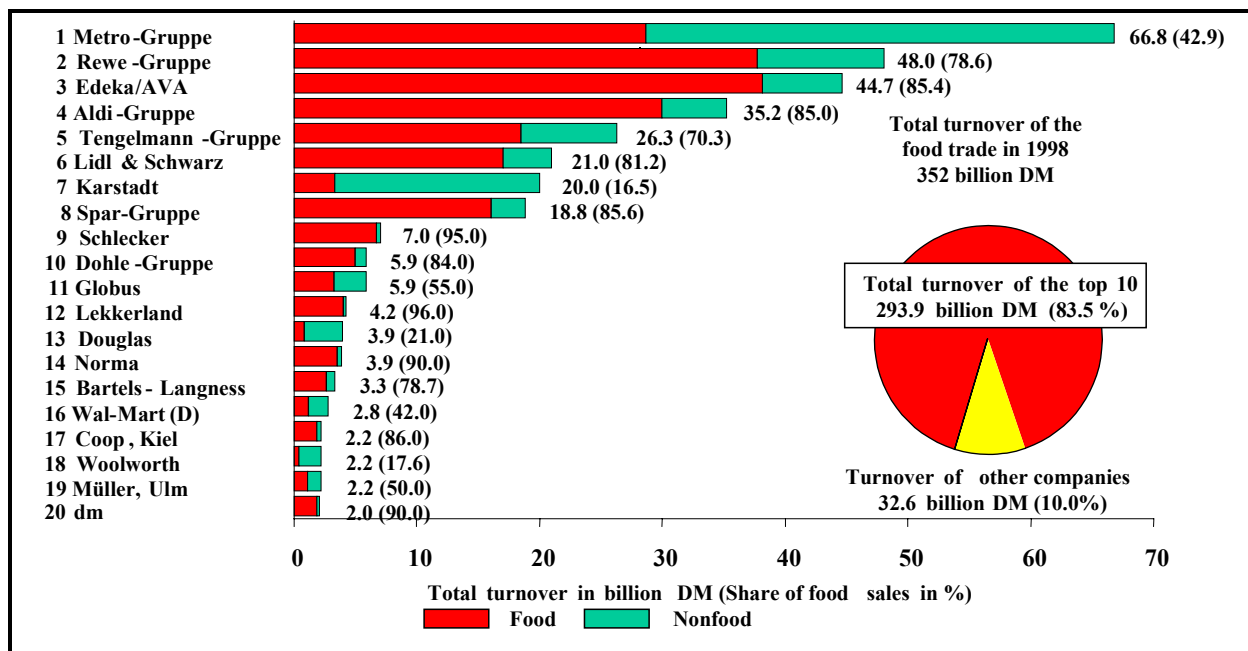
### *Characteristics and developments of the German food trade*

During the last few decades organisational and technical changes took place in the German food trade transforming the originally very traditional and small-scale food trade to a modern and highly competitive distribution system.

Rapid and extensive concentration took place in the German food retail sector. Figure 4 shows that the top ten companies have gained a market share of 90%. These concentration processes are connected with the implementation of new internal forms of organisation and changes in the vertical structure of the food trade. Up to the 1970s, food trade was organised in a three-stage structure consisting of the central wholesale trade, the regional wholesale trade, and the local retail trade; the cooperatives Edeka and Rewe were typical examples of this structure. With a few exceptions, these levels have been integrated with enterprises com-

binning wholesale and retail trade and centralising purchasing activities. Very high market power of the leading retail trade companies is an important consequence. Aldi and Tengelmann are typical for this kind of food trade enterprise in Germany (see also Lingenfelder and Lauer, 1999).

Figure 4. The top 20 enterprises in German food trade in 1998



Source: Lebensmittelzeitung (1999b: 4).

The total number of retail outlets decreased from 161,359 in 1960 to 74,577 in 1997. In the same period the system of offering food changed. Compared to only 14% in 1960, by 1997 85% of the outlets were self-service stores with a market share in terms of turnover of 99%. The typical supermarket lost market share while large self-service department stores and low-price discount stores quickly gained importance. In 1997 about 25% of sales were realised by large self-service department stores and 31% by low-price discount outlets. This development is specifically important in that for these types of outlets, low prices are an important selling point. The increasing introduction of private labels supports the low price strategy. Recently this has become even more important because of intense price struggles between some of the low-price chains like Aldi and Lidl and the US trade giant Wal-Mart, engaged in Germany since 1997. Consequently, the whole food trade had to react to the strategies of these competitors who attempt to realise their low price strategy primarily by low purchasing prices. Extraordinary price pressure on the food industry and other suppliers was the consequence.

In addition to the concentration, strong internationalisation processes are seen in the German food trade. For example, the largest German food trade enterprise, Metro, has affiliates in seventeen European countries. The leading German food trade enterprises (e.g. Metro, Rewe, Aldi, and Edeka) are among the largest in Europe and the world (Lebensmittelzeitung, 1998). In the late 1990s new methods of selling food gained importance. Examples are sales by electronic commerce which is expected to expand further in the next few years. A significant increase of food sales in new retail outlets like petrol stations, railway stations and airports can also be observed.

In most cases the large food retail chains took over transportation and logistics from the food industry, i.e. they supply their outlets with their own fleet of trucks. A reduction of transport costs, the delivery of full assortments for an outlet through only one carrier, and the direct control of the delivery chain up to the outlet are the main reasons for this development. In addition, merchandise information systems have been established in the outlets allowing retail management to have daily control of the turnover of all listed articles. As a consequence, the risk for producers that their items, especially new items, with low turnover rates will be removed from the assortment is now much greater. The pressure on the food industry resulting from organisational changes in the retail trade has even been intensified as some food chains recently introduced the Efficient Consumer Response (ECR) concept (Spannagel and Trommsdorf, 1999). It is expected that the relationship between the food industry and food trade will continue to change significantly in the years ahead.

#### *Consequences of the developments in the food retail trade for food industry and agriculture*

The above mentioned developments in German food trade have severe impacts for the downstream subsectors of the food chain. Based on strong bargaining power, the food trade is more or less fixing purchase prices for the products delivered by the food industry. In addition the food trade forces suppliers to accept increasing price deductions, supports to the advertising expenses of the food trade, and specific payments for including the product into the assortment of the outlets. Furthermore, for the food trade, quality requirements have been extended and there is now demand for just-in-time supply.

As a consequence of the national and international concentration processes only large suppliers are adequate partners for these food trade companies. Purchasing activities of these food

trade giants are continually centralised which means that large quantities are needed for the great number of outlets. Under these circumstances small- and medium-sized enterprises are attractive partners only if they offer interesting innovations, if they are able to establish –(at least regionally) close customer-supplier relationships, or if they establish effective strategic alliances to combine their output. Nevertheless, the need for structural changes in the food industry is still growing. The food industry's attempts to form strategic alliances have not yet been very successful.

The strengthening of the introduction of private labels by the food trade (their market share for food in Germany was 14.0% in 1999) consequently forced even leading suppliers of brands to produce private labels in spite of the risks associated with such activities. Due to higher profit margins it is expected that the percentage of private labels will further increase.

### **Marketing of agricultural and food products**

On the one hand marketing of agricultural and food products is performed by various actors in the food chain offering consumer-ready products, i.e. farmers, food handicraft enterprises, the food industry, and the food retail trade. On the other hand, cooperative group marketing and centralised sector marketing is of some importance.

The application of marketing instruments by farmers is limited to the selling of goods directly to final consumers. This is especially important for the direct sales discussed earlier. Marketing activities are therefore adjusted to this kind of local business. For example, promotion activities take place primarily at the point of sale. The marketing activities of the food handicraft enterprises are of a similar nature.

Most important are the marketing activities of the food industry employing all kinds of marketing measures. Taking into account the given framework of the food market, a high commitment to marketing is a necessary prerequisite for success and competitiveness. It has been already pointed out that marketing activities of the food industry (e.g. price policy measures) have to take into account the limits set by the powerful food trade. In the following, some information is presented on product innovation and advertising as an example.

According to annual surveys during the last ten years marketing managers of German industry

judge product innovation as the most important prerequisite for the success of their company in the following year (Stippel, 1998: 106). In spite of this positive evaluation, in 1998 only 397 million DM were spent for research and development (R&D) in the German food industry, representing 0.2% of the annual turnover (Grenzmann and Wudke, 1999: 4). It is questionable whether this relatively small amount is sufficient to finance the expensive research necessary for products like functional foods and nutraceuticals for which growing demand is forecasted.

Recently the number of food innovations introduced to the German market shows a decreasing trend: 1,632 new products were introduced in 1996, 1,253 in 1997, and 849 in 1998 (Lebensmittel-Praxis, several years). New drinks, confectionery, and dairy products were the product areas with the largest numbers of product innovations. According to the same survey, around 50% of the new products introduced were withdrawn from the market in the same year because of a lack of market success.

In the given competitive market situation of the German food sector, advertising is one of the most important marketing measures to establish unique positioning for brands and to influence consumers' attitudes. Furthermore, if product innovations are introduced to the market, advertising and other promotional measures are necessary to attain sufficient recognition of the new product by consumers.

Therefore, it is reasonable that the German food industry ranks second in media spending in Germany. In absolute terms, advertising expenditures for food and drinks increased by 10.7% from 4.762 billion DM in 1994 to 5.271 billion DM in 1998 (AC Nielsen, 1999). In 1998 the producers of beer and beverages made the highest advertising expenditures with 1.336 billion DM, the makers of chocolate and sugar confectionery with 1.135 billion DM, and processors of dairy products with 491 million DM in. Relatively, the whole food sector is spending about 2.3% of its turnover for advertising. Significantly above the average are the advertising expenditures of the producers of chocolate and sugar confectionery (7.9%), beer (4.6%), and edible oils and fats (4%). The media selection for advertising food differs strongly from the media selection of other branches. In 1998 the nationwide market share of television advertising was 42.8%, less than the print media with 48.9%. In the food sector, television advertising dominates: the market share increased from 51.6% in 1988 to 84.7% in 1998. One explanation might be that advertising for food products aims mainly at communicating experi-

ence attributes (Becker and Buchardi, 1996: 50).

Because of the limited opportunities for marketing by individual farms as well as by small- and medium-sized food industry companies, a central marketing company (CMA) was founded according to the Marketing Fund Law of 1969. It is mainly funded by fixed obligatory charges per product unit which the processors have to pay. However, as a central marketing organisation, the CMA has to assume a neutral position in competitive matters and must balance the interests of the various participating economic groups (Besch, 1993: 27-28). Consequently, it can fulfil only supportive tasks as its activities are restricted to basic and export market research, basic and generic advertising, support of sales promotion activities, and exhibitions. In addition educational activities, extension, and informational programs on the different parties in the marketing channel can be carried out. An important activity of the CMA is the establishment of quality label programs (Gütezeichen- and Gütesiegelprogramme) supported by comprehensive and rigid quality controls.

In addition to the central marketing by the CMA, other cooperative marketing institutions were founded during recent decades (see Balling, 1997). Some of them were established by the Laender (e.g. the marketing unit of the Bavarian Ministry of Agriculture), others by interest groups for specific products (e.g. the German Wine Institute to promote German wine). The activities of these institutions are similar to the CMA, however they are limited to the promotion of specific products or origins.

Expenditures for cooperative marketing activities are estimated at 283 million DM for 1994 (Balling, 1997: 51). About 62% was spent by the CMA and 22% by product-specific organisations; the organisations for wine have the highest budgets in Germany. Total cooperative advertising expenditures for food in 1994 amounted to 199 million DM; of this amount 65 million was spent by the CMA, 7 million by regional German organisations and 137 million by foreign cooperative market institutions. Cooperative advertising expenditures decreased to 162 million DM in 1998; 39 million DM by CMA, 12 million DM by regional German organisations, and 101 million by foreign cooperative marketing institutions which reduced cooperative advertising activities on the German market during that period (BIK Aschpurwis + Behrens, 1999).

## Challenges for the future

For the successful development of the German food chain in the coming years, several challenges must be managed and solutions found. The following seem to be of particular importance:

- For the competitiveness of the value-added chain it is essential that all subsectors are themselves competitive. The competitiveness of the whole chain can be significantly improved if the vertical integration of the subsectors is intensified. To track the wishes and attitudes from the final consumers through the whole chain makes close co-ordination between the various partners necessary. Integration processes have to be intensified; for example, by applying the ECR concept to the food trade and the food industry, but also by vertically integrating the food industry and agriculture.
- Today the acceptance of food fundamentally depends on high quality and other positive features of the goods produced and offered to domestic and foreign consumers and the utility they incorporate for the consumer. First, it seems necessary that the focus on consumer wishes be strengthened and become the ultimate basis for decisions made by the actors in the food chain. To transform consumer wishes into creative products, the expenditures for R&D must be increased. Secondly, in light of various food scandals, it is essential that the consumer can be guaranteed safe, healthy food products. An important step has been taken in this direction by establishing quality management systems in many German food industry companies. However, it seems necessary that most farmers as well as food trade companies also establish such systems in the future.
- It is to be expected that aside from quality, price also be a key buying criteria in the future. Low prices in combination with sufficient profits for the actors in the food chain can only be realised with high efficiency of the vertically connected enterprises and with an economic framework to produce and distribute food as cheaply as possible. It has been mentioned that the professionalism of the participants in the food chain in Germany must be improved. Intensifying education, continuing the training of managers and employees, and a more extensive use of modern decision aids can assist this process. However, in addition to low-cost production and distribution, strong efforts are necessary to improve the size structure in agricultural production and the food industry. There are many further neces-

sary steps to improve the competitiveness of the German value-added chain in the future. These include the realisation of economies of scale and scope (including pecuniary economies of scale) and of the advantages of large-scale enterprises in R&D and marketing, in addition to the exploitation of learning curve effects.

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