

## SELECTED ISSUES AND TRENDS IN HUNGARIAN DAIRY CHAIN

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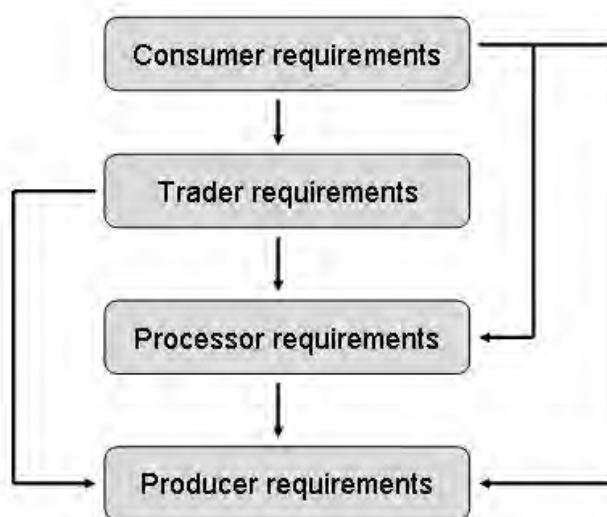
### Introduction

Food consumption patterns in Hungary have greatly changed over the past forty years, exhibiting two different trends before and after the end of 1980s. In the long run the consumption of all products except cereals and potatoes, has increased. From the 1950s to the late 80s the consumption of meat, dairy, fats and oils, sugar and eggs increased dramatically. Since the 1980's due to both income and price effects, consumption of food either decreased rapidly (meat, dairy and eggs), continued to decrease (cereals), or stabilized (potatoes, fats and oils and sugar). In real terms, per capita income decreased by about one-fourth since 1990. The share of food products in the average household budget has remained stable, at about 27 percent, while the share of other products like beverages, clothing, durable goods have slightly decreased and the share of energy and services have increased.

In the food retail sector Hungary is a quite well developed almost mature market especially compared to the other countries in the CEE region. With the appearance of retail chains the relationship of producers-traders considerably changed the partners

are usually not equal. One of the main problems that SME suppliers are not able to supply in sufficient quantities even to a small chain. Small-size enterprises have chances in particular in those fields where small-scale production and special products are characteristic and when these products satisfy niche markets. In these fields they are more flexible than a large-scale enterprise but can only stay in game with good quality.

The food chain as a process can be divided into four main vertical components: agricultural production, processing, distribution and consumption. Processing covers the set of activities starting with the purchase of agricultural produce and ending at the point of transportation to the distributor. Traditionally in Hungary the measurement of the competitiveness in food production has been narrowly defined. But nowadays, it is contended that competitiveness is best defined as the ability to meet the requirements of all the actors in each vertical component of the food chain including, importantly, the upstream components. Acceptance of this concept places a much heavier 'burden' on processing enterprises.



Based on the general approach, it is recognized that the most important factor of the product chain is the retail/ consumer part, which influence more the all players of a given chain. There is another element which has play an important role, which is the possible options for diversification of the existing

product structure.

Among the requirements which affect the processing industry price is constantly the most important one, however, quality requirements and other requirements of the distributors and consumers have all to be identified and effectively addressed.

At present those Hungarian food-processing enterprises which are able to meet the requirements of both the distributors and consumers at least at a minimum level required are considered viable.

The decisive management and meso-level policy question refers to the degree of vertical coordination and/or integration since the food industry signals through these agricultural production and the factors of quality and quantity. In Hungary, due to the political and economic transition, the earlier (and highly developed) vertically integrated structure was destroyed. This caused many of the largest problems in agricultural production during the last transitional decade; it also negatively affected the bargaining power of agricultural producers.

This study has mainly analysed one of the most important sectors of Hungarian animal product chain which is the dairy sector. The analyses of the links and relations are useful to have a vertical approach in a given product group, to show the changes in the vertical links and divided the channels into three stages: production, processing and wholesale and retail/consumer part. The source of data for the dairy sector is mainly the Agricultural Statistical Yearbooks 1998, 2002; the experts of CSO; Food98 Foreign Trade Database and on the retail formats a report of GFK Hungary.

#### **Dairy products demand patterns**

The per capita food consumption has fallen until mid nineties and then rather stagnated in the second half of the period in question. The share of food in total household expenditures increased in the first half of last decades, and then increased slightly at the end of analysed period, it was 29.6 percent in 2002. This stems from the abolishing consumer support, increasing consumer prices, falling real income, the newly introduced kind of taxes, infrastructure development based on households' investments.

Recent study shows that consumer habits differ by socioeconomic strata (Vági, 2001). Older people and households with more children usually buy foods in traditional shops, while young single and couple prefer supermarkets and shopping malls. Traditional shops are dominant in rural areas, while supermarkets and shopping malls play important role in. Households with low educated head of households, older age and less wealth buy in traditional shops, while households with young highly educated head of households prefer supermarkets and shopping malls.

There are two clear trends in the food consumption of the Hungarian households:

- The increasing importance of consumption out of home, but still low more growth ahead.
- Decreasing share of consumption from own production, but still high more decline possible.

The share of food consumption from own production decreased with almost 20% in the analysed period. The decreasing trend started in the middle of the nineties and reached the lowest value in 2000 (76 USD/person) then increased until 2002 but the whole expenditure on food increased more and thus the share of own production from the consumption decreased from 23% to 16%.

To draw a clear picture of the recent trends in the consumption of dairy products we have to clear some methodological difficulties. When we analyse consumption we can use two types of data sets both having advantages and drawbacks. We can use the food balances of the CSO which means that we have complete data in raw material weight but only aggregated. Or we can analyse the Household Budget Survey and have more detailed data for example on the different vegetables but only from the products consumed at home and we do not have the raw material equivalent of the processed products.

According to the Food Balance dataset the consumption of milk<sup>1</sup> constantly decreased in the first half of the nineties, then from 1995 to 2000 started to increase again. This process stopped in 2001 when the consumption of milk declined significantly with 10.2% and in 2002 although slightly but again decreased (-0.8%). The yearly consumption per head was almost 8 litter less in 2002 then in the average of 1996-2000. The Household Budget dataset shows similar tendencies though, the decrease starts already in 1998. The most important changes in the last years were the decrease of both analysed categories and the growth of yoghurts and kefir consumption increasing from 9 to 12% of the whole dairy category.

These tendencies are even more evident if we look at the milk domestic sales in raw milk equivalent. The CSO does not have such calculations so we have to use a different source, the dataset of Milk Produce Council this is the reason why we does not show the absolute volume only the percentage/share of the different categories.

The figure 1 shows the same tendencies, decreasing milk consumption, growing soured product (yoghurts, + 30%) and cheese and curd (+ 2%) share

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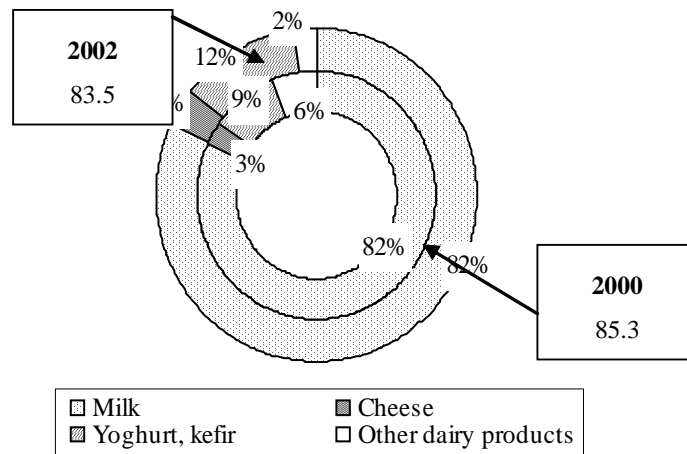
<sup>1</sup> which means milk and milk products together in raw material equivalent thus the change in the inner structure of milk consumption can significantly change the whole consumption trends. This is a problem because milk is a staple food but cheese is much more price and income sensitive.

from the domestic sales:

- The decreasing milk consumption can be explained with unfavourable general and international consumer trends for milk: the growing popularity of other drink categories such as beverages, mineral waters and fruit juices, "milk-like" products and by the growing consumer prices.
- The increase of cheese consumption is helped by the fact that cheese is much more sensitive to income than price changes thus growing incomes can further increase the consumption even with growing prices.
- The fermented products (yoghurts) developing market share is mainly the result of the ever widening and evolving quality supply of flavoured (mainly fruit)

yoghurts and the changing consumer habits. This category seems to be the winner of these tendencies being able to satisfy the growing demand for desserts (fruit yoghurts) and the healthy eating trend at the same time.

After analyzing the changes in the volume of consumption we look at the figures of household expenditures to understand more the reasons of these changes and tendencies. The share of food from the whole expenditure decreased from 40% to 34% between 1993 and 2002 with stagnating share until 1998. The decrease is not caused by decreasing food expenditure but the result of more rapid growth in non-food consumption.

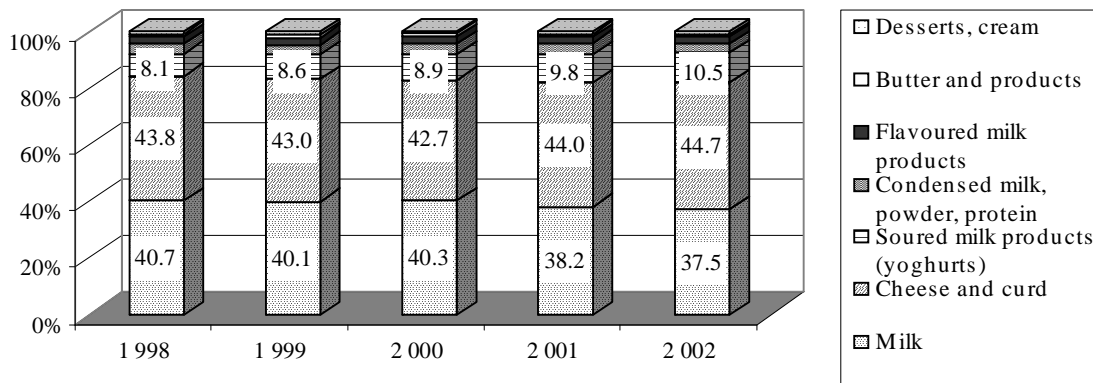


Source: Calculation from yearbooks of the Central Statistical Office (CSO) 1993-2002

Figure 1. Structure of dairy<sup>2</sup> household consumption

The expenditure on dairy products gives only 11 per cent of the whole food consumption. milk (48%) takes smaller share from the expenditure of their own categories dairy products than from the volume of consumption. This is not surprising because both milk is a staple food. Expenditure on milk grew

more (20%) between 1993 and 2002. The difference in expenditure growth was even more evident in the last four years because the expenditure on milk increased with almost 40% the main cause again was the consumer price of milk growing more rapidly than inflation.

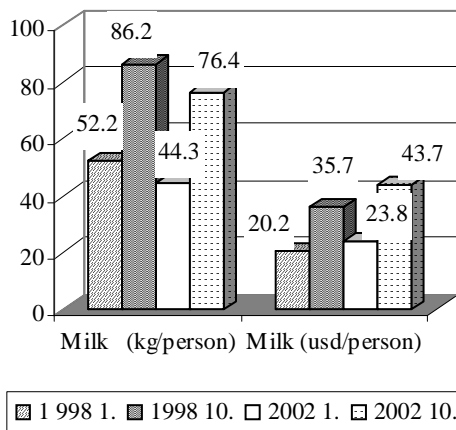


Source: Milk Produce Council, 2003

Figure 2. Domestic sales structure of the dairy products (in raw milk equivalent)

Looking at the consumption in different income categories the difference between the highest and the lowest deciles is around 40% higher by milk. In

case of milk the volume of consumption decreased in the last four years while the expenditure increased in both deciles



Source: Calculation from yearbooks of the Central Statistical Office (CSO) 1993-2002

**Figure 3. Milk consumption in the first and the tenth deciles (1998, 2002)**

The consumption character of milk differs, milk is a staple food - milk consumption is much more sensitive to price and income changes. Thus in spite of the decreasing international tendencies as the Hungarian consumption is still quite below the developed countries' or our own previous level we think that there is a possibility of increasing consumption.

#### The main characteristics of the food retail sector

The political and economical transition at the beginning of the nineties and the privatisation had significant effect on food trading. Food trading was attractive for investors, especially foreign investors. Several international supermarket chains started operating in Hungary, by reconstructing the old supermarkets or with green field investments. Some supermarket chains of Hungarian ownership were also created, some of them developed very quickly, expanding also abroad. In spite of this, most of the Hungarian trading businesses are small- and medium-size enterprises, and short of capital. Concerning the changes in the Hungarian food trade we have distinguished four periods:

1. Spontaneous privatization 1989 - 1991
2. Privatization 1992 - 1995
3. Concentration begins 1996 - 2000
4. Accelerated concentration 2001 -

The period of spontaneous privatisation happened in 1989-1990, when the smaller shops were

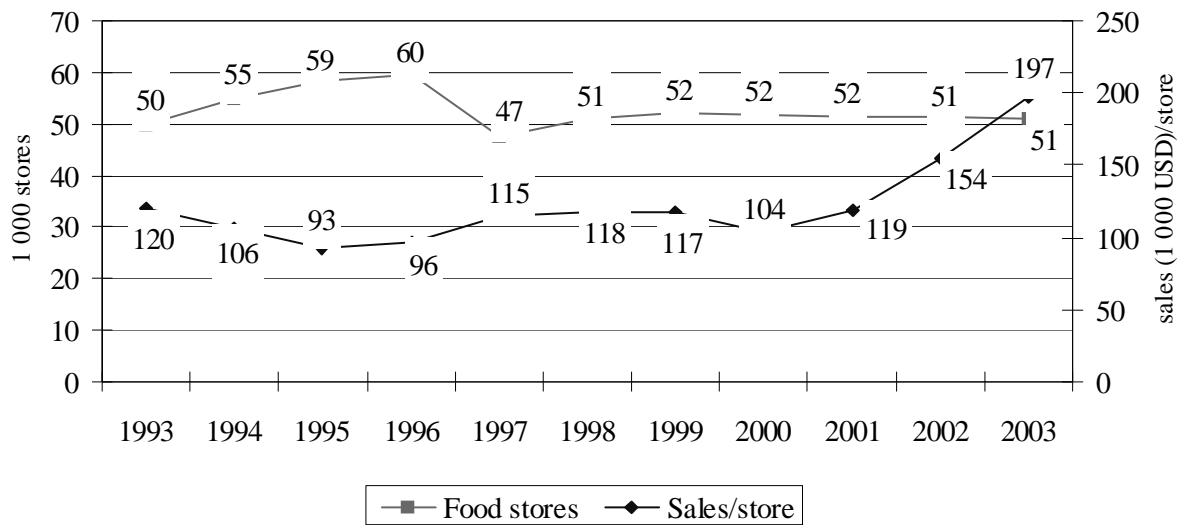
privatised, but when a significant number of private shops were established as well. Therefore the number of food retail shops started to grow. Figure 4. shows the changing number of food retail stores in the decade of the nineties.

During the period of privatisation (from 1991 to about 1995-96) the owners of the larger food retail chains have been changed (e.g. KÖZÉRT). Most of the shops in the favourable areas have become the properties of multinational chains. Some of the small private shops continued to develop, but some of them went bankrupt. The first part of the period is characterised by the launch of so-called "forced"<sup>3</sup> enterprises, lot of them only remaining in business for a short time. Therefore at the beginning of the nineties a big jump happened in the number of food shops. Within this, the number of shops operated by sole proprietors also grew. Their share in the total was the highest in the middle of the decade.

Since the second third of the decade (1996-1997), in the second phase of the privatization, the characteristics of concentration have started to appear. But in the first few years of the concentration period, until 2000 the number of shops and even the number of stores operated by sole proprietors still increased.

Regarding the number of food retail stores the "break" of 1997 was due to the new system of census introduced. In the first half of the nineties the registration of new stores was obligatory but no information was available on the closing down of

<sup>3</sup> After the change of political system unemployment increased drastically thus thousands of people started their own small businesses mostly employing only themselves or the members of the family.



Source: Yearbooks and monthly bulletins of the Central Statistical Office (CSO) 1998-2004

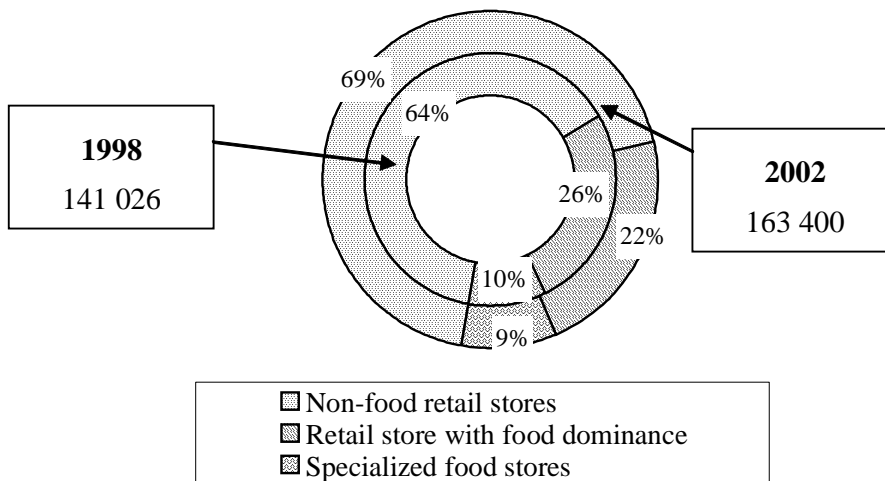
**Figure 4. The changing number of food retail stores and sales per store**

stores. In 1996 the Hungarian Central Statistical Office (KSH) carried out a census on retail stores. From 1997 on it is the task of local governments to keep continuously a register on the shops located on their area.

Only around 30-40% of the large number of stores sells food products and the growth in the number of stores could only be detected in the non-

food sector.

More than 50 thousand food stores and mixed retail businesses operated at the end of 2003 which indicate a decrease from 2000 and also show only a slight increase taking into account the last five years. The later decrease was due to the rapid growth and diffusion of large food chains and strengthening competition.



Source: The yearbooks of the Central Statistical Office (CSO) 1998-2002

**Figure 5. The number of food and non-food retail stores in 1998 and 2002**

Based on 2003 data of the Central Statistical Office the value of sales of the food and mixed retail business was 2 263 billion HUF (10.1 billion USD). The sales of the retailers almost doubled in the given period while in the number of stores only a mild increase could be detected. This tendency apart from inflation and growing purchasing power of the Hungarian consumers may indicate an increase in the

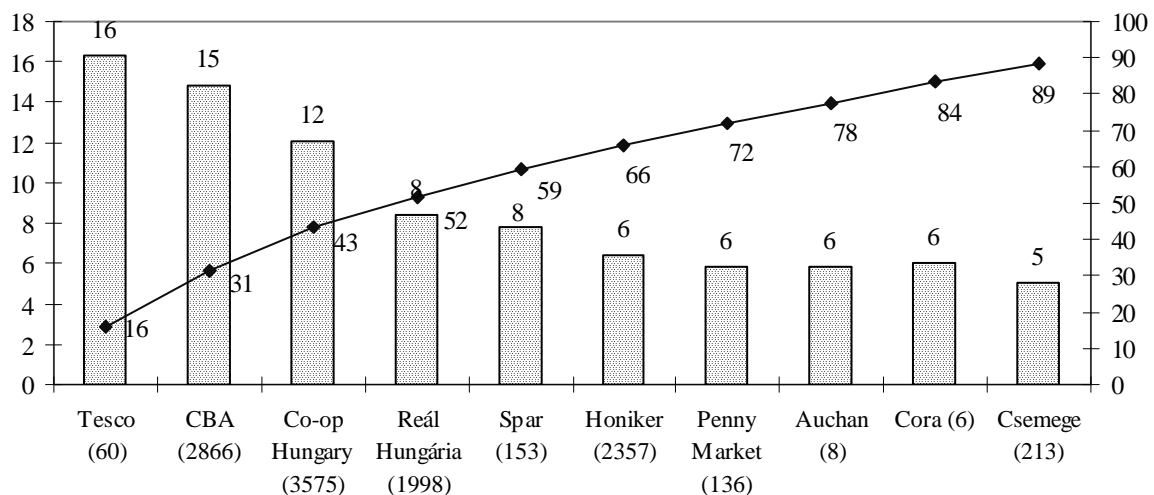
size of the stores which can be interpreted as a form of concentration.

Although the 90% of sales with 20% of stores data means quite high concentration level and the last few years decreasing store numbers prove a similar tendency still the number of retail shops remained surprisingly high in the examined period especially compared to other countries. According

to statistician experts a part of the rapidly growing concentration can be explained by the fact that the larger and more stable companies with consolidated market presence are more willing and precise in data provision.

The absolute winners of the last decade were hypermarkets (2500 nm<sup>2</sup>-). From the Top-10 retailers in 1997 not one company operated hypermarkets (Tesco at that time only had supermarkets) but in 2003 already three (Tesco, Auchan and Cora) companies had hypermarkets from the Top-10 companies, Tesco being the first on the list. In 1997 only 5 hypermarkets existed (Auchan, Cora) which gave approximately 5% of the food retail sales, in 2003 the number of hypermarkets was 64, Tesco had 33, Spar 16, Auchan 8 and Cora 6 giving 24% of the total food sales.

The positive trend of this large size format is the main reason for the concentration tendency described by sales/store index (showed on the second figure) growing from the 120 000 USD/ store level of the nineties to 197 000USD/store in 2003. This assumption is backed by two other analyses one prepared by the Hungarian Statistical Office on shopping centers and hypermarkets: the report concluded that an increasing share of the food business is concentrated in large stores (hypermarkets and shopping centers) with a 2-3% increase in the last five years reaching approximately 18% in 2001. According to another report (GFK Hungária Market Research Institute, 2002) in 2002, hypermarkets had a 19% share of the turnover of food and household chemicals (this means a significant growth compared to the previous year).



Source: Calculation from yearbooks and monthly bulletins of the Central Statistical Office (CSO) 1998-2004 and the issues of Mai Piac (1998 and 2003)

**Figure 6. Top-10 food companies share in retail sales<sup>4</sup> 2003**

The hypermarkets according to GFK Hungary are characterized by medium (65.4%) penetration low frequency of shopping (17.9) but the consumer spending per shopping is three-four times higher (3 900 HUF) then by the other formats. The typical consumer is the whole family mostly together, going

to the shop by car on weekend and/or during evenings. The over represented groups are the high-middle income large city under 40 years of age consumers. This retail type showed a very dynamic increase in the last few years and still has a significant growth potential.

**Table 1. Places of shopping for milk and dairy products**

	Hypermarket	Supermarket	Discount	Food store	Small shop	Dairy shop
1997	5	10	40	58	35	8
2002	37	18	34	51	29	8

Base: those who buy the category (%)

Source: GFK Hungary (2002)

<sup>4</sup> C + C companies like Metro are registered as wholesalers thus are not part of the retail statistics of CSO



Hypermarkets are again the absolute winner of the last years becoming the second most favoured retail source of vegetables after food stores. The importance of general food stores, small shops and discounters declined the most (6-7%) between 1998 and 2002.

### **Food processing industry**

The Hungarian food industry plays an important role in foreign trade. Agriculture and food policy prior to the transformation to a market oriented economy in 1990 consisted of high levels of state subsidies and protection from import competition. Transformation resulted in two radical changes in the food sector: privatisation started and the number of small enterprises operating in the food industry increased from several hundred to more than ten thousand.

Transformation to a market oriented economy allowed for privatization of firms within the agricultural and food system. This allowed agricultural producers obtain ownership shares in food processing companies. This was intended to reconcile the interests of agricultural producers and food processors, much like the Danish cooperative model. In practice this goal was not achieved, because the agricultural producers were not financially capable of improving the economic position of food industrial plants, so the buying of shares in food industrial plants for vouchers did not lead to a capital inflow into the food industry. As mentioned above, the majority of Hungarian food processors were rather unfavourably placed, and so the ownership change would have made the economic situation of agricultural producers even worse.

Hungarian privatisation was unique in Central and Eastern Europe. Since 1989 a significant change has occurred in the structure of Hungarian agriculture that will impact future production and trade. Privatisation brought real owners to Hungary, those who invest, which brings the necessary financial means for restructuring. In addition, approximately half of the foreign direct investment to Central and Eastern Europe is in Hungary, and those are mostly medium or long-term investments. So the foreign direct investment (FDI) has increased substantially, and state ownership of businesses has declined to approximately two percent.

Foreign direct investment played a dominant role in Hungarian food industry. Although the number of foreign owned companies has decreased between 1995 and 2002, their role in owners' equity is more than 70 per cent, and their share in net sales exceeds 50 per cent. International companies that have acquired stakes in the Hungarian food sector during

privatization have brought with them modern management practices in production and processing. Just as significant are the superior expertise they have brought in marketing and the technology modernisation for new product development. Foreign direct investment has also stabilized many companies that were in bad financial shape and helped regain export share that was lost in the early 1990's.

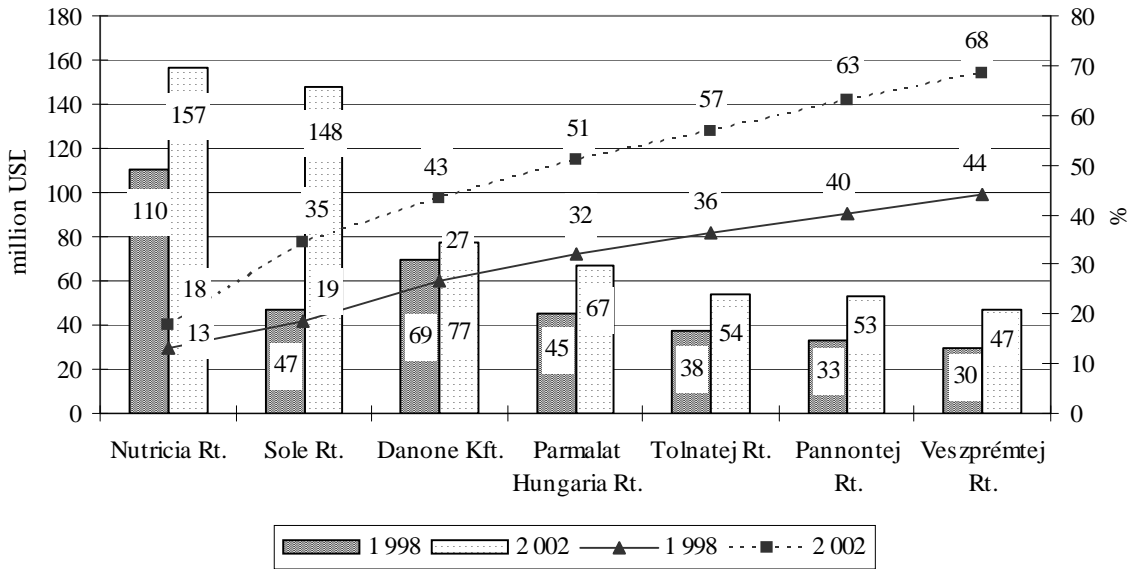
The competitiveness of the Hungarian food processing industry is paramount to the success of the agricultural policy. The competitiveness of food processing depends heavily on the level of development of raw material production. Food processing requires a solid agricultural base capable of producing high volumes of top quality raw material. The reverse side of this influence is also play.

For Hungary to establish a truly competitive food processing industry, further restructuring is required. The concentration and specialisation in food processing has continued at a faster than many observers expected. It is interesting to analyse a product chain in Hungary in terms of both economies of scale and degree of specialisation remain in a disadvantageous competitive position compared to the successful enterprises of the European Union. Further restructuring will make it possible to meet the requirements above and to establish viable structures.

### **Influence of changes on the dairy industry**

The milk production fluctuated around 2 000 million litre per year response to changing economic and political conditions between 1993 and 2003. The efficiency of milk production has grown in natural term; the milk production per cow has increased continuously over the period. However, the FADN data shows that profitability of milk production differs by farm types between 1999 and 2002. The private farms were more profitable than agricultural enterprises according to two income indicators. However, these results should be interpreted only with care, because wages, to be paid own labour inputs, are not included in production costs of private farms. Standard gross margin is higher in agricultural enterprises than private farms.

The dairy industry increased its gross production value (+ 39%) in the analysed period. Dairy industry gave evenly around 12% of the whole gross production of the food industry. The net sales of the dairy industry grew by 5% between 1998 and 2002 reaching almost 900 million USD. The export sales increased more (+ 50%) in the period thus the share from the net sales became more than 10%. The dairy industry in general had deficit in 1998, the situation improved until 2002 and the branch achieved 14 million USD profit (1.6% of the net sales value).



Source: AKII data

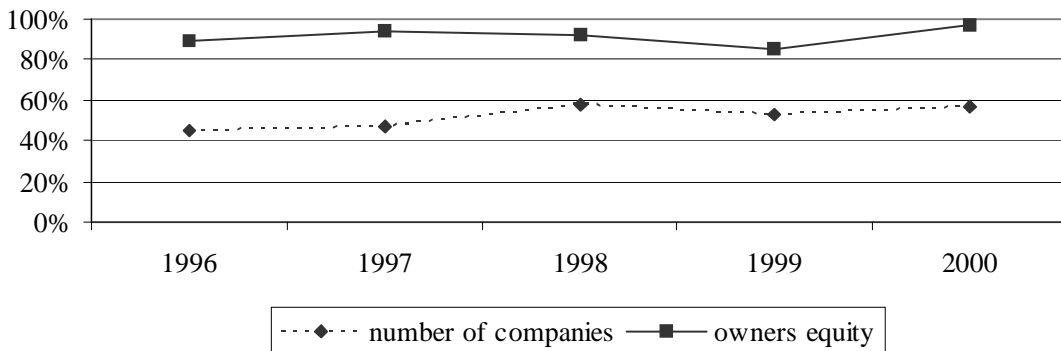
Figure 7. Concentration in the dairy industry (Net sales in 1998 and 2002)

The concentration in the milk processing sector started in the middle of the nineties but the number of processors still almost reached 80 although the Top-10 companies gave almost 80% of the net sales and the Top-5 57%. The concentration in the dairy export already reached quite high level, the largest ten processor gave 89% of the whole export thus in the previous years there were no more changes.

As a summary we can say that although lot of structural changes already happened in the dairy processing sector our EU accession bring more challenges in the future. Those processors who are not able to comply with the EU hygiene standards or not able to accommodate the growing competition will get out of business while the importance of the large (even multinational) companies are continue to

grow. Although large processors are already having enough production capacities most of them even surplus thus they are only interested in the markets of the middle and small size processors. The small and middle size processors have only two alternatives: regional or more likely product specialization.

The gross production in dairy industry continuously increased at current prices between 1996 and 2002. The sales of dairy industry are based mainly on domestic markets, its share on total sales varied between 94 and 88 per cent. The productivity index is also shown a growing trend, but the growth rate in last two years is stopped. The gross income in dairy industry reports an aggregate loss in 1998 and 1999, after it realised an increasing profit.



Source: Foreign Direct Investment in Hungary. Various sources, Central Statistical Office, Budapest

Figure 8. The share of FDI in Hungarian Dairy Industry, 1996-2000



The role of FDI is predominant in Hungarian dairy industry, its share in owners' equity exceeded 90 per cent and their proportion is above in number of companies. It must be noted that the share of FDI in dairy industry is higher than in the food industry as whole. Foreign ownership in the dairy industry is concentrated in larger enterprises and these enterprises increased their share of the market. The new foreign owners have had a dramatic effect on milk chain in Hungary. These changes can be divided five parts: internal restructuring of production and marketing, procurement and quality control, performance and likely trends after accession to the European Union.

Foreign owned dairies have also introduced internal systems to aid quality control in contrast to smaller dairies that have been unable to introduce ISO systems due to lack of capital. This has limited the latter's ability to export and they will face increasing difficulties on the domestic market as Hungary adopts EU food laws as part of the process of accession.

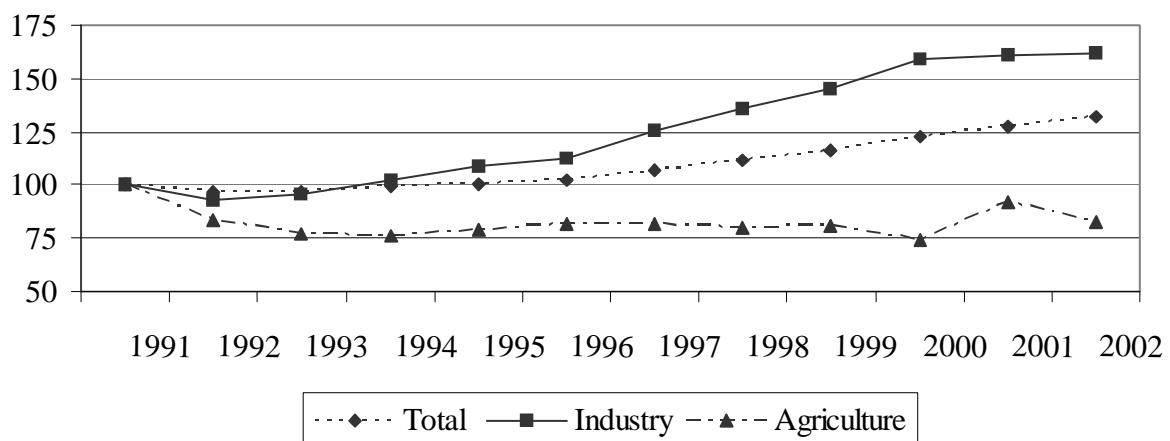
#### Agricultural production framework

In the pre-reform period Hungary has had large farm dominated agriculture. Some half of agricultural output was produced by cooperatives, one third of production came from small scale farming, mainly household production of members of cooperatives and, less than one fifth of output was produced by state farms. Small scale production had been deeply integrated by cooperatives where the latter provided

their members with inputs and marketing the products at cost price level. Small producers did not have to deal with marketing of their products as it has been taken over by production coops and in some cases by marketing cooperatives. Large firms, in addition to crop production and animal husbandry activities, were allowed to run so called non-agricultural activities (services, and industrial production) as well in order to produce enough profits. Industrial activities have been more profitable than agricultural production was and used as source for further investments in plant and animal production.

The agricultural policy during the transformation phase focused on building up the legal and institutional framework for the market economy. The second, consolidation phase of agricultural reform concentrated on two issues. First, agricultural policy have stabilised the domestic agricultural market by establishing a market regulation office, improving activity of such institutions, and increasing production support. Second, they harmonise the legal environment of agriculture to the EU accession.

The relative growth of GDP in agriculture, industry and the economy as whole, over the period, is shown in Figure 5. The GDP decreased in the first years of nineties for both industry and agriculture. After 1994 the manufacturing continuously increased, and its growth rate exceeded the growth rate of total GDP. However, agriculture shows only solid signs of recovery during this period, contrast to total and manufacturing GDP, its level was below the level of 1991.



Source: Agricultural Statistics Yearbook 2002, Central Statistical Office, Budapest, 2003

**Figure 9. Relative Growth in Real GDP for Agriculture, Industry and Total Economy in Hungary, 1991-2002 (1991 = 100)**

Between 1991 and 2002, agriculture's share in total GDP fell from 7.8 % to 3.3%, whilst its share in total employment fell by almost 50 per cent from 11.9% to 6.2%. In the food industry, which in terms of both GDP and employment is smaller than agricul-

ture, the share of GDP also fell by a quarter from 4.6% to 3.3%, whilst the share of total employment fell by more than one sixth, from 5.1% to 4.1.

The combined but differential effect of these falls has been to alter the sectors' relative labour

productivity, which can be approximated by the percentage contribution to GDP divided by the percentage contribution to total employment. This measure, though higher in the food industry than in agriculture, is less than one in both sectors, i.e. the share of employment is higher than the share of GDP.

### Milk production

Before the political and economic changes, the state and collective farms dominated milk production.

The state farms and collective farms accounted for 21.1 and 55.5 per cent of output in 1989, respectively, compared to 23.4 by private farms. The structure of dairy farming was extremely polarised in terms of size, and specialised, medium size family farms were absent. The average herd sizes of the three main farm types were: state farms (1300 cows), collective farms (300 cows) and small holders (1.4 cows).

**Table 2. Number of dairy cows by farm types in Hungary (1998-2003)**

	1998	1999	2000	2001	2002	2003	2003/1998
<b>Stock (thousand heads)</b>							
Agricultural enterprises	266	254	261	238	240	233	88
Private farmers	141	145	119	130	122	117	83
Total	407	399	380	368	362	350	86
<b>Farm number</b>							
Agricultural enterprises	741	720	847	743	740	783	106
Private farmers	36 000	32 000	34 079	30 525	27 490	23 642	66
Total	36 741	32 720	34 847	31 743	28230	24425	66
<b>Average sectoral size (head/farm)</b>							
Agricultural enterprises	359	353	308	320	324	298	83
Private farmers	3.9	4.5	3.5	4.2	4.4	4.9	127
Total	11.1	12.2	10.9	11.6	12.8	14.3	129

Source: Calculation from yearbooks and monthly bulletins of the Central Statistical Office (CSO) 1998-2003

The structure of dairy production has changed considerably during the last 14 years. The number of dairy farms decreased between 1996 and 2003 dramatically by 45 percent for private farms, the fall was modest for agricultural enterprises, 12 per cent. Surprisingly, during the analysed period, the average herd size decreased from 326 to 298 in agricultural enterprises, whilst it grew from 2.9 to 4.4 in private farms. In 2003, agricultural enterprises accounted for 69 per cent of output in terms of herd number, whilst the share of private farms was 31 per cent. The reason for the decreasing number of cows in Hungary is that the agricultural enterprises keep less and less cows each year while the number in the private farms is heavily changing from year to year according to the market situation.

The number of farms with milk production is also reducing every year. Nowadays around 700-800

agricultural enterprises and 20-25 thousand private farmers are keeping cows. The regional dispersion of the agricultural enterprises is quite even, while the private farms are concentrated mainly in the Northern Great Plain region.

The milk production on the other hand shows a slightly increasing tendency in the last ten years. The production in 2003 was 2 023 thousand tons which means that the average yield per cow was 6 168 kg. Compared to the EU-15 countries our yields are still 5-20% lower but higher with the same percentage then in the other NMS (New Member State) countries. The concentration tendencies in Hungary illustrated with the above tables are in line with the production trends of the leading European countries, decreasing cow numbers but increasing yields are providing the stable milk production level (increase is not possible because of quotas).

**Table 3. Average yields and production of milk in Hungary and in some European countries (1999-2002)**

	1999			2002			2002/1999	
	Production	Yield	Index	Production	Yield	Index	Production	Yield
	(1000 tons)	(kg/cow)	(%)	(1000 tons)	(kg/cow)	(%)	%	%
Hungary	2 106	5 469	100	2 130	6 179	100	103	108
Germany	28 334	5 909	108	27 874	6 229	106	98	105
Denmark	4 655	7 274	133	4 590	7 309	124	99	100
Poland	12 284	3 992	73	11 873	4 052	69	97	102
Slovakia	1 163	4 438	81	1 162	5 052	86	100	114

Source: Own calculation from yearbooks and monthly bulletins of the Central Statistical Office (CSO) 1998-2003

In the analysed period in Hungary 85-95% (in 2004 reaching 98%) of the purchased milk is extra quality which is the only category for human consumption according to the EU regulations.

Analyses show that the difference between the small and the large scale farms in the milk quality is not present at the production phase, the difference appears during cooling, storing and transporting.

**Table 4. The distribution of milk-cow stock by the farm size in Hungary (2000)**

Size (head)	< 9	10-19	20-29	30-99	? 100	Total
Private farms						
Share from the farm number (2000)	95.41	3.23	0.7	0.6	0.06	100
Share from the cow number (2000)	71.21	12.64	5	8.43	2.72	100
Agricultural enterprises						
Share from the farm number (2000)	7.6	3	2.9	12.5	74	100
Share from the cow number (2000)	0.1	0.1	0.2	2.4	97.2	100

Source: Central Statistical Office (CSO) Agricultural Census (2000)

The dairy farm structure is different in agricultural enterprises and private farms (Table 4). 95 per cent of private farms have less than 10 cows, while 74 per cent of agricultural enterprises have more than 100 cows. The share of farms below 10 cows in herd stock is 71 per cent for private farms and 0.1 per cent for agricultural enterprises. The emerging share of medium size dairy farms is only 13 per cent. In short, polarised structure of Hungarian dairy farms has not changed considerably during the analysed period.

As a summary in Hungary the structure of milk production can be divided into three main groups differing in concentration, technology and in some respect in market segmentation as well:

- The agricultural enterprises and a minority (3-7%) of the private farmers mostly keeping more than 100 cows (300-600 on average) producing and selling to the processors.

- Around 17-20% of the private farmers having 10-20-30 cows trying to produce for the processors.

- And finally, most of the private farmers (71%) mainly having less than 10 cows:

- Large number of private farmers keep 1 or 2 cows, they are producing mainly for own consumption and for direct sale to consumers.

- Number of private farms having 3-10 cows is quite high they sell through milk collecting businesses produce for own consumption and direct to consumers.

The agricultural enterprises of the first category can be viable in the future their success depends on their ability of investing in technology and improving the management of the dairies to comply with the strict EU hygienic standards. Although the extremely

low procurement prices of the last months are not favouring further development and question the profitability even of these enterprises.

Intensive milk production at least in the short run is not promising. According to the calculations the agricultural enterprises due to the increasing cost of production and the low procurement prices will have in 2004 around 6,5 HUF/kg losses on milk. Because of the increasing direct subsidies the position of the sector will improve a bit in 2005 but it will stay in "minus". In the short run reducing production is probable.

As far as we can see the problem area in case of the future viability is the second group of farmers with 10-30 cows. They are too big for direct sale and at the present procurement prices too small to be profitable with processors as their main market. On the other hand they already invested significant amounts in the development of their dairies so they are too much involved in production to stop it. It is a segment of the dairy farmers facing serious problems and challenges in the future.

The third group most probably will loose the processors at least the large ones as market, the way of viability more and more seems to be direct consumer sales. These changes are already present the importance of direct sale is increasing. Growing demand can be explained with two tendencies:

- The price is still lower than the processed milk.
- People living in cities and having preferences for wholesome, natural products not manipulated by food processors (we had some scandals about "milk-like" products which were extremely cheap but the consumers were not really aware of the content or more precisely the lack of content)

**Table 5. Costs and profit of intensive milk production in agricultural enterprises (2000-2005)**

	2000	2001	2002	2004 p	2005 p
Production cost (HUF/ha)	59 922	65 203	67 593	73 033	73 740
Production value (HUF/ha)	69 266	77 456	80 331	64 372	65 506
Profit I. (HUF/ha)	9 344	12 253	12 738	- 8 661	- 8 234
Direct nation. sup./Top-up (HUF/ha)	619	2 329	2 402	2 196	5 155
Production value II. (HUF/ha)	69 885	79 785	82 733	66 568	70 661
Profit II. (HUF/ha)	9 963	14 582	15 140	- 6 465	- 3 079
Average yield (t/ha)	6 080	6 144	6 515	6 515	6 515
Average sales price (HUF/t)	63 329	71 719	75 045	64 372	65 506

Source: Calculations made by the Agricultural Policy Analyses and the Sector Economics Department of AKII from the data of the Cost and Price Analyses Department of AKII

### Critical issues and challenges for the future

**Production phase:** The production of milk mildly grew from 1998 to 2002 (+1%, 23 ml) mainly because of the increasing milk yield. The sale to processing did not change significantly from 1998 to 2002 (79%-80). Consumption from own production was very low (28ml) and even had a declining trend (3% to 1%) due to the decreasing number of small holders (with 1 or 2 cows). A stagnating 4% of the production goes to other sale.

**Wholesale phase:** Export increased in the examined period (+16%; 67 ml). Hungary always produced more milk than it used and compared to the domestic production base, import has a stable 7% share. From the three channels (sale to wholesalers, sale to retailers and other sale) the processors sale to retail sector is by far the most important (ca 60%).

**Retail level:** The structural changes in the last years are the most evident in case of the retail phase. We only had estimations in case of HORECA share from the consumption so we can only write that according to our assumptions the share of HORECA from the milk product consumption probably increased to 12%. Important trend is the absolute and relative decline of the consumption from own production (-40 ml; -2%) to 1% and direct sale to consumers (-70ml;-4%) to 4% between 1998 and 2002. But in case of direct sale for consumers the negative trend of prices paid by processors indicated the stop of declining and in 2003-2004 this marketing channel again started to gain importance.

The share of modern and traditional retail formats also grew from sales but not as much as in case of onion because the importance of retail sale is basically more important in the dairy sector. The inner structure of the retail sector is shown in Table 6.

**Table 6. Farm and Dairy Industry Value in Percentage of Retail Price 1994-2002**

	1994	1995	1996	1997	1998	1999	2000	2001	2002
Farm gate	55	54	54	55	61	61	55	49	46
Wholesale	84	78	84	83	85	89	91	88	86
Retail	100	100	100	100	100	100	100	100	100

Source: Agricultural Statistics Yearbook, various issues, Central Statistical Office, and www.akii.hu

Table 6. shows that share of industry price in retail price has slightly increased at the expense of farm price between 1994 and 2002. The proportion of farm price in retail price has decreased from 55 per cent to 46 per cent.

The future development of the sector depends on the two main elements, all connected to the domestic market:

- The participants of the supply chain would be able to keep their competitive positions against the technologically more developed western countries, or against the presently still more cost competitive other accession countries.

- Fulfilling the most probably growing domestic demand – increasing consumption – with domestic products.

### Conclusion

Hungarian companies in the food sector are operating in an increasingly competitive domestic and international environment. These competitive forces will gather strength upon Hungary's further integration into the European Union. Increasing performance, quality enhancement, cost effectiveness and timely response to signals of (for Hungary) a huge market are of primary interest to every Hungarian business

that wishes to be successful.

High quality and efficient food processing capable of producing goods that meet world market requirements is a major driving force in the improvement of the competitiveness of agriculture. The position of agricultural producers and conditions of their operation being basically determined by the processing industry.

The future of Hungarian food processing, based on the dairy sector studied, depends on attaining higher levels of competitiveness. This requires continuous improvement of the performance of these sectors and the related production of raw material. Increasing competitive capacity in the marketplace hinges on the level of understanding and meeting consumer requirements, on implementing best practice solutions in production, on improving productivity and on developing innovative products and cost saving methods of processing.

Large chains of super and hyper-markets have emerged in the early 90s, soon after the launching of economic reforms. Entrepreneurs in the food industry already know the demands of the retail industry. The absence of trade barriers for food products between Hungary and the EU after accession now calls for an even more pro-active new strategy to be developed by Hungarian food processors.

The prospect for competitiveness is limited since the decisive factors of the structure of the Hungarian milk processing industry are similar than the other EU member countries. There is no realistic chance for Hungary to establish milk processing enterprises owned by cooperatives playing a decisive and competitiveness role in processing.

In Hungary small-scale enterprises may have a chance for being competitive by targeting market niches or by meeting the requirements of some specific markets, for example, cheese, flavoured dairy products, organic products or dairy desserts.

In the search for new strategies, two criteria will play an even more important role they do now; the total cost along the various elements of the marketing chain from production to consumer; and the differentiation of strategies to attract consumers to specific brands or kinds of products that no other producers have developed yet. In both cases, not only must there be a permanent search for innovative solution through research and technology development, but also new marketing strategies crucial for the future of Hungarian food products on the EU and non- EU markets.

The producers have to undergo fundamental changes in mentality, economic policy has to provide this progress with the necessary enabling environment and regulations, such regulative elements can be:

support of Production-Sales Organizations: ensuring the stability of the regulation system of the agrarian market; change of competition regulations and support of education and consultancy.

### References

1. Berges-Sennou, F. – Caprice, S. (2003): Les rapports producteurs-distributeurs: fondements et implications de la puissance d'achat, *Économie Rurale* 277-278/ sept-oct 2003
2. Borbély, Cs. – Geszti, Sz. (2001): A magyarországi tejtermelés nemzetközi versenyképessége a költség szerkezet tükrében, *Gazdálkodás*, 2001. 45. évf. 3. sz.
3. Buday-Sántha, A. (2001). Agricultural policy-Regional policy. The Hungarian agriculture and the European Union. Budapest-Pécs: Dialóg Campus Kiadó, p.262-271.
4. Buzás, F. E. (2004): A hazai tej- és cukorvertikum gazdasági elemzése. Doktori (PhD) értekezés tézisei, Debrecen
5. Coste, G. M. (2004): Réforme de la loi Gallard sur les conditions de négociations commerciale entre fournisseurs et distributeurs, response de la CCIP au questionnaire de la Commission Canivet, Chambre de commerce et d'Industrie de Paris
6. Farkas, J. (2002): Élelmiszerbiztonság: globális gondok – javítási törekvések. *Magyar Tudomány*, 2002/12
7. Fehér I. (2002): Meeting EU standards in Eastern Europe: the case of the Hungarian agri food sector. *Food Control*. 2002. 93-96 p. .
8. Fehér I. – Papp Zs. (2002): Analysing competitiveness of the Hungarian Agro-food chains. Contributed paper. 15 p. X. Congress, EAAE Zaragoza, Spain. 2002 aug. 28-31.
9. Fehér I.: (2001) Benchmarking in selecting food sector in Hungary. *Est-Ouest. N.2. Studi e ricerche*, 7-23.p. Trieste, Anno XXXIII,
10. Fehér I. (2001): Status of competitiveness on selecting food sectors in Hungary, Symposium:” Sustainable Technological development of Central European Countries. Belgrade, 9-10 May 2001.
11. Fehér, I. and Payne W. (2003). Food Industry Market Development in Hungary: Meeting the European Economic Union Challenge. *National Social Science Perspectives Journal* 2003. Volume 23, number 1. USA pg.102-106.
12. Fehér I. and Payne, W. (2004). Food Industry Market Development in Hungary: Meeting the European Economic Union Challenge. *National Social Science Journal* 2004. Volume 22, number 2, USA, p.125-128.
13. Fehér I.-Fejős R. (2005): New Development in Food Policy, Control and Research, Book, (Chapter 5. Food Policy in Hungary pp. 97-114) Editor: Arthur P. Riley. Published by Nova Science Publisher Inc. 2005 .USA. Web page for this book is: [http://novapublishers.com/catalog/product\\_info.php?products\\_id=2581](http://novapublishers.com/catalog/product_info.php?products_id=2581).
14. Fertő, I. (1999). Restructuring of Hungarian Agri-Food Sector. *Acta Oeconomica*, 50. (1-2) 151-168
15. Fertő, I. – Szabó G.G. (2004). Transaction Cost Economics and Agricultural Co-operatives: A Hungarian Case Study. In: Bremmers, H.J., Omta, S.W.F., Trienekes, J.H. és Wubben, E.F.M. (szerk.): *Dynamics in Chain and Networks*. pp. 245-251. Wageningen Academic Publishers, Wageningen.



16. Fertő, I., Forgács, Cs., Juhász, A., Kürthy, Gy. (2004): Regoverning markets, Country Study: Hungary,
17. Gábor, J. – Stauder, M. (1999): A kereskedelmi láncok és az élelmiszertermelők kapcsolatának változásai. Agrárgazdasági Tanulmányok 1999/1. szám, AKII, Budapest
18. Gábor, J. – Stauder, M. (2000): Az élelmiszertermelők alkupozíciójának marketing eszközökkel történő erősítése. K+F tanulmány
19. Gábor, J. – Stauder, M. (2002): Az agrártermékek kereskedelmének új irányzatai, különös tekintettel az elektronikus kereskedelemre. Agrárgazdasági Tanulmányok 2002/2. szám, AKIIBudapest
20. Gorton, M. – Guba, F. (2001). Foreign Direct Investments and Restructuring of the Hungarian Dairy Processing Sector. Journal of East-West Business. 7. (4) .5-28.
21. GfK Hungária Piackutató Intézet (2001): Az élelmiszeripari vállalatok és a kereskedelmi láncok kapcsolata. Tanulmány, készült az Agrármarketing Centrum megbízásából, Budapest
22. Hungarian Agriculture and Food Industry in Figures, Budapest, 2001 and 2002. Budapest
23. Jansik, Cs. (2004): Food Industry FDI – An Integrating Force between Western and Eastern European Agri-food Sector, EuroChoices, Volume 3/1
24. Jansik, Cs. (2002). Determinants and Influence of Foreign Direct Investments in the Hungarian Food Industry in a Central and Eastern European Context. MTT Agrifood Research Finland. Economic Research. Publications 102. Helsinki.
25. Kapronczay, I. szerk. (2003): A magyar agrárgazdaság a rendszerváltástól az Európai Unióig, Szaktudás Kiadó Ház
26. Kartali, J. (szerk.) – Juhász, A. – König, G. – Kürti, A. – Orbánné, Nagy M. – Stauder, M. – Wagner, H. (2004): A főbb agrártermékek piacra jutásának feltételei az EU-csatlakozás küszöbén, II. Állati termékek, Agrárgazdasági Tanulmányok, AKII, Budapest
27. Kertész, R. – Pátkai, Józsefné – Udovecz, G. (1995): Költség és Jövedelemarányok az átalakuló agrárgazdaság főbb termékpályáin – a harmónikus fejlődés esélyei, Agrárgazdasági Kutató és Informatikai Intézet, Budapest, 1995.
28. Lakner, Z. – Hajdu, I. (2002). The Competitiveness of Hungarian Food Industry – A System Based Approach. Mezőgazda Kiadó. Budapest
29. Jansik, Cs. (2004). Food Industry FDI – An Integrative Force between Western and Eastern European Agri-food sectors. Eurochoices. 3 (1) 12-16.
30. Lang, T. (2003): Food Industrialisation and Food Power: Implications for Food Governance, Development Policy Review, 2003/21, p. 555-568
31. Lehota, J. (2004). Termékszintű versenyképességi vizsgálatok. A tejszektor piacelemzése. SZIE Gazdaság- és Társadalomtudományi Kar. Gödöllő.
32. Nagy F.: Az Európai Unió élelmiszergazdasága, (The food economy of European Union) Agrárszakoktatási Intézet, Budapest, 2002.
33. Nyars L.-Papp G.: Az állati eredetű termékek feldolgozását végző főbb ágazatok strukturális versenyhelyezete. AKKI study 2002. 83.p.
34. OECD (2000): Buying Power of Multiproduct Retailers, OECD Journal of Competition Law and Policy
35. Orbánné, Nagy M. – Szabó, M. (1996): A hazai versenypolitika kezdeti tapasztalatai az élelmiszergazdaságban, Agrárgazdasági Tanulmányok, Budapest, Agrárgazdasági Kutató és Informatikai Intézet
36. Orbánné, N.M. (2004). Food Consumption and the Convergence of Consumer Prices between Hungary and the EU. Studies in Agricultural Economics. No. 100. 71-90.
37. Rácz, E. (2004): Az új élelmiszertörvény, Élelmészeti Ipar, 58. évf. 2. szám
38. Rédey, M. – Mikesné, M.B. – Szoukup, I. (2002). Food Consumption according to the Household Budget Survey Data. Hungarian Central Statistical Office. Budapest
39. Sajben, G. (2002): Az élelmiszerkereskedelem változásai Magyarországon. Diplomamunka, Szent István Egyetem, Gödöllő
40. Seres, A. (2002): Kis beszállítók a nagy alapterületű egységekben. Minden áron bejutni. Mai Piac, 2002. május
41. Stauder, M. (2000): A hazai ipari kisvállalkozások alkalmazkodása a kereskedelem koncentrációs folyamatához (a vállalati konzultációk tapasztalatainak összegzése). Kézirat, Budapest
42. Stauder, M. (2003): Az agrár- és élelmiszertermékek belföldi kereskedelme a kilencvenes években és napjainkban. Agrárgazdasági Tanulmányok 2003. 6. Agrárgazdasági Kutató Intézet, Budapest
43. Szabó, M. (2001): Magyarország élelmiszerbiztonsági helyzete az ezredfordulón I. r. Élelmészeti Ipar LV. évfolyam 2001. 3. szám
44. Szabó, M. (2001): Magyarország élelmiszerbiztonsági helyzete az ezredfordulón II.r. Élelmészeti ipar, LV. évf. (2001.) 4. szám
45. Szabó M.: Foreign owned companies in the Hungarian food industry and their impacts on the EU – accession. AKKI-study, Budapest 2000 12.sz. 104.p
46. Szabó, M. – Tóth, J. (1998). Agricultural Market Development and Government Policy in Hungary. The Case of the Milk Sector. Budapest University of Economic Sciences and Public Administration. Manuscript. p. 59.
47. Szabó, M. (1999). Vertical Coordination and integration in the milk sector in Hungary and the EU. Agrárgazdasági Tanulmányok 1999.9. Research and Informatics Institute for Agricultural Economics. Budapest
48. Udovecz, G. (1996): Költség és jövedelem az agrárgazdaságba, Világgazdaság, 1996. március.

#### Statistical Sources:

1. Hungarian Central Statistical Office. Agricultural Statistics Yearbook, various issues
2. Hungarian Central Statistical Office (2004). Livestock 2003.. Budapest.