The market analysis of branded, new generation hungaricums

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Abstract
Natural capabilities of Hungary are particularly favourable for agricultural and food production. There are good possibilities both in cultivation of plants and in animal husbandry on plough- and grasslands. Hungary's share and its competitive position, however, decreased on European and world market in the past years. Therefore our research was focused on developing new animal products meeting the changing consumers' demands by their nutritional benefits and by their natural way of production. The study highlights four products, namely goose- liver produced by considerately fatten up, rabbit meat with low fat and cholesterol levels, beef rich in omega- 3 fatty acids and selenium enriched eggs. The final goal is to form the basis of test- marketing being necessary to sale new branded products. By performing it we can introduce marketable products on national and international markets.

Keywords: Export, New product, Nutritional benefits, Position, Marketing strategy, Competition.

1. Introduction

Livestock production has been slow to address its declining competitiveness by taking action to develop the product. Agriculture is characterised by low overall volume growth, efficient new product development is essential for gaining competitive advantage. But product development is a risky business, with 80% of food product launches failing to have a market presence after two years [1]. Success with new consumer products requires constant input from consumers, where the development of new product ideas, the screening of ideas, the development and testing of prototypes, the development of the overall marketingmix, and finally the launch on the market are all consumer- led.
In this part of our research we introduce the production, export and import as well as the consumer trends of goose- liver, rabbit meat, beef and egg. We enhance the nutrition benefits of the products, too.

2. Branded, new generation hungaricums

2.1. The goose- liver

The fattened liver (foie gras) is a special product which is made by feeding the wild fowles forcibly. This process is criticized by societies for the prevention of cruelty to animals in Europe, Israel and USA. Although their complaints were refuted by scientific researches, even the French experts make an uncertain statement about the future of liver production due to the pressure of these societies.

The position of the liver production

More than half of the world goose- liver production is made by Hungary (60%). The share of France is 23% and Israel 9%. Bulgaria is mentionable among the important exporters as well [2].
Goose keeping was in close connection with the village- households and was organized in a typically small- producer way. Therefore most of the forcible goose feeding and the fattened

goose- liver concentrated on these family farms [3]. Now about 20- 25 thousand farmers live on producing goose- liver and feather in Hungary but it is difficult to estimate how many employees are in this sector [2]. The position of the Hungarian goose stock and goose- liver production can be seen in **Table 1**.

It can be seen from the data of Table 1. that the Hungarian goose stock decreased significantly after 1989. The lowest rate was in 1992 when the adult stock reached 45% (672.000) that in 1989. Fluctuant tendencies can be seen in the following years and due to the continuously existing unfavourable factors the stock reached another low rate in 1999. An increase has started since 2000, which was followed by significant decrease in 2005. Even so the goose- liver production did not follow the decrease of the goose stock and the volume of the production was stabilized around 1.800 –2.000 tonne except for some years despite the growing export problems, the specific liver mass has increased with 10% since 1989.

Table 1. The position of the Hungarian goose stock and goose- liver production [4], [5]

Year	Goose stock, thousand pieces	Changing compared to the basis year, %	Goose- liver production tonne	Changing compared to the basis year, %	Exported goose- liver	
					Quantity tonne	Rate, %
1989	1492	100,0	1630	100,0	1225	75,2
1990	883	59,2	1615	99,1	1304	80,7
1991	893	59,9	1575	96,6	1215	77,1
1992	672	45,0	1610	98,8	1180	73,3
1993	685	45,9	1770	108,6	1370	77,4
1994	1163	77,9	2116	129,8	1714	81,0
1995	888	59,5	1849	113,4	1320	71,4
1996	899	60,3	1564	96,0	1257	80,4
1997	1263	84,7	1655	101,5	1236	74,7
1998	907	60,8	1891	116,0	1286	68,0
1999	745	49,9	1832	112,4	1372	74,9
2000	1470	98,5	1807	110,9	1362	75,4

The specific liver mass was increasing during the examined period in Table 1. It was 477 g in 1989, a 549 g outstanding value could be reached in 1997 but the average mass was about 520- 530 g in the following years as well [3]. 75- 80% of the Hungarian goose liver is exported each year (Table 1.) which is bought mainly (90%) by France. Both the quantity and the value of the sale decreased in the last period except for 1994, in the 90s it fluctuated between 1.200 and 1.400 tonne. Prosperity could be felt at the beginning of the 1990s which meant an increasing export. The culmination was in 1994 when more goose liver was sold than in the previous years. This situation was settled by using knock- out prices in France [3].

The volume of the sales could reach the favourable 1.400- 1.500 tonne after the turn of the millennium but today we can witness a decreasing tendency and the rate of exportation is decreasing. It is so because goose liver is a one- market product, therefore the French market determines the prices which decreased with 40% compared to the 90s. The gross earnings reached the sum of 6,2 billion Fts in 2002 which means 8,6% of the whole poultry exportation but it is a decrease compared to the beginning of the 1990s when this rate was 12,7%[2].

The poor quality of the Hungarian goose- liver is mentioned as an objection which can cause a drastic position weakening not just in France but in the world market as well. The main

objection is the unequal quality which can be noticed in the field of largeness, congestion, colour and substance of the liver.

Goose liver consumption

70% of the whole production is consumed by France and this rate has been continuously increasing since the second half of the 90s with 10- 15% despite of spreading of the duck- liver their liver consumption is about 30 dkg per capita. France is followed by Japan, Hungary, Germany and the Benelux States [2].

The basis of the Hungarian goose liver consumption is the non- exported part of the domestic production which means 20- 25% of the whole output. Its mass fluctuates between 300 and 600 tonne. Extremely high home consumption could be experienced in 1995 and 1998 (529 and 605 tonne) but is was caused by the confined export facilities.

Table 2. The Hungarian goose liver consumption [5]

Year	Hungarian goose liver consumption	
	Quantity, tonne	Rate, %
1989	405	24,8
1990	311	19,3
1991	360	22,9
1992	430	26,7
1993	400	23,6
1994	402	19,0
1995	529	28,6
1996	307	19,6
1997	419	25,3
1998	605	32,0
1999	450	25,1
2000	445	24,6

Food safety

Strict rules determine the production of the world-wide known product known as „foie gras" made by feeding the fowles forcibly, which specify the different parts of the liver quality in Europe and France. For being qualified as „foie gras" the minimum liver mass is 400 g according to the French regulation. Liver is not allowed to contain forbidden hormonal preparations and other chemical, biological materials with a harmful effect on human body or any residues of these materials [6].

The hearts, bile cyst, blood-vessels going to the porta and the adipose between the two flaps of the liver have been removed. Its surface has to be free from strange smells and tastes. The liver must be felt a bit soft and pasty, the colour must be yellowish pink, and it must be clear of damage, unharmed, the flaps proportionally developed [6]. The different kinds of liver products are also determined by the regulation in accordance with how much liver they contain (100%-20%) and the size of the liver bits [6]. Goose liver is among the foods with the highest energy level which can effectively provide the necessary phosphorus and iron for the human body. It does not contribute to obesity because it is not consumed as a daily consumer good but as a luxury product.

The physiological effects of forcible feeding

Forcible feeding acts upon the mass and measurement of the liver which sometimes increases tenfold. Its fat content increases 8,5-fold but its protein content decreases 2,7-fold and the water content 0,5-fold. The total fat quantity in the liver may reach 50%, 95% of which is triglyceride and 1-2% cholesterol-ester. The rate of phospholipids is 1-2% and the free cholesterol level is less than 1%. The fatty acid profile changes due to forcible feeding. The rate of the oleinacid doubles and it amounts to the half of the whole fat content. The palmitoleine acid increases tenfold of the original level but it cannot reach a significant part at the end of cramming but the linoleic acid decreases tenfold. The incidence rate of the different fatty acids with different chain-longness and saturation level refers to the quality of the liver changes plotted against the melting-points of the different fatty acids.

Considerate forcible feeding

„To produce goose or duck liver is equal to making ill organ which can be found tasty by somebody." – says a society for the prevention of cruelty to industrially bred animals, the Protection Mondiale des Animaux de Ferme (PMAF). So these societies have already launched a campaign to distribute goose and duck liver products in France as well. The forcible feeding has already been prohibited in several European countries (e.g.: Italy, Latvia) and the topic is on the agenda in other (e.g.: Israel) ones.

Goose is believed a gluttonous animal but it cannot be a pleasant feeling to get the prescribed fodder quantity during some seconds with the most up-to-date technologies according to the opinion of human societies. It means 400-500 g hard or soft maize mixed with water at the end of 2-3 week fattening. This process causes steatosis and its mass reaches 600-1000 g from the original 80-100g which is 10% of the whole body weight [7]. Several researches tried to find the considerate forcible feeding process due to the more and more powerful animal welfare ambitions. It is possible to provide the required liver (600-800 g) production with a 12-14 day long fattening period according to Bogenfürst's researches [8]. The animal welfare societies are dissatisfied with this method because it is also based on forcible feeding.

Forcible feeding has not been able to change during the liver-making process yet but there are researches in progress in Israel and France to develop a method without the classical forcible feeding e.g. the appetite of the animals is tried to be stimulated by light effects and diverse watering orders. The animal welfare societies urge faster and more radical steps: they want ban not only on the production but also on the distribution of the foie gras in Europe. This ambition is supported by some noticeable consumer attitudes saying that consumers increasingly select what kind of products they put on the table [2].

2.2. Rabbit meat

Global rabbit meat production

Global rabbit meat production is currently estimated at 1,107,025 Tonnes Equivalent Carcases (TEC) corresponding to 856.797,000 slaughtered animals **(Table 3)**.

Table 3. World rabbit meat production in 2003 [9]

Continent	Rabbit meat production		Number of rabbits
	(TEC)	(%)	(000s)
Europe	*552,137*	*49.9*	*375,561*
Asia	447,942	40.5	390,785
Africa	85,591	7.7	72,236
America	21,356	1.9	18,215
Oceania	0	0.0	0
World	*1,107,025*	*100.0*	*856,797*

Rabbit production is concentrated in two major areas (Europe and Asia). In Europe, 552 thousand TEC were produced, in Italy 222, Spain 115, France 85, Czech Republic 39, Germany 34, Ukraine 15 and Hungary 11. In Asia, 448 thousand TEC were produced: the biggest producer is China which accounts 99% of Asian production. Production areas are also found in some regions of Africa (86 thousand TEC) and America (21 thousand TEC). Rabbit meat is not produced in most countries of the Near East and Oceania [10].

European rabbit meat production

Rabbit meat production is only 1.2% of total meat produced in the EU which is more than 42 millions TEC. EU countries make up about 95% of European rabbit meat production (520 thousand TEC). The production is concentrated in the Mediterranean Region **(Table 4)**.

Italy is by far European's leading producer of rabbit meat, with Spain second, and France third. However, in the FAO statistics, some countries with a significant commercial rabbit production as The Netherlands and Belgium are lacking [10]. Among non- EU Countries, the main producers are Ukraine, the Russian Federation, Bulgaria and Romania. At present rabbit production in Hungary is less than half of what it was in the peak years of 1982 and 1991. In 2003, the total quantity of Hungarian rabbit production was about 10,000 TEC with 2- 3% going into national market, and the remainder being exported to Italy (44%), Switzerland (28%) and Germany (18%).

Table 4. Rabbit meat production in Europe in 2003 [9]

Country	Rabbit meat production	
	(TEC)	(%)
EU Countries		
Italy	222,000	40.2
Spain	114,732	20.8
France	85,200	15.4
Czech Republic	38,500	7.0
Germany	33,800	6.1
Hungary	*10,800*	*2.0*
Greece	5,000	0.9
Poland	3,600	0.7
Slovakia	3,500	0.6
Malta	1,350	0.2
Austria	850	0.2
Lithuania	185	0.0
Estonia	20	0.0
EU 25	*520,367*	*100.0*
Non- EU Countries		
Ukraine	15,000	2.7
Russian Federation	6,000	1.1
Bulgaria	5,000	0.9
Romania	4,000	0.7
Switzerland	1,100	0.2
Total Europe	*552,137*	*100.0*

Export/import rabbit meat market

Europe is 99% self- sufficient and net import is very low (6,000 TEC). The major exporting country in the world is China with 9,000 TEC. In Europe exports reached more than 24,000 TEC, whereas imports are 3,000 TEC. In the EU, Hungary, Spain and France are the main exporters, while Germany, Portugal and Belgium are the main net importers. Among non- EU Countries, only Switzerland accounts for significant rabbit meat imports [10].
In Hungary the trends of rabbit meat purchase and export between 1990 and 2004 can be seen in **Table 5.**

Table 5. Meat rabbit purchase and export [11]

Year	Purchase, live rabbits (Tonnes)	Export, carcass (Tonnes)	Export sales (Thousand USD)
1990	33.468	16.763	52.283
1991	37.132	19.224	58.226
1992	34.444	18.512	58.060
1993	26.255	13.346	38.039
1994	15.732	8.845	29.339
1995	16.939	8.129	28.595
1996	15.959	8.866	31.425
1997	13.743	7.263	22.840
1998	13.903	6.419	21.727
1999	12.716	6.359	20.407
2000	10.870	5.118	16.846
2001	12.761	5.615	20.643
2002	11.887	5.388	18.161
2003	10.932	5.045	23.156
2004	12.074	5.287	31.180

In Hungary the amount of purchased rabbit meat decreased continually, in 2000 it was only 32% compared to 1990. From that time the amount of purchased rabbit meat stayed on the

same level with small fluctuations. It can also be seen well that the export reduced significantly from 17000 tons in 1990 to 5000 tons today, and it rendered stable on this level. At the same time the return in sales decreased slightly due to the rise in rabbit meat export price. In Hungary the export return in sales in the rabbit sector was a bit more than 30 million dollars in 2004, and it is almost the same as it was in 1996.

Rabbit meat consumption

Rabbit meat consumption varies around the globe, where various factors affect consumers' demand. Among these factors are consumer preference, tradition and price. **Table 6** shows rabbit meat consumption in selected countries.

Table 6. Estimated consumption in some EU countries [12]

Country	Rabbit meat consumption (kg per inhabitant per year)
Malta	8.9
Cyprus	4.4
Italy	4.0
Belgium	2.7
Portugal	1.9
Spain	1.8
Czech Republic	1.7
France	1.5
Slovenia	0.8
Greece	0.7
Netherlands	0.6
Poland	0.5
Germany	0.4
Hungary	0.1

At the top are Malta, Cyprus and Italy, followed by Belgium, Portugal, Spain, The Czech Republic and France. In spite of its significant export Hungary has very low rabbit meat export, consumption per inhabitant hardly reaches 0,1 kg per year. Surveys – apart from one or two – to find the reasons for low consumption have not yet been made in Hungary, but at the same time two influencing factors are evident: only a tiny part of the produced meat reaches the Hungarian retailers [13], [14], and partly due to this rabbit meat consumption has no traditions in Hungarian dining culture (according to a survey made in Hungary most housewives were not able to name more than two ways of making dish from rabbit meat). Almost half of the questioned people (46%) regarded rabbit meat as too expensive, on the other hand non-consumers reuse rabbit meat firstly not become its high price, but rather because it is hard to get and because they are averse to it [13]. In other EU countries such as Great Britain, and Scandinavian Countries, where rabbits are often kept as pets, rabbit meat consumption is very low [10].

The nutritional- biological benefits of rabbit meat and the possible increase in consumption

In Hungary rabbit meat consumption could be increased with making consumers who are responsive to healthy way of life realise its benefits. Rabbit meat has low fat and cholesterol level, high protein content ad it is especially rich in some vitamins and minerals. The cholesterol level and fat content of rabbit is lower than that of poultry, turkey, beef or pork. Another benefit of rabbit meat is that its unsaturated fat content reaches 63% among all tats, and the ratio of n- 6 and n- 3 fatty acids is 7,4- 7,5, which is advantageous from nutritional- biological point of view. In Europe and Hungary Chinese production and the appropriate protection of the European market is essential for rabbit breeding. More extensive market research work is necessary in those countries where potential possibilities exist to increase sales. In order to increase consumption in Hungary public market research work has to be done to reveal consumers' habits and preferences. Price sensitiveness, potential target groups and possible means of marketing- communication of Hungarian consumers are worthy revealing. For lack of it the increase in consumption cannot be expected in Hungary, which would be essential from the point of view of production safety [15].

2.3. Beef enriched with Omega 3 fatty acid as a new product

In this chapter trends of beef export and import, as well as desired directions of development and also the expectable consumer's discretion is showed mainly on the basis of literature sources.

The trends of beef production

Before the analysing beef production, due to its importance, some basic data of the cattle branch are shown. The trends can be seen on **Table 7** of the cattle stock in the world, in the member states of the European Union and in Hungary between 2000 and 2002.

The trends show an obvious increase of cattle stock. This upswing is not characteristic in European countries but it is in Asia and South- America. In case of European countries a little decrease of stock can be observed (under 1.7%.) It is interesting that Hungarian cattle stock decreased by roughly the same degree recently.

Table 7. The trends of cattle stock in the world, in the EU-15 and in Hungary [4], [16]

Areal unit	years [1]		
	2000	**2001**	**2002**
	1000 pieces		
World together	**1 347 218**	**1 354 206**	**1 360 476**
Belgium	3 001	2 908	2 759
Denmark	1 891	1 840	1 740
Germany	14 568	14 227	13 732
Greece	567	559	573
Spain	6 164	6 272	6 478
France	20 089	20 281	19 729
Ireland	6 330	6 408	6 333
Italy	6 232	6 933	6 695
Netherlands	3 890	3 842	3 780
Austria	2 155	2 118	2 067
Luxemburg	200	198	190
Portugal	1 414	1 404	1 395
Finland	1 035	1 019	1 012
Sweden	1 618	1 617	1 612
Britain	10 877	10 161	10 391
EU-15	**80 032**	**79 787**	**78 486**
Hungary	*805*	*783*	*770*

[1] on 1st. December

Countries with the biggest cattle stock are France, Germany, and Great Britain on our continent. Together they gave 55.9% of the stock of the EU-15 in 2002. Hungary takes a very little part of the world's cattle stock (0.06%) and gives 1 percent of the stock of the European Union. Among the 10 new EU member countries Poland (5.5 million pieces) and Bohemia (1.5 million pieces) far exceed the stock in Hungary. In **Table 8** beef production and the trends of export- import is showed in the EU-15 member countries and in Hungary between 2000 and 2002.

Table 8. The trends of beef production and consumption in the EU-15 and in Hungary [17], [4], [18]

Areal unit	EU-15 member countries			Hungary		
	2000	2001	2002	2000	2001	2002
	In years, 1000 tons			In Years, 1000 tons		
Beef product	7499	7413	7561	66,9	55,8	54,1
Export	2766	2349	2798	25,9	22,4	16,4
Import	2597	2048	2566	4,8	3,3	7,8
Consumption	7277	6803	7398	44,1	39,9	43,7
Store	53	309	- 69	1,7	- 3,2	1,8

According to the data in table 2 it seems that in EU-15 the production of stocker has - slightly grown but in Hungary still a decrease can be pointed. It can be stated that the break down of this market had its effects in the EU member countries as well. The volume of production has grown and the consumption has decreased at the same time. The negative trade balance resulted in excessive storage. Of course, delivery prices decreased as well with 25%. According to some estimations production volume will grow until 2007 and then – because of the new subsidy system – it will start to decrease again and that will have its effects on the consumption. In the 16- 17th centuries Hungary was kept as Europe's beef store- room - due mainly to her massive beef cattle export [16]. Hungarian stocker had constantly high quality and played a considerable role in the foreign exchange. At present the cattle branch reached a historic depth [19], production and export decrease can be observed at the same time. Even the cattle breeders have sometimes reversed opinions about the competitiveness of the Hungarian beef cattle branch. They admit that Hungary has loads of unexploited grazing lands being fairly advantageous for this ruminant species. Whereas most of the Hungarian stock is dairy cow, grazing is not economical and the quality of produced beef can not reach the requirements of the European Union [20]. Because of the high prices of beef compared to the prices of other meat sorts, the level of consumption decreases year by year. According to forecasts the increase of stock can not be expected, however its importance is confirmed by the government as well. This has two reasons: on one hand cattle breeding plays an important role in the protection of the environment and in the support of population in the countryside [20]. On the other hand it would improve the foreign trade balance. To improve the present unfavourable situation subsidies of beef cattle breeding and motivating beef consumption would be good solutions.

The main trends of beef consumption

In the past human nutrition biologist advised less red meat consumption and it involved beef, too. At the end of eighties the American and Canadian recommendations tended to eliminate beef products from human nutrition and offered a 25% drop in the consumption of milk and dairy products [21]. Fortunately that drastic step could not happen.

According to the production tendency it can be calculated that the beef consumption in the world will increase further in the future. In the EU member countries beef consumption has significantly decreased between 1985 and 2000 from 25 to 19kg/capita [22]. According to the short term estimations the consumption will be 17.5- 17.9 kg/capita/year. In the EU member countries the level of consumption will be 20 kg/capita/year and in the EU-10 countries only about 6.7 kg/capita/year can be expected [23], [18]. In Hungary between 1970 and 1980 beef and veal consumption was about 10 kg and that level has progressively decreased. By the turn of the millennium it decreased to the level of 4.3 kg/capita/year and since then it stagnates on 3.8 kg. Increase of consumption could not be expected in the near future.

Predicting future trends are risky in Europe. Decrease of consumption is influenced by high prices in Hungary and in other countries with same economic conditions. However, the changing, health- centred consumer behaviour has an impact on beef consumption in the wealthy West- European countries. There BSE crisis, however, is far not forgotten, meat consuming itself is not more important than animal welfare and environmentally sustainable production. Healthy, nutritive and secure products are chosen. Beef is perceived by consumers to be weak on this key attributes. It seems clearly that offering required benefits is of essential importance. That is why new dimension of beef (e.g. omega- 3 fatty acid enriched) products are planned against a downbeat scenario of steady erosion of market share, punctuated by sporadic health scares that cause sudden, albeit short- term, drops in consumption.

The dietetic estimation of beef

Beef had not a high popularity in the past. Today we know already that it has very valuable components which have health conditioning and positive physiological effects. Beef's essential fatty acid (linoleic acid, linolen acid) content is necessary for the evolution and normal function of the nervous system and retina that is why it is advised to pregnant and nursing mothers. Beef has a favourable polysaturated and unsaturated fatty acid proportion which plays an important role in health protection mostly because of its anti thrombosis effect [24]. Beef has a high protein and amino acid content and taurin for babies in an easy eligible form. That is the reason for that firstly beef is added to baby food. Beef is reach in minerals like potassium, phosphorus and magnesium but mainly it is indispensable in human nourishing of its iron and zinc content. In beef iron can be found in hemo- or mioglobulin that is why it assimilates and benefits better then the iron in plants. This specific feature of beef plays an important role in the prevention and healing of anaemia. The dietetic estimation of beef is even favourably influenced by that the anticarcinogen conjugated linoleic acid's (CLA) main source is the product of ruminant origin [25], [26], and of its omega- 3 and omega- 6 proportion corresponds to the recommendations of health support diet ($\leq$5:1)[27].

According to the present human nourishment guidelines it is advisable to reduce the fat content in the human diet and the modification of fatty acid content of meat consumption, the reduce of saturated fatty acid (SFA) content and the proportion of polyunsaturated (MUFA) involved the increase of n- 3 fatty acids amount. Within the polyunsaturated fatty acids some recommendation has been established. Fatty acids can be divided into two groups, and the differentiation depends on the position of first double coupling as counted from the end with the methyl group. N- 3 and n- 6 fatty acids can be segregated. According to the researches of Simopoulus [28] n- 3 fatty acids play an important role in the prevention of cardiovascular diseases and malignant tumours. Among the nutritional advantages of beef consumption the fatty acid content has the highest importance that is why we decided to examine the possibilities of enriching the beef with omega- 3 fatty acid [29]. Fattening researches will be followed by product development and consumers testing. Our results contribute to launch a marketable and an important health protecting product on the market, which is able to increase the competitiveness of the cattle branch and trading of Hungarian products on the domestic and international markets by its high level of added value.

2.4. Egg enriched with selenium

Egg production

According to international statistical data [30], [31] nowadays the egg production of the world has increased from 15,5 million tonne in 1961 to 55 million tonne which means 3,5 times unbroken increase during four decades. The average rate of growth was about 3% in the last two decades [32]. The production of the developed industrial countries has not changed aggregately since the last years of the 1970s: now these countries produce 34% of the whole world's production. The unbroken increase of the world egg production is caused by the expansion of the production in the developing countries, mainly in China. China is still the largest egg producer of the world: its production increased from 1,6 million tonne to 22,3 million between 1961 and 2000. China is ranked at the first place among the largest producers and it is followed by USA, Japan, Russia, India, Mexico, Germany, Brazil, France and Turkey: the mentioned countries produce more than 70% of the world's production. The leading exporter is the Netherlands and the leading importer is Germany [30].

The egg production exceeded the 6,3 million tonne in 2004 in the European Union (EU-25) and the share of the EU-15 was 5,3 million tonne. The rate of the home production was 3,8% of the EU-15 in 2000. The production of the EU is expected to reach 6,6 million tonne by 2012 [33]. The world production is going to exceed 72 million tonne by 2015 according to FAO[31] calculations but the main share of this increase will be caused by the developing countries (where 28% increase can be forecast).

Egg consumption

The egg consumption decreased significantly in several countries some decades ago because of its relatively high cholesterol level and because media made egg responsible for heart- and cardiovascular diseases [34]. The average egg consumption of the world is 142 egg (pieces per capita/year), 227 in the developed countries and 118 in the developing ones. The increase of the consumption is the fastest in China. The consumption of the world is 7,8 kg per capita/ year. The largest consumer countries are: Japan (19,4), the Czech Republic (18,2), and the Netherlands (18,1)[35]. The average yearly consumption per capita will increase in a low key from the present 13,51 to 13,64 up to 2012 in the EU-25 and this moderate increase will be characteristic of the other developed countries. The driving force will be given by the developing countries because of the improvement of their economical indexes and quickly increasing population [33].

The Hungarian consumption stabilized at the level of 300 pieces/capita/year and the forecasts show further moderate increase. This is an outstanding number in international comparison as well and it provides the first place for us in the EU (17kg/capita/year according to statistical data from 2003). The inland egg demand is determined by the fluctuation in a year. The purchase shows an increase in November, December and after it until the two weeks preceding Easter it is at the lowest level. The purchase increases around Easter and it stabilizes at another low level until September [36]. The rate of the purchased and own produced egg was half-and-half in 1997. This rate is about 40:60 in the bottom tenth and 57:43 in the uppermost one. It means that self-support is more price sensitive than the poultry consumption in case of egg consumption [35].

Food-safety

The salmonellosis is frequent in Hungary and in most other European countries as well [37]. The illness causes vomiting, diarrhoea, stomach spasm, high fever symptoms in serious cases and just diarrhoea in slighter cases, which is an infectious illness. The children, elderly and pregnant women are particularly exposed to the infection. The recommendations call our attention to prevention that is it is recommended to throw away the broken egg and to clean them. The disinfection with ozone is recommended in the public catering which annihilates

the pathogen bacteria. It has a vital importance in complying with the hygiene rules in connection with cooling and heat treatment (pasteurizing in factories and boiling at home) [38].

The nutritional benefits of egg

In the middle of 1980s a lot of articles were published that condemned egg – and other foods with high cholesterol level e.g. butter –in the leading papers of Europe claiming that its consumption increases the risk of the formation of the heart- and cardiovascular (and cardiac infarct) diseases [39]. As a result the egg consumption decreased spectacularly in most countries and it took fifteen years to prove this idea is erroneous. Now we are the witnesses to re-targeting of egg. Instead of the negative discrimination marketing endeavours to emphasize the benefits and favourable nutritional ingredients [40], [41]. Egg is considered a health-protecting, so called functional food because of its valuable ingredients with the following motivation [42].
The egg contains:

- Protein with high biological value
- Essential vitamins and minerals (B12, A, E, D, C)
- Lecithin
- Luteine, zeaxantine (These materials have an essential role in preservation of the sight quality.)
- Lutein (Antioxidant and it plays role in the prevention of arthrosclerosis.)
- Cholin (It is vital to increase its quantity during pregnancy and breast-feeding; it has a significant role in the formation of nerve-cells and maintaining the functions of the brain.) [43].

According to the research work of the 10-15 years besides the quantity of fat, the rate of saturated and unsaturated fatty acids it is expedient to take the rate of n-3 and n-6 polyunsaturated fatty acids apart from into consideration as well in the interest of healthy nutrition [44]. It is a public sanitary problem that the level of the n-3 fatty acid consumption is under the recommended level in most developed countries (the aggressive advertising activity of the margarine industry played a significant role in its formation). Its favourable physiological effect was demonstrated in case of some toumorous illnesses and different kinds of illnesses with inflammation [45], [46], [47]. The most important natural sources of n-3 fatty acid are sea fish which can be substituted by egg and poultry meat modified by the foddering. But the antioxidant system of the body is overburdened with the increased n-3 fatty acids consumption that is the reason why the level of the related materials should also be increased like selenium and vitamin-E[28].

Egg is rich in polyunsaturated (omega-3) fatty acids: the rate of unsaturated and saturated fatty acids is 2/3 and 1/3 which is ideal for the human body. Omega-3 fatty acids contribute to the healthy growth of the fetus, nerve and optic nerve. These fatty acids decrease the formation probability of the heart- and cardiovascular diseases as well. Moreover its fatties are favourable because of their positive effect on stomach-intestines flat. The stressed target group of the egg enriched in Omega-3 fatty acids can be the nursing mothers and their children.

Proteins with the rate of essential amino acids nearest to that of in humans have high biological value. Based on this animal proteins are of highest value therefore animal proteins have higher value, their amino acids can be admirably used in the protein synthesis. These are the complete proteins and the egg has the highest value among these just the lactalbumine of the mother's milk is more valuable [48]. So the egg's protein is also protein with high biological value that is the reason why its consumption can determine the birth-weight and the further growth. It is often used as a supplementary or additive in baby nutriments.

Being the carrier of fat soluble vitamins (A, D, E in case of egg), proteins with their good effect on bile, promote their faster absorbing. Vitamin-E – among others - decreases the damaging effects of residues on human body, which can lead to the formation of malignant tumours. Egg can be considered the most important vitamins D source which is remarkable considering the

wide-spread osteoporosis. It promotes the absorbing of the calcium and phosphorus from the intestines and it is essential to maintain the safety of the skin. The importance of vitamin A is given by its epithelium protecting effect (it is responsible for the safety and required work of the retina, skin and mucous membrane). Iron is important among its mineral materials and the selenium which can be used with high efficiency. The organically used selenium can increase the efficiency of the human immune system therefore residues has no so serious effect on the biological membranes and in-cell DNA or the immune system is able to recognize the malformed cells and eliminate them. Selenium decreases provable the risk of the formation of the heart- and cardiovascular illnesses [49].

The most important natural source of the lecithin containing cholin is the yolk. Cholin is responsible for the formation of the brain (e.g.: it plays a significant role in formation the new brain-cells and maintaining the memory in case of elderly people) for maintaining the normal fat-metabolism and for liver-working, and it also plays a role in cell-communication the dysfunction of which is believed one of the reasons of cancer. It is vital to consume it during pregnancy and breast-feeding. Moreover egg has a low calorie level, therefore it is recommended for people on a diet [50].

Notability of egg enriched in selenium

Nowadays enrichment in Selenium is a stressed field because it is an antioxidant: the increased n-3 fatty acid consuming has an overburdened effect on human antioxidant system therefore it should be strengthened by selenium at the same time. The organically used selenium can increase the efficiency of the human immune system, therefore residues have no serious effect on the biological membranes and in cell DNA or the immune system is able to recognize the malformed cells and eliminate them. Selenium is proved to decrease risk of the formation of the heart- and cardiovascular diseases [40]. Nowadays egg is enriched in vitamins, minerals, Omega-3 fatty acids, lutein, it is made in organic and naturally way [51], and these features are used by marketing during the targeting on the markets.

3. Conclusions

All the four product groups (presented) in the study have important nutritional-biological benefits, while at the same time they satisfy special consumer needs as well (e.g. goose liver and rabbit meat). First fact defines the necessary marketing activity trending their sales that is besides the health protective function it is important to highlight the special character as well. The marketing means of the product strategy can be the following: distinctive trademark strategy, nice and attractive pacing, unique product qualities, as well as target-group centred quality. Companies can connect their trademark strategy with the healthiness of foodstuffs that is we can highly improve the acceptance of business trademarks if we highlight “health image”. The use of collective trademarks which certify healthiness offers great, unexploited possibilities. The new product features have to concentrate on those nutritional benefits that are considered important by most of the population. Quality has an outstanding role in the judgement of foodstuffs. In spite of this a lot of people say that the Hungarian consumers are more sensitive to price than quality. Bu at the same time the judgement of price and quality cannot be separated sharp. Our opinion is that Hungarian consumers are at least as sensitive to quality as consumers in the developed countries, only they have to give up better quality due to their lower income level.

It is very important to plan integrated communication carefully in order to spread health protective foods. At present the greatest problem is that consumers are not aware of the nutritional-biological benefits of health-protective foods. The only biggest problem is that general practitioners are not always properly trained concerning the connection between healthy nutrition and health diseases. In this situation the most important communication task is the objective, factual informing and education which is free form industrial interests.

The appearance of health protective, niche products necessitates the forming of a new type collective marketing conception in the centre of which there are new trademarks, the establishment of so-called regional trademark communities and origin-protection. In this field Hungary has excellent possibilities and the profiting of the benefits has to be helped by both the branch and national collective marketing strategies. The EU also gives financial support to activities the aim of which is to acquaint agricultural products and foodstuffs, or to promote trade in the market of the EU.

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References

1. Barett, P. (1996), "The good (and bad) die young", Marketing, pp.16.
2. Vida L. (2004), "Rosszmájúskodás", HVG, Vol. 7, pp. 41-43
3. Birkás E., Tenk A., Szigeti J., Turcsán Z. (2001), "A magyarországi hízott libamáj export jelene és jövője", Gazdálkodás, Vol. 4, pp. 33-42.
4. KSH: Mezőgazdasági statisztikai évkönyvek, 1950-2004.
5. Hungarian Goose Society, 2001;
6. Bogenfürst F., Áprily Sz. (2004), "A minőségi májtermelés és a töméses hízlalás jövője. Part 1.", Baromfiágazat, Vol. 2. pp. 32-39.
7. Böő I. (1999), *Libatartás*, Mezőgazda Kiadó, Budapest, pp. 9-21. 77-86.
8. Bogenfürst F. (2005), "A libamájtermelés jövője Magyarországon", Agronapló, Vol. 9, pp. 12-15.
9. FAOSTAT data, 2004.
10. EFSA Journal (2005), "The impact of the current housing and husbandry systems on the health and welfare of farmed domestic rabbits", Vol. 267, pp.1-31.
11. Kling, J. (2005), "A magyarországi nyúltermelés helyzete, a 2004-es EU-s csatlakozás következményei, várható új piaci kihívások. *Proceedings of XVII. Nyúltenyésztési Tudományos Nap*, Kaposvár
12. www.esfa.eu.int/ science/ahow/how-opinions/1174/ahow-rabbbits-report1.pdf
13.
14.
15. Bodnár, K., Tóth, I., Balázs, A., Badacsonyi, A. (2003), "A hazai nyúlhús-fogyasztás vizsgálata a fogyasztói szokások tükrében. *Proceedings of XV. Nyúltenyésztési Tudományos Nap,* Kaposvár
16. Kling, J. (2004), "A magyarországi nyúlágazat helyzete, az EU csatlakozás várható hatásai és új kíhívásai", *Proceedings of XVI. Nyúltenyésztési Tudományos Nap*, Kaposvár
17. Szendrő, Zs., Takács, Zs. (2005), "A nyúllállomány megyénkénti és régiónkénti alakulása", *Proceedings of XVII. Nyúltenyésztési Tudományos Nap*, Kaposvár

18. Szakály Z., Szigeti O., Szente V. (2004), *Hagyományos magyar termékek marketinglehetőségeinek elemzése a vidékfejlesztés szempontjainak figyelembevételével, EU-Tanulmányok V.*, Tas Kiadó, Budapest.
19. www.agrarkamara.bekescsaba.hu/gtars/vi4/18.html
20. Agrár Európa (2005), "Marha- és borjúhúságazat – Előrejelzés 2012-ig"
21. Guba M., Ráki Z. (2004), *Az európai Unió marhahús-termelésének közös piaci szabályai és átvételének várható hatása a magyar vágómarha-ágazatra*, AKII, Budapest.
22. www.agroservice.hu/hclub/husmarha.html
23. Várhegyi J-né, Várhegyi J. (2005): A marhahús megítélése humán egészségügyi szempontból. „Komplex EU konform húsmarha-tenyésztés fejlesztési rendszer" c. pályázat összefoglalója
24. Tarrant, P.V. (2004), "A future for beef", *Proceedings of the 57th Annual Reciprocal Meat Science Association Lexington, Kentucy.*
25. www.freewebs.com/avisinfo/avec-%20diagramok.xls
26. French, P., Stanton, C., Lawless, F., O'Riordan, E.G., Monahan, F.J., Caffrey, P.J., Moloney, A.P. (2000), "Fatty acid composition, including conjugated linoleic acid, of intramuscular fat from steers offered grazed grass, grass silage, or concentrate-based diets", Journal of Animal Science, Vol. 78, pp. 2849-2855.
27. Csapó J., Vargáné Visi É., Csapóné Kiss Zs., Szakály S. (2001), "Tej és tejtermékek konjugált linolsav-tartalma III. A konjugált linolsavak és a tejzsír biológiai hatása; konjugált linolsavak az emberi szervezetben", Acta Agraria Kaposváriensis, Vol. 4, pp.1-12.
28. Schmid, A. (2005), „CLA- ein Fleischbestandteil mit positiven Gesundheitswirkungen", Metzger und Wurster, Vol. 5. pp.1-4.
29. Szakály S. (2004), „Táplálkozási dilemmák és az élelmiszerek fejlesztésének világstratégiai irányai", Élelmiszer, táplálkozás és marketing, Vol. 1-2. pp.15-24.
30. Simopoulus, A.P. (1991), "Omega-3 fatty acids in health and diease and in growth and development", Am. J. Clin. Nutr. Vol. 3. pp.438-463.
31. Holló G. (2004), "Hagyományos állatfajták húsának zsírsavösszetétele és humán-élettani megítélése", Élelmiszer, táplálkozás és marketing, Vol. 1-2, pp.63-72.
32. Gillin, E. (2001), "World egg and poultry meat production, trade and supply. Present ad the Future", FAO
33. FAO: www.fao.org, 2006
34. Farrant, J. (2001), "IEC expects more eggs and rising problems", World Poultry Vol.11, pp.12-17.
35. European Commission Directorate-General for Agriculture (2005), *Prospects for agricultural markets and income 2005-2012.*, Brussels
36. Pál L. (2003), *Az étkezési tojás zsírsavösszetételének és oxidatív stabilitásának befolyásolása takarmányozással*. PhD disszertáció, Keszthely.
37. Orbánné Nagy M. (1999), *A baromfi ágazat marketing stratégiája.* AKII, Budapest.
38. Fórián Z. (1999), "Hódító baromfi", Figyelő Vol. 8, pp.34-35.
39. USDA (2001), "Food Safety and Inspection Service – Egg and egg product safety. Information for consumers", Food Safety Facts, USDA Meat and Poultry Online
40. www.elelmezes.hu (2003), Horváth É, Johan B.: Módszertani levél a tojással és tojásalapú készítményekkel kapcsolatos élelmiszerbiztonsági szabályokról.
41. Comess, J. (1999), "Eggs are okey, every day", Egg Nutrition Center. Nutrition Realities, Vol. 2, pp.1-6.
42. McNamara, D. J. (2003), Marketing egg nutrition. The new egg: a world of possibilities". Egg Nutrition Center, Washington DC.
43. Zajkás G. (2004), *Magyarország Nemzeti Táplálkozáspolitikája.* Budapest
44. Meister, K. (2002), *The role of eggs in the diet: update*. Prepared for the American Council on Science and Health, New York.
45. Egg Nutrition Centre (2005), *Functional Foods Fact Sheet.* Online Paper
46. Hayes, K. C. (2001), *The omega-6 versus omega-3 fatty acid modulation of lipoprotein metabolism*. Omega-3 Fatty Acids. Chemistry, Nutrition and Health Effects. American Chemical Society, Washington DC.

47. Gurr, M. I. (1999), *Fats*. Human Nutrition and Dietetics Churchill-Livingstone, Longman Group, London
48. Clarke, S. D. (2000), "Polyunsaturated fatty acid regulation of gene transcription: a mechanism to improve energy balance and insulin resistance", Br. J. Nutrition Vol. 83, pp.59-66.
49. Holub, B. J. (2001), *Docosahexaeonic acid in human health*. Omega-3 Fatty Acids. Chemistry, Nutrition and Health Effects. American Chemical Society, Washington DC.
50. Keresztes M. (2005), *A táplálkozástudomány biokémiai alapjai*. Kiegészítő oktatási anyag orvostanhallgatók részére. SZTE ÁOK Biokémia Intézet, Budapest.
51. Egg Nutrition Centre (2004), *Modern eggs for the modern woman*. Online Paper
52. Egg Nutrition Centre (2006), *Right for your health*. Online Paper
53. Juhász A. (2000): *Az alternatív baromfitermelés nemzetközi helyzete és hazai lehetőségei.* AKII, Budapest.
54.
55.
56.
57.
58. Acta Alimentarius Hungaricus (1996), 2-13. számú irányelv. Húskészítmények.
59.
60.
61.
62. Bogenfürst, F. (1992), *Lúdtenyésztők kézikönyve*. Új Nap Lap- és Könyvkiadó. Budapest, 1992, 15-23, 199-205.