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POSSIBILITIES AND CONDITIONS OF PRESERVING HUNGARY'S MARKET LEADER POSITION ON THE WORLD GOOSE LIVER MARKET

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1. PRELIMINARIES AND OBJECTIVES OF RESEARCH

Water poultry, especially fatted goose plays a specific role on the product scale of Hungarian poultry sector, which role is even more emphasized compared to other countries. Hungary takes up the first position on the world fatted goose liver market, regarding the volume of production.

For today the domestic and also the international market proved the increasing limits to this product concerning both production and sales, in spite of the production of the highest volume among the goose liver producing countries. However the number of available publications concerning future tendencies and problems of goose liver is very limited, the studies and articles mainly focus on the biological and technological aspects of production. Therefore the investigation of the reasons for the crisis situation of nowadays is very actual; the research also focuses on defining the alternatives for future solutions for the present problems.

The Dissertation tries to find an answer on how the competitiveness of Hungarian goose liver production can be preserved or increased in the threshold of the EU accession, and after as a member state of the European Union. The investigated theoretical and practical problems are determinative for every sector: defining of profitability, yield-cost-income analysis, the aspects of quality and competitiveness highly contribute to the elaboration of future strategy.

The yearly goose liver production is app. 1900 tons in Hungary. More than 80 % of this volume is exported; among the export markets France plays the dominant role since decades with 80 % share from the total export. The average export price for fatted goose liver decreased continuously in the past years, parallel to the increase of production costs.

For the first dramatic price reduction in 1994 of this product considered as a “hungaricum” since decades, the sector established a self-control system in 1995 to limit domestic production and balance the Hungarian export supply and demand from foreign markets.

In spite of the regulation the problems of goose liver exports increased, and as a consequence Hungary’s world market leader position was threatened.

Fatted goose liver processing and exporting companies and the directly related raw material producers reached a crossroad on the threshold of the third millennium. The main question is if they will be able to stop and change this unfavourable process, or they accept the continuously disadvantageous sales possibilities and give up production after a while. Before all the factors effecting the competitiveness and productivity of goose liver sales should be clarified, and the possibilities and tools available for the sectors should be defined.

One objective of the research is to find alternatives for the solution of current problems of the sector. In order to give a comprehensive answer and find a solution for this widespread problem, the following questions should be answered:

- defining the basic factors (yield, cost, price, quality etc.) effecting productivity and forecast the future values of these factors;
- criteria system of quality production;
- present state of market factors, and their effect on the market situation;
- operation of the product channel and the state of certain product channel elements (value-added, level of processing etc.);
- future prospect of factors influencing production cost and profit (directly and indirectly);
- possibilities and conditions of establishing a well-operating fatted goose liver product channel model.

On basis of the research results the progress of profitability of goose liver can be modelled. The research is successful if alternatives are provided for the solution and also the conditions are defined for the participants of the sector, to help to face the present problems of preserving our market leader position and facilitate the change of unfavourable market tendencies.

In case these criteria are fulfilled:

1. the production parameters that should be improved to meet the market demand and decrease production costs, increase the yield of the slaughter animals can be defined;

2. the costs of liver goose production and processing can be understood in more details and the costs would be comparable with the sales revenues, therefore the dominant factors effecting profitability could be managed in a more reasonable way;

3. circumstances influencing international and domestic market conditions could be revealed, mainly from the viewpoint of the formation of goose liver prices;

4. possibilities and conditions of production and sales of further processed goose liver would be understood in more details and managed in a better way;

5. the establishment of an effective and after the EU accession a well-operating product channel model is facilitated on basis of the gained information.

2. MATERIAL AND METHOD

Research has been carried out at the Pannon Liver Ltd., Member Company of the Hajdú-Bét Sco. Company group.

One facility of Pannon Liver Ltd. in Mezőkovácsháza is specialized in water poultry processing and plays a market leader position regarding fatted goose liver production and sales. This plant produces the highest volume of fatted goose liver in Hungary and also world-wide, 450-500 tons per year.

The slaughter animal supply for this largest fatted goose liver producer plant is guaranteed by a separate company, namely the Novofarm SCo. That is also a member of the Hajdú-Bét SCo. group. Besides liver- and meat type goose production, the company is also involved in fatted mulard duck production and all conditions necessary for slaughter animal production in a totally integrated way - breeding stock, brooder, and production facilities and not last the proper professional background - are available.

The Mezőkovácsháza plant of the Pannon Liver Ltd. processes 900 fatted geese every year, and the further processing of the goose liver also takes place at this location in the canning factory.

The company manages the sales activity independently; 90 % of the sales revenue comes from export. As the French market plays an emphasized role in sales, a French subsidiary company was established in 1996 to guarantee direct presence on this market.

Production, processing and sales statistics of the company serve as a base for the research; statistics and background information regarding the market information have also been provided and supplemented by the French subsidiary company. This facilitated the investigation of the whole product channel from production through processing to sales; from the breeding stock to the end user certain phases of the process could be evaluated.

Buyers' meetings and visits, professional fairs and shows (SIAL, Paris; ANUGA, Köln; FOODEX, Tokyo), strategic plans, documentations and system descriptions collected and received during study tours highly contributed to the research. Foreign study tours played a dual role: on one hand they facilitated continuous and comprehensive data collection, on the other hand meetings, personal interviews with determinative participants of the market and experts of the sector were possible to carry out.

Further data have been provided by the Poultry Product Council, the Hungarian Goose Association and the CIFOG (Comité National Interprofessionnel Des Palmipedes A Foie Gras) Hungarian and French professional organisations.

The Dissertation includes an introductory evaluation of factors causing the weakening of goose liver market leading position, processed data and experiences gained at certain locations of the product channel; it also describes the possibilities for positive influencing of critical points of position improvement, with alternative recommendations. The possible solutions and their conditions have

been elaborated considering sector circumstances and market possibilities.

The central point of the research is the profitability of fatted goose liver, on sector level. The objective was to calculate the liver export revenue per 1 goose on the basis of average goose sector data, and to compare the calculated revenue with the average procurement price. During the calculation the data provided by the Hungarian Goose Association were used; data covered the period of years 1995-2002.

The average goose liver export revenue ($Á_e$) per one living goose was calculated with the following formula:

$$Á_e = \frac{\text{fatted goose liver average export price (HUF/kg)} \times \text{exported goose liver volume (kg)}}{\text{procured fatted goose (number of animals)}}$$

The average procurement price for the certain year for one living animal was calculated by the following formula:

$$Á_f = \frac{\text{fatted goose average procurement price (HUF/living kg)} \times \text{procured fatted goose volume (kg)}}{\text{Procured fatted animals (number of animals)}}$$

The calculated data were illustrated by graphs; after the function that matches the elements of the data rows or the points of the graphs was determined. For the graph illustrating the yearly average procurement prices for one living goose a linear trend function was fitted.

The trend concerning the yearly average sales revenues for one living goose a polynomial function was the most suitable solution.

For the future situation concerning profitability calculated on the basis of sales revenues and average procurement prices the statistical method of trend determination was used.

The objective was to prove, that the profitability of the sector will probably decrease in 2003 and 2004 if this process is not stopped or turned back. The profitability of the sector might decrease considerably, questioning the further existence of the sector.

An integral part of the Dissertation deals with the determination of market factors influencing the fatted goose liver export price. Correlation analysis was carried out to investigate the possible connections - and if there are any, to investigate the direction and strength of this correlation between price of fatted duck- and goose liver.

The investigations concerning the Hungarian poultry sector and those applying to the Pannon Liver Ltd. should be distinguished and emphasized. Investigations regarding yields and outcomes, profitability of fatted goose liver products were based on the 2002. economic statistics of the Pannon Liver Ltd, considering the markets (domestic or foreign) where the prices were reached. The company also provided data for the calculation of the factory average costs for 2002; that facilitated the determination of sales revenue and production cost for one kg living animal and the calculation of the results. The same yield-, price and cost data were used to investigate the effect of quality on profitability.

The following connections were investigated in the Dissertation:

1. What are the products that realize income after the primer processing of the fatted goose, and what output can be reached on basis of fatted goose living weight with these products;
2. In what share can these products (indicated in point No. 1) be sold on the domestic and on foreign markets; what sales prices can be reached on these markets;
3. Comparing yield and sales data what sales revenue can be realized for 1 kg living weight fatted goose;
4. The results (income) of the production could be calculated with utilizing the average procurement price, processing costs and sales revenue data.

During the investigation of quality fatted goose product-processing two basic income sources were considered: goose liver and the main meat forms (breast and thigh) were evaluated. The total values of these two product groups provide 80 % of the income of fatted goose; their quality and saleability determine productivity.

Basic data for investigations concerning the Hungarian poultry sector were provided by the Hungarian Goose Association; the official statistics for the period of 1995-2002 were used: produced yearly quantity, average yield, average procurement price, average export price. These data served a s a base for productivity calculations as well.

The Dissertation includes an introductory evaluation of factors causing the weakening of goose liver market leading position, processed data and experiences gained at certain locations of the product channel; it also describes the possibilities for positive influencing of critical points of position improvement, with alternative recommendations. The possible solutions and their conditions have been elaborated considering sector circumstances and market possibilities.

3. RESULTS

3.1. Investigation of profitability of fatted goose liver

On basis of data rows of the Hungarian Goose Association for a seven years period (1995-2002) concerning average procurement price for fatted goose, average sales (export) price of fatted goose liver and the average productions costs the trend lines of these data could be designed and the data could be evaluated with statistical methods.

First the export sales revenue for one living goose was calculated with the following formula:

$$Á_e = \frac{\text{fatted goose liver average export price (HUF/kg) x exported goose liver (kg)}}{\text{procured fatted geese (number of animals)}}$$

On basis of data for the 1995-2002 period the average procurement price per one living goose was calculated:

$$Á_f = \frac{\text{fatted goose average procurement price (HUF/kg) x exported goose liver (kg)}}{\text{procured fatted geese (number of animals)}}$$

The calculated data row was illustrated on a graph (Fig 1), and the closest function was determined. A trend function was fitted to the average procurement price for one living goose graph; the trend line is determined by the following linear function:

$$y = 209{,}52\ x + 1446{,}9$$

The closeness of the function to the elements of the data raw is represented by the r_2 = 0,9429 correlation factor, that indicates a very close suitability.

The graph illustrating the average sales revenue for one living goose (Fig 2) can be represented mostly with a polynomial function:

$$Y= -37{,}315x^2 + 394{,}98 + 886{,}25$$

The closeness of the trend line and the elements of the graph show a close correlation (r^2=0,9217).

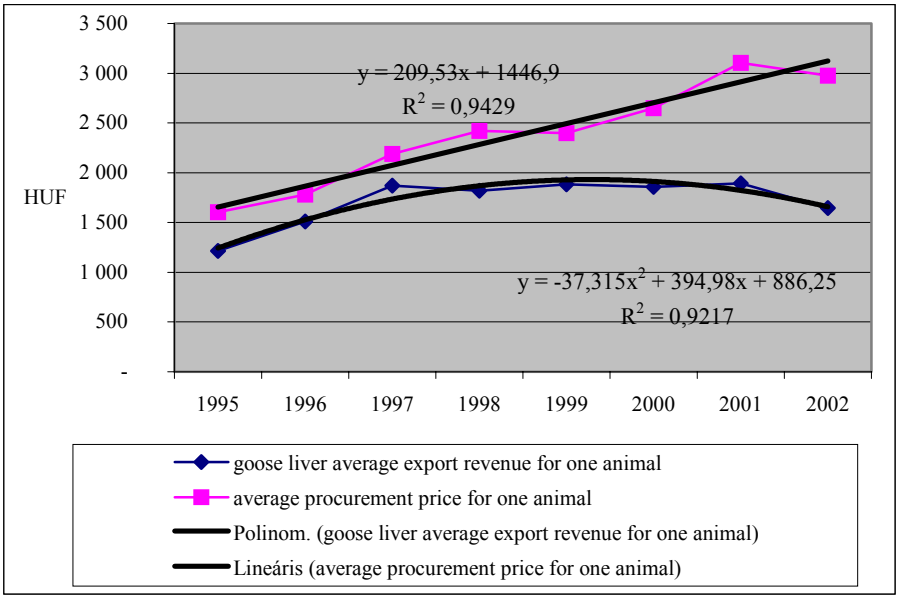


Fig 1: average sales revenue and average procurement price for one goose in the period of 1995-2002.
Source: BTT, 2003.

Fig. 1. indicates, that the average procurement price (the actual price of raw material) for one living animal shows an increasing tendency, but the sales revenue of fatted goose liver export decreased in the investigated period. This difference became more significant from year to year; therefore a more detailed investigation of sales revenue and procurement prices is needed. This also supports the experiences that the profitability of fatted goose liver decreased in the past years.

The graph elaborated from the data row (Fig. 2.) can be determined by a two-variable function:

$$Y= -0{,}0102x^2 + 0{,}0559x + 0{,}7427, \quad (r^2=0{,}9058.)$$

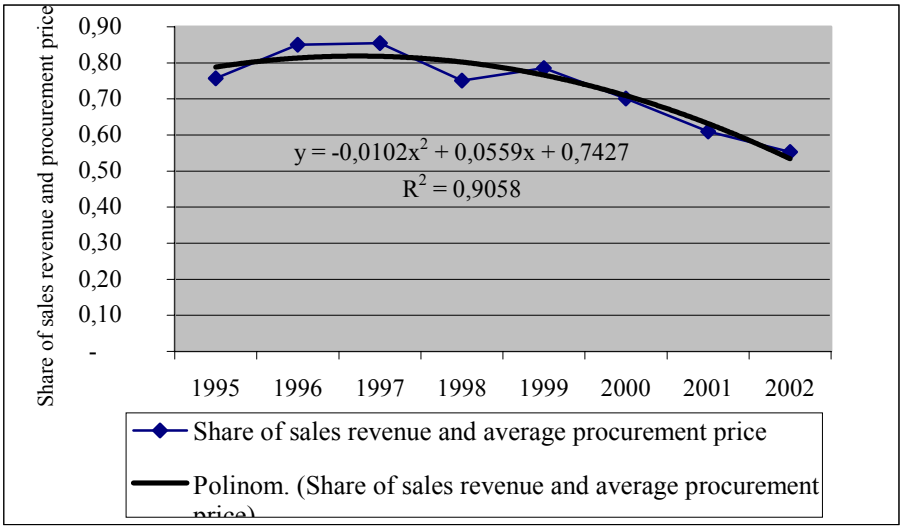


Fig. 2: Profitability of fatted goose liver in the period of 1995-2002

Source: BTT, 2003.

It can be stated that the profitability of fatted goose liver decreased continuously from 1995 and dropped drastically from 2000. The data row facilitates the calculation of possible future data on a short term (2003 and 2004), assuming that other factors stay unchanged. Fig. 3. illustrates the possible, calculated procurement and export sales revenue values for 2003 and 2004 with red colour. During the calculation and determination of possible future values one should consider the market mechanisms, namely the further decrease of sales revenue and increase of procurement price may result the drastic decrease of production

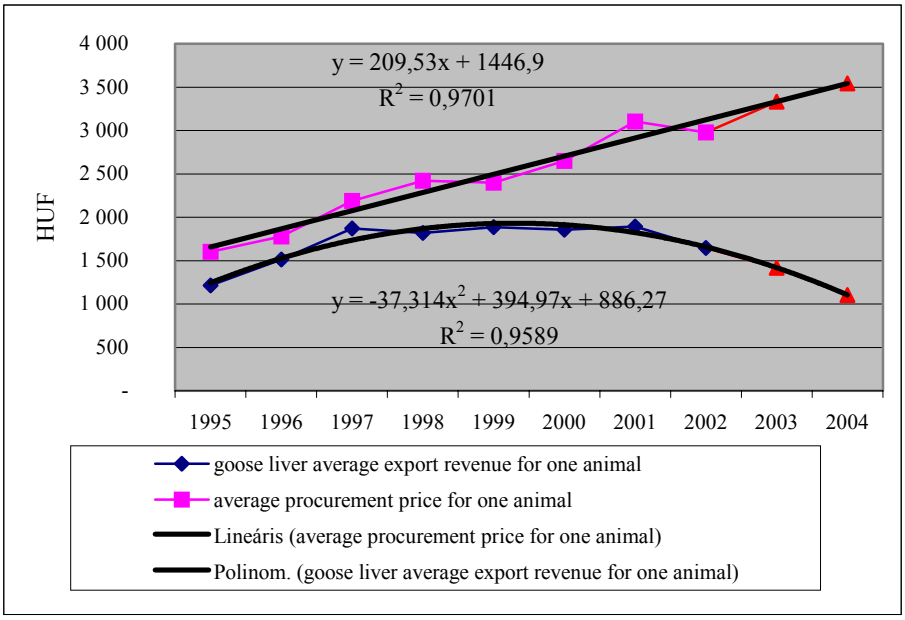


Fig. 3.: Possible values of goose liver export sales revenue and average procurement price for one animal

From the quotient of goose liver average export sales revenue per animal and the average procurement price per animal the productivity for the years 2003 and 2004 can be forecasted (Fig. 4).

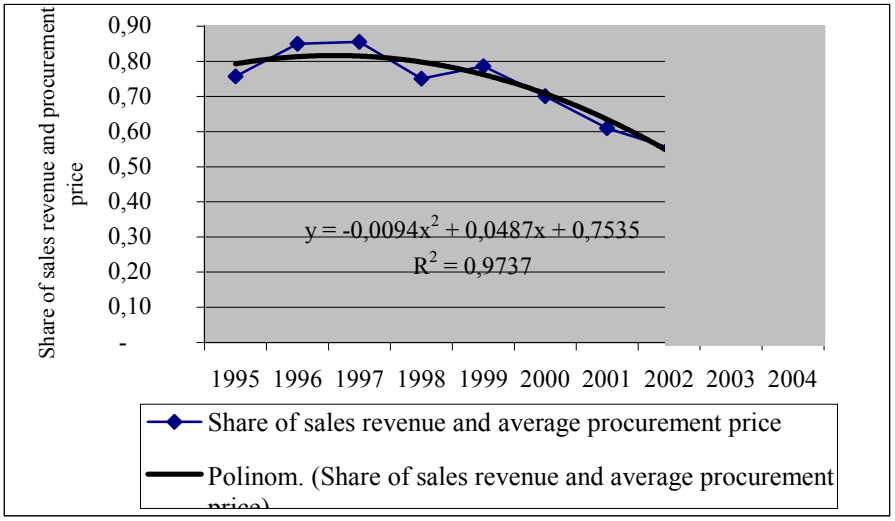


Fig. 4: Expected value of fatted goose profitability on basis of trend calculation

According to the values received after the trend calculation it can be stated, that in case proper measures are not taken, the profitability of fatted goose liver will decrease significantly in the coming few years and the operation of the sector cannot be ensured. Among the present circumstances market position is getting worse continuously and this trend is even accelerating; the estimated values draw the need for urgent measures into attention: if the competitiveness is not improved quickly and effectively, then besides loosing the present market position the existence of the sector could be questioned. In the Dissertation attention is paid to factors affecting

the whole sector, and mainly the profitability of goose liver production, what conditions and alternatives can be defined find a solution to the problems of the sector? What factors or variables should be changed in order to improve the conditions and circumstances, who should be involved in this process, who should play the leading role in this activity?

3.2. Yield-, cost- and price factors of profitability

The total sales revenue that can be realized by the sales of all products of the fatted goose was calculated; also the costs of procurement and processing were investigated to define sales return (net income) per living fatted goose kg.

Investigations were based on the average data of the Pannon Liver Ltd. for the year 2002. The drawn conclusions are only model-type statements that help to elaborate a model indicating the profitability of fatted goose liver, and showing those factors (yield, cost and price) that effect profitability on the whole.

According to the results of the calculations it can be stated that optimally the saleable product from a fatted goose can be gained from the 77,36 % of the living weight. The rest - 22,64 % - is not suitable for human consumption and needs to be destroyed.

The costs of transportation and destroying of parts those are not suitable for human consumptions and have to be destroyed increased considerably in the past years. This service used to be free of charge, but nowadays they take a dominant part of processing costs.

The average sales revenue per fatted goose living body weight kg was 621,31 HUF, while the average price of primarily processed products was 803,13 HUF. On basis of the high average price it can be concluded, that the main products of the fatted goose - due to the high sales price of these products - can be considered as premium category products even in primarily processed form, without additional added value.

On basis of the average procurement price of fatted goose in 2002 (415 HUF/living kg) and the average processing costs (107 HUF/living kg), the calculated sales result after the reduction of depreciation and general costs was 44,31 HUF/living kg.

It is important to determine the volume and share of different products from the sales revenue, in order to facilitate the evaluation of significance of each product and define those products where the quality or the produced quantity should be improved or increased. The saleability - though it is highly determined by the market - and the sales price of these products should be increased to improve profitability of fatted goose.

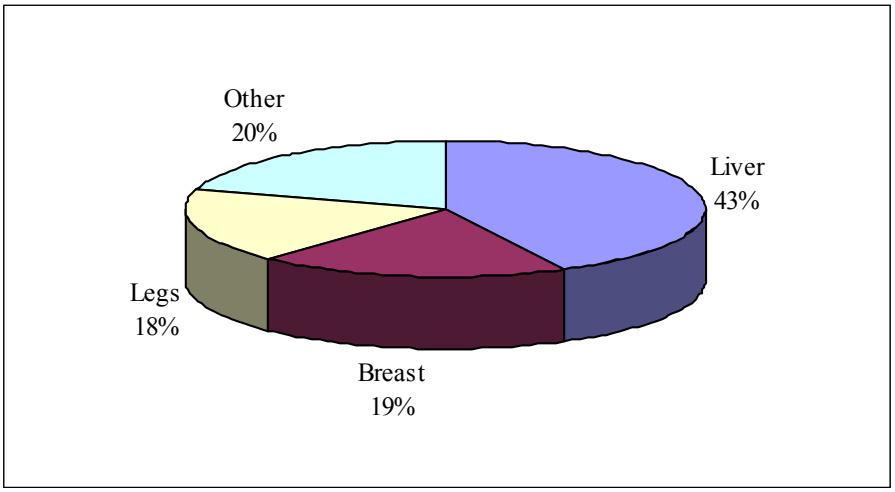
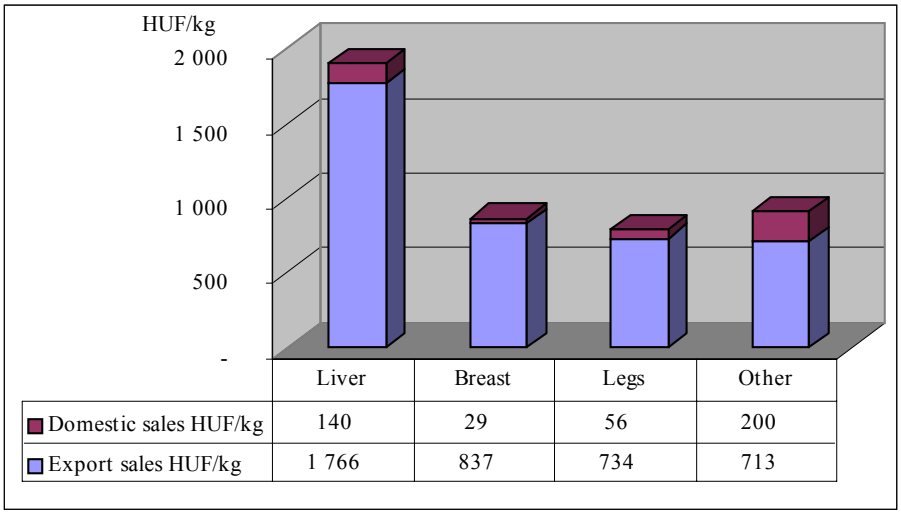


Fig. 5: Share of products from the sales revenue of fatted goose

Source: Pannon Liver Ltd., 2002.

Fig. 5. illustrates the dominance of the main products, therefore the investigations should focus more on the liver and lean meat (breast and thigh).

The market share of the products should also be determined. If the share of domestic and export markets are defined, market demand is easier to take into consideration. Fig. 6. illustrates the share of the domestic and export markets of fatted goose products, assuming that the mayor part of fats - on basis of the estimation at least 75 % - has been baked and exported as fat.



	Liver	Breast	Legs	Other
Domestic sales HUF/kg	140	29	56	200
Export sales HUF/kg	1 766	837	734	713

Fig. 6: Share of sales revenue of certain fatted goose products on basis of domestic and export sales

Source: Pannon Liver Ltd., 2002.

As it can be seen on Fig. 6., the sales of fatted goose is highly export oriented. 91 % of sales revenue is realized from export markets and only 9 % counts for domestic sales.

3.3. Quality and quantity aspects of competitiveness

In order to maintain and improve our market position, the quality aspects of fatted goose products that facilitate a better adaptation to market demands should be defined.

As a basis for the investigation of quality production two main income sources were analysed, namely the goose liver (1) and meat (2) (breast and thigh). As the total share of these two product groups takes up to 80 % of the total sales revenue of fatted goose, the quality and saleability of these products determine the profitability of the whole goose sector.

The main objective of production is to increase the output of the main products as much as possible and as it can be expected from the breed, and the quality and price of the products should be able to fulfil the most sophisticated market demands.

There is a close relation between the liver weight at slaughtering and the body weight increase during fattening. On basis of this relation the primer goal is to reach the possibly highest liver weight besides the maximum body weight increase.

The payments for the producers (feeders) were also based on this principle: the salaries were calculated according to the gained weight of animals, liver weight and liver quality.

On basis of the products of the French processing industry and the required quality raw material the highest sales price can only be reached with the highest, so-called “entire” category products. The weight of the liver raw material needed for processing is 400-600 gr. That weight should be considered as the target quality, and it also means that the quality and qualifying system of the fatted goose sector should be modified and changed.

Calculations prove the profitability decreasing effect of the present payment system and the too high liver weight that is not preferred by the market. Market prices differ for different body weight and the connected product output (primarily liver), as the demand is also different for the quality products. It should be mentioned that the present qualifying system defines two “F” category goose liver, and all quality parameters are the same for this category except the liver weight. It is important to emphasize as the producer (feeder) is paid with the same amount of money, in the same quality category.

On basis of the weight goose liver is qualified by the processing goal and prices are determined by these processing directions. The 500 gr liver is sold as “entire” raw material; the 800 gr can be sold for normal “F” category price. In 2002 market price for the “entire” category was 19 EUR/kg, for the “F” liver 12 EUR/kg.

The price of other products in the calculations can be considered as fix prices. The raw material cost per one kg living weight is equal in both cases, due to the same category qualification. A further expectation based on experiences is the 100 gr liver weight increase with 200 gr fatted goose body weight increase. Therefore the living weight of a goose producing 500 gr liver is 7,00 kg, while the body weight of a 800 gr liver goose is 7,60 kg (the basic living body weight at the beginning of fattening was the same in both cases).

The higher sales price that is connected to the higher („entier") quality compensates the loss of sales revenue resulting from the smaller liver weight and the smaller output rates and volumes.

It should also be emphasized that in case of 7,00 kg living body weight the bone-breast yield is 840 gr, while in case the body weight is 7,60 kg, the bone-breast meat yield is 910 gr. In the past few years export markets - primarily the German market - preferred the 800-850 gr breast weight, therefore the animals producing this breast weight are more marketable.

3.4. The fatted goose product channel model

The development of the fatted goose sector should be (has to be) accomplished in the frame of an interconnected system.
The segments of the whole process (breeding stock production, goose growing and fattening, etc.) build up a system, that should be managed and controlled with the consideration of the final objective: to increase the profitability of the whole sector.

As the harmonized cooperation of the system that is built up from several, connected elements should be achieved, it is important to elaborate a system model including the whole product channel (Fig. 7).

Fig. 7. illustrates that the production and market activity of the participants are coordinated and controlled by the Poultry Product Council, and as a professional association the Hungarian Goose Association takes care for the control and coordination in case of this

specialised sector. The reason for this structure can be found in the government support system: the participants of the sector receive financial support from the government, only if they are members of the Poultry Product Council therefore they are registered participants of the product channel, and it also guarantees that they produce on basis of the national regulations in force and provide reliable and true data regarding their operation.

The Poultry Product Council is a servicing, interest coordinating organisation providing public tasks. Its main objectives are to strengthen the market position of its members with collective marketing activity, to represent our national interest in different professional organisations of the EU, to keep continuous and direct effective contacts with the national authorities, their organisations and with different EU institutions.

The participants of the sector try to increase the effectiveness of the fatted goose sector together through the measurements of the Poultry Product Council, with considering and accepting the animal health and welfare regulations, food quality and insurance, environmental protection and product traceability rules.

The participants of the product channel are the following:

- goose breeders;
- goose propagators and hatchers;
- goose keepers and feeders;
- goose slaughters and primer processors;
- further processors of goose products;
- commercial salesmen distributing goose products.

The Poultry Product Council keeps direct contacts with institutions and organisations outside the product channel:

- with related ministries;
- with the Agricultural Intervention Centre;
- with the national Agricultural Qualifying Institute;
- and with related research institutes and centres.

During the assembly meetings of the Poultry Product Council one delegate of the National Consumer Protection Association should be present.

The participants of the product channel are obliged to provide data regarding their production; data is collected and processed by the Poultry Product Council. After the data-processing the participants of the product channel receive the information that covers the whole sector.

The National Agricultural Qualifying Institute has the right to control and give out permission to start the production of breeding stocks. Only those varieties and lines are permitted for commercial production that bears the registration number of the Institute.

The Agricultural Intervention Centre play a central role in distributing the fatted goose liver export permissions among the applying companies, to follow and control the export activity. Only slaughter factories can bear export permission for goose liver, but this export right can be handed over to the exporting companies for a certain period of time. The exported volume should be properly registered and twice a year the exported volume and the remaining

quantity should be reported to the Agricultural Intervention Centre and the Poultry Product Council.

Animal health issues are controlled on different levels, although only from the breeding stock keeping until the marketing of the end product. Any participants of the product channel can be controlled by the county animal health station, but the activity and operation of the slaughtering and processing factory is continuously controlled by a representative of the animal health station on the location. During the regular - yearly - animal health and food insurance supervision of the slaughtering and processing plants veterinarians representing the Ministry of Agriculture and Rural Development are also present.

Independent quality control organisations have the right to control production at any stage of the processing, but in fact these organisations are only dominant in the marketing stage with the control of the end product and primarily concentrate on consumer protection issues.

The establishment of a coordinating and managing organisation is needed to control and contribute to the effective cooperation of the direct participants (raw material producers, processors etc.) of the product channel, which organisation should be managed by the processors. This organisation fits into the product channel model as a uniform economic organisation; the establishment and operation of such a coordinating system and organisation will be a task for the near future.

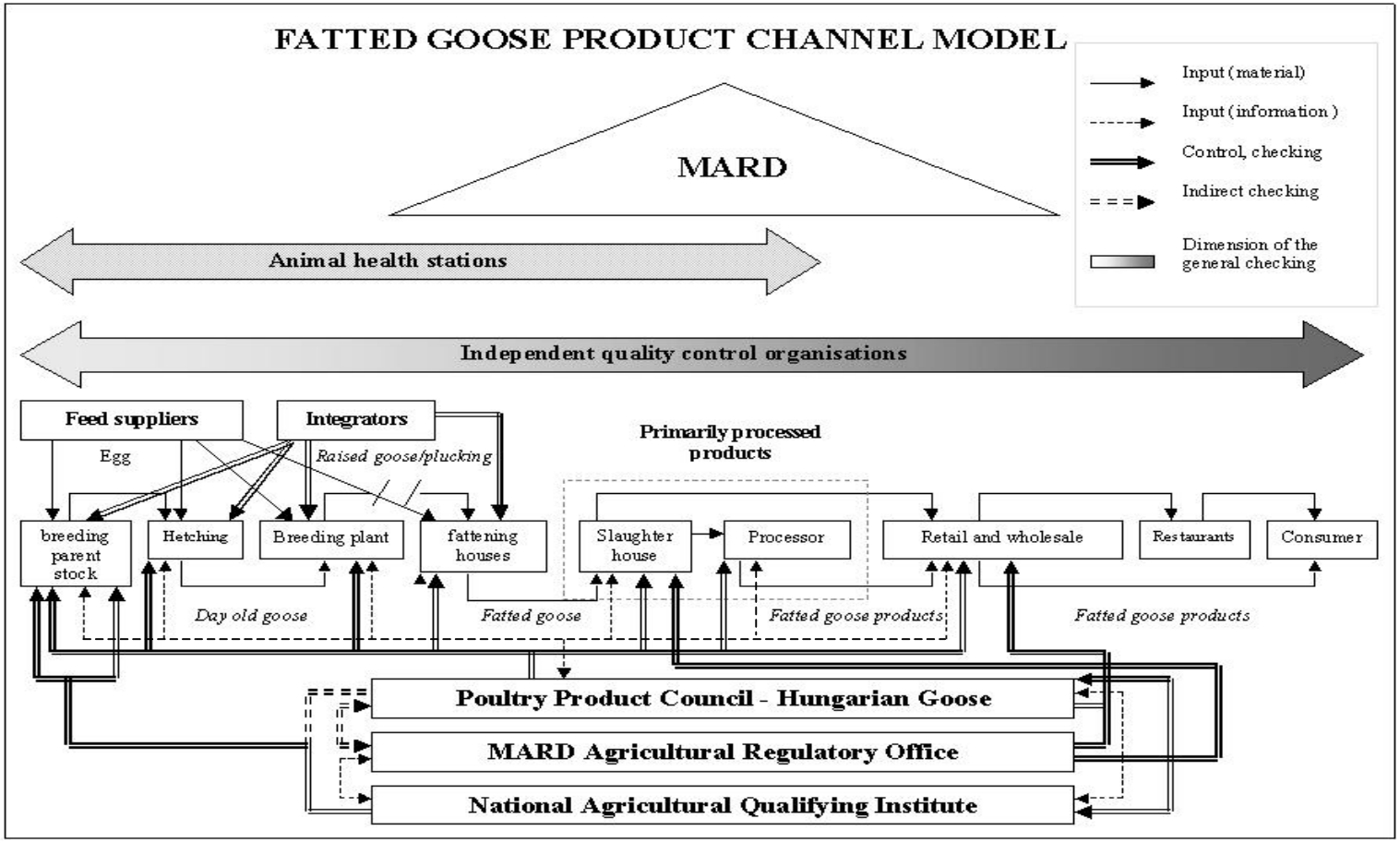


Fig.7: Fatted goose product channel model

4. NEW AND NOVEL RESEARCH RESULTS

1. **On basis of the trend lines of the investigated factors (procurement price, export price, production costs) it can be stated that in case of unchanged trends the current low profitability of the sector might decrease to zero by 2004 (in a worse situation the sector might produce loss).**
   The profit conditions of fatted goose liver sector became more and more unfavourable from 1995, due to the continuous increase of the procurement price for the raw material (fatted goose), the drastic decrease of the export price of the liver and the increase of production costs.

2. **One condition of quality goose liver production is a uniform, widespread quality control and certification that covers the whole product channel.** As the first step the introduction of a registration system is needed to facilitate the evident and reliable traceability of the raw material from the breeder to the processor.

3. **On basis of the data regarding the processing of raw liver and the required quality requirements the highest sales price can be reached with the production of "entire" category products where the weight of the raw material is between 400-600 gr.** Primarily due to the French market this should be considered as the target quality in the future, therefore the

quality- and qualifying system and the required production technology should be elaborated to meet these demands.

4. **On the middle term Hungarian goose liver has no possible alternative then the French market; therefore the participants of the sector should seek for possibilities to find better and more favourable conditions for the French export. One solution will be the applying of the own brand system of the French retail chain stores.**

5. **Market expectations can be satisfied with the vertical integration model of the fatted goose sector, where raw material production, processing and sales is controlled and managed in an integrated way.** This should be performed according to the strict biological and food hygienic regulations, still trying to reach the most favourable cost level. This product channel model facilitates an effective fatted goose liver sector after the EU accession, with the reformation and profitable operation of the sector.

5. RECOMMENDATIONS FOR THE PRACTICAL AND THEORETICAL USE OF RESULTS

1. The Dissertation emphasizes the basic needs for measurements that aim to improve of effectiveness and draws this need to the attention of the participants of the product channel.

2. It contributes to the acceptance of the importance of continuous enlargement of professional knowledge and product channel approach on different level of the product channel.

3. The Dissertation introduces the French market demand that should highly be considered to increase the profitability of the sector.

4. Approximately 25 % decrease of domestic production is needed to restore market balance. This process should be coordinated on sector level.

5. The most important Hungarian export products - the so-called “hungaricums” should be advertised and represented collectively on the foreign markets. Besides the goose liver, the sausage of Szeged, paprika from Kalocsa or the Tokaj wine could be similar products that are marketed collectively. To

establish foreign subsidiary companies, government support is needed.

6. Fatted goose liver products should closely be connected to one specific region or to a speciality. The regional policy of the EU becomes more and more important. The traditional way of production of fatted goose liver should be connected to liver quality, as a special quality product of the food industry.

6. SCIENTIFIC PAPERS, PUBLICATIONS AND LECTURES IN THE TOPIC OF THE DISSERTATION

Scientific papers published in supervised professional periodicals in Hungarian language:

- BIRKÁS E. – TENK A. – SZIGETI J. – TURCSÁN ZS. (2001): A magyarországi hízott libamáj export jelene és jövője. GAZDÁLKODÁS, XLV. évf. 2001. 4. sz. p. 33-42.

- TURCSÁN ZS., SZIGETI J., TENK A., BIRKÁS E. – TURCSÁN J. (2002): A magyar libamáj ágazat helyzete és fejlesztésének lehetőségei a legújabb hazai és nemzetközi kutatási eredmények tükrében. (*Irodalmi feldolgozás)*. Állattenyésztés és Takarmányozás 51 (2), 157-165.

Publications in foreign language:

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PRESENTATIONS, CONSULTATIONS AND SCIENTIFIC WORK:

INRA (Institut National de la Recherche Agronomique) – Unité Experimentale des Palmipades a Foie Gras, France, 2000.

Participation in the research of "Reasons and possibilities of decrease of bloody goose liver"

Ministry of Education, from 1999
Scientific expert

PALMAVIS, France, 2001., 2002., 2003.
Participation in market analysing symposiums

SIAL, France, 1996., 1998., 2000., 2002.

Consultation, market research

SIAL, France, 1997.

Market research

FOODEX, Japan, 1998., 1999., 2000., 2001., 2002.

Consultation, market research