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PORK QUALIFICATION AND QUALITY IN HUNGARY IN THE PERIOD OF EU ACCESSION

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INTRODUCTION

From the beginning of the ’80s quality became the central point from the elements of competitiveness (up-to-dateness, quality, price) in the developed countries; quality also became to be the main factor of market effectiveness, the ability to survive on the market, to maintain and increase competitiveness on the market. Experiences and results of the main pork producing countries indicate that pork quality could only be increased if health safety issues and quality criteria are highly considered and controlled throughout the whole product chain.

In Hungary pork plays an important role both in domestic supply and on the export markets. Meat industry that is based on domestic slaughter animal supply is still one of the most important sectors of food industry even today. The present volume of slaughter animal production is much lower than “top” data registered in the middle of the ‘80s. Several studies were published in the past few years to discuss and introduce the problems of the sector, therefore most problems are already revealed. Pork production decreased significantly in the past decades, primarily due to the sales uncertainty during the years following the system transformation, but the decrease of pork consumption and the connecting decrease of income also affected the production level.

Experiences of countries with developed agriculture prove that an effective raw material production is only possible and the connecting up-to-date food processing is only achievable if all relations throughout the product channel are organised and based on uniform professional principles, they are accepted by all parties and provide a reasonable income for all participants of the product channel.

This system is called an integrated product channel. However, the operation of the product channel highly depends on the level of management. Therefore quality approach should be considered throughout the product channel, where quality should mean the full – regarding both quality and quantity – satisfaction of the consumers. These conditions should be present at the same time, therefore consumer demands should be well-known and evaluated. On basis of the studies published in the topic the following assumptions were defined:

- consumer demands (expectations) become more quality conscious;
- further restructuring is possible regarding the Hungarian pork product channel;
- as a consequence of increasing quality requirements organic production becomes more important and organic pork production increases;
- the role of traditional pig varieties increases;
- in order to have the consumers' trust back – and increase pork consumption – the establishment of the traceability system that is valid for the whole product channel speeds up;
- as a consequence of the above-written factors the establishment of a coordinated system that is able to control the whole integrated channel becomes necessary.

From the above-mentioned topics the following elements are discussed and dealt with in the thesis, up to 2003:

- consumers' opinion on pork products, possible criteria of quality production;
- introduction of the present state of pork production in Hungary;
- cost-benefit analysis of pork production;
- present position of participants of the pork product channel;

- future tasks of the participants of the pork product channel in quality production;
- EU conform qualification system of the pork raw material (slaughter animals);
- present state and future prospects of organic pork production in Hungary;
- elaboration of a uniform product channel model that comprehends the whole channel.

1. MATERIAL AND METHOD

Research has been carried out on the Department of Agricultural Economics and Marketing at the West-Hungarian University, Faculty of Agricultural and Food Sciences.

Research has based on information, documentation and data collected during domestic and foreign study tours, conferences and international professional fairs.

During the primer research the data of the following bodies were used: Ministry of Agriculture and Rural Development (MARD), Győr-Moson-Sopron County Office of MARD, Győr-Moson-Sopron county Statistical Office, Slaughter Animal and Meat Product Council, Integralsoft Ltd., Biokontroll Hungária (public utility ass.). Besides the primer data collection and processing several already published data and information were also used and elaborated further as a base for secondary investigations.

The personal interviews with Hungarian experts highly assisted the deep understanding of the situation and served a more practice-oriented approach of the research topic.

The quality pork and pork product production of the Hungarian pig farms, slaughterhouses and meat processing plants have been followed continuously since 2000. Several meat processing plants, such as the Kaiser Food Ltd, Ringa SCo, Pick Szeged SCo, Lukullusz Meat Processing company, Pápai Hús SCo, Zala Hús SCo, and many pig farms and slaughterhouses were included in the research. Primer data collection was based on a questionnaire survey and personal consultations. The method of personal interviews – that was also applied during the testing of the questionnaires – was used to guarantee a

deeper and a more detailed understanding of the topic, but also the personal reactions of the answering persons were investigated and considered.
Organic pork production – as a special quality category – was also dealt with during the research. Data concerning both the domestic and foreign production structure originate from the Biokontroll Hungária (public utility ass.). The investigation of Hungarian organic pig farms and organic pork processors was based on domestic study tours; during the study tours the managers of the facilities were interviewed.

Personal contacts played an important role throughout the research; besides the contacted experts (questionnaire, personal interviews) continuous relations were kept with researchers of domestic and foreign research institutes, appreciated experts of the topic in order to organise consultations and ensure a continuous flow of information.

Data regarding the pig stock, organisational forms, qualification results and cost-income structure of pork production were provided by the Slaughter Animal and Meat Product Council. Data were processed with the MS EXCEL program and tables, figures and graphs were elaborated. Basic data cover the 1998-2002 period.
Data concerning the domestic and foreign market prices of slaughter pigs, procurement-, sales and consumers prices of pork products originate from the periodicals of the Research and Informatics Institute of Agricultural Economics; data were processed with the use of the STATISTICA program. Data cover the period of 1999-2003.

During the autumn of 2003 95 consumers were asked to investigate consumers' attitudes. Investigations covered the whole area of the country. Questionnaires were filled in with the assistance of university students. Due to the low number of filled-in questionnaires, results are not representative but indicate consumers' opinions well.

To investigate the operation of companies involved in the pork product channel, 23 questionnaires were sent to 23 companies: 16 pig farms, 5 slaughterhouses and 10 processing plants were included in the research. The study focused on those factors that affect quality pork production throughout the product channel, between 2000-2003. The questionnaire contains several question groups like pig keeping, feeding of the animals, transportation of the animals, slaughtering, quality-orientation of raw material suppliers.

Data regarding organic pig farming and organic pork production originate from the database of the Biokultúra Association and the Biokontroll Hungária (public utility ass.).

2. RESEARCH RESULTS

Hungarian pig and pork producing sector became the crisis sector of our agriculture, and in the last decade the bad situation is continuous. The reasons are the following:

- consumption of pork and pork products decreased;
- production fell back;
- unorganised production and procurement structures;
- low and fluctuating producer prices;
- low profitability;
- weak position concerning competitiveness (especially on international markets);
- quality problems.

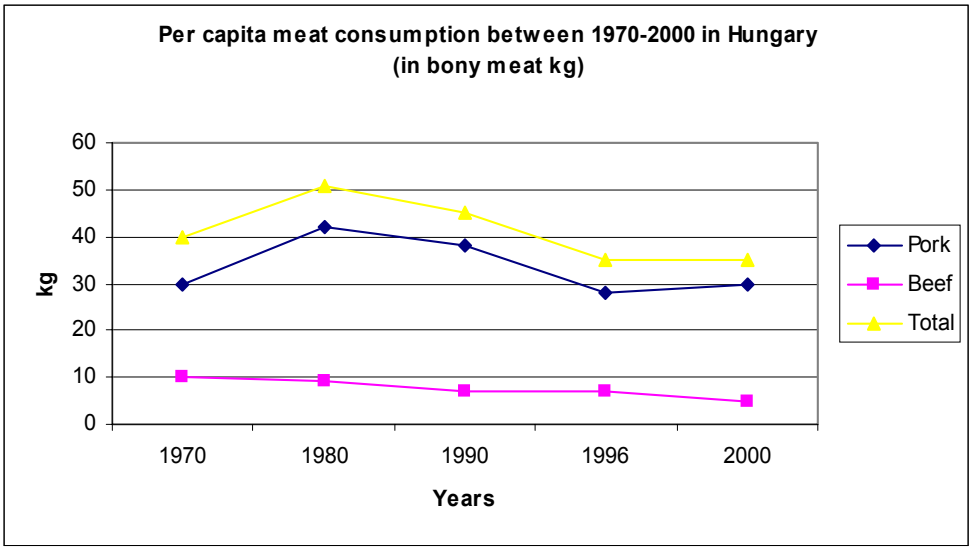


Figure 1: Meat consumption per capita between 1970-2000 in Hungary (in bony meat kg)
Source: Slaughter Animal and Meat Product Council

Figure 1 shows the declining tendency of meat consumption. In 1985 pork consumption reached 42 kg per capita and beef consumption was 8 kg; by 1992 it fell to 30- and 5 kg respectively. One reason for the decline of consumption is the multiple price increase of meat products, but the changes in consumption habits and some misbelieves based on misconstruction of scientific results also contributed to the decrease. Nowadays this unfavourable trend seems to change.

Meanwhile the total meat consumption decreased as shown on Figure 1, domestic pork meat sales almost doubled between 1998 and 2002; from 60 thousand tons sales in 1998 by 2002 it increased to 110 thousand tons. It can also be stated that regarding both export and domestic sales the volume of less processed pork products increased, on the other hand the sales of highly processed pork products stagnates or decreases.

On the turn of the millennium approximately 30-40 % of all pork products is sold on export markets. Between 1998-2002 domestic sales increased by almost 10 %, but export sales decreased with the same percentage.

In order to improve the sector results it is important to maintain the increasing sales tendency on the domestic market, and to turn the declining export sales tendency into a positive direction. To achieve these objectives the detailed knowledge of the present situation, market tendencies that affect the sector is essential. Certain Hungarian pork products – the Hungaricums – are well-known on the international markets, therefore the sales of these products should be promoted and increased.

During the investigated period pig stock exceeded 5 million in Hungary (Figure 2). Although the favourable pig-fodder price rate is favourable, the number of animals increased very slowly – primarily due to the farmers' uncertainty and the unstable profitability situation. **The considerable decrease of number of small-scale pig farms (family farms) did not result the concentration of production, and similarly the quality of slaughter animals was not affected by this decrease. Concentration and as its consequence, quality improvement could only be observed in the case of economic organisations.**

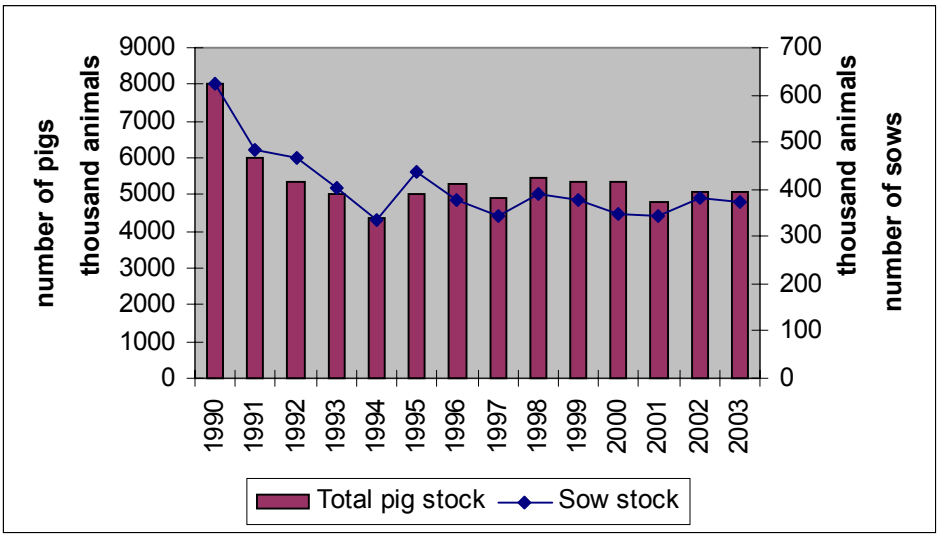


Figure 2: Number of pigs in Hungary (1990 – 2003)
Source: Slaughter Animal and Meat Product Council, 2003.

The number of qualified pigs shows an increasing tendency in Hungary as well; by 2002 it almost reached an 80 % level (4 million animals) of all slaughtered animals (Figure 3).

The low number of fattening animals per farm, the high number of small-scale farms does not make the formation of high volume, uniform and high quality raw material for the slaughterhouses possible. In small-scale farms the objective qualification of slaughter animals cannot be achieved, that leads to low producer prices and weak bargaining power. The solution for these problems is offered by the West-European samples, namely the establishment of producer groups, co-operative enterprises with large stocks and facilities.

Figure 3: Number of qualified slaughter pigs in Hungary between 1996-2002.
Source: Integralsoft Ltd.

The qualification of slaughter animals at the procurement and the introduction of objective qualification system differentiated, and at the same time improved the income position of producers, as farmers received

a higher procurement price for the higher quality product (on basis of quality classes).

On basis of year 2001 data 10,17% of slaughter facilities use the ZP method for pig qualification, but this method is not accepted by the EU. 89,83 % of slaughter facilities use the EU-conform FAT – o – MEAT'er system (Figure 4).

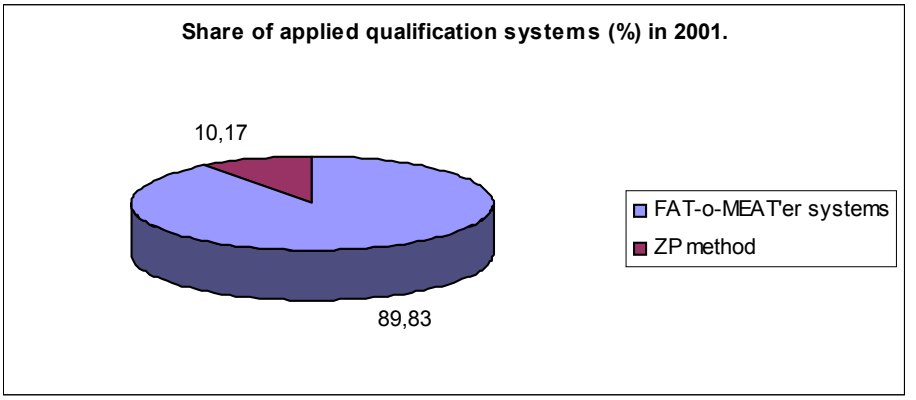


Figure 4: Share of slaughter facilities on basis of applied qualification system in % (2001)
Source: Intergralsoft Ltd.

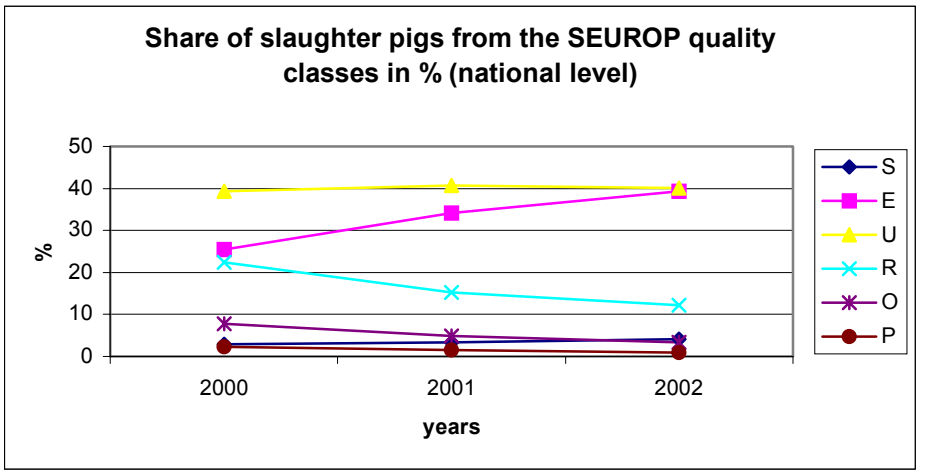


Figure 5: Share of slaughter pigs from the SEUROP quality classes in % (national level)
Source: Integralsoft Ltd.

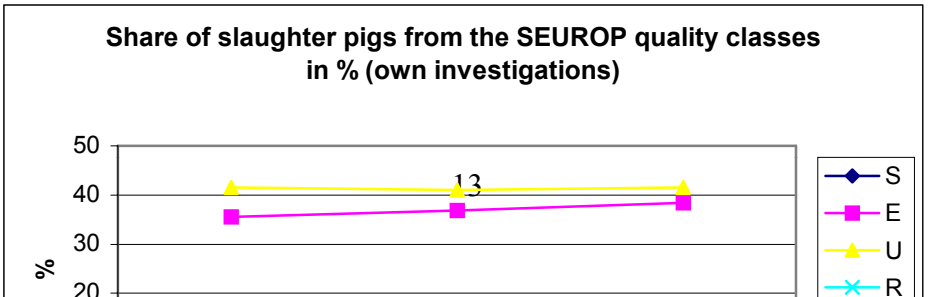


Figure 6: Share of slaughter pigs from the SEUROP quality classes in % (own investigations)
Source: Integralsoft Ltd.

Figures 5 and 6 indicate that national data are similar to the results of our own investigations. Both data show that approximately 40 % of pigs is in the "U" quality category that means a middle quality level. The remaining 60 % shares the other 5 quality classes. These data prove that the share of good quality pork should be increased; however the increasing tendency of "E" category pork is a favourable process. The share of "R" quality category – that means a weak quality product with only 45-50 % trimmed meat – is decreasing. It can be stated that both on national level, and also regarding the investigated facilities the quality pork production is increasing.

If buyers guarantee the producers the differentiated procurement prices based on the SEUROP qualification system – that uses the lean meat content of the carcass – are paid to the producers, it will stimulate the farmers to produce higher quality raw material.

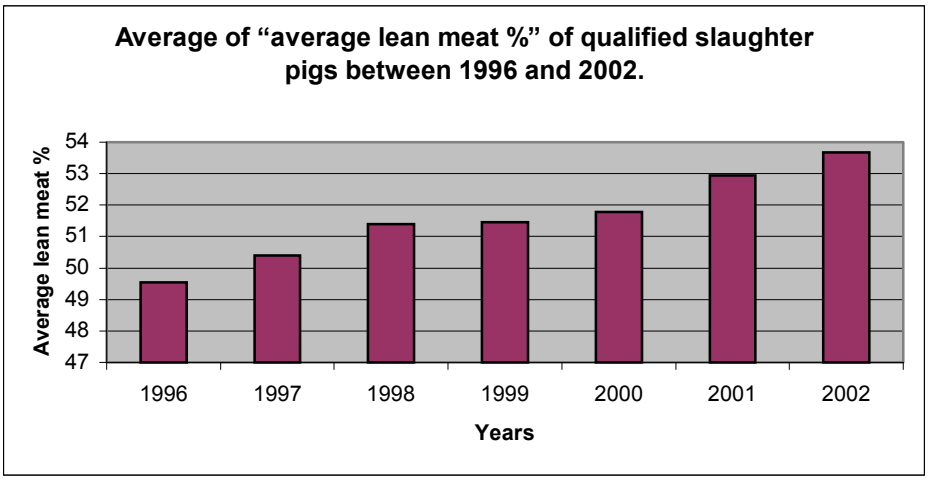


Figure 7: Average of "average lean meat %" of qualified slaughter pigs between 1996 and 2002.
Source: Integralsoft Ltd.

Lean meat percentage has been increasing continuously since 1996; in seven years it reached 53,68 % from 49,55 % (Figure 7). In the EU member states with developed pig production the average slaughtered weight of animals is considerably smaller than the Hungarian slaughtered weight; that is one reason for the higher lean meat % in those EU countries.

There are several aspects of quality and reasonably priced slaughter pig production besides variety – like keeping technology, feeding system, slaughter weight –, and these factors might result several percentage point difference (and as a result a different SEUROP quality class category) in themselves. The average lean meat content is 2 % lower than the EU average. The primer reason for this is proved to be the higher slaughter weight.

Table 1: Comparison of lean meat % of qualified slaughter pigs between 1996-2002 by SEUROP

	1996	1997	1998	1999	2000	2001	2002
S	61,27	61,32	61,31	61,4	61,35	61,21	61,28
E	56,73	56,79	56,84	56,89	56,92	56,83	56,87
U	52,29	52,37	52,46	52,47	52,51	52,67	52,77
R	47,67	47,73	47,82	47,84	47,86	47,88	47,93
O	42,85	42,87	42,91	42,89	42,87	42,88	42,89
P	37,84	37,86	37,71	37,98	37,84	37,78	37,79

Source: Integralsoft Ltd.

As data indicated in Table 1 show the lean meat content only increased and quality improved in the "U" and "R" quality classes in the past years. Regarding the other quality categories the lean meat percentage highly spreads.

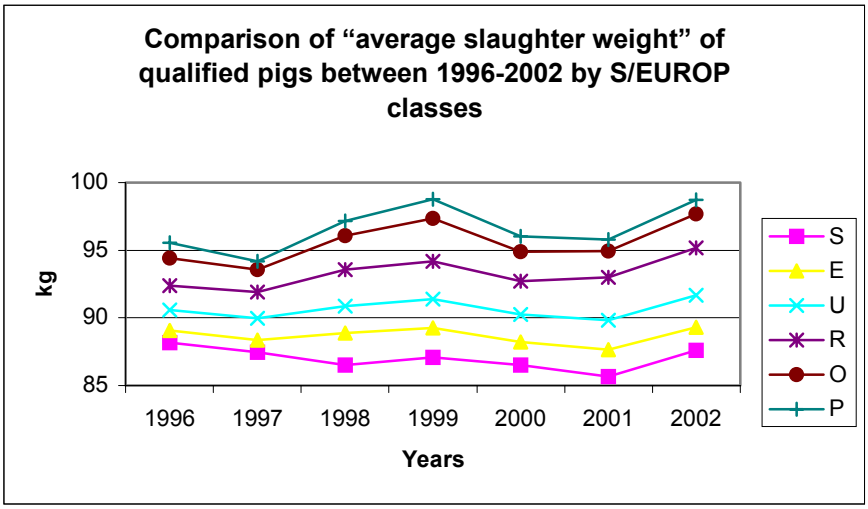


Figure 8: Comparison of "average slaughter weight" of qualified pigs between 1996-2002 by S/EUROP classes
Source: Integralsoft Ltd.

Research results show that in the past years the share of slaughter pigs in the higher quality classes ("E", "U") increased considerably. National data also indicate that since 1996 the share of slaughter pigs in the higher quality classes shows an improving tendency. In the high lean meat content "E" quality category (55-60 % lean meat) the number of slaughter pigs tripled, on the other hand the number of pigs in the weak quality categories ("R" and "O") decreased significantly. The data in Table 8 prove that slaughter weight increases in the weak quality categories. With other words: slaughter weight and the lean meat content indices are in the opposite direction. During the investigated period the average slaughter weight of slaughter animals was between 85 and 100 kg in Hungary. After 1999 slaughter weight decreased in all quality categories (Figure 8). In those EU member states where pork industry plays an important role, the slaughter weight is smaller than in Hungary, therefore the lean meat content in % (and the quality) is higher. One important objective for our farmers in the near future is to sell the animals at a smaller slaughter weight.

Procurement prises related to each quality category should be set in sales contract beforehand; otherwise the further quality improvement of the different products of the product channel cannot be guaranteed. Considering the present weak bargaining power of the farmers, the raw material producers are not stimulated to produce better quality animals. Investigations show that there are favourable processes in this field, but this practice is not general yet.

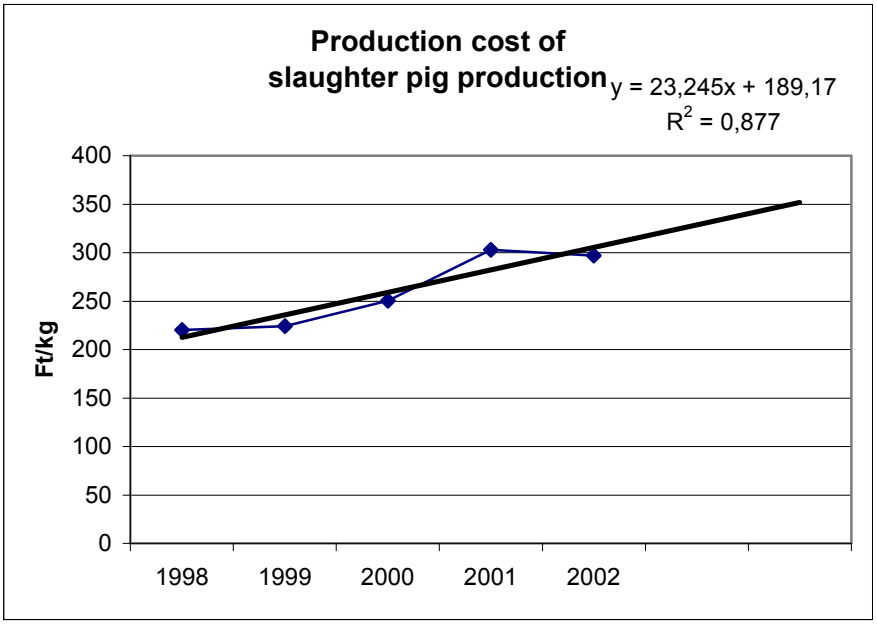


Figure 9: Production cost of slaughter pig production
Source: Own calculations based on data from the Slaughter Animal and Meat Product Council

Data regarding production cost of slaughter pigs are illustrated on a graph (Figure 9) and the relating function is connected to the data. Data indicating the average procurement price of 1 kg meat could be illustrated by a trend function, namely the

$$y = 23{,}245x + 189{,}17$$

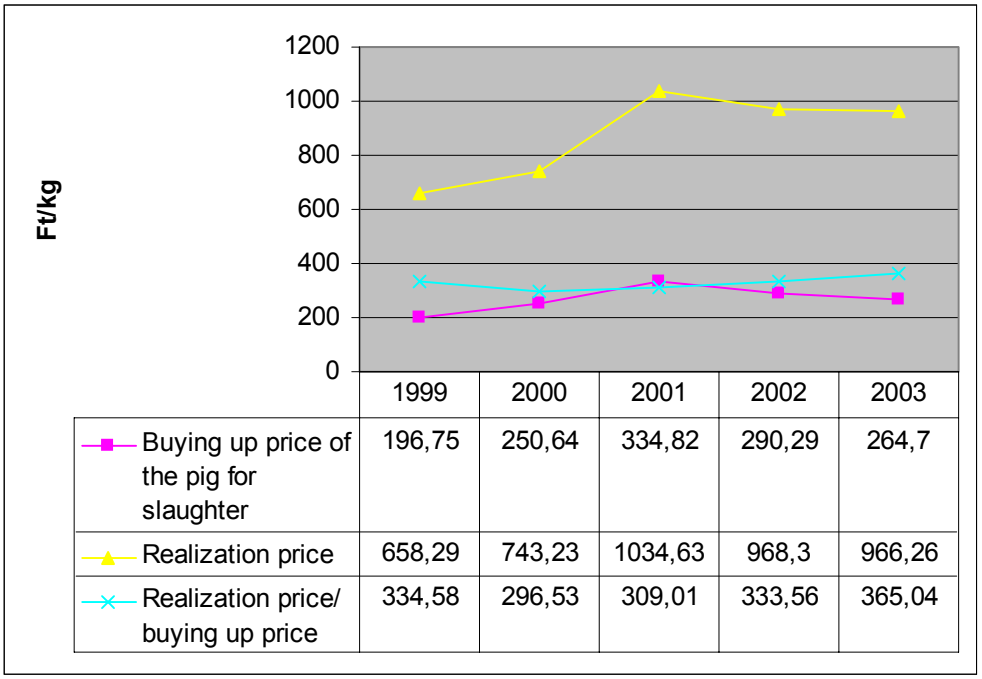
linear function. The relation between the function and the original data is represented by a $R^2 = 0{,}877$ correlation co-efficient, that indicates a relatively close relation.

Data for the procurement prices of 1 kg pork meat cannot be described by a trend function, as procurement prices differ very much. Therefore the future formation of procurement prices cannot be forecasted.

The specific (for 1 kg) production costs of slaughter pigs increased year by year (year 2003 is an exception), but the costs are still almost at the same level than the similar values of some EU member states. Comparing cost structure is can be stated that in the production cost of 1 kg living weight the share of labour cost and its other (connecting) costs are much lower in Hungary, than in the EU countries. At the same time – as a consequence of higher fodder use – fodder cost exceeds the EU values.

	1999	2000	2001	2002	2003
buying up price of the pig for slaughter	196,75	250,64	334,82	290,29	264,7
realization price	315,44	333,78	428,69	416,15	405,68
realization price / buying up price	160,33	133,17	128,04	143,36	153,26

Figure 10: Procurement and pork product sales prices of pork sausages of the processing plants
Source: AKII studies



	1999	2000	2001	2002	2003
Buying up price of the pig for slaughter	196,75	250,64	334,82	290,29	264,7
Realization price	658,29	743,23	1034,63	968,3	966,26
Realization price/ buying up price	334,58	296,53	309,01	333,56	365,04

Figure 11: Procurement and pork product sales prices of processed pork ham of the processing plants
Source: AKII studies

Investigating the raw meat and meat product prices of the processing industry and considering the end product sales prices it can be stated that the difference between sales price and procurement price increased in all the 5 investigated years. That is primarily the consequence of the decrease of the pig procurement prices. Figure 10 and 11 demonstrate that in case of certain pork products in spite of the significant fall back of procurement prices the sales price of the meat products – although not considerably – increased. The change of price-rate differs very much in case of the different meat products.

Producer (procurement) prices of slaughter pigs stagnated or even decreased in the past years (year 2001 is an exception). Domestic procurement prices are lower than the EU average (except some EU

countries). Comparing production costs and producer prices one could come to the – wrong – conclusion, that the pig industry and the pork meat produced in Hungary is competitive with the EU products. Unfortunately this favourable competitiveness situation is only apparent, due to lower quality results based on the uniform SEUROP qualification system. We still have a considerable disadvantage in this field compared to some EU member states.

On basis of price investigations of 5 different meat products sold in 5 different retail chain stores it can be stated that the temporal price formation of these products almost entirely independent from the producer (procurement) prices of the certain period. This leads us to the conclusion that raw material producers (pig farmers) are the most defenceless participants of the product channel, without any share from the increase of consumer prices. The connection between production costs of processing facilities and the consumer prices of meat products is much stronger.

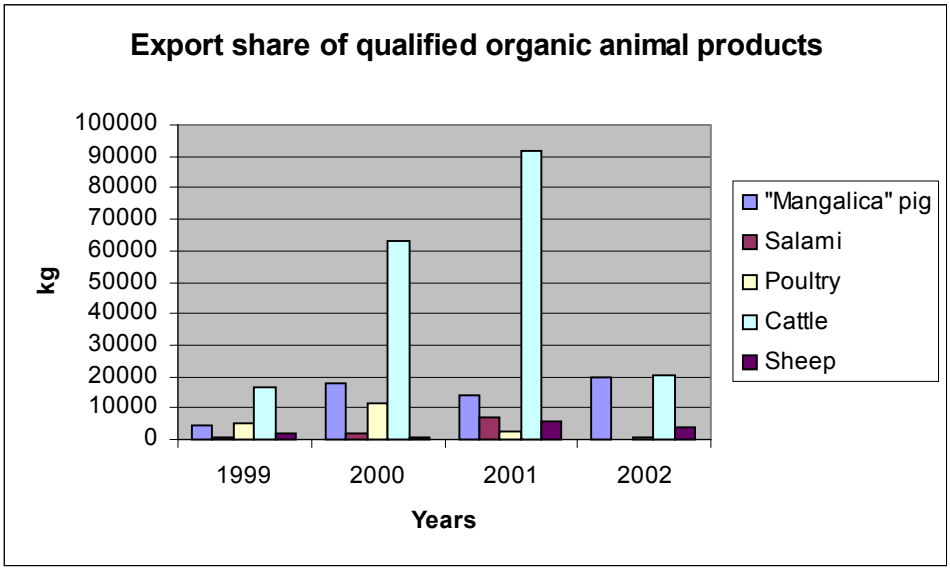


Figure 12: Export share of qualified organic animal products
Source: Biokontroll Hungária Public Utility Ass.

The domestic traditional animal varieties represent a very high value that should be utilized in organic farming. The most suitable base for organic farming is the traditional Hungarian mangalica variety that is also a part of our national cultural heritage. It is in the centre of interest not only because of its role in the gene bank or its aesthetic value, but also because of its suitability for organic production similar to the Hungarian grey cattle variety.

Export sales of organic mangalica meat are increasing, and after the Hungarian grey cattle this is our second most important organic animal product on the export market. The share of mangalica meat export from the total organic animal product export was 15,1 % in 1992, by 2002 it reached the 43,4 % (Figure 12). Regarding organic animal products the most important target countries besides domestic sales are Germany, Belgium and The Netherlands. Meat products are primarily sold in Hungary, in Germany and in Belgium. Organic pork is almost entirely sold on the domestic market, although there is a n increasing market demand for organic meat and meat products on the foreign markets as well.

In case the market requires special quality meat products in the future, the role of organic animal products could increase considerably. Although the data indicating the role of organic animal products still show a modest market demand, the foreign trends for organic products seem to be favourable, due to the higher and more reliable quality of these products. The Hungarian mangalica pig – that is among the special Hungaricums – or the Hungarian grey cattle offer a good possibility for organic production, due to their low requirements regarding the keeping technology.

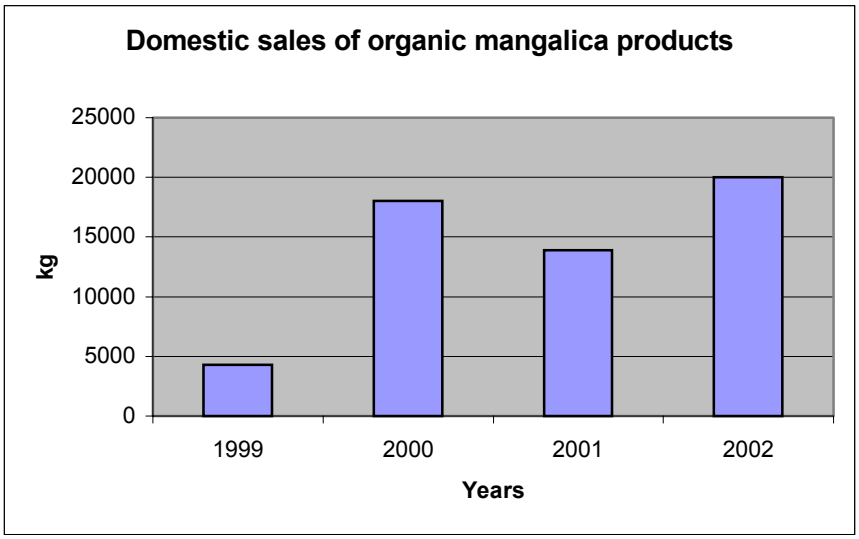


Figure 13: Domestic sales of organic mangalica products
Source: Biokontroll Hungária Public Utility Ass.

Fattening pig suppliers and the suppliers of other raw materials (e.g. spices, packing material) are qualified on basis of three factors, namely ①. the quality of the provided raw material; ②. the quality of transportation (e.g. considering the deadlines and time limits for transportation); ③. quality control activity of the contractor. The food quality insurance activity of the suppliers (subcontractors) is certified by an independent body with an official certificate on basis of self-evaluative questionnaires, audit visits by experts from the processing company. Suppliers (sub-contractors) are classified into four categories. **All of the investigated meat processing companies qualify all of their suppliers.** Most of these companies operate a quality control system for 5-10 years. The most frequent quality insurance system applied by the suppliers is the HACCP system, supplemented by the ISO system in most cases. **Investigations have been carried out at a pork can producing company that qualifies the suppliers; qualification is based on the quality**

of raw material, the reliability of suppliers (concerning transportation time limits) and the quality insurance activity of the suppliers (subcontractors). From the four – A-B-C-D – categories only the "A" category suppliers are considered to be reliable, sure subcontractors; "B" category suppliers are able to supply the processing companies if the conditions set by the processors are entirely kept.

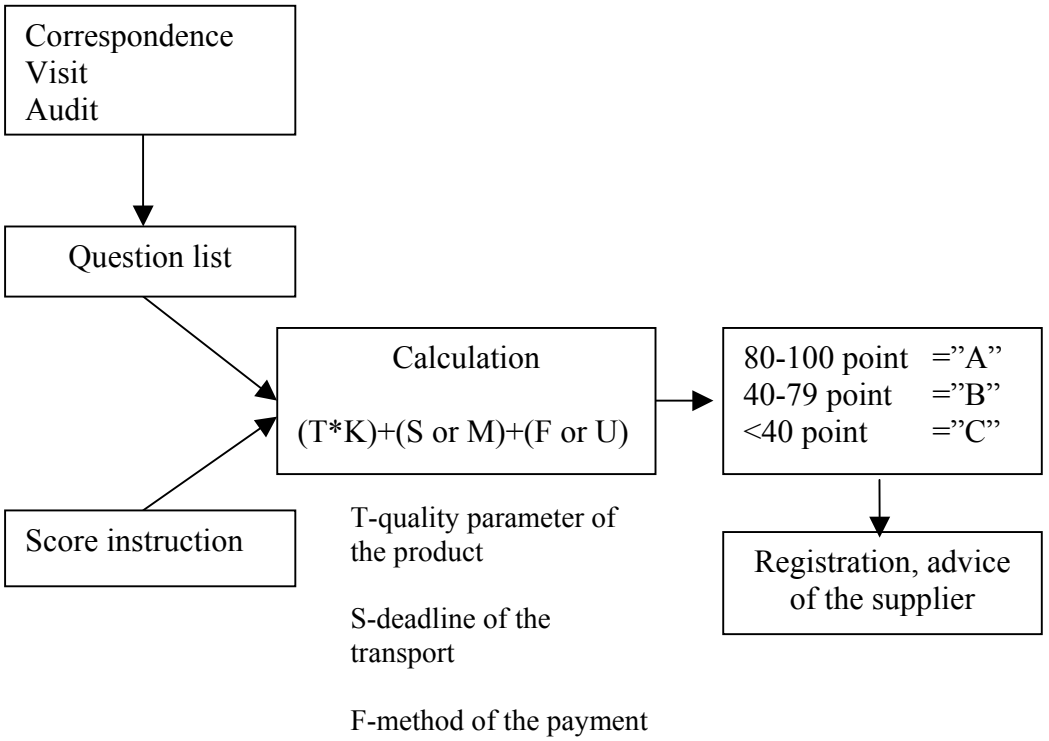


Figure 14: Supplier qualification scheme
Source: Own investigations

As new participants entered the pork sales channel (product channel) and consumers expect high quality product, these demands could only be

satisfied by a quality insurance system that is based on partnership in terms of quality. In the past few years sales channels faced considerable changes: the role of retail chain stores increased, and concerning quality issues this change put more pressure not only directly on meat processors, but also on the raw material producers (pig farmers).

One solution for the farmers for this problem could be the inclusion of raw material producers (pig farmers) into the HACCP system of the meat processing companies. The next phase of quality insurance could be the spread of the TQM approach. This process is essential for the necessary coordination.

In order to have information on the whole pork product channel in Hungary 23 companies (pig farms, slaughterhouses, meat processing plants) were included in the research. 14 of the investigated companies deals with pig keeping, 2 were slaughterhouses and 3 were meat processors, 3 companies were engaged in all three activities, 1 company only dealt with slaughtering and processing. Investigations were carried out between 2000-2003 to reveal those factors that primarily affect pork quality throughout the whole product channel.

On basis of animal hygiene and production technology data received at the 14 pig farms it can be stated that the basic factors that affect quality pork production (like room, temperature, floor quality) meet the requirements in most cases; therefore the conditions of quality production are available. Temperature regulation in the stables or frequent airing is not ensured in many cases. In spite of the relatively favourable hygienic conditions a higher level of

hygiene management could result the increase of fattening pig production (at least plus one fattening pig per sow per year) without any considerable

investment needs. Human resources are available for this improvement in all investigated facilities.

Quality data originating from different places (sections) of the product channel were processed and a common data-base was elaborated to provide basic information for further investigations on the whole product channel, on the other hand data help to elaborate the quality insurance system of the whole product channel. From the introduction of the SEUROP quality system in Hungary the lean meat content of pig carcasses increased 0,8 % every year. Unfortunately this data only stands for large-scale farms (that are included in the quality control system).

In favour of the quality-oriented production of meat and meat products an integrated (system-oriented) approach should be applied throughout the whole product channel. The reliable system of traceability stands as one pillar of quality control. As the basic characteristics of meat and meat products are being formulated during the pig production period, pig producers/farmers are determinative members (elements) of coordination. For raw material producers the EU-conform ENAR animal registration and identification system could serve as a quality insurance system.

The development of the pork sector could (and should) be performed in the frame of a comprehensive system, where each part activities (breeding animal production, piglet production, fattening, processing etc.) formulate a system that serve the possible highest level of profitability and market insurance throughout the whole product channel. Considering that the harmonic operation

of the whole system – that consists of several elements or sectors – should be achieved, a system model should be elaborated. The system model should

cover the whole product channel and could be called as “pork product channel model”.

The elaborated “pork product channel model” helps to draft (demonstrate) all those critical points where one could / should / must intervene in the channel in order to maintain / ensure / control the quality of the products. With the deep understanding of these critical points the lines dividing responsibilities could be drawn and the quality insurance / control system of the whole product channel could be built up.

This quality control and quality insurance system – that covers the whole product channel – could be one pillar either of the effective coordination of the pork product channel, or of the integration of closely related processes (sections) (Figure 15).

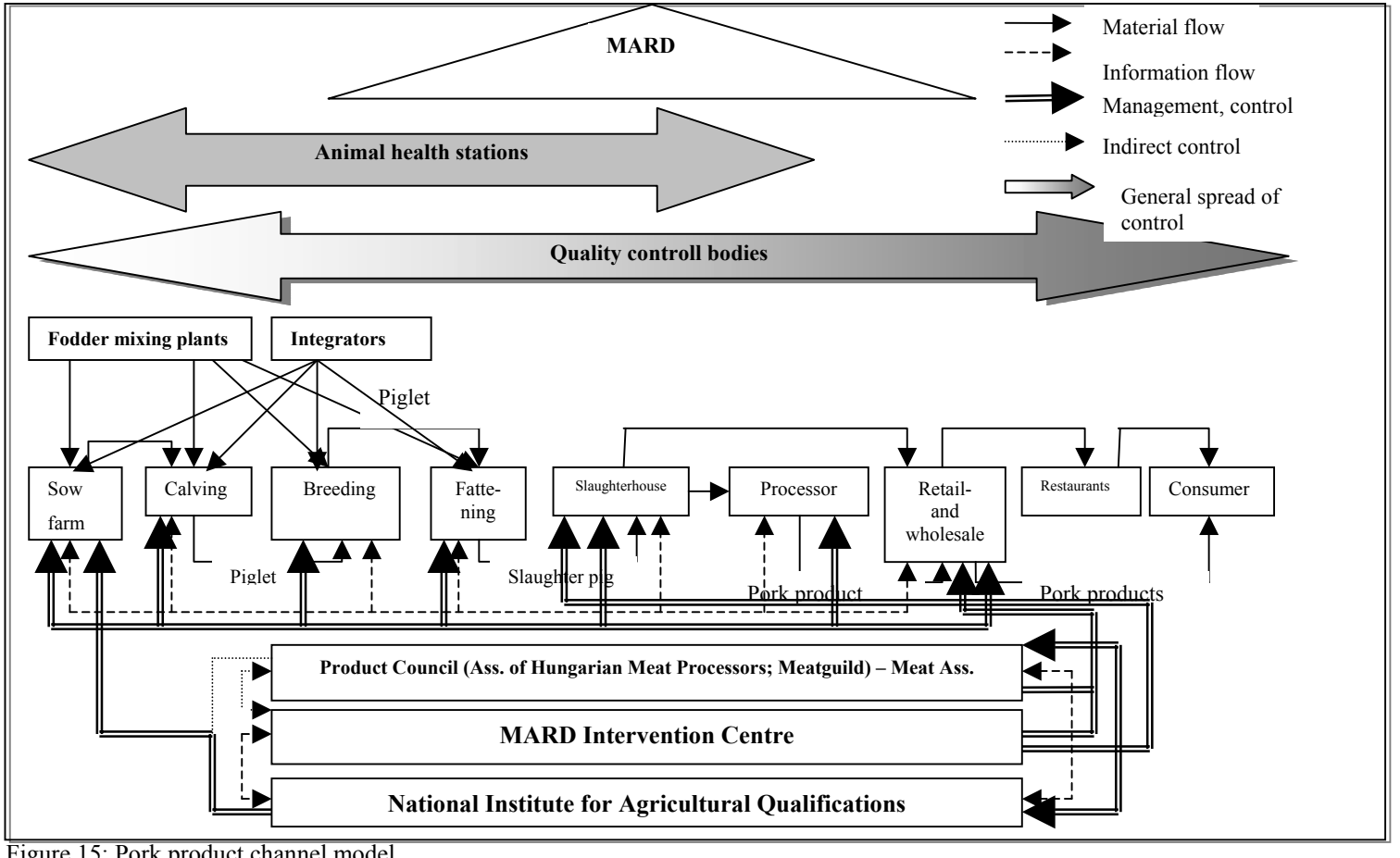


Figure 15: Pork product channel model
Source: Own investigations

3. NEW AND NOVEL RESULTS OF RESEARCH

1. Slaughter pig qualification at procurement and the introduction of the objective SEUROP qualification system differentiated, and also improved the profitability position of slaughter pig production. Investigation results show that thanks to this qualification system the share of higher quality (class E and U) pigs increased considerably in the past few years, and also the profit and competitiveness position of producers of higher quality improved.

2. Procurement prises related to each quality category should be set in sales contract beforehand; otherwise the further quality improvement of the different products of the product channel cannot be guaranteed. Considering the present weak bargaining power of the farmers, the raw material producers are not stimulated to produce better quality animals. Without quality raw material (slaughter animal) the production of good (and reliable) quality meat product cannot be produced.

3. As new participants (supermarket chain stores, hypermarkets) entered the pork sales channel (product channel) and consumers expect high quality product, these demands could only be satisfied by a quality insurance system that is based on partnership in terms of quality. To achieve a coordinated product channel the operation and production of raw material producers should be coordinated on

a higher level and in a more effective way, also in order to increase their bargaining power.

4. Quality data originating from different parts (sections) of the product channel were processed and a common data-base was elaborated to provide basic information for further investigations on the whole product channel, on the other hand data help to elaborate the quality insurance system of the whole product channel. One solution for this problem for the fattening pig producers could be if meat processors (slaughterhouses, canning companies) integrate the raw material producers into their own quality insurance (HACCP, ISO) system.

5. In favour of the quality-oriented production of meat and meat products an integrated (system-oriented) approach should be applied throughout the whole product channel. The reliable system of traceability stands as one pillar of quality control. The elaborated "pork product channel model" helps to draft (demonstrate) all those critical points where one could / should / must intervene in the channel in order to maintain / ensure / control the quality of the products. With the deep understanding of these critical points the lines dividing responsibilities could be drawn and the quality insurance / control system of the whole product channel could be built up.

6. In the future – special quality – production pork products (fattening pigs) originating from organic farms play a continuously increasing role. The mangalica pig variety – that is considered to be a Hungaricum – is demandless regarding production technology, therefore this variety is highly offered for organic production. As the mangalica pig – unlike white meat types – has relatively fatty meat, the SEUROP system could not be applied for qualification. It does not necessarily mean that mangalica pigs cannot have a qualification system that can be applied throughout the product channel.

4. RECOMENDTATIONS FOR THE THEORETICAL AND PRACTICAL USE OF RESULTS

1. The quality of pork raw material (fattening pig) and the pig sector, the economic efficiency and profitability of fattening pigs are closely and positively interrelated. Raw material qualification and all activities in favour of quality improvement should be coordinated to increase the efficiency of pork production and market competitiveness of pork products. The planning / organisation / coordination of such activities requires a theoretical background and official (government) – indirect – coordination and management.

2. As meat quality issues are important at every chain (part) of the product channel, the understanding and acceptance of vertical approach is essential for further developments. Education/training should play a more important role in the formation of attitudes of all participants of the product channel.

3. Pig farmers – primarily small-scale producers – should be convinced that without a proper concentration they have no chance to maintain their activity in the increasing market competitiveness. A common interest representation could be the only alternative for them – therefore certain forms of cooperation and collaboration are offered for them. The information/enlightening of the farmers cannot be postponed any longer; otherwise these producers cannot

survive in the strong competitive situation of the EU markets. It should be propagated and this question should not be only the problem of the farmers.

4. Western-European type producers' organisations and cooperatives would be able to produce not only bigger and concentrated volumes, but also to be more competitive with the higher quality uniform products. Uniform and good quality slaughter pigs could be sold on a higher price; on the other hand relative general costs decrease resulting lower production costs per 1 kg meat. Small-scale (not concentrated) production results weak bargaining power and low profit. The objective qualification of slaughter pigs originating from small-scale production units cannot be guaranteed; therefore lower procurement prices could be expected.

5. The applied SEUROP qualification system of slaughter pigs at sales to the slaughterhouse is the primer interest of raw material producers (fattening pig producers). The advantages of this system and the necessary conditions should be propagated among the farmers to improve their farming position. This task – besides the educational institutes – could be undertook by interest groups or bodies (Chamber of Agriculture, Farmers' Association, Slaughter Animal and Meat Product Council), and by experts of government bodies (Offices of MARD).

6. Farmers should be aware of financial possibilities also in the field of fattening pig production. Quality-based procurement prices stimulate farmers to improve the quality of their products (fattening pig); therefore they should be informed about those factors and conditions that contribute to quality improvement. Besides several factors (feeding, breeding technology etc.) it is essential that quality-based procurement prices are formerly set and guaranteed in contracts for both parties. Concentrated organisations are in a more favourable position regarding this question on both sides.

7. Carcass weight at slaughtering and the lean meat content change in an opposite direction; therefore higher slaughter weight results lower lean meat content (and lower SEUROP quality class). That means a higher slaughter weight is disadvantageous for the farmers. The average lean meat content is 2 % lower in Hungary compared to the EU values. Producers should try to sell their products (slaughter pigs) at a maximum weight of 95-105 kg.

8. Raw material producers are the weakest participants of the pork product channel in Hungary since the system transformation, without receiving any profit part from the increase of consumer prices. Investigations proved that the temporal price formation of these products is almost entirely independent from the producer (procurement) prices of the certain period. A solution for this situation could be offered by a marketing-oriented coordination that

covers the whole product channel and that is based on common profit interests.

9. The spread and the increasing importance of retail chain stores (super- and hypermarkets) even worsened the raw material producers' position. This unfavourable situation will continue until the suppliers of these retail chain stores are characterised with atomistic structure, and several suppliers accept unreal price reductions to beat the weaker competitors. Suppliers may choose from two alternatives: ① some kind of production concentration with the fusion of small-scale producers; ② the establishment of horizontal integration, in a form of producers' organisation or any other cooperative form.

10. Quality control / quality insurance / qualification procedures that are applied at different levels of the product channel together serve the satisfaction of quality-conscious consumers. These activities were performed separately in the past, in most cases independently from each other; therefore the results could not form a uniform system. The unity and efficiency of quality insurance could be achieved if all these data regarding quality control – and originating from the different levels of the product channel – and qualifications were collected in a common information data base. Data in this database could help the elaboration of detailed studies of the product channel, in favour of the quality regulation of the whole product channel.

11. Quality-oriented production requires an integrated (system-oriented) quality system throughout the whole product channel. As raw material plays a determining role in the quality of the end product, one basic element of this system should be the pig producer group, applying the uniform ENAR system for the registration and identification of pigs to ensure an EU-conform quality insurance and control. This system should be general in order to facilitate quality on the different levels of the products channels (and different products of the channel levels).

12. Critical points could be illustrated on a well-designed and well-operating product channel model; on basis of direct producer relations these critical points demonstrate those places where intervention is necessary due to low quality problems. These critical points help to draw responsibility lines and help to establish the quality insurance/control system of the entire product channel.

13. One pillar of the effective coordination of the product channel is offered by the quality control / quality insurance / qualification system that covers the entire product channel; this system could contribute to the integration of certain product channel sections (parts) that are closely related to each other. Until the establishment of this complex quality system, certain system elements could be established and used separately. Such possibility could be offered by the meat processors (slaughterhouses, canning facilities), if they

include raw material producers into their own quality insurance (HACCP, ISO) system.

14. The traditional mangalica pig variety could be a unique product (Hungaricum) in the future, in case the conditions of organic farming are created. Due to the special characteristics of the mangalica meat a different qualification and quality insurance system should be elaborated, where primer attention is paid to quality requirements of organic products.

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