

**University doctoral (PhD) dissertation abstract**

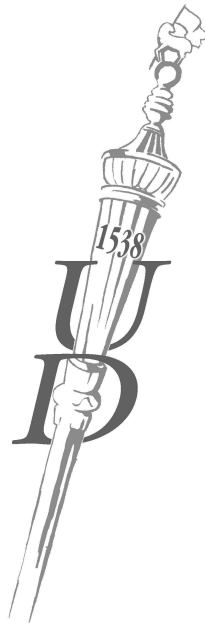
**CHANGE OF ECONOMIC RULE OF AGRICULTURAL  
COMPANIES AND PRIVATE FARMS, ESPECIALLY  
ANIMAL HUSBANDRY**

**Mónika Harangi-Rákos**

Supervisors:

**Prof. Dr. József Popp**

**Prof. Dr. Gábor Szabó**



**UNIVERSITY OF DEBRECEN**  
**Károly Ihrig Doctoral School of Management**  
**and Business Administration**

**Debrecen, 2013**

## **1. Background, objectives of the study and description of the study hypothesis**

As an effect of the end of communist regime and the EU accession Hungarian agriculture went through significant changes. Following the end of communist regime the structure of economy was changed, where the most important factor was the change of ownership. Today all forms of enterprises can be found in the agriculture with 567 000 private farms and 8 600 agricultural companies (data from 2010). The number of private farms decreased in the past few years, but still one third of Hungarian households are affected in agricultural activities. Larger proportion of agricultural area and the 70 and 80% of vineyards and fruit orchards are cultivated.

Together with the change in farm structure unfavourable processes were generated in animal husbandry. The main reason for this was that animal husbandry and plant production were divided. After EU accession the status of animal husbandry further failed. The new member states (including Hungary) could not compete with “old” member states. Hungary had to face with its antecedent fragilities in competitiveness like pure organisation and facilities, old technology, defective logistic system and fragmented farm structure. As an effect of the changes mentioned above the role of animal husbandry decreased continuously. These problems were primarily hit the private farms, therefore in the course of time their number and rate decreased continuously. Meanwhile one shall not forget that still these farms hold the significant part of the country’s animal stock, with an outstanding role in sheep production.

In the last decade the drastic drop in the stock of pigs and poultry caused the largest problem, particularly in private farms, making the livelihood of several families impossible. While in case of cattle and sheep stocks the share of private farms was slightly progressed (almost 90% of the sheep stock is owned by private farms), their role in pig and poultry sector decreased significantly after EU accession. The significant drop in forage feeding animal stock of private farms can be explained with more reasons: on one side before EU accession these sectors received a very heavy state aid, while in the frame of CAP the right for the direct aid is only for ruminants. Meanwhile the

EU regulations concerning manure handling and placement and animal welfare brought non-bearable investment requirements for smaller farms.

*The main structural problem of Hungarian agriculture is caused by the crisis of animal husbandry now lasting for two decades.* Position of the Hungarian animal husbandry is continuously worsening from the EU accession. Its share from gross output of the agriculture is relatively low that primarily can be explained with unpredictable income situation. With the reducing space for animal husbandry the animal stocks decrease, and in parallel with the production of slaughter animals and products of animal origin.

On the whole it can be declared that several smallholders started their activity after the end of communist regime, their numbers started to drop around the turn of the millennium and this tendency is still lasting. This can be explained with the concentration process and the gradual disappearing of incapable smallholders. *The primary task of agriculture is food production, meanwhile his sector also ensures the carrying capacity of the countryside, holds and generates workplaces moreover protects the landscape and the environment.* Despite the unfavourable output and efficiency index of the private farms compared to companies, they still play a significant role in Hungary's agriculture.

*The aim of this PhD thesis* was to study the economic role and status of private farms and agricultural companies in the period after the turn of the millennium, especially during the years after the EU accession. During my research – through my attachment to family, relatives and friends – I found it more and more acute to show all these through the change in the position of animal husbandry. There are several farmers and companies around me who are working in the animal husbandry sector. During the consultations with them it became obvious that it would be useful to pay more attention on animal husbandry and within the animal keeping of private farms. It is not only reasonable talking about economic policy in this case, but also the modified social moral. Nowadays only few young professionals want to work in agriculture, and even less in animal husbandry, because of the agronomic factors typical of this sector.

Even the government has set the target to increase the rate of animal husbandry with the implementation of more measures. One of these measures was the repealing of the local government restriction to keep agricultural livestock near the house. This was arranged so that wellbeing of the neighbours shall not be disturbed and the animal holders meet the requirements concerning animal and public health and environment. By encouraging the animal husbandry around the house the main goal is to increase the appreciation of agricultural activity and population retaining ability of the countryside. In 2012 the government approved the “swine program” that aims the increase in swine population.

*The goal of this study* is to demonstrate, what changes the Hungarian agriculture went through and how these changes affected private farms and companies. *Furthermore the aim* is to reveal those factors that led and still lead to the ever smaller proportion of animal husbandry and its problems in agricultural production. The final goal is the development of the sector, strengthening its position and with that the improvement of its opportunities on both the national and international market.

*The sub-objectives related* to this can be determined as follows:

1. Introduction of the position of Hungarian agriculture after the turn of the millennium.
2. Examination of the modification in agricultural gross output and production structure.
3. Examination of the role of private farms and agricultural companies in animal husbandry.
4. Examination of farm structure in EU-27.
5. The situation of animal husbandry of private farms and agricultural companies and the examination of their future in Northern lowland of Hungary.

In order to meet the goals for the *secondary study* a hypothesis was determined:

**Hypothesis 1:** The decline in livestock is likely to continue at the expense of self-sufficient and partly goods-producing farms.

During the *primary study* I strived to prove the following two hypothesis:

**Hypothesis 2:** In the Northern great plain region at agricultural companies the further decrease in livestock is not expected.

**Hypothesis 3:** In the Northern great plain region the private farms, lacking the resources for other incomes are still bound to animal husbandry.

## **2. Database and introduction to applied methods**

### **2.1. Database and methods of the secondary study**

In the third chapter of this study the output and structural changes of the Northern great plain region was examined supported by professional literature. The results based on comparative and time series analysis were supported by simple statistical methods. The period between 2000 and 2010 was in the focus of the analysis, as the period before was already examined by several studies (AKII, 1993; AKII, 1994; ALVINCZ et al., 2002; BUDAY-SÁNTHA, 2001; KAPRONCZAI, 2003; NÉMETI, 1992, NÉMETI, 2003; SZABÓ, 2001; TAKÁCS 2005b).

In the fourth chapter a comparative analysis was performed for the farm structure of the EU-27 and for the output of domestic agricultural companies and private farms, furthermore the composition of the farms of Northern great plain region.

During the processing of professional literature the domestic and international studies, reports and scientific publications were examined. During this analysis beside Hungarian farm structure the other goal was to present the farm structure of EU member states. The position of agriculture and the change in farm structure were elaborated with the help of several sources (scientific reports and agricultural economics reports of the Ministry of Rural Development). The scientific reports of the Research Institute of Agricultural Economics (AKI) also helped, that provided detailed information on the Hungarian agricultural sectors, meanwhile the more important market processes could be followed.

For collecting statistical data the Information database and stADAT tables of the Hungarian Central Statistical Office (KSH), the data of the Farm Structure Survey between 2000-2010, and the AKI Farm Accountancy Data Network were used, while international data are taken from the database of EUROSTAT, USDA, DG AGRI online.

## 2.2. Circumstances of primary study and the sample

For primary study the qualitative method was selected that is a raw, revealing type examination method based on a small number of samples and serves the understanding of the problem. In the frame of the qualitative method semi-structured in depth interview was selected. First of all this decision of using semi-structured in depth interview was made because it provides a good possibility for the verification of professional literature data, by providing that those being involved can tell their opinion and experience on their own. Opened questions were used wilfully in a large number in the interviews, as in my opinion this is the way to get such information that could support farmers' job in the future. The answers given for opened questions can be considered as honest and objective as during the interview the persons were ensured that their identity will be undisclosed.

The position and revealing the problems of animal husbandry were the topic of several researchers before (ALICZKI, 2012; NÁBRÁDI et al., 2012; POPP et al., 2010; ALICZKI et al., 2009; BÉLÁDI et al., 2009; POPP et al., 2009; DORGAI (szerk.) et al., 2009; HORN – JANOS, 2008; NÁBRÁDI – SZÓLLŐSI, 2008; SZÓLLŐSI, 2008; VŐNEKI – PAPP, 2008; BITTNER – KOVÁCS, 2007; KOVÁCS, 2007; NÁBRÁDI, 2007; NÁBRÁDI – SZÓLLŐSI, 2007; POPP et al., 2007; SZÚCS, 2007; NÁBRÁDI – BÉRI (szerk.), 2006; SZÚCS (szerk.), 2005; KARTALI (szerk.) et al., 2004a; 2004b; POTORI (szerk.) et al., 2004; POTORI – UDOVECZ (szerk.), 2004; NYÁRS et al., 2004; POPP, 2000).

*The main goal of this study was to represent how the people acting in animal husbandry conceive their own position and on their opinion what are the main problems that led and still lead to the drop in animal husbandry.* Private farms and agricultural companies were also questioned. I found it important to discover the reasons of the phenomenon that the number of private farms dealing with animal husbandry is decreasing, while agricultural companies – despite their losses – continue their activity in animal husbandry and even make new investments. The countrywide examination of the changes in the

rate of private farms and agricultural companies was performed by animal species by reviewing professional literature.

*The studies were performed in the Northern great plain region both among private farms and agricultural companies holding poultry, pig, cattle and sheep.* In private sector family farms, primary agricultural producers and private farms were questioned. In case of agricultural companies Ltd-s, Joint stock companies and Co-operatives were represented. In private farms I asked the “manager” of the farm, while in agricultural companies I made the interview with the manager of the plant or with the sector manager. In relation to the sample, 60 farms primarily engaged in animal husbandry were visited (*Table 1*). Among the respondent private farms and agricultural companies 24 farms were involved in sheep, 16-16 farms in cattle and pig and 4 in poultry. The database has been created based on data collected during the interviews.

**Table 1: Number of interviews in the Northern great plain region**

Item	Hajdú-Bihar county	Szabolcs-Szatmár-Bereg county	Jász-Nagykun-Szolnok county	Total county
<b>Total</b>	36	12	12	60
<b>Private farms</b>	26	8	9	43
<b>Agricultural companies</b>	10	4	3	17

Source: Authors’ own construction based on database of interview, 2013

The sample has been selected by simple random sampling. Meanwhile the selection of farms was based on the database of Farm Accountancy Data Network of the Research Institute of Agricultural Economics. Those farms were involved which reached or exceeded the EUR 4 000 Standard Total Production. The 60 interviews were performed by personal visit, and the time interval was between 50-210 minutes.



The interviews were taken between September 2012 and February 2013 on the following settlements: Baktalórántháza, Balmazújváros, Berettyóújfalú, Csaholc, Debrecen, Debrecen-Bánk, Debrecen-Józsa, Derecske, Hajdúbagos, Hajdúböszörmény, Hajdúböszörmény-Bodaszőlő, Hajdúdorog, Hajdúnánás, Hajdúszoboszló, Hajdúvid, Karcag, Kálmánháza, Kisújszállás, Konyár, Kunhegyes, Kunszentmárton, Mátészalka, Nagyhegyes, Nádudvar, Nyíradony, Nyírcsaholy, Nyíregyháza, Penyige, Szerep, Tedej, Téglás, Tiszacsege, Tiszaeszlár, Tiszalök, Tiszavid, Túrkeve.

Questions were grouped around four topics:

- *General questions* concerning the data and farm of the respondent.
- *Skills and know-how in the sector*: questions focused on how much the respondent follows the general situation of Hungarian animal husbandry and how deeply knows its problems. Within this frame it was asked that how the farm sees the problems of animal husbandry and within the sector it is interested in.
- *Production standard, environmental protection, product path*: by asking these questions primarily the level of farming and the planned areas of development. Furthermore it was also examined how they judge the position of the sector considering product path.
- *Vision*: here the future plans and expectations were the main questions.

In the general part of the interview the data of the questioned farm and its manager were assessed. This question particularly concentrated on age, level of education, time spent in the sector, size of the cultivated land, factors of forage farming and labour force. In case of private farms I found that succession is one of the main questions and also that what is the reason why the private holding is engaged in animal husbandry (this argument is detailed in the verification of hypothesis). In relation to the age structure of the interviewed persons it is generally considered that 17% of the respondents were over 60 years of age, 45% were between 50 and 60, 30% were between 30-50 and only 8% were in the age category under 30. The respondents under 30 years of age (5 persons) took over an already operating farm to continue the family's previous animal husbandry activity. Considering age composition similar values were detected to the published studies of KSH and AKI. In the publication of BÍRÓ – SZÉKELY (2012)

according to data from 2010 7% of the managers of the farms were younger than 35 years, 14.5% of the farmers are between 35-44, 21.1% were between 45-54, 27.9% were between 55-64 and 29.4% of the farmers were older than 65 years of age.

Considering education level all the respondents had more education than primary school. 17% of the interviewed persons had an education of skilled worker, 35% graduated in secondary school, 7% were technicians and 25% made a degree in high school. 16% of the respondents had university degree. An important fact is that all persons with university degree worked at agricultural companies. In the publication of BÍRÓ – SZÉKELY (2012) the picture is less friendly considering education. Among the farms examined in 2010 (576 000) 77.6% have only practical experience, 7.8% has no agricultural education, 5.0% has a basic education, 6.3 and 3.3 percent have secondary and higher education.

More than 80% of the respondents work in animal husbandry for at least 20 years moreover most of the questioned smallholders work on this field from their childhood. 5% of the respondents (3 persons) farm for less than 5 years, they all were in the 30 years under age category. Private farms primarily use family manpower, 30% had permanent staff and 45% periodic employee. In case of agricultural companies in the given sector the average number of employees varied between 25 and 40 persons.

### 3. Major findings of the evaluation

#### 3.1. Secondary study

My study analyses the change of the farm structure of the Hungarian agriculture, particularly the animal husbandry.

*During the secondary studies the situation of the Hungarian agriculture was presented between 2000 and 2010, furthermore the changes in the structure of economy was introduced in Hungary and in EU member states. Considering EU states Hungary is among the countries with relatively advantageous ecological capacity. Approximately 60% of the country is productive land area, among EU countries only Denmark and Great Britain have a higher rate. Hungary shares not more than 3% of the whole agricultural area of EU member states, nevertheless the country plays a significant role in the production of some products.*

Examining the economy of EU member states it is clear that 80% of the farms have an agricultural area smaller than 10 hectares, 14% are between 10 and 50 hectares and 3% between 50-100 hectares. The rate of farms with an area over 100 hectares is only 3%, meanwhile these farms use 50% of the agricultural area. The farm structure of Hungary and EU-27 have been described in this essay. *It can be declared that the Hungarian farm structure is unique in the European Union.* The 87% of the farms have an agricultural area smaller than 5 hectares, 2.4% have an area bigger than 50 hectares (the 50% of the area is cultivated). Notwithstanding the dual farm structure in Hungary the farm structure has been fragmented, *allowing that when reviewing the measure of economic threshold is very low considering the Union's level.* It can be attributable that the concept determined in the Hungarian and European Union statistics of farms significantly differs from the definitions used in goods-producing industries. *By the examination of the data of General Structure Surveys from the year 2010 it is clear that Hungary would even correspond to the 98% coverage even if the minimum level would be set at 1 hectare.* In this case the number of examined farms would decrease by 415 219 private farms and agricultural companies (72% of private farms and 0.4% of companies would be out of the concept of being a farm).

Based on the data by Farm Structure Survey of KSH from the year of 2010 the number of farms managing in a territory under 1 hectare is 415 219 while the size of productive land area used by them is merely 84 567 hectares. During the determination of economic threshold also political motivations could have a role, namely instead of output the number of farms is the priority. The gross output and gross added value reflect efficiency much better than the number of farms.

Originated from the nature of economic reform after the end of the communist regime an inconsistent dual economy was formed. Between the large number of smallholders and few large agricultural companies (with dominant role) the strong segment of small and middle-size companies is missing. Several smallholders started their activity after 1990, but their numbers started to decrease at about the turn of the millennium and this tendency continues until today. This can be explained with continuous concentration and the disappearing of incapable smallholders. In Hungary in great majority the senior age-group over 55 years make agricultural activity, mainly in private farms. At the turn of the millennium the rate of smallholders over 55 years was 49.9%, in 2010 this number was 57.4% that forecasts the insenescence of the Hungarian agricultural society BÍRÓ – SZÉKELY (2012). Even though the primary task of agriculture is food production we cannot forget that this sector also ensures the carrying capacity of the countryside, holds and generates workplaces moreover protects the landscape and the environment. Consequently, despite the unfavourable output and efficiency index of the private farms compared to companies, they still play a significant role in Hungary's agriculture.

By the analysis of the farms concerning their production type it turns out that between 2000-2010 the rate of plant producing farms remained the highest in both farm categories, moreover their rate increased with approx. 10-10 percent point. In 2010 quasi half of the private farms and agricultural companies were in this farming type. Main reason for this process is that the Common Agricultural Policy (CAP) primarily supports the cropping of GOFR plants. The rate of mixed agricultural enterprises slightly increased at agricultural companies while it decreased at private farms, the measure of decreasing was the same as the increase in plan/crops production

private farms (certain part of mixed agricultural enterprises ceased the animal husbandry and changed to the more profitable plan production profile). *In the livestock farming the proportion of private farms remained at 22%, while in case of agricultural companies this value decreased to 5.5% (from 9.6%), notwithstanding two third of the stock is owned by agricultural companies.* The farm type that provides agricultural services at private farms is still considered as unique (0.1%) and the role of this farm type has been also decreased by almost 60%.

Nowadays, examining all the private farms it is obvious that with the significant decrease in the number of farms, considering the goal of farming the ones aiming exclusively personal consumption showed only minor change in the examined period (60.2%). *Contrarily the rate of producers primarily producing for sale has more than doubled (19.5%) while the rate of farmers that sale the products exceeding personal production decreased by 12%. Consequently the focus by commercial objective starts to shift towards production of goods promoted by rearrangement of evolving farms which sale the exceeding products.*

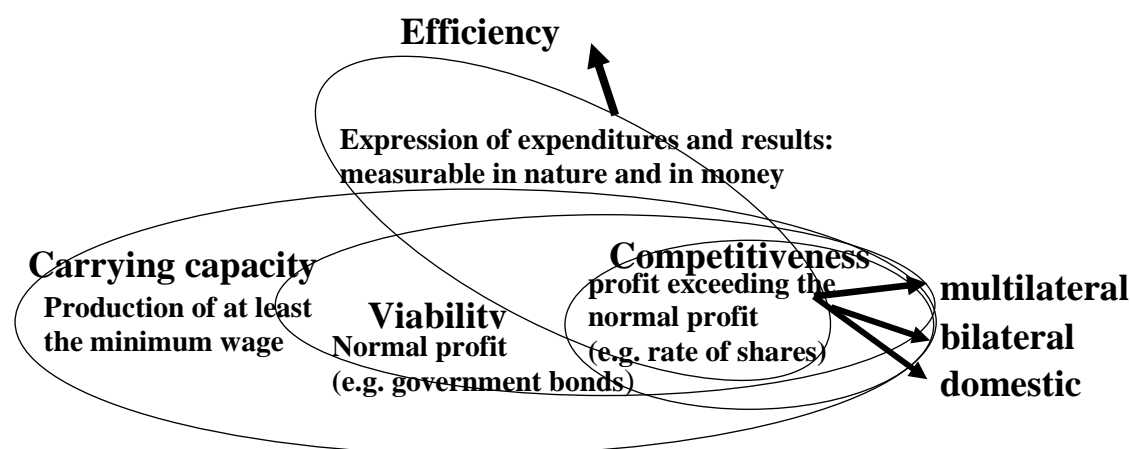
### **3.2 Primary study**

The interviews described above were the basis of this primary study. After the elaboration of the interviews the SWOT analysis and problem tree of the private farms and agricultural companies operating in animal husbandry have been developed based on the results. *During the interview several arguments supported the revealing of the problems, like routine in the sector, proficiency.* Questions focused on how much the respondent follows the situation of Hungarian animal husbandry and how deeply knows its problems. Based on the interviews the decrease of the competitiveness of animal husbandry farms has been considered as the main problem.

In my essay under the definition of competitiveness the following coherences were considered. In the international literature there is no definition generally approved and applied for viability. In a competitive market the viability depends on technological selection. The lack of viability can be the result of the deficiency of the

management, the incentive mechanism, the ownership structure or the government involvement (POTORI et al., 2004). The farm can be non viable with an adequate management when acting in a sector which benefits a competitive advantage. The economy is viable when by the effective allocation of the available resources, it produces a profit for the society that does not differ from the ordinary profit. Generally, the profit not different from the ordinary one, acceptable for the society is the interests of government bonds. There is a difference between viability and carrying capacity. The condition of the carrying capacity of the given economy is to produce the minimum wage and the payment of the employees' salary. In lack of the above mentioned criteria the undertaking is considered non viable.

The viability is necessary to retain the market. The capacity to increase the domestic and/or foreign market share means the competitiveness of the undertaking. The viability is the precondition to keep the increase in market share profitable. Therefore an economy is viable if on the free market it is able to have a profit exceeding the ordinary profit, acceptable for society. For example at the undertakings acting in the form of a corporation, the rate of the shares reflects the capacity of the undertaking. Today the multilateral competitiveness is dominant, because it means a comparative advantage in a longer term. The economic efficiency is an important, but not sufficient indicator of competitiveness (*Figure 1*). The efficiency respect to (international) competitors determines the (international) competitiveness.



**Figure 1: Relation of efficiency, carrying capacity, viability and competitiveness**

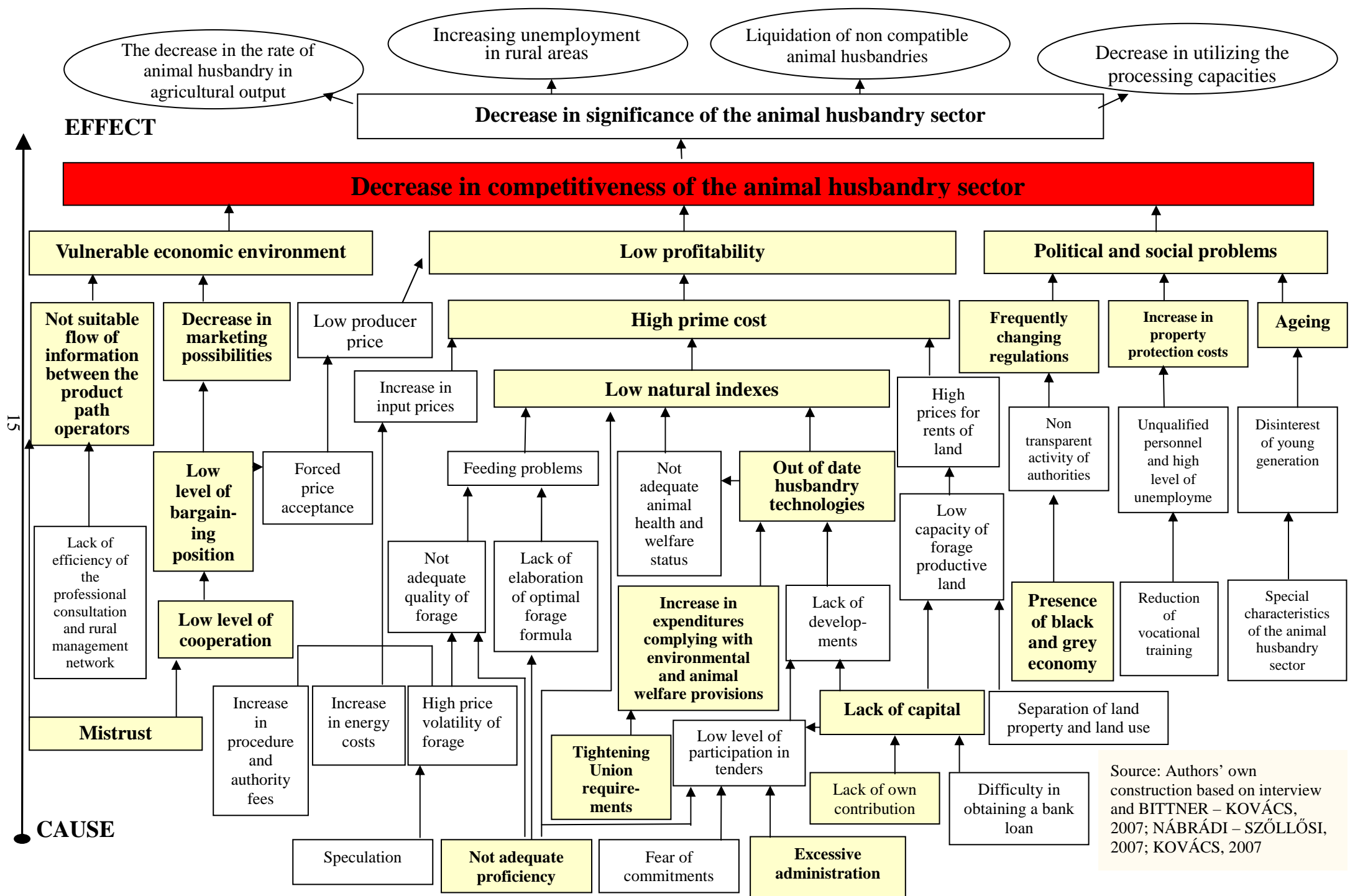
Source: POTORI (2004)

Three main reasons were determined as main causes (Vulnerable economic environment, political and social problems and low profitability) that were clearly supported by the interviews.

*As determining factors both the private farms and agricultural enterprises signed* vulnerable economic environment (*Figure 2*). However this can be vitally originated in the lack of trust. In case of private farms the main problem is vulnerability as the level of co-operation is very low and it results their low bargaining power on the market. Consequently their marketing channels are continuously narrowing. Most of the smallholders suffer from the lack of strategic way of thinking, their farming is characterized by short term approach, the main goal is to survive.

In my opinion *one of the main reasons of low competitiveness is the lack of cooperation*. Compared to international rates, those smallholders are profitable that cooperate in the continuously changing economic environment. By the cooperation the smallholders can obtain a more favourable position in distribution and procurement. The smallholders could acquire the raw material on a lower price (decreasing their costs), homogeneous products could be manufactured that could be distributed on a higher price, in order to increase the profitability. By the integration the advantages of economies of scale could be also utilized. Therefore the primary objective is the improvement of competitiveness. By this way the products can be reintroduced in the Hungarian market, creating new workplaces. The private farms should recognize their common interests and the advantages of common distribution of products. The lack of cooperation causes the increase in vulnerability and the lack of numerous homogeneous products. In the common market the competitors are able to entry with cheaper product, therefore the domestic producers would be forced out of their previous market areas.

The problem of vulnerable economic environment is emphasized particularly by the agricultural companies, because they are not able to plan their incomes and expenditures in advance. Consequently the profitability of their activities can not be estimated which causes the decrease in investment intentions.



**Figure 2: Problem tree of private farms and agricultural companies operating in animal husbandry**



*Other reason of competitive disadvantage is the low profitability.* The income of the farms depends on revenues, production costs and available subventions. The analysis of costs-income of farms operating in animal husbandry show an increasingly worse income situation in the examined sectors. Notwithstanding the income situation of farms operating in milk production and pig growing has been improved in 2011, most of the farms had no profit. The subvention generally meant the minimisation of losses or net income itself. In the examined region (Northern Great Plain) a trend similar to the whole country can be detected.

The basic problem is originated from the low producer price, contributing the force to accept the given prices. Accepting the given prices can be explained by the low level of bargaining position that can be explained by the lack of co-operation. Most of the producers can only make some income merely through subventions. The unfavourable price rate of products of animal origin (milk, live animals, wool, feather, etc.) and input materials shall also be mentioned. This can be originated primarily from the low efficiency, the anachronistic technology and the lack of sufficient professional knowledge. Both in animal husbandry and plant production the productivity is significantly affected by the fluctuation of producer price. Even the increasing producer prices can make the income situation of the sectors better as this shall be examined together with the flow of production costs.

The other reason for low profitability is the high prime cost that is caused by more factors (weaker yields, weakening of natural efficiency index, the unbalanced input prices and the narrow area for planting feed. As a consequence of separating from plant production many smallholder and agricultural company became vulnerable. It is a huge problem for farmers to produce the feed for their own stock. These days the main difficulty of gaining of land for private farms is primarily the capital shortfall. The private farms often have no own land property, or are able to produce smaller quantity of forage on their own land that would be necessary for the livestock. Frequently they cultivate (also) rented land which entails major costs for farmers because of higher land rent costs. As they are not able to produce the whole feedstuff necessary for their livestock on the land that is used

by them, some percentage of this area they must buy on a high price. The costs are mainly determined by forage prices. The purchase and production price of mass feeding and forage in the past 3-4 years were increased significantly. This process is also strengthened by the continuous increase in Word's population. Meanwhile the increasing energy costs (fuel, electricity, etc.) contribute to increasing costs. The volatility of feed prices is a key issue for all sectors of animal husbandry. The continuous increase in the purchase price of protein resources (soyabean, sunflower and rape meal) particularly increases the cost price of pig and poultry meat production.

Buying soil is a problem also for agricultural companies, mainly because of the valid land law than the capital shortfall. The actual land law restrains the possibility of obtaining land for independent animal husbandry farms (when operating in the form of agricultural company). In my opinion the re-rent of public land with expired rent agreement can represent a possibility for animal holders. Aim of the tender is to promote the access to land of livestock farmers, for which the tenderers shall submit a declaration to the National Land Fund (NFA) that within one year from the execution of the agreement concerning the real estates that are part of the tender after every second hectare of land keeps a stock of 1 large animal unit (1 IU) during the validity of the lease agreement (NFA, 2013). In case of agricultural companies the cooperation of plant production and animal husbandry is considered a relevant problem.

Low natural indicators are influenced by breed, housing technology, level of feeding, the professional knowledge and other outer factors. (e.g. weather). *The largest problem is the outdated housing technology and the lack of professional knowledge.* Because of outdated housing technology farms cannot fit with the ever stronger EU regulations. It would be important to develop the production level for being competitive against competitors producing more effectively. Lack of capital does not allow development, investment, product development and marketing, as the credit rating of the sector's operators is too weak, they continuously fight with solvency and financing problems. At the same time the producers can improve their resources by an EU subvention. The Programs I-IV of ÁTK (modernisation of agricultural holdings) have provided and provide possibility for farms to be able to

meet the environmental and animal welfare requirements by development of husbandry technologies. These developments allow the more comfortable housing, improvement in welfare, natural behaviour and a healthier food of animal origin that finally helps in reaching higher yields and the improvement in profitability.

My researches verify that the high authority fees, the taxes and contributions, the unemployment and the fulfilment of rigorous animal welfare and environmental requirements jointly lead to the creation of black and grey economy. The main objective of all operators of the product path is the profit maximalisation. First of all, illegal slaughtering (e.g. pig), untraceable pedigree and trading without invoice can be mentioned. Farmers also want to benefit from this situation therefore in case of the members of production groups we can see that often they sell their products not to the co-operative but - with the hope of better price - to an “outsider” purchaser. The main reason for this is that - as mentioned above - the co-operative is connected to a major purchaser, who does not provide the highest producer prices for the farmers achievable on the market. Beside paying taxes the high cost of living labour is another problem that enhances illegal or “quasi illegal” occupation. Black economy makes integration, concentration, effective representation and enforcement of interests harder on the product path. In case they share the VAT (27%), the price is too high for the legally operating processor as he is not able to increase the price with 50% of the VAT.

The consequence of the problems mentioned above and also the increasing unemployment, the low salaries is the decrease in property safety. In the opinion of the respondent agricultural companies a significant amount shall be provided for property protection as with the decreasing level of public security the agricultural plants, machines, equipment, animals, input and output materials are subjected to high risk. Setting up security service, the creation and operation of property protection alarm systems and fences, the saving of each equipment can reach high costs.

The position of those farming in animal husbandry is not eased by rapidly changing system of regulations and lack of transparency. Following EU accession the more rigorous requirements and

administrative obligations charge livestock farmers so much that they can hardly or never fulfil. In Hungary the operation of companies are charged with significant administrative obligations, that was agreed by both private and company holders. For stockmen it takes a lot of input in time for the administration necessary for complying legal requirements. Complying with ENAR system, filling the forms of different subventions (e.g. restructuring subvention for ruminants) problems in the elaboration in each tender (e.g. subvention for the reconstruction of livestock farms), making and operating quality assurance systems and complying with the demands of each authority all mean a continuous pressure.

*Meanwhile we shall not avoid social problems.* The aging agricultural society and the disinterested young generation is an increasing concern both in Hungary and in EU countries. This is particularly true in case of those who work in animal husbandry. Aging is typical in both private farms and agricultural companies. The reason is that only few young professionals are willing to continue agricultural activity after older farmers retire. As the main reason the agronomic factors typical to animal husbandry can be mentioned. Meanwhile generation problems have other consequences. In many cases for elderly people it is more difficult to accept new technology and they are not that much opened for new professional knowledge. They insist in history, traditions and wrong practices. Moreover the lack of professional knowledge is an important aspect. The low level of professional education is especially typical in private farms. There are no general consultancy and training systems have been developed in agricultural secondary and high-school that would prove the continuous professional training for farmers after leaving the institution (lifelong learning program). *For keeping and increasing competitiveness the continuous training and openness for new technologies and procedures are necessary.* As a reason for the high rate of older generation most of the farmers mainly or exclusively base on their activity to the old experiences of their own or their relatives. They do not take a risk and adequately adapt to new challenges.

As a result of low professional knowledge unreliability of workers causes a problem in agricultural companies. Agricultural enterprises cannot provide higher salaries for their employees because of low

profitability, therefore in many cases the employment of professionally well educated, responsible and trusty professionals is not possible. Consequently it is difficult to find a person who takes a job in agriculture who is prompt, able to think and act individually and is willing to keep technological elements.

It can be stated that the farms of the Hungarian animal husbandry which produce on high level and efficiently, are compatible with international market operators. In the Hungarian animal husbandry there are efficient farms that are compatible with international market operators. In this frame there is about 20% of pig production, 35% of poultry production and a part of milk production. The internationally competitive farms - beside excellent genetics - own the most updated housing and feeding technology and professional knowledge. On the costs side the effectiveness of feed production and feed conversion rate shall be increased in order to improve both the natural index of private and company owned farms. This is also important because the profit earned by the farmer will be more and more determined by the income ensured by retail prices, and the reaction of farms can be only the cost-effective production and expansion of vertical relationships. The questioned farmers as basic reason for increasing cost price signed the continuous increase in feed and energy prices. According to the above mentioned problems the question comes up more and more frequently: why do they continue animal husbandry with uncertain and continuously failing income situation.

The interviews include the evaluation of effects of EU accession. According to 80% of the respondents Hungarian animal husbandry has lost position with the country's EU accession as the products coming from abroad led to a more serious competition and in some aspects we can talk about loosing markets. 20% of the people asked think that the effect of accession cannot be definitely judged. The sector has won in the aspect that EU markets have been opened that makes the Hungarian products to enter into the market easier. Subventions make the farmers' income situation better and help in the solution of their temporary solvency problems. According to most of the respondents the most strict market protection (quantity and quality limits) shall be applied. Meanwhile it shall be stated that practically there is no possibility to do so within the EU (there is a limited

possibility of quality control). Beside the positive effect of opening markets the risk of importing products of uncertain origin and poor quality can be mentioned (“scandal upon good quality meat”, changing the colour of pig meat, taking into market of tainted meat). Furthermore in the interview it was evaluated how the managers of agricultural companies see the housing, feeding and animal health status of their farms. During the cross-table analysis at the answers given to each questions the significant differences were analysed by chi-squared test by age and education level. By the answers it can be stated that level of *housing technology* in their own farm was judged high by 18%, medium by 70% and low by 12% among private farms (“I cannot judge” category was not selected by anyone). In case of agricultural companies there were answers of two kind: 41% judged the level of housing technology high, while 59% said it is slow. Examining of the answers of private holders according to age and education level we can say that (on 10% level) there was a significant difference between the opinion of respondents under 50 and over 50 years of age. The analysis based on age and education level demonstrated that in relation to the agricultural companies there was no significant difference in the level of husbandry technologies.

The *evaluation of animal nutrition* status is similar in case of the private farms and the agricultural companies. Among private farms the feeding level was considered high in 33% and average in 67%. In case of private farms a significant difference was revealed in relation to the evaluation of feeding level ( $P < 0.01$ ) during the analysis by education level. The 47% of agricultural companies consider the level of feeding high, and 53% consider it as average. In case of agricultural companies the proportions are similar in relation to the *evaluation of animal health status*. The private farms considered better their animal health status compared to the level of feeding. The 42% of respondents considered high, the 58% considered average the animal health status. There was no significant difference at the analysis of animal health status by age and education level.

Contrary to what is declared above, the questioned private farms would like to improve the level of housing technology, genetics, animal health, animal welfare and environment protection, even so 42% of the respondents evaluated the level of animal health as high.

The agricultural companies intend to improve particularly the level of feeding, animal health and genetics. The improvement of husbandry technologies is in progress at most of the agricultural companies, thanks to the EU tenders.

Reveals the question if the private farms are able to evaluate realistically their position. Based on the replies the private farms considered their position high or average in relation to feeding, husbandry technologies and animal health. In many cases the livestock farmers overrate their circumstances and capacities, therefore it is not sure that they view their own position realistically in the international market that could be an obstacle with their competitiveness decreasing.

### **3.3 Verification of hypothesis**

In relation to the secondary study a hypothesis was determined:

***Hypothesis 1:** The decline in livestock is likely to continue at the expense of self-sufficient and partly goods-producing farms.*

The main structural problem of Hungarian agriculture is caused by the crisis of animal husbandry now lasting for two decades. After the end of communist regime the biggest recession was detected in animal husbandry sectors. The decrease in animal stock was higher than never before. The cattle and swine population were reduced following EU accession, respectively by 6% and 22% for 2010. From 2010 the cattle population is slightly growing. However the swine population reduces continuously and in 2012 has not reached the No. 3 million. The stock of poultry reduced by 3% from 2004 to 2010, then a little increase was detected, but in December of 2012 the stock was reduced again. The quantity of sheep stock was significant in the year of accession, but following the accession the stock has been decreased.

Examining the livestock by types of farming it can be detected that in 2012 66% of the livestock was at agricultural companies and 34% was at smallholders. Within agricultural companies a significant amount of

the animal stock (almost two third) is in Ltd. property. *At private farms of cattle and swine farming the number of farms with 1-9 animals have been principally decreased. A similar tendency (decrease of 38%) can be observed at the category of farms with 1-99 hens, which is the typical size that serves one family.* Meanwhile the number of private farms keeping sheep in almost all category. The number of farms keeping more than 1 000 sheep decreased significantly, mostly because the agricultural companies eliminated their sheep stocks. *“The decline in livestock is likely to continue at the expense of self-sufficient and partly goods-producing farms” has been partially verified.*

To prove the 2nd hypothesis the answers are found in questions asked in the fourth section of the interview (vision).

***Hypothesis 2: On the Northern great plain region at agricultural companies the further decrease in livestock is not expected.***

In the fourth part of the interview questions focused on the future plans of private farms and agricultural companies. None of the agricultural companies plan to stop animal husbandry activity or the cutback of their stocks. Main goal at the companies is economic production. Most of the companies acting in animal husbandry are loss-making, in such cases liquidation could be the rational solution, however this means significant costs and losses. During the liquidation process the stock is marketable (although on a lower price) but the buildings and equipment usually cannot be sold. Accordingly debt service charges and preservation are charged to the company. Therefore they rather undertake the less wrong decision and continue non-profitable production for years.

The loans previously obtained and the obligations committed can also prevent the final liquidation of animal husbandry. All the questioned companies have benefit some subventions for animal husbandry (modernization of livestock farms, preservation in breeding the genetics of protected native and endangered agricultural animal species). The goal of the subvention published in 2007 for the modernization of livestock farms is the modernization of the farms in



order to comply with the regulations concerning manure placement, to improve the feeding and technical level, the animal health and food safety status of the livestock farms and to improve the working conditions and working efficiency of those employed on animal husbandry farms. The form of the aid is a direct grant that can be granted for identifiable built and installed technology and infrastructural investment or purchase of machines.

The granting of the aid several obligations are connected. The tenderer is obliged to participate in organized training, the milk producing tenderer is obliged to respect the requirements of milk quota system and to maintain the average number of animals on the farm measured in large animal unit complying with the level indicated in financial or business plan for 5 years from the date of the decision on aid granting. Concerning cattle, sheep, goat, swine and horse species the farmer is obliged to respect the ENAR requirements and to keep the registry of stock, pasturage and change in livestock.

The subventions obtained by the agricultural companies include also the aids granted to maintain the genetics of protected native and endangered agricultural animal species in breeding. One of the condition of this aid is the maintenance of the actual livestock during the subvention period, and the lost animals shall be substituted by animals of the same qualification, at latest in 90 days. These obligations enhance the undertakings to maintain the animal husbandry sector at least on the actual level.

The interviewed agricultural companies beyond the maintenance of their activities also plan developments in the future. It means especially increase in livestock and site development. The answers are conform to the results of the AgroStratégia (Agrostrategy) study, by which the 80% of agricultural producers for the purpose to obtaining revenues plan the middle term development of economy. The development includes particularly the extension of tenancy and the technological improvement of production (INTERNET 1). Similar positive results were revealed by the study of the Association of Young Hungarian Farmers (AGRYA) of 2011, in which the 93% of respondents (200 young Hungarian farmers) intend to expand their

farming by economic activities in the following five years (AGRYA, 2012).

The respondents considered important the continuous development and investments in order to improve the production efficiency. They recognized that they are compatible on international markets only in this way. However this can be an “escape” in the given economic circumstances.

*Based on the answers of agricultural companies involved in animal husbandry the second hypothesis has been verified.*

For the verification of the third hypothesis two questions were asked especially to the workers of private farms.

***Hypothesis 3: On the Northern great plain region the private farms, lacking the resources for other incomes are still bound to animal husbandry.***

The questions were as follows:

- Why you are involved in animal husbandry?
- Why have you not yet ceased animal husbandry?

Concerning the two questions several answers could be marked. Each of 46 interviewed private holding marked the family tradition, 26 marked the range of interest, and 16 marked the education level. The importance of obtaining revenues was selected by 42 respondents. During the interview for the remaining 4 respondents were asked why they have not selected this possibility. These respondents had main job with high revenue and the aim of animal husbandry was only to maintain the family traditions, for the purpose of earnings supplement. This demonstrates that the 92% of respondents considered important obtain revenues, whilst the 60% of respondents had a regular source of revenue (main job or pension). The animal husbandry provides an alternative job opportunity and supplement revenues in order to resolve the subsistence problems.

By asking “Why have you not yet ceased animal husbandry?” I tried to find the answer why the farmers continue the animal husbandry beyond the low level of revenue. The 69% of respondents have selected only “family tradition” and “it is hard to cease” answers. The remaining 31% have underlined also the “profitable” category. Consequently the basic motivation of the operators in the animal husbandry sector, beyond the goal of obtaining revenues is liking animals, maintain traditions and continue the family traditions. Accordingly, the private farms are essentially supported by the workforce of the family.

Concerning their future plans, none of the respondents intend to liquidate the livestock. From this aspect only those farms are different, where the legal succession is not resolved. There are three possibilities: the first when there is no successor, the second when the successor not yet made a decision, and the third when the potential successor clearly knows that have no intention to continue the activity. This problem concerned 22 farmers from the interviewed 46 private farms. However also they declared that they intend to continue the animal husbandry at least for personal consumption as long as their medical condition, property make it possible. *The results of the interview verify the third hypothesis, that “On the Northern great plain region the private farms, lacking the resources for other incomes are still bound to animal husbandry”.*

*Generally it can be declared that:* during the interviews it was verified that the competence of Hungarian agricultural operators for EU accession have not reached the necessary level. In my opinion, the farmers were not prepared for the intensifying competition, and the main reason was that they were not been adequately informed on the possible effects of EU accession. It shall be mentioned that the producers were not motivated in prepared for EU accession. The EU accession was clearly negatively evaluated by the respondents. In relation to private farms the lack of own contribution and the low level of ability to manage the own interests can be underlined, and the latest is originated from the inadequate cooperation. Concerning the agricultural companies, the growing costs of property protection are more significant due to security concerns.

From the aspect of the future of Hungarian agriculture and animal husbandry is a core objective to resolve the generation problems. The ageing is a core problem not only in Hungary but also in the European Union. The young generation turns away from agriculture, therefore the management of generation problems is a serious responsibility. The change of generation should be ensured at private farms and agricultural companies. In order to avoid aging in agriculture could be useful for more reasons, as the generation of younger farmers are more opened for the up to date results of genetics, housing and feeding as they receive competitive practical knowledge during their education.

*A shooting point could be for the private farms could be the cooperation on the highest level as possible.* Unfortunately this problem exists also in these days and shall be resolved. The conditions of new type cooperation exist, but there is no organization of higher level along the product path. The situation of smallholders is influenced by the type of organization they join with in their near surroundings. In the scope of agricultural producers the intention of cooperation is insufficient, which refers to the lack of information and trust. In addition, the negative experience of cooperation forms existing before the end of communist regime prevent the spreading of new cooperation types.

#### **4. New and recent scientific results of the study**

1. It can be declared that the Hungarian farm structure is unique in the European Union. The 87% of the farms have an agricultural area smaller than 5 hectares, 2.4% have an area bigger than 50 hectares (the 50% of the area is cultivated). Notwithstanding the dual farm structure in Hungary the farm structure has been fragmented, allowing that when reviewing the measure of economic threshold is very low considering the Union's level. It can be attributable that the concept determined in the Hungarian and European Union statistics of farms significantly differs from the definitions used in goods-producing industries. By the examination of the data of General Structure Surveys from the year 2010 it is clear that Hungary would even correspond to the 98% coverage even if the minimum level would be set at 1 hectare. In this case the number of examined farms would decrease by 415 219 private farms and agricultural companies (72% of private farms and 0.4% of companies would be out of the concept of being a farm). Based on the data by Farm Structure Survey of KSH from the year of 2010 the number of farms managing in a territory under 1 hectare is 415 219 while the size of productive land area used by them is merely 84 567 hectares. During the determination of economic threshold also political motivations could have a role, namely instead of output the number of farms is the priority. The gross output and gross added value reflect efficiency much better than the number of farms.
2. By the database of Farm Structure Survey most of the private farms produces for private consumption. The goods produced for personal consumption indirectly contribute to the increase in exportation funds and to the decrease in importation, increasing the national food security. Moreover these have an important role in providing rural workplaces. The private farms account for a remarkable share of agricultural output. According to the Hungarian Central Statistical Office in the average of 2006-2010 the 63% of national plant production was produced by private farms, whilst 61% of the output of live animals and products of animal origin (animal husbandry) was produced by the agricultural companies. Namely the plant production volume of the country is determined mainly by private farms, whilst the national animal husbandry is determined

primarily by the performance of agricultural companies. Based on the data of the AKI Farm Accountancy Data Network (that represent the private farms with a production value larger than EUR 4 000 Standard Total Production) the consequence can be drawn that in Hungarian agriculture by the average of the years 2008-2011: 42% of the gross production value, 45% of the production value of agricultural basic activities while half of gross and net value were given by private farms. Unfortunately the using of manpower shows a decreasing tendency that is primarily seen in young generation. This tendency foresees unfavourable processes in relation to the rural and agricultural future.

3. Examining the livestock by groups of farming it can be detected that in 2012 66% of the livestock was at agricultural companies and 34% was at smallholders. Within agricultural companies a significant amount of the animal stock (almost two third) is in Ltd. property. In the last decade, at private farms of cattle and swine farming the number of farms with 1-9 animals have been principally decreased. Meanwhile the number of private farms keeping sheep in almost all category. The number of farms keeping more than 1 000 sheep decreased significantly, mostly because the agricultural companies eliminated their sheep stocks.
4. Based on my research (half structured deep interviews) in the Northern Great Plain region the opinion of private farms and agricultural comparison the situation and perspective of the Hungarian animal husbandry was presented. Using these data the SWOT analysis and problem tree of private farms and agricultural companies involved in animal husbandry were elaborated.
5. It was verified that the lack of horizontal and vertical integration is one of the main causes of inadequate competitiveness, especially for private farms. The reason of the actual low level of cooperation is especially the lack of information, the wrong experience and the producer's mentality. The low level of cooperation is originated from producer's mistrust. In addition, the negative experience of cooperation forms existing before the end of communist regime prevent the spreading of new cooperation types. In other cases, the mistrust concerned the management of production groups, consequently the producers refused the cooperation. Beyond the

increase in bargaining position, the cooperation has risk-sharing and cost reducing effect.

6. Based on the study the private farms, lacking the resources for other incomes are still bound to animal husbandry. The basic motivation of private farms involved in animal husbandry beyond the obtaining of revenues is liking animals, maintain traditions and to continue family traditions.
7. In case of the analysed farms has been verified that at agricultural companies the further decrease in livestock is not expected. None of the agricultural companies plan to stop animal husbandry activity or the cutback of their stocks. The loans previously obtained and the obligations committed can also prevent the final liquidation of animal husbandry.

## **5. Theoretical / practical utilization of the results**

The answers of the interviews verified that the competence of Hungarian agricultural operators for EU accession have not reached the necessary level. The farmers were not prepared for the intensifying competition. The EU accession was clearly negatively evaluated by the respondents. Based on the results of the analysis the development of professional organizations (Chamber of Agriculture, network of rural managers, groups of producers, product boards) is recommended. These organizations could provide effective assistance to be able to comply with legal requirements, to introduce in tender possibilities, and to reduce the administrative liabilities of farmers. The creation and operation of effective and actual state consultancy network could promote the definition of competitive status and perspective of the farms in relation to development. It could be contribute to facilitate the obtaining of loans and to increase the number of successful tenders. In this way the further decreasing of competitiveness and liquidation of livestock farmers could be avoided.

The activities of production groups shall be developed and “propagated”. In case of private farms the solution could be the enforcement of vertical and horizontal cooperation. By production groups the producers could become more creditable, therefore the producers could obtain capital more easily and could be able to implement the developments necessary for efficient production. Consequently they will be able to product homogeneous, marketable goods of high quality in order to improve the competition. Actually these cooperations do not cover the vertical and horizontal product path, but only certain phases of it. It is recommended to create organizations of producers by sectors which cover the whole volume, i.e. creation of inter-professional organizations.

Based on as above, it is recommended to enforce the position of family farms, whilst the agricultural vision of the European Union considers relevant the activity of these operators.



## **6. Publications related to subject matter of the thesis**

### **Articles published in journals in foreign language:**

**Harangi-Rákos, Mónika** – Szabó, Gábor (2013): The economic and social role of private farms in Hungarian agriculture. Applied Studies In Agribusiness And Commerce – Abstract, 2012. 5. sz., pp. 33-41. (impakt factor: 0,02)

### **Magyarországon, tudományos folyóiratban, idegen nyelven megjelent publikáció**

**Harangi-Rákos, Mónika** (2011): Analysis of changes in resources and outputs of companies and partnerships in Hungarian agriculture. Journal of Agricultural Sciences, Acta Agraria Debreceniensis, Debrecen, 2011/44, pp. 65-69.

### **Articles published in journals and foreign periodicals:**

**Harangi-Rákos Mónika** (2013): A gazdaságszerkezet alakulása az EU-ban, különös tekintettel Magyarországra. Gazdálkodás, 57. évf. 2. sz. pp. 113-128.

**Harangi-Rákos Mónika** – Szabó Gábor (2011): A mezőgazdasági társas vállalkozások gazdálkodásának vizsgálata a 2002-2009. közötti időszakban, Gazdálkodás, 2011. 55. évf. 4. sz. pp. 358-367.

**Harangi-Rákos Mónika** (2012): A mezőgazdasági szövetkezetek termelési és pénzügyi teljesítményének alakulása a 2002-2007 közötti időszakban, Agrártudományi Közlemények, 2012/45, pp. 21-29.

### **Conference proceedings in foreign language:**

**Harangi-Rákos, Mónika** (2012): Analysis of changes of the gross outputs of private farms and agricultural enterprises in Hungarian agriculture between 2006-2010. VII. Krakowska Konferencja Młodych Uczonych, ISBN 978-83-62218-64-6, pp. 883-890. CD

### **Abstract in foreign language**

**Harangi-Rákos, Mónika** (2012): Analysis of changes of the gross outputs of private farms and agricultural enterprises in Hungarian agriculture between 2006-2010. (Abstract) VII. Krakowska Konferencja Młodych Uczonych, Grupa Naukowa Pro Futuro, Kraków, 2012, ISBN 978-83-62218-64-6, pp. 247-248.