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**THE MAIN RELATIONSHIPS OF DIVERSIFICATION IN
AGRICULTURAL ENTERPRISES**

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1. INTRODUCTION

1.1. Topicality and importance of the topic

The most important characteristic of agricultural production is its seasonality determined by biological parameters; this means that – mainly in crop production – peak and off-peak seasons alternate. In the off-peak periods agricultural producers **try to supplement their income by off-farm activities and by making use of their labour and machinery capacities**. The income gained from agricultural production is low except in intensive horticulture. In the small- and medium-size farms agricultural production cannot provide sufficient income for the subsistence of a family. In Western Europe agricultural production is ensured mainly by family farms; half of the farms are part-time farms and a great number of farmers are engaged in off-farm activities by using the resources of the farm.

This **‘supplementary’ or other gainful activity has always been characteristic of agriculture; however, the type and conditions varied** not only in Western Europe but also **in the Hungarian agriculture**. Before the political and economic transition of Hungary, i.e., in the ‘prosperous’ period of Hungarian agriculture (from 1968 to the mid-1980s) in cooperatives and state farms the off-farm activities – the so-called ‘secondary activities’ – were widespread, ensuring the balanced utilisation of labour and other resource, and also the survival of the farms. These activities were terminated or separated from the agricultural cooperatives before the political and economic transition due to the restructuring of the large-scale and state farms and thereby the structure of agricultural production was simplified. In the 1990s a large number of private farmers with small areas of agricultural land had to face the fact that it is almost impossible to make a living by farming.

With the EU accession, Hungary became part of the Common Agricultural Policy (CAP), which in recent decades has undergone significant changes and further reforms are ahead. In accordance with the expectation of society, agriculture has to meet the requirements of sustainability, including landscape protection, safeguarding natural resources and biodiversity as well as food safety. **Multifunctional agriculture**, public goods, the **diversity of the rural economy** and improving the quality of life of rural areas **are more and more emphasised**. In this context, in the CAP and among rural development professionals an increasingly accepted opinion is that farm diversification is important in retaining the rural population, expanding local employment opportunities, as well as in safeguarding and maintaining the traditional rural landscape. For obvious reasons the recommendations of the literature dealing with the retention of rural population, the income generating opportunities of agricultural producers and sustainable agriculture almost always discuss the on-farm and off-farm diversification of the rural population and agricultural producers and emphasise primarily the importance of rural tourism. However, the question arises whether this solution is a real option for increasing the income of agricultural producers.

1.2. Objectives

Various definitions of farm diversification can be found in the literature. In my thesis the definition of farm diversification is as follows: any gainful activity which does not involve any conventional farm work (arable farming, animal husbandry, horticulture and plantations) but is directly related to the resources or products of the farm. I list the activities in detail on the basis of statistical data.

My thesis is based on a strict order of objectives and the primary objective is **to describe the current situation of farm diversification** in Hungary, **its prevalence and importance and direction of its development in Hungary**.

My second objective is to describe **the diversification activities** and to analyse **the characteristics of diversified farms**. I also examine if there are any regional characteristics of farm diversification and determine **which factors influence the extent and direction of diversification**, (third objective). Based on this objective I **deal mainly with private farms**, I examined which are **the difficulties and the success factors**. The fourth objective was to make recommendations for **the development and the criteria of the support schemes encouraging diversification**.

My hypotheses were as follows:

H1: Diversification is relatively closely related to the main activity of the farm.

H2: The proportion of diversified farms is higher than average in the larger and labour intensive farms, which are commercial farms and are managed by qualified managers.

H3: For the part-time farms (rural households) producing mainly for own consumption, diversification means agricultural production.

H4: Regional characteristics and differences can be seen in the distribution of farm diversification and in the diversified activities.

2. MATERIAL AND METHODS

In order to confirm (or reject) the above hypotheses I analysed the information and databases by appropriate methods. The primary database was compiled on the basis of personal and telephone interviews. The secondary database was generated from various sources:

- national and international literature,
- the relevant Hungarian and EU legislation,
- Agricultural and rural development documents dated before and after the Accession of Hungary: National Agri-environmental Programme (NAKP), Rural Development programme (VFC), SAPARD Plan of Hungary, Agricultural and Rural Development Operative Programme 2004-2006 (AVOP) and its Programme Complementary Document (AVOP-PKD), National Rural Development Plan 2004-2006 (NVT), New Hungary Rural Development Plan 2007-2013 (ÚMVP),
- Agricultural and rural development programmes (SAPARD, AVOP, ÚMVP) annual implementation reports, mid-term and ex-post evaluations,
- the Farm Structure Survey (FSS) of 2003, 2005, 2007, the databases of Eurostat,
- Hungarian Central Statistical Office (KSH): Agricultural Census 2000, Farm Structure Survey in Hungary 2003, 2005, 2007 database,
- Data on the subsidies of the Agricultural and Rural Development Agency (SAPARD, AVOP and ÚMVP).

The relationships of the hypotheses, the objectives and results are also shown in Figure 1.

Besides studying the literature and analysing the documents I applied in my research the following methods:

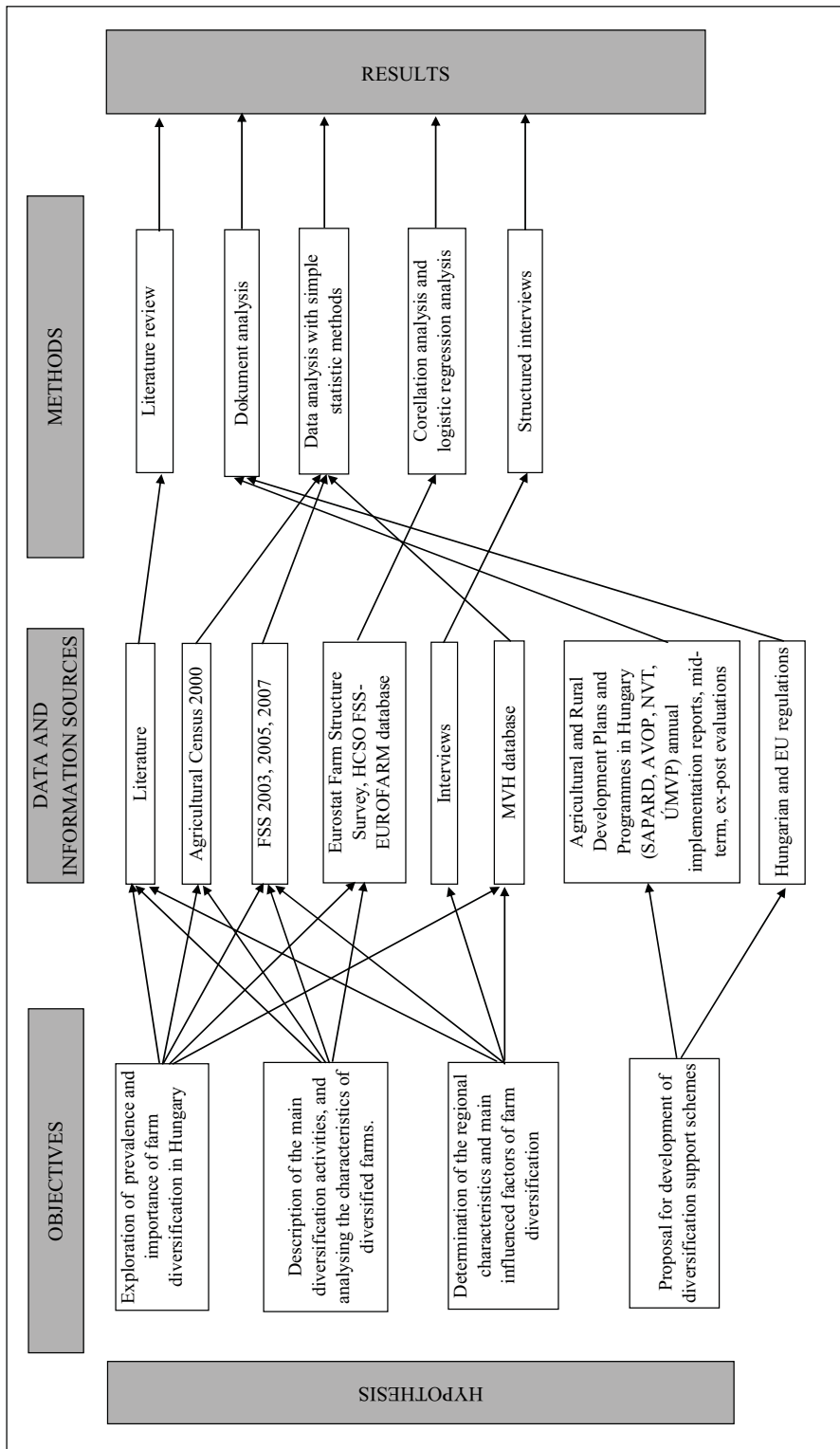
- Data analysis by simple statistical methods

In my thesis I processed and analysed a large number of data with the aim of revealing the prevalence, role and main activities of diversification (besides the main activity) of agricultural enterprises (private and corporate farms) and furthermore, determined the factors influencing diversification and examined to what extent and in which direction do they influence diversification.

Regarding the basic data, the Farm Structure Survey provided information on the other gainful activities. In the EU this survey consists of various interconnected surveys: decennial censuses and intermediate representative surveys in every second or third year. Hungary joined the system by performing the Agricultural Census (ÁMÖ 2000) and the Farm Structure Survey of 2003 (GSZÖ 2003) in an EU compliant way and as a Member State of the EU the Hungarian Central Statistical Office performed the Farm Structure Survey in 2005 and in 2007. In accordance with the requirements of the EU the censuses cover the units providing 99% of the total agricultural output (Standard Gross Margin – SGM).

Figure 1.

Illustration of my research



Source: Own preparation, 2010

The statistical universe of the census consists of corporate farms and statistically defined private farms above the threshold.¹ We note that between the Hungarian census and the FSS database of Eurostat there are differences regarding the details of the publication of the data. For example, the Hungarian Farm Structure Survey published data on 15 non-agricultural activities in 2007 while Eurostat only on eight. Regarding the agricultural qualification of private farmers, the Hungarian FSS published data while the FSS of 2007 did not.

Based on the FSS methodology in the other gainful activities surveyed (diversified activities) we can find the following:

- **Processing of farm products:** all processing of a primary agricultural product to a processed secondary product on the holding, regardless of whether the raw material is produced on the holding or brought from outside. This includes, *inter alia*, processing meats, making cheese, wine production, etc. Sale of farm products directly to consumers is included here, except if no processing of the product at all is taking place on the holding.
- **Contractual work:** contract work, usually using the equipment of the holding within or outside the agricultural sector, e.g. clearing snow, haulage work, maintenance of the landscape, agricultural and environmental services, etc.
- **Aquaculture:** production of crayfish, etc., produced on the holding.
- **Renewable energy production:** producing renewable energy for the market, inter alia, windmills or biogas producing electricity, selling agricultural products, straw or wood to energy production facilities, etc.
- **Tourism:** all activities in tourism, accommodation services, showing the holding to tourists or other groups, sport or recreation activities, etc. where either the area, the buildings or other resources of the holding are used.
- **Handicrafts:** handicrafts either manufactured on the holding by the holder or family members, or by non-family labour force, provided that they are also carrying out farm work, regardless of how the products are sold.
- **Wood processing:** the processing of raw wood on the holding for the market (saw milling, timber, etc.). Further processing, such as producing furniture from the timber, belongs normally under handicrafts.

I processed the data with the aim of revealing the prevalence and role of diversification and to present the main activities of diversification, and furthermore to determine the objective factors of diversification. It is not possible to analyse the economic importance of non-agricultural activities of the farms on the basis of the FSS since it does not provide any data on the

¹ Farm threshold: a technically and economically independent unit (household) engaged in agricultural production using:

- agricultural land (arable land, garden, orchard, vineyard, meadows, grazing land, forest, reed plot, fishpond separately or in total) more than 1500 m², or
 - orchard and vineyard in total more than 500 m², or
- at least
- 1 head (cattle, pig, horse, sheep, goat, buffalo), or
 - 50 poultry (gallinaceae, goat, duck, turkey, guinea-hen), or
 - 25 – 25 rabbits, fur-bearers, pigeons, or
 - 5 beehives.

production value or the income generated by these activities. The Farm Accountancy Data Network (FADN) data are not suitable for analysing the economic importance of diversified activities either because of the small number of samples. Therefore, my analysis can show only the presence of these activities. The methods applied are: calculation of average, proportion, statistical distribution, function in time (change in time). For calculating and preparing the tables and diagrams I used Microsoft Excel 2003. These calculations were suitable for analysing, confirming or rejecting the hypotheses described above.

The corresponding database on rural development (SAPARD) of the Agricultural and Rural Development Agency (MVH) was available by regions (county), which made it possible to draw a map presenting the data (the number of the received and awarded applications and the sources of the subsidy) with the help of Microsoft Excel 2003.

- Correlation and regression analysis

I performed the correlation and regression calculations in order to express in figures the relationships between diversification and objective factors (e.g., farm size, agricultural area and labour utilised, age of the manager). I tried to determine **the different extents to which the various economic factors influence the degree of diversification**. I also analysed the farms by legal form (private farms and corporate farms) since from the literature I concluded that the characteristics might vary. The analysis was based on the database of the HCSO FSS-EUROFARM 2007; which includes farms above 2 ESU².

For the variables measurable on the interval scale I assumed that the sample is of normal statistical distribution. The sample of corporate farms consisted of 5695 farms and that of private farms of 82065. The dependent variable was the presence or the absence of the diversified activity. On the basis of the databases these activities might be the following: tourism, processing of farm products, handicraft, aquaculture, renewable energy production, contractual work and other activities.

In corporate farms the independent variables was the farm size (SGM³ in EUR), agricultural area (ha) and labour utilised (AWU⁴). In private farms in addition to the above mentioned variables I also analysed the age group of the managers, the off-farm work of the farm managers and his/her spouses, whether they produce for own consumption or for sale, and if the sale is mainly direct sale or not.

It can be seen that the dependent variable – and in private farms also some independent variables – i.e., the binary variables are of two values: 1=yes, 0=no.

If among the dependent variables binary and among the independent variables both metric and non-metric variables can be found recommendations can be found in the literature (Sajtos–Mitev, É.N.) for using the logistic regression. The models of binary variables are called discrete variable models or outcome variable models (Ramanathan, 2003). Examples of these models are the linear probability models, the logit and the probit models. It has to be noted that the estimation of

² In the EU for expressing the economic size of a farm the unit of ESU is used. The total standard gross margin (SGM) of the farm is divided by 1200. 1 ESU = EUR 1200 SGM value. The Standard Gross Margin is the difference between the standard value of gross production and the standard value of certain cost. A farm of 1 ESU means 2 hectares of wheat + 1 hectare of maize, or 1 cow + 1 hectare of maize or 0.9 hectare of quality vineyards or 0.8 hectare of apple plantation or 6 sows + 1 male pig.

³ SGM: standard gross margin: is the difference between the standard value of gross production and the standard value of certain cost.

⁴ Annual Work Unit (AWU) =1800 working hours, i.e., 225 working days of eight hours.

ordinary least squares (OLS) method cannot be applied for outcome variables models since the deviation variables are heteroscedastic (the variances of the error terms are not constant).

In the literature the method recommended for this case is the probit and binomial logit model, in which the estimation method is the maximum likelihood technique.

In accordance with the assumption included in the probit analysis a response function of $Y_i^* = \alpha + \beta X_i + u_i$ can be found, where X_i is an observed variable but Y_i^* is an unobserved variable. u_i/σ shows standard normal distribution. In practice we observe Y_i , the value of which is 1, if $Y_i^* > 0$, and 0. Thus:

$$Y_i = 1, \quad \text{ha } \alpha + \beta X_i + u_i > 0.$$

$$Y_i = 0, \quad \text{ha } \alpha + \beta X_i + u_i \leq 0.$$

(β : parameter, α : constant, u : residual variable)

If $F_{(z)}$ is the distribution function of standard normal distribution, that is, $F_{(z)} = P(Z \leq z)$, then:

$$P(Y_i = 1) = P(u_i > -\alpha - \beta X_i) = 1 - F\left(\frac{-\alpha - \beta X_i}{\sigma}\right)$$

$$P(Y_i = 0) = P(u_i \leq -\alpha - \beta X_i) = F\left(\frac{-\alpha - \beta X_i}{\sigma}\right)$$

Therefore, the common probability function of the sample is as follows:

$$L = \prod_{Y_i=0} F\left(\frac{-\alpha - \beta X_i}{\sigma}\right) \prod_{Y_i=1} \left[1 - F\left(\frac{-\alpha - \beta X_i}{\sigma}\right)\right]$$

Where Π is the multiplication operator. The parameters of α and β can be estimated by maximising the above function, which is not linear in the parameters and cannot be estimated by the normal regression programmes. The special nonlinear optimisation required was performed with the help of the EView programme.

In addition to the logistic regression analysis I also performed the correlation analysis to investigate the relationship among the variables with the help of the EView programme. The Pearson's correlation coefficient is used to describe the closeness and the direction of the linear relationship of the metric variables; in my case both the dependent and independent variables are binary or nominal; therefore, as no appropriate method was available I set aside the type of the measurement scale of the variables and performed the Person's correlation analysis.

The formula of the Pearson's correlation coefficient (r):

$$r = \frac{\sum_{i=1}^N (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum_{i=1}^N (x_i - \bar{x})^2 \sum_{i=1}^N (y_i - \bar{y})^2}}$$

Where \bar{x} is the average of the values of x_i , and \bar{y} the average of the value of y_i . The value of r may fluctuate between -1 and +1. The absolute value of the correlation coefficient indicates the

closeness and the direction of the relationship. The stronger the relationship between the two variables the closer the absolute value of the correlation coefficient to 1. If $r=0$, the relationship between the two variables analysed is uncorrelated (but not independent) and we can say that there is no linear relationship between the two variables.

- Interviews

The empirical part of the research was based on personal and telephone interviews. With the help of the interviews my primary aim was to determine the subjective factors influencing diversification (motivation and constraints). From the eleven types of interviews found in the literature (Majoros, 2009) I applied the structured interview type. The conversations were held on the basis of structured questions prepared in advance (draft). The aim was to collect quantitative and qualitative information. I also made efforts to collect background information which would help me to better understand the answers, draw conclusions and make recommendations.

3. RESULTS

3.1. Extent and characteristics of on-farm diversification

On the basis of the FFS **only 5% of total farms were engaged in any kind of gainful activity connected to the farm but other than the main agricultural activity of the farm** (in 2000 47.0 thousand, in 2003 35.1 thousand, in 2005 36.1 thousand and in 2007 31.8 thousand farms). In accordance with the methodology of the survey diversified activities are all kinds of non-agricultural activities which are connected to the resources of the farm (for example, labour, agricultural area, machinery, building) or to the processing of farm products. These activities cover the services and the production of farm products marketed partially or in total by generating additional income. The survey did not cover the activities of providing services or products for own consumption.

In the Member States of the EU the share of diversified farms accounts for 12.6% on average (EU DG Agri, 2009), exceeding significantly the value of 5%, which is characteristic in Hungary. The difference is due to the fact that in Hungary the threshold of the FSS is very low, therefore, a large number of households – which economically cannot be considered as farms – are included in the survey. These rather small-scale farms (e.g., less than 1 ESU) are generally managed by part-time managers; that this, the aim of agricultural activity is to generate supplementary income in addition to the income received in the main job (or pension).

By analysing the share of diversification in the size category of larger than 1 ESU we can see that **in Hungary this share accounts for 12.3%, which is higher than the average value of the old Member States (10.6%)** it is also higher than that of in most New Member States, a point to keep in mind when evaluating the prevalence of diversification in Hungary (Figure 2). However, my further analyses cover all the farms (both under and above 1 ESU) since the database available does not make it possible to analyse only those farms which are larger than 1 ESU.

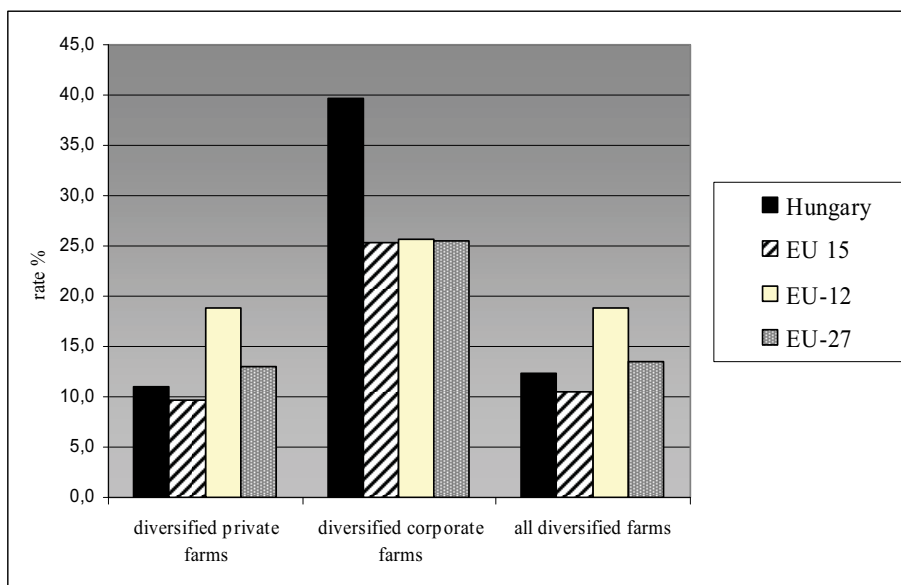
Diversification is more frequent in corporate farms than in private farms. About 40% of the corporate farms above 1 ESU were engaged in any kind of activity besides the main activity but in private farms the percentage was only 11% in 2007.

In recent years (2003-2007) the number of diversified farms of both legal forms fluctuated in line with the total number of farms. In accordance with this the number of corporate farms increased while those of individual farms decreased. At the same time the percentage of diversified farms increased to a small extent due to the concentration of farm structures.

The FSS make it possible to perform regional analyses but only at regional level. Differences can be determined but the data show only slight differences. The **share of diversified private farms was the highest (7.2%) in 2007 in the Northern Hungary Region**, which regarding the employment was in the most unfavourable situation. In the Central Transdanubian Region the share of diversified private farms (5.9%) and in the Southern Great Hungarian Plain (5.1%) is higher than the national average but in the case of corporate farms the share was higher than the national average in the two regions of the Great Plain and the Southern Transdanubian Region. In these regions arable farming is characteristic; consequently, in the corporate farms the conditions are more favourable for machinery services.

Figure 2.

Share of diversified farms in the EU and Hungary, 2007



Remark: all the farms analysed are in size category of >1 ESU, excludes The Netherlands

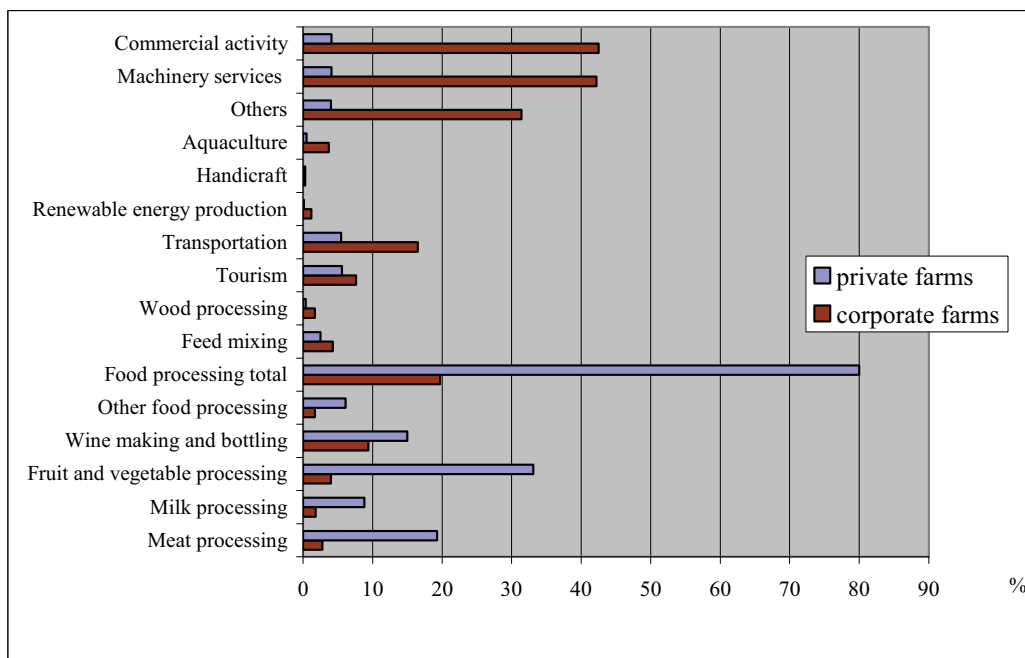
Source: Eurostat: Farm Structure Survey

In the case of both legal forms **farm diversification is less frequent in Western Transdanubia**; the reasons for this might be the proximity of Austria, the opportunity for off-farm gainful activities, the larger opportunities for seasonal works and the higher personal income generated thereby. In private farms the relationship with off-farm employment is confirmed by the percentage of the farmers of off-farm income generating full time employment. While the national average is 36.6% in Northern Hungary this share accounts for only 35.5% and in the Western Transdanubia for 40.4%.

Concerning the main diversified activities and the characteristics of the farms **the corporate farms** try to make use of their machinery and equipment through contracting (machinery servicing, transport and delivery) and their **diversification is based mainly on their equipment and machinery capacities**. A significant share of them is also engaged in commerce (Figure 3). **Individual farms**, however, **try to diversify their activities via food processing**, which assists the more balanced use of their labour capacity. Most farms increase the scale of their activities by fruit, vegetable and meat processing, and wine making.

Figure 3.

Distribution of diversified farms by activities, 2007



Source: HCSO: Farm Structure Survey in Hungary 2007.

Between 2000 and 2007 the extent and direction of the change varies significantly by activity. For example, the **number of milk processing farms** of both legal forms **increased**, in private farms it doubled and the number of corporate farms became increased by 50%. The number of **meat processing farms** of both legal forms increased up to 2005 and then it decreased and the extent of the decrease was larger in the case of corporate farms than those of private farms starting to stagnate. In line with the increase of the number of farms producing animal products the number of husbandry farms decreased continuously. I concluded that in this process the number of animal husbandry farms decreased due to the continuous winding up of semi-subsistence and subsistence farms but the large farms with capital supply tried to survive by increasing the value added and the level of processing. **The number of fruit and vegetable processing private farms** increased significantly, **by almost fivefold** during this period, while the number of corporate farms did not change. The changes in the number of fruit and vegetable processing farms are due to the same reasons as in husbandry farms since the number of fruit producing farms decreased by one third and those of vegetable producing farms by half during the same period. **The number of farms engaged in wine making and bottling decreased drastically** after 2000, which is probably due to the amendment of the act on excise tax published at the end of 1999 and enforced from 1 August 2000. In accordance with the amendment the act at present applies also to wine. **The share of farms engaged in catering is low**; however, it is promising that the number of private farms engaged in this activity **has been increasing since 2000**. The increase was especially significant between 2005 and 2007. This might be due to the governmental decree on rural and agro tourism⁵; in accordance with the decree the rural hosts may sell their own products locally, in their guest house. In addition to this

⁵ Governmental Decree No. 136/2007. (IV. 13.) on the services of rural and agro tourism (A 136/2007. (VI. 13.) repealed by Governmental Decree No. 239/2009. (X. 20.) 20. § (1) item c).

the increase of the limit of tax free income generated by rural tourism from HUF 400 to 800 thousand had also a favourable effect.

Renewable energy production is getting more and more popular due probably to the support schemes; more and more farms chose this kind of diversification.

3.2. Analysis of the factors influencing diversification

Farm diversification is a consequence of numerous factors. On the basis of the analysis I concluded that parallel to the increasing **size** (economic size and utilised agricultural area) and the **labour used, the share of diversified farms is also increasing.**

The production line determines also if a farm diversifies its activity and in which direction. I analysed the share of diversified farms in the various production lines. I concluded that **diversification can be found in more than half of mixed farms, and 41-43% of arable farms and specialist horticulture farms are diversified farms.** It is well known that the diversification of corporate farms means mainly machinery services, transportation and commerce as well as wine making; therefore, it is not surprising that among crop producers the share of diversified farms is high.

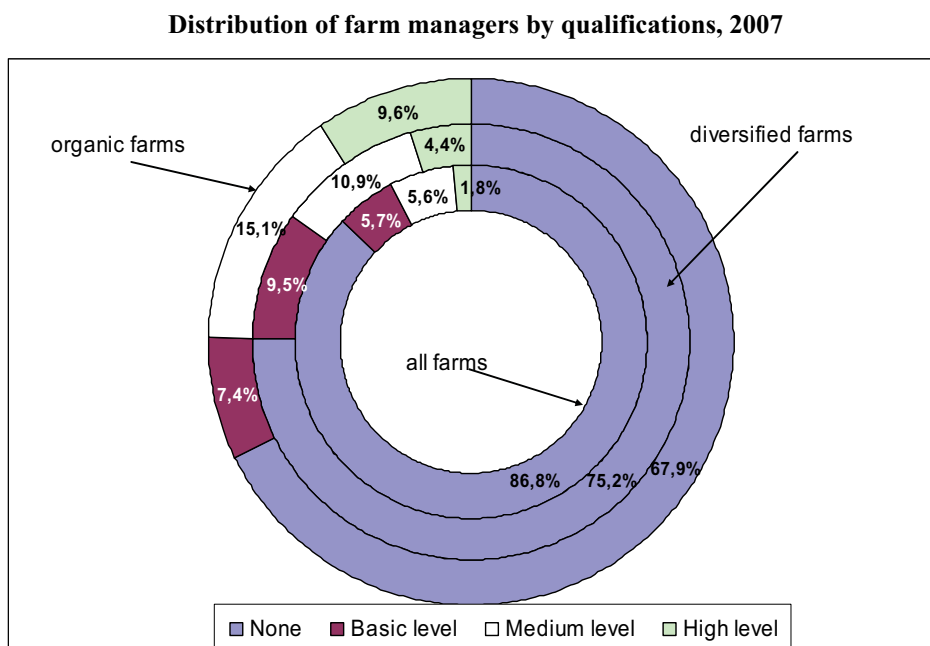
Amongst private farms the share of diversified farms **of plantations and grazing livestock** accounts for about double (9% and 11%, respectively), while amongst granivores and mixed farms the diversified farms are underrepresented. The majority of private farms (82%) are engaged in food processing; i.e., fruit processing and wine making, which are obviously characteristic for specialist farms of orchards and horticulture. The meat and milk processing are also common confirming the high share of farms with grazing livestock.

I could show by my analysis that **among both diversified farms and organic farms the share of commercial farms** (marketing more than 50% of the products) **accounts for a higher rate** – i.e., for about the double of the average – **than in total farms.**

Only slightly more than one fifth (22%) of the farm managers queried answered that their income is generated mainly by the farm. In the case of diversified farms this share accounts for 37% and of organic farms for 46% indicating that regarding income generation the diversified farms, which produce higher value added, are in a more favourable position. Among the diversified and organic farmers the share of **farmers who are of active age and qualified** as well as those **whose main income source is the farm account for a larger than average share.**

The relationship between diversification and qualification/skills is outstanding and is also a warning. The share of managers with medium or higher qualification is two or three fold in diversified and organic farms than in total farms (Figure 4). This indicates that farms managed by competence and skills are successful and this might provide a base for Hungarian agriculture and the development of the rural economy.

Figure 4.



Source: HCSO: Farm Structure Survey in Hungary 2007.

By analysing the statistical data the results obtained revealed several factors which determine the conditions of the farm and have an impact on diversification (on its extent and direction). However, there are factors which play a role in the decision making of launching diversification or not, but which are not measurable statistically. These can only be surveyed by **empirical methods**, with the help of personal interviews with the farmers and their family members. On the one hand, there are external factors originating from the environment of the farm, such as the factors determining the market demand, subsidy schemes, competitors, infrastructure, but on the other hand, the endogenous factors inherent in the conditions and resources of the farms are also significant. For the interviews I selected producers whose farms received subsidies for diversification in the framework of the subsidy schemes SAPARD and AVOP and their projects had already been implemented. From the 20 farmers queried 11 applied for SAPARD and nine for AVOP subsidies. In the interviews I asked them about the motivation and constraints, which played a role in launching and implementing the diversification.

My empirical survey justified the statement published in the literature that the most important incentives for farm diversification are the **higher income** and the use of surplus resources. One third of the respondents considered diversification successful and their development plans were also **promising**.

Most farmers queried mentioned the **lacking or fluctuating purchasing power as the most important constraint**. Among the endogenous constraints the first is the **lack of capital** mentioned by almost all respondents. The success of the diversified activity, based on the unanimous opinion of the respondents, depends mainly on the market demand; however, the **information, skills, risk taking and entrepreneurial behaviour** of the farmers also play important roles. In view of the fact that the market demand and the marketable product or service are the most important factors, it is not surprising that in the **plans of the farmers surveyed the developments assisting the market access and increasing the value added are the most often mentioned**.

3.3. Results of subsidies of diversification; assessment of the experience gained

Subsidies for diversification and for alternative gainful activities can be found in the Hungarian agricultural and rural development programmes of the last decade (VFC, SAPARD, AVOP, ÚMVP). **The amount of the subsidies provided is rather modest.** In these schemes the emphasis placed on diversification has not increased with time. No development can be seen in the implementation of the programmes either. Therefore **the subsidies only partially reached their aims** and consequently the number of diversified farms did not increase significantly. In my opinion the subsidy schemes do not approach the question in an integrated way and do not adjust to the demands of the target group. The subsidies did not come up to the expectations due to several reasons:

- **The budget provided for one project is rather small** (in SAPARD and AVOP the average budget of a project amounts to HUF 8 million), which **insufficient to cover the costs of the preparation of the application;**
- The preparation of the application is rather complicated; therefore, the applications prepared by the tenderer him/herself did not meet the requirements;
- **The rural population is not prepared to launch new activities or enterprises.** The **entrepreneurial behaviour, the skills** and the willingness to acquire the necessary information **are all lacking.**
- The agricultural producers do not have sufficient information on the market demand of the products or services.

Amongst the new activities the ones **related to rural accommodation and tourism are the most popular.** However, we note that **a significant number of agricultural producers did not make use of the opportunity provided for income diversification,** since the majority of the tenderers were private persons who were not engaged in agricultural production. By considering the budget provided by the schemes of VFC, SAPARD, AVOP we can see that **about six hundred projects were selected for awarding grants in the fields of tourism; which is only 8.2% of rural householders (7492).**

The regional distribution of the rural development programmes to be implemented in co-financing by the EU and Hungary and approved by the first half of 2010 for diversification indicates that **most subsidies were awarded to the counties in North-East Hungary** (Borsod-Abaúj-Zemplén, Szabolcs-Szatmár-Bereg, Hajdú-Bihar counties) and to Baranya county in Southern Transdanubia. These are the regions where the share of population engaged in agriculture is the highest and the rate of unemployment is larger than the average; therefore, farm diversification in these regions is a kind of necessity for subsistence. Although these regions are in a favourable position and are suitable for certain activities (rural tourism, fruit and vegetable processing).

The amount of **subsidies provided are the smallest in the western counties of a more favourable position regarding employment** and in some counties of the Great Hungarian Plain where a simple production structure is characteristic (arable farming) and farm diversification is not feasible. In Pest and Fejér counties average amounts of subsidies are provided due to more favourable market demands explained by the proximity of the capital (Budapest).

On the basis of the average amount of subsidies financed for one project it can be determined to what extent farm diversification is due to subsistence or to an opportunity for generating additional income. In Borsod-Abaúj-Zemplén county, although acquiring significant amounts of farm diversification support, mainly (HUF 10-13 million on average) small projects are implemented, while in Szabolcs-Szatmár-Bereg and Baranya counties the projects implemented are of HUF 13-15 million on average. In Vas and in some other counties in the Great Hungarian Plain (Bács-Kiskun, Békés, Hajdú-Bihar) the subsidies financed amount to HUF 18-21 million on average.

3.4. Checking hypotheses

H1: Diversification is relatively closely related to the main activity of the farm.

The primary reason of agricultural enterprises to launch a new gainful activity is to make optimal use of the capacities available. Therefore, the available capacities determine the direction of diversification. On the basis of my analysis I showed that in corporate farms the most frequent gainful activity in addition to commercial activities is contract work (machinery services). The share of diversified farms is higher than the average in arable and mixed farms. In the majority of private farms diversification means processing of own farm products; i.e. fruit and vegetable processing, meat processing, wine making and bottling. These food processing activities can primarily be connected to labour-intensive horticulture, orchards and animal husbandry. The percentage of diversified farms among private farms exceeds the average level in each of the above three production lines. In both legal forms the diversified activities are closely related to the main activity of the farm; therefore, my hypothesis was proved.

H2: The proportion of diversified farms is higher than average in the larger and labour intensive farms, which are commercial farms and are managed by qualified managers.

Based on the analysis of the data of the farm structure survey I could show with the help of simple statistical methods and confirm by the information gained from the literature that farm size – by considering both the economic size and utilised agricultural area – and labour utilised increase in line with the share of diversified farms increases.

My hypothesis was confirmed both for corporations and private farms. My analyses showed that in diversified private farms the share of managers with medium or higher qualifications and the share of commercial farms account for more than the double of the average. This means that my hypothesis was proved.

H3: For the part-time farms (rural households) producing mainly for own consumption, diversification means agricultural production.

Almost 80% of private farms are smaller than 1 ESU; these farms produce mainly for own consumption and the share of diversified farms is lower than the average. In general, the farm managers have a full-time job or are pensioners and do only part-time farming for generating additional income. My hypothesis was confirmed, since these rural households, which economically cannot be considered farms diversify their main activity by agricultural production.

H4: Regional characteristics and differences can be seen in the distribution of farm diversification and in the diversified activities.

Based on the statistical data (FSS 2007) and the data of the subsidies financed (SAPARD, AVOP, ÚMVP) I determined the regional relationships of diversification. Both databases indicate that diversification is most significant in private farms of the Northern region of Hungary, where the employment rate is the lowest and the number of entitled farms is the highest. I could also show that in the Western-Transdanubian Region being in a more favourable labour market situation the percentage of diversified farms is the lowest. Regarding the diversification activities I could show using direct evidence that in corporate farms machinery services are most frequent in arable farms in the Great Hungarian Plan and in Southern Transdanubia; while in Northern Hungary in private farms the most popular activity of diversification is processing of farm products. This is due to the conditions of the region and the production structure of the farms (larger than average areas of orchards, vineyards and grazing lands).

3.5. Novel scientific results

1. Based on the analyses I found that in private farms and in corporate farms it is **characteristic that diversification activities are closely connected to the main activity of the farm** but they are of different type. The corporate farms (in general large-scale farms) started diversification in recent years; these **base the diversification** on the **capacities** available in the farm (machinery services) with the aim to increase profitability. In private farms, however, **food processing** is outstanding based on the raw material produced in order to make **a better use of family labour and increase the value added**.
2. I could state that the **share of diversified farms is more significant in the labour-intensive farms and primarily in commercial farms. The share of young farmers and farmers in active age, qualified and with a full-time job is higher** in the diversified and organic farms.
3. My analyses showed that amongst part-time farms producing **only for own consumption** and marketing only the surplus **farm diversification is less frequent**; presumably due to the fact that the managers of these farms have a full-time job and are engaged also in non-agricultural activities; i.e., these families (farm managers) consider agriculture as an additional income source.
4. By analysing the statistical data of the FFS and the data of the subsidies financed for farm diversification I found that **there are regional differences in diversification**. Diversification is the least frequent **in the Western Transdanubia Region**; this can be explained by the more favourable labour market situation (proximity of Austria). The percentage of diversified private farms is the highest in the Northern Hungary Region, which is in the most unfavourable employment situation. By considering the average farm size and the lower than average subsidies per project provided, I concluded that farm diversification in these regions is a kind of necessity for subsistence.

4. CONCLUSIONS AND RECOMMENDATIONS

The value of farm diversification by off-farm activities is unquestionable especially in terms of additional income generation, income stability and easing the employment difficulties of agricultural producers; its importance has recently been in the focus of agricultural and rural policies. Contrary to the above my analyses showed that **the share of diversified farms is rather low in the small-scale, semi commercial and part-time farms**; its wide scale distribution is hindered by several factors. Amongst these factors the most important are: lack of capital, difficulties with market access, insufficient skills and knowledge, and the risk-taking behaviour of the farmers. In recent years the agricultural and rural development programmes encouraged the farmers to launch other gainful activities, i.e., off-farm and on-farm activities but the subsidies could not reach their objectives. Between 2000 and 2007 the **subsidies for diversification were rather modest**: in the framework of VFC HUF 3 billion, in SAPARD HUF 440 million was financed, while in AVOP the amount committed reached HUF 3.9 billion. This amount was sufficient only to assist the launching of some other gainful activities in 1215 farms or rural households. With the help of the subsidies the jobs could be maintained or new ones could be created.

My analyses showed that **in small-scale farms the most frequent diversified activity is food processing and food sale**. The most recent amendment of the regulations⁶ provides a background for food processing and food sale by small farms, however, in the scheme the **corresponding encouragement is lacking**. In the ÚMVP investment subsidies are provided only to farms larger than 4 ESU; but no financing is provided in the present programming period for developments connected to diversification (for example, processing of non-food products, agro tourism services).

My interview surveys showed that the small and partly commercial farms would also need subsidies since they mentioned in their plans for the future primarily and unanimously the developments aiming at market access and increase in value added.

In Hungary it is characteristic that **a significant percentage of the rural population is not properly prepared for launching new gainful activities**; the risk-taking behaviour, the willingness to enterprise, acquire information, the **skills** and the willingness and capability of **market development and market access are still lacking**. My opinion is that this last factor is the one which **in the long term will determine the success of diversification** and the families will play an important role. Therefore, I think that the subsidy schemes for diversification and the mechanism of implementation have to be adjusted to the capacities and skill of the target group; furthermore, in small-scale enterprises developments aiming at farm diversification **specific measures and methods have to be applied**; such as assistance in the preparation and generation of developments as well as for project implementation. I recommend treating the beneficiaries of the diversification measures by differentiation. Emphasis should be placed on processing of the raw material produced by the farm and on the market access of the food products. In connection with this activity it would be reasonable to provide assistance to the small farms **for cooperation, processing the farm products and jointly accessing the market**.

The respondents mentioned firstly the lacking entrepreneurial behaviour and skills of the farmers as the most significant constraint. This statement was also confirmed by the statistics since on the basis of the analysis it could be seen that in organic farms the share of farmers with medium or higher qualifications was higher than the average. This kind of conscious management based

⁶ Ministerial Decree (FVM) No. 52/2010. (IV. 30.) amended by Ministerial Decree (VM) No. 4/2010. (VII.5.)

on **competence, skills and knowledge** could be considered as an **opportunity for the development of Hungarian agribusiness and the whole rural economy.**

Based on the above I think it would be necessary that – in addition to the resources provided by the EAFRD – other EU funds should also finance farm diversification in order to encourage diversification. However, I am convinced that encouraging diversification can only be successful by applying an **integrated subsidy policy**, in which regional characteristics have also a role and in addition to financing special emphasis is placed also to the following characteristics:

- **opinion formation** increasing the aptitude of farmers to new, non-routine activities and products,
- **encouraging agricultural producers to cooperate with other market players,**
- **consultancy** connected to diversified activities,
- **information** on markets and market developments,
- **training,**
- assistance in the **preparation of applications,**
- **adaptation** of regulations and **criteria relating to the various activities to the target group**
- **dissemination of the best practices** at the level of the settlement and micro region.

5. PUBLICATIONS IN THE TOPIC OF THE DISSERTATION

a) Scientific publications (book, part of book, articles)

Book, part of book (in Hungarian)

1. Molnár, A. (szerk.) – **Hamza, E.** — Székely, E. – Varga, E. (2010): Az EU társfinanszírozásával megvalósuló főbb vidékfejlesztési intézkedések átfogó értékelése. Agrárgazdasági információk, AKI, Budapest 2010. 13. szám p. 111.
2. **Hamza, E.** (2008): A mezőgazdasági jövedelmek kiegészítésének lehetőségei, Agrárgazdasági tanulmányok, AKI, Budapest, 2008. 5. szám, p. 114.
3. Tóth, E. (szerk.) – **Hamza, E.** (2006): Az egyéni gazdaságok eltartó-képessége, megélhetésben betöltött szerepe, Agrárgazdasági tanulmányok, AKI, Budapest, 2006. 2. szám, p. 130.
4. Dorgai, L. (szerk.) – **Hamza, E.** – Miskó, K. – Székely, E. – Tóth, E. (2005): Termelői szerveződések, termelői csoportok a mezőgazdaságban, Agrárgazdasági tanulmányok, AKI, Budapest, 2005. 4. szám, p. 107.
5. **Hamza, E.** (2003): Agrárfoglalkoztatás hátrányos helyzetű térségekben – uniós lehetőségek gyakorlati alkalmazása, Agrárgazdasági Tanulmányok, Budapest 2003. 4. szám AKII, p. 98.
6. Tóth, E. (szerk.) – **Hamza, E.** – Miskó, K. – Székely, E. (2002): Az agrárgazdaság átalakuló szerepe a vidéki foglalkoztatásban, különös tekintettel az EU-csatlakozásra, Agrárgazdasági Tanulmányok, Budapest 2002. 4. szám AKII, p. 116.
7. Tóth, E. (szerk.) – **Hamza, E.** – Miskó, K. (2001): Az agrárfoglalkoztatás jellemzői, különös tekintettel a nők munkaerő - piaci helyzetére (1990 - 2000), Agrárgazdasági Tanulmányok, Budapest 2001. 2. szám AKII p. 94.
8. Dorgai, L. – **Hamza, E.** – Miskó, K. – Tóth, E (szerk.). – Székely, E. (2000): A mezőgazdasági foglalkoztatás alternatív lehetőségei, Agrárgazdasági Tanulmányok, Agrárgazdasági Kutató és Informatikai Intézet Budapest 2000. 13. szám, p.140.

Scientific articles (in foreign languages)

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10. **Hamza, E.** – Miskó, K. – Tóth, E. (edit.) (2001): Agricultural employment, with particular regard to the situation of the women's labour market (1990 - 2000), *Studies in Agricultural Economics*, AKII Budapest 2001. No. 97, (pp. 19-27).
11. **Hamza, E.** – Tóth, E. (2007): Types of private holdings and their role in subsistence of rural population in Hungary, *Agric. Econ.* No. 4. – Czech, 53 (2007) pp.194-199.

b) Presentation on scientific conferences

In foreign languages

12. **Hamza, E.** – Tóth, E. (2006): Types of private holdings and their role in subsistence of rural population in Hungary, In Land market and agricultural use of land after EU enlargement. International Scientific Conference October 2-6, 2006 Novy Smokovec pp. 145-153.

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13. **Hamza, E.** – Ludvig, K. (2006): A tevékenységbővítés (diverzifikáció) szerepe és lehetősége a vidéki népesség megélhetésében Magyarországon. V. Alföldi Tudományos Tájgazdálkodási Napok. Mezőtúr, 2006 október 26-27. p. 33.
14. **Hamza, E.** - A vidéki foglalkoztatás-bővítés lehetőségei a Strukturális Alapok támogatásával (2003): Agrárgazdaság, Vidékfejlesztés, Agrárinformatika konferencia, Debreceni Egyetem, Agrártudományi Centrum, Agrárgazdasági és Vidékfejlesztési Kar - Debrecen, 2003. április 1. - 2., (p. 162.) Az előadás anyaga teljes terjedelemben (10 oldal) elektronikus adathordozón (CD-n) jelent meg.
15. Tóth, E. – **Hamza, E.** (2000): Az élelmiszergazdaság változó lehetőségei a vidéki foglalkoztatásban V. Falukonferencia Integrált vidékfejlesztés MTA RKK, Pécs 2000. p. 94 ISBN 9639052191.

c) Other publications

16. **Hamza, E.** – Miskó, K. (2005): Az agrár- és vidékfejlesztés szociális kérdései. Nemzeti Fejlesztési Hivatal, Integrációs és Fejlesztéspolitikai Munkacsoport Agrár- és Vidékfejlesztési Témacsoportja, p. 51. (www.nfh.gov.hu)
17. Dorgai, L. – **Hamza, E.** – Miskó, K.– Székely, E. –Tóth, E. (2000): Foglalkoztatás a mezőgazdaságban - Térségek, települések, feszültségek Budapest, 2000. 26. szám Számadás p. 6-7.

