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## DEVELOPMENT OF THE AGRICULTURAL-STATISTICAL
## SYSTEM FROM THE ASPECT OF THE EU REQUIREMENTS

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# 1. PRELIMINARIES AND OBJECTIVES OF THE RESEARCH

Traditionally, Hungary is a "rural" country, since more than 90 percent of its area is basically (or typically) rural region where agriculture has great importance. Perhaps it is not an overstatement that **the majority of the Hungarian rural society is "at the mercy of" the agriculture.**

It is a fact that the recent period in Hungary is highly sensitive, namely because of two reasons (external and internal factors):

❖ The **internal factor** is that in the Hungarian agriculture, the **transition** beginning with the change of the political regime is far **from completion.** In the situation of permanent changes of more than ten years, those formations (family farms; small and medium farms) that could be the basis of the future agricultural production have not stabilised yet.

❖ **As external factors,** partly the development of globalisation and informational society, and partly the **Common Agricultural Policy** should be mentioned. (As a candidate country, the Hungarian agriculture is under a force upon harmonisation.)

The force of the Hungarian agriculture to meet these challenges makes it necessary – besides many other tasks – to transform the agricultural information systems.

During the researches, firstly it was aimed to standardise the agricultural information systems and choose a practical aggregation method. A part of this work was to define the agricultural information system as the segment of the aggregations of agricultural-informational and agricultural-statistical elements. I have found that the agricultural information system of a country is an extremely complex multidiscipline system. Therefore, in an early stage of the researches, it was found that the investigation - especially from EU context – would far exceed the volume of a study that one can handle. Because of these all, I decided to survey "only" the **agricultural statistical system** instead of the whole Hungarian agricultural information system (and in parallel that of the EU). (It is even more reasonable because I have been working at the Statistical Office from twenty years. This fact was positive from the aspect of the study; however, sometimes I had to exceed the thinking method of a simple statistician.)

*The aim of the study was partly to map the agricultural statistical systems in Hungary and the EU, and partly to study and to trace the transformation and EU harmonisation of the Hungarian agricultural statistics.*

The agricultural statistical system is a well-developed subsystem of both the Hungarian agricultural information and the official statistical systems with a history going back high in the past. Its changes and development has been in close contact with the development of statistics as a discipline and the prevailing situation and processes of the agriculture. That means that the agricultural statistical system has to **meet simultaneously two challenges**:

- To apply the latest statistical methods in the agricultural surveys,
- and to trace the processes of the agriculture with the specific tools and methods of statistics.

At the beginning of the previous decade, the Hungarian statistics faced a new challenge: the tasks of the Hungarian accession. Of course, the accession entails great tasks on the whole agricultural statistics; and the difficulties are even greater in this field. Due to this challenge, the **development of the agricultural statistics** partly accelerated and partly **changed its way**. The task is to establish a statistical system till the enlargement, which, not only thoroughly harmonises with the EU system and meets its requirements, but also satisfies the domestic demands of use.

Only the fraction of the current changes in the Hungarian agricultural statistics is definitely and solely due to the accession. Many of these changes are "only" motivated by the EU requirements. However, often times this motivation is determinant as the dissertation will also prove).

Though the aim of the study is to investigate the changes in the Hungarian agricultural statistics which were induced by the EU's requirements, it was found that the solely elements can not be clearly separated. In other words, the whole current Hungarian agricultural statistics is surveyed – as the title states – from the aspect of the EU requirements.

## 2. MATERIALS AND METHODS

Earlier in my research, I found that the literature of the informatics is huge, while that of the agricultural informatics and especially the agricultural statistics are poorer. (Of course, in the latter case, I considered only the *information system* of the agricultural statistics, such as its elements and the system and connections of the elements. Contrary, the *publication of the statistical data* is much wider.)

Unfortunately, both the Hungarian and the foreign literature gave little help in the dissertation, therefore the critical analysis and process of the literature was only marginally helpful. Therefore, an alternate method had to be chosen:

> ➢ the *regulations* of Hungary and the EU on the agricultural statistical information system and *methodical literature*, and
> ➢ the *interviews* with experts of certain fields were the basis of the research.

Practically, this meant that in each agricultural statistical module item-by-item, the EU regulations and the published methodology and - where it was available – the practice of the member countries were reviewed. This was compared to the Hungarian regulation and practice, which were given by the experts of the KSH, FVM and AKII. The starting year of the study was 1999 (when the agreement between the KSH and FVM was signed on the share of the agricultural-statistical tasks); the finishing point was the mid of 2003. The research was not only focused on the differences (from where to where a given module reached) between these two points but my aim was to describe the *process* also.

# 3. RESULTS OF THE STUDY

## *3.1. DEFINITION OF AGRICULTURAL STATISTICAL INFORMATION SYSTEM*

The dissertation deals with the agricultural-statistical system, which is the segment of two bigger aggregation sets. One of these is the agricultural information system; the other contains the elements of the statistical information system. Therefore, the agricultural-statistical information system is a subsystem of both the agricultural and the statistical information systems.

The subgroup of the agricultural-statistical information system has a peculiarity: its borders *within the set of the agricultural information system* are uncertain, thus it is hard (or rather impossible) to define its outline. The *borders within the statistical information system*, however, can easily be traced; hence it is in the interest of the statistics to separate each field of activity as specifically as possible. Different statistical classifications and nomenclatures are used for this (e.g. TEÁOR.).

It is evident that more difficult cases exist, such as the Agricultural Accounts versus National Accounts; or the statistics of agricultural labour – however, even in these cases, the statistics intends to define clearly. (e.g. between the National and Agricultural Accounts, a so called "bridge table" is fitted.)

In many of the subsystems of the agricultural information system which are linked to statistics, the border between the statistical and non-statistical elements is not clear or, more frequently, the definition of the border is indifferent.

In my interpretation, **the agricultural-statistical information system is a so called "fuzzy set",** which is atypical and – as a consequence of the above mentioned – has only a „half part". (The elements belonging to this part of the segment, such as FADN, MIS have higher membership values – in my opinion - to the agricultural information system than to the statistical information system.) (Figure 1.)

## *3.2. AGRICULTURAL-STATISTICAL INFORMATION SYSTEM OF THE EU*

In the dissertation, the agricultural statistical information system of the EU was investigated in details, its structure, and the principles of regulation,

institutions, the information-flow and the CAP's requirements on agricultural statistics. Some important conclusions:

It is known that the operation of the Common Agricultural Policy (CAP) requires huge amounts of money, around the half of the total budget of the European Union. Of course, the operation of the CAP relies on a very wide and in-detail-regulated information system. In the EU, this information system has **two main organisations**; which are both General Directorates of the Committee. One is the Agriculture Directorate General (**DG Agri**); another is the statistical office of the European Union, the **Eurostat**. DG Agri is responsible for the implementation of the agricultural and rural policy. Therefore, it is the biggest "consumer" of the agricultural statistical information. The required information is provided by the Eurostat, while other agricultural information comes directly from the member countries. (The majority of these serves operative goals.)

The *only* „official" provider of the statistical information is the Eurostat, which takes the responsibility for the truthfulness of the information coming from national statistical offices and ministries.

The demands of DG Agri (indirectly the Committee) on the agricultural statistics are the following:

→ Detailed statistical information is needed to the analysis of the EU markets, in order to estimate and calculate the effects of the acts of the agricultural policy and to provide a basis for the decisions that in the end help the CAP adapt to the changing circumstances. (Decisions of not only the market policy, but the social and rural policy count.)

→ It is also an important demand of the decision makers to support the measures of the market regulation with agricultural statistics (decisions on provisions – and studies on its impact - such as set-a-side, intervention, export regulation, etc. belong here.)

→ Statistics are needed to trace the structural changes (related to the farms' number, distribution and other features) in the agriculture of the European Union, in order to form concise rural development policy and to be able to measure the effectiveness and results of the policy.

→ The econometric modelling of the agriculture of the EU and the effects of different measures or their effects on the budget are also based on statistics.

→ The analyses of the impact of agricultural measures on the EU budget and an adequate cost programming should be based on statistics.

→ Finally, the foreign connections of the EU agribusiness should be supported by statistics (not only the international agricultural trade is included).

The agricultural-statistical information system of the European Union consists of two main parts:

**1.** The **Agricultural Statistics** in a narrow sense (belonging to the Eurostat competence) has three pillars:
- **The structural statistics of agriculture and forestry**: those modules belong here that are used for recording the structural data, the farm database and typology, and the monitoring the orchards, vineyards and forests.
- **Production statistics:** statistics of land usage, plant and crop production, animal production and fisheries.
- **Agricultural monetary systems**: those elements of the system belong here, such as the account system, the statistics of workforce, prices, agricultural family incomes, and sector models.

*The Statistical Requirements Compendium is compiled from time to time by the Eurostat, which is a reference document deduced from the „acquis", and it collects and organises (by themes) the tasks of the common statistics. The tasks are ordered in „chapters" and within it in „themes" and within „modules" are organised. The agricultural statistics is divided into 9 themes and 26 modules within.*

**2. Elements of relating information systems** can not be grouped definitely into the agricultural statistics (which is why the agricultural-statistical system was mentioned as „fuzzy set with half part"), but are in very close contact with it. Either, because these use and collect statistical information, or deliver the information needed for generating statistical information of point 1. These elements are controlled by DG Agri:
- **Market Information System**
- **Farm Accountancy Data Network**
- **Integrated Administration and Control System**

In the European Union, a main part of the statistics and data collection is controlled by complex and detailed regulations, directives and decisions made by the community's organisations. There are, however, fields that are not covered totally by these regulations, such as the statistics (e.g. half of the methods used for statistical data collection are like these). This sort of lag

between the EU and the member countries is covered by the so called „**gentlemen's agreements" (GA)**, which, in practice, means Eurostat makes an agreement with the member countries on providing of these data.


*3.3. THE SITUATION OF THE HUNGARIAN AGRICULTURAL STATISTICS IN THE BEGINNING OF THE HARMONISATION*

The study has drawn a picture on the situation of the Hungarian agricultural statistics after the change in the regime. Factors that made/makes the changes inevitable were investigated. The main conclusions are the following:

In Hungary, the current changes and development in the agricultural statistics – in my opinion – can be interpreted as the resultant of **four main factors**.
One of these factors is the **development of the statistics,** as a **science**, such as application of new methods for data collection, and the developing, processing, analysis and information techniques that come with the spread of information technology.
Another factor is the **continuous change in the agriculture** (and this change is often not based on economic rationalisation). Tracing these requires an also changing agricultural-statistical tool kit and system.
The third factor is an internal demand that is the demand of the **inland users of agricultural statistics** and the changes of it. The fourth factor is the external **expectations which come from international** connections and **commitments;** out of which, the most important are EU relationships.
Since the Hungarian agricultural statistics had to adapt to the EU requirements, the system of the collection, processing and publication of the data had to change. All these had to be carried out but not only copy but has to the special domestic demands.
Since the change of the regime, in the first half of the '90-ies, the Hungarian statistical (incl. the agricultural-statistical) system went through a deep change. The following processes played determinant role in the background:

> ➢ As a result of the social-economical changes, the structure of the users of statistical information has dramatically changed, the complexity and quantity of the demands have widened and the external demand for information has become multitudinous.

- The changes induced new consumer demands and new statistics had to be introduced which did not exist before.
- The radical transformation of the economy caused a crisis in the economic statistics. The number of the economic actors exploded and the role of the small organisations increased, while the willingness for data providing dropped. The previous economic statistical tools that had been built up on an almost fully comprehensive observation had to be replaced with representative methods. Before the change of the regime in the agricultural statistics, the main part of the agricultural production was generated by the so called socialist agriculture that is the cooperatives and state farms. As their number was below 1 400 it was easy to carry out fully comprehensive statistical observations. In certain sectors (e.g. animal production and horticulture), despite of that the small scale production was significant, the monitoring of the so called „backyard" production was easy because it was integrated in the larger farm-estate production. After the change of the regime this farm structure disintegrated and the production de-concentrated. Therefore the number of the units to be monitored multiplied, thus application of representative techniques was necessary here, too.
- The changes induced social and economic tension, thus the demands of knowledge on the effects of certain government measures - which the statistics was not able to meet properly - increased
- The European Agreement was signed in this situation of the Hungarian statistics, and thus the fast transformation of the statistical system became important national commitment.

This review reflects on that **even if the EU accession had not been on the agenda, the Hungarian statistical information system should have been transformed radically in a short term, anyway.** (This statement is not, however, related to all statistics. For example demographics was less influenced by the change of the regime than the agricultural statistics.)


## 3.4. PROGRESS OF HARMONISATION

The current study reviews the harmonisation of the Hungarian agricultural statistics and its main stations. The results obtained can be found – in a nutshell - in the following:

The official statistical service of Hungary and within the Central Statistical Office (KSH) used to have connections with the Eurostat before the change

of the regime. These got in form only in 1994, when the KSH and the Eurostat signed a so called „Common Declaration" that defined the frames of the co-operation. At the time, the development strategy of the statistical work till 2000 was laid down by the KSH, which was accepted by both the government and the EU. This document prioritised the tasks. **Concerning the agriculture**, this document only prescribed a census on the structure of the agriculture for the third fourth of 1994, which will be the basis of the new agricultural statistical system. (Its substance is that based on a fully comprehensive observation, such a differentiated monitoring system should be introduced where the likelihood of falling in the sample grows along with the size of the farm.)

In 1996, the KSH prepared a proposal for the government on „The current tasks of the harmonisation of the statistical system". It says that, though, the strategic plan of the statistical work to 2000 does not need elementary changes, the latter changes such as OECD membership, the EU questionnaire and the speeding up of the accession require a re-prioritisation of the tasks, mainly according to the demands of the EU. In this document, the **agricultural statistics** became one of the **emphasised issues**. **It was realised that the Hungarian agricultural statistics is less EU conform** and that important tasks should be answered till the harmonisation.

By 1997, the agricultural statistical system of the EU had been reviewed in the KSH and an agenda had been set up. The statistical chapter was screened and the most important steps were defined in the followings:

- Fully comprehensive agricultural census should be carried out not later than 2000.
- Further development of the register of farms.
- Establishment of a farm typology satisfying both the European and Hungarian demands.
- Census of the orchards and vineyards.
- Setting up the register of orchards and vineyards before the accession.
- The review and development of the statistics of agricultural products.
- Monitoring the processed agricultural products.
- Setting up the Economic Accounts for Agriculture.
- Development of the information system of forestry.

Later on, this programme changed somewhat and it was finally completed when the **KSH** together with the Hungarian Agricultural Ministry (**FVM**) worked out the **division of labour** and tasks.

According to this, the main responsibility is taken – within the official statistics - by the KSH for the agricultural statistics. The agricultural ministry collects operative information; and its main field is forecasts, professional estimations and data collection on the inputs and outputs of the production. In addition, the FVM is responsible for the statistics of forestry, fisheries and remote sensing.

Relating to this agreement, a survey was done on the extent of the harmonisation of the agricultural statistical modules and that that are responsible for which harmonisation task.

The harmonisation process actually meant (means) that a functioning system of the agricultural statistics had to be modified. This modification had (has) a few types. Firstly, there were (a few) elements of the system that did not need change as these met the EU demands. Others satisfied the requirements after more or less changes. However, many of these elements had to be created, as earlier the agricultural statistics did not have these. This task should be solved so that the system remain functioning and consistent meantime, redundancies not form and that is the most important: the Hungarian peculiarities should be prioritised

## 3.5. THE MAIN STATIONS AND RESULTS OF THE HARMONISATION

The current dissertation has analysed the – Compendium - modules of the agricultural statistics in details. In case of each module, the EU requirements and regulations, the domestic demands of use were investigated; and these were compared to the current situation. Meantime I gave critical opinions and revealed existing lags and in the end I gave my own suggestions. Then, a connection network of the EU and Hungarian agricultural statistics was drawn. (Figure 2.)

### 1. Agricultural statistics
- In 2000, **General Agricultural Census** (ÁMÖ) was conducted, which fulfilled the EU standards and served the establishment or

harmonisation of numerous important agricultural-statistical modules, such as the agricultural accounts, farm typology, representative statistics of the products and livestock and test farm system. In the future, besides General Agricultural Census in every ten years, Farm Structure Surveys should be carried out in every two to three years. These records are not traditional in Hungary.

- In 2001, a test variation of the **farm typology** was set up (based on the data of the ÁMÖ and the national FADN). Though, it does not meet the EU requirements in many aspects at the moment, this system provides a starting point for a suitable classification that is being built up till the accession. This test typology reflected on the peculiarities of the Hungarian small scale producers that are mostly self-supplier and probably different from the highly specialised European small farms. Therefore, in my opinion, a simplified typology should be applied on the small-scale farmers. (There are examples existing in the EU for a double classification, e.g. in the UK and Sweden.)

- In 2001, a fully comprehensive **census of vineyards and orchards** was carried out. This census was not only to satisfy the EU requirements and to base the vineyard and orchard register, but it had been an old dept of the Hungarian agricultural statistics. Unfortunately, the census was not followed by the setup of the cadaster, because the data go out of date and will be less good basis for the register.

- The **remote sensing techniques** has come into practice in the Hungarian agricultural statistics, too. Firstly, these supported the census of the orchards and vineyards, and then in 2002, it was used in the project LUCAS for recording the land use and the structure of the vegetation.

*In my opinion, the project LUCAS has a far greater role above its own importance from the aspect of the future of the Hungarian (and the EU's) agricultural statistics. In „classical sense" the record units of the agricultural statistics are the producers, farms and farmers, while in the case of regional pattern methods such as the LUCAS, the units of the observation are the land. This opens a new dimension for the agricultural statistics; in my conviction, the role of this recording method is going to grow in the - very close – future.*

● The representative **data collection of plant and animal production** is based on a new method of sampling which is founded on the census (ÁMÖ) in 2002. The frequency of the collection and the types of the data meet the requirements of the European Union, while it also takes into account the specific domestic demands. (E.g. the frequency of the animal recording is higher than what the EU expects.)

● The **Economic Accounts for Agriculture** have a very short past in Hungary. It can not be stated definitely that only the EU requirements induced it, but its development accelerated from the late'90ies. The work was started in autumn 1996 by a team of experts from KSH, FVM and AKII. During the first period, the co-ordinator of this work was the AKII. Then, according to the agreement on the preparation on the accession and screening, from 1999, the host of the development was the KSH. The first year was 2000 in Hungary, when the KSH reported the data of the agricultural accounts on 1998 and 1999. At that time, only the data of the *production accounts* were published. The next publication in 2001 contained the test calculations on the *income and capital accounts*, too. The harmonisation has not been completed yet; e.g. the regional accounts or those regarding to the forestry are not working at the moment.

● There is a relatively new element in the agricultural statistics of the EU, which is the **income statistics of the agricultural household sector**. Its aim is to provide information on the incomes of agricultural producers and their families. The starting steps of "adaptation" were taken by the KSH: in 2003, in connection with the household statistics (based on the income module) the data were recorded.

● The **Agricultural Price Statistics** was always a developed subsystem of the Hungarian agricultural statistics. Therefore, in majority it was harmonised at the time of the screening, however there are still a bit to do (e.g. to harmonise with the Market Price Information System).

● The aim of the statistics of the **Agricultural Labour Input** is to make possible to analyse the trends of agricultural income from the aspect of the trends of the agricultural labour inputs. The Hungarian ALI statistics is mainly EU conform. Such as many other new statistical modules in Hungary, the ALI is based on the census carried out in 2000. Based on the results of the ÁMÖ a representative sample has been used since 2001 to record the labour

input also, annually. Besides, the data of the so called „institutional statistics"
and the labour records of the household statistics are used in the ALI.


### 3.5.2. Agricultural-information subsystem relating to agricultural statistics

● As the agricultural market of the EU is highly regulated, the
transparency is important to be maintained so that the primarily interested
two groups, such as the producers and - both the Hungarian and the EU -
government should be provided with the most up-to-date and accurate
**marketing information**.
There are – of course – differences and at the same time, overlaps between
the information demand of these two groups. The actors of the market
primarily need regular in-detailed information on prices, market analyses and
last but not least short term forecasts. As an oppose, Brussels (DG Agri)
expects not operative market analyses and forecasts but primarily statistical
information (mainly on prices) that vary by products in terms of content,
range and frequency of the information. In the EU a Market Information
System is functioning; and it is the responsibility of the member countries to
maintain a regular and accurate data providing system with short due periods.

The basis of the marketing information system was formed within the AKII
from the first half of the '90ies. In the beginning of 2002, a decision (of the
Agricultural Ministry) was made on the organisation and labour division of
the EU conform marketing information system in Hungary. According to
this, the AKII is responsible for the *price information system (PÁIR)* and the
Agricultural Intervention Centre (AIK) is for *providing operative marketing
data*.
The forming marketing information system in Hungary seems to slightly
differ from those currently existing in the EU member countries from the
aspect of the labour division. The marketing information system has two
organizationally different units in Hungary, too. However, the duties are
assigned according not to the different demands of the user groups but to the
type of the information (marketing or other information).

• **The Farm Accountancy Data Network (FADN)** is an element of the European statistical system and is maintained by every member country and was introduced for the CAP. FADN is based on a regular sample observation that provides *farm-economic information* on a certain sample of agricultural producers and farmers. Based on the accounts of the farms, it gives a picture of the income situation of different groups of producers on regional, national and EU level.

The *role* of the FADN is double, firstly it serves *statistical* goals (such as generating basic data – SGM – for the farm typology), secondly – and maybe more importantly – FADN provides micro economic data for simulations of ex ante and ex post effects of the measures of the agricultural policy.

In Hungary the establishment of the equivalent system of the FADN, the Test Farms System started in 1996. In the first year, only 50 farms of one county (Fejér) belonged to the system, which has continuously developed. In 2001, all the 19 counties joined; the number of the farms increased to 1900.

During the assignment of the needed data and the formation of the questionnaire, both the EU prescriptions on the FADN and the goals of the Hungarian agricultural policy were taken into consideration. Therefore, it is natural that the requirements on the information provided by the producers are higher than what the EU expects.

According to the situation of the Hungarian test farm system in 2002, it did not fully meet the EU demands.

During the harmonisation, several problems should be solved: besides that the *sampling* should be *representative regionally*, too (SGM figures should be calculated for each product and region to classify the size and the typology), the *main problem* is to *define size of the sample* and – in close contact – the *minimal farm size* in the sample. The reasons are the following:

The EU regulation on FADN specifies *two criteria* for determining the basic population. Firstly, it should cover *profitable* that is "full-time" *farms*; and the sample has to be representative for these farms by regions and enterprises. Secondly, the basic population must *cover 90 percent of the national SGM*. The recent structure of the Hungarian agriculture is so that *both criteria can not be fulfilled at the same time*. It was acknowledged by the EU on the negotiations of 2003 when it was endorsed that the minimum farm size can

be 2 ESU. (This decision will have serious consequences on the farm typology!)

- The **Integrated Administrative and Control System was** introduced after 1992, when the *direct payments* were implemented in the CAP. The integrated system consists of five main elements:
  1. Production records
  2. Records on agricultural tables
  3. Livestock register
  4. Records of applications for grants
  5. Integrated control system

The tasks are the following in Hungary:
  - ➢ The basic elements of the system have to be established.
  - ➢ The so called disbursement agency should set up, whose duty is to disburse and control the direct payments.
  - ➢ The institutions of the strict internal and external financial control and the budget supervisory procedure have to set up.
  - ➢ The conditions of the physical control have to be created

There are of course *national requirements* as well; out of these the most important are to *handle,* consider, control and disburse the *national agricultural payments*.

The IIER started slowly: in 2002, according to EU experts, Hungary was the last among the candidate countries – from the point of its completion. Afterwards, however, the process accelerated, in the middle of 2003 the offices AIK and SAPARD formed the Office of Agricultural and Rural Development (MVH), which is responsible for building and operating the IIER. The Committee has endorsed - to ease the transition period – that Hungary can apply a hectare based payment system instead of that working in the EU for three then twice for one year. However, the most important modules in the IIER have to operate. Therefore, the MePAR system and the farmers' register will set up till May 2004.

*In terms of the connection with agricultural statistical modules in narrow sense, it would be useful for the harmonisation of the statistics if the Hungarian IIER system started as early as possible. This would help the preparation of the above mentioned statistics, because the registers and databases can be used for (quasi secondary) statistical objectives and this*

*could save significant resources. (Many member countries have results in statistical use of administrative registers.)*


3.6. CHALLENGES OF THE HARMONISATION

When analysing the changes of the agricultural statistical system, we should remember that it is an integrated part of the Hungarian statistical system. With the accession, Hungary is going to be a member of the European Statistical System, which is co-ordinated and controlled by the Eurostat. The statistical (and within it the agricultural statistical) harmonization means that the elements of the European system are analysed and compared to those of the Hungarian, and where changes (or new statistics) are necessary, the steps have to be taken. The ESS is changing, too: when it was set up, different functioning systems of the member countries had to be harmonised, however, today, firstly a European vision have to be created, and the national organisations will act upon that. Hungary as a new member can not disagree with this theory of course, but two things should be taken into account:

→ There are or can be elements in the ESS that are worth change, modification or refinement, especially after the accession. These have to be raised on the discussion forums of the Eurostat.

→ After the accession, there will be elements of the national statistical systems that are not important in the EU, but from the aspect of the member country these have a significant role. Therefore, the national peculiarities should be included in the national statistical systems

In my opinion, *the EU harmonization of the Hungarian agricultural statistics will not be completed with the accession.* There are two reasons why. (Both cases were found in the in-detail analyses of the statistical modules)
*Firstly*, because certain modules will not be ready, partly due to objective reasons, such as time shortage or not seenable challenges – in this case, the harmonization will continue after the accession; and partly because of the Hungarian peculiarities that will not enable the full harmonisation. In this case, it is the task of the Hungarian agricultural statistics – along with the other new members - to achieve that these peculiarities should be incorporated in the EU system.

*Secondly* however, there is a continuous change in the Common Agricultural Policy of the EU – partly e.g. because of the accession -, which have to be responded by the agricultural statistics of the European Union.

## 4. NEW AND NOVEL RESULT FINDINGS AND RECOMMENDATIONS

4.1. In the relating literature, there was not found any example those analyses in such depth and details the EU and the Hungarian agricultural statistical systems in parallel as the current dissertation does. From this point, - maybe it is not immodesty to say that – the dissertation is a novelty, a work filling this shortage.

4.2. In an unconventional way, the agricultural statistical information system was defined as a segment of aggregations: "half-sided fuzzy set". The elements of the system were grouped accordingly, which gave a good picture of the subject.

4.3. The influencing factors in the changes and development of the recent Hungarian agricultural statistics are organised by the following:

- Development of statistics, as a science, such as application of new methods for data collection, and the developing processing, analysing and dissemination techniques that come with the spread of information technology.
- Continuous change in the agriculture (and this change is often not based on economic rationalisation); and tracing these requires an also changing agricultural-statistical tool kit and system.
- Demand of the inland users of agricultural statistics and the changes of it.
- Commitments from international relations; out of these the most important are those of the EU

4.4. The current dissertation has revealed that remote sensing in agricultural statistics has much wider opportunities than it is used for recently and even than the public generally thinks about it. The reason is: in „classical sense" the record units of the agricultural statistics are the producers, farms and farmers, while in the case of regional pattern methods such as the LUCAS, the units of the observation are the land. This remote sensing technique using regional pattern observations opens a new dimension for the agricultural statistics. In my conviction, the role of this recording method is going to grow in the - very close – future and will become a second, later or sooner, equal pillar of the agricultural statistics.

4.5. The thorough investigation of the EU farm typology led to the consequence that it is not reasonable to give the Hungarian small scale producers that are mostly self-supplier and probably different from the highly specialised European small farms same typology as in the EU and which assumes a high specialisation. Therefore, in my opinion, a simplified typology should be applied on the small-scale farmers.

4.6. After the review of the EU agricultural statistics, I have found that the main dilemma of the Hungarian agricultural statistics is that in Hungary, the agricultural products are produced by high number of farmers, which on its own is not a problem but it is problem that the concentration of the production is low. The data of the census in 2000 showed that more than 2.1 million households and farmers had to be asked in order to satisfy the EU requirements on surveying 99 percent of the production. Another EU requirement was to monitor only those units who produce for market, and it was much easier to satisfy. The main problem is that in the EU member countries agricultural production comes only from farmers who produce for market; and the self-supply and hobby production are not significant. In Hungary, the latter – especially in case of some products – is quite high. The EU methods and requirements were formed according to the western European agricultural model, and its changes did not match e.g. the changes due to the enlargement..

4.7. When the elements that did not exist formerly in the Hungarian agricultural statistics but the new EU requirements brought demands on them were analysed; I came to the following conclusions: certain modules of the EU agricultural statistics are highly cost demanding to set up and maintain. (Such notes are stereotypically answered that compared to the CAP budget the agricultural statistics requires only small amount of money.) In fact, the national finance is sensitive; because the non-agricultural statistical fields are not that cost demanding, in general

4.8. The difficulties occurring during the work made me realize how great need exists for a unified agricultural statistical system in Hungary. The

(Eurostat) New Cronos in the EU could be a good example – in certain aspects – for a national (Hungarian) information system. As the Hungarian agricultural statistics has decisively fulfilled the tasks of the harmonisation, the next objective can be to build this information system. From my viewpoint, the work has the following stations:

• The first step could be to *organise the agricultural database in thematic databases* and to form meta-databases. The KSH has started this work: the agricultural database named "HOMBAR" is under construction.

• it is important to endeavour from the beginning to ensure an – if possible automatic – analysis of the *comparability, consistency and accuracy* of the data.

• It is also important to build on-line service and to define the availability levels (public data and value added data, which are not free, etc.).

• Last (but not least) it is very important to build the system according to the theories of project managing with appropriate quality management.

## 5. PUBLICATIONS AND PRESENTATIONS ON THE THEME OF THE DISSERTATION

### Publications

1. Kistérségi információk (lehetőségek, igények) a SAPARD-program tükrében. (Small Region Information (opportunities, demands) in the aspect of the program SAPARD) Területi Statisztika, (Regional Statistics) 3.(**40**.). 4., 285-290.p. July 2000. (Co-author: Gy., Jelenka)

2. The agricultural-statistical system in the EU and Hungary: actual questions of harmonisation. Acta Scientarium Socialium Universitas Kaposvariensis. (under publication)
3. Uniós és magyar agrárstatisztikai információs rendszer: a harmonizáció kérdései. (The agricultural information system in Hungary and the EU) Gazdálkodás. (under publication)
4. Gazdasági Alapismeretek (Economic Fundamentals) (Faculty GM, Year 1) Chapter Statistical fundamentals. University Book, PATE ATK, 1998. 49-81.p.
5. A mezőgazdasági termőföld értékelésének magyarországi múltja, jelene, perspektívái. (The past, present and future of agricultural land valuation in Hungary) University doctoral dissertation. Marx Károly University of Economics. Bp. 1985.

**Presentations**

1. Kistérségi információk (lehetőségek, igények) a SAPARD-program tükrében. (Small Region Information (opportunities, demands) in the aspect of the program SAPARD) Ambulatory session of the Hungarian Statistical Association, Balatonőszöd, 19 May 2000..
2. Az agrárstatisztikai információs rendszer fejlesztése az Európai Uniós elvárások tükrében. (Development of the agricultural statistical information system from the aspects of the EU requirements) Ph.D. discussion, University of Kaposvar ATK, Kaposvár, 20 November 2002.