

# ***Restructuring the System of Agricultural Statistics in Hungary***

***Eva Laczka, PhD.***

## **1. Agriculture in Hungary**

Due to its natural conditions and historical traditions agriculture and food industry have always played a definitive role in the economy of Hungary. The cultivated agricultural land area is 63 percent of the total land area, while 6 percent of the active earners are employed in agriculture. The share of agriculture in the GDP is about 3 percent, and that of the food industry is more than 4 percent. According to the Farm Structure Survey 2003 7600 agricultural enterprises and more than 766 000 households were engaged in some kind of agricultural activity.

In the recent years fundamental changes have taken place as regards the ownership and the structure of agriculture. In the earlier years a relatively small number of large-scale agricultural and food processing enterprises existed. In the years of transition a large number of small and medium size farms were established on which hardly any data were available. This change in ownership structure significantly impacted the statistical tools used for the collection of data on agricultural production.

## **2. Sharing of efforts in the field of agricultural statistics**

Apart from the Hungarian Central Statistical Office (HCSO) the key user and significant producer of agricultural statistics is the Ministry of Agriculture and Rural Development (MARD). Under the effective Act on Statistics HCSO has the main responsibility for agricultural statistics within the frame of the official statistical service. MARD gathers data to satisfy its own information needs changing from year to year. In addition to the operational information yield estimates are made and data are collected on the output, income and costs of production. MARD is also responsible for forestry and fishery statistics and remote sensing.

In 1999 the leaders of the two organisations signed an agreement on sharing the efforts, which has been effective since that date (Annex 1).

## **3. Impact of the structural changes**

The Hungarian statistical service has been collecting agricultural data since 1867. Since 1895 agricultural censuses were carried out on seven occasions, the latest ones taking place in 2000 and 2003. Agricultural censuses were followed in 1959 by the nationwide census of orchards, in 1960 by the census of agricultural machines and in 1965 by the census of vineyards. In 2001 another survey of orchards and vineyards followed the agricultural census.

In each case regular annual surveys were built on the results of the preceding agricultural census. The key feature was that observations were restricted to the legal

forms of farming that were deemed crucial in agricultural production; accordingly only the state farms and cooperative farms were obliged to submit regular statistical reports in the fifties, sixties and seventies. In these years small producer farms were respondents of agricultural censuses only, and the reports of large-scale enterprises included their key figures.

Considering the fact that - in contrast to land use - animal breeding was not restricted at that time, the increasing livestock of households became subject of statistical surveys starting from 1950. At the beginning data collection was carried out in the form of censuses, and from 1957 regular sample-based surveys covered the livestock of small producer farms.

The nineties brought a fundamental change in the social and economic environment, followed by changes in statistics. Sample surveys of private farms first covered crop production and later land use as well (see Annex 2).

These were the years when - facing the challenge of the system of agricultural statistics of the European Union - the Hungarian statisticians realized the need for the revision of the agricultural data collection system. In 1999 the revision and harmonization with the system of agricultural statistics of the EU of the Hungarian agricultural statistics was completed. The Economic Accounts for Agriculture (EAA) were first compiled. The data input requirement of the EAA impacted some changes of the earlier system. Owing to many years of effort the current Hungarian agricultural statistics system is almost fully harmonized.

Every year HCSO conducts more than 20 surveys falling into the two distinct groups of agricultural surveys, one is the group of surveys to meet the physical data needs, the second one to meet the data needs of the Economic Accounts for Agriculture (see Annexes 3 and 4).

A general characteristic of the surveys is that all agricultural enterprises (legal entities) are obliged to report, whereas the private farms (households) report as part of a sample survey. In the case of private farms the sample selected is typically 5 per cent of the private farms. Agricultural enterprises report by mail, whereas private farms are visited by surveyors. The frequency and scope of the surveys is compliant with the relevant regulations of the European Union.

The production (output) surveys comply with the required accuracy level however the surveys linked with the Economic Accounts for Agriculture require substantial expert estimation, which is along the lines of the international practice.

To sum up, the changes in the system of agricultural statistics impacted the topics of surveys to lesser degree, and manifested rather in the increasing number and rolling out to private farms of sample surveys of the agricultural activity of the households.

#### **4. Impact of the National Accounts**

With respect to the National Accounts - though this term was unknown at that time - Hungarian statistics looks back to over 100 years of history. The first attempt to define and compile the value of national income and national wealth in Hungary was made in 1855. In the middle of the 1930s the compilation of national income formed part of the official work program of the Hungarian Central Statistical Office.

The 1950s opened a new era in the preparation of National Accounts of the COMECON (Council of Mutual Economic Assistance) member countries, when the national balances were prepared in material terms. In the 1960s a unique system of accounting was created in Hungary that equally served the needs of the tables of the Material Production System (MPS) and the calculation of indices under the UN system of National Accounts (SNA). Owing to these efforts Hungarian statistics later made the transition to the SNA of a market economy without any major shocks.

The introduction of SNA at the beginning of the 1990s precipitated a number of fundamental changes in the Hungarian statistical system, such as the replacement of earlier balances with the system of accounts, implementation of the new classification by NACE and sectorial breakdown compliant with the ESA account system of the EU. Practically all these activities were completed without any additional surveys and resources. At the moment HCSO has reached the limits of its internal reserves, therefore any new development and upgrades are only possible if additional funding is available.

As a result of methodological development quarterly GDP calculations were launched in 1996; in the same year the first regional GDP calculations were made for year 1994. These accounts are now prepared regularly. In these development efforts existing databases and surveys were used.

Up until the beginning of the 1970s the agricultural accounts were prepared at the Department of National Accounts of HCSO. The data in physical terms collected by the Department of Agriculture were passed on to the Department of National Accounts for processing. The then existing sources of data satisfied the demand. The most crucial distinction in comparison with the current practice is that data were collected from the reports of the then dominating state farms and cooperative farms, including those relating to the agricultural activity of households.

From the beginning of the 1970s the Department of Agriculture transmitted to the Department of National Accounts the gross production value (GPV)\* of agricultural products. The Department of Agriculture prepared estimates on the non-agricultural activity of farms used also in compiling the agricultural accounts. There was no need to deploy new surveys since calculations of the gross production value have been prepared at the Department of Agriculture since 1938. The reports of large-scale farms satisfied the data needs.

## **5. Impact of Economic Accounts for Agriculture (EAA)**

A quantum leap took place in 1999 when the Section of Agricultural Accounts was established under the aegis of the Department of Agriculture. The other responsibility of this Section is to carry out surveys on price statistics and publish the results. Since 1999 the Department of Agriculture has been publishing annual EAA, and in 2003 the regional EAA was compiled and published, too.

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\* GPV is a value estimated on the basis of average prices and yields rather than the actual output of the private farms. The product balances form the basis of the calculations. The product balance is a report on quantities and values including the production, export and import of agricultural products, procurements, sales, captive use, losses and changes in the inventory whether or not the output of the farm in question is below or above the threshold value.

Due to the long-standing tradition of meticulous detail of surveys on agricultural output there was no need to supplement the available data to obtain production figures under the definition of gross output. Still EAA has had an unparalleled impact on the system of surveys.

New survey(s) were required to cover agricultural services, the share of which in agricultural output has been growing.

The output of non-agricultural secondary activities is calculated partly on the basis of data borrowed from other sources to supplement the available ones such as industrial statistics, and partly by the multi-purpose design of surveys implemented under the EU harmonization such as dairy statistics.

The income- and capital accounts of the system of accounts were first compiled in 2001 using the input from slightly modified existing surveys such as rents of farm land, or through access to administrative sources such as agrarian subsidies, interests, and also making use of ad-hoc surveys such as consumption of fix capital.

## **6. Impact of the characteristics of Agriculture**

The farm structure of the new Member States of the European Union significantly differs from that of the majority of the EU-15 Member States. This difference is mainly attributed to the exceedingly large number of farms producing for family consumption giving rise to a situation whereby units that otherwise do not qualify as farms in economic terms are covered in these countries by the statistical observations. Speaking about the restructuring of the agrarian statistical system one should remember these peculiarities as well. So how do these peculiarities manifest themselves?

### **6.1. The farm concept in statistical terms**

The mission of agricultural statistics is to offer the most accurate possible representation of agriculture and to cover by observations almost the entire agriculture of a given country. This can only be achieved if the scope of observation is defined, i.e. what units should be included in the survey. In a way, the scope of the survey is determined by the type of activity and legal form of farming, yet the size of this activity needs to be determined inevitably for statistical purposes. There is a need for a limit to sort out entities engaging in a given activity that need not be covered by the observation. This limit in statistics is the threshold value; entities above the threshold constitute population of agricultural censuses and surveys, and they are defined as farms in statistical terms. The threshold value defines the farm concept in statistical terms practically on the basis of the size of parameters of the given activity. Now let us take a look at the recommendations and standards of international organizations relating to censuses.

### **6.1.1. Farm concept in the FAO World Censuses**

With the exception of the period between 1953 and 1968 Hungary has been the member of the Food and Agriculture Organization of the United Nations (FAO), therefore FAO has played a crucial role in the international relations of Hungarian agricultural statistics for many decades. Of the six censuses conducted so far five were completed in accordance with the methodical recommendations of FAO.

The farm concept by FAO recommendations defines the activity to be observed on the basis of the international activity nomenclature. In contrast to the relevant standards of the European Union the FAO methodology excludes from the scope of observation entities involved exclusively in agricultural services.

The criteria of the FAO farm concept highlights the comprehensive statistical observation of the output of agriculture. No suggestion has ever been set forth to restrict the scope of surveys to market oriented farms; moreover, the farm concept applied insists on setting the threshold value to the lowest possible level. The concept of the farm is practically identical in the recommendations of FAO and the European Union, both in technical and economic terms.

### **6.1.2. Farm concept in the EU Farm Structure Surveys**

The key pillar of the Community's agricultural statistics is the system of Farm Structure Surveys, in which the farm concept required is defined. By the stipulations of the relevant regulations the farm shall mean a single unit, both technically and economically, which has a single management and which produces agricultural products.

The surveys shall cover:

- agricultural holdings where the agricultural area utilized for farming is one hectare or more,
- agricultural holdings where the agricultural area utilized for farming is less than one hectare, if they produce a certain proportion for sale or if their production unit exceeds certain physical thresholds.

However, Member States which use a different survey threshold commit themselves to fixing this threshold at a level excluding only the smallest holdings which together contribute 1 percent or less to the total Standard Gross Margin (SGM).

Accordingly no universal threshold value – or farm concept – mandatory for all Member States is stipulated in the regulations; it is flexible enough to allow all the Member States to define national threshold values in accordance with the national characteristics of agriculture, provided such definition guarantees the requisite coverage.

The suggestion made in May 2003 is a marked shift towards the farm structure of the acceding countries, whereby the future Farm Structure Surveys shall cover

- agricultural holdings where the agricultural area utilized for farming is one hectare or more,

- agricultural holdings producing an SGM value equal to or exceeding one European Size Unit (ESU).

According to the above definition holdings cultivating an agricultural area smaller than one hectare and those producing an SGM value below one ESU should be termed „small farms”. By no means has it meant any exclusion of the small farms from the scope of observation; they are rather distinguished from the larger ones, which also qualify as farms in economic terms.

The new proposal is expected to be applied the first time in the Farm Structure Survey 2005; until that time the suggestion will be on the agenda of a number of working meetings. It is topic of the Future of Agricultural statistics Task Force as well. At the May 2003 meeting the suggestion was rather powerfully welcome; only certain parts of the suggestion were disputed. One of the representatives of a Member States disputed the component of the suggested threshold value equal to 1 hectare agricultural area, because in her view the production value achievable on 1 hectare agricultural area may equally be much lower or much higher than 1 European Size Unit.

Though the adoption of this definition is a future task still it is a valid statement that the farm concept (threshold value) applied in agricultural statistics depends from the farm structure and level of development of the statistical system of the given country.

### 6.1.3. Farm concept in statistical terms applied in Hungary

Starting from the agricultural census of 1972 the concept of the agricultural farm has been defined in Hungarian statistics as a combination of physical indicators. The farm concept of censuses recurring at a ten-year frequency has only changed marginally in the past 30 years to assure long-term comparability of the data.

**Thresholds used in the Censuses of 1972-2003**

Description	1972	1981	1991	1994	2003
	year of the census				
Total arable land area, hectare	0.15	0.15	0.15	0.15	0.15
Orchard, vineyard, garden, hectare	0.08	0.08	0.08	0.08	0.05
Cattle, heads	1	1	1	1	1
Pig, heads	1	1	1	1	1
Horse, heads	1	1	1	1	1
Sheep, heads	1	1	1	1	1
Poultry, heads	50	50	50	50	50
Bee colonies, pc	20	20	25	25	5
Rabbit, heads	20	20	25	25	25
Other small animals, heads	-	-	25	25	25

The threshold value applied selected a population in 2003 including 60 per cent of farms producing for family consumption and a 12 per cent producing for the market. The share of units producing both for family consumption and for the market was less than 30 per cent (28%).

## **6.2. The farm concept in economic terms**

In the reference literature two fundamental types of organizations are discerned, i.e. households and businesses. Households produce to cover their own needs; businesses strive to make profit. The objective of the business is to earn profit exceeding the dollar value of investments; therefore they manage their operations in a way essentially differing from that of the households. Though the two basic types of units do not exist in a “chemically pure” form, the definition of the farm concept in economic terms can be interpreted as the borderline between production for family use and production for the market.

On the basis of my analyses I propose to

- the statistical farm concept must be defined as a combination of physical indicators already used (in Hungary) in year 2003, because this method of the survey is easily manageable. At the same time the farm concept in economic term must be defined by a value indicator, such as ESU, GPV
- Economic organizations can be qualified as farms – in economic terms - by their legal form and type of activity.
  
- in the case of private farms the above criteria are complemented by the volume of activity, too. Private farms qualify as farms in economic terms only if they reach a certain economic size. The definition of the farm concept in economic terms in the case of private farms means the demarcation of the line between production for family consumption and for selling the surplus with a purpose to earn income.
  
- I suggest to accept for the Hungarian private farms the 1 ESU (Gross Production Value = 750 thousand HUF) value of the agricultural activity as the threshold (lower limit) of the economic farm concept. The average production value of farms, the specific product indicators, the per capita consumption values and the attributes of the clusters of farms describing the objective of production prove that this proposal is acceptable. In my view private farms that reach or exceed 1 ESU economic size must be regarded as farms in economic terms in the future.

## **Conclusion**

The quality of the system of agricultural statistics depends on user needs. The translation of user needs into the terms under the agricultural statistical system is a relatively simple task in the case of physical data.

The situation is the opposite when speaking about the Economic Accounts for Agriculture under the National Accounts. In these cases information needs must be integrated into the system of agricultural statistics the majority of which is incorporated practically “unnoticeably” into the system of accounts.

The change of the statistical units calls for fundamental changes, and such changes take place in the case of economic and social transformation. In the majority of the Central and East European countries – in Hungary as well - the small number of large enterprises was replaced by the large number of households.

The responsibility of agricultural statisticians is to develop cost-effective systems to satisfy the information needs. The solution is to roll out the use of sample surveys and administrative sources, provided such sources are up to the professional criteria of statistics.

The methodology development should also respect the peculiarities of national farm structure. A Hungarian example of this approach is given in the definition of farm concept in statistical and economic terms.

**DIVISION OF LABOUR BETWEEN HCSO AND MARD, THE HARMONISATION OF  
AGRICULTURAL STATISTICS ACCORDING TO THE CHAPTERS OF THE COMPENDIUM**

(June 2004)

Form of regulation Level of harmonisation	JURIDICAL OBLIGATIONS	GENTLEMEN'S AGREEMENTS	A PURELY VOLUNTARY BASE
Fully harmonised	<b>612. Remote sensing</b> <b>612. LUCAS</b> <b>621. Farm structure survey</b> <b>621. Community typology,</b> <b>622. Eurofarm database</b> <b>623. Statistics on viticulture</b> <b>631. Economic accounts for agriculture</b> <b>624. Statistics on fruit growing</b> <b>641. Crop production statistics</b> <b>651. Livestock statistics</b> <b>652. Animal products statistics</b> <b>694. Aquaculture statistics</b> <b>FADN</b>	<b>611. Land use statistics</b> <b>633. Agricultural price statistics</b> <b>634. Agricultural labour input (ALI) statistics</b> <b>642. Supply balance sheets for crop products</b> <b>643. Harvest forecast (agromet)</b> <b>653. Supply balance sheets for animal products</b>	
Partly harmonised	<b>681. Forestry statistics</b>	<b>632. Income of the agricultural households sector</b> <b>654. Fodder balance sheets</b>	<b>635. SPEL</b> <b>661. Food industry</b>
New objective			

**HCSO, MARD, Co-operation with main responsibility of HCSO, co-operation with main responsibility of MARD**

Censuses and surveys on Agriculture (1950-2000)

Year	Enterprises						Private holdings					
	Landuse		Crop production		Livestock		Landuse		Crop production		Livestock	
	census	survey	census	survey	census	survey	census	survey	census	survey	census	survey
1950	●	○	●	○	●	○					●	
1951	●		●		●						●	
1952	●		●		●						●	
1953	●		●		●						●	
1954	●		●		●						●	
1955	●		●		●						●	
1956	●		●		●						●	
1957	●		●		●						●	
1958	●		●		●						●	
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1965	●		●		●						●	
1966	●		●		●						●	
1967	●		●		●						●	
1968	●		●		●						●	
1969	●		●		●						●	
1970	●		●		●						●	
1971	●		●		●						●	
1972	■		■		■		■		■		■	
1973	●		●		●						●	
1974	●		●		●						●	
1975	●		●		●						●	
1976	●		●		●						●	
1977	●		●		●						●	
1978	●		●		●						●	
1979	●		●		●						●	
1980	●		●		●						●	
1981	■		■		■		■		■		■	
1982	●		●		●						●	
1983	●		●		●						●	
1984	●		●		●						●	
1985	●		●		●						●	
1986	●		●		●						●	
1987	●		●		●						●	
1988	●		●		●						●	
1989	●		●		●						●	
1990	■		■		■		■		■		■	
1991	●		●		●						●	
1992	●		●		●						●	
1993	●		●		●						●	
1994	●		●		●			●			●	
1995	●		●		●			●			●	
1996	●		●		●			●			●	
1997	●		●		●			●			●	
1998	●		●		●			●			●	
1999	●		●		●			●			●	
2000	■		■		■		■		■		■	+

Annual survey ● 4 monthly survey ○+  
 Quarterly survey ○

**Agricultural data collection system 2003  
(Physical data)**

Denomination	Data collection regarding to		Coverage, %	Expert estimation	Notes
	enterprises	private holdings			
Land area and sown area, 31 May		6%	about 85		annual
Yield of cereals		5%	about 85.		annual
Yield of main crops			about 85.		annual
Production of crops and vegetables, utilisation and net sales		5%	about 85.		annual
Fruit and vine-growing, -planting, -grubbing, -utilisation and net sales		5%	about 85.		annual
Livestock 1 April, 1 August, 1 December		7%	about 99.		every 4 month
Changes in livestock, production of slaughter animals and animal products, utilisation and net sales		7%	about 90.		annual
Poultry hatching		5%	100		monthly
Milk, milk products			100		monthly
Farm Structure Survey		35%	100		every 2-3 year

 Census  
 Sampley survey

 Expert estimation

**Agricultural data collection system  
(Agro monetary data)**

Denomination	Data collection regarding to		Coverage, %	Expert estimation	Notes
	enterprises	private holdings			
Expenditures of agricultural producers	100%		100		annual
Report on procurements	70%		70	Expert estimation	monthly
Livestock market report		40%	40	Expert estimation	monthly
Market supply and reporting		40%	40	Expert estimation	monthly (weekly)
Balance of agricultural trade	80%		80	Expert estimation	annual
Volume of feedingstuff sales	70%		70	Expert estimation	quarterly
Sales prices of fertilizers	70%		70	Expert estimation	quarterly
Sales prices of pesticides	70%		70	Expert estimation	quarterly
Sales prices of veterinary products	70%		70	Expert estimation	quarterly
Agricultural and Forestry services	70%		70	Expert estimation	Agricultural Census 2000

 Census  
 Sample survey

 Expert estimation  
 Purchasers, processing companies

 Retailers of means of agricultural production