

PLANTATION CENSUSES IN HUNGARY*

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Viticultural statistics is a part of Hungarian agricultural statistics having a long and eventful history. Though data on vine-growing and vine-production from the period before the Austrian statistical service are also available, confident figures emerged only in the last third of the XIXth century. The censuses of 1895 and 1935, covering orchards the first time along with the vineyards and vine-production, are also important sources of historical data. Censuses of the plantations were conducted in the second half of the 1950s and the first half of the 1960s. Then, after a forty-year gap, the census of 2001, compliant with the EU standards, followed. In addition to the historical background, the author provides a detailed account of the preliminary findings of the vineyard and orchard census of 2001.

KEYWORDS: Plantation censuses; Agricultural statistics; Grape and fruit production.

Due to the favourable climate, grape and fruit plantations, i.e. perennial plant cultures producing yield for several years at a permanent location, occupy a larger portion of the agricultural area in Europe than in other parts of the world. Similarly to the Mediterranean countries, in Hungary grape production is much more important than would follow from the size of the country's population. Meanwhile, in fruit (especially apple) production the difference is a lot less significant.

CENSUSES OF GRAPE PRODUCTION TILL THE END OF THE XIXTH CENTURY

The first written reference to viticulture in Hungary was found in a literary work by *Victor Sextus Aurelius*, a Roman writer who lived in the IVth century. In about 276, Emperor *Probus* commanded his idle troops to drain a marsh in the town of Sirmium of Lower Pannonia (today the town of Mitrovica in Kosovo) and to plant vine-branches in its place. There are other sources proving that vine-growing was introduced in the Carpathian basin by the Romans and then was learnt from them by the people living there. Hungarian documents from the XIth century often refer to data on viticulture, meaning that by that time grape had been grown nearly in the entire country. By the XII–XIIIth

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centuries vine-regions had been formed, among them the most famous ones were the Szerém, Ruszt and Szekszárd regions. Hungarian viticulture and viniculture acquired European reputation in the XIVth–XVth centuries.

Although in areas under Turkish occupation during the XVIth–XVIIth centuries the importance of vine-production decreased, in the northern and western counties it had not only maintained its central role but also underwent some quality improvement. Finer grape varieties were introduced, and this is also the time the famous Tokaj wine dates back to.

The XVIIIth–XIXth centuries brought a rapid growth in the number of villain – especially cottar – vineyards in Hungary, which is attributed to the peculiar legal status of vine-estates and the special features of viticulture. In those days, vine-growing was the most popular form of commodity production of certain strata of the peasantry. Production, however, concentrated mainly on quantity and not quality.

Besides cereals, the commodity that first appeared in the censuses to characterise the agriculture of a certain region was wine. Prior to the establishment of an official statistics organisation, the main purpose for censuses was to levy taxes. The most significant censuses – conducted in 1715, 1720 and 1728 – were ordered by the Hapsburg Emperor, and they already contained figures on the area used by different branches of agriculture, including data on vineyards.

In addition to nation-wide censuses, from 1772 the counties themselves also collected data on the areas of production, which were then sent to the municipalities to form the basis of aggregations for the whole country. The first such report which already contains data on areas used for grape production was dated back to 1780. The figures collected on serfs under Marie Theresa were summarised in a report prepared by the Chancellery in 1786; its findings, however, became only known around the 1890s.

Another important source is the cadaster taken under the rule of Joseph II, which already recorded vineyards owned by the nobility; moreover, it used a uniform unit of measurement (i.e. Austrian acres) for calculating the areas utilised in the various agricultural branches. Even though we cannot reconstruct the entire document, the fact that it has been compiled should be regarded as a milestone in methodology.

At that time, two difficulties had to be overcome in terms of establishing the area of vineyards and the volume of vine-production: the diversity of the units of measurement on one hand and the rudimentary quality of land-survey techniques on the other. Insufficient land-survey techniques, coupled with the missing data of the lands of noblemen up to the end of the XVIIIth century, hampered the construction of a wholesome picture. Despite the availability of sources and techniques for complementing the data, prior to *Károly Keleti* specialists had failed to use them. In fact, figures concerning the Hungarian agriculture – including vineyard areas – at the end of the XVIIIth century and in the early XIXth were chiefly based on the reports submitted to the Emperor in 1789.

According to a survey conducted in 1828 – which probably underestimated the area of vineyards – 141 thousand cadastral acres were used for grape production. In 1831 *Ferenc Schams* (who criticised Hungary's backwardness in viticulture and vine-production) put the total area used for grape production to 1.5 million Hungarian acres (this estimation was based on adapted figures). Meanwhile Schams also objected to the fledgling practice of flatland grape production. The works of *Elek Fényes* also cite, with minor

adjustments, data published by Austrian statisticians. Fényes estimated the grape growing area of Hungary at about one million acres.

The most important survey of the era, i.e. the interim land register of 1850, was carried out between 1850 and 1867. However, as this survey only involved the correction of previous data on areas used in the different branches of agriculture and test surveys but no land surveys actually took place, the quality of data later became the subject of criticism.

According to the statement made by the Helytartótanács (Council of directorates) in 1865 – the figures which were probably based on the records kept by the financial directorates – Hungarian vineyards totalled 574 thousand cadastral acres. The official Austrian statistical publication titled ‘Tafeln zur Statistik der Oesterreichischen Monarchie’ (*Statistical Tables for the Austrian Monarchy*) estimated the Hungarian grape production area (without Transylvania, Croatia, Slavonia and Vojvodina) at 400–500 thousand Austrian acres between 1830 and 1865.

The figures published by Károly Keleti in 1867, citing the Ministry of Finance as its source, show that at that time the area used for grape production was 512 thousand cadastral acres.

After the Austro-Hungarian Compromise in 1867 an official Hungarian statistical service was established, which resulted in the regular production of viticultural statistics. At the international statistical congress, held in the Hague in 1869, where Hungary first participated as an independent state, Hungarian statisticians were assigned to develop the methodology for statistics on international viticulture and viniculture. Károly Keleti prepared two projects, one of them elaborated a program for Hungary in detail while the other contained a more general description of surveys to be conducted in other European countries.

The Hungarian program included, as subjects of data collection, the layout of the vineyard, the quality of the soil, the distribution of the grape production area by holder, the estimated price of grapes, the method of cultivation, the varieties grown, the costs of cultivation, the volume of grapes and wine produced, as well as the quality and price of the wine made. Data were gathered by town and city magistrates and forwarded to the Statistical Office for processing. Other, mainly descriptive information was supplied by economic associations and vine-growing specialists. Retroactive data were collected on the counties between 1860 and 1872, while for the year 1883 the number of vineyard holders, the area of vineyards and the volume of wine produced – broken down to white, red and rosé – was stated by town. Contrary to the figure shown in the cadastral survey, Károly Keleti stated that in Hungary 584 000 cadastral acres were used for vine-growing.

It was unfeasible to collect such detailed data on viticulture each year. Therefore in subsequent surveys annual data collection covered only the area, the volume of must produced and sold, the volume of fermented wine by variety, the price of must and wine, and the amount and price of grapes sold. It remained the town magistrates’ responsibility to supply the data. This methodology was used up to 1890, but significantly changed owing to the phylloxera that quickly spread during that time.

After a break-out in 1875 in the neighbourhood of the town of Panchova, phylloxera quickly spread and culminated in 1895. Thus, the agricultural census of 1895 recorded data on vineyards at the peak of the vine pest. Of the five volumes publishing the results

of the census, the second devoted a separate study to the issue of phylloxera. According to the survey, vine-growing land in Hungary had shrunk from the 639 000 cadastral acres in 1885 to 286 000 cadastral acres by 1895, i.e. to 45 percent of its former size. The most severe damage was suffered by growers on mountains and hills.

The universal spreading of phylloxera required the inclusion of new questions, such as: area fully destroyed by phylloxera, soil type, productivity of the grape variety, the area of American plantations and questions about other grape diseases. This questionnaire was used until 1904.

The analysis of the results in the previous period indicates that as opposed to the estimated one million acres in the first half of the XIXth century, comparing the statistics on viticulture produced by Károly Keleti and the findings of other surveys, in the first half of the XXth century vine-growing land occupied less than 500 000 cadastral acres. The data published on the areas was only suitable to reflect the differences in land proportions among the regions.

It is difficult to estimate the quantity of wine produced, as the data supplied are not reliable. Given that the annual yield fluctuation is much higher than in the case of other plants, establishing either the actual commodity production or the average production by statistical means would be rather complicated. In the XIXth century, estimates in most cases sought to determine the volume based on the size of the vine-growing area and the average yield.

Among the various methods of calculation, perhaps the most peculiar one was that of *Márton Schwartner*, who tried to establish Hungary's vine-production based on consumption data. According to the population census conducted during the reign of Joseph II, the population of the Hungarian mother country was 7.5 million. Schwartner claimed that children (who did not drink wine) accounted for one-third of the population; another third was made up of the poor and of women, who were not supposed to drink either; and there were half a million people who allegedly disliked wine. Thus, assuming that the remaining 2 million drank one 'icce'² (about 0.88 litres) a day, annual domestic consumption was put to 12 million 'akós'³ (one 'akó' is approximately 57 litres). Schwartner also assessed the quantity of wine exported, used for distillation, as well as deteriorated or unsold wine, and so came to a total of 18 million akós per year.

A Statistical Yearbook published in Vienna established Hungary's wine production at 22 million akós per year for the period between 1829 and 1840. According to the calculations of Elek Fényes in 1847, the amount of wine produced was even higher than before, 28 million akós. In 1865 the Helytartótanács published information regarding the size of the various vine cultivation branches in Hungary, broken down to villages. The appendix of this publication included the volume of wine produced by counties, indicating separately the amount of red, white and rosé. This work assessed Hungary's wine production at 7.4 million akós.

In his viticultural statistics, Károly Keleti embarked on a detailed analysis of harvest results. His calculations showed that in a good year 25 million, in an average year 15 million, and in a weak year 6 million akós of wine were produced in Hungary. 1873, when

² Old Hungarian unit of measurement of capacity.

³ Old Hungarian unit of measurement of capacity.

5.5 million akós were harvested, was considered a bad year. Subsequent surveys, however, did not verify the assumptions of Keleti because his method produced overestimated results.

The Statistical Office has been collecting data on vine-production since 1873. The best harvest so far was the one in 1878 with 12 million akós of wine. Towards the end of the 1880s, vine-production turned to a gradual decline; in the 1890s the quantity of wine produced dramatically fell due to the spreading phylloxera and mildew. The 1895 survey found that merely 2.6 million akós of wine had been produced.

The analysis of figures concerning Hungarian vine-production shows that the closest approximation of the real volume was first given in the 1895 survey, prepared by the Helytartótanács, but actual data was only yielded by the censuses carried out after the establishment of the official statistical organisation.

Previous descriptive statistics omitted the consumption of grapes as a fruit. However urbanisation, the development of transportation and changes in eating habits soon brought about a boom in table-grape production. In the 1860s, for instance, collection of table-grape varieties became something of a trend. The viticultural statistics compiled by Károly Keleti already contained a question about the volume of grapes sold. According to his estimation, during the period between 1860 and 1873 one hundred thousand quintals of raw grapes were sold a year. Adding the amount consumed by the people in the country, he put unprocessed consumption to 300 thousand quintals. Obviously, owing to the phylloxera, this volume also decreased dramatically.

XXTH CENTURY STATISTICS ON VITICULTURE

During the years of World War I, vine-production fell back as grapes were destroyed on nearly 20 thousand hectares while another part of the vineyard deteriorated due to the absence of care. By the mid 1930s, the formerly 220 thousand hectare productive area had shrunk, but it started to expand again by the early 1940s. Following World War II, the area of vineyards decreased yet again, which trend continued until the 1960s. Thereafter, owing to large scale grape planting, the vine-growing area has grown over 200 thousand hectares for a whole decade. During the last quarter of the XXth century production was ceased on more than half of the former production area, which, however, did not result in a proportionate decrease in harvested amounts. Plantations cultivated with improved methods and skill yielded greater harvests after turning productive. As more advanced varieties gained popularity, the quality of wine also improved. Average production increased to reach its peak in the 1960s. A favourable phenomenon was recorded: the extreme fluctuation of production abated.

The majority of grape varieties consumed as fruit still consisted of vine-grapes; in most years, their proportion accounted for about 5 to 6 percent of the harvest. During the last quarter of the century table-grape varieties grown around the house, in worker allotments or small yards have gradually gained popularity.

Statistics on viticulture underwent changes during the XXth century. The previous data collection method recording information by settlements and relying on municipalities was replaced by the regular survey of large producers, supplemented with estimates on the production of minor ones. Local estimates were also compared

with procurement figures. For several years, excise officers also surveyed the amount of wine produced by vine-growers in order to levy the wine-tax, which – incidentally – also assisted more accurate production data (however, it was still insufficient to provide the full picture).

The first census to provide data based on a uniform method was the site-survey of vineyards, conducted by the Hungarian Central Statistical Office (HCSO) in the 1960s. Due to the insufficiency of funds and skilled labour, this census, including sample measurements, took as much as five years. The census covering the majority of vineyards in most counties was carried out in 1965. Site-inspections were conducted from mid-July until the harvest each year, so that the varieties could be determined with certainty.

The census was carried out in each settlement where, according to the records of the Állami Földmérési és Térképészeti Hivatal (ÁFTH – State Geodesic and Mapping Office), a minimum of 10 cadastral acres of vineyards was recorded in the year of the survey. In these settlements each vineyard with an area exceeding 360 square metres was surveyed based on a site-inspection and classification. The questionnaire collected details on areas in excess of 1 400 square metres, while in smaller vineyards only the condition of grapes was observed and recorded. Abandoned vineyards were registered separately, by variety. Special attention was paid to the survey of historic vine-regions.

The census of the vine-growing areas of state farms and co-operatives was conducted by the county directorates of HCSO, based on the records of the farms. To facilitate the census, the county inspectorates of ÁFTH prepared draft maps on the majority of villages and also compiled a list indicating topographical lot numbers and the names of owners.

The census was followed by the calculation of national data. Since the figures collected during the census concerned various years, the results were adjusted by data of new plantations and cessation of vine-growing since the survey. The adjustment also involved the estimation of the size of unsurveyed lands, below the threshold value; thus, the aggregate and published data included the entirety of vine-lands (247 thousand hectares) in Hungary. The data were published by the administrative offices and vine-regions.

Following the vineyard census of the 1960s, the full-scale agricultural surveys conducted once a decade and annual data collections targeted only the most important features of grape-growing lands. The volume of harvest was determined by the full-scale observation of large factories and companies, and complemented by the calculated or estimated data of private holders among whom a sample survey was conducted. It is interesting that while around 1980s large holdings produced the majority of the harvest, from the 1990s small producers have taken the lead.

THE HISTORY OF ORCHARD SURVEYS

The history of statistics on fruit production is not as diverse as that of vine-growing. This may be attributed to the fact that the statistical observation of fruit production possess some difficulties. Harvest results can be calculated based on the area occupied by fruit trees and this method would appear to be sufficient for systematically planted orchards. However, in order to establish average yields, a wide array of other factors must also be taken into consideration. A further difficulty is posed by the fact that the majority

of fruit trees grow not in closed plantations but in backyards, on arable land, in vineyards or simply along the road. In such cases the number of fruit trees could be considered. There are three methods for the statistical survey of fruit trees:

1. The first is to make an interview with the owners; this method was applied in general agricultural surveys.
2. The second is to include mainly orchards where intensive production is pursued (orchards producing for the market), where accurate data can be collected concerning the conditions and volumes of production.
3. As compared with the previous methods, the most accurate result can be achieved by counting the fruit trees.

In the early publications of the official Hungarian statistical service, data on fruit production were devoted disproportionately small room compared to its significance. The first time owners were asked how many fruit trees they had was in the comprehensive agricultural censuses of 1895 and 1935. Though in both cases the figures served only for the purpose of general information, they prove that at that time the number of fruit trees, as compared to the size and population of Hungary exceeded that of the neighbouring countries.

At the beginning of the XXth century fruits were mainly produced for home consumption (eaten raw, used for preservation or the distillation of spirits) and only the surpluses were sold on the market. At that time, closed orchards were virtually non-existent. Information concerning harvest expectations could only be obtained from crop reports and later from production reports compiled by the news agency of the Földművelésügyi Minisztérium (Ministry of Agriculture). These reports were based on the data supplied by local experts and market sales figures.

Even though the 1930s brought the expansion of the canning industry and fruit exports also resumed, no considerable changes happened in the supply of statistical data.

After World War II, many small-holders planted fruit trees. This may be one of the reasons for orchards having surveyed as an independent agricultural branch in land registers since 1950. In just one decade, the 60 thousand acres of orchards registered in the 1950s has doubled. Plantation area reached its peak in the 1970s (with 172 thousand hectares in 1971). Following a constant decrease, this area shrank to less than 100 thousand hectares during the mid-1980s, when it stabilised. The fluctuation can be attributed to the new plantations of large companies and cessations of production by the same. The data on orchards provided little help for calculating production volumes. Owing to the unreliability of data, a survey of fruit trees was conducted in 1959.

The program of the census was developed by the Hungarian Central Statistical Office, with the involvement of all interested organizations. In 1959, a site-inspection was carried out and the main fruit tree varieties were counted; then, based on the data, a representative survey was made to establish the age, condition and yield capacity of the fruit trees. The survey established the number of apple, pear, quince, cherry, sour cherry, plum, apricot, peach, almond, walnut and chestnut trees, and the area where berries (such as gooseberry, currant, raspberry and strawberry) were grown. Fruit trees were registered in two main age-groups (i.e. producing and non-producing), and then classified according

to four installation methods. Fruits planted around the house, among vine-rows, in orchards producing for the market and scattered plantations were also indicated. In berries, no such distinction was made among the various production methods. This full-scale survey was conducted between May 3 and October 15 of 1959 by way of site-counting, without interviewing the owners. Owners' names were only registered in the case of orchards producing for the market.

Fruit trees growing along public roads were counted by the employees of the Közlekedés- és Postaügyi Minisztérium (Ministry of Transportation and Post). The number of trees turned out unexpectedly high, showing nearly a three-fold increase on the number recorded in 1935. In addition to new plantations made in the meantime, this significant difference could be attributed to the technique applied in the surveys. The counted stock of trees indicated a substantial increase in number in the years preceding 1959 as non-producing, young trees accounted for nearly one-third of the stock. Fruit-tree density per one hundred hectares, calculated considering nearly 90 million fruit trees, exceeded similar data of the neighbouring countries by almost 50 percent. Forty percent of the fruit trees and 30 percent of the vineyards were located in small gardens around the house, and the proportion of orchards producing for the market represented less than 10 percent of the whole country's stock. Berries were grown on 6,000 hectares, of which 35 percent accounted for raspberry, 23 percent for strawberry and 22 percent for gooseberry production.

These new basic figures were complemented by several further sample surveys, e.g. on the distribution of varieties, on plantations, or on the determination of the yield based on estimated production. Despite the favourable results, these surveys were not conducted regularly. Even though during the next decade the number of trees was recorded every year, taking into consideration the plantations and off-cuts, and the data calculated were published each year, the method applied was increasingly unsuitable for following the changes.

The next occasion when the number of fruit trees was recorded was the general agricultural census in 1972. The method of sample surveys was applied in 20 percent of the villages. Compared to the 1959 census, the results showed a 10 percent decrease. It marked a significant progress in statistics that from 1963 regular surveys were carried out to establish the major data on orchards producing for the market. These surveys provided reliable data on core fruit production, which also facilitated estimates on the total fruit production of the country. The share of orchards producing for the market from total production increased from 30 percent to over 50 percent during the 1960s and 1970s.

Agricultural surveys conducted after 1972 registered the tree stock based on reports completed by the owners. Data on production prior to 2001 were published on the basis of the full-scale survey of large farms and the representative data of smaller holdings. The results were supported by balance sheets and surveys recording the turnover and prices.

THE 2001 PLANTATION CENSUS

Owing to the radical structural changes that have taken place recently in Hungarian agriculture, including the branches of viticulture and fruit production, and the possibility of our accession to the EU made the performance of the first complex plantation census

of the XXIst century a topical issue. The last official statistics involving the entirety of plantations was produced in Hungary at the end of the 1950s and in the early 1960s.

Pursuant to the provisions of Act CXLIII of 2000, the Hungarian Central Statistical Office conducted a census on vine-growing lands and orchards between June 1 and October 15, 2001. Professional preparation and performance of the census was assisted by the Földművelésügyi és Vidékfejlesztési Minisztérium Szőlészeti és Borászati Kutató Intézete (Research Institute for Viticulture and Enology (Kecskemét) of the Ministry of Agriculture and Rural Development) and the Érdi Gyümölcs- és Dísznövénytermesztő Kutató-fejlesztő Kht. (Research Institute for Fruit-growing and Ornamentals, Érd). Meanwhile, the Földmérési és Távérzékelési Intézet (Institute of Geodesy, Cartography and Remote Sensing) and regional land offices contributed to create the conditions for mapping. The act ordering the census denominated the Hungarian Central Statistical Office as the institution primarily responsible for the performance. In the course of preparatory works an expert team, including specialists from the Ministry of Agriculture and Rural Development, research institutes and the trade associations concerned, developed the detailed program of the census. Considering domestic and international requirements, the expert team decided on performing the census in two work-phases and prepared the documents to be used accordingly.

The two basic units of the survey were on one hand the users of vineyard and/or orchard areas and the plantations on the other. Surveyors were instructed to pay special attention to entering topographical lot numbers as well as statistical and professional features on the questionnaires and registers correctly; they were requested to equally attend to the proper use of the so-called spot and cadastral maps (taken by means of remote sensing and space photography) and to marking the plantations on these maps.

According to the Act ordering the census, the list of addresses identifying the users of vineyards and orchards was compiled from the data supplied by the land offices, the Vám- és Pénzügyőrség Országos Parancsnoksága (Hungarian Customs and Finance Guard) and the Hegyközségek Nemzeti Tanácsa (National Council of Wine Communities), and from the directory prepared for the more than 9 000 districts of the Általános Mezőgazdasági Összeírás (ÁMÖ – General Agricultural Census). As a result, the registers of surveyors contained a total of 367 thousand addresses.

The census of plantation users was mainly performed by surveyors who had proven their abilities during the ÁMÖ or were skilled surveyors. They were chosen from among vine- and fruit-growing specialists and village agronomists, who surveyed the plantations in their respective districts. The multi-level executive organisation established for the purposes of the census ensured that the quality management tasks be concentrated; thus, it facilitated the uniform quality of the statistical and professional data supplied.

In the first phase, 4 200 surveyors were assigned to perform the survey of vine- and/or fruit-growing plantations. The job, completed in just two weeks, was assisted and inspected by 590 agents and 200 regional representatives. The database resulting from these questionnaires constituted the basis for the survey of plantations by site-inspection during the second phase of the work.

The second phase, which involved the survey of plantations and the registration of their features on the site, was performed by 1 600 surveyors in three and a half months, co-ordinated and supervised by 590 professional and 145 regional representatives. Hav-

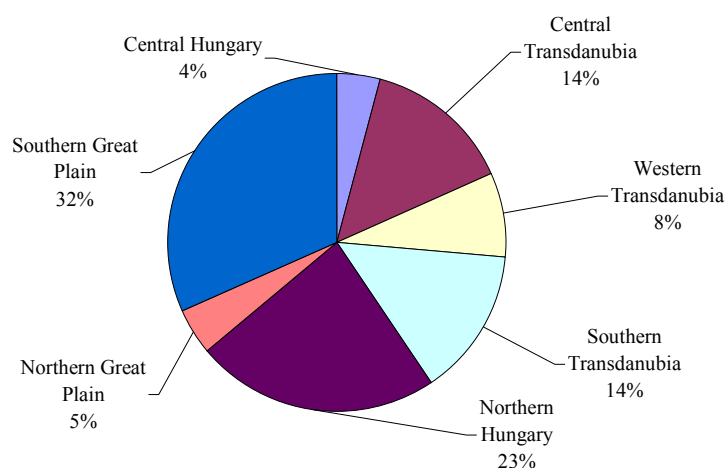
ing visited 4 500 sites in their districts and inspected areas marked with a lot number, a total of 291,000 questionnaires and nearly 200 000 records were completed by the surveyors on vine and fruit plantations. Compliance with professional requirements related to vine and fruit production was monitored in each county by an expert selected at the recommendation of the research institutes.

After the processing of questionnaires on users, vineyards and orchards, as well as the registers, a database was generated from the information gathered, which could then be used to compile a register meeting domestic and international data requirements and helping to plan and perform the tasks of representative statistical surveys in the forthcoming years.

VINEYARDS IN 2001

The total area of vineyards in Hungary is 92 782 hectares,⁴ of which 98 percent is of plantation size, i.e. segments of land planted with grapes, of or above 500 square metres.

Figure 1. Distribution of vine-growing areas by region



Nearly 32 percent of the vineyards is located on the Southern Great Plain (see Figure 1), and 28 percent in Bács-Kiskun county. From the counties, the smallest vine-growing area was registered in Békés (56 hectares). Land segments used for vine-growing are as follows:

- 22.5 percent is classified as undersized area, and represents less than 2 percent of the total vine-growing area,
- more than 90 percent is smaller than 0.5 hectare and represents a little more than 31 percent of the total vineyard area,
- less than 1 percent has an area of 5 or more hectares, but accounts for more than 37 percent of the total area of vineyards (see Figure 2).

⁴ For the same period, data in the real-estate register shows 127.2 thousand hectares.

Figure 2. Concentration of vineyards

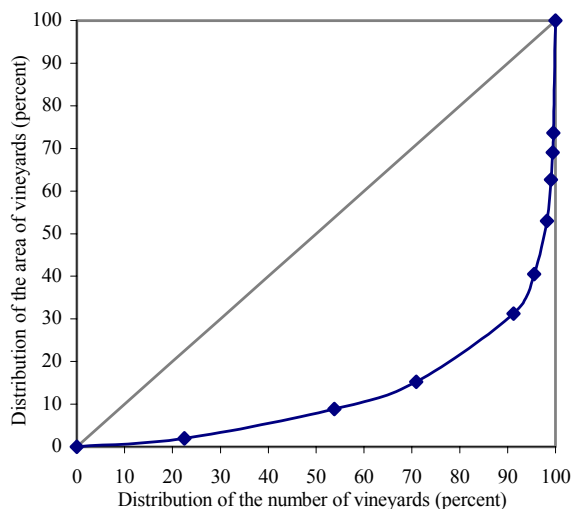


Table 1

Average size of vineyards

Region	Plantation size	Undersized	Aggregate
	area (hectare)		
Central Hungary	0.5011	0.0256	0.3275
Central Transdanubia	0.2863	0.0305	0.2445
Western Transdanubia	0.1527	0.0321	0.1298
Southern Transdanubia	0.3214	0.0310	0.2523
Northern Hungary	0.6451	0.0235	0.4548
Northern Great Plain	0.2104	0.0258	0.1542
Southern Great Plain	0.8560	0.0254	0.7317
<i>Total</i>	<i>0.4047</i>	<i>0.0279</i>	<i>0.3199</i>

The average vineyard size is 0.32 hectare, hardly reaching 0.4 hectare in the case of plantations, and less than 300 square metres in the case of the undersized areas. As opposed to the 0.73 hectare average size in the Southern Great Plain region, and within that, the nearly 0.8 hectare average size in Bács-Kiskun county, in Western Transdanubia (owing to geological conditions and the settlement structure) the average size of vineyards is less than 0.13 hectare (see Table 1). As for the counties, the average size of vineyards remains below 400 square metres in Zala and 1 000 square metres in Szabolcs-Szatmár-Bereg.

More than two-third of the vine-growing areas was used for white and nearly one quarter for red wine grape varieties, while a little less than four percent for the production of table grapes. (The area of other vineyards to be grubbed up or yielding substandard quality exceeded three percent.) In Central Transdanubia the proportion of white wine varieties approached 90 percent, while that of red wine varieties in the Southern Transdanubian region

exceeded 40 percent. The proportion of table and other grape varieties was registered to be the highest in the Northern Great Plain region (9 and 23 percent, respectively).

Figure 3. Distribution of vineyards by grape variety and region

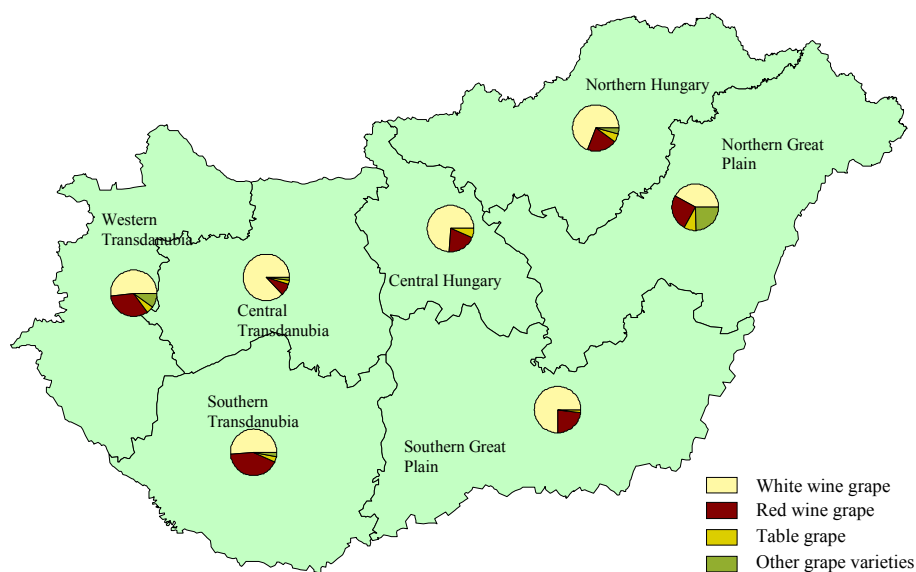


Table 2

Distribution of grape producers by grape variety

Region	Only white	Only red	Only table grapes	Only other varieties	Mixed varieties	Total
	wine grape					
	producers (percent)					
Central Hungary	26.38	5.89	15.05	3.09	49.60	100.00
Central Transdanubia	46.36	3.98	3.55	3.36	42.75	100.00
Western Transdanubia	24.29	6.73	2.35	12.81	53.82	100.00
Southern Transdanubia	18.18	10.12	2.91	6.41	62.38	100.00
Northern Hungary	39.81	5.72	8.81	15.96	29.71	100.00
Northern Great Plain	10.51	5.98	12.50	32.75	38.26	100.00
Southern Great Plain	46.78	10.51	10.05	0.77	31.88	100.00
<i>Total</i>	<i>31.71</i>	<i>7.21</i>	<i>6.70</i>	<i>10.15</i>	<i>44.22</i>	<i>100.00</i>

Note: Due to rounding, the total of the lines differs from 100.00 percent.

Private farmers account for 99.7 percent of vine-growers. Nearly 72 percent of the farms grow white, 40 percent red wine grape varieties, while 30 percent produces table grapes and nearly 19 percent other grape varieties.

The proportion of farms growing only white wine varieties exceeds 31 percent, while those producing only red wine grape varieties is over 7 percent. Less than 7 percent of

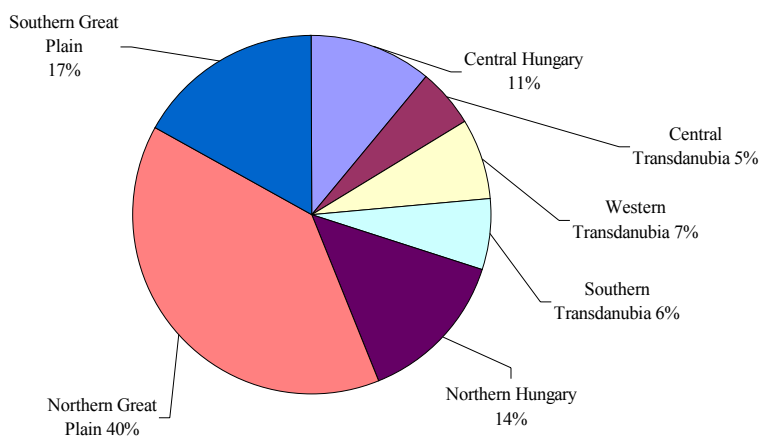
the farms grow exclusively table grapes, and more than one tenth only other grape varieties, while nearly 45 grow miscellaneous varieties (see Table 2).

Nearly 10 percent of vine-growers produce only for consumption, and more than one third only for vine-making. Three fourths of producers grow grapes only for household consumption, 2 percent sell the entirety of the harvest directly and 15 percent indirectly.

THE AREA OF ORCHARDS IN 2001

The total area occupied by fruit trees and shrubs in Hungary is 97 508 hectares,⁵ of which more than 90 percent reach the size of a plantation, i.e. are located in orchards of or above 1 500 square metres (in the case of berries, this threshold was 500 square metres). Nearly 40 percent of orchards are located in the Northern Great Plain region, (34 percent in Szabolcs-Szatmár-Bereg county alone), while hardly more than 5 percent in the Central Transdanubian region. Among the counties, the smallest orchard areas were recorded in Budapest (310 hectares) and Komárom-Esztergom county (780 hectares).

Figure 4. Distribution of orchards by region



About the orchards:

- one third are classified as undersized area and represent less than 2 percent of the total orchard area,
- nearly 90 percent lie on less than 0.5 hectare, representing less than 17 percent of the total orchard area,
- 2 percent lie on 5 hectares or more, but represent 60 percent of the total orchard area (see Figure 5).

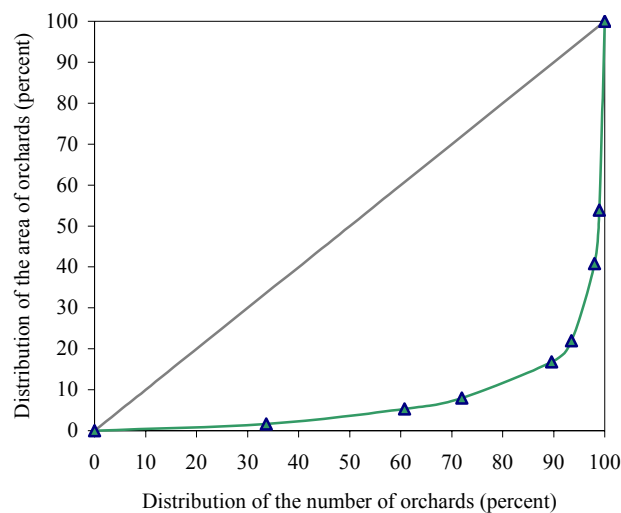
The average size of orchards is half a hectare, with large divergences through the country: in Central Hungary the average size is 1 hectare, in the Western Transdanubian

⁵ For the same period, the real-estate register shows 90.3 thousand hectares.

region it hardly reaches 0.3 hectare; when analysed by county, in Békés and Nógrád the average orchard area is 1 331 and 1 633 square metres respectively, while in Komárom-Esztergom county it is nearly 2 hectares.

The average area of the plantations is somewhat more than 1.5 hectares, between 1.28 (Southern Transdanubia) and 3.08 hectares (Central Transdanubia) in the various regions. By county, the average plantation area ranges between 0.6 (Nógrád county) and nearly 6.8 hectares (Fejér county).

Figure 5. Concentration of orchards



Fruits grown on trees occupy 93 percent of the orchards, while berries 7 percent. In Hungary, apple has maintained its dominance in orchards, the selected varieties occupying nearly half of the total area. At the same time, pear is grown in less than one third of the area devoted to apple. The total area of quince and medlar accounts for less than 1 percent of the total orchard area in the country. Of stone-fruits (grown on 40 percent of the total orchard area) sour cherry proved to be the most popular with 39 percent, followed by plum and peach with 20 percent each and apricot with 15 percent. The share of cherry orchards is merely 4 percent. Nuts are grown on 5 percent of the total orchard area in Hungary; among them the most important is walnut, produced on 82 percent of the adequate area. Berry production is dominated by raspberry (its production area almost reaches that of cherry and elder). Red and white currant is grown on the same size of land as blackcurrant; their aggregate area exceeds 2 percent of the total orchard area. Of the area of various berries, blackberry occupies 7 percent, while the area of strawberry and gooseberry, take 6 and 5 percent respectively. The area where other varieties of berries are grown is less than 1 percent.

The censuses have yielded data of great importance concerning the distribution of plantations by variety, which can have a major impact on the principles of future planning. The European Union also requires the detailed data of the plantation censuses, as

they play a significant role in the exports of the given product and the establishment of quotas.

To conclude, we should note that beyond the figures shown in the statistics concerning vineyards and orchards, there are other production areas in both branches (e.g. vine-arbours around the house, scattered fruit trees). Even though the bulk of the produce comes from the surveyed plantations, in order to determine the total fruit consumption of the population a statistical method is required for the analysis of the yield.

APPENDIX

Vineyard areas and vine-production between 1861–2000

Year	Vineyard area (hectare)	Vine-production* (1 000 litres)	Year	Vineyard area (hectare)	Vine-production* (1 000 litres)
1861	.	3 242 145	1927	221 858	1 699 574
1862	.	3 961 543	1928	222 264	2 868 751
1863	.	3 042 715	1929	215 565	2 316 711
1864	.	2 323 261	1930	213 098	3 742 330
1865	.	2 684 911	1931	214 177	3 628 922
1866	.	2 104 710	1932	212 395	3 309 539
1867	.	3 738 339	1933	210 821	2 869 302
1868	.	4 084 112	1934	211 629	2 365 536
1869	.	3 602 408	1935	214 525	2 659 572
1870	.	3 298 105	1936	214 135	4 223 720
1871	.	4 053 732	1937	216 982	4 162 656
1872	357 745	2 443 263	1938	218 878	3 079 186
1873	357 745	3 674 704	1939	220 380	3 885 538
1874	358 001	1 479 204	1940	222 605	821 916
1875	358 796	5 432 263	1941	225 356	1 466 157
1876	360 266	1 619 367	1942	228 602	3 913 130
1877	360 046	3 089 316	1943	235 376	3 650 690
1878	361 724	6 997 476	1945	239 164	3 103 500
1879	362 229	5 508 119	1946	238 320	3 622 600
1880	362 233	2 122 059	1947	237 152	2 340 600
1881	361 254	3 804 080	1948	237 924	2 731 100
1882	366 813	3 711 630	1949	233 639	3 172 800
1883	364 273	4 183 826	1950	230 186	3 600 000
1884	367 808	3 951 864	1951	228 460	3 226 300
1885	367 653	4 861 394	1952	225 295	2 637 400
1886	363 562	3 596 213	1953	215 799	1 785 800
1887	352 794	4 498 882	1954	215 799	1 858 700
1888	342 520	3 411 856	1955	201 413	3 367 700
1889	333 932	3 812 295	1956	195 658	2 330 100
1890	311 120	2 636 340	1957	195 678	3 259 610
1891	254 207	1 230 626	1958	198 555	5 294 502
1892	248 831	816 560	1959	200 745	3 257 330
1893	226 100	929 987	1960	203 644	2 956 420
1894	219 842	1 387 014	1961	204 372	3 507 586
1895	202 865	1 928 984	1962	219 039	3 131 343
1896	206 897	1 445 741	1963	229 312	4 243 455
1897	205 468	1 130 823	1964	242 614	5 545 158
1898	208 477	1 137 678	1965	246 563	2 424 827
1899	214 484	1 725 623	1966	244 950	3 366 573
1900	221 838	1 642 643	1967	239 693	4 789 383
1901	.	.	1968	236 141	4 843 234
..	.	.	1969	233 501	5 613 781
1913	214 701	.	1970	229 715	4 378 858
1920	.	.	1971	222 323	4 289 002
1921	209 648	3 235 461	1972	218 488	5 034 290
1922	215 672	4 293 659	1973	213 339	6 231 453
1923	221 325	4 318 008	1974	210 330	4 258 118
1924	222 255	1 268 506	1975	206 216	4 950 805
1925	221 324	3 201 849	1976	199 843	4 511 148
1926	221 335	1 205 611	1977	191 798	3 274 355

(Continued on the next page.)

			<i>(Continuation.)</i>		
Year	Vineyard area (hectare)	Vine-production* (1000 litres)	Year	Vineyard area (hectare)	Vine-production* (1000 litres)
1978	185 703	3 019 956	1990	138 476	5 472 192
1979	173 829	3 303 610	1991	136 432	4 607 113
1980	167 744	5 707 900	1992	135 011	3 877 832
1981	161 282	3 904 700	1993	131 673	3 644 144
1982	159 257	6 781 800	1994	131 916	3 694 134
1983	156 656	6 275 000	1995	131 334	3 289 376
1984	154 741	5 072 800	1996	130 934	4 188 280
1985	153 564	2 890 000	1997	130 874	4 472 088
1986	147 444	4 417 000	1998	129 658	4 333 980
1987	144 861	3 263 000	1999	127 066	3 338 782
1988	142 168	4 707 000	2000	105 882	4 299 259
1989	140 345	3 852 000			

* Data before 1873 do not include *aszú* (dry old Tokaj) wine.

Source: Yearbooks, announcements and thematic publications of the official statistical service and the Hungarian Central Statistical Office.

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