THE RENEWED STATISTICS OF WINE AND FRUIT PLANTATIONS

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Pursuant to the Act of CXLIII/2000 the Hungarian Central Statistical Office made a fruit tree and vineyard basic survey between June 1 and October 15, 2001. As a result of the survey, data are provided relating to almost 300 thousand plantations as well as farms and households dealing with grapes and/or fruit production. The data of the survey and the map-support of the survey as well as the development of processing tools required the development of a data management application not used before in Hungarian agricultural statistics.

KEYWORDS: Agricultural statistics; Plantation-survey; Geographic Information System;

In Hungary the previous census of the vineyard and orchard areas had been assessed almost fourty years before the census of plantations in 2001. Over the decades elapsed since then, the general agricultural censuses ensured in every ten years (not always comprehensive) statistical data on the plantations.

The aim of carrying out such censuses – apart from the replenishment of generation of missing pieces of information – was to provide realistic and true data to ensure the well-founded management of the agricultural sector, including the promotion of the export and sales planning, as well as the elaboration of support systems and development concepts. The survey should serve as the basis for the further development of the agricultural statistical information system, and should contribute to the harmonisation of the Hungarian agricultural statistics to the European Union.

The present survey was carried out pursuant to the Act of CXLIII/2001 by the Hungarian Central Statistical Office (HCSO), between June 1, and October 15, 2001. For the implementation of the plantation census, a census network having grapes and fruit producing technical experiences, and good local knowledge had to be established, with the effective and supporting participation of professional research institutes, municipalities and association of wine growing communities.

Pursuant to the legislation, a stock had to be taken of identification data of the plantation users (name, home address, or name and headquarters of the organisation), the

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characteristics of the plantation, as well as the data relating to the processing and storage capacity linked to the plantation, and the data relating to the use (sales) of the products.

THE SHORT HISTORY OF THE CENSUSES OF VINEYARD AND ORCHARD AREAS [3]

The census of vineyards in Hungary was started at the beginning of the eighteenth century. The census organised by the council of directorates in 1865 was the first to provide realistic data, which – relating to the area of the country then – stated a vineyard area of almost 321 thousand hectares.

Phylloxera at the end of the XIXth century, and later the two world wars significantly decimated wine plantations, and the continuous decrease lasted until the 1960s. After then, however, due to vineyard planting of large scale holdings, the area was again over 200 thousand hectares for a decade. This was the time of the second major wine census, which – also including the year of the pilot survey – took place from 1960 to 1965.

Orchards were first registered at the end of the XIXth century in 1895, within the first General Agricultural Census. Later, it was followed by a full-scope census in 1935. On the basis of the data compiled it could be ascertained that the amount of fruit-trees compared to the number of population was over the level of the neighbouring countries. The area of orchards reached its largest size in the seventies of the XXth century at 172 thousand hectares. This area was being continuously reduced until 1986; then dropped somewhat below 100 thousand hectares, and stabilised at that level in the nineties.

Before the plantation census in 2001 – similarly to the vineyards survey – the last fruit-tree census had been made almost forty years earlier (between 1956 and 1959). The Hungarian Central Statistical Office made the census of vineyard and fruit-tree plantations in 2001 on such a historical background.

FULL-SCOPE CENSUS OF WINE AND FRUIT PLANTATIONS IN 2001

The Földművelési és Vidékfejlesztési Minisztérium Szőlészeti és Borászati Kutató Intézete (Research Institute for Viniculture and Enology (Kecskemét) of the Ministry of Agriculture and Rural Development, as well as the Érdi Gyümölcs- és Dísznövénytermesztő Kutató-fejlesztő Kht. (Research Institute for Fruit-growing and Ornamentals, Érd) were instrumental in the technical preparation and implementation of the census by way of finalising the questionnaires and technically controlling the work of the interviewers.

Pursuant to the Act providing for the census, the land registry offices, the regional offices of the Ministry of Agriculture and Rural Development and Vám- és Pénzügyőrség Országos Parancsnoksága (the Hungarian Customs and Finance Guard), and the association of the wine-growing communities have handed over to the Hungarian Central Statistical Office the registration identification numbers of wine and fruit plantations in their administrative records, and the information about the names, addresses and headquarters of their users. An address list was prepared from these data and the list of farm addresses

[3] A more detailed description of the history of plantation censuses is given by *Laczka, É.* in this issue p.80–95.

from the General Agricultural Census carried out in 2000, which served as the first estimation and definition of the plantation users.

The census took place in two phases. In the first phase, which lasted from June 1 to 15, 2001, the interviewers called on the known plantation users at home or at their headquarters on the basis of the address list. A so-called 'user' questionnaire was drawn up about the user and the total wine and fruit area in use, which among others contained the identificational data of the user, the land area size of the farm, the size of wine and/or fruit areas, their geographical positions, topographical numbers, the year of plantation, and the existence of irrigation or organic farming. After processing the completed questionnaires, some lists (check lists) were created which offered great help during the field survey in the second work-phase. The spot- and cadastral-maps used for the field survey were supplied to the Hungarian Central Statistical Office by the Földmérési és Távérzékelési Intézet (Institute of Geodesy Cartography and Remote Sensing). The manual of wine and fruit varieties with illustrations and descriptions helped in accurate variety identification. During the field survey, the interviewers with wine and/or fruit production knowledge and experience recorded the features of the plantations to the questionnaires.

In the second phase, the (type B) questionnaire had to be completed only about wine areas (plantations) larger than 500 square metres, while areas smaller than that only had to be entered on a list. The wine questionnaire among others contained the plantation size (by topographical number), date of plantation, way of cultivation, line and plant distances, stock use, the produced varieties, and the condition of the plantation. In addition to complete the questionnaires, the location of the plantations had to be indicated in the cadastral maps supporting the census.

Pursuant to the Act providing for the census, only the areas of 1 500 square metres or larger planted with fruit species with trunks could be considered as plantation areas. In the case of berries, this size category was 500 square metres or bigger. Questionnaires (type C) had to be completed about these plantations, and in the case of smaller areas, only their sizes had to be entered on a list.

As a result of the survey of wine and fruit areas, data are available about almost 300 thousand plantations and farms or households dealing with wine and/or fruit production. (Summary of the characteristics of wine and fruit plantations, and their regional data are presented in the Appendix.)

The census data – apart from being entered into the agricultural statistical database system – also form the basis of the plantation register and the source of farm-register maintenance. The data available, the map support of the survey as well as the development of data management tools required the development of a data management application not used in Hungarian agricultural statistics so far.

PLANTATION STATISTICAL GIS[4]

The system of Plantation Statistical GIS (PSGIS) is on the one hand a GIS software application in support of the completion of agricultural statistical tasks, and on the other

[4] This is an application developed in the framework of the Digital Map Project as part of the PHARE HU9909-03-02 project under the title of Development of agricultural statistics. The development was made by the Danish BlomInfo A/S consortium (project leader), with the cooperation of Geometria Térinformatikai Rendszerház Kft. and Mapscan Kft .

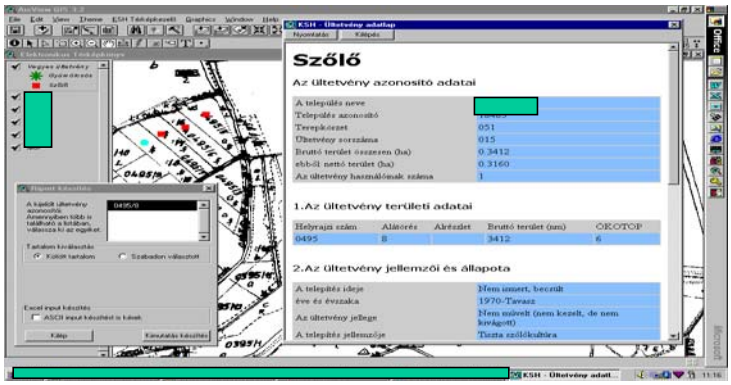
hand a so-called electronic book of maps (e-Book), which is a data collection copied on CD, containing the geo-coded data of plantations and pictures of clear cut maps.

The tasks to be completed by the PSGIS digital map managing system can be briefly summarized as described in following the points:

– Entry and documentation in an electronic format of the geographical location of wine and fruit plantations based on the census of 2001

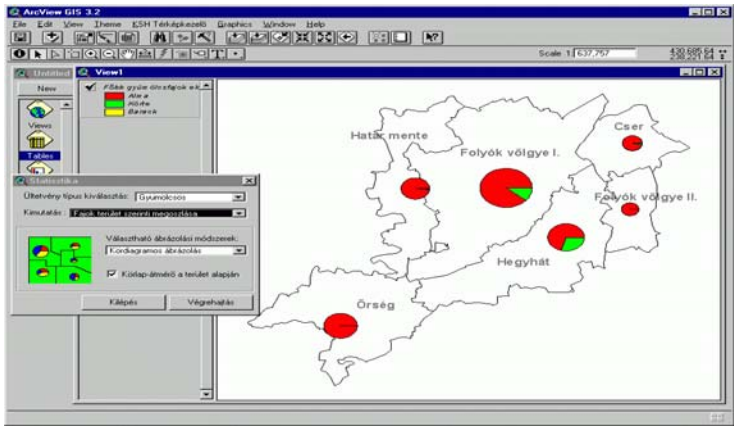
– Connecting the geographical location of plantations with the related census and statistical (aggregate) data (see Figure 1: displaying the plantation related data for the plantation selected in the map or identified with the topographical number, together with the map data management.)

Figure 1. Display of plantation data



– Management of digital borderlines of public administrative or other territorial units – formed from settlements – to ensure graphic display of statistics on wine and fruit registers (see Figure 2).

Figure 2. Display of management of digital borderlines of units



– Ensuring digital borderline management of the previous territorial units for the territorial analysis and processing of agricultural statistical data with standard GIS tools.

The basic pillar of the GIS application is the geo-code, which is the identifier of a territory, a territory-dependent object, or eventually an object group according to the definition accepted in GIS. It enables a link between the territories or objects and the related characteristic values. In the application ensuring the GIS data management of wine and fruit plantations, the geo-code is the co-ordinate given in the unified countryside projection, determined on the basis of the geographical identification of plantations (linked to the topographical number and to the property registration of the land area).

The plantation statistics GIS application is based on the alphanumerical data (technical plantation information) of the plantation census and the map data.

Maps used

The most important graphic map data sources were the 1:10 000 scale maps covering the rural area of all the Hungarian settlements. This is the most cost efficient domestic map product for financial management, planning and statistical purposes, in which the identification of plots can be done. The 1:4000 scale urban area index map sheets had been used in that cases where plantations were located in certain urban areas. The geographical database of the Digital Map is built upon the database (DB) of administrative boundaries of Hungary that is a structured digital DB on settlement level.

The operating data files of PSGIS

The operation of PSGIS is basically ensured and supported by three databases:

1. The e-Book is a *database,* which contains the raster maps of the concerned settlements on a CD-ROM, as well as the geo-code data of plantations. This enables the management of spatial statistical data and maps independently from the data network, and by its use, the regional directorates of the Hungarian Central Statistical Office can have access to spatial data without putting an extra load on the data network.

2. Data tables including the results of standard statistical processing, that is the *data of statistical data items represented in thematic maps*.

3. Primary map layer for handling public administration units and their borders.

Key functions of PSGIS

The general objective of PSGIS is to support the development of agricultural statistics. The PSGIS functions are personified by two ‘products’, the digital map and the electronic map-book.

The digital map is a software application with the help of which:

– various agricultural statistical reports can be generated,
– future statistical surveys can be designed,

– regular statistics can be completed both for internal and external use,
– background database maintenance can be ensured, and
– the spatial data of the survey can be checked graphically on the screen.

The electronic map-book ensures a map background for the analyses made with statistical data and it supports:

– the topographical reference of statistical data,
– the 1:10 000 scale abstraction level identification of environmental objects,
– the general and statistical oriented PSGIS functions.

The future of PSGIS

The PSGIS system may be further developed in two directions. One is a broader functionality offered in the registration of wine and fruit plantations. Further statistical data may appear, such as the location of wine cellars, their storage capacity, and thus, several analytical options may be executed. A direct link may be established with administrative (e.g. land use, wine-growing community) registers. The system may also provide support for property policy measures. The other option may be to enlarge the system to the whole land use statistics to all such territories (land details, plants) on which statistical surveys are made.

The GIS application is capable of enhancing the efficiency of spatial and map-representable processes. However, to use GIS systems, reference maps are needed. A solution should also be found for the spatial references of data to be managed. Unfortunately, the poor data infrastructure is an obstacle of development. The assortment of digital products is small, there is no full coverage in the area of large-scale maps, and there are no address lists equipped with co-ordinates.

In this map-deficient state, PSGIS found a cost-efficient solution by transforming the overview cadastral maps to image files, and deriving geo-codes from them. The planned time-period of the solution is four to five years. After that, it can be expected that the forced replenishment of missing digital reference maps will cease to be the main problem of GIS developments. Then by way of the geo-codes the descriptive data of the Hungarian Central Statistical Office will become connectable to the underlying state products (digitalised vector maps).

The PSGIS system enriches the representation and analysis options of agricultural statistical census data. Compared to the application of vector core data, geo-code is a compromise, but it gives a solution with which the border changes of territorial units can be followed, and enables varied, even micro-level analyses by the application of spatial interpolation tools.

REFERENCES

Mezőgazdasági statisztika fejlesztése. Digitális térkép projekt. (2002) PHARE HU 9909-03-02-3 zárójelentése.
NIKLASZ L. – PINTÉR L. – PODOLCSÁK Á. (2002): Az ültetvény Statisztikai Térinformatika (ÜST) rendszerének megvalósítása a KSH-ban. *Acta Agraria Kaposváriensis*, Vol. 6 No. 3. 69–83. p.

Table 1

Age and variety-structure of the vineyards
(hectares)

Territorial unit	Size of plantation area	Vineyard under threshold	Total	Age of plantation (years)						Varieties			
				under 3	3–5	6–9	10–19	20–29	30 and over	white wine	red wine	table grapes	other grapes
Budapest	112.98	5.07	118.05	–	–	4.05	53.26	39.32	16.35	85.99	2.40	14.05	2.94
Pest county	3 648.18	52.99	3 701.17	73.56	115.77	29.47	1 272.65	1 115.15	1 041.49	2 282.26	575.62	72.42	544.28
Central Hungary	*3 761.16*	*58.06*	*3 819.22*	*73.56*	*115.77*	*33.52*	*1 325.91*	*1 154.47*	*1 057.84*	*2 368.25*	*578.02*	*86.47*	*547.22*
Fejér county	4 122.72	91.87	4 214.59	77.13	172.69	129.39	2 158.59	619.10	965.91	3 464.89	373.33	61.39	137.26
Komárom-Esztergom county	2 221.05	60.33	2 281.38	269.77	41.16	39.66	531.75	610.25	728.50	1 703.47	156.42	43.20	188.24
Veszprém county	6 649.61	66.23	6 715.84	293.75	215.54	187.42	2 030.32	2 099.68	1 823.15	5 225.39	429.31	24.28	688.59
Central Transdanuibia	*12 993.38*	*218.43*	*13 211.81*	*640.65*	*429.39*	*356.47*	*4 720.66*	*3 329.03*	*3 517.56*	*10 393.75*	*959.06*	*128.87*	*1 014.09*
Győr-Moson-Sopron county	2 550.34	24.17	2 574.51	112.86	55.63	58.16	1 047.27	808.17	468.25	1 017.13	1 356.05	6.15	97.26
Vas county	1 170.93	60.35	1 231.28	12.21	12.69	36.46	305.66	312.31	491.71	430.68	357.20	7.68	307.26
Zala county	3 371.85	227.06	3 598.91	23.41	40.71	70.48	530.54	776.69	1 930.21	1 565.48	127.20	28.63	1 465.07
Western Transdanubia	*7 093.12*	*311.58*	*7 404.70*	*148.48*	*109.03*	*165.10*	*1 883.47*	*1 897.17*	*2 890.17*	*3 013.29*	*1 840.45*	*42.46*	*1 869.59*
Baranya county	3 204.89	61.23	3 266.12	385.40	249.18	176.51	1 178.00	694.95	520.86	1 460.24	1 368.61	31.47	229.11
Somogy county	4 017.91	167.14	4 185.05	163.46	59.28	47.22	2 348.06	894.47	505.45	2 579.40	863.25	117.77	354.84
Tolna county	5 501.71	112.54	5 614.25	432.20	234.93	94.17	2 832.60	1 114.21	793.59	1 994.96	2 899.93	103.44	335.11
Southern Transdanubia	*12 724.51*	*340.91*	*13 065.42*	*981.06*	*543.39*	*317.90*	*6 358.66*	*2 703.63*	*1 819.90*	*6 034.60*	*5 131.79*	*252.68*	*919.06*
Borsod-Abaúj-Zemplén county	8 657.71	255.94	8 913.65	324.84	206.82	202.72	2 307.79	1 950.55	3 665.05	7 038.13	519.17	49.06	749.85
Heves county	12 341.65	21.49	12 363.14	1 204.64	847.69	226.57	4 878.61	3 913.37	1 270.76	8 146.85	3 851.77	87.60	41.84
Nógrád county	524.39	34.58	558.97	0.46	1.69	2.45	131.52	186.92	201.39	209.28	151.28	8.70	123.64
Northern Hungary	*21 523.75*	*312.01*	*21 835.76*	*1 529.94*	*1 056.20*	*431.74*	*7 317.92*	*6 050.84*	*5 137.20*	*15 394.26*	*4 522.22*	*145.36*	*915.33*
Hajdu-Bihar county	1 454.80	101.67	1 556.47	2.47	3.17	8.04	94.12	279.09	1 067.90	395.53	56.16	31.46	938.50
Jász-Nagykun-Szolnok county	1 769.46	22.92	1 792.38	78.79	30.17	4.15	564.03	587.82	504.51	950.79	492.37	19.77	259.52
Szabolcs-Szatmár-Bereg county	769.37	84.87	854.24	1.76	3.12	6.00	57.69	129.88	570.90	234.89	39.11	25.76	444.34
Northern Great Plain	*3 993.63*	*209.46*	*4 203.09*	*83.02*	*36.46*	*18.19*	*715.84*	*996.79*	*2 143.31*	*1 581.21*	*587.64*	*76.99*	*1 642.36*
Bács-Kiskun county	26 239.09	84.40	26 323.49	1 914.64	1 218.09	1 138.02	10 320.92	8 066.01	3 581.41	19 007.87	5 733.93	257.82	489.88
Békés county	40.99	20.82	61.81	0.13	0.32	0.63	2.91	3.82	33.21	11.41	7.33	2.41	11.42
Csongrád county	3 051.38	32.18	3 083.56	73.48	103.92	39.41	1 217.50	1 067.30	549.83	1 846.80	1 031.71	43.17	80.72
Southern Great Plain	*29 331.46*	*137.40*	*29 468.86*	*1 988.25*	*1 322.33*	*1 178.06*	*11 541.33*	*9 137.13*	*4 164.45*	*20 866.08*	*6 772.97*	*303.40*	*582.02*
Total	*91 421.01*	*1 587.85*	*93 008.86*	*5 444.96*	*3 612.57*	*2 500.98*	*33 863.79*	*25 269.06*	*20 730.43*	*59 651.44*	*20 392.15*	*1 036.23*	*7 489.67*

Table 2

Distribution of vineyards by the size of area and shortage of vinestocks
(hectares)

Territorial unit	Area of vineyards					Shortage of vinestocks						
	0.05–0.099	0.1–0.99	1.0–4.99	5.0–9.99	10.0–	under 5	6–10	11–20	21–30	31–40	41–50	50 and over
	hectares					percent						
Budapest	*1.40*	*5.35*	*73.68*	*32.54*	0.00	*1.89*	*32.58*	*57.78*	*17.15*	*3.58*	–	–
Pest county	*175.00*	*916.41*	*474.65*	*395.65*	*1 686.51*	*668.21*	*1 250.08*	*684.60*	*259.42*	*260.01*	*222.69*	*303.14*
Central Hungary	176.40	921.76	548.33	428.19	1 686.51	670.10	1 282.66	742.38	276.57	263.59	222.69	303.14
Fejér county	*546.37*	*1 044.56*	*242.38*	*455.49*	*1 834.07*	*1 645.66*	*1 135.27*	*697.12*	*346.57*	*128.99*	*108.46*	*60.88*
Komárom-Esztergom county	*356.28*	*739.21*	*292.01*	*122.94*	*710.55*	*695.54*	*442.87*	*679.27*	*223.41*	*56.52*	*42.58*	*80.93*
Veszprém county	*397.85*	*3 656.64*	*1 513.81*	*609.81*	*471.47*	*3 259.32*	*1 250.08*	*1 165.72*	*436.57*	*215.07*	*143.87*	*179.20*
Central Transdanuibia	1 300.50	5 440.41	2 048.20	1 188.24	3 016.09	5 600.52	2 828.22	2 542.11	1 006.55	400.58	294.91	321.01
Győr-Moson-Sopron county	*167.71*	*278.09*	*162.91*	*165.91*	*151.94*	*1 055.72*	*519.70*	*666.41*	*198.26*	*47.89*	*36.53*	*25.84*
Vas county	*340.81*	*504.11*	*46.94*	*24.23*	*254.84*	*814.54*	*165.51*	*140.96*	*21.18*	*7.25*	*4.99*	*16.60*
Zala county	*1 426.67*	*1 774.03*	*111.17*	*34.38*	*25.72*	*1 720.43*	*714.24*	*467.38*	*161.70*	*68.31*	*99.90*	*140.03*
Western Transdanubia	1 935.19	3 036.99	673.42	580.26	867.36	3 590.69	1 399.45	1 274.75	381.14	123.45	141.42	182.47
Baranya county	*362.74*	*1 335.38*	*689.48*	*378.50*	*438.74*	*1 841.86*	*699.83*	*396.44*	*193.66*	*37.33*	*16.92*	*18.93*
Somogy county	*496.48*	*814.88*	*491.63*	*554.33*	*1 660.57*	*1 693.24*	*1 287.38*	*736.26*	*174.71*	*52.64*	*59.33*	*14.31*
Tolna county	*503.30*	*1 497.04*	*746.32*	*618.79*	*2 136.29*	*2 294.01*	*1 414.83*	*1 265.68*	*359.49*	*102.92*	*28.13*	*36.63*
Southern Transdanubia	1 362.52	3 647.30	1 927.43	1 551.62	4 235.60	5 829.11	3 402.04	2 398.38	727.86	192.89	104.38	69.87
Borsod-Abaúj-Zemplén county	*595.79*	*3 546.00*	*1 322.94*	*956.51*	*2 236.57*	*3 402.38*	*2 308.30*	*1 520.16*	*711.41*	*234.76*	*192.97*	*287.84*
Heves county	*63.21*	*1 576.07*	*4 458.26*	*2 414.98*	*3 829.17*	*5 299.70*	*2 645.28*	*2 597.06*	*1 062.87*	*429.63*	*126.38*	*180.71*
Nógrád county	*72.72*	*120.97*	*41.35*	*59.63*	*229.81*	*62.51*	*200.05*	*156.95*	*51.71*	*30.70*	*9.30*	*13.21*
Northern Hungary	731.72	5 243.04	5 822.55	3 431.12	6 295.55	8 764.59	5 153.63	4 274.17	1 825.99	695.09	328.65	481.76
Hajdu-Bihar county	*299.38*	*984.00*	*65.52*	*34.37*	*71.48*	*416.38*	*411.25*	*299.60*	*153.63*	*76.88*	*46.87*	*50.23*
Jász-Nagykun-Szolnok county	*74.84*	*399.37*	*321.72*	*253.65*	*719.91*	*364.30*	*496.62*	*539.08*	*237.37*	*53.42*	*16.67*	*61.95*
Szabolcs-Szatmár-Bereg county	*230.30*	*431.96*	*42.02*	*53.12*	*11.96*	*285.80*	*166.81*	*149.22*	*73.13*	*43.63*	*24.82*	*25.90*
Northern Great Plain	604.52	1 815.33	429.26	341.14	803.35	1 066.48	1 074.68	987.90	464.13	173.93	88.36	138.08
Bács-Kiskun county	*230.42*	*9 064.74*	*8 493.23*	*2 249.33*	*6 201.44*	*13 902.31*	*6 115.56*	*3 746.88*	*926.93*	*476.10*	*300.00*	*771.31*
Békés county	*14.93*	*14.93*	*1.14*	–	*10.00*	*11.78*	*7.30*	*8.65*	*2.48*	*0.56*	*0.24*	*10.00*
Csongrád county	*64.75*	*628.07*	*667.14*	*395.72*	*1 295.68*	*782.31*	*790.04*	*418.41*	*266.21*	*114.17*	*116.85*	*563.40*
Southern Great Plain	310.10	9 707.74	9 161.51	2 645.05	7 507.12	14 696.40	6 912.90	4 173.94	1 195.62	590.83	417.09	1 344.71
Total	*6 420.95*	*29 812.57*	*20 610.70*	*10 165.62*	*24 411.58*	*40 217.89*	*22 053.58*	*16 393.63*	*5 877.86*	*2 440.36*	*1 597.50*	*2 841.04*

Table 3

Area of fruit plantations by territorial units

Denomination	Central Hungary	Central Trans-danuibia	Western Trans-danubia	Southern Trans-danubia	Northern Hungary	Northern Great Plain	Southern Great Plain	Total
Plantations								
number	4561	1554	3513	3992	8823	26112	11264	59819
share (percent)	7.6	2.6	5.9	6.7	14.7	43.7	18.8	100.0
Gross area								
size (hectare)	10976.83	4844.88	5603.53	5170.50	12283.54	35733.33	15321.04	89933.65
share (percent)	12.2	5.4	6.2	5.7	13.7	39.7	17.0	100.0
Net area								
size (hectare)	10475.72	4629.21	5161.20	4957.20	11681.06	34502.87	14654.37	86061.63
share (percent)	12.2	5.4	6.0	5.8	13.6	40.1	17.0	100.0
	Area of plantations (hectares)							
Apples	2013.95	1021.98	2536.63	1264.48	3467.05	24363.76	4596.25	39264.10
Pears	151.93	139.80	567.82	75.60	498.14	354.07	259.29	2046.65
Quinces	1.50	0.14	–	16.40	0.73	11.86	69.78	100.41
Medlars	–	–	–	–	–	–	0.94	0.94
Applefruits total	*2167.38*	*1161.92*	*3104.45*	*1356.48*	*3965.92*	*24729.69*	*4926.26*	*41412.10*
Cherries	319.38	107.89	57.64	74.26	292.11	190.41	177.36	1219.05
Sour cherries	2567.24	1000.64	410.65	437.53	1351.92	4933.33	2592.15	13293.46
Apricots	1187.29	672.74	81.58	665.55	1631.61	184.14	1324.61	5747.52
Peaches	1576.11	521.01	33.41	835.76	451.39	512.72	3229.28	7159.68
Plums	1380.46	292.03	182.66	410.10	1060.98	1773.34	1744.84	6844.41
Kernel fruits total	*7030.48*	*2594.31*	*765.94*	*2423.20*	*4788.01*	*7593.94*	*9068.24*	*34264.12*
Walnuts	214.32	234.14	411.07	557.55	471.42	1070.01	285.17	3243.68
Almonds	31.70	159.42	5.48	35.47	15.37	0.35	8.90	256.69
Chestnuts	23.12	25.80	333.52	73.32	11.12	–	0.37	467.25
Hazelnuts	13.29	1.35	4.03	16.87	5.33	3.84	44.29	89.00
Nuts total	*282.43*	*420.71*	*754.10*	*683.21*	*503.24*	*1074.20*	*338.73*	*4056.62*
Raspberries	243.22	5.52	171.67	183.25	688.32	131.31	0.24	1423.53
Raspberries-dewberries	0.25	–	0.66	1.57	0.66	0.09	–	3.23
Dewberries	30.68	18.26	27.17	16.38	314.74	96.79	0.95	504.97
Red- and white currants	377.63	76.29	99.45	80.54	248.53	136.45	0.90	1019.79
Blackcurrants	88.66	63.41	95.72	35.20	521.99	52.11	1.80	858.89
Jostaberries	–	–	0.38	0.05	0.54	–	–	0.97
Gooseberries	19.81	9.80	0.08	0.11	67.48	270.57	8.49	376.34
Strawberries	113.23	17.75	28.31	40.81	80.10	68.94	73.11	422.25
Elders	104.54	260.97	108.17	135.82	499.49	346.57	226.38	1681.94
Buckthorns	17.40	0.30	–	–	–	2.20	4.52	24.42
Bilberries	–	–	5.11	–	–	–	–	5.11
Beams	–	–	–	0.60	2.04	–	4.80	7.44
Small fruits	*995.42*	*452.30*	*536.72*	*494.33*	*2423.89*	*1105.03*	*321.19*	*6328.88*