

SUGGESTIONS ON IMPROVING THE AGRICULTURAL INFORMATIONAL SYSTEM CREATED TO SUPPORT FARMERS IN ROMANIA

Cristian HUȚANU, Assistant, PhD., Eng., University of Agricultural Sciences and Veterinary Medicine Iasi, Romania, hutanucrst@yahoo.com

Dan PĂDURE, Assistant, PhD., Eng., „Gheorghe Asachi” Technical University of Iasi, Romania, danny_pad@yahoo.com

Abstract: *Suggestions are made to the Agricultural Informational System managed by the Agency for Payments and Intervention for Agriculture, conducted in support of farmers in Romania, on the EU requirements, which should provide to interested users basic and specialized data, derived from cadastral records. Only on the basis of data resulted from cadastre introduction may be made available to farmers in Romania a clear and accurate database reflecting the reality on the ground.*

Keywords: *Agricultural Informational System, digital topographic-cadastral plan, cadastral plots, physical blocks.*

1. Introduction

Agricultural Informational System is a subsystem of the General Cadastre, which systematically keeps quantitative, qualitative and legal evidence of land for agricultural use and of buildings from the agricultural fund, located in the outside of an administrative area and also the works of protection and improvement of soil quality. The purpose of this system consists in updating or preparing topographic-cadastral plans, rational use of agricultural land through land management works, preventing the chaotic expansion of habitable areas, identifying new land resources etc.

On its turn, the Agricultural Informational System is composed of five subsystems (*Agricultural Informational System, Pasture Informational System, Hay Fields Informational System, Vineyard Informational System and Orchards Informational System*), each containing technical data and specific information, in accordance with the technical standards of achievement and maintenance [5, 6].

2. Material and method

For better organization and development of agriculture, the European Union supports farmers in member states, by establishing Ministries of Agriculture and Paying Agency for Agriculture. European Union direct payments to farmers in Romania shall be made by the **Agency for Payments and Intervention in Agriculture (APIA)**, through the *Directorate of Support Measures and the Integrated Administration and Control System*, to achieve the *operational objective* of maintaining and supporting sustainable agricultural activity and the countryside.

An essential condition that Romania must fulfil in order to be able to absorb the funds for direct payments is ***creating a system to ensure rigorous control and administration of payment applications of farmers (Integrated Administration and Control System)***

implemented and managed by the Agency for Payments and Intervention in Agriculture. Thus, Agency for Payments and Intervention in Agriculture, through Integrated Administration and Control System established their own control areas, referred to as **physical blocks**, obtained by digitizing the ortophotoplan, to compare them with the sum of the areas declared by the farmers in payment applications. Each physical block has been assigned a code search, formed from SIRUTA code of administrative unit and the number of physical block.

This database, containing the basic primary data on physical blocks and accessed by users online (<http://pis.apia.org.ro>), was achieved through financing from the European Agricultural Fund for Rural Development and is part of the rural development strategy in the framework of the "National Programme for Rural Development 2007-2013".

3. Results and discussions

To achieve the technical and specialized evidence system of Agricultural Cadastral Informational System was chosen as the study area a vineyard unit, covering 111 hectares, located in the northwest of the extended inside of the City of Iasi. For this vineyard unit were made topographic measurements with the purpose of achieving the digital topographic-cadastral plan (Fig. 1) and agricultural cadastre database, with the establishment of the summary of the real estate for the vineyard and fruit growing heritage [2, 3, 4].

According to the ortophotoplan made by Agency for Payments and Intervention in Agriculture and provided to users, the vineyard unit fits into 24 physical blocks. After grouping the cadastral plots on physical blocks was calculated the average slope for each physical block (Table 1).

Table 1. Comparing the average slope of cadastral plots from of vineyard unit area with physical block slope

No. physical block	Physical block slope (%)	No. cadastral plots	Slope from topographic meas. (%)	No. physical block	Physical block slope (%)	No. cadastral plots	Slope from topographic meas. (%)
133	6.87	3	8.68	202	16.25	2	14.09
119	8.02	12	7.04	226	12.39	1	13.69
112	13.89	13	16.12	203	5.18	6	9.08
114	8.45	12	8.07	246	7.68	1	10.44
137	3.70	2	4.33	238	13.18	6	15.55
154	6.19	4	8.30	265	12.85	9	10.07
180	8.86	4	12.48	236	9.55	7	13.44
145	7.12	10	10.34	194	10.95	5	7.33
186	10.64	5	10.84	175	12.32	5	15.78
234	9.80	3	12.41	162	11.20	5	13.74
212	13.28	7	15.06	165	10.81	2	12.81
237	12.53	4	14.78	185	15.61	2	13.39

The disparity is because the average slope of physical block does not come from topographic-cadastral plans updated based on topographic measurements. Again are motivated the alerts of specialists and civil society, which highlights the urgent need to achieve the General Cadastre, through realistic scheduling of complex works that need to be executed [1].

Also I suggest that the database of Agricultural Informational System, managed by APIA in order to assist farmers who wish to access European funds through projects for establishing/rehabilitation of vineyards/fruit growing units, to implement cadastral summaries on the level of cadastral plot, which must contain both basic data and specialty data specific to each system/subsystem (Table 2 and Table 3).

Table 2. The Summary of the vineyard real estate

County: IASI	Nomenclature: L-35-32-A-c-4-III-2-c
Administrative unit: IASI	No. field: T 294
Code SIRUTA: 95060	No. plot: VN 2424
Code inside / outside city: 1	No. cadastral register: 13263/2004

Property outline		Coordinates and surface inventory		
		No. point	Coordinates in Stereo-70 Projection System	
			X (m)	Y (m)
		563	634488.695	692886.275
		580	634437.178	693067.404
		521	634348.852	693041.866
		518	634368.620	692930.671
		SURFACE (mp)	14894	

A. LAND VINE DATA BASE

Use category	Use subcategory	Destination group code	Quality class	The zone inside territory
Vine (V)	Plantations of noble vine (VN)	Agriculture destination fields (TDA)	64 points	Patrici Hill

B. LANDOWNER DATA BASE

Landowner's name	➤ Vinifruct Copou Company Iasi
Landowner's Residence / Headquarter	➤ No. 5 Viticultori Street, Iasi
Landowners group code	➤ DP – private domain
Ownership of the field	➤ Exclusive

C. REAL ESTATE CADASTRAL RECORDS SPECIALITY DATA BASE

Type of soil	➤ Cambic chernozem
Suitability class	➤ Land with few restrictions
Favorability class	➤ 61 – 80 points of cadastral creditworthiness
Average slope of the plot	➤ 14.03 % (slightly inclined)
Average altitude of the plot	➤ 94.3 m – Black Sea reference system
Slope exhibition	➤ Semi-shadowed (East)
Anti-erosion arrangements	➤ Parallel rows vine with the general direction of level curves
Type of vine culture	➤ Pure culture
Variety name and surface	➤ White Fetească = 14896 mp
Varieties / rootstock	➤ White Fetească
Management way of the block	➤ Semi-protected
Planting distances	➤ 2.20 m x 1.20 m
Current occupation degree	➤ 3221 hubs (57.10 %)
Current age of the plantation	➤ 35 years
Current stage of the plantation	➤ Satisfactory

Table 3. The summary of the fruit growing real estate

County: IASI
 Administrative unit: IASI
 Code SIRUTA: 95060
 Code inside / outside city: 1

Nomenclature: L-35-32-A-c-4-III-2-c
 No. field: T 294
 No. plot: L 2405/2
 No. cadastral register: 13263/2004

Property outline		Coordinates and surface inventory	
		Coordinates in Stereo-70 Projection System	
		X (m)	Y (m)
		No. point	
		604	634311.376 693184.647
		607	634324.730 693239.102
		608	634267.867 693257.534
		611	634260.858 693189.461
		SURFACE (mp) 3408	

A. LAND VINE DATA BASE

Use category	Use subcategory	Destination group code	Quality class	The zone inside territory
Orchard (L)	Classical orchard (L)	Agriculture destination fields (TDA)	92 points	Patrici Hill

B. LANDOWNER DATA BASE

Landowner's name	➤ Vinifruct Copou Company Iasi
Landowner's Residence / Headquarter	➤ No. 5 Viticultori Street, Iasi
Landowners group code	➤ DP – private domain
Ownership of the field	➤ Exclusive

C. REAL ESTATE CADASTRAL RECORDS SPECIALITY DATA BASE

Type of soil	➤ Cambic chernozem
Suitability class	➤ Land with few restrictions
Favorability class	➤ 81 – 100 points of cadastral creditworthiness
Average slope of the plot	➤ 18.25 % (slightly inclined)
Average altitude of the plot	➤ 69.2 m – Black Sea reference system
Slope exhibition	➤ Semi-shadowed (East)
Anti-erosion arrangements	➤ Parallel rows of fruit trees with the general direction of level curves
Type of culture	➤ Pure culture
The type of culture system	➤ Intensive system
Species name and surface	➤ Apple tree = 3408 mp
Variety and surface / rootstock	➤ Jonathan = 2352 mp x Jonagold = 1056 mp
Planting distances	➤ 3.9 m x 3.8 m
Current occupation degree	➤ 221 fruit trees (97.36 %)
Current age of the plantation	➤ 11 years
Current stage of the plantation	➤ Very good

As in any field, good development depends on the quality of cooperation and collaboration between institutions [7]. Collaboration between APIA and Cadastre and Land Register National Agency, represented in the territory by Cadastre and Land Register Offices respectively Cadastral GIS services of the municipalities, would facilitate completion of cadastral records.

Moreover, by centralizing data from cadastral records across an administrative territorial unit, can achieve a clear and accurate evidence, based on real data from the field, useful both for institutions managing Agricultural Informational System and for farmers in Romania [1, 7].

In prospect of expansion, modernization and maintenance in good condition of vineyards and fruit growing plantations, especially with tradition, the Managing Authority for the National Programme for Rural Development published in 2013 a report regarding „*Social-economic analysis in the perspective of rural development 2014-2020*”. This report argues the need to support the agricultural sector in Romania that in the last 20 years was in a steady decline, with negative consequences not only on the economic development of rural communities, but also on the quality of life in the area.

4. Conclusions

The effectiveness of the institutions that are managing the databases of Agricultural Informational Systems increases if the technical and specialized data are from cadastral records obtained from the Cadastre introduction.

Increasing the interest from institutions managing cadastral databases to develop collaborative relationships for the data to be harnessed for sustainable development of agriculture, environmental protection, rational use of land through land management works, prevention of uncontrolled extensions of habitable areas.

5. References

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