LAND RESOURCES FROM HILLS AND MOUNTAINS TIMIŞ COUNTY

Dan DOLOGA, Adrian ŢĂRĂU, Daniel DICU

Banat's University of Agricultural Sciences and Veterinary Medicine from Timisoara
No. 119, Calea Aradului str.
E-mail: dicudanield@gmail.com

Abstract: *The paper presents some aspects concerning the land resources in Tims county. The addressed issues is relating to an area of 253698 ha of which 148563 ha of agricultural land), located in western Romania and representing a total of 28 cadastral territories. There are shortly presented the main physical-geographic units of the area referring also to the soil. The vegetal production obtained in different conditions: natural ecosystems, intensive and extensive crops, under the influence of some cosmic- atmospheric factors and conditions and telluric-edaphically conditions, conditions that have changed in time and space due to human intervention. Some aspects regarding the general ecopedological conditions and the local particularities in defining the land resources, distribution of land use categories in the main landforms from Hills and mountains in Timis county . The different aspects presented in the paper are based on a large volume of data from the OSPA Timişoara archive. The pedological and agrochemical information given in this paper are useful in choosing the most practical measures for land using in agriculture and siviculture and also in other fields like: environment protection, health, rural development, etc. In the morphology of hills and mountainsTimis county we can see distinct sectors: eastern sector, the highest, made of northern branches of Poiana Rusca Mountains; the central sector, consists of hills (Lipovei, Fragulea, Silagiului, Sacosului); Thus, landscape features and climatic conditions have allowed the arable land to hold about 35,69% of the agricultural area, that 20,90% of the hills and mountains Timis county of 253698 ha, being represented in the major landforms, with the following proportions: 87,00% in hills and 23,00% in mountains. According to the Romanian System of Soil Taxonomy (SRTS-2012) in the considered area were identified 6 classes, 12 types with separation of 48 subtypes, and units of soil separating the numerous detail categories . The research of eco-pedological conditions, ordering and processingof dates was done in accordance with Development Methodology of Soil Studies (Vol I, II, III), developed by ICPA Bucharest in 1987 and the Romanian System of Soil Taxonomy (SRTS-2012).*

Key words: *resources, land, agricultural, pedological, ecologic,*

INTRODUCTION

The human activity of food searching is determined by the environment conditions and factors that generate the necessary background for vegetation and plants growing possibilities.

The fact that the studied territory is 90% in rural aria and that it is made more than 59% of agricultural land, has a important significance because the general development of the cities in this aria is conditioned extensively by the agricultural and siviculture activities.

Through its role and functions the agriculture is a great user of natural resources having a random impact on environment and who depends, due to its long-term variability, on the long-term resource existence.

The use of these have to be carried in a comprehensive, coordinated maner, to achieve several goals simultaneously aligned with the requirements of environmental protection.

First, agriculture depends on agricultural land and, to a certain extent, the productive capacity of the land depends on the way how agriculture use lands, soils respectively. Soil is a strategic natural resource which, if it is exploited rationally is renewable and can ensure food safety.

The base of cadastral land evaluation, as an expression of capital size, is the vocation of land expressed throught their intake of certain opportunities that you get to create profits, profitability in the use of various agricultural or forestry land is differentiated in time and space (ȚĂRĂU D., IRINA ȚĂRĂU, BORZA I., 2002).

Presenting specific socio-economic attributes, the earth is an object of interdisciplinary research (soil, economy, land, etc.), defining it both as a means of production and object of human activity.

The vegetal production obtained in different conditions: natural ecosystems, intensive and extensive crops, under the influence of some cosmic- atmospheric factors and conditions (light, temperature, rainfalls) and telluric-edaphically conditions (relief, litology, hydrology, soil hydro-physic and chemic characteristics), conditions that have changed in time and space due to human intervention, implies a very good knowledge of all ecological factors of influence so that the land resources could be capitalized in concordance with plants ecological request.

Agricultural land operating through the use of incomplete or incorrect strategy seriously affects both quantitatively and qualitatively not only production (agricultural, forestry, fisheries, etc.) but also soil resources.

MATERIAL AND METHODS

The addressed issues is relating to an area of 253698 ha of which 148563 ha of agricultural land (table 1), located in western Romania and representing a total of 28 cadastral territories.

Table 1

Surface structure by main categories of use

Specification	Arable	Pastures and hayfields	Vineyards and orchards	Agricultural	Forests	Other	Total
Hills and mountains (ha)	53021	83394	12148	148563	80713	24422	253698
%	20,90	32,87	4,79	58,56	31,81	9,63	100
%	35,69	56,13	8,18	100			

The natural conditions of researched area are generally favorable for agro-alimentary sector development, under all the aspects, being an old tradition for cereal cultivation and valorization, especially by animal breedind.

The examination of ecopedological conditions, were setting in order and processing dates were made according to „ The Pedological Studies Elaboration Methodology “, (vol. I,II,III) of ICPA Bucharest in 1987, Romanian Taxonomic System of Soils Taxonomy (SRTS-2012), and land resources structure (31.12.2006) statistical raport (after O.J.C.G.F. Timisoara).

RESULTS AND DISCUSSION

Timis County is located in the western part of Romania. The limit between two countys consecutive passes over the Doclin hills, Pogănişului Hills, Timis corridor, then climb up the mountain ridges to Padeş and Rusca peaks.

In the east the boundary with Hunedoara county is kept about the watershed of the Mures and Bega, geting down on the mountain peaks to the Şaua Lăpugiului and climbing again to Bulza hills.

To the north, the boundary between the counties of Timis and Arad aims Lipova hills.

Timis county relief is characterized by a great variety of landforms, generally relate to the genesis and evolution of the Carpatho-Danubian whole relief.

In the morphology of hills and mountainsTimis county we can see distinct sectors (Fig. 1):

- eastern sector, the highest, made of northern branches of Poiana Rusca Mountains;
- the central sector, consists of hills (Lipovei, Fragulea, Silagiului, Sacosului);

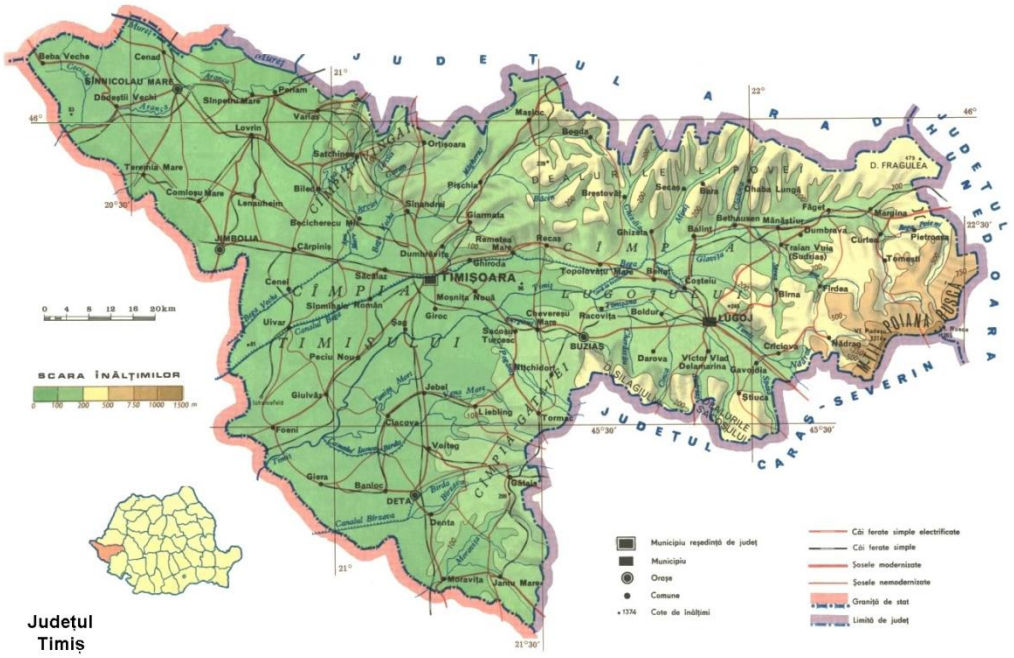

Figure 1. The main physico-geographical units of Timiş county

The land, understanding by this the soil that has been formed during years at the interface of the four covers of planet, is the first and the more reliable instrument of production through which is assured the alimentation security and the physical-geographic space for human society development.

The geomorphological evolution of the considered space is related to the evolution of the marine area (Thetys) or lake (Pannonian) which generated the formation of soils, which during a agricultural year shows two extreme situations, namely: excessive humidity in winter and lack of moisture during the warm season, both situations resulting in a number of stress forms with negative effects on agro-ecosystem productivity and quality.

The relief generated a great diversity of microclimatic and pedoclimatic conditions in a permanent change under natural and antrophic factors influence, factors that had a deeper impact on the relief than in other Romanian regions.

Regarding main clime characteristics behavior, these are different among each other due to the geographical position of the studied space. The difference of termic regime is in general determined by altitude differences of 1374 m, meaning a decrease of 0.6^0C at 100 m altitudes, and by the temperature variation.

The macroclimatic conditions of Timis county determined by its geographical position in the European continent, movement determined by centers of termical action (Azores and the subtropical anticyclone), or seasonal thermal action centers (Siberian, Asian, or the Mediterranean anticyclone), print out this area a temperate continental climate with subtropical influences more or less pronounced in certain geographic areas.

By its geographical position, the studied territory presents a great diversity of ecological conditions that are determined by all factors variability (cosmically-atmospherically and telluric-edaphically), generating the environment by plants growing and harvesting.

The geographical position in the continent and the Carpathian Mountains in the east mean that the territory referred to interfere the geographical influence Central European, East European and Balkan resulting in a wide variety of air and soil conditions by direct and indirect implications on the genesis and soil evolution.

Thus, landscape features and climatic conditions have allowed the arable land to hold about 35,69% of the agricultural area, that 20,90% of the hills and mountains Timis county of 253698 ha (Table 2), being represented in the major landforms, with the following proportions: 87,00% in hills and 23,00% in mountains.

The lands with pastures occupy a share of 56,13%, their spread in the major landforms (52,85% in the hills and 47,15% in the mountains) summing values that complement the proportion of arable land, vineyards and orchards, representing only 8,18%.

The forest is represented by an area of land totaling 80713ha, 31,81% of the total area of the hills and mountains county, spread to the main forms of relief: 79,47% in the hills and 20,53% in the mountains.

From the data, we can see that diversity of climatic conditions and specific characteristics of the space considered had a strong influence on the structure of the land and how land use in general and particularly agricultural land (default on their current and future productivity).

Table 2

The distribution of land use categories in the main landforms

Relief		Arable	Pastures and hayfields	Vineyards and orchards	Agricultural	Forests	Other	Total
Hills and terraces	Ha	46129	44075	11289	101493	64142	15620	181255
	%	87,00	52,85	92,93	68,32	79,47	63,96	71,45
Mountains and lowlands	Ha	6892	39319	859	47070	16571	8802	72443
	%	13,00	47,15	7,07	31,68	20,53	36,04	28,55
Total		53021	83394	12148	148563	80713	24422	253698
%		100	100	100	100	100	100	100
%		20,90	32,87	4,79	58,56	31,81	9,63	100
%		35,69	56,13	8,18	100			

In this regard, one very important issues that have concerned,and will work concerns many scientists (biologists, pedologyst, agronomists, chemists, geneticists, geography, etc.) is the development and application in production of technologies capable of providing the highest returns in terms of consumption as low (energy).

This goal in turn requires a detailed knowledge of organic supply, generically defined as the total energy of a variety of means structural complexity necessary genesis, development and maintenance of abiotic and biotic systems, by creating a harmonious balance between soil and plant breeding and their protection.

As a result of pedogenetical factors interaction, has resulted a large population of soils with specific characteristics.

According to the Romanian System of Soil Taxonomy (SRTS-2012) in the considered area were identified 6 classes, 12 types with separation of 48 subtypes, and units of soil separating the numerous detail categories .

The pedological and agrochemical information given in this paper are useful in choosing the most practical measures for land using in agriculture and siviculture and also in other fields like: environment protection, health, rural development.

Formed in variant natural conditions, soils are different among each other as characteristics and fertility, from region to region.

In the context of presented data, the productivity of agricultural land, as a result of diversity of the physical and geographic conditions and intrinsic characteristics of the soil and the human interventions occurring over time, is much different in time and space.

As a result of those political and economical conjunctures the lands using structure suffered an accelerating changes, especially in the pie-mounted and pre-mounted arias, through the cutting down of the forests and widening the aria for pasture and cereals crops.

CONCLUSIONS

Generally, the land using distribution is according to pedoclimatic conditions, but this is not always most suitable for long-term land sources administration.

Although the geographic area studied is located in the bio-climatic conditions not too different, however, due to varying lithologycal and hydrological conditions of soil formation, the processes vary from one place to another, resulting in an increased variability of terrain and soil factors, which contribute to implementation of environment were plants grow.

The natural conditions of researched area are generally favorable for agro-alimentary sector development, under all the aspects, being an old tradition for cereal cultivation and valorization, especially by animal breedind.

The obtained production results can fundament in the future the choissing of some adequate technologies for the climatic and soils conditions of the area where the research was made and also for other similar areas.

Specific climatic conditions of researched space allow the development of some sectors (vegetable, fruit, fish).

The pedological and agrochemical information given in this paper are useful in choosing the most practical measures for land using in agriculture and siviculture and also in other fields like: environment protection, health, rural development, etc.

As a result of pedogenetical factors interaction, has resulted a large population of soils with specific characteristics.

Which is why it is necessary to intensify awareness actions with the role that soil cover has for society and nature, as a means of production and component of the biosphere, and those of attracting attention to the increasing danger of soil degradation under the impact of all the intense action of on soil resources.

BIBLIOGRAPHY

1. BORZA I., ŢĂRĂU D., ŢĂRĂU IRINA, VLAD H., DOLOGA D. , JURCUŢ T., FLOREA M., 2004, Agricultura and silviculture land resources from west Romania and the necessity of ecological, Buletin USAMV Cluj-Napoca ISSN 1454-2382, pp. 458-461,
2. FLOREA N., MUNTEANU I., 2012, Sistemul român de taxonomie a solurilor-SRTS-2012, Ed. Sitech, Craiova,
3. IANOŞ GH., 2006, Riscuri naturale şi tehnogene pe terenurile agricole ale Banatului ,Ed. Universităţii de Vest,
4. ŢĂRĂU D., ROGOBETE GH., BORZA I., PUŞCĂ I., FAMISESCU G., 2002, Evolution of the natural ecopedological conditions in south-west Romania regarding the production capacities, Ştiinţa solului Vol. XXXXVI, Ed. Signata Timişoara, pg. 188-194.
5. TĂRĂU D., LUCA M., Panpotic al comunelor bănăţene din perspectivă pedologică**,** Ed. Marineasa Timişoara, 2002,
6. ŢĂRĂU D., BORZA I., ŢĂRĂU I., VLAD H., DOLOGA D., JURCUŢ T., 2003, Mediul natural, cadru structural şi funcţional în definirea factorilor edafici în Vestul României, Ştiinţa Solului nr. 1-2, Ed. Signata, vol XXXVII ISSN 1224-0303,
7. ŢĂRĂU, D. DICU, D. SILVICA ONCIA, IRINA ŢĂRĂU, Pedological And Agrochemical Evaluation Of Degraded Lands For Their Recovery Through Vineyards, Orchards And Forest Management Plans, Research Journal Of Agricultural Sciences, Facultatea De Agricultură, Vol. 42 (3) Timişoara, Ed. Agroprint,Pag. 880-887, 2010,
8. *** Arhiva OSPA Timişoara.
9. ***Rraport statistic, Situaţia fondului funciar , 31.12.2006 , O.J.C.G.F. Timisoara.
10. *** Metodologia Elaborării Studiilor Pedologice, I.C.P.A. Bucureşti, 1987