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QUALITATIVE ASSESSMENT OF SOILS FROM BOZOVICI AREA, CARAS-SEVERIN COUNTY

Andrada RANCU, Daniel Dorin DICU, Radu BERTICI
University of Life Science "King Mihai I" from Timisoara

Abstract: The work provides information and elements related to the classification and evaluation of soil resources, thus integrating into the field of complex studies of natural resource identification, from the perspective of the land's vocation for the most suitable utility and the establishment of protection and conservation measures for the lands in the area. The objectives of the work are represented by the collection, processing and accumulation of scientific data related to environmental factors, the geographical characteristics of the area, soil resources, data related to the nature and intensity of the limiting factors, the qualitative evaluation of the lands. The territory of the commune has an area of 19579 ha, of which 7314 ha (37.36%) is agricultural land, and 11484 ha (58.65%) is occupied by forests. In order to establish the quality of the land, both the characteristics of the soil and the other factors of vegetation, relief, climate, hydrology, which determine the capacity for agricultural or forestry production, as well as the vocation of the land to be used for various activities, must be precisely determined. Soil properties can exert a decisive influence on the development of the root system, mineral nutrition, providing air, weather and climate for the main physiological processes from plants, acting on fertility (quality) status of soil. Systematic mapping and agrochemical studies of soil provide valuable data on the state of soil quality, establish and implement differentiated culture technologies and determining the suitability of land for various crops, substantiation of land improvement works and improvement technology, organization and systematization of land.

Introduction

As a means of production, as an object and partially as a product of human activity the soil, formed over a period of thousands of years by the interference of the four layers of our planet, has been an element since ancient times that was evaluated, valued and classified, according to the scientific knowledge of the time.

Among environmental resources, water, air and soil are the most vulnerable but also most frequently subjected to the aggression of polluting factors with direct and serious consequences not only on the quality of the environment but especially on the health of people and other living things.

Material and method

From a geomorphological point of view, the territory of the commune has an area of 19579 ha, of which 7314 ha (37.36%) is agricultural land, 11484 ha (58.65%) being occupied by forests, it includes three distinct units: the mountain area, the terraces, the Nera meadow.

The distribution by categories of land use from Bozovici (ha)

Arable	Grassland	Hayfield	Vineyards	Orchards	Total agricultural	Forest	Water	Other categories	Total
1177	4300	1514	0	323	7314	11486	69	710	19579

Results and discussions

Depending on the diversity of relief forms, climate and vegetation conditions, anthropogenic interventions, the structure of the surfaces for the main categories of use, the soils in the researched area present a great diversity. Considering the Romanian Soil Taxonomy System (SRTS-2012), 11 soil types have been identified (Fig.1).

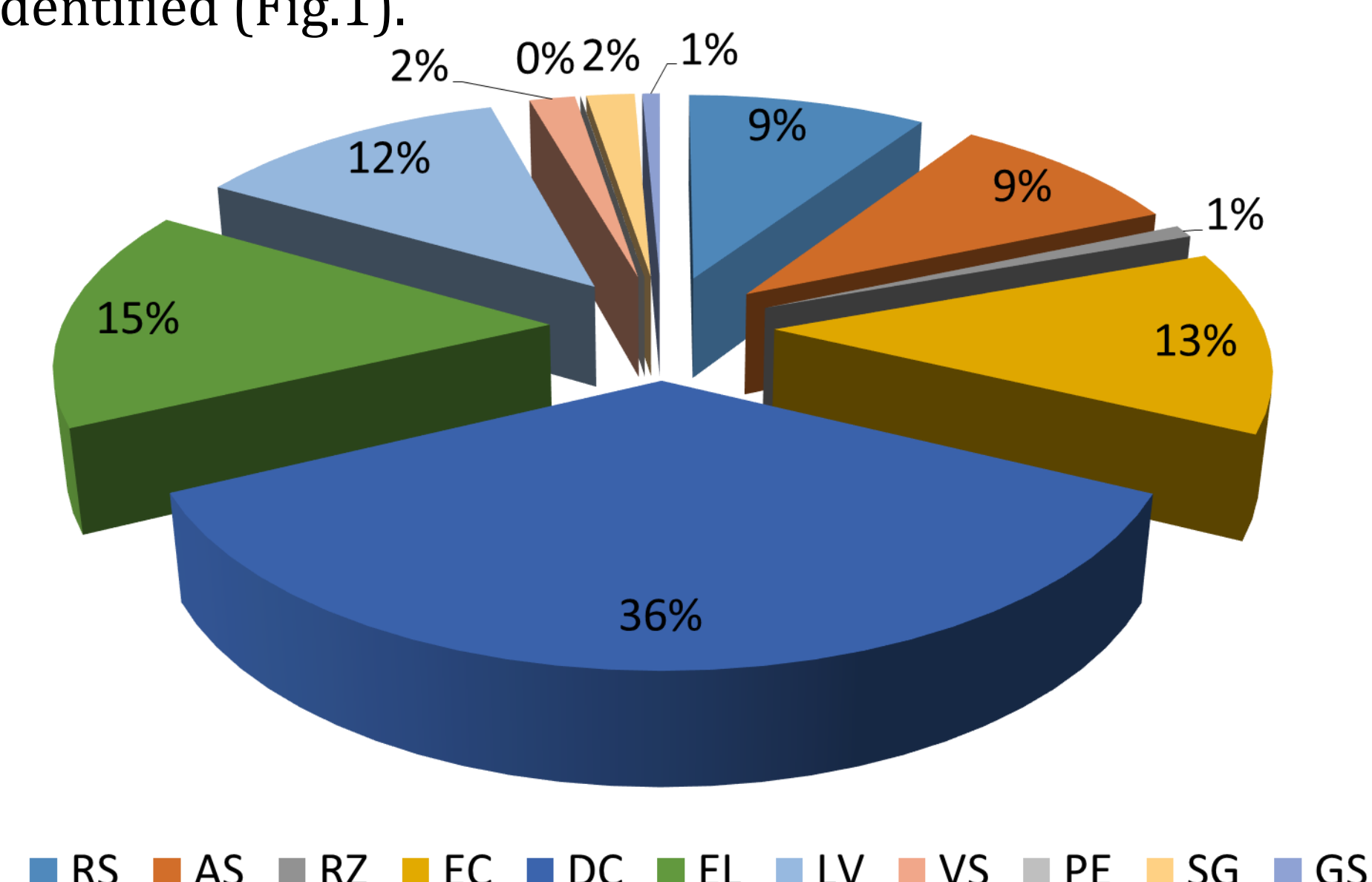


Figure 1. The soil types from Bozovici
Quality classes for the categories of arable, pastures and meadows

Category of use	Surface Ha	Class I	Class II	Class III	Class IV	Class V	Weighted average ³
Arable	1177	0	69	502	366	240	38
Pasture	4300	59	1153	2053	1035	0	53
Meadows	1514	53	422	733	245	61	52

The acidity, respectively the reaction of the soil, is a limiting factor on about 44.38% of the investigated surface due to the low pH values, in this sense the following limitations are encountered: moderate on 23.11%, reduced on 21.27%.

The humus reserve through its constitutive characteristics and through its dynamics in the soil presents the following limitations: severe for 0.85%, moderate for 59.16%, reduced for 22.17%.

The compactness presents the following limitations: severe on 0.50%, moderate on 9.40%, reduced on 0.18%.

The edaphic volume reduced with the following limitations: extremely severe on 0.38%, very severe on 33.28%, severe on 14.40%, moderate on 3.65%, reduced on 4.64%.

Landslides present the following types of limitations: extremely severe on 3.31%, moderate on 1.29%, reduced on 7.05%. Landslides favor the appearance of excess moisture on the slopes that present the following limitations within the researched space: moderate on 9.98%, reduced on 14.21%.

Excess surface moisture presents the following types of limitations: severe by 0.93%, moderate by 1.06%, reduced by 0.17%.

The works to prevent and combat excess moisture and surface erosion will be carried out on the basis of complex field studies executed on the basis of situation plans suitable for the proposed purpose.

Conclusions

In order to establish the quality of the land, both the characteristics of the soil and the other factors of vegetation, relief, climate, hydrology, which determine the capacity for agricultural or forestry production, as well as the vocation of the land to be used for various activities, must be precisely determined.

This can be achieved by carrying out pedological studies and laboratory analyses, on the basis of which to draw up soil maps, more precisely representing homogeneous ecological territories (TEO), on the basis of which to establish credit rating and technological characterization grades for each portion of territory defined under this aspect.