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THE PHYSICAL - GEOGRAPHICAL CONDITIONS AND THE QUALITY OF SOILS FROM VINGA PLAIN

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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 object of the study activities is the land with an area of 205991 ha, of which 174576 ha (84.75%) are agricultural land (144153 ha, respectively 69.68% being arable land) and 10941 ha (5.31%) lands with forest vegetation, located south of Mureș, west of the Lipova plateau, north of the Bega-Timiș subsiding area and west of the Giucoșin-Aranca subsiding area in the Piedmont Plain of the Vinga subhill glacis, a component of the Mureș Plain. From an administrative point of view, these lands belong to a number of 22 territorial administrative units (UAT), of which 13 in Timiș county and 9 in Arad county.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

The quality of the land (soil), in the sense of the Romanian school of pedology, represents the totality of the essential properties and particularities (defined from a topographical, geological, geomorphological, pedological, agrochemical, etc.) point of view by which a certain portion of land on the Earth's surface is it differs from the others, being better or worse.

In FAO terminology, "land quality" is defined as a complex of factors that influence the sustainability of land for the proposed purposes, the term "land" referring to: soils, landforms, climate, hydrology, vegetation and fauna, also including land improvements and other forms of management.

• Material and method

The objectstudy activityit is constituted by the lands with an area of 205991 ha, of which 174576 ha (84.75%) are agricultural lands (144153ha, respectively 69.68 % being arable land) and 10941ha (5.31%) lands with forest vegetation, located south of Mureș, west of the Lipova plateau, north of the Bega-Timiș subsidence area and west of the Giucoșin-Aranca subsidence area in the Piedmont Plain of the Vinga subhill glacis, part component of the Mureș Plain.

From an administrative point of view, these lands belong to a number of 22 territorial administrative units (UAT), of which 13 in Timiș County and 9 in Arad County.

• Results and discussions

Due to its location, in the middle of the northern hemisphere between 44°27' - 47°35' north latitude and 20°15' - 22°52' east longitude, the natural conditions (relief, lithology, hydrology, vegetation) are specific to a high plain , where the main soil types were formed and evolved, which reflect, through their biochemical and morphological properties, the main defining and determining landscape characteristics for the growth and fruiting of the main cultivated plants.

As an open ecological system, it is in a close relationship with the elements of the surrounding environment, from the immediate vicinity, through a continuous flow of matter and energy, the phytocenoses acting on the soil both directly and indirectly.

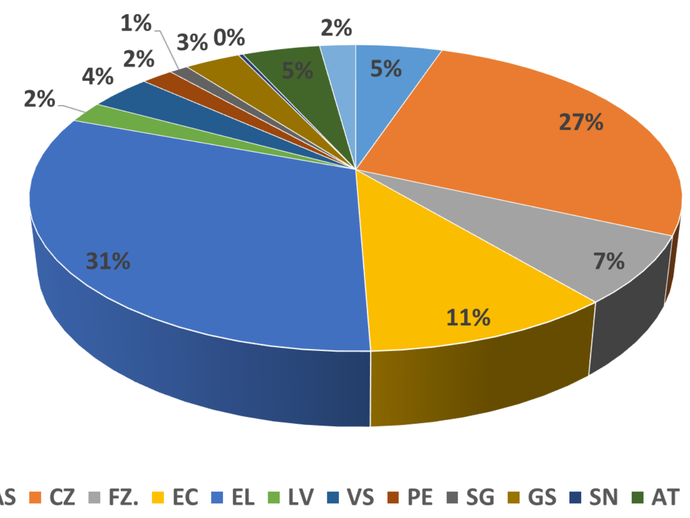
The limiting factors that affect the potential of the soil cover in this area refer mainly to limitations due to excess stagnant and phreatic moisture, the degree of compaction (settlement) and soil moisture deficit, salinization and acidification of the soil, for which, on a case-by-case basis, pedo-hydro-ameliorative measures (desiccation, drainage, deep loosening, etc.) are required to achieve a balanced aero-hydric regime and measures aimed at favoring the development the processes of concentration of nutrients and organic matter in the soil (ameliorative fertilizations, long-term crop rotations with ameliorative plants from legumes and perennial grasses, etc.).

When evaluating the suitability of the land for cropping systems, at leasttwo determining soil factors, which condition the degree of readiness, namely: the degree of compaction and the excess moisture in the soil.

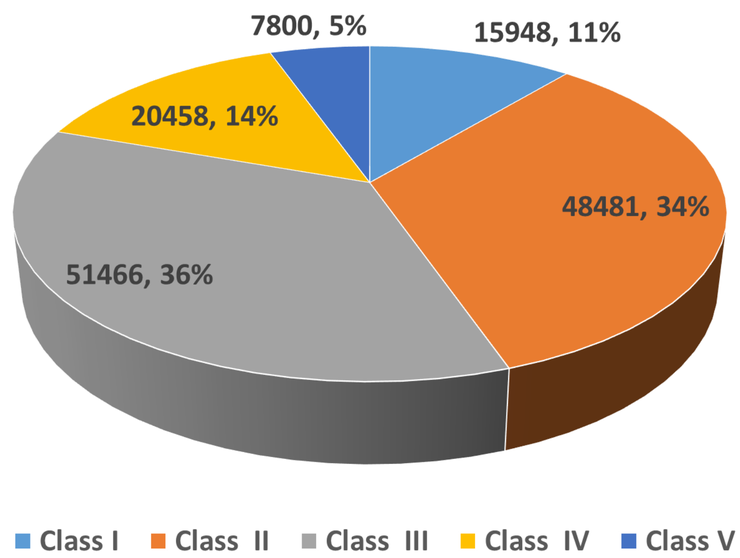
Limiting factors that are presents on the soils from Vinga Plain (ha)

Limiting factor	Low	Medium	High
Surface moisture excess	34274	27746	5273
Phreatic moisture excess	18647	12395	6304
Compaction	31187	50939	53756
Moisture deficit	37041	48717	5995
Salinisation	4142	2813	497
Acidification	40309	46915	1077

The main soil types from Vinga Plain



Quality classes for ARABLE use category (ha)



• Conclusions

Knowing the natural conditions and especially the ecological potential of the land for the main categories of use and crops, is of particular importance in carrying out the qualitative assessment of the land and the analysis of the limiting factorsand its purpose is to provide agricultural specialists with a global picture of the phenomena taking place within elementary units of the pedological landscape, from which to derive the general strategy regarding the set of ameliorative measures. thus being able to constitute an ecological and efficient solution for the future.

Moreover, the appreciation of the quality of life depends on the way in which social needs are satisfied, including here, both the biological, socio-economic ones, as well as those related to the presence of the environment as healthy and as harmonious as possible