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SOIL RESOURCES AND THEIR FAVORABILITY FOR THE MAIN AGRICULTURAL CROPS IN THE SPACE BETWEEN CRIȘU ALB AND MUREȘ RIVER

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Abstract: The purpose of the undertaken research finds its origin in the current scientific and practical concerns regarding the accumulation of knowledge about the characteristics of the edaphic cover and its structure, in order to establish favorability for the main agricultural crops and for the choice of sustainable management systems of soil and land resources. The problem addressed refers to an area of 220351 ha, (of which 190281 ha (86.35%) are agricultural land and 8323 ha (3.78%) of forests, located in the plain between Crisu Alb and Mureș, the space taken into account and the zonal peculiarities of it determining a great diversity of ecological conditions, generated by the variability of the factors that compete to create the environment in which plants grow and give crops. The work provides basic knowledge for the evaluation and characterization of soil and land resources, in the hope that the information presented will arouse the interest of the decision-maker in the future, the agricultural research and practice, together with the protection of the environment, will make efforts for the development of interdisciplinary studies. Land quality is a complex of factors which influence the sustainability of the land for the proposed purposes, the term of terrain referring to: soils, landforms, climate, hydrology, vegetation and fauna, of also including land improvements and other forms of management.

• Introduction

Among the determining factors and physical geographical conditions of the environment in which plants grow and produce crops, soil resources present a major component, which has the role, on the one hand, of a complex indicator of the state of evolution of the properties that determine the growth of plants and, on the other on the other hand, as a depository of the influence of all other conditions and factors.

Numerous studies and researches at the national level have highlighted the fact that the soil 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

• Material and method

The studied land refers to a surface area of 220351 ha/ of which 190281 ha (86.35%) are agricultural land (160652 ha, respectively 72.91% being arable land) and 8323 ha (3.78%) lands with forest vegetation located in the plain between Crișu Alb and Mureș, which from an administrative point of view belong to a number of 27 territorial administrative units (UAT) in Arad county.

Land surfaces and their use categories from researched area

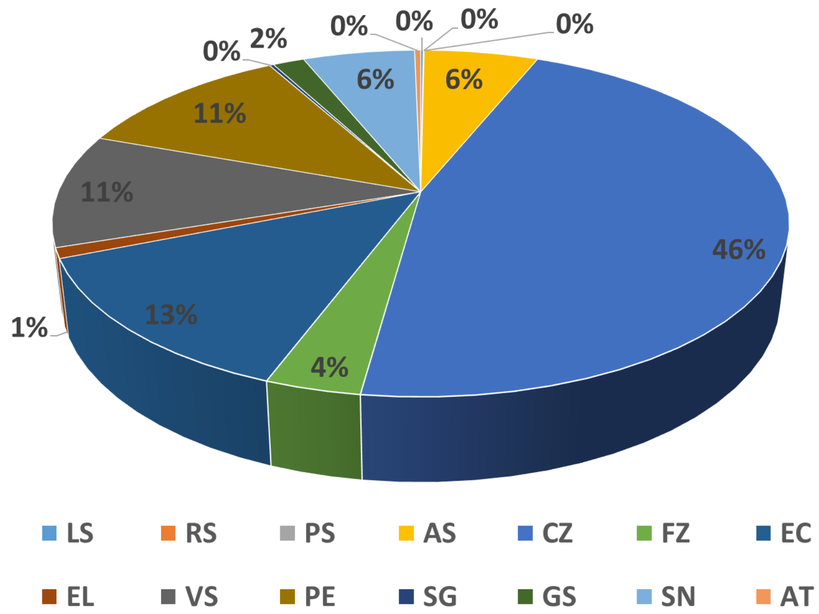
Arable	Pastures	Hayfield	Vineyards	Orchards	Agricultural	forests	Waters	Other	Total
160652	25349	2175	1947	158	190281	8323	5230	16517	220351
72.91	11.50	0.99	0.88	0.07	86.35	3.78	2.37	7.50	100

• Results and discussions

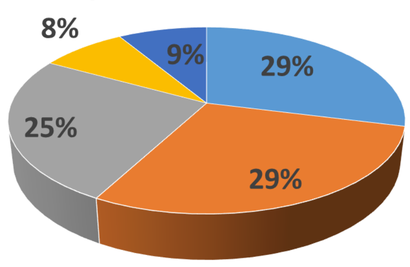
The researched area is located in the Banato-Crișana Plain, part of the Western Plain of Romania, falling within the Plain between Crișu Alb and Mureș rivers, which includes a wide variety of geological formations and several geomorphological units that can be grouped as follows: Crișurilor Plain Subunit , which includes the Crișului Alb Plain and the Mureș Plain Subunit, which consists of the Nădlac Plain and the Arad Plain with its four subunits: the Șiria Plain, the Curtici Plain, the Livada-Arad Plain and the Ierului Plain.

Living expression of the pedo-hydro-climatic and floristic conditions, as well as due to human intervention, the soils in the researched area present a great diversity, according to the Romanian Soil Taxonomy System (SRTS-2012).) within the space designated by the area of the 27 cadastral territories, being identified 14 types of soil.

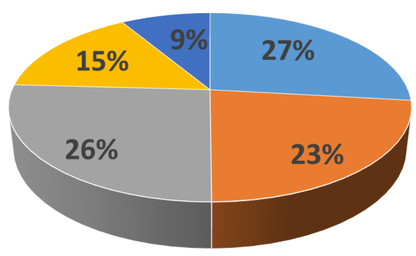
The main soil types from researched area



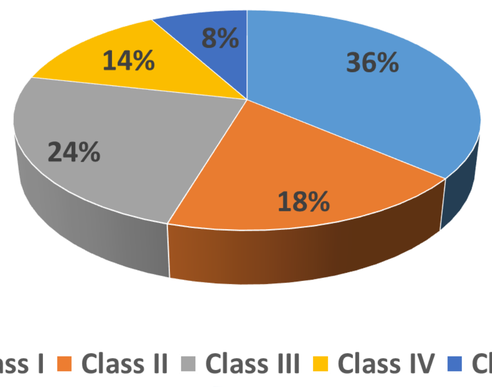
Favorability classes for Wheat (ha)



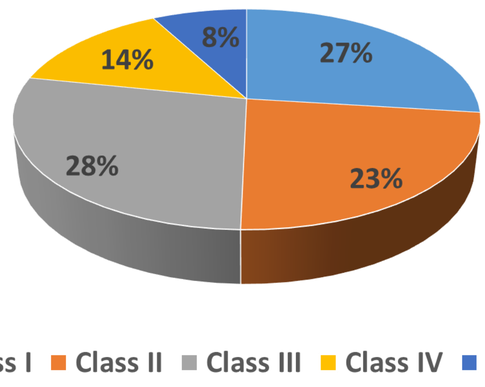
Favorability classes for Barley (ha)



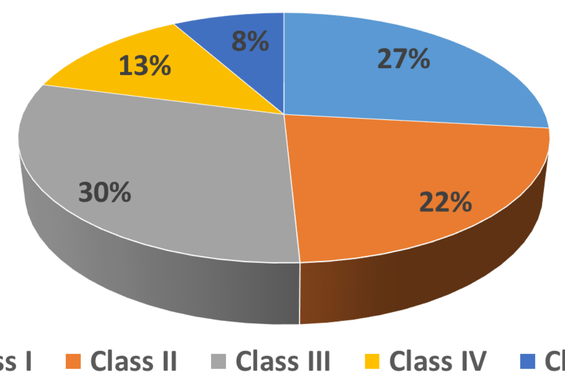
Favorability classes for Corn (ha)



Favorability classes for Sunflower (ha)



Favorability classes for Soya (ha)



• Conclusions

Knowing the natural conditions and the ecological potential of the land, in order to know the favorability for the main crops, respectively the extent to which a land satisfies the life requirements of a crop plant, under normal climatic conditions and within the framework of the rational use of the ecological offer, is of particular importance in carrying out the zoning and microzoning works of agricultural production, has the right with the aim of providing agricultural specialists with a global picture of the phenomena taking place within some elementary units of the pedological landscape, from which the general strategy regarding the set of ameliorative measures can be derived.

In this conception, the determination of the production capacity of the lands as well as the substantiation of the technologies for their improvement can constitute for the decision-maker (Government, local public administration) an effective tool for the choice of working procedures that favor an efficient use of the land resources within the space researched in accordance with the specific pedoclimatic conditions.