

SOIL FAVOURABILITY AROUND BERZOVIA (CARAŞ-SEVERIN COUNTY) FOR MAIN CROPS AND AGRICULTURAL UTILIZATION

PRETABILITATEA SOLURILOR DIN PERIMETRUL LOCALITĂȚII BERZOVIA (JUDEȚUL CARAŞ-SEVERIN) PENTRU PRINCIPALELE CULTURI ȘI FOLOSINȚE AGRICOLE

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Abstract: The researches that were made around Berzovia shows the capability of main soil types for different utilizations of lands and agricultural crops. They shows the evaluation marks for the four soil types, calculated after the physical and chemical properties who are found in pedological studies in the last 10 years.

Rezumat: Cercetările efectuate la nivelul localității Berzovia evidențiază pretabilitatea principalelor tipuri de soluri la diverse categorii de folosință ale terenurilor și culturi agricole. Ele redau notele de bonitare pentru cele 4 tipuri de soluri, calculate pe baza unor însușiri fizice și chimice care se regăsesc în studiile pedologice efectuate în ultimii 10 ani.

Key words: soil, capability, fertility class, indicators and coefficients of soil evaluation.

Cuvinte cheie: sol, pretabilitate, clasă de fertilitate, indicatori și coeficienți de bonitare.

INTRODUCTION

Production capacity shows the way of manifestation of all vegetation factors, which act independently for the plants and determine the satisfaction level of physiological needs of those, in certain place and certain time. It refers to soil fertility (who is determined by a series of properties of soil, such as: pH, the level of nutritive elements, salt content etc.) and to the way of manifestation for the plants of the others environmental factors, beginning with the cosmically-atmospherically (light, heat, water), continuing with the geo-morphological factors and the hydrological ones, having as effect the different productivity of human work reported to the way of physiological needs satisfaction.

MATERIAL AND METHOD

To calculate the evaluation marks, who characterize each soil unit limited in the pedological study who were made in Caraș Severin department, were made the most important characteristics, easy and certain measurable, who are find in pedological studies known as indicators of evaluation. Evaluation marks for each utilization category of soils and crop were made multiplicities with 100 the product of the coefficients (17 indicators), who participate directly to the calculus:

$$Y = (X_1 * X_2 * \dots * X_{17}) * 100$$

Were:

Y = evaluation mark;

X₁.....X₁₇ = the value of the 17 indicators.

RESULTS AND DISCUSSIONS

To evaluate the production capacity of agricultural lands from Banat area were chosen 17 important indicators, referring to the environment conditions. Base don those and to the

value scales, were taken out of the tables 1 to 3, evaluation coefficients, which shows the degree of favourability of some indicator, for each crop and utilization of agricultural lands.

Based on calculated evaluation marks were made 5 tables.

In table 1 are presented the evaluation marks and fertility classes of main soil types for potatoes and beet. For those crops, the soil have the next evaluation marks and fertility classes:

a) for potato crop:

- haplic luvisols has 17 points and the IX fertility class;
- Albic luvisols has 18 points and the IX fertility class;
- eutric cambisols has 33 points and the VII fertility class;
- dystric gleysols has 32 points and the VII fertility class;

b) for beet crop:

- haplic luvisols has 25 points and the VIII fertility class;
- albic luvisols has 20 points and the IX fertility class;
- eutric cambisols has 32 points and the VII fertility class;
- dystric gleysols has 40 points and the VII fertility class;

Table 1

Soil favourability for potato and beet crops

Nr.	Soil type	Potato		Beet	
		mark	class	mark	class
1.	Haplic Luvisols	17	IX	25	VIII
2.	Albic Luvisols	18	IX	20	IX
3.	Eutric Cambisols	33	VII	32	VII
4.	Dystric Gleysols	32	VII	40	VII

In table 2 are presented evaluation marks and fertility classes to the main soil types for wheat and barley crops. For those crops, soil have the next soil marks and fertility classes:

a) for wheat crop:

- haplic luvisols has 37 points and the VII fertility class;
- albic luvisols has 41 points and the VI fertility class;
- eutric cambisols has 36 points and the VII fertility class;
- dystric gleysols has 32 points and the VII fertility class;

b) for barley crop:

- haplic luvisols has 33 points and the VII fertility class;
- albic luvisols has 32 points and the VII fertility class;
- eutric cambisols has 31 points and the VII fertility class;
- dystric gleysols has 28 points and the VIII fertility class;

Table 2

Soil favourability for wheat and barley crops

Nr.	Soil type	Wheat		Barley	
		mark	class	mark	class
1.	Haplic Luvisols	37	VII	33	VII
2.	Albic Luvisols	41	VI	32	VII
3.	Eutric Cambisols	36	VII	31	VII
4.	Dystric Gleysols	32	VII	28	VIII

In table 3 are presented evaluation marks and fertility classes of main soil types for maize and sun-flower. For those crops, soil have the next evaluation marks and fertility classes:

a) for maize crop:

- haplic luvisols has 33 points and the VII fertility class;
- albic luvisols has 32 points and the VII fertility class;
- eutric cambisols has 46 points and the VI fertility class;
- dystric gleysols has 46 points and the VI fertility class;

b) for sun-flower crop:

- haplic luvisols has 33 points and the VII fertility class;
- albic luvisols has 24 points and the VIII fertility class;
- eutric cambisols has 36 points and the VII fertility class;
- dystric gleysols has 36 points and the VII fertility class;

Table 3

Soil favourability for maize and sun-flower crops

Nr.	Soil type	Maize		Sun flower	
		mark	class	mark	class
1.	Haplic Luvisols	33	VII	33	VII
2.	Albic Luvisols	32	VII	24	VIII
3.	Eutric Cambisols	46	VI	36	VII
4.	Dystric Gleysols	46	VI	36	VII

In table 4 are presented evaluation marks and fertility classes of main soil types for alfalfa and trefoil. For those crops, soil have the next evaluation marks and fertility classes:

a) for alfalfa crop:

- haplic luvisols has 31 points and the VII fertility class;
- albic luvisols has 28 points and the VIII fertility class;
- eutric cambisols has 28 points and the VIII fertility class;
- dystric gleysols has 18 points and the IX fertility class;

b) for trefoil crop:

- haplic luvisols has 34 points and the VII fertility class;
- albic luvisols has 37 points and the VII fertility class;
- eutric cambisols has 37 points and the VII fertility class;
- dystric gleysols has 41 points and the VI fertility class;

Table 4

Soil favourability for alfalfa and trefoil crops

Nr.	Soil type	Alfalfa		Trefoil	
		mark	class	mark	class
1.	Haplic Luvisols	31	VII	34	VII
2.	Albic Luvisols	28	VIII	37	VII
3.	Eutric Luvisols	28	VIII	37	VII
4.	Dystric Gleysols	18	IX	41	VI

In table 5 are presented evaluation marks and fertility classes of main soil types for hay-field and grass land. For those crops, soil has the next evaluation marks and fertility classes:

a) for hay-field:

- haplic luvisols has 58 points and the V fertility class;
- albic luvisols has 52 points and the V fertility class;
- eutric cambisols has 52 points and the V fertility class;
- dysgleysols has 58 points and the V fertility class;

b) for grass land:

- haplic luvisols has 47 points and the VI fertility class;
- albic luvisols has 37 points and the VII fertility class;
- eutric cambisols has 37 points and the VII fertility class;
- dystric gleysols has 46 points and the VI fertility class;

Table 5

Soil favourability for hay-field and grass land

Nr.	Soil type	Grass land		Hay-field	
		mark	class	mark	class
1.	Haplic Luvisols	58	V	47	VI
2.	Albic Luvisols	52	V	37	VII
3.	Eutric Cambisols	52	V	37	VII
4.	Dystric Gleysols	58	V	46	VI

CONCLUSIONS

1. In the general case of using a map with small scales, this group could be simplified in 5 groups of favourability or fertility class, as it follows:

- group A between 81-100 points, soil very favourable I;
- group B between 61-80 points, soil very favourable II;
- group C between 41-60 points, soil favourable I;
- group D between 21-40 points, soil favourable II;
- group E between 1-20 points, soil less favourable.

2. After this classifying we can conclude:

- haplic luvisols is **favourable I** for hay-field and grass land, **favourable II** for beet, wheat, barley, maize, sun-flower, alfalfa and trefoil crops, and **less favourable** for potato crops
- albic luvisols is **favourable I** for wheat and hay-field, **favourable II** for barley, maize, sun-flower, alfalfa, trefoil and grass land, and **less favourable** for potato and beet crops
- eutric cambisols is **favourable I** for maize and hay-field, and **favourable II** for potato, beet, wheat, barley, sun-flower, alfalfa, trefoil and grass land
- dystric gleysols is **favourable I** for maize, trefoil, hay-field and grass land, **favourable II** for potato, beet, wheat, barley and sun-flower crops and **less favourable** for alfalfa crop.

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