THE SUITABILITY OF THE AGRICULTURAL LANDS IN VOITEG, TIMIS COUNTY TO THE MAIN AGRICULTURAL CULTURES AND USES

PRETABILITATEA TERENURILOR AGRICOLE DIN PERIMETRUL LOCALITĂȚII VOITEG, JUDEȚUL TIMIŞ PENTRU PRINCIPALELE CULTURI ŞI FOLOSINȚE AGRICOLE

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Abstract: *The researches that were made around Voiteg show the suitability of main soil types for different uses of lands and agricultural crops. They show the evaluation marks for the four soil types, calculated on the physical and chemical properties which are found in pedological studies from the last 10 years.*

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

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

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

INTRODUCTION

The 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 (which 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 cosmic-atmospheric (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, that characterize each soil unit limited in the pedological study made in Caraş Severin department, there were made the most important characteristics, easy and certainly measurable, which are found in pedological studies known as indicators of evaluation. Evaluation marks for each utilization category of soils and crop were made multiplying by 100 the product of the coefficients (17 indicators), that participate directly to the calculus

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

Where: Y= evaluation mark;

$X_1\ldots\ldots\ldots\ldots..X_{17}$ = the value of the 17 indicators.

RESULTS AND DISCUSSIONS

The evaluation marks have been calculated for the main cultures and uses.

Based on the evaluation marks calculated, there have been drawn up 4 tables (1, 2, 3, 4) in which are presented the scores obtained by each type of soil, following the calculation of the evaluation marks, in Voiteg, for the main agricultural cultures.

In table and figure 1 are presented the evaluation marks and the fertility classes for the main types of soils, for the cultures of potatoes and sugar beet.

For the culture of potatoes the molic preluvosol obtained 66 points being placed in the 4th fertility class, and the preluvosol obtained 40 points being places in the 6th fertility class.

For the culture of sugar beet, the gleic chernozem obtained 81 points being placed in the 2nd fertility class, and the vertic preluvosol obtained 44 points being placed in the 6th fertility class.

Table 1

The suitability of the soils to the cultures of potato and sugar beet

No.	Soil Type	Potato		Sugar beet	
		Mark	Class	Mark	Class
1.	Gleic chernozem	65	IV	81	II
2.	Argic chernozem	60	IV	66	IV
3.	Vertic preluvosol	46	VI	44	VI
4.	Molic preluvosol	66	IV	73	III

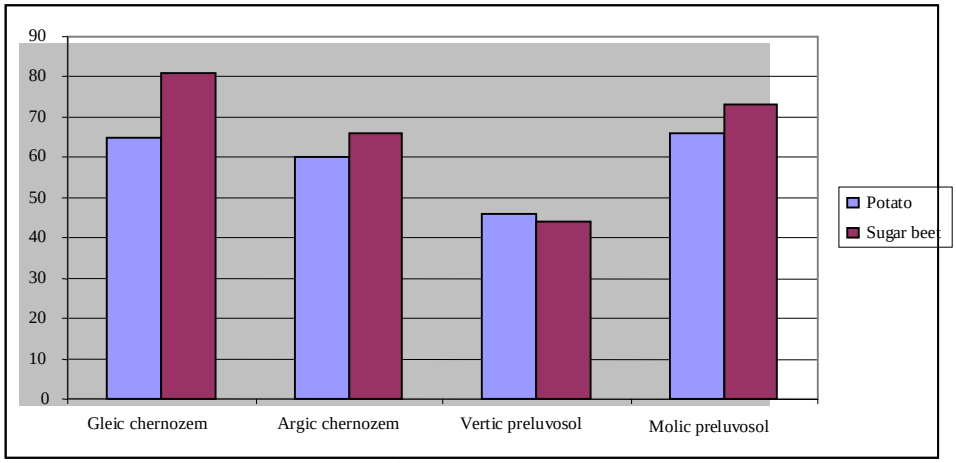

Fig. 1 Graphical representation of the soils suitability to potato and sugar beet cultures

In table and figure 2 are presented the evaluation marks and the fertility classes for the main types of soils, for the cultures of wheat and corn.

For the culture of wheat, the gleic chernozem obtained 80 points being placed in the 3rd fertility class, and the vertic preluvosol obtained 58 points being placed in the 5th fertility class.

For the cultures of corn, the gleic chernozem obtained 90 points being placed in the 2nd fertility class, and the vertic preluvosol obtained 57 points being placed in the 5th fertility class.

Table 2.

The suitability of the soils to the cultures of wheat and corn

No.	Soil Type	Wheat		Corn	
		Mark	Class	Mark	Class
1.	Gleic chernozem	80	III	90	II
2.	Argic chernozem	73	III	81	II
3.	Vertic preluvosol	58	V	57	V
4.	Molic preluvosol	73	III	81	II

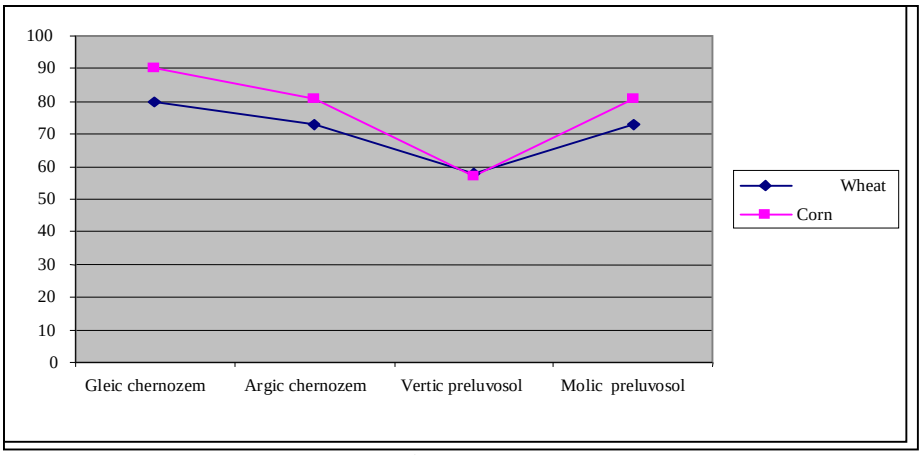

Fig. 2 Graphical representation of the soils suitability to wheat and corn cultures

In table and figure 3 are presented the evaluation marks and the fertility classes for the main types of soils, for the cultures of barley and sunflower.

For the cultures of barley, the gleic chernozem obtained 80 points being placed in the 2nd fertility class, and the vertic preluvosol obtained 58 points being placed in the 5th fertility class.

For the cultures of sunflower, the vertic chernozem obtained 80 points being placed in the 2nd fertility class, and the vertic preluvosol obtained 57 points being placed in the 5th fertility class.

Table 3

The suitability of the soils to the cultures of barley and sunflower

No.	Soil Type	Barley		Sunflower	
		Mark	Class	Mark	Class
1.	Gleic chernozem	80	III	80	III
2.	Argic chernozem	73	III	73	III
3.	Vertic preluvosol	58	V	57	V
4.	Molic preluvosol	73	III	73	III

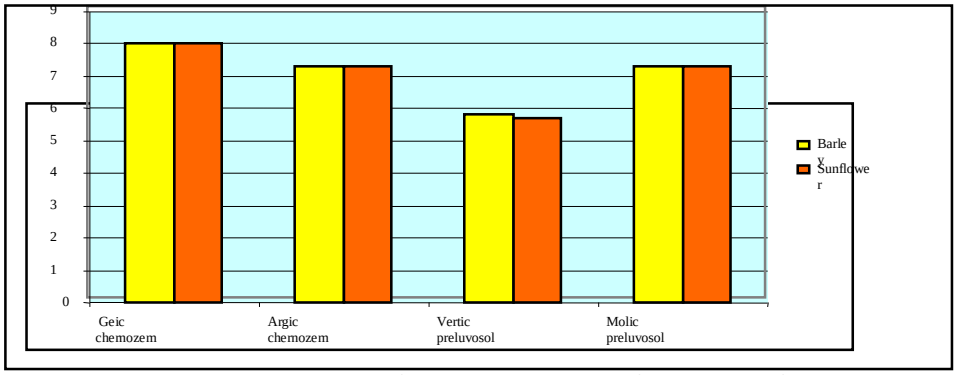

Fig. 3 The suitability of the soils to the cultures of barley and sunflower

In table and figure 4 are presented the evaluation marks and the fertility classes for the main types of soils, for the cultures of alfalfa and clover.

For the cultures of alfalfa, the gleic chernozem obtained 80 points being placed in the 2nd fertility class, and the vertic preluvosol obtained 43 points being placed in the 7th fertility class.

For the cultures of clover, the gleic chernozem obtained 90 points being placed in the 2nd fertility class, and the vertic preluvosol obtained 58 points being placed in the 5th fertility class

Table 4

The suitability of the soils to the cultures of alfalfa and clover

No.	Soil type	Alfalfa		Clover	
		Mark	Class	Mark	Class
1.	Gleic chernozem	80	III	90	II
2.	Argic chernozem	72	III	73	III
3.	Vertic preluvosol	43	VII	58	V
4.	Molic preluvosol	72	III	73	III

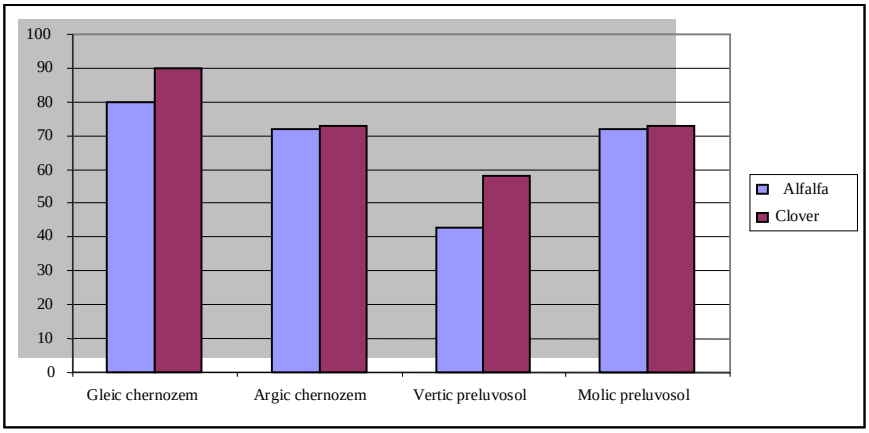

Fig. 4 Graphical representation of the suitability of the soils to the cultures of alfalfa and clover

CONCLUSIONS

In case of generalizations or in case of using a map with smaller work scales, the classification of the soils in fertility classes can be simplified in 5 groups of favorability or suitability, as follows:

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

Depending on this categorization, we can conclude the following:

-the gleic chernozem is **very favourable I** for the culture of corn, clover; and for the culture of wheat, potatoes, barley, sunflower and alfalfa it is **very favourable II** ;

-the argic chernozem **very favourable II** for the culture of sugar beet, wheat, barley, sunflower, alfalfa, clover; and for the culture of potatoes and corn it is **favorable I** ;

-the vertic preluvosol is for all cultures **favourable I** ;

-the molic preluvosol is **very favourable I** for the culture of corn, and for the rest of the cultures it is **very favorable II**.

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