

FAVOURABILITY AND SUITABILITY OF THE ACID SILS IN BIHOR COUNTY TO THE MAIN AGRICULTURAL CULTURES AND USES

FAVORABILITATEA ȘI PRETABILITATEA SOLURILOR ACIDE DIN JUDEȚUL BIHOR PENTRU PRINCIPALELE CULTURI ȘI FOLOSINȚE AGRICOLE

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Abstract: *The research performed at the level of Bihor County highlight the suitability of the main acid soils to the various categories of agricultural lands and cultures uses. They render the favourability, groups, and respectively of suitability for acids soils in Bihor County, for the main agricultural cultures and uses.*

Rezumat: *Cercetările efectuate la nivelul județului Bihor evidențiază pretabilitatea principalelor tipuri de soluri acide la diverse categorii de folosință ale terenurilor și culturi agricole. Ele redau clasele de favorabilitate, respectiv pretabilitate ale solurilor acide din județul Bihor, pentru principalele culturi și folosințe agricole.*

Cuvinte cheie: *pretabilitate, favorabilitate, soluri.*

Key words: *suitability, favourability, soils*

INTRODUCTION

In accordance with the Romanian Soils Taxonomy System (SRTS 2003) in the area studied, there have been identified 10 categories of soils, 18 types approximately 120 sub-types and numerous detailed units.

In close relation with the variety of geomorphologic and geolitic factors which lead to a great diversity of parental materials, as well as of the various anthropic interventions, there resulted a numerous population of soils which, in keeping with the Romanian Soils Taxonomy System (SRTS – 2003) and with the percentage at soil type level encountered in the area studied, present the following situation: litosols 3,5%; regosols 1,3%; psamosols 1,6%; alluviosols 7,6%; chernozem 6,8%; phaeozem 3,0%; rendzins 0,7%; eutricambosols 10,9%; districambosols 1,8%; preluvisols 11,1%; luvosols 31,8%; podosols 3,6%; vertosols 0,8%; gleysols 7,5%; stagnosols 0,2%; solonetz 1,9% and erodosols 5,9%.

MATERIALS AND METHODS

To calculate the evaluation marks, who characterize each soil unit limited in the pedological study which were made in Bihor County, were made the most important characteristics, easy and certainly measurable, that are found in pedologic studies known as indicators of evaluation. Evaluation marks for each utilization category of soils and crop were made multiplications by 100 the product of the coefficients (17 indicators), which participate directly to the calculus:

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

Where:

Y = evaluation mark;

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

RESULTS AND DISCUSSIONS

The vegetal production being achieved mainly under the influence of environmental factors (natural or human-modified) imposes a detailed knowledge of the production capacity for each soil unit (U.S.).

Thus, the valuation of the agricultural lands regarding the setting of the suitability for each land area, under the view of use of the most adequate, emphasizes the following:

For the use category “ploughable”, which, in keeping with the norms in force represent those areas which are meant for producing cereal crops, industrial plants, alimentary cultures, fodder, medicinal and aromatic herbs, which are ploughed each year when they are cultivated with annual plants or at various years when perennial plants are cultivated (alfalfa, clover, etc.) based on the valuation notes calculated as arithmetic means of 8 cultures with the highest mark there were established the following suitability categories:

- 1st category, with very suitable lands, occupies **8,4%** of the agricultural area of the studied region
- 2nd category, with suitable lands occupies **26,86 %** of the agricultural area of the studied region
- 3rd category, with lands that have a intermediary suitability, occupies **35,03 %** of the agricultural area of the studied region
- 4th category, with less suitable lands, occupies **18,33 %** of the agricultural area of the studied region
- 5th category, with non-suitable lands, occupies **11,28 %** of the agricultural area of the studied region

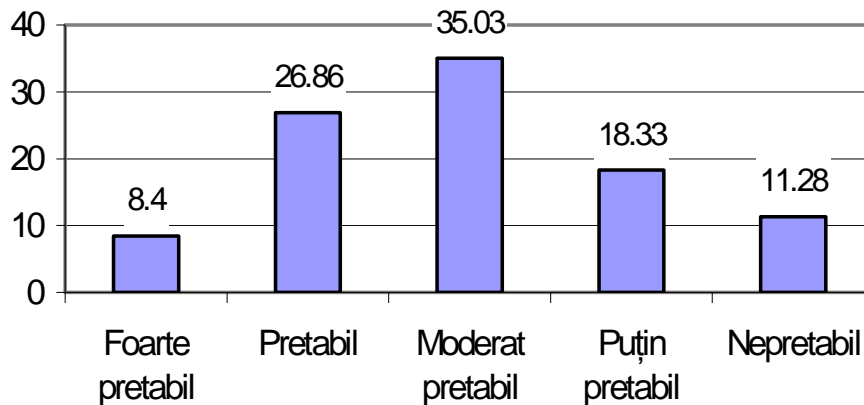


Figure 1 The suitability of agricultural lands to ploughing

- For wheat like strawy cereals, which are cultivated in wide areas, have been set valuation marks based on which the following fertility classes were set (fig. 2.), for wheat.
- class I, with very favourable lands, occupies **5,99 %** of the agricultural area of the studied region

- class II, with favourable lands, occupies **21,49** % of the agricultural area of the studied region
- class III, with average favourability lands, occupies **30,62** % of the agricultural area of the studied region
- class IV, with less favourable lands, occupies **26,82** % of the agricultural area of the studied region
- class V, with non-favourable lands, occupies **15,08** % of the agricultural area of the studied region

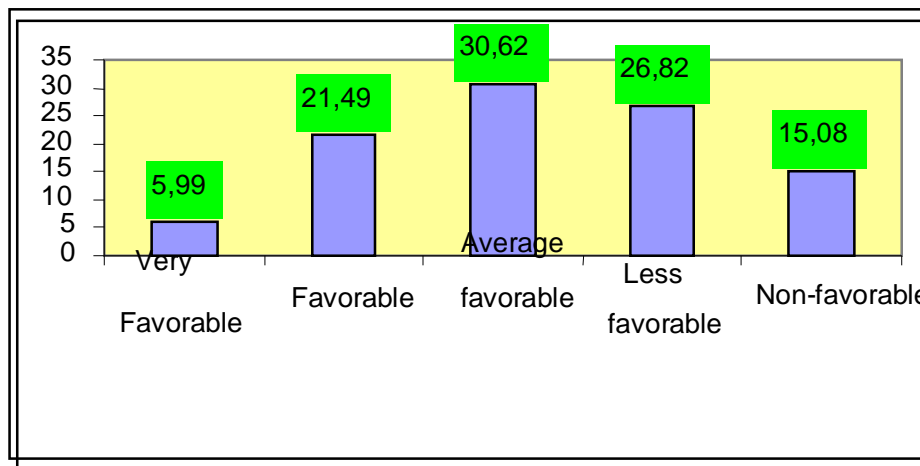


Fig. 2 The favourability of agricultural lands for growing wheat

- For *corn*, as main agricultural crop in Romania, for which there have been performed the most studies in the field of valuation and which presents a great ecologic sensitivity, has within the region studied, the following favourability classes (fig. 3):
 - class I, with very favourable lands, occupies **11,37** % of the agricultural area of the studied region
 - class II, with favourable lands, occupies **12,05** % of the agricultural area of the studied region
 - class III, with average favourable lands, occupies **33,83** % of the agricultural area of the studied region
 - class IV, with less favourable lands, occupies **12,9** % of the agricultural area of the studied region
- class V, with non-favourable lands, occupies **29,85** % of the agricultural area of the studied region
 - For growing *potatoes* the following situation is encountered (fig. 4):
 - class I, with very favourable lands, occupies **4,72** % of the agricultural area of the studied region
 - class II, with favourable lands, occupies **6,74** % of the agricultural area of the studied region
 - class III, with average favourable lands, occupies **40,6** % of the agricultural area of the studied region

- class IV, with less favourable lands, occupies **28,19 %** of the agricultural area of the studied region

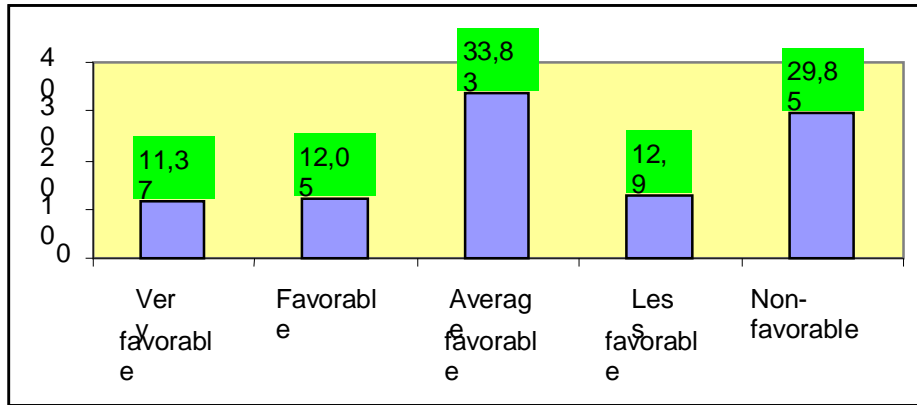


Fig. 3 The favourability of agricultural lands for growing corn

- class V, with non-favourable lands, occupies **19,75 %** of the agricultural area of the studied region

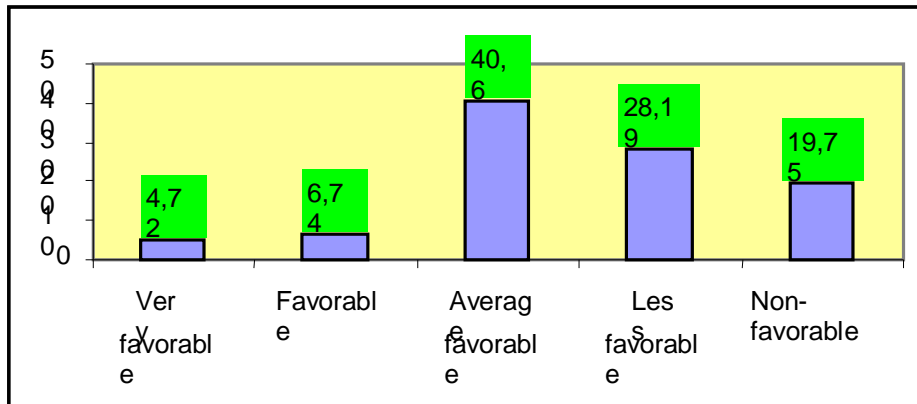
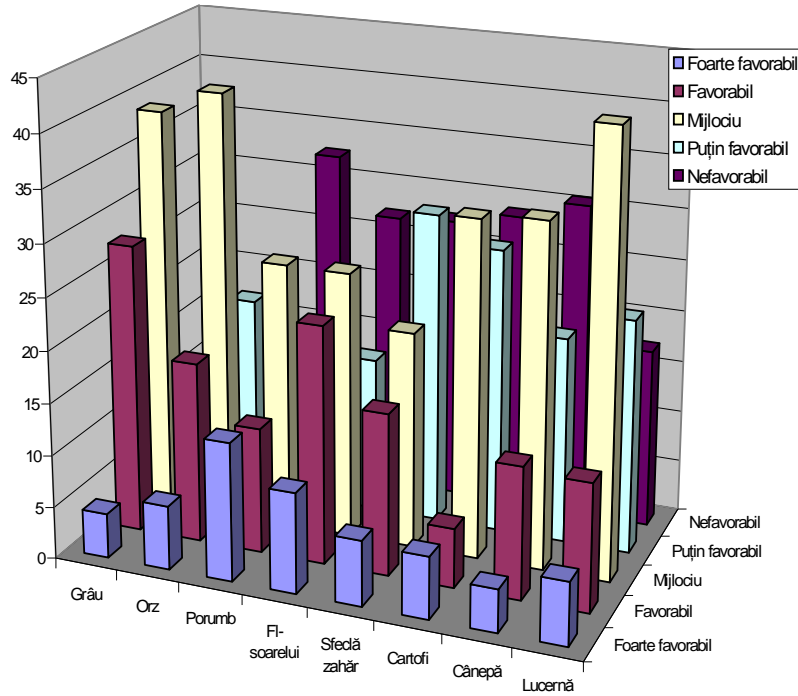


Fig. 4 The favourability of agricultural lands for growing potatoes

- For *Soya* it is encountered the following situation (fig. 5):
 - class I, with very favourable lands, represented by the US: 7,9,10 occupies **7,96 %** of the agricultural area of the studied region
 - class II, with favourable lands,, represented by the US: 2,5,6,13,14,22 occupies **15,46** of the agricultural area of the studied region
 - class III-a, with average favourable lands, represented by the US: 4,8,11,12,15,16,17,20,21 occupies **39,15 %** of the agricultural area of the studied region
 - class IV, with less favourable lands, represented by the US: 3,19,23,25,26 occupies **16,97 %** of the agricultural area of the studied region



- class V, with less favourable lands, represented by the US: 1,18,24 occupies **20,46 %** of the agricultural area of the studied region

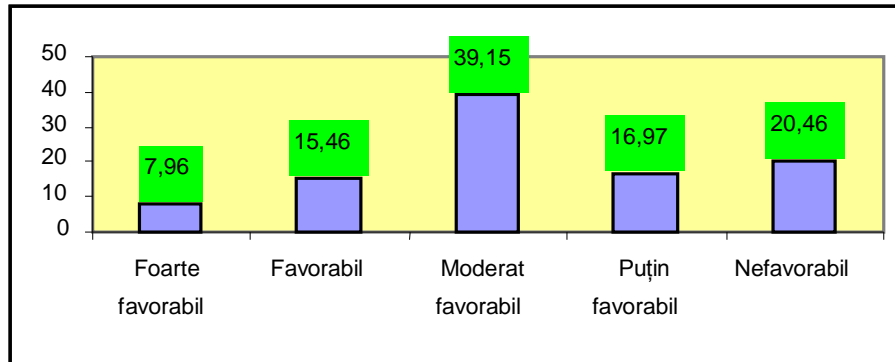


Fig. 5 The favourability of agricultural lands for growing Soya

CONCLUSIONS

On the average marks calculated for the 13 cultures, from the current valuation methodology, there have been set 8 cultures with the highest favourability (fig.5.), which may constitute the essential element in fundamenting long-lasting crop rotation, to include also improved plants (mixes of perennial gramineous and leguminous plants).

Concerning the very favourable areas, we encounter the following situation: wheat 4,28 %, oat 6,13 %, corn 13,24 %, sunflower 9,6 %, sugar beet 6,25 %, potatoes 6,01 %, hemp 5,99 % and alfalfa 5,99 %.

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