SUITABILITY OF SOILS REMETEA MARE, TIMIS COUNTY

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ABSTRACT

Soils studied area formed by the complex interaction of factors of which the most important pedogenetic are: landscape, water, rock parent, climate, vegetation, man. Thus the investigated area are two areas where soils are well differentiated, a result of different pedogenetic conditions.

In the high plains and hilly area on the material more or less reddish carbonate formed and evolved preluvisols mollic typical.

Mineralization because most parts of the debris that is deposited annually in the top soil to form a small amount of humus and therefore higher horizon color is brown (Ao), met frequently with preluvisols horizon.

INTRODUCTION

Great Remetea common unit is part of the vast physical - geographical "Banato - Crisan" is one of three units ordered Carpathian hills on the west side of the Western Carpathians and includes subunits distinct but closely linked with the genesis, development and land use and namely Banato hills - and plain Banato - Crisan.

Area studied fall in temperate climates - continental interference between the provincial climate with oceanic influence and climate influenced the provincial submediteraniene.

MATERIALS AND METHODS

Samples were processed following analyzes were performed, and used the following methods:

Determination of physical characteristics:

Soil texture was determined by the Cernikova (the principle behind the pipetting method is different sedimentation speed of particles in a liquid, depending on their size, according to Stokes' law).

Establishing granule percent by weight fractions was performed using the following formula:nisip grosier (2 – 0,2 mm în diametru)% = m1 x 100/m0 x F;

- sand (0.2 to 0.02 mm in diameter)% = 100 x m2 / m ';
- dust (0.02 to 0.002 mm in diameter)% = (m2-m3) x V x 100 / (vx m0) x F;
- clay (diameter less than 0.002 mm)% = m3 x (V x 100 / V x m0 - d) x F.

where:

m0 - g amount of soil analysis;
m1 - the amount of coarse sand in g;
m2 - the amount of particles extracted from him pipetting (P + A), g;
m3, the amount of particles extracted from pipetting II (A);
V - volume of sediment suspension in the cylinder in cm ³;
v - volume pipette, in cm ³;

d - correction factor which depends on the nature suppressantused to treat evidence and that is equivalent to:

1.6 - the use of sodium hydroxide;

10.2 - using sodium hexametafosfatului;

m '- completely dry soil mass without carboranţi (g);

100 - Percentage reporting factor.

Determination of chemical properties:

Determination humus content of soil was performed by methods tritimetrice respectively Tiurin method.

Principle is humus carbonate oxidation with chromic anhydride solution or potassium dichromate in sulfuric acid present.

Equipment and materials: 100 ml conical flask., 300 ml conical flask.; Burette of 20-25 ml. And 50 ml glass look, analytical balance and heating plant.

Reagents: sulphate of silver (mercury or aluminum), oxidizing solution, 85% orthophosphoric acid, 0.5% diphenylamine solution, 0.1 N Mohr salt solution

A humus content of soil samples was calculated using the following formula:

Determination of soil reaction (pH) was performed by potentiometric method with pH-sensitive glass electrode, at a ratio soil: water 1:2,5;

Determination of mobile phosphorus and potassium, lactate ammonium acetate extraction at pH 3, 75 and calorimetric determination of phosphorus with molybdate - stannous chloride - ascorbic acid method after Murphy, respectively flamfotometrică potassium. Determination of total cation exchange capacity (T) method was performed Bower, by saturating the soil with 1N Na Na acetate at pH - 8.2. The degree of base saturation (V) - defines the rate at which colloidal complex is saturated with cations Basic, and was calculated by the formula: % Exchange capacity for the base (the sum of the base exchange) (SB) - is expressed in me / 100 g soil completely dry at 1050C, and results of all cations Basic Ca^{2++} Mg^{2++} K^{++} Na^{+} adsorbed in complex colloidal soil .

Exchange capacity for hydrogen (hydrogen adsorbed) (SH) - is expressed in me/100 g soil and are all hydrogen cations H + adsorbed in the soil colloidal complex. Conditional evaluation of agricultural land under natural conditions have a complex operation of thorough knowledge of natural resources and Sterility plant growth and determines the degree of favorability of conditions for use and culture Fiacre in part, through a system of indicators and techniques of evaluation. (D. Teaci, 1970). In order to assess the production capacity of agricultural land, the area studied were chosen the most important environmental conditions such as: the conditions of relief, climate, hydrological and physico-chemical characteristics of soil. The methodology of evaluation developed by ICPA Bucharest, based on the definition and determination of parametric action environmental conditions and vegetation factors on plant growth and production, digital indication of the degree of favorability of all the factors and environmental conditions. For calculation of evaluation marks from many environmental conditions mentioned 8 groups) that characterize each field unit (or TEO UT), defined in the Soil Survey, have chosen only those considered most important, easier and more accurate measurable, which is usually found in works of Soil Survey (conducted by OSPA - Timisoara since 1976), called indicators of evaluation, namely:

ind. Three. C - Average annual temperature - corrected values; • ind. Four. C - average annual rainfall - corrected values; ind. 14. - Gleyzation; • ind. 15. - Pseudogleizare; ind. 16 or 17 - salinization or alkalization; ind. 23. A - Ap texture in the top 20 cm; ind. 29 - Pollution; ind. 33 - slope; ind. 38 - slides; ind. 39 - groundwater depth, ind. 40 - flooding; ind. 44 - total porosity restrictive horizon; ind. 61 - total $CaCO_3$ content of 0-50 cm; ind. 63 - Press reaction in the first 20 cm; ind. 69 - degree of base saturation in water, or 0-20 cm; ind. 133 - edaphic volume; ind. 144 - supply of humus

layer 0-50 cm; ind. 181 - excess moisture stagnant (surface).

The conditional evaluation of land for natural conditions, each of the indicators listed, except for indicator 69, which comes indirectly involved in determining the mark of evaluation of evaluation by a coefficient which varies between 0 and 1, as the appropriation that is totally bad or optimal use or plant requirements considered. (Duma Copcea Anişoara, Stroia MS, Soil, 2007).

RESULTS AND DISCUSSION

The influence of natural conditions and agricultural land improvement works - pedo - improvement leads in all cases, to change the environmental characteristics, which are generally favorable to plant growth. Detailed knowledge of productive and technological characteristics of each portion of territory both in terms of capacity and current characteristics as the real possibilities of change for the better of them, ensures that every farmer and maker a tool in the application of procedures promoting technical and socio-economic measures that would lead eventually to full and efficient use of financial resources. In order to assess the production capacity of agricultural land in the village Remetea Mare, Timis county have elected the entire set of 17 indicators of environmental conditions, more meaningful, more accurate determinants. On this basis and the value chain were taken from tables, appendices 3-1 to 3-18, (according to the methodology for developing soil studies, Part II - a) factors of evaluation, that the degree of favorability an indicator for each crop and use category of agricultural bedding. Detailed results are presented for different categories of use or crop groups with the same biological or technological features. For each indicator, depending on the scale of the use or culture, tables were made with the respective coefficient values. The analysis of evaluation marks for cereal crops (winter wheat and winter barley) there is a sharp distinction soil units in terms of creating conditions for their crops. Corn and sunflower crops are favorable for soil:

Luvisol, with notes of evaluation of Class III, IV respectively; vertosol specific notes of evaluation grade IV. Soils are less favorable for the two cultures are pelosolul and stagnosolul. Tehnosolul presents both cultures value evaluation notes 30, fertility Class VIII – a. Crops of sugar beet and soybean Luvisol is favorable, less favorable are stagnosolul, vertosolul and pelosolul and is tehnosolul unfavorable due to the conditions set.

Crops of alfalfa and clover have good favorability Luvisol falling fertility in class III, IV respectively. Stagnosolul, vertosolul and has notes of evaluation pelosolul fertility characteristic classes IV and V. Tehnosolul worst crops is presented with specific evaluation notes fertility class VIII.

CONCLUSIONS

After calculating the evaluation notes and enrollment in classes for fertility for crops under study, we reached the following conclusions.

For wheat and barley, are good soil: Luvisol and vertosolul with specific evaluation notes fertility classes III and IV. Soils are less favorable stagnosolul pelosolul and falling fertility in classes IV and VI. Unfavorable soil for the two cultures is tehnosolul.

For corn and sunflower, are favorable soil: Luvisol and vertosolul, soils are less favorable and pelosolu stagnosolul and unfavorable is tehnosolul For crops of sugar beet and soybean Luvisol soils are favorable and specific evaluation notes verosolul with grade IV and V, are less favorable and pelosolul stagnosolul with class specific evaluation notes and fertility will VI, and the negative is tehnosolul, falling fertility in class VIII.

For crops of alfalfa and clover, and vertosolul Luvisol soils are favorable, less favorable stagnosolul and pelosolul and unfavorable tehnosolul presented.

To better increase soil fertility recommend taking the following measures: agrotechnical work undertaken in optimal conditions, organic fertilizing, planting of trees, with curtains role in combating eroziounii soil protection.

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