TYPICAL HAPLIC LUVISOILS AND EUTRIC CAMBISOILS GLEYI-STAGNIC PRETABILITY FROM RECAŞ (TIMIŞ COUNTY)

PRETABILITATEA PRELUVOSOLUL TIPIC ŞI EUTRICAMBOSOLULUI AMFIGLEIZAT DIN PERIMETRUL ORAŞULUI RECAŞ (JUDEŢUL TIMIŞ)

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Abstract: *Increasing yields and agricultural lands fertility are directly determined by detailed knowledge of soil solidification process, evolution, and supply with main nutrients. Previous researches concern numerous analytic data for a period of over 40 years an interval in which numerous changes have occurred both in soil features ad in research methodology, mapping, and improvement. A soil features are dynamic and in concordance with soilification conditions, it is imperious to re-evaluate physical and chemical properties, nutrient supply condition and yielding capacity of the main soil in the Timiş county.*

Rezumat*: Creşterea producţiei şi a fertilităţii solului sunt determinate de cunoaşterea detaliată a proceselor de solidificare şi evoluţie a solului şi de aprovizionarea acestuia cu nutrienţi principali. Cercetările anterioare privind datele analitice pentru o perioadă de peste 40 de ani, un interval în care au intervenit modificări, adăugate în metodologie,cartare şi îmbunătăţire. Trăsăturile solului fiind dinamice şi în concordanţă cu condiţiile de solificare, este necesar a reevalua proprietăţile fizice şi chimice,condiţiile de aprovizionare cu nutrienţi şi capacitatea de producţie a principalelor soluri din judeţul Timiş*

Key words*: soil, taxonomic unity, pretability*
Cuvinte cheie*: sol, unitate taxonomică, pretabilitate*

INTRODUCTION

This two types of soils from Recaş county area were formed in areas with different pedo-climatic conditions, and then haplic luvisols is located in high field area on red loamy more or less carbonatated, and eutric cambisols in below field were an major influence upon the forming Timiş and Bega river.

MATERIAL AND METHODS

Synthesis of experimental results: establishing yielding capacity of agricultural lands and their suitability for the different cultures.

The researches were carried on starting from the Pedologic study methodology from the Standards for soil analysis laboratories. The following analysis was made in the laboratories of the Pedologic and Agri-chemical Study Office and of the Faculty of Agriculture in Timisoara:

- Soil solution pH after the potentiometer method, in an aqueous extract 1:2.5;
- Mobile P and mobile K were extracted in ammonia lactate acetate and they were determined from flam photometric point of view;
- Humus was determined by the Walkley Black dichromatic method;
- Total N rating was made by the Kjeldhal method;
- Carbonate content was determined from a gas volumetric point of view by the Scheibler method;
- Total cation change capacity (T) was determined by the Bower method;

- Bases saturation degree (V) was calculated on the ground of SB and SH.

RESULTS AND DISCUSSIONS

Typical haplic luvisols is find in class II of fertility for meadows and hay-fields, arable, in class III of fertility for plum, in class IV of fertility for apple, class V of fertility for plum, wheat, maize, potato, vegetables, class VI of fertility for sweet-cherry, cherry, table grapes, sun-flower, class X of fertility for table grapes.

Eutric cambisols gleyi-stagnic is find class VIII of fertility for vegetables, class VI-VII alfaalfa, class V table grapes, class VII vine, class V bean, and soy, class IV-Vof fertility for meadows and pasture land., class IV of fertility for wheat and class V for maize and sun-flower, class VII for apple, class V for pear, class VI for plum and class IV for apricot, sweet-cherry, cherry, peach.

Morphological characterization*:*

Haplic luvisols profile: Ao – Bt – Cn**.**

Ao-thick-ness in 0-17 cm, colour grey with yellow shades, texture sandy-loamy, polyedric structure, medium porousness medium compact.

Bt – thick- ness is 17-84 cm, colour brown red texture type sandy-loamy big polyedric structure, medium porositivity, fine porously, compact.

Cn – thick-ness 84-135, colour brown-yellow texture middle sandy-loamy medium compact, medium **porously**

Table 1

Haplic luvisols, from Recaş

Horizon	Ao	Bt	Cn
Depth	0-17	17-84	84-135
Coarse sand2-0.2 mm	5.8	6.3	10.4
Fine sand0.2-0.02 mm	59	52.6	63.2
Dust 0.02-0.002 mm	11.1	12.3	8.2
Clay< 0.002 mm	24.3	28.8	18.2
Texture	LN	LN	SM
pH in H_2O	4.6	5.8	6.3
Humus (%)	3.99	1.83	1.80
Humus reserve	101.7	90.5	89.2
Mobile phosphorus (ppm)	2.0	0.9	2.0
Mobile potassium(ppm)	20	26	16
Exchangeable hydrogen (SH me la 100 g sol)	7.77	2.73	0.31
Exchange bases (SB me la 100 g sol)	5.34	21.1	33.65
T me la 100 g sol	13.11	23.87	33.96
Bases saturation degree (V%)	40	45.2	52.2

Coarse sand values, are oscillating in Ao horizon, which are: in Ao horizon the value in 5.8% increasing in Cn horizon up to 10.4%.

Fine sand has different values on all profile, which are: in Ao horizon of 59% in Bt horizon 52,6%, and in Cn horizon increase to 63,2%.

Dust values are different on all profile, which are: in Ao horizon 11,1% increasing in Bt horizon to 12,3%, and on the base of the profile is diminished until 8.2%.

Clay have oscillating values on all profile, the bigger values are in Bt horizon 28,8%, and the lower value in Cn horizon 18,2%.

Texture is sandy loamy in first two horizons, and to the those of the profile is middle sandy loamy

Soil reaction in from strong acid to low acid with values between 4.6 and 6.3.

Humus content is middle with values of 3,99% in Ao horizon and low to 1.83% in Bt horizon.

The soil has extremely small values of phosphorus and potassium oscillating between 0.9 ppm and 2.0-ppm phosphorus respectively 26 ppm and 16-ppm potassium.

Morphological characterization:

Ap=0-13 cm, silty –loamy texture, disturbed structure by soil , broken.

Ao=13-27 cm, clayey-loamy texture , brown colour, granular structure, very low porosity.

ABtyw=27-45 cm, transition horizon with intermediate characters between Ao and Btyw.

Btyw=45-98 cm, clayey loamy texture, yellow-purple colour, metallic glistening, very low porosity, with oblique slippery faces.

BC=98-122 cm, clayey-loamy texture, brown yellow colour, with rare concretions and calcium carbonates efflorescence.

Cg=122-160 cm, parental material, with clayey-loamy texture, make low effervescence.

Table 2

Eutric cambisols gleyi-stagnic, from Recaş

Horizon	Ap	Ao	AByw	Btyw	Btyw	BC	Cg
Adâncimi	0-13	13-27	27-45	45-77	77-98	98-122	122-160
Nisip grosier (2,0-0,2 mm) %	2.3	1.1	1.9	1.1	1.1	1.0	1.5
Nisip fin (0,2-0,02 mm) %	33.4	35.8	28.4	28.4	31.4	29.3	29.7
Praf (0,02-0,002 mm) %	33.7	34.3	32.5	23.1	20.7	24.7	24.0
Argilă 2 (sub 0,002 mm) %	30.6	28.8	37.2	47.4	46.8	45.0	44.8
Argilă fizică (sub 0,01 mm) %	48.0	46.9	52.8	59.5	59.7	59.3	56.5
Densitate aparentă (DA g/cm^3)		1.50	1.59	1.55			
Porozitate totală (PT %)		42.30	38.84	38.49			
Porozitate de aerație (PA %)		-1.99	-22.63	-49.90			
Grad de tasare (GT %)		14.86	23.92	26.99			
Coef. de higroscopicitate (CH %)		6.22	9.33	12.57			
Coef. de ofilire (CO %)		9.33	12.49	18.85			
Capacitate de câmp (CC %)		29.53	38.66	57.02			
Capacitate totală (CT %)		28.20	24.43	24.83			
Capacitate de apă utilă (CU %)		20.20	26.17	38.17			
Capac, de cedare maximă (CCD		-1.32	-14.23	-32.19			
P min.		46.69	51.06	58.72			
pH în H2O	5.85	5.85	6.70	6.30	6.55	7.25	7.30
Humus (%)	1.92	1.24	0.62				
Indice de azot (IN)	1.67	1.10	0.58				
P mobil (ppm)	100.4	55.4	15.3	12.6	5.6	3.6	6.7
K mobil (ppm)	161	151	129	141	125	92	127
Baze de schimb (SB, me la 100 g	13.38	13.16	16.22	20.72	22.54		
Hidrogen schimbabil (SH, me)	5.50	4.97	3.69	4.61	3.66		
Capac, de schimb cationic (T,	18.88	18.13	19.91	25.33	26.20		
Grad de saturatie în baze (V %)	70.86	75.28	81.46	81.80	86.03		

Eutric cambisols gleyi-stagnic from Recaş was developed on parental materials with fine granulometrics structure.

Coarse sand has oscillating values between 2.3 reaching to 1.5 on the profile base.

Dust have raising values on the surface of the profile of 33,7, this is lower on the base of the profile to 24,0.

Clay values on the surface of the profile is 30,6, increasing to 44,8 on the base of the profile.

Humus content is lower between 1.92 (Ap) and 0.62 (Abyw), the supply with mobile phosphorus is very weak, good supply with mobile potassium, pH which acid.

CONCLUSIONS

Haplic luvisols in agricultural use are adequate for a large assortment of culture plants, which are: wheat and maize, but are used with good results to threes and grapes culture.

Eutric cambisols gleyi-stagnic maintains water in first part of soil profile because of deficiently physical properties of parental material, also because of secondary densely, antropics, determined by agrotechnics tillage made in inappropriate conditions of humidity.

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