

## RESEARCH ON THE SOIL OF SUITABILITY RECAS GROWING CENTER

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### ABSTRACT

*Viticulture is a branch of agriculture with a high intensity level, vines involves energy consumption, it can not develop without energy or low intake of it. Increased production WINE will take place in future energy crisis and raw materials (Țărău D., Luca M., 2002, et Țărău D., Borza I., Dumitru M., Ciobanu C., 2007) .*

*Objectives aimed especially following: identification and characterization of soil types and subtypes, calculating evaluation notes, determining suitability and land classification in classes of favorability. Recas vineyard soils Center, formed by the complex interaction of factors of which the most important pedogenetic are topography, water, rock parent, climate, vegetation and man. Thus the perimeter Recas are two areas where soils are well differentiated, a result of different climatic conditions.*

### INTRODUCTION

Recas wine center is situated in the west of Romania, about the center of Timis county, on the lower Bega River, with a wide opening for Plain Timis south and north guarded by a shield consisting of the last hills Lipovei Hills.

### MATERIALS AND METHODS

To establish the suitability of soils in Central Recas wine, soil profiles were dug for each soil type and subtype were taken soil samples were then processed and the following analyzes were performed, the following methods:

- Determination of soil reaction (pH) by potentiometric method with pH-sensitive glass electrode, at a ratio soil: water 1:2,5;
- Determination of hydrolytic acidity (Ah) single extraction with 1N sodium acetate at pH 8.3, at a ratio soil: solution 1:2,5;
- Determination of total exchange acidity (Sh) at pH = 8.3 by leaching soil to exhaustion with a 1N solution of potassium acetate buffer at pH = 8.3;
- Determination of acid extractable exchange in solutions of neutral salts, netamponate (Al<sup>3+</sup>, H<sup>+</sup>) by Coleman method: extraction by percolation to exhaustion with 1N KCl;
- Determining cation exchange capacity and exchangeable sodium after Bower method, by saturating the soil with 1N Na Na acetate at pH = 8.2;
- Determining soluble salts in the aqueous extract at a ratio soil: water 1:5 to 1:20;
- Determination of humus - soil organic matter oxidation with dichromate in sulfuric acid medium K and excess oxidant dosage Mohr salt as Schollenberger method;
- Determination of alkaline earth carbonates gazovolumetrică method (Scheibler method);
- Determination of total nitrogen: Kjeldahl method;
- Determination of mobile phosphorus and potassium;

- Determination of granulometric composition by treating the solution with hydrochloric acid and separation by the method Kacinski fractions by sieving and pipetting; determining bulk density: with metal cylinders, the natural structure (DA);

- Determination soil density pycnometer, in distilled water (D);

moisture determination: by drying in an oven at 105°C (EU);

By calculation, we have determined the following:

- Total porosity:  $PT = (1 - DA / D) \times 100$  (%);

- Porosity of aeration:  $Pa = PT - CcxDA$

- Supply of humus (t / ha) =  $\Sigma HUM \times H \times DA$

- Index of nitrogen (IN)  $IN = (HUM \times VAh) / 100$ ;

- The degree of compaction  $Gt = (PT_{mn} - PT) / PT_{mn} \times 100$ .

## RESULTS AND DISCUSSION

**Eutric Cambosols.** Regarding suitability Eutric Cambisols Center Recas wine for various agricultural uses and horticultural crops, the situation is presented in Table 1.

Table 1

### Crops and agricultural uses placed in Group A of favorability or very favorable I

Cultures	Points	Class of favorability
PS	100	Very favorable I
FN	90	
AR	81	

As shown in table 1, in the favorability - I very favorable with a score between 81-100 points located are pastures, meadows and arable land, which shows that we have pastures and meadows of high quality and therefore obtain high yields.

Table 2

### Agricultural and horticultural crops and uses placed in Group B of favorability Very favorable or II

Cultures	Points	Class of favorability
MR	65	Very favorable II
PN	65	
TR	80	

In the table 2 is presented Eutric Cambisols suitability for growing apple, plum and clover which obtained a mark of evaluation lies between 61 and 80 points which places them in the favorability - very favorable II. On these soils can be obtained close to maximum potential production of production of these crops and horticulture.

In the table 3 is presented the favorability - positive I located a score between 41 and 60 points. This area is the home of most crops, including wheat crops, corn, barley, sunflowers and vineyards, whose production and development are limited by soil quality and low yields are obtained this reason.

Table 3

**Agricultural and horticultural crops and uses falling in Group C of favorability or Favorable I**

Cultures	Points	Class of favorability
PR	59	Favorable I
CV	59	
CS	59	
PC	59	
VV	60	
GR	60	
OR	60	
PB	60	
SF	50	
SO	50	
MF	50	
IU	50	
IF	50	
CN	45	
LU	59	
LG	59	
VM	60	

**2. Haplic Luvisols**

In table 4 can be seen that only arable land is in the favorability - very friendly with a touch of evaluation I located between 81 and 100 points, which shows good suitability for large crops.

Table 4

**Crops and agricultural uses placed in Group A of favorability or very favorable**

Cultures	Points	Class of favorability
AR	90	Very favorable I

Table 5

**Crops and agricultural uses placed in Group B of favorability or very favorable II**

Cultures	Points	Class of favorability
PS	80	Very favorable II
FN	80	

Table 5 shows that in the favorability - very favorable II, are pastures and hayfields with a note of evaluation of between 61-80 points, which leads to obtain high yields of hay and grasslands for grazing.

Table 6

**Agricultural and horticultural crops and uses placed in Group C of favorability or Favorable I**

Cultures	Points	Class of favorability
MR	55	Favorable I
PR	55	
PN	55	
CV	55	
CS	55	
PC	55	
GR	60	
OR	60	
PB	60	
SF	55	
SO	55	
IF	45	
CN	45	
TR	55	
LG	55	

In the table 6 is observed that most crops and horticulture, are in the favorability - I favor, with a note of evaluation between 41 and 60 points, which limits the capacity of these crops, especially apple, plum, wheat, barley, soy alternatives taking into account the replacement of other crops that are suited to these types of soil and cultivation on other soil types.

Table 7 that in the favorability - favorable II, with a note of good standing located between 21 and 40 points, is the vine for wine and table which determines the production of low production, but since the land is in a hilly area, the best way to achieve maximum production of this class of favorability is to use these two cultures. Table 7 presents the situation less favorable crop sunflower, potato and alfalfa. It is recommended that these crops to be grown on other land which is suitable to be cultivated.

Table 7

**Agricultural and horticultural crops and uses falling in Group D of favorability or Favorable II**

Cultures	Points	Class of favorability
VV	40	Favorable II
VM	40	
FS	40	
CT	30	
MF	30	
LU	40	

**3. Gley soil** After calculating the evaluation marks for different crops and horticultural uses and have obtained the following results:

Table 8

**Crops and agricultural uses placed in Group B of favorability or very favorable II**

Cultures	Points	Class of favorability
AR	70	Very favorable II

Table 9

**Crops and agricultural uses placed in Group C of favorability or Favorable I**

Cultures	Points	Class of favorability
PS	46	Favorable I

Table 10

**Crops and agricultural uses placed in Group D of favorability or Favorable II**

Culturi	Puncte	Clasa de favorabilitate
FN	21-40	Favorable II

Table 11

**Agricultural and horticultural crops and uses falling in Group E of favorability or less favorable**

Cultures	Points	Class of favorability
MR	17	Less favorable
PR	18	
PN	18	
CV	15	
CS	15	
PC	14	
VV	12	
VM	12	
GR	19	
OR	19	
PB	19	
FS	18	
CT	10	
SF	10	
SO	5	
MF	4	
IU	2	
IN	6	
CN	3	
LU	5	
TR	5	
LG	11	

Table 8 shows that farmland is in the favorability of evaluation II with a grade of 70 points obtained from improving the land through land reclamation works. As shown in Table 10, Grasslands are found in the favorability - II positive, so dealing with the largest area of grassland.

Table 9 shows that only pastures are in the favorability of evaluation I with a grade of 46 making the most of areas to be occupied by them.

Table 11 situation is observed which is most cultures, including the species tree and vine and wine, they got low grades of evaluation with an average of 8.5 points, placing the area of favorability - less favorable.

### CONCLUSIONS

Most crops are favorable area I just pastures and hayfields is very favorable zone II, and II is the favorable plants whose water requirement is reduced and due to excessive humidity and high rainfall plants are not optimal development.

Although typically a large volume edaphic fertility potential of these soils is low.

When taken in culture and fertilized soils shows an enrichment of cations basics.

Soils under grasslands have a higher content in humus, nitrogen and phosphorus but organic nitrogen mineralization capacity is low.

Agricultural use as arable land is constrained cups increased Lift temporarily poor because of their compactness or submitted.

To improve a number of interventions are necessary agrotechnical and agrochemical: the moldboard plowing to alleviate temporary excess humidity, calcareous amendments correct reaction conditions, organic fertilizers to increase reserves of humus and fertilizers.

State nutrient supply is poor and existing reserves are mobilized difficult because air-fluid system losses and poor microbiological activities.

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