ECONOMIC EFFICIENCY OF THE MAIN TYPES OF SOILS OF NEW MOLDOVA PERIMETER LOCALITY FOR WHEAT AND CORN CROPS

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Abstract: *Studying in detail the topography of the territory, we see that a large surface area is characteristic of the last branches Locvei Mountains, the rest area with a very specific relief. The relief to be characterized more easily have divided it into two areas: the eastern part of Moldova and Moldova New Old West, north-west. This paper represents an economic study of the main types of soil from the perimeter of the village Moldova Noua, Caras-Severin wheat and corn crops. Studying the economic efficiency of land is very important because according to it we can draw conclusions about the effectiveness and profitability of agricultural crops. The main types of soils from the area studied, suitable for agricultural crops are: aluviosol, and eutricambosolul preluvosolul. Land evaluation is a complex operation and characterization naturalstică down the land, that the totality of conditions and environmental factors that occur on a given land area, through a system of indicators and techniques of evaluation and determination of grades production capacity of such land defined for different uses and cultures, if a certain technology in order to characterize its quality and value. To do a proper economic analysis were calculated first notes of evaluation of soil for crops under study. Evaluation marks have been calculated according to the Elaboration soil studies for the two cultures under study. Knowing evaluation notes I could find natural productive potential of these soils for wheat and maize crops by multiplying the score of evaluation of 60 kg / point for wheat and 75 kg / point to the corn crop. Productive potential was then compared with yields obtained by farmers in the area. Economic comparison was obtained by multiplying production by 0.5 lei / kg for wheat crop by 0.7 lei / kg for maize, these sums representing the price per kg charged in the summer of 2010. The study conducted in Moldova Noua village perimeter showed that wheat yields obtained are lower than the natural potential of land and where maize is grown have obtained higher yields than the natural potential of soils.*

Key words: *economic efficiency, soil types, the grade of evaluation*

INTRODUCTION

The city falls within the province of Moldova New Western Carpathian Mountains, Banat Mountains Locvei subdivision.

Maximum altitude is about 560 m and minimum of approximately 130 m. In terms of the investigated area falls within the catchment basin of the Danube.

Based on field study of the 350 profile (a study in the office profile of 27 primary and secondary sections 323) analysis and processing of soil maps, the information collected was drawn map and legend of soils and land that comprises 5 types, 17 soils 8 subtypes and associations, as follows:

1. Litosoluri destroyed (di), eutrice (I) UT 1.01 - 4.01 = 159.03 hectares - 3.60%

2. Regosols eutrice (I) in the distribution of lithic (di-li), mollic-pelic (mo-per) = 1741.46 ha 5.01-8.04 UT - 39.44%

3. Alluvisols eutrice (I), limestone (as) = 927.38 ha 9.01-14.03 UT - 21.00% 4. Typical eutric cambisols (ti), psamic (ps), alluvium (al), lithic (li)-surface-Rodica (on-ro) = 610.02 ha 15.01-22.01 UT - 13.82%

5. Preluvisols (typical), stagnant (st)-surface-stagnic (on-st) UT 23.01 - 27.03 = 805.66 acres - 18.25%

6. Soil Associations UT 701.01 - 708.01 = 171.84 hectares - 3.89%

MATERIALS AND METHODS

Production capacity of land is influenced by the addition of natural and anthropogenic factors. The methodology of evaluation to establish the evaluation marks for natural conditions and potentiation evaluation notes for some anthropogenic influences.

In natural conditions, land evaluation for each of the above indicators of evaluation involved in determining the mark by a factor of evaluation that varies between 0 and 1 as that is totally bad ownership or use or optimum requirements of the plant under consideration.

Note the uses of evaluation and culture product obtained by multiplying by 100 coefficients of the 17 indicators directly involved in setting evaluation notes: Y = (x1, x2, x3 ... .. x17) 100 .

where:

Y = mark of evaluation

x1, x2, x3 ... .. x17 = value coefficients (17 indicators)

For example, if all indicators have a value equal weighting value is highest evaluation marks, ie 100. Even if only one of the indicators has a coefficient of 0 (zero) of evaluation score is 0 (zero) because zero multiplied by any value worth zero.

RESULTS AND DISCUSSIONS

Evaluation marks for wheat and maize crops were calculated according to the Elaboration soil studies.

For the wheat crop (Figure 1 and Table 1) haplic luvisols got 81 points being located grade II fertility and got 73 points aluviosol is located in class III of fertility.

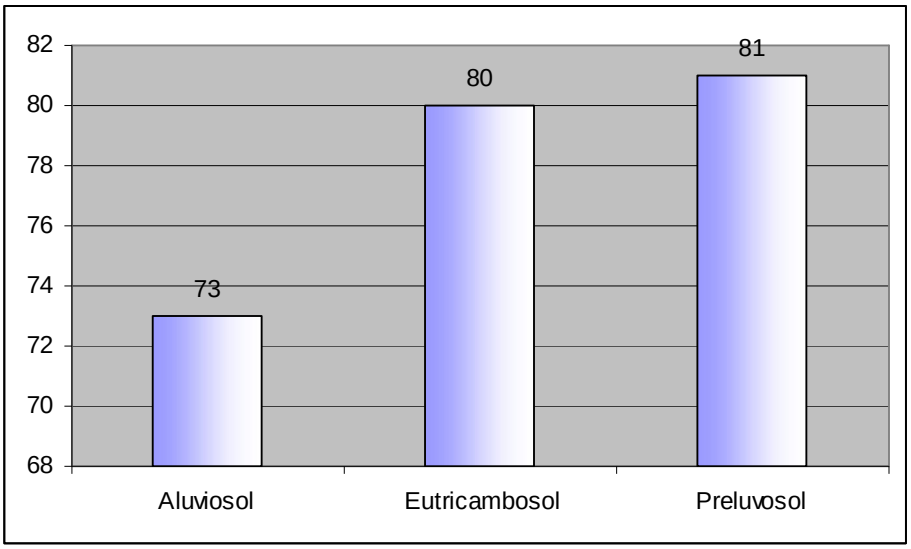

Fig. 1. Graphical representation of soil suitability for growing wheat

For the maize crop (Figure 2, Table 1) preluvosolul got 81 points being located grade II fertility and got 72 points aluviosol is located in class III of fertility.

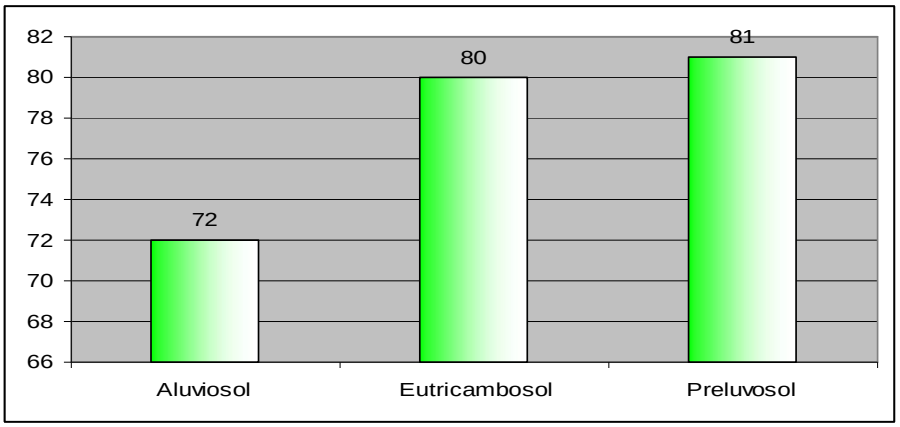

Fig. 2. Graphical representation of soil suitability for growing maize

Table 1.

Soil suitability for crops of wheat and maize

Nr. Crt.	Soil type	Wheat		Maize	
		Mark	Class	Mark	Class
1.	Aluviosoil	73	III	72	III
2.	Haplic cambisols	80	III	80	III
3.	Haplic luvisols	81	II	81	II

Table 2.

Natural fertility of soil for wheat crop

Nr.Crt	Soil type	Natural potential Kg/ha	Harvests Kg/ha
1.	Aluviosoil	4380	2700
2.	Haplic cambisols	4800	3000
3.	Haplic luvisols	4860	3500

Natural potential for the wheat crop is aluviosol 4380 kg/ha was obtained by multiplying the note of evaluation - and 73 kg/section of evaluation - 60. Production obtained from the study conducted on this type of soil was 2700 kg/ha.

Natural potential for growing wheat for eutricambosolului is 4800 kg/ha was obtained by multiplying the note of evaluation - and 80 kg/section of evaluation - 60. Yields from this type of soil was 3000 kg/ha.

Natural potential for the wheat crop is preluvosolului 4860 kg/ha was obtained by multiplying the note of evaluation - and 81 kg/section of evaluation - 60. Yields from this type of soil was 3500 kg/ha.

Natural potential of the soil is higher than the yields that were obtained (Fig. 3).

Aluviosoil natural potential for crop maize is 5400 kg/ha was obtained from the product of the score of evaluation - 72 kg / section of evaluation - 75. Yields obtained on this type of soil was 6000 kg/ha.

Haplic cambisols natural potential for maize crop is 6,000 kg / ha was obtained from the product of the score of evaluation - 80 kg/section of evaluation - 75. Yields obtained on this

type of soil was 6500 kg/ha.

Haplic luvisols natural potential for crop maize is 6075 kg / ha was obtained from the product of the score of evaluation - 81 kg / section of evaluation - 75. Yields obtained on this type of soil was 6700 kg/ha.

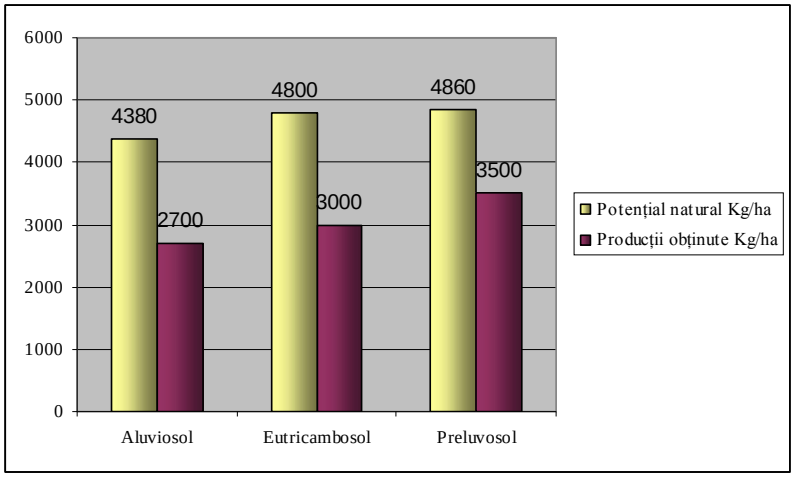

Fig. 3. Graphical representation of the natural fertility of soil for wheat crop

Table 3.

Natural fertility of soil for maize crop

Nr.Crt	Soil type	Natural potential Kg/ha	Harvests Kg/ha
1.	Aluviosoil	5400	6000
2.	Haplic cambisols	6000	6500
3.	Haplic luvisols	6075	6700

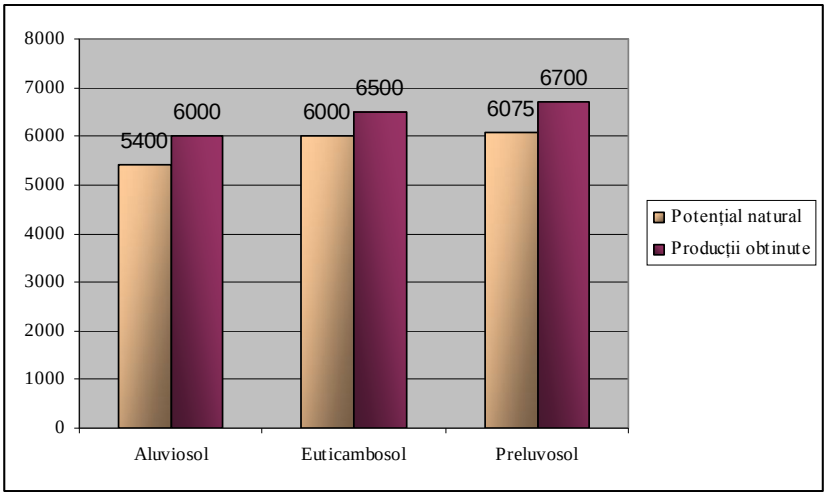

Fig. 4. Graphical representation of the natural fertility of soil for corn crop

Obtained in maize production on the three types of soil is greater than the natural potential of the soils (Fig. 4).

Table 4.

Economic efficiency of the main types of soils for wheat and maize crops

Nr.Crt.	Soil type	Natural potential RON/ha	Harvest RON/ha
Wheat			
1.	Aluviosoil	2190	1350
2.	Haplic cambisols	2400	1500
3.	Haplic luvisols	2430	1750
Maize			
1.	Aluviosoil	3780	4200
2.	Haplic cambisols	4200	4550
3.	Haplic luvisols	4252.5	4690

To highlight the economic efficiency of major soil types that we studied for growing wheat and maize, we multiplied the natural potential of each type of soil in part, with 2010 sales price of 0.5 RON / wheat and 0.7 kg USD / kg for maize. Following calculations separately for each crop were obtained results in Table 4.

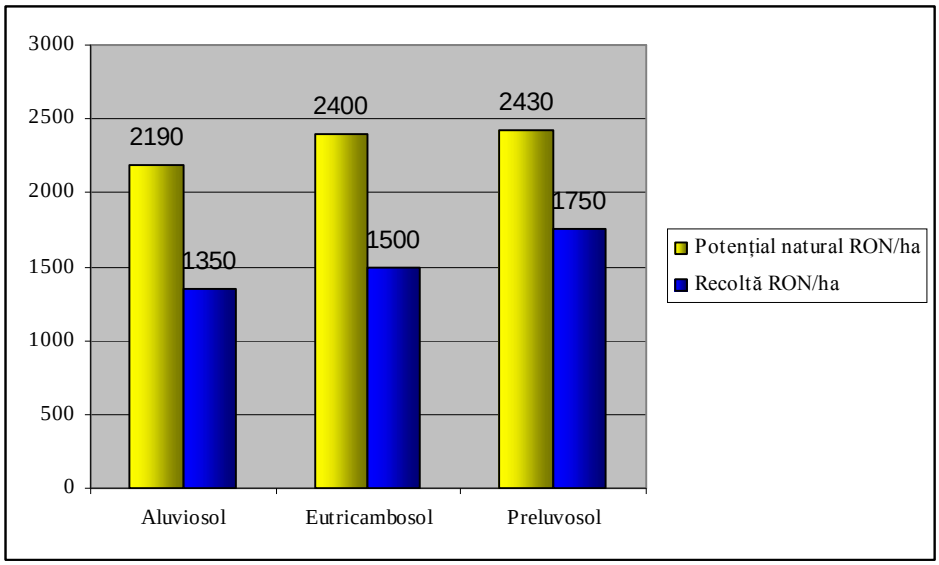

Fig. 5. Graphical representation of economic efficiency and the main types of soils for wheat crop

Wheat crop harvested in the main soil types studied is much lower than the natural potential of these soils (Fig. 5).

Natural potential of the main types of land to less than maize crop is harvested (Fig. 6).

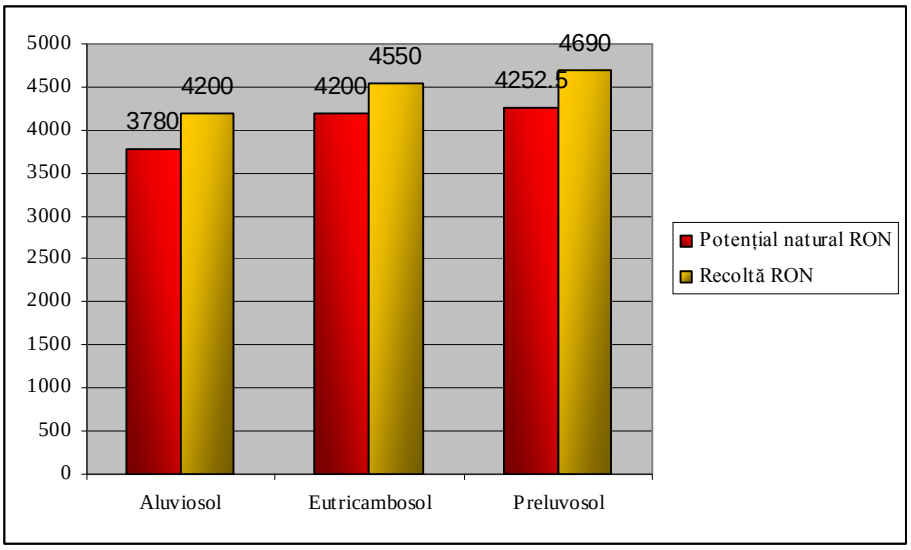

Fig. 6. Graphical representation of economic efficiency and the main types of soils for maize

CONCLUSIONS

The study conducted the following conclusions can be drawn:

Researched area soils were formed and evolved through the complex interaction of factors pedogenetical most important of which are: topography, groundwater, parent rock, climate, vegetation, man.

Lower yields obtained in the case of wheat crop can be explained as follows:

- Taken in the study area for wheat crop is in class II favorability;
- Temperature and precipitation regime of the area under study is not really optimal for this culture;
- The geographical area studied, near the mountains, it is optimal for growing wheat;
- Fertilizing the soil system is the best in the sense that the doses of fertilizers are not always justified;

If higher yields of maize crop is only justified by the fact that this culture encounters a more friendly in the area considered in the study;

Another cause of poor production and management can be achieved without chemical fertilizers consider a fertilization plan properly and without taking into account soil nutrient reserves, expected yield and the specific consumption of that crop.

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