

ECONOMIC EFFICIENCY OF MAIN SOIL TYPES FROM BÂRZAVA PLAIN FOR WHEAT AND CORN CROPS

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ABSTRACT

This paper represents an economic study of the main soil types in Plain Bârzava for wheat and corn. Studying the economic efficiency of soil is important because according to it we can draw conclusions about the effectiveness and profitability of crops.

Knowing evaluation notes I could find natural production potential of soils that wheat and corn crops by multiplying the grade of evaluation with 60 kg / point for wheat and 75 kg / point to corn.

Economic comparison was obtained by multiplying production by 0.7 lei / kg for wheat crop and 0.8 lei / kg for corn, amounts representing the price / kg practiced in the summer of 2011.

INTRODUCTION

The recital low elevation mountain plain socket Bârzava is considered, as a plain Glacis, low terraced.

The study area is generally a weak inclined surface altitudes decrease from east to west and from north to south, from 150 meters (Tormac farm), 139 m Tools Hill, 129 m 120 m Hill Field Hunting These are highest points, the rest range from 145 m altitude Tormac area, 120-110 m and 110-100 m zone Bird Percosova area.

According to the Romanian System of Soil Taxonomy (SRTS-2003) in the investigated area were identified seven classes of soils, 10 types and 33 subtypes

MATERIALS AND METHODS

Production capacity is influenced land to natural and anthropogenic factors. The methodology of evaluation allows for evaluation marks for natural conditions and enhancement evaluation marks for some anthropogenic influences.

The conditional evaluation of land for natural conditions, each of the above indicators involved in determining the mark of evaluation of evaluation by a coefficient which varies between 0 and 1 as that is totally bad ownership or usage or optimal requirements of the plant considered.

Note the uses of evaluation and culture product obtained by multiplying by 100 coefficients of the 17 indicators directly involved in establishing evaluation notes:

$$Y = (x_1, x_2, x_3, \dots, x_{17}) \cdot 100$$

where:

Y = bonitary mark

$x_1, x_2, x_3, \dots, x_{17}$ = coefficients value (17 indicators)

RESULTS AND DISCUSSION

Evaluation marks for wheat and corn were calculated according to the Methodology Elaboration soil studies.

For wheat crop (Figure 1 and Table 1) haplic luvisol received 75 points and is located in class III of fertility, and pellic vertisols got 45 points vertosolul is located in the sixth grade of fertility.

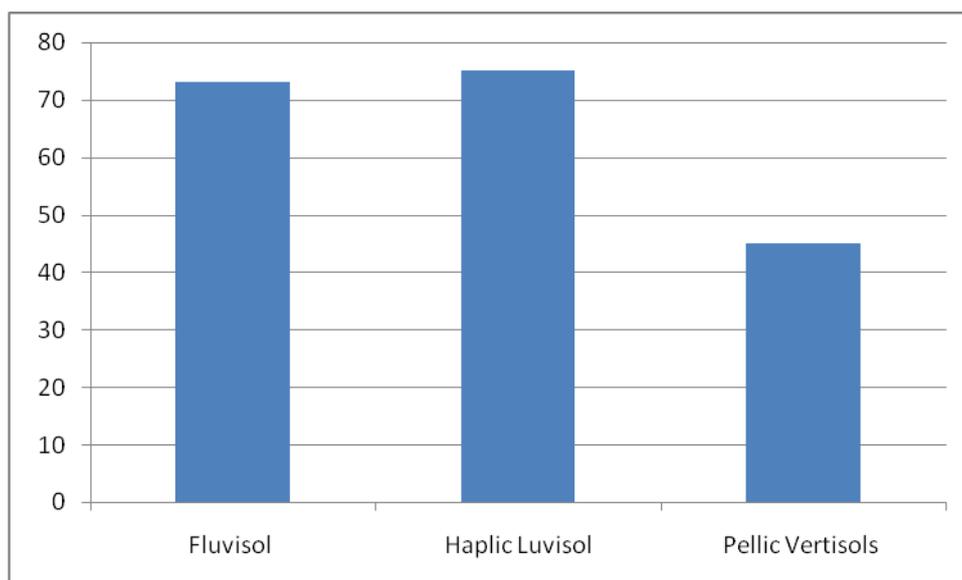


Fig. 1. Graphical representation of the suitability of soils for wheat crop

For corn (Figure 2, Table 1) haplic luvisols received 81 points are located in Class II fertility and pellic vertisols received 30 points are located in the eighth grade of fertility.

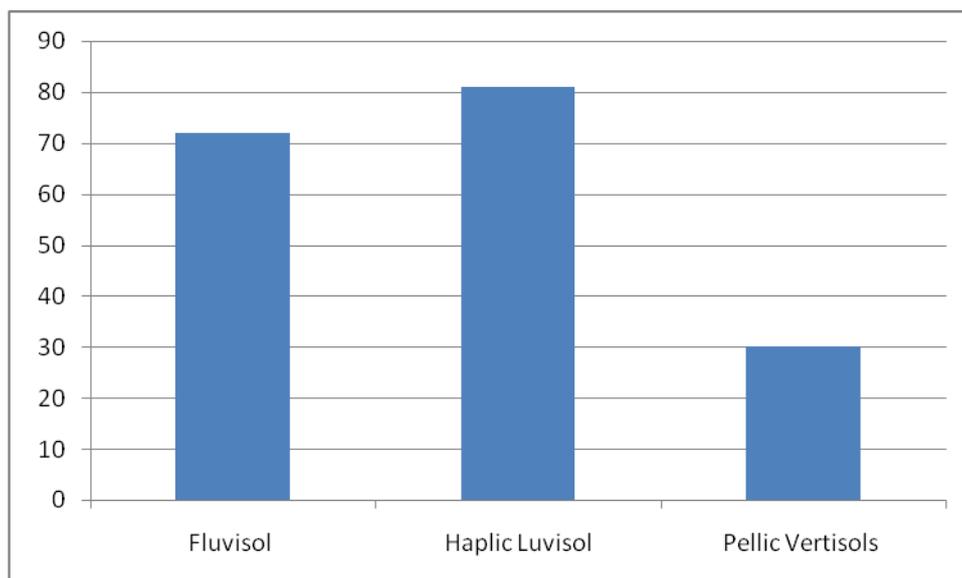


Fig. 2. Graphical representation of the suitability of soils for corn

Table 1.

Suitability of soils for wheat and corn

Nr. Crt.	Soil type	Wheat		Corn	
		Nota	Clasa	Nota	Clasa
1.	Fluvisol	73	III	72	III
2.	Haplic Luvisol	75	III	81	II
3.	Pellic Vertisols	45	VI	30	VIII

Table 2.

Natural fertility of the soil for wheat crop			
Nr.Crt	Soil type	Natural productions Kg/ha	Obtained productions Kg/ha
1.	Fluvisol	4380	4800
2.	Haplic Luvisol	4500	5000
3.	Pellic Vertisols	2700	4500

Fluvisols natural potential for the wheat crop is 4380 kg / ha was obtained by multiplying the evaluation notes - and 73 kg / section of evaluation - 60. Production derived from studies conducted on this type of soil was 2700 kg / ha.

Haplic luvisols natural potential for the wheat crop is 4500 kg / ha was obtained by multiplying the evaluation notes - and 75 kg / section of evaluation - 60. Yields from this type of soil was 3500 kg / ha.

Pellic viertisols natural potential for the wheat crop is 2700 kg / ha was obtained by multiplying the evaluation notes - and 45 kg / section of evaluation - 60. Yields from this type of soil was 3000 kg / ha.

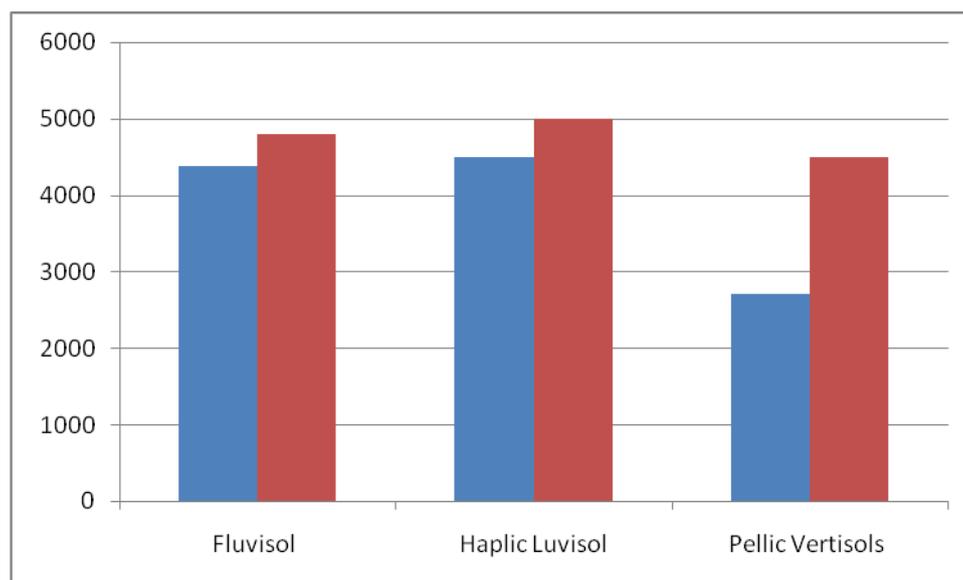


Fig. 3. Graphical representation of the natural fertility of soils for wheat crop

Natural potential of land is higher than yields are obtained (Fig. 3).

Table 3.

Natural fertility of the soil for corn			
Nr.Crt	Soil type	Natural productions Kg/ha	Obtained productions Kg/ha
1.	Fluvisol	5400	6500
2.	Haplic Luvisol	6075	7000
3.	Pellic Vertisols	2250	5800

Fluvisols natural potential for corn crop is 5400 kg / ha was obtained from the product of grade of evaluation - 72 kg / section of evaluation - 75. Producția obtained on this type of soil was 6500 kg / ha

Haplic luvisols natural potential for corn crop is 6075 kg / ha was obtained from the product of grade of evaluation - 81 kg / section of evaluation - 75. Producția obtained on this type of soil was 7000 kg / ha .

Pellic vertisols natural potential for corn crop is 2250 kg / ha was obtained from the product of grade of evaluation - 30 kg / section of evaluation - 75. Producția obtained on this type of soil was 5800 kg / ha .

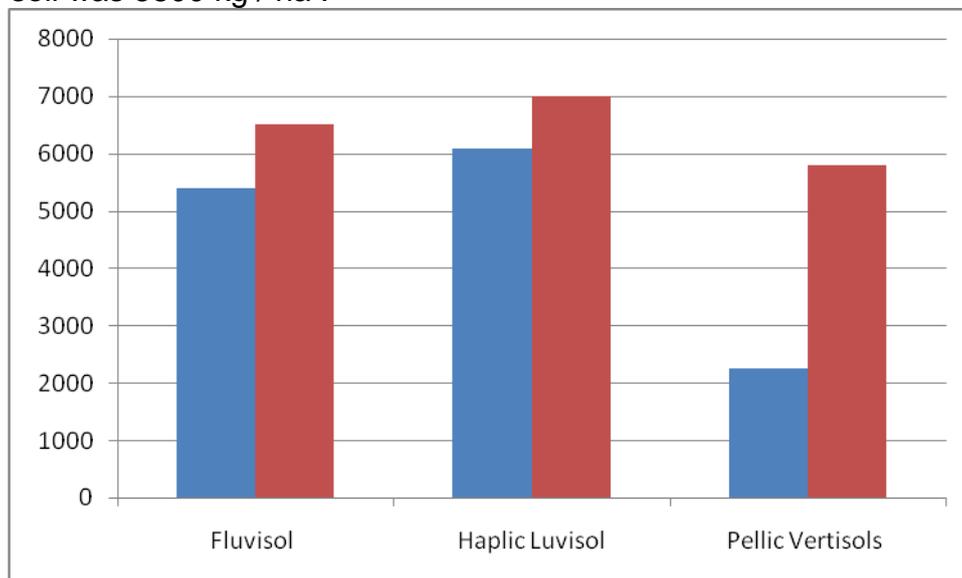


Fig. 4. Graphical representation of the natural fertility of soils for corn

Obtained from corn production on three soil types is greater than the natural potential of the soil (Fig. 4).

Table 4.

Economic efficiency of the main types of soils for wheat and corn

Nr.Crt.	Soil type	Natural productions RON/ha	Obtained productions RON/ha
Wheat			
1.	Fluvisol	3066	3360
2.	Haplic Luvisol	3150	3500
3.	Pellic Vertisols	1890	3150
Corn			
1.	Fluvisol	4320	5200
2.	Haplic Luvisol	4860	5600
3.	Pellic Vertisols	1800	4640

To highlight the economic efficiency of major soil types that we have studied the culture of wheat and maize, we multiplied the natural potential of each soil type separately, the sale price in 2011 of 0.7 RON / kg for wheat and 0.8 RON / kg for corn. Calculations from each culture were obtained the results in Table 4.

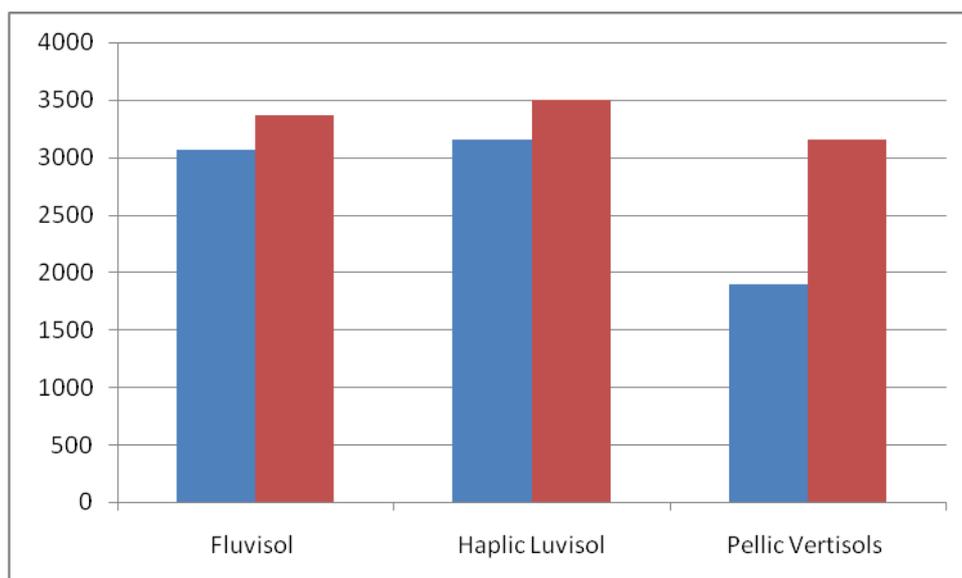


Fig. 5. Graphical representation of economic efficiency and the main types of soils for wheat crop

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

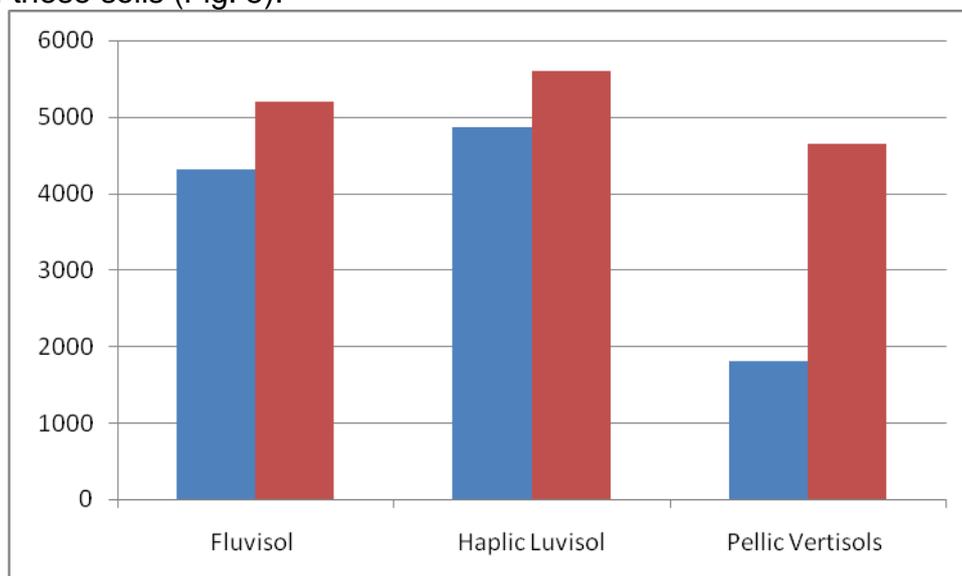


Fig. 6. Graphical representation of economic efficiency and the main types of soil for corn

Natural potential of the main types of soil for corn is greater than the yield obtained (Fig. 6).

CONCLUSIONS

The study conducted the following conclusions can be drawn:

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

Obtained higher yields in crops studied can be explained as follows:

- Area under study is favorable to these crops;
- Thermal and pluviometric regime of the area studied last year favorable for agriculture;
- Fertilization of the soil system was inspired one taking into account soil nutrient content;
- Agro was inspired mainly used for pellic vertisols.

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