

LAND EVALUATION FROM SOUTH PART OF ROMANIA

M. MIHALACHE¹, L. ILIE¹

¹University of Agronomic Sciences and Veterinary Medicine of Bucharest, Blv. Mărăști, no. 59, Bucharest, 011464, Romania

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ABSTRACT

The name of land evaluation was proposed by W.C. Visser in 1950 and firmly established by FAO in 1976. In market of economy, land evaluation is very complex, because in addition to land-based conditional evaluation of intrinsic characteristics involved and other economic, infrastructural, social elements. Land evaluation must take into account the suitability for different crops and land productivity potential that can directly influence the value of agricultural land. For proper assessment of land must be considered and a number of coefficients as the size and shape of the land plot and obstacles, distance and road quality centre, close to the towns of economic importance and their category, position on main transportation routes, situation to markets for agricultural products, relief plot etc.

This paper presents a qualitative evaluation of two types of soil (calcaric chernozem and cambic phaeozems) from Calarasi and evaluation methods that led to land pricing.

INTRODUCTION

Land evaluation is aimed at assessing the performance of land for specific uses involving comparing alternatives for land use or consideration given and including socio-economic sustainability (Florea N., 2002). In addition, evaluations include analytical techniques that can be used to describe land use to predict response to land them both in physical and economic, as well as to optimize land use in terms of multiple objectives and restrictions (Vlad V., 2000).

Land evaluation in general, and particularly agricultural land, is one of the indicators of potential products sure, for knowledge of any geographic area, a necessity without which there can be designed programs, development strategies and integration into national and global agricultural structures.

MATERIALS AND METHODS

The land evaluation must start first, from the knowledge parameters characterizing the conditions for growth and fructification of plants, but also their knowledge of upstream parameters that require further processing of information.

Land use is an area of major importance lately growing in the world, but in our country a higher recovery of soil resources. There are now a multitude of problems that must solve land management problems whose complexity and variety growing continuously. They fall into broader management issues as sustainable development, rural development, sectorized planning and farm management where important resource is the land. For land evaluation were analyzed two soil types in Stefan cel Mare from Calarasi zone.

Soil profiles were made and characterized morphologically and conducting chemical analysis laboratory (soil reaction, calcium carbonate content, humus content, bases saturation degree), physical (soil texture, bulk density, soil porosity etc.) following the

methodology of soil studies elaboration, ICPA, 1987, to establish evaluation notes and to assess the value of land according to grade of evaluation.

RESULTS AND DISCUSSIONS

Administrative territory of the Stefan cel Mare is part of the South Romanian Plain geomorphologic unit. This area is formed on Quaternary deposits belonging. The lithology zone is represented by loess deposit. That loess soils were formed on the territory of Stefan cel Mare is generally loamy texture, sandy loamy and loamy clay. In plain area, groundwater depth, generally exceeds 25 meter which does not affect the soil profile. The average annual temperature is 10.9° C and rainfall of 475.2 mm annual average. In the studied soil cover consists of soils in Chernisoluri class were calcaric chernozem occupies a area of 1824.2 ha and the area cambic phaeozems is 246.9 ha.



Fig. 1 Calcaric Chernozem

Horizon Am (0-35 cm), loamy texture, dark brown, granular structure, small and medium moist, thin roots, moderately compact, medium wet adhesive plastic and makes effervescent between 15-30 cm depth, gradual transition.
Horizon A/C (35-55 cm), loamy texture, yellow brown, granular structure, weak, moderately compact, biological activity, poor in roots, dry, medium wet plastic and glue, effervescent average, gradual transition.
Horizon Ck₁ (55-75 cm), loamy texture, yellow brown, without structure, dry, moderately compact, heavy efflorescence, porous, smooth transition.

Table 1

The main properties of calcaric chernozem

Horizon	Depth (cm)	pH	Base saturat. degree (%)	Organic matter (%)	Mobile phosphorus (ppm)	Mobile potassium (ppm)	Calcium carbonate (%)	Texture
Am	0-35	6.8	97	4.2	54	188	1.2	Loamy
A/C	35-55	7.1	98	2.5	27	175	3.5	Loamy
Ck	55-75	7.3	100	-	-	190	13.1	Loamy
Cca	75-115	7.6	100	-	-	-	14.2	Loamy
Land evaluation 66 - II class of fertility								



Fig. 2 Cambic Phaeozem

Horizon Am (0-40 cm), loamy clay, dark brown, small and medium granular, moist, slightly compact, roots, biological activity, plastic and adhesive wet, gradual transition.

Horizon A/B (40-60 cm), loamy clay, dark brown, granular small, medium compact, roots, coprolite, plastic and adhesive medium wet, gradual transition.

Horizon Bv (60-98 cm), loamy clay, dark yellowish brown, polyedric structure dry, moderately compact, thin roots, plastic and adhesive medium wet, gradual transition

Horizon BC (98-125 cm), clay loamy, yellowish brown, slightly moist, slightly compact, rare roots, coprolite, plastic and adhesive medium wet, polyedric structure, weak, gradual transition.

Horizon C (>125 cm), loamy, yellow, without structure, moist, without roots, medium plastic and adhesive wet, without calcium carbonate.

Table 2

The main properties of cambic phaeozems

Horizon	Depth (cm)	pH	Base saturat. degree (%)	Organic matter (%)	Mobile phosphorus (ppm)	Mobile potassium (ppm)	Texture
Am	0-40	7.8	85	3.88	35	312	loamy clay
A/B	40-60	7.6	80	2.46	27	278	loamy clay
Bv	60-98	6.5	75	-	20	-	loamy clay
BC	98-125	8.1	90	-	-	-	loamy clay
C	125-150	-	-	-	-	-	loamy
Land evaluation - 54 - class III of fertility							

Table 3

The class of favourable crop (arable)

Soil	Medium		Wheat		Barley		Maize		Sun flower	
	NB	CIs	NB	CIs	NB	CIsF	NB	CIsF	NB	CIsF
CZk	-	-	72	II	72	II	64	II	72	II
FZ ca	-	-	58	III	58	III	52	III	58	III
			Potatoes		Sugar been		Soy been		Peas	
CZk	-	-	50	III	56	III	72	II	72	II
FZ ca	-	-	41	III	45	III	58	III	58	III
CZk	66	II								
FZ ca	54	III								

To apply a methodology for evaluating land should apply a methodology to include as many small but enough of parameters, more accurate precision parameters and possibilities for their clearance.

Evaluation of agricultural land as patrimony value according to grade agricultural land: class I - 6887 lei/ha, class II - 5509.2 lei/ha, class III - 3902.6 lei/ha, class IV - 2295.7 lei/ha and class V - 1606.9 lei/ha.

Following the application of these methods has been established for land price chernozems in the south part of Romania. Thus according to the location of the land and socio-economic indicators contributing to high land prices obtained values varies quite large so to assess the value of agricultural land in the village of Stefan cel Mare, Calarasi county in two assessment ways as patrimony value and evaluation after profit soils classified as grade III, patrimony value assessment method have been at 3902.6 lei/ha and after profit method is 9720 lei/ha.

The soils from second class quality have following values: 5509.2 lei/ha after patrimony value and 11880 lei/ha for profit.

CONCLUSIONS

Evaluation land revealed that the land has the highest suitability for crops: barley, wheat, sunflower, soybean, peas and beans, followed by maize, sugar beet and potato.

Calcaric chernozem is falling in class - II quality arable with 66 points of evaluation and cambic phaeozems fall into class III quality arable with 58 points. The main limiting factor in land use in the area studied is the moisture deficit.

To assess the value of agricultural land in the village of Stefan cel Mare by two assessment methods patrimony value and evaluation of profit after falling in class III soil quality were assessed by patrimony value to 3902.6 lei/ha and profit from 9720 lei/ha. In soils II class quality following values was obtained: 5509.2 lei/ha after the value of assets and 11880 lei/ha for profit method.

Analyzing the two methods of evaluation we concluded that the evaluation method for profit is much closer to the value movement of land in the area studied.

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****Standardele internaționale de evaluare*. Ediția a VI-a și a VII-a, 2006-2007.