SOIL RESOURCES EVALUATION FOR ESTABLISHING PRODUCTION CAPACITY OF LANDS OF SC ALCRIST LLC DEVESELU, OLT COUNTY

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Abstract:*Information based on soil, environmental factors were established soil resources and productive capacity of the land of SC ALCRIST LLC Deveselu. The results of this work will be materialized in the thesis entitled Ecopedological foundamentation of cadastral value of agricultural land in the Olt, county. To achieve those objectives were investigated three fields, namely 73, 74, and 75 of the SC ALCRIST LLC Deveselu, opening two main sections, considered sufficient for the area studied, within which were collected soil samples pedogenetic horizons. The soil samples were labeled and transported to the Office of Soil and Agrochemical Studies Olt where they were analyzed according to national standards and approved by the Standards Association of Romania (ASRO). In the case of 2 profiles based on information from the land, but also on soil analyzes have identified one type of soil, Chernozem respectively, with subtype cambic. Productive capacity of lands was determined by the method of Romanian evaluation agricultural lands (D. Teaci et al., 1980), considering the conditions of relief, climate resources, hydrology, soil characteristics. Land evaluation under natural conditions was based on participation of ecological characterization indicators, setting the mark of evaluation by limiting factors.Characterization of climate resources has been achieved using data from the Meteorological Station Caracal. Weather data from Weather Station Caracal is between multiannual average isotherms of 11.1 to 12.0^0 C (11.70 C for 2010-2012, representing the period of doctoral research in schools and 11.4^0 C for the period 1980-2011). The precipitations regime is characterized by an average annual of 525 mm (504.5 mm to 523.0 mm for the period 2010-2012 and 1980-2011). For the category of arable, note the result of evaluation by calculating the arithmetic mean of evaluation notes for 8 crops namely: grain, barley, corn, sunflower, potato, sugarbeet, soybean, peas-beans. Characterizing the main soil profiles for the three fields the mark of evaluation for arable is 61, and crops: grain, corn and sunflower mark of evaluation is 65. Production achievable under natural conditions of climate (kg of product to the point of evaluation by D. Teaci et al., 1980) is 3900 kg / ha for grain, 5200 kg / ha for corn and 1950 kg /ha for sunflower. Technological sheets were prepared for crops of grain, corn and sunflower, according to the technology applied to every case. Following the application of advanced technology, productions were higher than anticipated.*

Key words: soil resources, land conditional evaluation, evaluation marks, technical sheets, estimated production, production obtained gross profit.

INTRODUCTION

Action of appreciation and then to determine the so-called quality of land resources (land) is as old as human activity and to produce goods needed for living with their use for this purpose.

Agriculture is the food provider that can guarantee the food security of the nation by generating raw materials for light industry and food and general impact of new landscapes.

Agricultural production and agrifood implicitly whose main means of production "land" (soil).

Regarded as any means of production, the variability of soil characteristics resulting from the use-value of material goods necessary for creating society.

Economic value of agricultural land is determined by quantitative evaluation is accurate natural characteristics of each portion of the land acquired from all points of view homogeneous (TEO), with a certain production capacity, bringing a net income if is used in a more or less corresponding.

MATERIALS AND METHODS

The paper discussed some the arable land characterize the SC ALCRIST LLC Deveselu, Olt county, or T73 (21 ha), T74 (48 ha) and T75 (43 ha), in order to develop ecopedological land value for agricultural land in the county of Olt.

Research has had the following objectives: establishing soil resources, quality classes in marks of evaluation, technological preparation of production sheets obtained production costs, revenue and gross profit.

Soil samples were taken were analyzed in the Office of Olt Pedological and Agrochemical Studies, with full support specialists in this office.

Administrative territory of the society is located in the southern central Olt county approx. 10 km south of the city of Caracal.

Of physico-geographical agriculture Society becomes is located in the central southern Caracal Plain.

In terms of great Caracal Plain lithologic uniformity: sedimentary layer medium consists of loess loess deposits predominating, as these deposits are layers of sand mixed medium and coarse dusty loess to base.

In terms River, the studied area (although it is relatively far from the Olt River) Olt basin belongs right in territory not permanent rivers, valleys only temporary streams (creek Pîrliţi, valea lui Gheorghiţă, valea lui Pătru Voinea).

To characterize climatic resources were used from the meteorological station data Caracal.

Weather data from Meteorological Station Caracal is between average annual isotherms of 11.1 to 12.0^0 C (11.7^0 C for 2010-2012, representing the period of doctoral research in schools and 11.4^0 C for the period 1980-2011).

The precipitations regime is characterized by an average annual of 525 mm (504.5 mm to 523.0 mm for the period 2010-2012 and 1980-2011).

The groundwater is at a depth of over 10 m.

Loees parent material consists of loess and carbonate and subjacent rock is the eubazice silicate carbonate rocks.

Simplified granulometric of materials parental classes according to the indicator 22 of MEST/87 are:

- middling material is encountered No.6 profile;
- middling-fine material is encountered No.10 profile.

RESULTS AND DISCUSSION

On land SC ALCRIST LLC Deveselu opened two soil profiles (profile No. 6 for T73 and 74 and profile no. 10 for T75) soil samples were collected pedogenetic horizons.

Following the research in the field and laboratory have identified a single soil type, subtype or cambic chernozem, characteristic of both soil profiles.

Profile no.6, undifferentiated loam soil texture on the profile (photo 1).

Profile no. 10, loam soil texture in the upper horizon and clayish in the control split.

Photo 1 Cambic chernozem at Deveselu, Olt County (original)

Establishing productive capacity of land for one species cultivated or spontaneous with mathematical functions can be used in the rational use of soils.

Method of evaluation of land provides evidence about the quality of land as a means of production in relation to each type of land use for each type of culture in part.

Evaluation marks (Table 2) resulting from participation of evaluation indicators (Table 1): mean annual temperature - corrected values (11.5-extremely high), average annual rainfall - values corrected (0525-submijlocii), textured AP (41 sandy-clay-loam and loam 42), slope (01-horizontal) groundwater depth (15.0-very high), total porosity (+05- -05-netasat and poorly compacted) soil reaction (5,2-moderately acid), base saturation degree (65-mesobasic), volume edaphic (175-excessive) supply of humus (140-medium).

Table 1

Table legend of indicators values

Tarla	Type/ subtype	3C	4C	14	15	16	17	23A	23B	29	33	34	38	39	40	44	50	61	63	69	133	144	181	271
73,74	CZcb	11,5	525	0	0	00	00	41	41	02	01	0	00	15	0	-5	0,0	0	5,2	65	175	140	1	00
75	CZcb	11,5	525	0	0	00	00	42	51	02	01	0	00	15	0	5	0,0	0	5,2	65	175	140	1	00

Table 2

Evaluation marks

Tarla	Type/Subtype	PS	FN	LP	VN	GR	OR	PB	FS	CT	SF	SO	MF	AR
73,74, 75	CZ cb	64	50	68	80	65	65	65	65	46	58	58	65	61

Comparing ecological conditions (climate and soil) investigated the land with ecological requirements of crops of interest, results of evaluation class eco quantitative

expression it is possible to obtain production per hectare under normal climate and technology to the optimal extent (Table 3).

Table 3

Production per hectare possible to obtain under normal climate
(Kg of product at point of evaluation after Teaci D. and collab., 1980)

No. tarla	Culture	Class	Marks	Kg / point	Productive potential Kg / ha
73, 74, 75	Grain	II	65	60	3.900
73, 74, 75	Corn	II	65	80	5.200
73, 74, 75	Sunflower	II	65	30	1.950

For agricultural crops land class group favorability was grouping evaluation marks from 10 to 10 points, resulting in a total of 10 classes of evaluation, denoted by roman numbers IX (first digit of best class) and grade IV to note 65 for wheat, corn, sunflower (map 1).

Technological sheets were prepared cultures of grain, corn and sunflower as applied technology for each case.

Of productions achieved information, applied technology, costs were obtained from Mr. Vincent Cremeneanu engineer, manager SC ALCRIST LLC Deveselu.

From an economic perspective, the farm was pursued gross profit (of exploitation profit) achieved by capitalizing production.

According to sheets obtained production technology (Fig. 1) were higher than those estimated: 5500 Kg compared to 3900 Kg of grain (T 73 and 74), 5300 Kg compared to 3900 Kg of grain (T 75) for 2010, 7000 kg compared to 5200 kg corn (T 73 and 74), 6000 kg compared to 5200 kg in 2011, while sunflower yields obtained were lower than those estimated: 1900 kg compared to 1950 kg (T 73 and 74) , 1700 Kg compared to 1950 Kg for 2012.

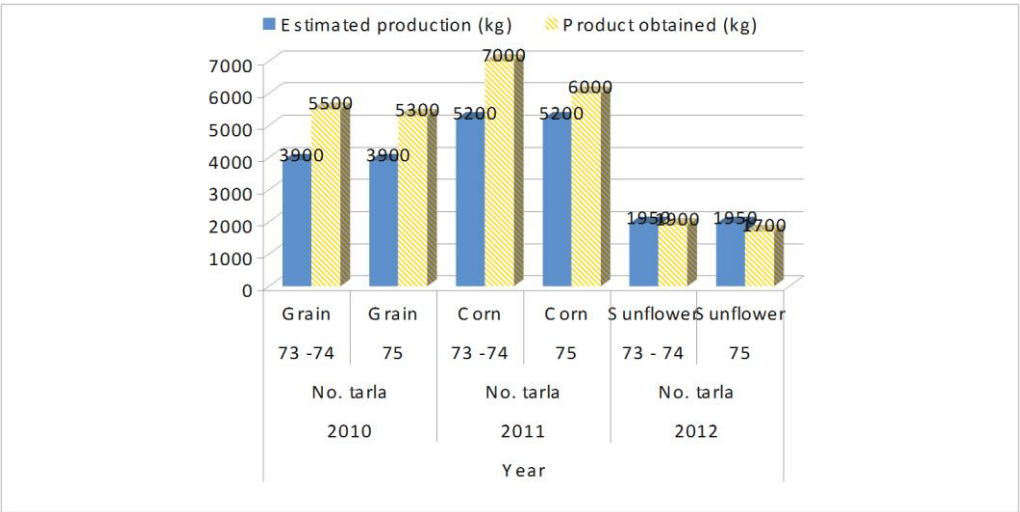
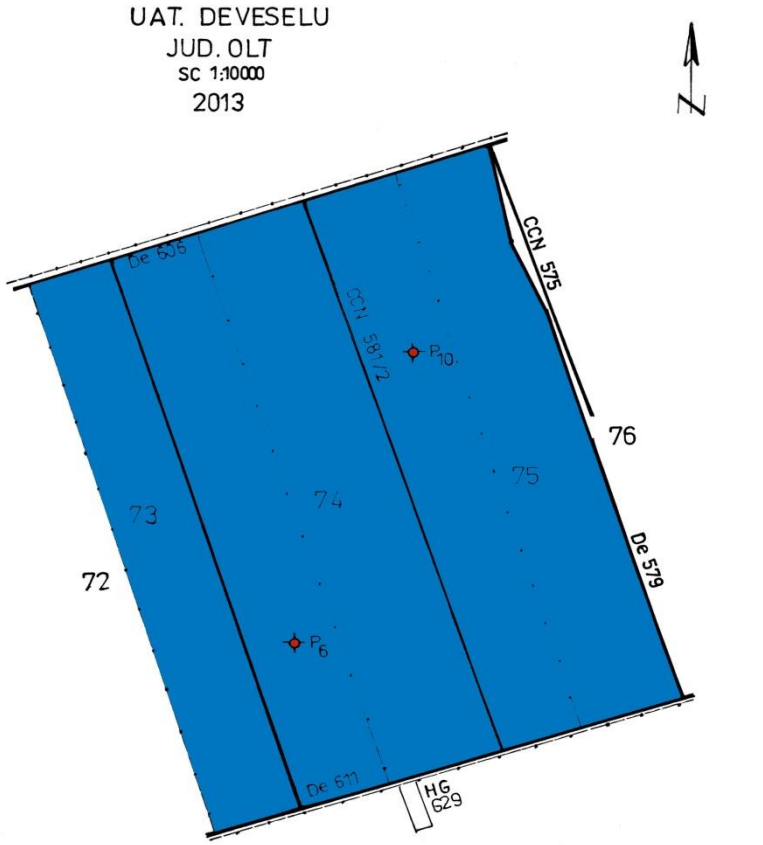


Fig. 1 Comparison between estimated production and obtained the SC ALCRIST LLC 2010-2012 Deveselu



Clasa de favorabilitate pentru GRÂU, PORUMB și FLOAREA SOARELUI

Clasa	Nr. UT	Nota
IV	73, 74	65
IV	75	65

HARTA TEO
UAT. DEVESELU
Sursa : SC. ALCRIST SRL
DEVESELU

Map 1. Class of favorability for grain, corn and sunflower

For the year 2012 the estimated production obtained compared to sunflower were smaller because in the summer the amount of precipitation was very low in against the requirements of agriculture.

Also on technological sheets found that gross profit was higher for corn crops, 5314 RON (T73, 74) and 4314 RON (T75) for 2011, while grain gross profit was 1437 RON (T73, 74) and 1319 RON (T75) for 2010, while the gross profit sunflower was 1132 RON (T73, 74) and 772 RON (T75) for 2012.

CONCLUSIONS

Soil type identified in study area is represented by Chernozem.

The land area is investigated in class II quality arable (T 73, 74, 75) with mark 61.

Regarding the yields obtained, they were higher than those estimated for grain (2010) and corn (2011), and in terms of sunflower (2012) production obtained here there is a lower than estimated.

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