AGRICULTURAL SOIL PRODUCTIVITY IN FOENI, TIMIS COUNTY

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Abstract

The basic problems of Banat agriculture, as well as that of Romania or everywhere else, are related to the increase of agricultural production and the increase of soil fertility. Maximizing the maximum capacity of the beneficiary's agricultural area requires a thorough knowledge of the natural conditions and, first of all, of the soil, as a means of production in agriculture, which synthesizes, through their properties, the influence of all natural and anthropogenic factors.

In this context, I proposed to review the main natural factors that compete for the good development of agricultural activities, of plant production in particular, with special reference to the soil, this huge "plant" for the transformation of energy and substances from the environment into plant biomass.

In the complex of measures intended for the intensive development of agriculture, an important place belongs to the rational use of the available land fund of the society within the Foeni locality. But as the possibilities for expanding agricultural land are limited, a judicious use of them and a permanent increase in soil fertility is required

Key words: *Land use category, quality class.*

MATERIALS AND METHODS

The materials were obtained by carrying out a soil profile respecting the current requirements with description according to SRTS 2014. Some data were provided by OSPA Alba by official request from the institution in question. Samples collected in the field were analyzed at the same institution as well as in the laboratories of the Faculty of Agriculture in Timisoara.

RESULTS AND DISCUSSIONS

With the massive deforestation of the forests followed by the execution of large hydro-technical works, flood defenses, drainage and drainage of the entire plain, but especially in the area of the research, a pronounced character of forest-steppe and even steppe proper began to manifest itself, marking the beginning of the second stage of the period of formation of the chernozemic soils: the stage of progradation (regradation) of soils that is still ongoing.

The soil horizons formed and evolved within the investigated territory, as a result of the interaction over time of the pedogenetic processes mentioned above, are briefly presented in graphical form:

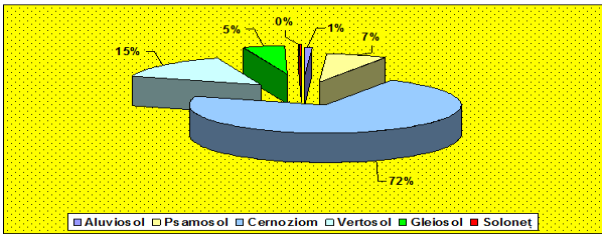

Figure. 1 Soil types in Foeni (%)

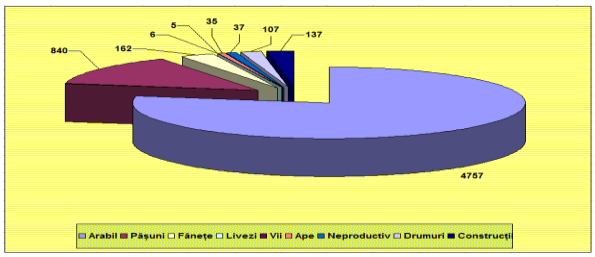

Figure. 2 Land use in Foeni (Ha)

Table 1

AGROCHEMICAL ANALYSIS FOLLOWING SOIL SAMPLING

AGROCHEMICAL SHEET						
Plot	Surface	pH	P	K	IN	H
A 449	42,72	7,32	20,0	145,0	1,9	2
A 452	33,67	6,26	19,4	168,0	2,05	2,43
A 457	58,88	7,43	19,0	190,0	2,12	2,21
A 466	49,40	7,30	25,6	147,0	1,84	1,94
A 470	12,42	8,38	26,5	255,0	1,94	1,94
A 471	17,74	7,08	41,8	221,0	1,65	1,79
A 474	10,28	7,14	99,9	204,0	2,04	2,21
A 581	9,05	7,55	33,2	191	1,91	1,97
A 590	31,93	6,5	24,76	209	1,22	1,41
A 595	51,25	6,86	19,87	142	3,37	3,74
A 600	40,59	6,8	33,46	193	0,93	1,04
A 605	40,16	6,33	37,11	229	2,24	2,65
A 612	60,06	6,64	33,3	168,0	1,99	2,29
A 817	31,24	8,24	26,3	240	3,28	3,28
A 821	28,08	7,82	31,76	177	2,26	2,3
A 826	32,65	7,09	29,17	140	1,58	1,71
SURFACE	588,55	7,08	27,9	177	2,06	2,2

Table 2

WEIGHTED AVERAGES OF THE ANALYSES
Soil reaction (pH in Ap or 0-20 cm)

Surface	%	REACTION (pH) IN AQUEOUS SUSPENSION											
		Acid						Neutral		Alkaline			
		Strong		Moderate		Weak				Weak		Moderate, strong	
		sub 5,00		5,01-5,80		5,81-6,80		6,81-7,20		7,21-8,40		peste 8,40	
		ha	%	ha	%	ha	%	ha	%	ha	%	ha	%
588.55	100	-	-	-	-	206.40	35.07	129.44	21.99	252.71	42.94	-	-

Table 3

PROVIDING SOILS WITH HUMUS (% H in Ap or 0-20 cm)

Surface	%	Of which (according to texture)									
		very weak		weak		medium		good		very good	
		under 1,0		1,1-2,0		2,1-3,0		3,1-4,0		over 4,0	
		ha	%	ha	%	ha	%	ha	%	ha	%
588.55	100	-	-	257.28	43.71	231.12	39.27	100.15	17.02	-	-

Table 4

AZOT SODIUM SOLUBLE GROUNDING (by IN in Ap or 0-20 cm)

Surface	%	Of which									
		very weak		weak		medium		good		very good	
		under 1,0		1,1-2,0		2,1-3,0		3,1-4,0		over 4,0	
		ha	%	ha	%	ha	%	ha	%	ha	%
588.55	100	58.11	9.87	259.23	44.04	171.06	29.06	100.15	17.02	-	-

Table 5

SOIL MOBILE PHOSPHORUS CONTENT (Pppm in Ap or 0-20 cm)

Surface	%	Of which									
		very weak		weak		medium		good		very good	
		under 8,0		8,1-18,0		18,1-36,0		36,1-72,0		over 72,0	
		ha	%	ha	%	ha	%	ha	%	ha	%
588.55	100	-	-	-	-	520.38	88.42	57.90	9.84	10.28	1.75

Table 6

SUPPLYING SOILS WITH MOBILE POTASSIUM (Kppm in Ap or 0-20 cm)

Surface	%	Of which							
		very weak		weak		medium		good	
		under 66,0		66,1-132,0		132,1-200,0		over 200,0	
		ha	%	ha	%	ha	%	ha	%
588.55	100	-	-	17.52	2.97	427.27	72.60	143.77	24.43

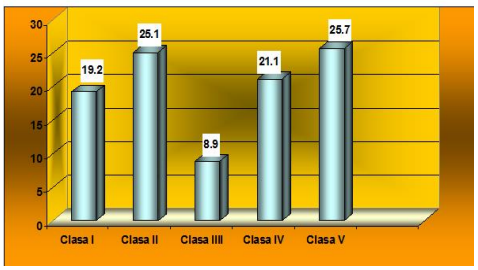

Figure. 3 Use category of arable land in Foeni (%)

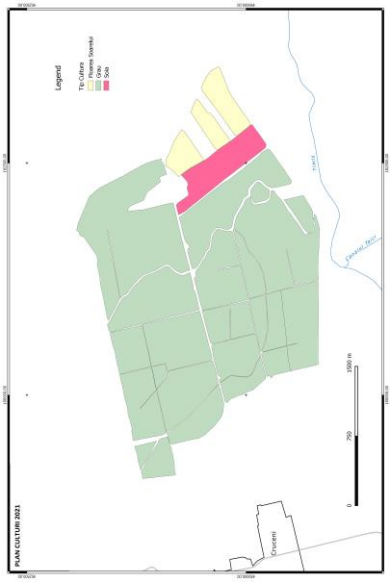

Figure. 4 Crop planning in Foeni (2021)

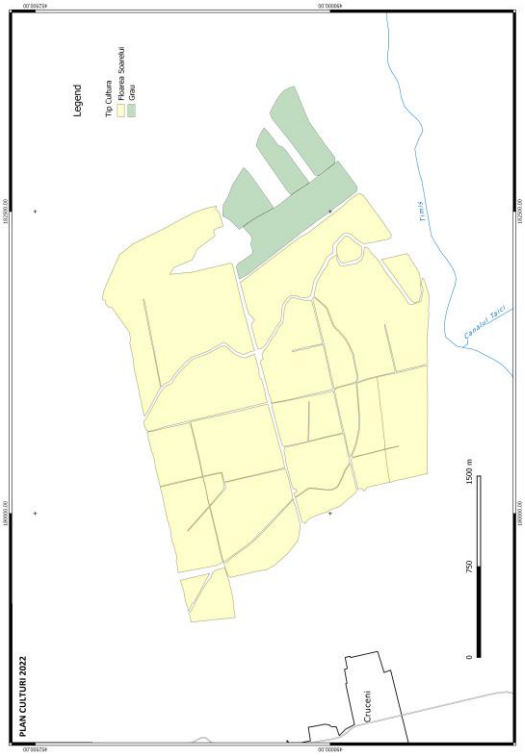

Figure. 5 Sunflower and wheat crops in Foeni (2022)

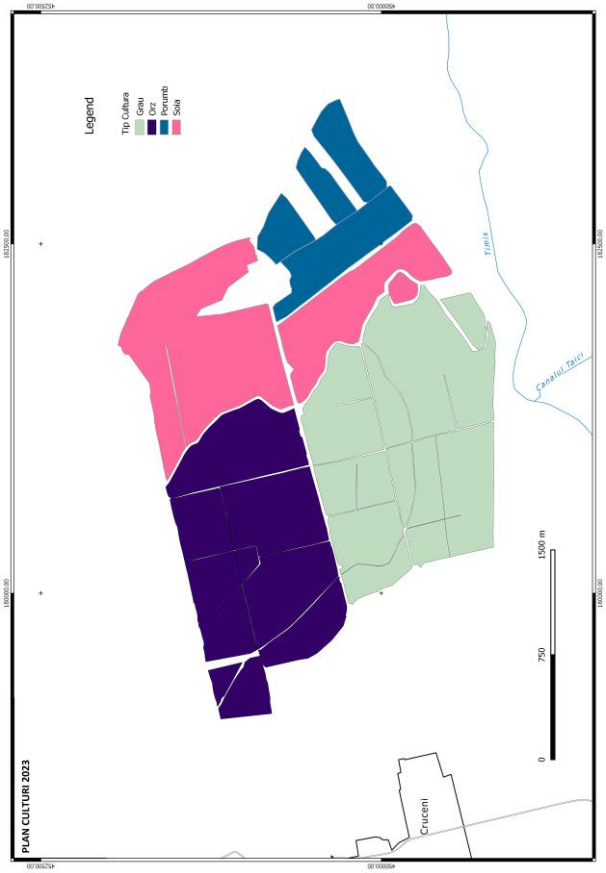

Figure. 6 Crop types for the 2023 agricultural year in Foeni

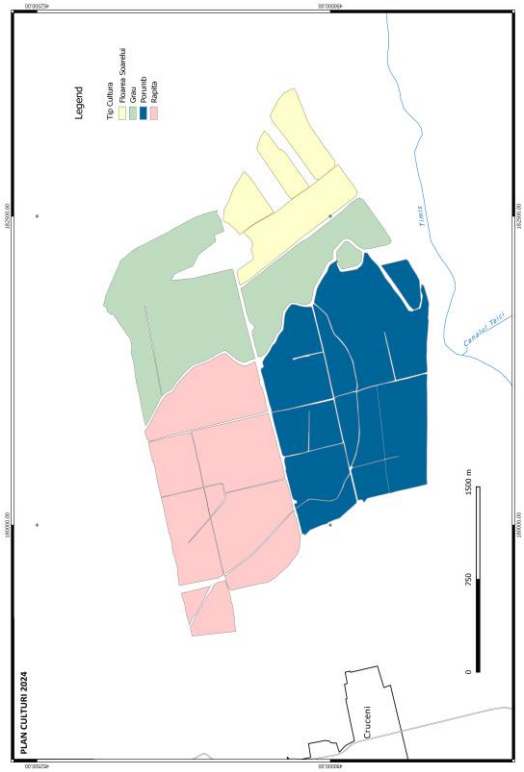

Figure. 7 Foeni crops for the 2024 agricultural year

THE PREDOMINANT SOILS AND THEIR QUALITY

CALCIC CHERNOZEMS. Localy with salinization and alkalization, weakly carbonate on coarse sand deposits. Relief, low plain with groundwater at 3-4 m. Soil reaction 7.3-8.4

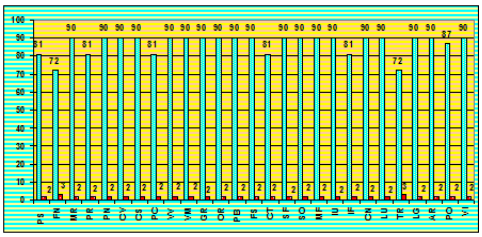

Figure. 8 Class of quality to the typical cernoziom of the Foieni

HAPLIC GLEYOSOLS. Low carbon content, on medium fluviolacustrine deposits. Situated in devagation plain, water table 0.5-1.5 m. Humus 185- 220 t/ha.

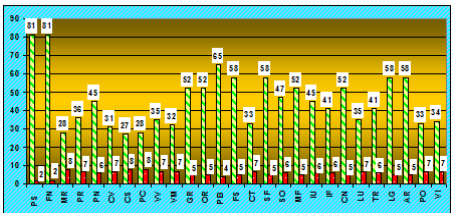

Figure.9 Class of quality to the haplic gleysols of the Foieni

PELLIC VERTISOLS. Weakly carbonate-supplemented at the lower level, with medium bistratification, medium lutoargylose. Situated on low plains, with gilgai relief. Water table at 1.5-2.5 m. Low porosity 42-48%, humus in the first 50 cm 250-280 t/ha. Drainage changed by desiccation works excess surface moisture has moderate compaction.

MOLLIC FLUVISOLS. Semicarbonatic, medium clay loamy. It is lowland with microdepressional areas with groundwater at 1.5-2 m. Low porosity and poor subsidence. Humus in Ap 2-4%.

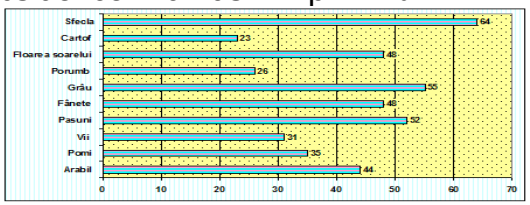

Figure.9 Class of quality to the haplic gleysols of the Foieni

CONCLUSIONS

Situated in the south-west of Timis County, on the DJ 593, Foeni, the residence of the commune of the same name, is 42.1 km from Timisoara and 39.9 km from Deta. Foeni covers an area of 6425 ha, of which 5804 ha is agricultural land. Foeni and Cruceni are included in the administrative boundaries of the commune.

The study has been carried out on a surface of 588,55 ha following the Methodology in force and the following can be exposed:

- to properly maintain the drainage and irrigation canals,
- management of both natural and chemical fertilizers as required,
- avoid soil compaction and subsidence,
- correct soil acidity and avoid soil depletion by appropriate works,
- avoid the likelihood of chlorosis caused by Fe and Mn,
- annual tillage work.

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