THE AGRICULTURAL SYSTEM IN THE DOROBANȚI COMUNE, ARAD COUNTY

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Abstract *: Since ancient times, agriculture has been a vital area of human activity. It is the only source of food, but also a major supplier of raw materials, both for industry and market. Human evolution leads to the creation of optimal conditions for the development of the agricultural sector and it becomes a fundamental activity that will increase the local economy. The man begins to get his own food, while modernizing agriculture. (ARDELEAN V., ZĂVOIANU I., 1979, BORCEAN I, 1996) Agricultural development is the result of the changes stimulated by demographic pressure aimed at increasing agricultural production to ensure the basic food needs for a much larger population than the one currently existing. Dorobanți is located in the Western Romanian Plain, namely in its central part. The structure of the plain was formed over the crystalline foundation of the Pannonia Depression. The perimeter presented, although located in a plain, has various morphological differences, which has led to the fragmentation of the territory into three geomorphological subunits. These subunits are represented by the Comlăuș Plain, the Macea Plain and the Turnul Iratoş Plain. (COSTE I, 1986) The Comlăuș Plain is a small area located east from and at about 1.5 km from the territory of Curtici and south from the Curtici-Sântana county road. The Macea Plain: from under the loessoid materials with low thicknesses come out the sands that cover a wide strip about 2.5 km wide oriented towards NW – SE. The Turnul Iratoş Plain: over the sands existing at the end of the Quaternary, the beginning of the Halocene, there were loessoid deposits of relatively small thicknesses of 2.0 m similar to those of Banat at Biled Bulgaruş Lovrin. From a geological point of view, nature is of particular importance, showing the physical and chemical properties of the parental materials of the soils. In the Comlăuș Plain to date appear loessoid deposits of fine medium texture, reshaped, rich in carbonates. In the Macea-Curtici Plain, Zimand, the soils formed on sands. The texture of soils formed in some interdunes is medium (medium clay), or medium and fine sandy clay. (IANOȘ G, 199,* IOAN OANCEA, 2005*) On dune ridges, coarse fractions show higher values. To the west of the area occupied by the sands, namely the Macea-Curtici Plain, Zimand-Cicir, in the studied perimeter, over the sands, at the end of the Quaternary, the beginning of the Halocene, the loessoid materials were deposited. Their thickness is small and does not exceed 1.5 to 3.0 m< much of them have been reshaped. The territory under investigation is characterized by a moderate continental temperate climate with shorter and milder winters with a certain circulation of air masses of various types, circulation marked either by centres of action of dynamic origin (Azores and subtropical anticyclone), or seasonal thermal action centres (Siberian anticyclone, Asian or Mediterranean depression).*

Keywords: *Dorobanți, crops, cereals, agriculture agricultural systems,*

INTRODUCTION

The field dealing with the production of animal and vegetable food, fibre and various useful materials is called agriculture. This area concerns the systematic cultivation of certain plants and the rearing of animals. (MUGUR BOGDAN, 2008, MANEA D.N, 2013)

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Agriculture is a main branch of the national economy, both in less developed and developed countries. Experience in recent years shows that agriculture contributes to the

growth of the world economy. Agriculture in Romania is a basic field compared to the natural resources of the country (oil, coal, ores, etc.) that are exhausted as they are exploited.

Natural factors including climate, humidity and light play a very important role in this area, as they provide optimal conditions for the growth and development of crops. Technical factors play an important role in increasing production through mechanization, chemistry, irrigation, etc. Social and economic factors increase the capacity and readiness of the workforce to develop this branch of the economy. (MANEA DAN, 2015, DAN MANEA, 2016)

Agricultural development is the result of the changes stimulated by demographic pressure aimed at increasing agricultural production to ensure the basic food needs for a much larger population than the one currently existing. The perimeter of Dorobanți is located in the relief unit called the Western Plain, namely in its central part. This plain formed over the crystalline foundation of the Pannonia Depression. The clogging of the Pannonia Lake caused the waters to withdraw.

The process was carried out gradually: the proof is the relief steps resulting from these phenomena. Based on field study, office study, and soil map processing, with the information we have collected, the map and the legend of soils and land comprising a number of 6 types and 11 soil subtypes was developed as follows: (NIȚĂ S, 2015, NITA S, 2015)

1. Dark soils-typical (ti), calcium (ka), cambic (cb), salinic (sc), salsodic (ss), gleic (gc), calcium-salinic (ka-sc), calcium-gleic (ka-gc), cambic-gleic (cb-gc), cambic-vertic (cb-vs), green (vs-gc), vertic-gleic-salinic (vs-gc-sc), gleic-stagnic (gc-st), gleic-salinic (gc-sc), gleic-salinic-alkalic (gc-sc-ac), salinic-alkalic (sc-ac). This type of soil covers an area of 4,548.67 ha.
2. Phaeozioms-cambic (cb), gleic(gc), cambic-gleic (cb-gc). This type of soil covers an area of 192.92 ha.
3. Eutricambosols-typical (ti), molic (mo), limey (ca), molic-gleic (mo-gc), vertic-gleic (vs-gc). This type of soil covers an area of 578.58 ha.
4. Vertosols-gleic (gc), stagnic-gleic (st-gc), gleic-salinic-alkalic (gc-sc-ac). This type of soil covers an area of 239.12 ha.
5. Pelosols-gleic (gc), salinic (sc), vertic-gleic-salinic (vs-gc-sc), gleic-salinic (gc-sc), salinic-alkalic (gc-sc-ac), gleic-stagnic-salinic (gc-st-sc). This type of soil covers an area of 868.78 ha.
6. Antrosols-aric (ad). This type of soil covers an area of 6.92 ha.

MATERIAL AND METHODS

For the elaboration of this paper, data resulting from own observations were used, data from the Romanian Statistical Directory, from M.A.D.R. and I.N.S.S.E and from the Secusigiu locality mayor hall. The agricultural production manifested very diverse specific dynamics, from a sector point of view (vegetal and animal), as well as from a regional point of view, depending on the diversity of agri-climatic usability conditions, as well as the production factor usage degree. (ARDELEAN V., ZĂVOIANU I., 1979, BORCEAN I, 1996)

RESULTS AND DISCUSSIONS

In Table 1, it can be seen that the area cultivated with wheat is 55.4 ha, decreasing in 2019 by 5.08 ha, compared to the area cultivated with maize in 2017, when an area of 105.3 ha was recorded, while in 2019, the area expanded to 125.29 ha.

Table 1

Cultivated area (ha) of wheat and maize crops in 2018-2019

Crops	Area (ha)	
	2018	**2019**
Wheat	55.4	50.32
Maize	105.3	125.29
TOTAL	**160.7**	**175.61**

Table 2 shows the production of wheat and maize in 2018-2019. Wheat yield was 3,614 t/ha in 2018, falling by 0,832 t in 2019 to a production of 2,782 t/ha. Maize yielded 9,129 t/ha in 2018, compared to 2019, when production increased by 3,212 t, reaching 12,341 t/ha.

Table 2

Productions (t) in wheat and maize in 2018-2019

Crops	Mean yields (t)	
	2018	**2019**
Wheat	3.614	2.782
Maize	9.129	12.341
TOTAL	**12,743**	**15,123**

Table 3 shows the areas cultivated in 2018-2019 with sunflower, barley, and soybean, when sunflower was the only crop grown, with an area of 31.42 ha in 2018, falling considerably in 2019 by 14.83 ha, thus reaching an area of 16.59 ha.

Table 3

Areas (ha) cultivated in 2018-2019 with sunflower

Crops	Cultivated area (ha)	
	2018	2019
Sunflower	31.42	16.59
Barley	-	-
Soy	-	-
TOTAL	**31.42**	**16.59**

The above table shows the production situation in sunflower, barley and soybean crops. As the sunflower was the only plant grown, there were productions of 3.35 t/ha in 2018, compared to 2019 where production increased by 0.2 t, reaching a production of 3.55 t/ha.

Table 4.

Yields obtained (t) in sunflower cultivation in 2018-2019

Crops	Mean yield (t/ha)	
	2018	2019
Sunflower	3.35	3.55
Barley	-	-
Soy	-	-
TOTAL	**3.35**	**3.55**

CONCLUSIONS

- Cultivated areas oscillate from year to year, decreasing in some crops and increasing in others.
- Production is very low in relation to the area under cultivation, with the highest production being recorded in maize.
- It is necessary to monitor the evolution of crops and replace them with crops that are suitable for the area.

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