

SPATIAL DISPARITIES IN AGRICULTURAL LAND USE IN THE REPUBLIC OF MOLDOVA

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ABSTRACT - Agricultural land is the main land use category in the Republic of Moldova. Agricultural land was 74,5% of the surface of the republic on January 1st 2005. The dominance of agricultural landscape has been a reality on this territory since the beginning of the nineteenth century.

During the latest 15 years, agricultural land has been dwindling (by 44.4 ha per year). During the latest 5 years this rhythm has become more stable (about 2.543-2.520 ha).

From the spatial point of view, the structure of land is relatively homogenous. Agricultural land represents the main land use category in most of the villages. At the beginning of 2005, agricultural land varied between 47.9 % (Strășeni Department) and 87.4% (Drochia Department).

Territorial differentiations in land use are caused by the variety of natural conditions (particularly, the morphological conditions and, partially, the soil and climatic conditions) as well as the population factor.

Key words: Republic of Moldova, land use, land, arable lands.

INTRODUCTION

Agricultural land is the main category of land use in the Republic of Moldova, as in 1.1.2005 it had 74.5% of the total surface. According to this indicator, the Republic of Moldova was among the first in the world. The dominance of the agricultural landscape was a reality since the beginning of the 19th century.

THE EVOLUTION DURING THE LAST 200 YEARS

During the 19th century the agricultural land surface changed significantly: it had 90.4% of the total surface in 1900.

Substantial changes appeared in agricultural land use (table 1). At the beginning of the 19th century the agricultural land consisted mostly of grass land and hay fields, later on, the percentage of arable land increased. The latter, together with the hayfields, occupied 70.1% of the total surface of land and 78.0% of the agricultural land in the 1850s [1, p.172].

Table 1. Land structure evolution and agricultural land structure evolution in Basarabia

Land category	The 1850's		1900		1925		1940	
	thousands ha	%						
Total:	3599.6	100.0	3449.0	100.0	4442.2	100.0	4442.2	100.0
1. Agricultural land	3234.4	89.9	3117.9	90.4	3488.8	78.5	3671.6	82.6
- arable land	-	-	2320.0	67.3	2887.2	65.0	3163.0	71.2
- grass land and hay fields	-	-	596.5	17.3	442.5	10.0	374.5	8.4
- perennial plantations	-	-	108.9	3.2	159.1	3.5	134.2	3.0

Sources: Materialy dlia gheografii i statistiki..., 1862; N. Moghileanski, 1913; Ion Agrigoroaie, etc., 1993

The arable land extension in the second half of the 19th century was determined by significant request for cereals on the European market, by extensive animal breeding, by population density increase, and it was obtained by clearing the pastures and the woods [2, p.138].

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The soviet and the post war period

During the inter-war period, the agricultural land surface decreased a little, down to 87.1%, in 1940. However, they modified the agricultural land structure. They reduced the arable land surface, while the vineyards and the fruit trees surface remained the same (about 3% of the total land surface). The grass land and hay field surface decreased down to 8.4% in 1940. Thus, the inter-war period was also characterised by the clearing of grass land and then transformed into arable land [3, p. 115].

During the Soviet period, both the dimension and the structure of the land were affected. The agricultural land constantly decreased both as surface and percentage. This process was determined by the extension of forested areas, of settlements (due to rapid population increase), of artificial lakes, and of the land for industry and for transport, etc.

This phenomenon of agricultural land, forest, and water surface decrease was beneficial for the natural environment in the Republic of Moldova as it contributed to a rational ecological balance.

The post-war period saw the change of agricultural land structure. After its total integration into the economy of the Soviet Union, the following branches became specialized: viticulture, fruit tree cultivation, truck farming, and tobacco growing, etc. That was why, later on, the multi-annual plantations increased and the arable land and grass land decreased.

The arable land surface decreased each year, both in size and percentage, down to minimum values in 1993 – 1,735.6 thousands ha and down to 51.3% of the total land surface, despite its position as the main land use category. Most of the arable land was used for perennial cultures and partially turned to other land use categories (forests, buildings, pastures, etc.).

Table 2. *Agricultural land structure evolution in the Republic of Moldova*

Year	Agricultural land		Arable land		Multi-annual plantations		Grass land and hay fields	
	thousands ha	%	thousands ha	%	thousands ha	%	thousands ha	%
1950	2843.0	100.0	2124.0	74.7	177.0	6.2	542.0	19.1
1960	2763.5	100.0	1939.7	70.2	385.6	13.9	438.2	15.9
1970	2694.0	100.0	1911.0	70.9	418.0	15.5	365.0	13.6
1981	2604.5	100.0	1835.5	70.5	470.8	18.1	298.2	11.5
1990	2566.0	100.0	1739.4	67.8	470.6	18.3	356.0	13.9
2005	2521.6	100.0	1845.3	73.2	297.8	11.8	378.4	15.0

Source: calculated according to the data in the General Real Estate Register of the Republic of Moldova..., (1950-2005)

In this time the multi-annual plantations increased rapidly up to a maximum of 474.8 thousands ha or 18.5% out of the agricultural land in 1992, followed by a decrease. During the last 15 years, because of the general economic crisis, the multi-annual plantation surface decreased down to 2,97.8 thousands ha or 11.8% [6, p. 82].

Similarly the grass lands and hay fields surface decreased from 19.1% down to 9.2% [7, p. 120]. Most of the grass lands were cleared and cultivated and some of them had non-agricultural use. At the same time, the hay fields almost disappeared (their surface was low in the past, too): Their area decreased from 64 thousands ha in 1950 down to only 2.9 thousands ha in 1993. The decrease in the grass land surface was caused by their transformation to intensive agricultural land in the case of the low fertility slope areas. The river meadows and the bogs were transformed into agricultural land. Still, the clearing of grass land had a negative impact on the environment as land where the slope was significant and the erosion favoured was turned to cultivation and thus erosion and landslides appeared and eroded land increased as a consequence.

During the last 15 years, the agricultural land surface decreased (with 44.4 thousands ha), and, in the last five years, their cover remained 2,543-2,520 thousands ha. Nevertheless, the Republic of Moldova had a very high agricultural land use degree as this type had about 74.5% of the total surface on the 1st of January 2005 [4, p.6]. According to the agricultural land percentage of the total surface, the Republic of

Moldova was among the first five states in the world in 2000, the value of the indicator being double in comparison to the world average of 38% [5].

THE RECENT CHANGES

It was significant that from 1992 on, the agricultural land structure evolution underwent several changes that were in opposition to the trends during the five post-war decades. While the area and the percentage of arable land and grass land increased, the area of multi-annual plantations decreased. Thus, between 1812 and 2005, the degree of insurance of the population regarding agricultural land in the Republic of Moldova decreased about 5.6 times while the human pressure on this land category increased proportionally. In 2005, there was an average of 0.63 ha agricultural land per person, which however registered important spatial disparities.

Spatially, the land structure was quite homogenous as the agricultural land is the main land use category in most of the communes (figure 1). At the beginning of 2005, the agricultural land percentage varied between 47.9% in Strășeni Department and 87.4% in Drochia Department. In five of the 37 departments, the agricultural land exceeded 80% of the total surface and in 20 departments it exceeded 70% [4].

The land use spatial disparities were caused by natural conditions (especially the morphological ones and partially the soil and climatic factors) and by population density.

A higher agricultural use degree was characteristic for the very high agro-productive natural regions such as: the Cubolta Hilly Plain, the North Moldavia Tableland, the Lower Nistru Plain, the Lower Prut Plain, the Cahul Plain, the Upper Hadjider Plain, and the Ialpug Depression. These landforms were characterized by a low degree of fragmentation (the horizontal lands were between 33% and 52% of the total area) and by high reliability for most of the agricultural crops (between 70 and 81 baluri) [8, p. 29-36, 55]. The agricultural land percentage of the total area was higher in the Northern Economic Region (from 52.3% in Bălți City up to 87.4% Drochia Department) and in the Southern Economic Region (from 75.2% in Cantemir Department up to 82.2% in Taraclia Department) [4].

In what the agricultural land frequency was concerned, the Cubolta Hilly Plain stood out as there the agricultural land exceeded 90% of the total commune surface (e.g. there were eight such communes in Drochia and Râșcani Departments). The maximum values for the Republic of Moldavia were characteristic of the following communes: Popeștii de Sus (Drochia Department) – 93.2%, Vinogradovca (in the territorial unit on the left of the Nistru River), Pelinia (Râșcani Department) – 92.4%, Mălăiești (in the territorial unit on the left of the Nistru River) and Mihăileni (Râșcani Department) – 92.2% each, Pârlita (Glodeni Department) 92.1%, Băhrinești (Florești Department) – 92.0%. Summing up, in the Republic of Moldova, in 43 communes (4.4% of the total number) the agricultural land was over 90% (most of these communes were in the Cubolta Hilly Plain); in 165 communes (16.8%) the percentage varied between 85 and 90%, and in other 194 communes (19.7%) the percentage was between 80 and 85%. Approximately 58.7% communes exceeded the agricultural land average of the republic (74.5%).

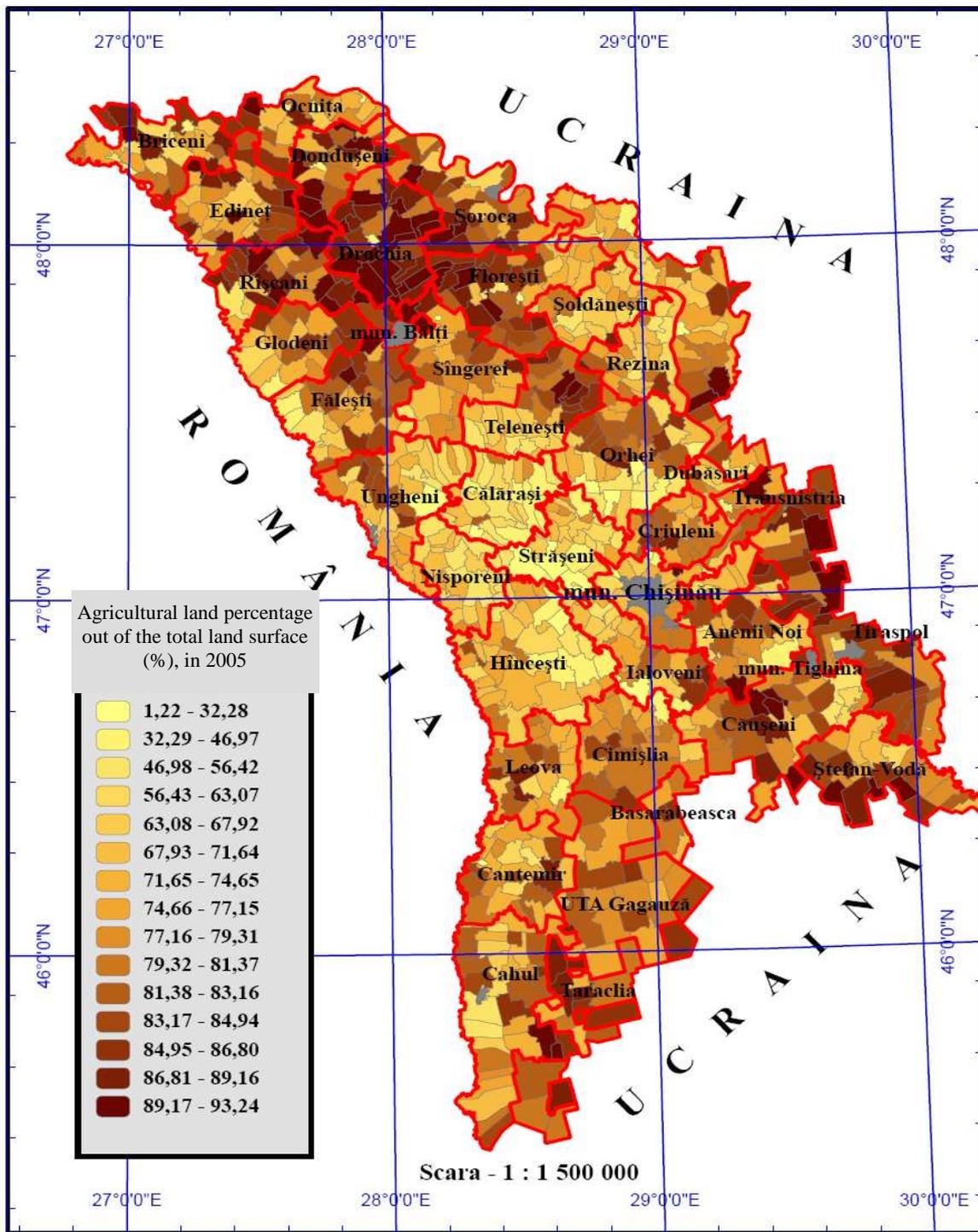
In the Central Region, the agricultural land was not so well represented in comparison to the above mentioned ones, especially in the departments of the Codri Tableland. Because of the highly fragmented relief and of the modelling processes impact, the Codri Tableland had the lowest agricultural use degree, varying from 48.2% in Strășeni Department up to 75.2% in Criuleni Department. The minimum values in the Republic of Moldova among the rural communes were those in the following: Căpriană (Strășeni Department), where the agricultural land had only 15.4% of the total surface as the area was a forested one (77.9%). In the nearby departments, the agricultural land percentage was higher (74.5% -75.8%) [2].

The agricultural land structure was characterized by significant disparities.

The arable land was the main use category in most of the communes – 95.5% of the total number, while in 64.7% the arable land exceeded 50% of the total surface. Only in 16 communes the multi-annual plantations percentage exceeded the arable land percentage, while in 28 communes the non-agricultural use predominates (especially woods) [4]. In the North Moldavia Tableland, in the Cubolta Hilly Plain and in the Lower Nistru Plain, the percentage of arable land was significant. In these units, the land was not so fragmented, the soil was fertile and people cultivated mainly annual crops.

The multi-annual plantations were characterized by a spatial distribution that was in opposition to the arable land one: they were better represented in the fragmented regions (the Codri Tableland – between

15 and 20% and in the Tigheciu Hills – 10-15%) and not so well represented (below 8 %) in the other natural units. In 16 communes, the multi-annual plantations were the main use category.



After: Real Estate Register, 2005

Scale: 1: 1 500 000

Figure 1. Agricultural land

The grass land and the hay fields presented no spatial disparities as in most of the communes they had between 10% and 14% of the total surface. Higher grass land and hay field frequency was characteristic

of the Ciulucurile Hills. The following departments stood out: Sângerei, Ungheni, Făleşti, Leova, and Basarabeasca, where the percentage of the grass land and hay fields varied between 15% and 19%.

The lowest percentage of grass land (below 5%) was characteristic of most of the communes along the Nistru, especially in the territorial unit on the left of the Nistru River. In these communes there were difficulties in ensuring the food for animal breeding, as well as relief modelling processes.

Conclusion

The agricultural land dynamic after independence was characterized by decrease in all departments of the multi-annual plantations percentage, slow arable land decrease (except in the following departments: Căușeni, Cahul and Taraclia), and extension of grass land and hay fields in the whole republic (except Taraclia Department). Thus, the agricultural land percentage representing the specialization of a region decreased and the surface of the ones that were not traditional before increased. Generally, these changes could be considered beneficial as the human pressure upon the landscape diminished as the past was characterized by an irrational agricultural land management.

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