DYNAMICS AND OPTIMAL SIZE PROJECTION OF AGRICULTURAL STRUCTURES FOR NE REGION AFTER EU INTEGRATION

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Abstract

The analysis of agricultural structures and projection optimal size is a necessity in rural areas of prime importance for the Romanian agriculture, both as a theoretical issue and practical implications of this phenomenon, regarding the current state of agriculture in the NE region and increased plots properties.
The problem of determining optimal land structures is present in Romania, even after seventh land reform, when instead of merged land mass; it was sprayed, under the concept of constitution and reconstitution of the property in about 48 million parcels. In addition, it appears that households made (according to Law 18/1991, from 0.5 to 10 ha on average 2.5 ha) is unsustainable. Creating viable farms with medium size, after model and methods from Western European countries, in Romania is more difficult because there was the "tradition" that every land reform have mission to destroy accumulation of land, as happened particularly in land reform in 1945 (which destroyed large and medium reservoirs farms), land reform for cooperatives from 1949 to 1962 (which destroyed reservoirs farms) and finally the land reform of 1990 to 1991 (which destroyed the collections made in the agricultural cooperatives and inter-cooperative associations).

Key words: dynamics, optimal size, agricultural structures

Individual farm is defined as an establishment where the owner owns the property, and management and major decisions are controlled by it. Moreover, it can be selling and the market is open for him. After definition of holding individual is engaged in sale and purchase of products and materials used in production and family consumption. For agricultural production, the owner must decide what production technique to use, how to allocate resources of land, labor and capital, etc.

I think that the study of individual agricultural structures is very important, especially through their share in the agricultural area of the country (over 63%) share of arable land (approx. 59%) share of population employed in agriculture and the share of rural population (over 90%) share in crop production (over 62% of grain production, 62% of the sugar beet, 90% of potato production and over 95% of the vegetables), share in livestock production (94% of milk production, 75% of the meat. The importance of these types of farms is not only the weight you have in agricultural production but also because most of the rural population is occupied with agriculture as the foundation work for many people redundant in other sectors of the economy. Hence the social role (greater than that offered by the share of agricultural production) of the peasant farm, providing material support to about 40% of the population with the lowest social costs.

After Law 18/1991, agriculture NE region is dominated by individual holdings of the rural population, which, granted land, have taken the form of family farms that have evolved and different characteristics from one natural area to another and from one county to another.

Given that land is the main means of production in agriculture economic conditions are closely related to existing territorial space in the area studied and especially individual holdings (table 1).

Regarding the evolution of agricultural land in the three years take the analysis one can see an increase of land in individual farms in 2010 compared to 2008 with 220 ha, because some landowners opted for withdrawal of land from the associations of agricultural structures. This was influenced by the number of families included in the system of association and the land that landowners have brought agricultural companies with legal personality, their number being higher in the NE Region.

One can say that evolution of the number of individual holdings recorded a slight increase, which occurred as a result of legacies to younger

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families and the fact that older owners (without descendants, or descendants of the city) have leased land to other families younger, in the village and had no land in exchange for products or even food for them daily. Another case is that of families who left rural areas and land temporarily leased to local people in exchange for goods or smaller amounts of money (table 1).

Table 1

Evolution of the number of individual farms in 2008-2010

Specification	Year	Number of individual holdings	Total agricultural	The agricultural area of individual holdings	Total arable	Arable land of individual exploitation	Average agricultural land/ exploitation	Average arable land/ exploitation
NE region	2008	439060,4	2128135	1833497	1364166	1255033	4,18	2,86
	2009	438840,7	2.130.268	1832030	1365533	1256290	4,17	2,86
	2010	439280	2.132.400	1.833.864	1.366.900	1257548	4,17	2,86
	(+/-) 2010 2008	220	4265	367	2734	2515	0,00	0,00

Source: Data processed by statistical information from the NIS-regional statistics

Table 2

Evolution of the total area allocated per household

Specification	Year	Number of family	Agricultural land of individual exploitation	Arable land of individual exploitation	Agricultural land/family	Arable land/family
NE region	2008	506491	1833497	1255032	3,62	2,48
	2009	506086	1832030	1256290	3,62	2,48
	2010	506592	1833864	1257548	3,62	2,48
	(+/-) 2010 2008	101	367	2515	3,62	24,82

Source: Data processed by statistical information from the NIS-regional statistics

The land that belongs to a family are different in the two areas investigated and the total county area's largest & back area as a result of the small number of existing families compared with NE Region.

Mutations occur in the structure of ownership and organization of agriculture, contributed each year to important changes both in structure and crop productions made for each crop (table 3).

Analyzing the structure of crops, we can say that there is a character traditionally mostly cereals, this explaining the need for technical resources and relatively low labor they require cereals.

More pronounced decrease of cereal grains of corn growing areas are known from 63.72% to 60.86%, which determined the total production of these crops decline. Increase areas under oats is because the increased number of horses and therefore this product is based on their food. A slight decrease in cultivated areas have seen a potato and vegetable field. Regarding vegetables, they are provided in the quantities needed during the season, but in season vegetables offer is poor due to reduced surface emissions.

Restrictions increased the total cultivated areas and yields obtained were recorded in crops such as peas, beans, sugar beet, bean field. Decrease in areas under these crops is due to lack of cooperation and support to enterprises specialized growers and on the other hand, aging and insufficient support by grants from the budget.

Structure optimization methodology requires a very diverse cultures, from the simple mathematics to economic modeling, a method requiring computer use. This last method should be used only in large programs, covering very large areas and differentiated in terms of productivity, resulting in a series of restrictions or conditions to be included in the structure of economic and mathematical model. In our case, due to a relatively small number of cultures and conditioning restrictions or lower number, we applied the method of multiple variants.

For each mode calculation was made in a number of conventional animals - AC, which is determined by the possibilities of farmers to

provide milk production, especially, in compliance with sanitary requirements of the European Union. In essence, the proposed dairy herds appear to be low, but in the following years they will be able to increase the rate at which farmers can be provided by investment modern animal husbandry techniques. In relation to the size of farms, which are differentiated according to the production area is located, have planned a number of conventional animal heads 15-30 (in conventional animal species cattle number equals the number of jelly animals, namely cows milk), and high meadow area planned a number of conventional animals 5-20, depending on the size of those farms.

In the U.S., the most favorable crops, crop structure was designed for both favorability zones differentiated by planned production. In the module 25 ha (table 3), cereals occupy 52.6% cumulative share of 12% technical plants and fodder plants of 35.4%. Note that the category was introduced forage plants and feed barley reason why this culture has a distinct position, but is included in group fodder.

Table 3

Designing crop structure - module 25 hectares -

Nr. crt.	Crops	Arable land	Weight	Area ha	Profit - V1 lei/ha	Total profit V1 - lei	Profit V2 - lei/ha	Total profit V2 - lei
1	Wheat	25	20	5	634	3,17	880,2	2,901
2	Barley beer	25	8	2	535	1,07	461,5	923
3	Corn	25	24,6	6,15	724,5	4,455	653,6	4,02
4	Sunflower	25	8	2	804,6	1,609	652,9	1,304
5	Soy	25	4	1	583,5	584	510,1	510
6	Fodder	25	35,4	8,85	181,5	1,606	181,5	1,606
7	TOTAL	25	100	25	-	12,494	-	11,264

In variant maximum productivity is obtained a profit of 12,494 lei, resulting in an average of about 500 lei per ha / ha and the total profit is positive 2 11 264 lei, of which is 451 lei / ha.

In the module 80 ha (table 4) cereals are designed to occupy 65.7%, technical plants 15.86% and 18.44% fodder plants. In this way an area of favorability resulting total profit 46,598 lei and 582 lei / ha. In zone of favorability resulted in a slightly lower profit of 41 464 lei and 518 lei / ha.

Module with the maximum size set by GEO 108/2001, of 110 ha projected number of 30 conventional animals, namely cows, which requires an area of 17.70 ha forage base, ie 16.09% of total arable land.

Table 4

Designing crop structure - module 80 ha -

Nr. crt.	Crops	Arable land	Weight	Area ha	Profit V1 / lei/ha	Total profit V1 - lei	Profit V2 - lei/ha	Total profit - V2 - lei
1	Wheat	80	24,5	19,60	634	12.426	580,2	11.372
2	Barley beer	80	13,2	10,56	535	5.650	461,5	4.873
3	Corn	80	28,0	22,40	724,5	16.229	653,6	14.641
4	Sunflower	80	12,5	10,00	804,6	8.046	652,9	6.529
5	Soy	80	3,36	2,69	583,5	1.570	510,1	1.372
6	Fodder	80	18,44	14,75	181,5	2.677	181,5	2.677
7	TOTAL	80	100	80,00	-	46.598	-	41.464

The remaining area was divided cereal crops - 76.67 ha, which means 69.7% technical plants - 15.63 ha, 14.21% respectively. In this way an area of favorability total profit was 65,093 lei, representing 592 lei / ha and the total profit of favorability in February was 58,024 lei representing 527 lei / ha.

Should be noted that with increasing total area of cereal crops the share module. This was not accidental, but was determined by a relatively simple logic. Forage crops are strictly determined by the herd queen planned, so appears as a restriction of minimum technical plants in general is characterized by an economy attractive, but requires a strict individual machine systems, such as sugar beet, so I never even caught her in crop structure, although very favorable conditions found throughout the area of NE Region.

CONCLUSIONS

The paper is a new and comprehensive approach to agricultural structures in the context of specific agricultural production, which motivates

the development of efficient farms to increase the quantity and quality of production. Potato production strategies involved or have an active role in economic growth may restrict or even overlap with the factors of production structures, analyzes focusing in this direction.

Romania has no resources rich countries, and no top managerial experience to create in a short time all the best agricultural structures. It is therefore necessary rhythms objectives with maximum efficiency and use of available resources.

Dynamics of agrarian structures in NE Region by 2010 and in view of 2013 shows an extremely slow pace of transformation. Comparative analysis between Romanian potato production strategies and existing in countries with developed agriculture, especially in the European Union reveals serious gaps, embodied in the performance levels of comparable systems.

Large differences between the systems compared, due to agricultural structures and structural changes too slowly in Romania are the disadvantages can be overcome only through effective economic mechanisms applied under a legal framework adapted to the starting level, the stages and objectives established with financial support and social insurance.

We believe that the problem arises to determine that size, that size of farm crop profiled on the field that determines the economic viability of agricultural structures in the market economy. Optimization of medium size agricultural structures aimed at maximum efficiency use with climatic conditions, economic and social unit that has an activity farm for profitable.

Achieving this goal in preparing the work of optimization requires consideration of a system of criteria and assumptions, the most important being: detailed knowledge of the earth's productive potential, developing a uniform program for all cultures, getting agricultural products to market demand ; promoting concentration and specialization of production on farms, irrespective of land ownership and organization.

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