

## STUDIES REGARDING THE EVOLUTION OF AGRICULTURE ASSOCIATIONS IN IAȘI COUNTY FOR DESIGNING VIABLE FARMS

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**ABSTRACT-** The area of arable land in Iași County did not change significantly in the period 2006-2008, but a slight increase was noticed in arable areas as size in the private sector, in comparison with those operated by the state. The tendency to raise the number of family associations from 280 in 2006 to 340 in 2008 was noticed, which means an increase of almost twice. An increase of more than twice was recorded in the area of arable land of this type of holding in 2008, compared to 2006. As concerns the peculiarities of the associative forms of Iași County, we have accomplished the modelling of the agricultural production for farms of 25.50, 80 and 110 ha in the hilly area. These differentiations were made taking into consideration the reports indicated by the Government Order 108/2001 and the information collected from the literature on the size of the farms in various areas of agricultural production. Because of a relatively small number of crops and some restrictions in number, we have applied the method of multiple choices. For each module, there has been taken a number of conventional animals - AC, which is determined by the possibilities of farmers to ensure dairy production,

especially in compliance with livestock sanitary rules imposed by the European Union.

**Key words:** family associations, Iași County, land fund, agricultural production modelling, optimization of crop structure

**REZUMAT - Studii privind evoluția formelor asociative agricole din județul Iași în vederea proiectării unor exploatații agricole viabile.** Suprafața terenurilor agricole din județul Iași nu s-a modificat considerabil în perioada 2006 – 2008, dar se poate observa o ușoară creștere a mărimii suprafețelor agricole din domeniul privat, în comparație cu cele exploatare de către stat. Aceeași tendință se observă și în ceea ce privește numărul de asociații familiale, de la 280 în anul 2006 la 340 în anul 2008. De asemenea, s-a înregistrat și o multiplicare de mai mult de două ori a suprafeței de teren agricol a acestui tip de exploatare în anul 2008, comparativ cu anul 2006. Având în vedere particularitățile formelor asociative din județul Iași, s-a realizat modelarea producției agricole pentru ferme de 25, 50, 80 și 110 ha în zona de deal. Aceste

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diferențieri s-au făcut ținând seama de prevederile O.U.G. 108/2001 și de informațiile culese din literatura de specialitate, privind dimensiunea fermelor în diverse zone de producție agricolă. Ca urmare a unui număr relativ mic de culturi și a unor restricționări sau condiționări mai reduse ca număr, s-a aplicat metoda variantelor multiple. Pentru fiecare modul s-a luat în calcul un anumit număr de animale convenționale – AC, acesta fiind determinat de posibilitățile fermierilor de a asigura o producție de lapte, mai ales, cu respectarea normelor igienico-sanitare impuse de Uniunea Europeană.

**Cuvinte cheie:** asociații familiale, județul Iași, fondul funciar, modelarea producției agricole, optimizarea structurii culturilor

## INTRODUCTION

The diverse forms of ownership and the overwhelming share of private property on land, the disappearance of progressive position on monopoly firms with state capital and their specific privatization generate numerous forms of exploitation of the essential element of the agricultural activity-land.

Considering zonal peculiarities on forms of association in agricultural production, an important issue should be settled on the conservation of land ownership. Therefore, those forms of association will be viable, which accept that landowners give the association only the right to use land.

In order to achieve the economic dimensions of farms, modern ways should be followed, approved by rural communities, according to the specificity of every area and tradition. In this respect, the appropriate

legislative of these requirements should be improved and expanded, especially the specific means to support and stimulate the process necessary to create efficient size-farms.

## MATERIALS AND METHODS

The information source that was found at the basis of this study is the statistical data obtained from the Agricultural Board of Iași County and some of the data collected directly from the agricultural processing units.

Data were processed by specific methods of diagnosis analysis, resulting in a series of indicators and indices, which enabled the assessment of development and trends of production factors specific to production.

## RESULTS AND DISCUSSION

The land fund of Iași County represents all the land areas (including those covered by standing water), located in the territory (Brezuleanu, 2004). Land fund has formed several groups of land, depending on their destination of these data. We have distinguished: land used for agriculture, forestry land, land currently under standing water and other land.

Data from *Table 1* have shown that the area of agricultural land in Iași did not change significantly during 2006-2008, but a slight increase could be seen in the area size in the private sector in comparison with land areas operated by the state.

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Table 1 - Way of land use in Iași County between 2006 and 2008

Category of use	2006	2007	2008	% 2008/2006
<b>Agricultural area</b> , of which:	380.420	380.420	380.350	
- state	6.121	5.044	4.699	99,98
- private	374.299	375.376	375.651	
<b>Arable</b> , of which:	256.953	256.633	260.192	
- state	3.651	3.055	3.032	101,26
- private	253.302	253.578	257.160	
<b>Natural pastures</b> , of which:	84.834	85.555	81.928	
- state	321	239	243	96,57
- private	84.513	85.316	81.685	
<b>Natural meadows</b> , of which:	22.573	22.328	22.328	
- state	639	326	324	98,91
- private	21.934	22.002	22.004	
<b>Vines, nursery gardens</b> , of which:	10.051	9.923	9.220	
- state	428	380	380	91,73
- private	9.623	9.543	9.540	
<b>Orchards and nursery trees</b> , of which:	6.009	5.981	5.981	
- state	1.082	1.044	720	99,53
- private	4.927	4.937	5.261	

As concerns the quality of agricultural land in Iași during 2006-2008, we found out that agriculture was facing a series of problems (limitative factors), affecting the production potential of soils; each year, funds have been allocated to remedy these problems.

The diverse forms of ownership and the overwhelming share of private property on land, the disappearance of progressive position on monopoly firms with state capital and their specific privatization have generated numerous forms of using the element of essential agricultural activity-land (Brezuleanu, 2008).

Farmers may use land as owners, directors, tenants or entrepreneurs.

The promoting principles of market economy, the law of land and the Law 36/1991 on the agricultural companies and other forms of

association in agriculture had as a result the appearance of some forms of associative holdings. These forms of associative farming occurred as a result of adverse situations, determined by the ownership of private producers, which is between 0.5 and 3 ha and by the fact that the majority of farmers are lacking financial resources for land cultivation and for investment in strictly necessary machinery (Brezuleanu, 2004).

The association of several persons in a farming society, each contributing with his financial means, labour and organization, makes the agricultural companies survive the competition conditions that characterize the market economy (Ciurea *et al.*, 2005). Therefore, a better supply is ensured with factors of production, common use of natural

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resources, proper carrying out of marketing and credit activity. These forms of organization in the agriculture of Iași County allow a better use of land and capital available to the landowners (*Table 2*).

As concerns the instability and the non-permanent character of family

associations and numerous inconveniences, their number is quite variable from year to year. The situation of family associations, formed in Iași on a period of three consecutive years was shown in *Table 3*.

**Table 2 - Situation of associations in Iași County on the 15th June 2008**

No.	Specification	Number	Agricultural area - ha -	Of which,				
				arable	vines	orchards	meadows	pastures
I.	Mostly private sector	410	128121	67365	2848	1298	55302	1308
	Trade companies with private capital (L.31/90)	47	13082	12418	-	243	207	214
	Private agricultural associations (L.36/91)	38	17630	17377	81	138	34	-
	Other trade companies with total or most private capital	89	35845	30302	2758	910	985	890
	Family associations	69	4498	4306	9	2	33	148
	Individual producers (tenants)	71	3066	2962	-	5	43	56
	Other forms (grazing land)	96	54000	-	-	-	54000	-
II	Most state sector	5	3956	2626	378	661	103	188
<b>Total county</b>		<b>415</b>	<b>132077</b>	<b>69991</b>	<b>3226</b>	<b>1959</b>	<b>55405</b>	<b>1496</b>

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**Table 3 – The situation of agricultural family associations set up in Iași County, between 2006 and 2008**

No.	Specification	2006	2007	2008	% 2008 / 2006
1.	Number of agricultural family associations	280	500	340	121,4
2.	Total agricultural area	57.000	72.000	120.700	211,7
3.	Agricultural area on association	203	144	355	174,8
4.	Number of families	19.600	28.600	36.520	144,7
5.	Families per association	70	57	107	152,8
6.	Agricultural area of one family in an association	2,9	2,5	3,3	136,2

We noticed the tendency to raise the number of family associations from 280 in 2006 to 340 in 2008, which means an increase of almost twice. An increase of more than twice was recorded in the land area of this type of holding in 2008, compared with 2006 (*Table 3*).

The actual sizes of agricultural family associations, formed in Iasi, were higher in all the three years than the average on the entire country, in this type of holding, the necessary conditions for efficient land work being achieved. The problem was to improve the crop structure in this type of holding, because there is seen a general trend of growing only grain crops (maize and sunflower).

As concerns the zone peculiarities on forms of association in agricultural production, an important issue should be settled on the conservation of landownership. Therefore, those forms of association will be viable that accept that landowners should give only the right to use land to the association (Brezuleanu, 2009).

In order to achieve the economic dimensions of farms, modern means should be used, approved by the rural communities according to the specificity of every zone and by the tradition. In this respect, the appropriate legislative frame for these requirements should be improved and expanded, and especially, should support and stimulate the process necessary to create efficient size farms.

Based on the gathered information, we have designed the second component of the crop system that is the structure.

Taking into account these considerations, we proposed modelling the agricultural production for farms in 25.50, 80 and 110 ha, in the hilly areas. These differentiations were made according to the reports indicated by the Government Order 108/2001 and the information collected from literature on the size of farms in various areas of agricultural production.

The optimization of crop structure involves a much-diversified methodology, from the simplest, until

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economic and mathematical modelling method that requires using a computer (Brezuleanu *et al.*, 2009). This last method should be used only in large-scale programmes, which cover very broad and varied areas as concerns the productivity, of which it results a series of restrictions or conditions to be included in the structure of the economic - mathematical model. In our case, because of a relatively small number of crops, we have applied the method of multiple variants (Brezuleanu, 2008).

For every model, we have calculated a number of conventional animals, which is determined by the possibilities of farmers to ensure the milk production, observing the livestock sanitary standards imposed by the European Union. The proposed cow stocks seem to be reduced, but in subsequent periods, they will be able to increase the rate with which farmers could ensure investments in technical modern farming. According to the size of farms, which are

distinguishable in relation to the production area where they are located, we have planned a number of 15-30 heads of conventional animals, depending on the size of concerned farms.

In the hilly area of Iași County, which is favourable to most crops, we have designed the crop structure for the two areas of availability, differentiated by planned productions. In the module of 25 hectares (*Table 4*), grains have a percentage of 52.6%, technical plants, 12% and fodder plants, 35.4%. We mention that in the category of fodder plants we have also introduced fodder barley, because this culture has no distinct position, but it is included in the group of fodder plants.

In case of the highest productivity, a profit of 12,494 lei was obtained, resulting an average profit per ha of almost 500 lei per ha, and in the favourable area 2, the total profit was 11,264 lei, who returns 451 lei per ha.

**Table 4 - Designing the crop structure – module 25 ha**

No.	Crop	Percentage	Area ha	Profit F <sub>1</sub> lei/ha	Total profit F <sub>1</sub> lei	Profit F <sub>2</sub> lei/ha	Total profit F <sub>2</sub> Lei
1	Wheat for consumption	20.0	5.00	634	3,170	880.2	2,901
2	Two-row barley for beer	8.0	2.00	535	1,070	461.5	923
3	Maize	24.6	6.15	724.5	4,455	653.6	4,020
4	Sunflower	8.0	2.00	804.6	1,609	652.9	1,304
5	Soybean	4.0	1.00	583.5	584	510.1	510
6	Fodder plants	35.4	8.85	181.5	1,606	181.5	1,606
7	Total	100	25.00	-	12,494	-	11,264

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In the module of 50 hectares (*Table 5*), the crop structure had some small changes since the production conditions remained relatively constant. In this module, cereals had a percentage of 52.5%, technical plants, 15.9% and fodder plants, 23.60%. It should be noticed that the percentage of cereals was higher.

Total profit in the area of the first availability was 27,834 lei, resulting a profit of 556 lei per ha, and

in the area of the second availability, 24,884 lei, i.e 498 lei/ha.

In the module of 80 ha (*Table 6*), cereals were designed to occupy 65.7%, technical plants, 15.86% and fodder plants, 18.44%. In this way, in the area of the first availability, the total profit was of 46,598 lei, and 582 lei per ha. In the second area of availability, the profit was lower, of 41,464 lei and 518 lei/ha.

**Table 5 - Designing the crop structure – module 50 ha**

No.	Crop	Percentage	Area ha	Profit F <sub>1</sub> lei/ha	Total profit F <sub>1</sub> lei	Profit F <sub>2</sub> lei/ha	Total profit F <sub>2</sub> Lei
1	Wheat for consumption	21.5	10.75	634	6,816	580,2	6,237
2	Two-row barley for beer	10.5	5.25	535	2,808	461,5	2,423
3	Maize	28.5	14.25	724.5	10,324	653,6	9,314
4	Sunflower	10.0	5.00	804.6	4,023	652,9	3,264
5	Soybean	5.9	2.95	583.5	1,721	510,1	1,505
6	Fodder plants	23.6	11.80	181.5	2,142	181,5	2,141
7	Total	100	50.00	-	27,834	-	24,884

**Table 6 - Designing the crop structure – module 80 ha**

No.	Crop	Percentage	Area ha	Profit F <sub>1</sub> lei/ha	Total profit F <sub>1</sub> lei	Profit F <sub>2</sub> lei/ha	Total profit F <sub>2</sub> Lei
1	Wheat for consumption	24.5	19.60	634	12,426	580.2	11,372
2	Two-row barley for beer	13.2	10.56	535	5,650	461.5	4,873
3	Maize	28.0	22.40	724.5	16,229	653.6	14,641
4	Sunflower	12.5	10.00	804.6	8,046	652.9	6,529
5	Soybean	3.36	2.69	583.5	1,570	510.1	1,372
6	Fodder plants	18.44	14.75	181.5	2,677	181.5	2,677
7	Total	100	80,00	-	46,598	-	41,464

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For the module with the highest size set up by the Government Order 108/2001, of 110 ha, we have designed the stock of 30 conventional animals, respectively dairy cows, which require an area of fodder plants of 17.70 ha, respectively, 16.09 of the total arable land. The rest of the area was used for cereals-76.67 ha,

representing 69.7% for technical plants - 15.63 ha, respectively, 14.21%. In this way, in the first area of availability, the total profit was 65,093 lei, representing 592 lei per ha, and in the area of the second availability, the total profit was 58,024 lei, representing 527 lei per ha, as it is shown in *Table 7*.

**Table 7 - Designing the crop structure - module 110 ha**

No.	Crop	Percentage	Area ha	Profit F <sub>1</sub> lei/ha	Total profit F <sub>1</sub> lei	Profit F <sub>2</sub> lei/ha	Total profit F <sub>2</sub> Lei
1	Wheat for consumption	26.20	28.82	634	18,272	580,2	16,721
2	Two-row barley for beer	14.50	15.95	535	8,533	461,5	7,361
3	Maize	29.00	31.90	724.5	23,111	653,6	20,849
4	Sunflower	11.70	12.87	804.6	10,355	652,9	8,403
5	Soybean	2.51	2.76	583.5	1,610	510,1	1,408
6	Fodder plants	16.09	17.70	181.5	3,212	181,5	3,282
7	Total	100	110.00	-	65,093	-	58,024

We have to mention the fact that by increasing the total area of the module, the percentage of cereals increased. This was not accidental, but was determined by a relatively simple logic. Fodder crops were strictly determined by the stock of planned animals. Technical plants, generally, are characterized by an economic attractiveness, but require a strictly individualized machine system, such as sugar beet; therefore, we have not introduced it in the crop structure, although it finds particularly favourable conditions throughout the plain area of Moldavia.

On the other hand, grains are great opportunities as concerns the

technological aspect, precisely because of their relative simplicity. Therefore, Romanian farmers prefer cereal crops despite the other crops that require technologies that are more complex. It is well known the tendency of processors to pay with delay the value of the products offered by farmers, reason for which they have focused on other more profitable criteria, with technological facilities and especially, with opportunities of the recovery of higher costs incurred by collecting the value of the products offered to processing industries.

## CONCLUSIONS

The agriculture of Iași County is found in a process of reorganization, being away from the existence of some stable organizational structures. The small size of farms, the unsolved situation of the private sector of the State and the reduced support, which it receives from the State, make the production and economic results be unsatisfactory.

The size of farms must be optimized, since the current dimensions cannot practice performance agriculture. This should take into account the area of the agricultural production, since each geographical area is characterized by climate, soil, economic and social conditions that promote agricultural production in whole or certain branches of plant production (vegetables, flowers, trees and vines) at a high or less proportion. These conditions should be quantified exactly and then, the degree of availability for these branches must be established. Only under the best zone conditions, unitary yields, respectively, economic efficiency, are the highest.

It is necessary to supply farmers with the necessary production resources, respectively, selling the produced agricultural products.

For avoiding or minimising the adverse effects on production, the cost of agricultural products, the social structure and the relations between different social groups, the following actions are necessary:

- Supporting agricultural holdings through reduction of taxes and other actions;

- Encouraging the formation of family associations and agricultural cooperatives within companies that own land;

- Promoting measures favourable for farming land, which, generate positive effects for the purchase of agricultural land with higher requirements for investments.

We must add that the farm progress depends on the quality of management and the ability of managers in the process of achieving the functions of farm management.

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