

## ABSTRACT

The PhD thesis titled *Economic Study on Structural Improvement of Production and Management Systems on Farms in Braila Plain* is structured in 8 chapters plus an introduction and a bibliographical list of 221 evidence.

The **Introduction** state that agriculture is a branch of production materials in the social division of labour, including activities in which the plant and animal production is made on earth by labour action, and part of the distribution of agricultural goods and services, all in order to satisfy the needs for food and living of the population. I also presented the main features of production and economic aspects of this branch, and the functions they fulfil, including products in addition to providing people with necessary food, and provide necessary materials manufacturing, agriculture and participation in activities foreign trade and the accumulation of the necessary budgetary accumulations for economic development.

**Chapter I** deals with theoretical aspects of structural optimization in the field of agriculture and its management systems.

The first part covered the theoretical aspects of agriculture in economic optimum design of various authors. More broadly, the economic optimum means of attracting and maximizing the rational and efficient use of key resources available. In another definition, in a smaller area, the optimum is considered as extreme value of a mathematical function of several variables, defined in a field of activity, under conditions of some restrictions.

In agriculture, the economic optimum assume, in addition to economic balance also the achieving of maximum efficiency, both in use as material and human resources.

Agriculture, basic component of the economy because of its function in social reproduction process, contributes to best achieve macroeconomic and optimization of

economic activity in other branches. The problem of determining the economic optimum, the default setting proportions and rhythms of making a product or production as a whole and, respectively, in cultures and sectors can be resolved only through comprehensive and interdisciplinary approach to optimize economic activity on farms.

Further on there are treated the issues of resources and production factors in agriculture in the concept, typology, contents and their action. It is made a detailed representation of factors: natural factors, labour, technology, capital, information and management capacity.

Part of the optimization process is to optimize agricultural production technology, based on the concept that they represent all the agro-phytotechnic operations of technically and economically executed chronologically aimed at reaching agricultural products with minimal costs per unit product.

It is based the idea that technologies should be based on production and subsequent sequence assembly should be done to achieve a given product.

Furthermore, based on the bibliographic sources are given elements of the optimization of production systems including crops structure optimization with the objective functions maximize profit and minimize the total gross production costs.

It is considered by some authors that by optimizing the sub-structures it is achieved, however, an optimal overall which is also conditioned by the operation of upstream and downstream systems, which produce for agriculture or eat agricultural products, so this optimum can be done effectively only in conditions of optimal functioning of the economic whole.

End of chapter includes a summary of research on optimizing management aimed at creating an organizational culture based on a healthy system of values, improving methods of management of managers, their evaluation and rationalization of the structure of working time.

**Chapter II** has constituted research purposes, objectives, study material and research methodology used.

The main goals pursued in the paper are: a) optimize the structure of crop production in the Plain of Brăila, with the purpose to carry out a case study in an agricultural trading company representative for this area and b) optimizing the

management at the companies trade in the same area. Among the objectives pursued, the most important are identifying the level of scientific research on issues relating to optimizing the production processes, with special attention on the structure of crop production, addressing to the state of research on activity of managers in agriculture to optimize their management, analysis of the natural, economic and social factors in Braila Plain, developing a diagnostic study on the agriculture of Braila county, in order to identify potential production and results in a significant period of time, making a case study of a representative company (SC AGRO GRUP IMPORT-EXPORT SA Braila), optimize the structure of plant production, both overall and per subunit production, research on developing managers and optimize their business management.

The studied material refers both to statistics and data collected directly from Braila Plain area, at the county level, the common agricultural and trading company.

The methods used are classical for the technical and economic analysis (comparison, monograph, questionnaire, etc.) and linear programming.

**Chapter III** has as content: *Agriculture - the main economic branch of Braila county.*

Braila county has an important agricultural area (388,100 ha), representing 81.4% of the total. In this area, share is held by the arable land at a rate of 90.0%. The private sector owns 80% of the area, the rest belonging to state-owned sector or mixed.

The structure shows that cereals grain crops occupy 54.2%, with a slight downward trend. Of these, maize occupies two thirds of the surface. Among other groups of crops, oil plants takes the next place with 37.5% (two thirds sunflower and soy beans – a third). Other crops, rape, vegetables, fodder, have smaller areas (less than 6%).

Yield values were below the production potential of soils. The wheat crop between 2500 and 4000 kg / ha, maize grain - 4000-6000 kg / ha, the sunflower, between 1500-1800 kg / ha. These productions are dependent on climatic conditions, their production change explaining the fluctuations. The factors of production, in addition to climatic conditions, water and chemical fertilizers are the most important. At the county level, although there is potential to irrigate a small area and the amount of chemical fertilizer per hectare was below 33 kg, a sharp downward trend. The quantities of manure were not significant, between 8 and 22 kg per hectare in the period analyzed.

The level of mechanization is very low, with less than one tractor per 100 hectares of agricultural land and the number of mechanical drills are over half the number of tractors.

Number of trees and areas occupied by vineyards, in the period 2002-2006 were reduced by one third, with a downward trend of these branches.

In the animal breeding, there is an increasing tendency to herd, but animal density per unit area is almost half compared to that recorded before 1996. In cattle, are now under 18 heads per 100 ha of agricultural land, pigs 63.3% and 58.4% in sheep. Due to the small number of animals and lower average yields, total production potential is far from the area.

**Chapter IV** presents *The natural resources of Braila Plain*. Placed in the north-eastern Romanian Plain is surrounded to the west, north and east by other geographical formations nature plain and south of the Danube. The topography is relatively uniform, represented by smooth fields, large, shallow un-drained. It is structured in five relief units: Câmpul Mircea-Vodă, Câmpul Ianca or Movila Miresei, Câmpul Viziru, Câmpul Gemenele – Romanu and Valea Ianca.

The territory is characterized by Brăilei Plain a temperate continental climate with hot and dry summers and cold winters. The average annual temperature is 10.4 °C. Amplitude of monthly average temperatures vary between 24 and 26 ° C. Mean annual rainfall of 447 mm, potential evapo-transpiration of 705 mm and a deficit of 258 mm water climate. Precipitation falls unevenly requiring interventions need irrigation.

Wind is an influential one in climatic conditions of Brăila Plain. Lack of orographic and forestry barriers is the movement of air masses to be made easily and the influences of cultures, ways of communication and forest settlements to be large.

The highest frequency of winds were those of a north and north-east, which sometimes exceed speeds of 100 km / h.

On the river, one has an influence on the Plain Braila Danube and Siret rivers, Buzau and Calmatui. Their presence is a potential for irrigation use. Currently, most irrigation systems are unused or partially destroyed.

Soils have generally high fertility prevailing chernozems in various stages of development representing over 70% of the area.

**Chapter V - *Administrative Structure - elements of characterization*** is a detailed overview of the main administrative structures Plain Braila area. This area has constituted 1 city, 3 towns and 19 municipalities: Braila municipality, towns Făurei, Bordei, Ianca and Însurăței and the villages Bordei Verde, Chișcani, Cireșu, Gemenele, Mircea Vodă, Movila Miresei, Râmnicelu, Romanu, Siliștea, Cazașu, Surdila Găiseanca, Surdila, Greci, Șuțești, Tichilești, Traian, Tudor Vladimirescu, Tufești, Unirea, Viziru.

For each place was set location, relief characteristics, population structure by use. We insisted in particular on the characteristics of soil agro and presented their points of favourability, irrigation possibilities.

**Chapter VI** includes *Diagnostic study of the company AGRO GRUP IMPORT-EXPORT SRL Braila*. The company was founded in 2000 and after several changes of name and profile, now is the main activity area of field crop production. It holds an area of 485 ha, of which 83 hectares are owned and leased 403 hectares. The plot is structured in two bodies: Siliștea - Vadeni 405 ha - 80 ha.

The organizational structure is in two stages: the centre-farms (sectors), with the company's two production farms: Farm nr. 5 - Sembra the village and farm Vadeni no. 7 - Mărticești in common Siliștea. Also, there are two sectors: mechanical-irrigation and the economic sector. The staff consists of 14 permanent employees, of which 6 persons 8 persons TESA and execution. The peak of the company, call the company and seasonal staff.

The company, in terms of territory, is located in the northern Plains Braila. The climate is temperate continental, with hot summers and dry winters with low rainfall and dry and cold. Aridity index is 22. The average annual temperature of 10-11 ° C is slightly larger than the rest of the territory. Existing soils as the Farm no. 5 (Vadeni body) and the Farm no. 7 (body Siliștea), are in Class chernozems, represented the typical mold of pH between 7,1-8.

In terms of land supply with mineral nutrients in both bodies, soils were good and very good supply both phosphorus and potassium and a moderate concentration of nitrogen, requiring each year, additional quantities of chemical fertilizers nitrogen.

In terms of mechanical and energy endowment, the company is properly equipped. The entire area is irrigated.

The structure shows that the areas within grain crops have 56.7% of the surface of the cereal grains (wheat, barley, barley) - 30.1% and 26.6% maize grain.

Other cultures are the rape of autumn - 20% and sunflower - 11%. About 33% of the area occupied by crop seed. Between the two bodies - Siliştea and Vadeni, structural differences due to differences in potential.

Average yields are relatively high. These are common in grain 5000-6000 kg / ha and maize grains - more than 8000 kg / ha.

During 2006-2008 the company recorded positive economic results, but the potential that it holds, in our opinion, due to a production structure that need improvement.

In **Chapter VII** it is carried out *Structural Optimization in Crop Production* to AGRO GRUP SC IMPORT-EXPORT SRL Braila. Optimization was done using linear programming. They developed two mathematical economic models separately for the two bodies - Siliştea and Vadeni. Areas considered were 400 hectares to 100 hectares body and the body Siliştea Vadeni, given that the company wants to expand the total area to 500 ha.

If Siliştea body, in the process of optimization, there resulted a new structure significantly different from the existing structure. First it is found that grain maize occupies 37.5% of the area with 10% more than the old structure. Of the two destinations, maize seed with 32.5% share holding. On the other cultures, it is noted that increased the area planted with winter barley seed, from 2.5% to 20%, at the expense of consumption. Rape and sunflower seed are maintained at a level of 12.5%.

The level of economic indicators of the two structures shows that the optimized structure for both the income and gross profits are higher than the existing version. Total income is higher by 219.14 thousand lei, and profit by 134.79 thousand lei for optimized version. If we take into consideration that the size of areas of different cultures allow the creation of favourable turns in terms of technology.

In the second part of the chapter, similarly it was performed the optimization of crop structure from Vadeni body. Following the optimization process it has resulted a different version from the original structure. Thus cereals, wheat and barley disappeared from succumbing structure instead of other crops. The areas occupied by maize for

consumption were halved (from 40 ha to 20 ha), while maintaining constant area planted with grain maize seed (20%).

Cultures that have registered increases were beans - seed lot, which doubled the area, whose surface winter rape increased four times and alfalfa seed whose surface has increased more than threefold. We also noted the emergence in sunflower crop structure, with a 20% share of the total.

In terms of technology, the new structure is balanced, providing a better ratio between different groups of cultures, allowing optimal crop rotation and a different sole. Sole size of 20 hectares each, facilitates the implementation of a sound rotation.

Vadani economic indicators for body size in the two variants shows that the optimized structure, ensure the achievement of higher incomes, which leads to a certain level of spending, a higher income. In particular, when optimized variant, the total income is higher by 30.31 thousand lei to that obtained from the old structure. Also, gross profit and total recorded higher values with 53.06 thousand lei, compared to the original.

**Chapter VIII** is to structural improvement of management systems. The chapter is structured into three subchapters. In the first chapter are discussed aspects of the organizational structures of enterprises in the agriculture, presenting the top classical conception that a management system includes all workplaces, enclosed by the division of labour, together with all relations of authority and cooperation. Of the two approaches, static and dynamic, is embraced in the second mode, the flexible structures adopted specific farm conditions, which influence factors have a strong dynamic.

Further it is described the content of the seven principles: delegation of authority, universality, accountability, balance, correspondence between the authority and responsibility, flexibility, uniqueness relations of authority, the decision-making and facilities management relations and the specific content of items components of organizational structures: the position, scope of authority; compartment (s), levels of hierarchical relationships.

The second subchapter concerns the structure of management systems in terms of intrinsic, activity management, namely: organizational culture, quality of management and use by managers working time and leisure time.

In the organizational culture of all components identified based questionnaire at commercial farms, we have identified a system of 14 securities. In the first three places, with a percentage exceeding 80% there were located those concerning the *responsibility in carrying out service, open communication and job security*. Advanced places are located and other values, namely *economic stability of our company, team work, ethical behaviour and respect for others*. It was found that less importance is given to values that relate to *work in the interests of communities and interest in maintaining environmental quality*.

Among other components of organizational culture: *heroes, slogans, events and ceremonies*, ceremonies were highlighted at the various events, the other being strengthened, due to *age young firms*.

There have been described, the main characteristics of managers as an influence organizational culture. Of these characteristics were found relating to firmness in carrying out responsibilities, moral integrity, proximity to employees, the ability to resolve conflicts.

In conclusion, related to this issue, it was found that the prevailing issues in organizational culture in commercial farms in the agriculture of the Brăila Plain are the following: mutual trust between employees, but also between subordinates and leaders hierarchical accurately assess individual performance and open communication, honest between employees and between leaders and followers.

The last part addresses the assessment and management improvement activities. The research was based on survey method being considered for the study 12 managers with higher education, with different profiles. The questionnaire included questions about their professional training, work performed, the attitude toward labour management issues, quality, attitude toward people, extra-professional concerns.

Responses showed that 50% of managers indicated that management style cooperation and only 17%, authoritarian style.

Regarding the defects that are assigned to subordinates, 33% showed leniency and 34% - dealing with delay issues. It was concluded that driving performance is influenced by the degree of preparedness. Of those polled, 50% said that the college received a good

education and found that 17% had received a poor education, mainly theoretical, with insufficient practical training.

A deficiency has been reported relate to the lack of documentation, very few strategies appealing to professional training or accessing information sources offered by the Internet or specialty magazines. The claimed lack of time to remove these deficiencies.

In the base band to be a farm managers have, they consider that to be technoeconomic (75% of respondents) and only 16.6% technical training.

Use of working time was another issue studied. It was found that the share of time spent in the company varies in relation to its size, many managers working 10-14 hours daily, neglecting the rational use of free time.