ANALYSIS OF THE EXTERNAL ENVIRONMENT OF AGRICULTURAL HOLDINGS IN GRAIN SECTOR IN BULGARIA

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Abstract
Grain sector is a major subsector of the plant in Bulgaria, because grains represent a significant part of the food stocks in the country. Agricultural structures in grain production are mainly large farms which are managed as business units and are willing to take greater risks and with future positive performance. The main aim of the paper is to analyze and evaluate the external environment of holdings in grain sector and on this basis to make general conclusions and policy recommendations about the development of these structures in Bulgaria. Aim has the following tasks: 1) Literature review of characteristics of internal and external environment of agricultural holdings 2) Assessment the impact of the external environment in which operates agrarian structures with grain specialization 3) Based on the aggregated and analyzed information will be offered policy recommendations and general conclusions. Conclusions and analysis in the paper are prepared according methodology of interviews with Bulgarian grain producers operating in grain sector. As well some of information is taken by agricultural branch experts.
Keywords:
External environment, grain sector, agriculture

Introduction

Agriculture is traditional branch for Bulgaria and went through multiple processes until it achieves its current state. Characterized by favorable soil and climatic conditions for growing a variety of cereals depends on topography, altitude, soil fertility and moisture content such as a number of other factors that are available in Bulgaria. In the past, a strong influence on the farms and their development has the return of land owners (Mishev, Ivanova, 2008).

The privatization process, including the redistribution of the land, buildings and machinery that serve the agricultural activities is one of the main factors influence on the overall development of the sector. Grain production is a major subsector of the plant in Bulgaria and cereals represent a significant part of the food stocks in the country. The development of production structures engaged in agricultural activity, growing cereals are result of a long evolutionary process. Depending on the specific conditions existing in each country, this process has a different time range.

Specifics of subsector – grain production determine the characteristics of the holdings functioning in it. Agrarian structures engaged in grain production due to the nature of the production are mainly large farms, tenants and cooperatives that are mostly managed as business units. The managers of them are willing to take greater risks for profit and become future positive performance. Farms, growing cereals require hiring skilled labor to ensure timely processes necessary for the activity. In Bulgaria the largest tenants of land are farms, growing cereals. This determines the importance of the land market and its impact on the studied structures. At the same time the grain producing is characterized by a high need of mechanization, because of the nature of the growing production.

1. Literature review of characteristics of the external environment in which agricultural structures operate

According system approach, agricultural structure is compared with the company or a firm and is considered as a system of interrelated elements aimed common actions to achieve common goals (Stankov et al, 1997). The design and successful operation of the agricultural production system depends largely on the knowledge of the external business environment and opportunities to respond the dynamic changes. It is necessary continuously to change its elements in the system (agricultural holding) on a way to meet the requirements of the external environment. This requires continuous change in the elements – production, economic, legal and social subsystem, leading to realization of the main goals of the holding. Agricultural holding is input-output system. It is characterized by features of a purchaser of inputs that are needed for production and as a seller of already produced production. ".

Authors as Kynchev, Dojchinova (2005) identify the farm as an open system in which parts are under constant influence and highly dependent on external factors in the business environment. Unlike Stankov, who determines the farm as an input-output system, the authors described in greater fullness interaction of the business unit on one hand with the technology of production, internal and external links of interaction of external and internal environment and on the other hand are the economic aspect of the farm.

Other authors (Atanasova, Kostadinova, Jeliazkov, Otuzbirov, 2006) define agricultural structures as entrepreneurial business in the agricultural sector. They characterize structures as systems with input and output and these systems are in continuously interacting with the external environment. The system is at the same time a buyer of inputs (fertilizers, chemicals, factors for the production) and seller of outputs. Aerbe also describes the farm as an input-output system, but it compares with a living organism (Aerbe, 1919).

In this point of view holdings are influenced on one hand on the environment (through output), and it is affected by it (through input). This statement is largely true for grain sector, as most of the grain structures are large and could affect the input and output as well as its production such as other systems.

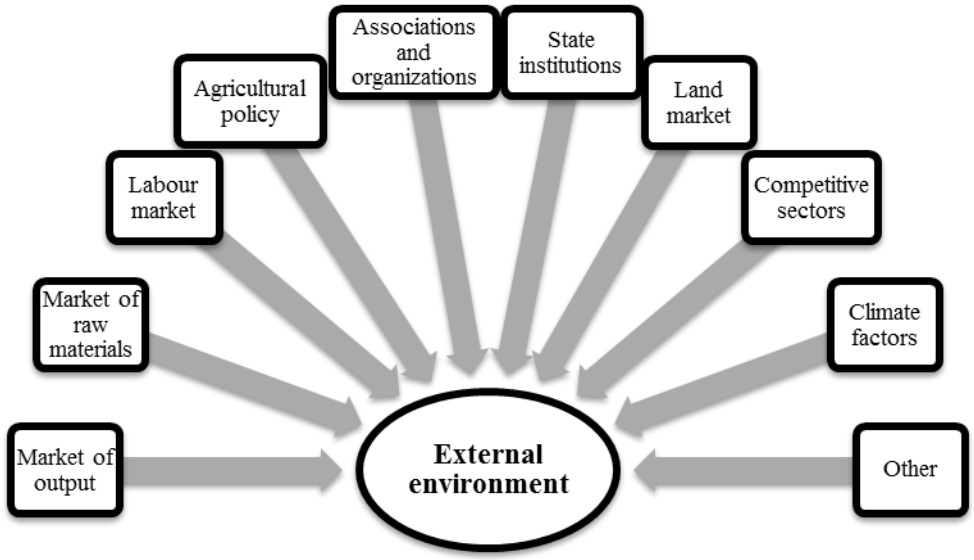
Agricultural structure is defined as one that is in constant interaction with internal and external environment. External environment includes (figure 1) variety of factors that influence on the development of agricultural structure. The external and internal structures determine the factors of influence on grain sector and depending on the size of the structure the impact is different (Jongeneel, Tonini, 2003).

A stable legal environment and appropriate government policy were important for the successful development of large agricultural holdings such as structures in grain sector. (Garnevska, Liub, Shadboltc, 2011).

Agricultural structures are highly depending on climatic factors and the consequences of occurred risk events are unpredictable. Climate is one of these determinants, which exert direct pressure on agriculture, as well as indirectly on the system through influencing and being influenced by the other drivers, usually in a nonlinear fashion (Pielke et al., 2007).

Numbers of external factors important to the farm business can be identified as new entrants, which usually bring new competition and capacity for resources and customers. Substitute products are products that appear as a different but they can satisfy the same need as another/substitute product. Bargaining power of buyers affects over the industry through the ability the price to be pushed down, and chasing for higher quality or more and additional services, and like this to push competitors to play against each other (Porter, 1980). The other stakeholders include federal, state, and local governmental units. These units of government can impose various limits on the actions that businesses can take. (Dobbins, 2003).

Markets of output access to them also influence on the decision of the owner to invest in agricultural activities for which there is a market at reasonable prices. An important element is also the markets of raw materials and labor. The occurrence of a change in price or quality on these markets changes the cost price of production (Harizanova, 2015).



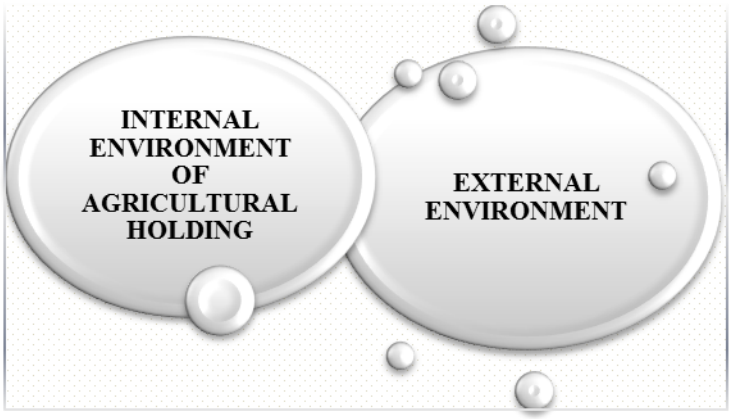
Source: adapted by Jongeneel R., Tonini N., 2003

Fig. 1 Characteristics of the external environment in which agricultural structures in grain sector operate

Authors (Bourque, 2011) define the role of the associations and organization as a significant factor for competitive development of agricultural strictures. An opportunity for association is contract farming that provides farmers with production inputs (such as seeds and fertilizers), quality control, and advice on new production methods. Prices are fixed in advance and credit facilities may be associated with the contract.

The size and specialization of the agricultural structure depend on how the holding is affected by the external environment, its dependence on it, and not least, how the farm could change the external environment (Figure 2).

According (Harizanova, 2015), farms in grain sector have the possibility to modify and influence on the external environment. This is explained by the large size of many farms operating in this sector.



Source: adapted by Stankov (1997)

Fig. 2 Interaction between external and internal environment

2. Methodology

The main methodical approach applied for analysis and evaluation of external environment of producers in grain sector is a system approach. It is a methodology that examines the objects of research – holdings in grain sector as systems that are in permanent connection with other systems. At the same time the systems are influenced both on the internal structure and the external environment (Stankov, 1997). In carrying out the research for the evaluation and analysis of external environment of holdings in grain sector are taken into account the basic principles of system approach: focus, integrity, organization, completeness, complexity. At the same time are used the comparative method and the method of extrapolation.

The main aim of the paper is to analyze and evaluate the external environment of holdings in grain sector and on this basis to make general conclusions and policy recommendations about the development of these structures in Bulgaria. Aim has the following tasks:

1) Literature review of characteristics of external and internal environment in which operate agricultural structures. This theory will be required to reveal and analyze how external environment affects the surveyed farms. Literature review support development of questionnaire for the survey.

2) Assessment the impact of the external environment in which operates agrarian structures with grain specialization. In this part of the paper are made analysis of impact of external environment's factors on agrarian structures in grain sector. An important element of the survey is how the influence of different factor has changed in the period 2007-2012-2017. Respondents have evaluated the first in 2007 and then 2012:

• The current impact of the external environment;

• How do they think will change the impact of the external environment after five years.

Based on the expectations set out in 2007 to 2012 are made a comparative analysis of the actual state (deviation) in 2012. This information provides an assessment of the ability of government agricultural structures to appraise how they may provide macro changes.

In the survey are included grain producers which were interviewed in 2007, 2012 and 2015. They answered on the same questioners in 2007, 2012 and 2015, but forward in time. Special attention is attended on the influence of the external environment and its components. The producers had to measure by own perspective the impact of the factors.

The scale of evaluation of the external environment factors is from 1 to 10, as evaluation 10 means that factor is with the greatest impact, and 1 with the least impact. According to the specification of the sector, the influence over 8 is taken as a strong influence.
An element of the analysis of the external environment is also what were the expectations of grain producers for the future importance of the factors and how could they anticipate the impact of factors.
The assessment of the external environment in which operate the agricultural structures in grain structures is carried out by analysis of the effect of following factors:

- ✓ market output
- ✓ market for raw materials
- ✓ labor market
- ✓ agricultural policy
- ✓ associations and organizations
- ✓ state institutions
- ✓ land market
- ✓ competitive sectors
- ✓ climate factors
- ✓ other

3) Based on the aggregated and analyzed information will be offered policy recommendations and general conclusions. Findings and conclusions in the paper are made on the basis of structured interviews with owners of agricultural holdings in grain sector and depth interviews with experts from branch organizations and government structures.
The research is made during several years by collecting panel data of structures operates in grain sector. Period of the collected information is 2007, 2012 and 2015.

3. Analysis of external environment of grain sector in Bulgaria

Element analysis of the external environment is and what were the expectations of grain and how they could provide influence of factors (Table 1).

Table 1 Deviation of the factor's influence on the external environment 2012

Factors	State in 2007	Forecast for 2012	State in 2012
Market output	7.73	8.00	7.60
Market for raw materials	7.20	7.33	7.07
Labor market	2.00	2.20	2.27
Agricultural policy	4.07	7.33	9,13
Associations and organizations	6.07	6.20	4.13
State institutions	2.73	2.93	3.87
Land market	7.67	6.53	6.53
Competitive sectors	1.93	1.60	1.27
Climatic factors	**9.67**	9.67	5.60
Others	2.8	2.33	2.00

Source: Own survey 2007, 2012.

Based on the expectations set out in 2007 to 2012 is made a comparative analysis of the actual state (deviation) in 2012. This information provides an assessment of the ability of government agricultural structures to predict influences of macro changes.

The interviewed representatives evaluate most common external environment which the literature review shows as significant.
With less impact than respondents expect are "climatic factors" (42%), "associations and organizations" (33%) and "competitive sectors" (21%).
Underestimated is the impact of agrarian policy with 40% and "the role of state institutions" by 32%.
For the other factors, the difference between the expected and the reported condition is within 5%, which implies a good knowledge of the processes in the country in terms of factors influencing the sector of grain by the respondents. Table 1 presents data on the estimated average impact factors in 2007 and 2012. Data show that the external environment in which operate agricultural structures changed in the observed period. In 2007, the greatest impact on the sector of grain has "climatic factors" (9.67), which are close to the maximum possible. This assessment is explained by the respondents with unfavorable weather conditions that occurred during the year (rainfall in unfavorable period, late fall of snow, hail, etc.). Information published in Agriculture report on Bulgaria data for 2007 confirms the influence of agro-climatic conditions in the last 15 years were the worst for Bulgarian Agriculture (MAF, 2008). The report mentions that farmers are compensated for 100% of fallen areas of wheat and barley, and for spring crops / grain maize and sunflower / paid out in 2008. Supplementary measure "State aid to compensate for the losses of farmers totally ruined crop due to natural disasters or adverse weather conditions" had 402 applications from manufacturers. Compensated hectares were 23 584 in a total 7,996,290 or an average of 339.05 lev per hectare, which is 33.90 lev per acre. This compensation in most types of “crop production” is lower than the fixed costs incurred during the year. In terms of grain, such compensation covers only the costs of preparing the soil to remove the failed production and cost of seeds. Surveyed farms did not receive compensation payments.

Table 2 Deviation of factor’s influence on the external environment, 2015

	State 2012	State in 2015.	Deviations	
Market output	7.60	7.8	0,20	2,63%
Market for raw materials	7.07	7.70	0,63	8,91%
Labor market	2.27	2.60	0,13	5,73%
Agricultural policy	9,13	10	0,87	9,53%
Associations and organizations	4.13	4.60	0,47	11,38%
State institutions	3.87	3	-0,87	-22,48%
Land market	6.53	3	-3,53	-54,06%
Competitive sectors	1.27	2	0,73	57,48%
Climatic factors	9.67	5.60	-4,07	-42,09%
Others.	2.33	2.00	-0,33	-14,16%

Source: Own survey 2007, 2015

The other examined factors than average influence in the same year (2007) have "the land market" (7.67),"the market output '(7.73) and "commodity markets" (7.20).

The influence of factors of lowest level in 2007 are "the competitive sectors" (1.93) and “state institutions" (2.73). The opinion of the respondents is that the sector is the leading sector in Bulgaria.
State institutions in 2007, according to respondents is that no significant impact on the sector, as many policies in 2007 changed due to the entry of Bulgaria into the EU and mastery of administrative approaches to interaction with the sectors of agriculture are minimal.
The labor market has a high impact on the sector. This significant impact can be explained by the type of productions, for which is required more machinery than hand-agricultural activities which are typical for other sectors.
In 2012, the external environment is changing and influenced by "agricultural policy" (9, 13). This effect is explained by Bulgaria's membership in the EU in 2007 and grants and subsidies to the agricultural sector in Bulgaria begins to absorb. In 2012, climatic factors no longer have such a strong impact on production (MAF, 2013).
Compensation for fallen harvest were EUR 3 996 000. "The market for production" and "commodity markets", although with less impact compared to 2007, are factors with a relatively strong influence on the grain sector. Just as in 2007, with low impact are the labor market and administrative activities.
In 2015 was conducted same research between same structures. The data is shown in table 2. As well the respondents made a forecast for 2017, which is shown in table 3.
The data from the survey show that some of the factors are overestimated (as climate change and competitive sectors) and they had less impact of predicted. As well the state institutions are decreasing their influence over the grain sector trough 2007 compare to 2015.

Table 3 Forecast influence factors in 2017

Externality	**Forecast 2017 (average)**
Market output	5.80
Market for raw materials	6.73
Labor market	2.13
Agricultural policy	**9.33**
Associations and organizations	2.67
State institutions	3.60
Land market	5.60
Competitive sectors	1.60
Climatic factors	5.67
Others	2.80

Source: Own survey 2015

Forecasts for 2017 shows that respondent expect stabilization of the environment in which they operate. Reduce the influence of markets and production of raw materials at the expense of that of agro assistance. This is explained by the hope of the producers to receive enough support from the state, so the current market does not affect the economic performance of their business. Forecast show that agricultural policy is on prime position of possibility to influence on the sector and the influence is 9.33 of 10. The level is approximately the same like for 2015. Even during the 2015 were given higher expectation

of possible influence on the external environment by association and organization in 2017 their role decrease. The land market is still decreasing the influence over the sector, which can be explained with finished land reform and that the grain sector reached its limit of horizontal growth. The market of raw materials highly influences on grain sector and during the 2007, 2012, 2015 and forecast for 2017 is around 7 of 10. Labour market is having influence around 2, which is on the lowest level of influence.

4. Conclusion and policy recommendations

Based on the analysis and evaluations of the external environment for agricultural holdings in grain sector in Bulgaria could be made conclusions and policy recommendations as follows:

Conclusions

- ✓ The difference between the expected and the reported condition is within 5%, which implies a good knowledge of the processes in the country in terms of factors influencing the sector of grain by the respondents.
- ✓ External environment is changing and most heavily influenced by "agrarian policy" and some of the factors as climate change and competitive sectors are overestimated and they had less impact of predicted. The labor market also has a significant impact on the sector, as this type of production requires more machinery than hand-agricultural activities typical of many other sectors.
- ✓ Grain farms to the greatest extent are in a position to modify and influence the external environment. This is explained by the large size of many structures. On the other hand, they are also influenced by certain factors.
- ✓ The strongest impact on the sector has climatic factors, the land market, the market of production, the market for raw materials.
- ✓ In 2007, the lowest level of impact on the sector has competitive sectors and state institutions.
- ✓ In 2012, the situation changed and the state institutions are a key factor for the development of the sector.
- ✓ In 2017 is expected stabilization of the external environment over the grain sector.

Recommendations

- ✓ Grain sector is the biggest agricultural sector in Bulgaria and is highly dependent on the environment. The policy makers should comfortable the producers by providing them insurances against climate changes, which damages the yield which covers more than now the payments.
- ✓ There should be an employment program for hiring specialized personal in agricultural activities, which will be favorable the hiring process.
- ✓ State institutions should be more devoted to the sector and to increase their positive influence on the sector.
- ✓ The structures which operate in grain sector in Bulgaria are mostly large ones and they react on the external environment as a business structure. The policy maker should support them as well with combine mechanisms of economic and marketing measurements which will help them to become more profitable.

References

1. Aerbe, F. (1919). Allgemine Lanweitschaftlichen Betriebslehre . 4 Auflage berling.
2. Atanasova, T., Kostadinova, N., Jeliazkov, G., Otuzbirov, R. (2006). The synergistic paradigm and the role of development of agricultural entrepreneurship in the process of European integration. *Dialog magazine.* 3, ISSN 1311-9206. Pub. Bussiness academy "D.A. Tzenov", Svishtov, p. 72-79.
3. Bourque, J. (2011). Contract farming: Opportunities and risks, International Trade Centre, *Trade Forum Magazine*, Issue 3, p. 34.
4. Dobbins, C. (2003), Strategic Planning: External Environmental Scanning. *Center for Food and Agricultural Business*. Purdue University.
5. Garnevska, E., Liub, G., Shadboltc, N. (2011). Factors for Successful Development of Farmer cooperatives in Northwest China. *International Food and Agribusiness Management Review*, Volume 14, Issue 4, p. 69-84.
6. Harizanova, H. (2015). State and prospects for the development of agricultural structures in grain sector. Publishing ATL-50, Sofia.
7. Jongeneel, R., Tonini, N. (2003). Dairy production in Poland and Hungary: A structure, Conduct. *Bulgarian Journal of agricultural science*, Volume 2, 135-148.
8. Kynchev, I., Dojchinova J. (2005). Farm management. University publishing "Economy". Sofia.
9. Mishev, P., Ivanova, N. et all. (2008). CAP and production structures in Bulgarian agriculture. *Changes in CAP and the position of Bulgaria.* UNWE. Sofia, p. 55.
10. Pielke, Sr., Adegoke, R., Chase, T., Marshall, C., Matsui, T., Niyogie, D. (2007). A new paradigm for assessing the role of agriculture in the climate system and in climate change. *Agriculture and Forest Meteorology*, 142(2–4): 234–54.
11. Porter, M. (1980). Competitive Strategy. *New York: Free Press*, p. 3.
12. Stankov, V. et all. (1997). Organization and management of agricultural holding. PSSA pub. Sofia.