SOCIAL IMPORTANCE OF DIFERENT TYPES AGRICULTURAL PRODUCTION SYSTEMS

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ABSTRACT
Social acceptability of agricultural systems expresses the public assessment of the organization and use of their resources and the social benefits from that exploitation. One of the social functions of agriculture is the provision of food and raw materials for people's needs. Another one is associated with the creation of jobs, livelihoods and income. Farming activities must be in line with social values, traditions and cultural heritage, but must provide the farmers with opportunities for normal life and social services (education, healthcare, justice, etc.). The willingness of society to support the incomes of farmers with subsidies and other programs is an expression of the social acceptance of agricultural activities and shows understanding of their importance.
Main objective of this research is to evaluate and assess the social function of agricultural production systems and find suitable instruments for their support in the institutional climate of the European common agricultural policy.

Key words: agricultural systems, social functions, institutional support.

INTRODUCTION

Social acceptability of agricultural systems expresses the public assessment of the organization and use of their resources and the social benefits from that exploitation (1). The methodological toolkit, used in the research is made for the purposes of dairy farming social importance evaluation, but could easily be adapted for other agricultural sectors or individual production systems. The assessment of social importance of dairy farming is based on the following indicators: **market orientation**, **provision of employment**, **working conditions and salaries**, as well as **animal welfare**. For the purpose of empirical representation of the relationship between agriculture and society, the state of each farm on the above mentioned indicators is evaluated and the results are translated in to indexes. All four indexes are aligned to a common evaluation scale $0 - 1$, which allows their further integration in the general index of social importance. First, the minimum and the maximum values of the index corresponding to 0 and 1 are set. This is done in accordance to reference values established statutory or based on expert opinions. If the state of the farm on the corresponding indicator is good, it's score is high (close to 1), and vice versa if the farm doesn't perform well on the certain indicator the evaluation score falls down towards 0.

Market orientation

Market orientation shows the share of farm's output intended for the market. The greater amount of farm's production is market oriented, the greater it's social importance. In this research a coefficient of market orientation (K_{MO}) is developed.

K_{MO} = production sold on the market (kg) / total production (kg)

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In Bulgaria farmers legally have two options for selling their milk. The first one is through the processing factories and the second one, the so called direct selling, when milk or milk products are delivered directly to the market. In both cases, the farmer must be registered as a dairy farmer in the Ministry of Agriculture and Food (MAF) and have individual milk quota. Common practice in the country is some farmers to deliver milk and milk products directly to the consumers, without having individual milk quota and without even being registered as milk producers. This most often happens in urban areas, where farmers have found places in various busy areas to sell their products. This creates difficulties in establishing the share of market production, because there is no accurate statistical information on the quantities of milk and milk products sold.

The survey carried out during the period 2007 – 2011, showed that the market orientation of all groups of farms in the sample was relatively high (between 79% and 93% of the milk produced). This underlines their important role in providing food and raw materials to the society. The coefficients of market orientation of different scale dairy farms are presented in **Table 1.**

Table 1. *Share of market orientated production in different size dairy farms*

Group	2007	2008	2009	2010	2011
1 – 4 cows	0,805	0,805	0,833	0,833	0,835
5 – 9 cows	0,850	0,860	0,857	0,868	0,867
10 – 20 cows	0,893	0,884	0,893	0,897	0,907
21 – 50 cows	0,908	0,892	0,900	0,903	0,925
> 50 cows	0,890	0,905	0,898	0,903	0,912
Average	**0,869**	**0,869**	**0,876**	**0,881**	**0,889**

Source: Own calculations, based on sample survey 2007 – 2011

Provision of employment
When the holding is large and the farmer is unable to carry out all activities alone or with the family members, he/she hires outside workers. From an economic point of view, this affects the viability of the farm because it makes it dependent on an external factor, increases costs and reduces economic efficiency, but from a social point of view this is a positive development, as part of the farm income is distributed in society, providing jobs and livelihood of other people. According to Levins (1996), whether the work will be done by the farm family or by other people living in the vicinity, it is not essential. More important is that part of the production value, formed in the farm will be used directly in the region, and the multiplier effect of this will contribute to its development (2). Total employment in each production system (self-employed labor + workers) is converted into annual work units (AWU) and after that aligned according to the assessment scale 0 – 1. It is assumed in this study that if a farm can provide employment to 5 or more AWU its assessment score would be 1. If the farm creates jobs to X AWU, and $0 < X < 5$, the assessment score is equal to X/5;

As a result of the five year study a favorable trend of gradually increasing the number of employees in the sample farms could be outlined. This is due to the employment of outside workers, while own labor remained almost unchanged. The share of hired labor in total surveyed farms in the Plovdiv region from 50 % (30,1 AWU) in 2007 reached 57,92 % (41,3 AWU) in 2011. Typically the small farms almost don't use outside help in carrying out their business operations and rely mainly on their own human resources. By increasing the scale of the production systems, the need of additional work also increase. The positive trend in the estimates of the different groups, except that of 1 to 4 cows, in the period 2007 – 2011 contributed to the improvement in the average score of the whole sample with 24.64 % **(Table 2).**

Table 2. *Assessment of employment provision of different scale dairy farms*

Group	2007	2008	2009	2010	2011
1 – 4 cows	0,267	0,267	0,267	0,267	0,233
5 – 9 cows	0,300	0,333	0,367	0,367	0,367
10 – 20 cows	0,433	0,467	0,467	0,533	0,567
21 – 50 cows	0,533	0,567	0,633	0,700	0,733
> 50 cows	0,767	0,800	0,933	0,967	0,967
Average	**0,460**	**0,487**	**0,533**	**0,567**	**0,573**

Source: Own calculations, based on sample survey 2007 – 2011

The index level of 0,573 achieved in 2011 means that on average each farm in the sample provides about 2,9 AWU of employment. In other words the average farm in the sample provides not just livelihood to its owner and the family, but also employment to approximately 1,9 more AWU.

Working conditions and salaries
According to Levins (1996), working conditions must be tailored to the specifics of dairy farming and related activities in order to protect the life and health of employees and their long term performance. Furthermore, salaries must reflect the quality and quantity of work done, and determined according to the length of the working day, employee's training and qualification, the level of danger and harmfulness of the job (2).

In the study, the working conditions are assessed first and then the salary level is also evaluated. The two estimates are averaged, in order to obtain the overall score for working conditions and payment level in the farm.

Working conditions are evaluated on the bases of information about the severity and intensity of physical labor, the length of working day, the number of days off during the week, month or the year, the length of the paid holyday, the availability of a toilet, bath, recreation room in the farm, the availability of appropriate clothing for work. These parameters are evaluated with points from 0 to 10, then the total score is converted according the perceived rating scale from 0 to 1. Rate 0 receives a farm with 0 points on the above parameters. Assessment 1 gets a farm, which has collected 50 points. If the score is X and 0 < X < 50, the evaluation is equal to X / 50;

Salary levels in each farm from the sample, for the purposes of this study, are compared to the legal minimum wage (MW) in the country. Based on the ratio between salary paid to the workers and the minimum wage, the farm receives points:

Salary of the employee < MW – 0 points
Salary of the employee = MW – 1 point
MW < Salary of the employee < 1,5 MW – 2 points
1,5 MW < Salary of the employee < 2 MW – 3 points
2 MW < Salary of the employee < 2,5 MW – 4 points
2,5 MW < Salary of the employee < 3 MW – 5 points
Salary of the employee > 3 MW – 6 point

If the score of the farm is 0 points, its evaluation is 0. If the score is 6 points, the evaluation is 1; If the score is X and 0 < X < 6, the evaluation is X / 6;

In small farms where there are no employees, this indicator is not calculated and the assessment of the indicator working conditions and salary is equal to the estimates for just working conditions.

During this survey a trend towards improvement of working conditions in the sample was found. The process of changing structure in dairy farming and the aspirations of many producers to be reclassified in first group leads to modernization of buildings, infrastructure, facilities, etc. The results show that working conditions are improving in the whole sample as well as in each group of farms. Scores in the smallest farms vary during the period 2007 – 2011 between 0,28 and 0,45. In the group of holdings with 5 to 9 dairy cows, scores ranged from 0,32 to 0,42. In medium sized farms, breeding from 10 to 20 and from 21 to 50 cows,

the grades were between 0,45 and 0,55. The evaluation of working conditions in the largest farms, with more than 50 cows, varied during the period between 0,5 and 0,6.

The level of payment (salary) in dairy farms is still relatively low, given the peculiarities of labor in the sector. The analysis shows that the average annual salary, including social payments, tax and other deductions per one full time worker has changed from 3960 levs to 5424 levs, during the perod 2007 – 2011, which is equal to an increase of about 37%. The two small farm groups are not included in the analysis, because they don't employ outside workers, or if they do so it is only temporary. Estimates of wages, according to the methodology of the study are calculated by comparing their amount to the minimum wage in the country. In this comparison, the highest scores were recorded in the group of 10 – 20 cows (between 0,50 and 0,62), during the study period. In the group with 21 to 50 cows, the average estimates varied between 0,44 and 0,54. The largest farms in the sample had scores between 0,4 and 0,5.

The overall values of the indicator working conditions and salary level showed a positive trend in all groups, although it did not lead to satisfactory levels. The average score for the working conditions and salary levels in the whole sample was only 0,493 in 2011. The group with 21 to 50 cows had scores of around 0,567, while the group with more than 50 cows and the one with 10 to 20 cows were evaluated at 5,33. The two groups of small farms didn't go over 0,417.

Animal welfare

Animal welfare, according to the American veterinary medicine association (AVMA), is the human responsibility and respect to all aspects of their health and good condition. This includes provision of appropriate building management, nutrition, prevention and treatment of diseases, welfare and when required euthanasia (3). The basic minimum standards for animal welfare at farm level are set in 1976 by the Council of Europe in the "European Convention for the protection of animals kept for commercial purposes." According to that, animals must receive adequate food and water, to be kept in convenient conditions for them and any physical pain or suffering should be avoided. Skarstad et al (2007), say that consumers look at the animal welfare by moral considerations and concerns, as well as the understanding that well-treated and happy animals later become better quality food, while farmers look at it more as a technical or economic aspect of their activity (4).

It is important to monitor the animal welfare in the farm because it has an impact on the health and productivity of animals and hence on human health. In the present study the animal welfare is assessed by the following parameters: *feeding, housing conditions, milking machines status* and *the overall health of the animals*.

Feeding assessment is based on information about quantity, quality and variety of food in the animal rations. Depending on that, how rations correspond to the specific needs of the animals, the feeding practices of the farm are evaluated with a certain number of points.

The results from the study show that not all farmers understand the nutritional requirements of different groups of animals, which leads to inadequate diets, not balanced and do not containing sufficient amounts of foodstuffs, vitamins, trace elements and pulp, needed for the digestive processes. The smallest farms in the sample least comply with the nutritional needs of the animals. Switching to the groups of larger farms it is seen improvement of farmer's attitudes towards animal nutrition and implementation of quality and diverse food rations.

Housing conditions are evaluated by examining the appropriateness of the premises where animals stay, eat and be taken care of. The evaluation is done by points. Housing conditions determine the overall comfort of the animals and are related to the size of the boxes, texture and slope of floors, ventilation, lighting, cleanliness of premises and more. These conditions significantly affect stress levels, productivity, social behavior and health of the animals. Most farms in the sample, especially the smaller ones, do not have suitable buildings to meet the physiological needs of the cattle. Very often the animals are kept in old buildings that do not provide the required comfort. Larger farms have better economic opportunities and incentives to invest in modern buildings or barns, in line with EU requirements and the needs of the animals. The study, during the period 2007 – 2011,

demonstrated that large farms, especially those categorized in first group (according to Regulation 853/2004), have provided better conditions for the anatomical, physiological and social needs of cattle.

Evaluation of *milking machines* is done because they are an important piece of equipment for dairy farms and their condition affects the welfare of cows. According to their availability, type, state and regular service, the farm scores points.

The results from the survey are not very good when it comes to the state of milking machines, especially in small dairy farms. The majority of farmers use portable milking machines, which collect the milk into a churn. Others have milking systems with a central pipe. Very few farms have invested in modern milking parlors. All this affects the quality of milk on the one hand and the comfort of dairy cows on the other. The positive thing is that there is a trend towards modernization of milking equipment and the overall milking processes, as well as improving the maintenance of the milking installations.

The overall health of each animal in the heard is important for the performance of the farm. That is why there are indicators that must be monitored – body condition, condition of legs,

udder, skin, etc.). Monitoring is done also on the preventive measures against animal diseases, vaccinations, examinations by a veterinarian and timely treatment. The evaluation is made by points.

Understanding and monitoring the health status of the herd and the prevention of disease outbreaks are important for the animal welfare. Best results in the period 2007 – 2009 had farms with up to 4 cows. In 2010 their performance continued to improve, but the group with between 10 and 20 cows cached up. On this indicator the worst results were for the large farms in the sample. This was mostly due to the shorter life of the productive cows, and more frequent occurrence of mastitis and other diseases. In smaller sized herds the farmer could better take care for each animal and timely detect a possible health problem.

The final overall score of "animal welfare" is formed on the basis of the collected scores on the four indicators. The possible options are:
If the farm has scored 0 points, the evaluation is 0
If the farm has scored 20 points, the assessment is 1
If the farm has scored X points and $0 < X < 20$, the evaluation $X / 20$;

The summarized results for the estimation of animal welfare are presented in **Table 3.**

Table 3. Assessment of animal welfare in dairy farms

Group	2007	2008	2009	2010	2011	change 11/07
1 – 4 cows	0,561	0,561	0,561	0,561	0,561	0,00 %
5 – 9 cows	0,563	0,583	0,633	0,639	0,646	14,81 %
10 – 20 cows	0,678	0,695	0,723	0,730	0,738	8,85 %
21 – 50 cows	0,667	0,683	0,743	0,750	0,767	15,00 %
> 50 cows	0,647	0,663	0,703	0,710	0,727	12,37 %
Average	**0,623**	**0,637**	**0,673**	**0,678**	**0,688**	**10,38 %**

Source: Own sample study, 2007 – 2011

CONCLUSIONS
The social acceptance of agricultural production systems is extremely important and is one of the three pillars of sustainable development. Due to the complexity and the dynamics of social environment in which Bulgarian economy is functioning and considering the technological level of agriculture, the survey of social acceptability of farming systems was based on the combination of the above four indicators.

The results show that in all five years of the study, the highest public approval have the largest farms in which aggregate estimates run in the range from 0,68 to 0,785. The trend in their social acceptability is positive, and the growth in 2011 was 15,38% compared to 2007. This is due to different extent of the change in the component indicators, but mainly to the provision of employment and production of

market oriented goods and less to working conditions and salary levels, as well as the welfare of animals. Farms ranged in the herd size between 21 and 50 cows have similar levels of social acceptability throughout the period studied, varying from 0,637 to 0,748. The improvement in 2011 compared to 2007 is 17,7%. Farms with 10 – 20 cows have estimates for social acceptability between 0,614 and 0,686 for the period 2007 to 2011, during which they recorded a growth of 11,81%. In the other two groups of holding (1 to 4 and 5 to 9 cows) scores were lower (from 0,479 to 0,574), which is due to the fact that they hardly provide additional employment and the share of production reaching to consumers is relatively small, and hence the benefit to society is less.

However, it can be seen a positive trend in the overall social acceptability of all groups of farms. The growth in the entire sample, during 2007 – 2011 was 13,33%. This means that in the first years of Bulgaria's membership in the EU, these farms manage to some extent to adapt to the dynamic socio-economic and institutional environment, formed by the CAP and the local conditions. The positive change in the overall index of social acceptability of dairy farming in Plovdiv region, indicates that the sector is becoming more synchronized with the long-term interests of society.

An important prerequisite for sustainable development of wheat production is the state of the agricultural land market. Farmers participate on the market by selling, buying or renting land. The legislation about agricultural land market in Bulgaria, during the last 20 years has been changed so many times, creating difficulties to farmers (5). Another factor impacting the overall performance of the sector is the support that farmers receive, after country's accession to the EU. Until 2007 farmers had the only option to use funds from SAPARD program, under which (according to Hristov, 2011) 3500 projects were implemented, totaling around 600 million Euro. Despite the huge budget, only a small part of the funds have reached the small farmers, accounting nearly 95% of all farms. In 2007 SAPARD program was replaced by the Rural development program 2007/13 (6).

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