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SWOT analysis for supporting development of the grazing livestock meat production sector in Bulgaria through the GREENANIMO project activities

Milena Panayotova[1*], Jivko Krastanov[3], Ivan Varlyakov[1], Todor Stoyanchev[2] and Ivajlo Marinov[1]

[1]*Trakia University, Faculty of Agriculture, 6000 Stara Zagora, Bulgaria*
[2]*Trakia University, Faculty of Veterinary Medicine, 6000 Stara Zagora, Bulgaria*
[3]*Agricultural Institute, 6000 Stara Zagora, Bulgaria*
[*]*Corresponding author:* milena.panayotova@trakia-uni.bg

Abstract

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The grazing livestock meat production sector in Bulgaria has shown considerable development in the last 7-8 years, but is still far from European countries in terms of production efficiency, quantity and quality of production. The goal of this study is to develop the most appropriate strategies to support the development of the grazing livestock meat production sector in Bulgaria through the activities of the GREENANIMO project – knowledge transfer and implementation of innovative practices in order to achieve sustainable production of quality meat while increasing the benefits for farmers. Primary data for the SWOT analysis were obtained by use of a survey of a representative sample of farmers rearing beef cattle, meat sheep and meat goats. A comparative index was used to rank the strengths (S) and weaknesses (W), opportunities (O) and threats (T) for the development of the grazing livestock meat production sector in our country. To calculate the metric assessments of each of the factors, an additional ranking was performed based on the average assessment on the importance of the factor by the respondents in the survey, weighted with an additional expert assessment of the possibility this factor to be influenced by GREENANIMO project activities. Matrices for estimation of the internal (IFE) and external factors (EFE) have been created. The determination of the strategy of the highest importance was made by compiling a SWOT matrix and analyzing the results of four alternative strategies SO, WO, ST and WT. The results of the study show that the (W) and the (T) for the business prevail at almost equal value to the (O). The analysis of the SWOT matrix points at WT and WO strategies, which are the implemented actions leading to minimization of W to limit the T for the sector, as well as to support the realization of O. The appropriate strategies and the activities for their implementation were found, which will be planned in the preparation of the "Action Plan for research and implementation of innovative practices in the grazing livestock meat production sector" within the GREENANIMO project with a view to support the development of the grazing livestock meat production sector in Bulgaria.

Keywords: SWOT analysis, beef cattle, meat sheep, meat goat

Introduction

In the past 20 years, beef consumption has increased by nearly 25%, but due to the accumulated effect of improved technologies, selection, healthcare, etc., for the same period the production increased by 28% while the number of animals decreased by 11% (according to USDA data). It has been found (Capper, 2011) that over a 30-year period, the

improvement of production systems has lead a larger amount of production with fewer resources used and reduced environmental pollution. According to the author, the production of 1000 tons of beef now requires 69.9% of the animals, 81.4% of the feed, 87.9% of the water and only 67.0% of the land that was needed 30 years ago. At the same time, waste and harmful substances were reduced, with the production of the same amount of meat are obtained only 81.9% of the manure, 82.3% of CH_4, 88.0% of N_2O and 16.3% less carbon emissions.

The grazing livestock meat production sector in Bulgaria has shown considerable development in the last 7-8 years, but is still far from European countries in terms of production efficiency, quantity and quality of production and others. For the sustainable and competitive development of the sector it is necessary to apply the knowledge and achievements of the developed countries regarding the production systems in beef cattle, meat sheep and goat breeding, improving animal welfare, feed efficiency, in order to increase the farm profit, meat productivity and meat quality. These are part of the main goals of the GREENANIMO project – to disseminate new knowledge, innovations and good European practices among the participants in the ruminant meat chain – from the Bulgarian farmers raising ruminants for meat, the experts from non-governmental organizations in the sector and from government institutions, the grading of carcasses and meat, to the consumer.

In order to correctly direct the project activities it is necessary to identify the strengths and weaknesses of the meat industry in Bulgaria, the opportunities and threats in the sector, to identify gaps and needs for scientific studies, new knowledge and innovations in the grazing livestock meat production sector, and rational and full use of the expertise and skills of the project consortium – Trakia University (Bulgaria), INRAE (France) and SRUC (Scotland, UK).

The results of this study will support the development of an overall strategy for joint activities to improve the condition of grazing livestock meat production sector in Bulgaria.

SWOT analysis is one of the strategic techniques for analysis of a specific business situation, which assesses the strengths and weaknesses, as well as opportunities and threats associated with business development or project planning (www.mindtools.com). The main purpose is to reveal the opportunities and eliminate the dangers with realization of successful strategy to achieve the goal.

In different countries around the world SWOT analysis is used to describe the possibilities and identify the dangers for achieving the goals in meat livestock farming, optimizing strategies for business development or implementing certain activities that contribute to achieving these goals. Such works have been published for the beef cattle industry of Australia (The Australian Beef Industry, 2011), for the USA (US Beef Industry, 2015); for Spain (Escribano, 2016) and other countries. This analysis technique was used to develop a strategy for fattening beef cattle in Indonesia (Purnomo et al., 2017), for the development of beef cattle breeding in particular regions of Indonesia (Achmad et al., 2013; Rohaeni & Hartono, 2014; Purnomo et al., 2019), of Bangladesh (Sarma & Raha, 2015). The SWOT analysis was used to outline certain strategies in goat breeding (Marta-Costa & Costa, 2011) and in sheep breeding (Nurlankyzy et al., 2017).

In our country the use of this methodology for analysis and optimization of development strategies is very limited in the agricultural sector and especially in the grazing livestock meat production sector. Similar analyses have been made by the Institute of Agricultural Economics for the agricultural sector in Bulgaria (IAE Report, 2019) and by InteliAgro (2016) for beef cattle breeding. However, these analyses are markedly economic and cover only part of the critical factors that affect the system. A more detailed expert opinion, concerning the production systems, the specifics of the production process and the business conditions for the production of quality ruminant meat, requires that, within the analysis, emphasis is placed on the possibilities for realization and avoidance of threats in achieving the set goals at producer level – i.e. directed at farmers producing meat from ruminants.

The GOAL of this study is to develop the most appropriate strategies to support the development of the grazing livestock meat production sector in Bulgaria through the activities of the GREENANIMO project – knowledge transfer and implementation of innovative practices in order to achieve sustainable production of quality meat while increasing the benefits for farmers.

Materials and Methods

Primary data for the SWOT analysis were obtained by use of a survey of a representative sample of farmers rearing beef cattle, meat sheep and meat goats. The survey was conducted during the period December 2020 – January 2021.

In preparation for the survey, the main issues related to the grazing livestock meat production sector were firstly defined, reflecting the internal factors (strengths and weaknesses) and external factors (opportunities and threats) of the sector. The final refinement of the questions was done after a detailed description of the specialized meat sector of grazing meat livestock production in our country was made and after using a comparative, expert, and consultative method of analysis in order to synthesize the main implications

and conclusions. On this basis, the strengths and weaknesses were formulated, as well as the opportunities and threats for the development of the sector.

The questions were defined as follows: 9 questions about strengths (S), 15 questions about weaknesses (W), 9 questions about opportunities (O) and 13 about threats (T). Respondents had the opportunity to determine the importance of each factor on a scale from 1 to 4, respectively: 1 – this factor is not important, 2 – of low importance, 3 – moderately important and 4 – of extreme importance.

The subjects of the survey were farmers rearing cattle, sheep and goats for meat. The questionnaire survey (created and distributed online in Google Forms) was disseminated through farmers' organizations – breeding organizations, branch unions and marketing organizations. The answers received cover the whole range of the surveyed business – respondents include farmers rearing specialized cattle, sheep and goats breeds for meat production. Some farmers have mixed farms – animals of different breeds, as well as of different species of animals.

Depending on the size of the livestock farms (number of animals housed), the distribution is as follows:

– in cattle farms (40 owners) 10% are small – up to 10 cows, 40% are from 10 to 50 cows, 17.5% are from 50 to 100 cows and 32.5% are with more than 100 cows. The breeds of cattle owned by the respondents are: Aberdeen Angus, Limousin, Hereford, and crosses between them. There are single farms raising Salers, Simmental and Belgian blue cattle.

– in sheep farms (23 owners) 21.7% are up to 10 sheep, 13% are from 50 to 100 and 65.2% are with more than 100 sheep. The meat breeds housed are Ile de France and Mouton Charollais.

– in goat farms (a total of 8 owners of the meat breed Boer) 50% are up to 10 goats, 25% are from 10 to 50 and 25% over 100 goats.

Of the respondents, 9.8% have their own slaughter plants, and 90.2% do not have such.

According to the size of the managed pasture areas, the respondents are distributed as follows: 11.1% – up to 5 hectares, 5.6% – 5 to 10 hectares, 38.9% – 10 to 50 hectares and 44.4% – over 50 hectares.

These data show that the farmers included in the study are a representative sample of those employed in the business of beef, lamb and goat meat production.

SWOT analysis is one of the systematic tools for analyzing a specific business situation. When conducting a SWOT analysis the internal factors are determined – the strengths (S) and weaknesses (W) of the business and the external factors – the opportunities (O) and threats (T) for the surveyed business (Wheelen et al., 2015).

A comparative index was used to rank the strengths and weaknesses, opportunities and dangers for the development of the grazing livestock meat production sector in our country. It allows us to compare the values obtained for each factor by eliminating the number of the questions.

To calculate the metric assessments of each of the factors, an additional ranking was performed based on the average assessment on the importance of the factor by the respondents in the survey, weighted with an additional expert assessment of the possibility this factor to be influenced by GREENANIMO project activities.

Matrices for estimation of the internal (IFE) and external factors (EFE) have been created. The determination of the strategy of the highest importance was made by compiling a SWOT matrix and analyzing the results of four alternative strategies SO, WO, ST and WT.

Results and Discussion

After questionnaire data processing, the formulated questions were ranked according to their importance for the respective group of factors evaluated by the respondents.

Table 1 presents the results of the survey of the assessment of internal and external factors based on the answers of the respondents on a scale from 1 to 4 according to the importance of the question. Based on the calculated comparative index, the individual strengths and weaknesses for the development of the grazing livestock meat production sector in our country (internal factors), as well as the opportunities and threats (external factors) are ranked in order of importance. Using the comparative index allows us to compare the values obtained for each factor, eliminating the number of formulated questions. Theoretically, the values can be from 0 to 1 and the closer the value is to 1, the more significant the influence of the parameter is perceived to be. The obtained results show the highest average value for the factor W (weaknesses) 0.801, followed by S = 0.774, T = 0.758 and O = 0.713. Although the highest value of a parameter was found at factor O = 0.930, the difference between this value and the other maximal values was negligible (0.898 for S and W, 0.899 for T). An extreme minimum was found at T = 0.497. For the purposes of the analysis, the limits within which the reported values vary (maximum – minimum) are also indicative. The lowest value of the difference was found at W = 0.159, and the highest at T = 0.402.

The mathematical arguments presented so far draw attention to the group of factors W (weaknesses) as a priority in determining the strategy for influence. Although the highest potential for influence is within the factors O (opportunities), the results in factors S and T must be reasonably assessed in relation to the resource capacity of the project.

Table 1. Ranking of internal and external factors depending on comparative index

No	Strengths	Overall assessment	Comparative index	No	Weaknesses	Overall assessment	Comparative index
1	Very good qualities of the breeds	3.69	0.898	1	Low purchase prices from the farm	3.69	0.898
2	Knowledge and know-how of the farmer	3.65	0.885	2	Insufficient institutional support	3.60	0.866
3	Grazing of animals is safe for the environment and in accordance with the welfare regulations	3.54	0.848	3	Limited export opportunities	3.52	0.839
				4	Insufficient subsidies	3.51	0.836
4	Growing interest in quality beef / lamb on the market	3.53	0.846	5	Weak connection with science	3.47	0.824
5	Favorable geographical area and climate	3.49	0.831	6	Low-yielding pastures	3.46	0.818
6	The state supports the sector	3.36	0.788	7	Lack of an organized marketing system	3.42	0.806
7	Great interest in fattening calves / lambs	3.34	0.780	8	Danger of infectious diseases	3.36	0.788
8	Use of innovative technologies	3.22	0.739	9	Lack of S EUROP assessment in slaughterhouses	3.36	0.788
9	Grazing farming systems are liked	2.98	0.661	10	There is no link between S EUROP slaughterhouse results and actual culinary quality of beef / lamb	3.33	0.776
				11	Lack of knowledge about meat grading and processing	3.31	0.77
				12	Limited size of purebred animal populations	3.30	0.769
				13	Insufficient own production of quality forage-	3.26	0.752
				14	External dependence on forage-	3.22	0.739
				15	High market prices in stores	3.22	0.739
No	Opportunities	Overall assessment	Comparative index	No	Threats	Overall assessment	Comparative index
1	Improving knowledge on ruminants nutrition	3.80	0.933	1	Low productive performance of the animals	3.69	0.899
2	Improving knowledge on the botanical composition of pastures	3.53	0.843	2	Lack of pastures	3.65	0.885
3	Improving the relationship with science	3.49	0.830	3	Neglect of veterinary control and risk to the health of consumers	3.65	0.882
4	Creation and development of branded marketing structures and regulations guaranteeing the production and trade of high quality meat	3.49	0.830	4	Decrease in market prices	3.64	0.880
				5	High feed prices	3.62	0.874
5	Improving knowledge of meat grading and processing	3.33	0.775	6	Spread of infectious diseases	3.57	0.857
6	Potential for improving the quality of ruminant meat through new grading systems and / or official quality labels	3.31	0.769	7	Higher competition between countries on the international market	3.41	0.802
				8	Difficult access to working capital (loans)	3.27	0.757
7	Improving knowledge on integration with the environment	3.22	0.740	9	Reducing meat consumption in developed countries	3.04	0.679
8	Potential to increase reliance in the work of slaughterhouses	3.11	0.703	10	Growing consumer concern about environmental issues related to animal husbandry	2.96	0.655
9	Growing interest from investors	3.09	0.697	11	Growing competition of the meat substitutes (plant products and cell-based meat)	2.93	0.643
				12	Negative view of part of the society towards raising animals for meat (lack of welfare. no need to kill animals)	2.64	0.546
				13	The COVID crisis	2.49	0.497

The largest number of respondents identified as *important advantages*: the qualities of the breeds housed, the knowledge and know-how of the farmer, "grazing of animals is safe for the environment and in accordance with the welfare regulations", and the growing interest in quality beef and lamb on the market.

The most important *weaknesses* are identified as the following: the low purchase prices of animals from the farm, insufficient institutional support, limited export opportunities, insufficient subsidies, weak relationship with science and low pasture productivity.

For the external factors with the greatest importance for the meat business the following *opportunities* are outlined: improving the knowledge on the botanical composition of pastures and animal nutrition, improving the relationship with science, as well as the creation and development of branded marketing structures and rules for guaranteeing the production and trade of high quality meat.

As *threats* for the meat business the largest portion of respondents identify: low animal productive performance, lack of pastures, neglect of veterinary control, which poses a risk to consumer health, decline in market prices, high forage prices, as well as the dangers of infectious diseases in animals.

After the analysis of the more important factors in the opinion of the respondents, we applied additional assessment by including expertly compiled ranks. The ranking of each of the factors was performed on the basis of the average as-

Table 2. Metric assessment of the internal factors for development of the grazing livestock meat production sector in Bulgaria according to the possibility to be influenced by the activities of the GREENANIMO project

No	Internal Factors	VALUE	WEIGHT	RANK	RANK X WEIGHT
	Strengths (S)				
S1	Knowledge and know-how of the farmer	3.65	0.050	4	0.200
S2	Very good qualities of the breeds	3.69	0.045	4	0.180
S3	Great interest in fattening calves / lambs	3.34	0.041	4	0.163
S4	Growing interest in quality beef / lamb on the market	3.55	0.040	4	0.160
S5	Grazing of animals is safe for the environment and in accordance with the welfare regulations	3.55	0.043	3	0.129
S6	Favorable geographical area and climate	3.44	0.042	3	0.126
S7	The state supports the sector	3.36	0.041	3	0.123
S8	Use of innovative technologies	3.22	0.039	3	0.118
S9	Grazing farming systems are liked	2.98	0.036	2	0.073
	Total For Strengths		0.377		1.272
	Weaknesses (W)				
W1	Low purchase prices from the farm	3.69	0.045	4	0.180
W2	Weak relationship with science	3.47	0.043	4	0.172
W3	Low-yielding pastures	3.45	0.042	4	0.168
W4	Lack of an organized marketing system	3.42	0.042	4	0.168
W5	Danger of infectious diseases	3.36	0.041	4	0.164
W6	Lack of knowledge about meat grading and processing	3.31	0.040	4	0.160
W7	Insufficient institutional support	3.60	0.044	3	0.132
W8	Insufficient subsidies	3.51	0.043	3	0.129
W9	Limited export opportunities	3.51	0.043	3	0.129
W10	Lack of S EUROP assessment in slaughterhouses	3.36	0.041	3	0.123
W11	There is no link between S EUROP slaughterhouse results and actual culinary quality of beef / lamb	3.33	0.041	3	0.123
W12	Limited size of purebred animal populations	3.31	0.040	3	0.120
W13	Insufficient own production of quality forages	3.25	0.039	3	0.117
W14	External dependence on forages	3.22	0.039	3	0.117
W15	High market prices in stores	3.22	0.040	2	0.078
	Total For Weaknesses		0.623		2.080
	Total For Internal Factors		1.000		3.352

Table 3. Metric assessment of the external factors for development of the grazing livestock meat production sector in Bulgaria according to the possibility to be influenced by the activities of the GREENANIMO project

No	External Factors	Value	Weight	Rank	Rank X Weight
Opportunities (O)					
O1	Improving knowledge on ruminant nutrition	3.80	0.052	4	0.208
O2	Improving the relationship with science	3.49	0.048	4	0.192
O3	Improving knowledge on the botanical composition of pastures	3.53	0.048	4	0.192
O4	Creation and development of branded marketing structures and regulations guaranteeing the production and trade of high quality meat	3.49	0.048	4	0.192
O5	Potential for improving the quality of ruminant meat through new grading systems and / or official quality labels	3.31	0.046	4	0.184
O6	Improving knowledge on integration with the environment	3.22	0.043	3	0.129
O7	Potential to increase reliance in the work of slaughterhouses	3.11	0.043	3	0.129
O8	Growing interest from investors	3.09	0.043	3	0.129
O9	Improving knowledge on meat processing	3.00	0.041	3	0.123
	Total for Opportunities		0.412		1.478
Threats (T)					
T1	Low productive performance of the animals	3.69	0.051	4	0.204
T2	Lack of pastures	3.66	0.050	4	0.200
T3	Neglect of veterinary control and risk to the health of consumers	3.64	0.050	4	0.200
T4	High feed prices	3.62	0.049	4	0.196
T5	Spread of infectious diseases	3.57	0.049	4	0.196
T6	Decrease in market prices	3.64	0.050	3	0.150
T7	Difficult access to working capital (loans)	3.27	0.045	2	0.090
T8	Reducing meat consumption in developed countries	3.03	0.042	2	0.084
T9	Higher competition between countries on the international market	3.41	0.048	1	0.048
T10	Growing consumer concern about environmental issues related to animal husbandry	2.96	0.041	1	0.041
T11	Growing competition of the meat substitutes (plant products and cell-based meat)	2.93	0.040	1	0.040
T12	Negative view of part of the society towards raising animals for meat (lack of welfare. no need to kill animals)	2.64	0.036	1	0.036
T13	The COVID crisis	2.49	0.035	1	0.035
	Total For Threats		0.588		1.520
	Total For External Factors		1.00		2.998

sessment of the respondents in the survey on the importance of the factor, weighted with an additional expert assessment of the possibility of the respective factor to be influenced by the GREENANIMO project activities.

Tables 2 and 3 show the metric assessments of the internal and external factors that affect the development of the grazing livestock meat production sector in our country, according to the possibility of the factor being influenced by the project activities. When comparing these data with the ranking in Table 1, some of the groups of factors retain a similar order in importance (e.g. strengths and opportunities), the biggest differences are in the ranking of weaknesses, and it is almost identical in the threats.

The strengths that can be further developed are: *knowledge and know-how of the farmer, genetic qualities of the breeds, interest in animal fattening, in quality beef/lamb on the market*.

The weaknesses that can be changed in desired direction are: *low purchase prices from the farm, weak relationship with science, low-yielding pastures, lack of an organized marketing system and danger of infectious diseases.*

These weaknesses can be overcome by improving the relation with science, leading to a positive development of a number of **opportunities** (Table 3), such as: *Improving knowledge on ruminant nutrition and on pastures, improving the quality of ruminant meat through new grading systems and/or official quality labels, creation and development of branded marketing structures and regulations guaranteeing the production and trade of high quality meat*. At first glance, the factor “low purchase prices from the farm” (W1)

cannot be influenced by the project activities, but in fact the knowledge and application of good European practices for the O5 and O4 opportunities realization (Table 3) can help the creation of a "Farmer's payment scheme according to the quality of animal meat", which is a stimulating factor for the development of ruminant meat farming in the direction of production of quality meat. This can indirectly lead to higher prices for animals with better meat-producing traits and higher meat quality.

The most substantial **threats** for the meat sector in our country, which can lead to risks for its development, are: ***l****ow productive performance of the animals, lack of pastures, neglect of veterinary control and risk to the health of consumers, high feed prices and spread of infectious diseases.*

The significant factors from the four groups were further analyzed in detail and used in determining the most appropriate strategies for the preparation of an "Action Plan for research and implementation of innovative practices in the grazing livestock meat production sector" in the project.

From the data analysis of Table 2 and the calculation of the metric assessments (rank x weight) it can be seen that for the internal factors the weaknesses in total (2.080) prevail over the strengths in total (1.272). This shows that when planning the project activities, the focus should be on the overcoming the weaknesses (W).

It is slightly different in the external factors (Table 3), where the total threats (1.520) very slightly prevail over the opportunities (1.478). This means that the project activities must be aimed at reducing the risk of threats (T) and developing the opportunities (O).

As can be seen from Tables 2 and 3, the total assessment of the internal factors is 3.352 and of the external ones 2.998, which shows expectations for higher efficiency of a more aggressive strategy based on overcoming weaknesses, using the opportunities to avoid threats. Of course, the development of advantages should not be overlooked.

After the matrices analysis for assessment of internal (IFE) and external (EFE) factors, a SWOT matrix was compiled. Figure 1 shows a schematic illustration of a SWOT matrix (according to David, 2009). In the SWOT matrix scheme, the four cells represent the four possible alternative strategies SO, WO, ST and WT.

The analysis and summarizing so far show that the weaknesses (W) and the threats (T) for the business prevail at almost equal value to the opportunities (O). Constructing the SWOT matrix based on the calculations so far, the optimal strategies for the development of the meat business in our country through the activities of this project are positioned mainly in quadrant IV (WT strategies) and partly in quadrant III (WO strategies). This means to carry out actions that lead to minimizing weaknesses thus limiting risks to the sector and to support the realization of opportunities. The correct determining of the project activities and the correct organization of the appropriate target groups in its implementation can support the development of the grazing livestock meat production sector in our country.

The important factors pointed so far, determining the optimal WT and WO strategies, were grouped and summarized in the specific activities that will be used in the preparation of the "Action Plan for research and implementation of innovative practices in the grazing livestock meat production sector" within the GREENANIMO project.

As a key factor for the system can be defined as the "relationship with science", which is at the forefront of the weaknesses (W2 weak relationship with science) and opportunities (O1 improving the relationship with science), as well as its prime importance for business success. – S1 in the strengths.

Strengthening the relationship with science can be identified as a key priority of the activities for influencing the development of the grazing livestock meat production sector. In addition to the direct sense (conducting scientific studies directly focused on the positive development of the meat sector), this includes training of students and participants from each stage on the chain "meat from ruminants" (from farmers to consumers). These trainings can be carried out through seminars, round tables, workshops, popular articles, brochures, monographs and direct training through exchange of experience with the leading European partners.

	Strengths (S) Derived from the IFE Matrix	Weaknesses (W) Derived from the IFE Matrix
Opportunities (O) Derived from the EFE Matrix	SO Strategies Develops strategies that use the strengths of the studied business	WO Strategies Develops strategies that minimize the weaknesses of the studied business to provide an advantage in a particular area
Threats (T) Derived from the EFE Matrix	ST Strategies Develops strategies that use the strengths of the studied business to deal with the threats	WT Strategies Develops strategies that minimize the weaknesses of the studied business in dealing with threats

Fig. 1. Schematic illustration of a SWOT matrix (according to David, 2009)

Table 4. Strategies and activities for their implementation, which to be planned during the preparation of the "Action Plan…" of the GREENANIMO project in order to support the development of the grazing livestock meat production sector in Bulgaria

Strategy	Symbol indicated by the factors included	Project activity to minimize weaknesses	Expected effect of the activity
(WT)1	W3T1; W3T4	W3: Increasing knowledge and experience for the creation, maintenance and use of pastures, including issues solving when grazing to avoid stomach acidosis.	To avoid the risk of T1 and T4 threats
(WO)1	W3O3		To support O3 opportunity
(WT)2	W6T1; W6T3	W6: Knowledge for meat grading and processing	To avoid the risk of T1 and T3 threats
(WO)2	W6O4; W6O5		To support O4 and O5 opportunities
(WT)3	W2T1	W2 in the aspect of nutrition: Increasing the knowledge about animal nutrition (incl. feed efficiency; standardized feeding in different categories, age groups and physiological conditions; nutrition during fattening, including the finishing period)	To avoid the risk of T1 threat
(WO)3	W2O1; W2O3		To support O1 and O3 opportunities
(WT)4	W4T6	W4: Increasing knowledge and experience about effective marketing structures in European countries regarding meat from ruminants	To avoid the risk of T6 threat
(WO)4	W4O4; W4O5		To support O4 and O5 opportunities
(WT)5	W5T3; W5T5	W5: Increase of knowledge and experience about veterinary control in animals and meat in order to prevent zoonosis and health hazards to consumers, as well as infectious diseases	To avoid the risk of T3 and T5 threats
(ST)1	S2T1	S2: Further development of the strength "very good qualities of the breeds" through the activity "training and academic exchange on modern aspects and innovations in the selection of beef cattle breeds and sheep breeds for meat"	To avoid the risk of T1 threat

As weaknesses (W) are a priority for impact in both types of appropriate strategies, we consider WT and WO strategies in parallel for each combination of factors that can be influenced by project activities. The results are shown in Table 4.

In addition to strategies to minimize weaknesses, those that assist in the further development of the strengths should not be overlooked. Here the emphasis is on increasing knowledge and know-how of farmers (S1) and improving the genetic qualities of animals from breeds for meat (S2). In this aspect, an activity *"training and academic exchange on modern aspects and innovations in the selection of beef cattle breeds and sheep breeds for meat"* will be planned, by which the threat T1 "low productive performance of animals" should be eliminated.

Apart from the weaknesses discussed, we will consider some other important factors among the weaknesses. These are "insufficient institutional support" and "insufficient subsidies", which are placed by the respondents on the 2nd and 4th place in importance (Table 1), while in the expert ranking (Table 2) they are on the 7th and 8th position (W7 and W8). We think that the project activities can help minimize these weaknesses (obviously important for those directly employed in business), if we directly involve the state institutions (at expert and higher managerial level) in the target groups for the implementation of project activities.

Conclusions

As a result of the study the strengths and weaknesses for the development of the grazing livestock meat production sector in our country (internal factors), as well as the opportunities and threats (external factors), were ranked according to the extent to which they can be influenced by the project activities.

The strengths that can be further developed are: *S1 knowledge and know-how of the farmer, S2 genetic qualities of the breeds, S3 interest in animal fattening and S4 interest in quality beef/lamb on the market*.

The weaknesses that can be changed in a desired direction are: *W1 low purchase prices from the farm, W2 weak relationship with science, W3 low-yielding pastures, W4 lack of an organized marketing system, W5 danger of infectious diseases and W6 lack of knowledge about meat grading and processing.*

These weaknesses can be overcome by improving the relation with science, leading to a positive development of a number of **opportunities**, such as: *O1 improving knowledge on ruminant's nutrition and* O3 *on pastures,* O5 *improving the quality of ruminant meat through new grading systems and/or official quality labels,* O4 *creation and development of branded marketing structures and regulations guarantee-*

ing the production and trade of high quality meat.

The most substantial **threats** for the meat sector in our country, which can lead to risks for its development, are: *T1 **l**ow productive performance of the animals, T2 lack of pastures, T3 neglect of veterinary control and risk to the health of consumers, T4 high feed prices and T5 spread of infectious diseases.*

The results of the study show that the weaknesses (W) and the threats (T) for the business prevail at almost equal value to the opportunities (O). The analysis of the SWOT matrix points at WT and WO strategies, which are the implemented actions leading to minimization of weaknesses to limit the threats for the sector, as well as to support the realization of opportunities.

The appropriate strategies and the activities for their implementation were found, which will be planned in the preparation of the "Action Plan for research and implementation of innovative practices in the grazing livestock meat production sector" within the GREENANIMO project with a view to support the development of the grazing livestock meat production sector in Bulgaria.

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