BSB 294 AgroNet

Piloting modern trading opportunities in agriculture through creation of the innovative online platform

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REVIEW OF BULGARIA'S EXPORT OPPORTUNITY FOR CHERRIES, CEREALS, HERBS, CHEESE AND SNAILS

Feasibility Study

2019

Disclaimer

This Feasibility Study was developed by Varna Economic Development Agency (Bulgaria) under the project BSB 294 AgroNet - Piloting modern trading opportunities in agriculture through creation of the innovative online platform with the support of the Joint Operational Programme Black Sea Basin 2014-2020

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Summary

The aim of developing this Feasibility Study is to help farmers, agricultural cooperatives, wholesalers, exporters, retailers and processors, warehouses and other enterprises to improve their agricultural practices to be in line with increasing food safety international standards and give them access to agriculture and trade related information aiming to increase cross-border trade. The survey was organized and conducted on the basis of a methodology provided by the AgroNet project lead partner and agreed with all partners.

Despite the problems and risks in the neighboring countries around the Black Sea Basin region, the export-import trade in the area is functional, as the traders looking for opportunities to increase the relationships.

The paper offers a country overview on the main macroeconomic, agriculture and trade indexes along with a review on five product groups with export potential - cherries, cereals, herbs, cheese and snails, description of their production and marketing as a part of the most attractive agricultural sectors in Bulgaria. Many figures for the average export prices and traded quantities of the products are provided both for the export to EU member states and other countries, with accent on the countries in the Black Sea Basin region. There is a detailed SWOT analysis for each product group, followed by the appropriate approaches for marketing strategies for products' export to foreign markets.

Summary of findings and recommendations for selected product groups are presented at the end of each chapter to help potential users to improve their agricultural practices and to increase cross-border trade.

Goals of the Feasibility Study Report

This Feasibility Study is developed under the project **AgroNet Piloting modern trading opportunities in agriculture through creation of the innovative online platform** with the support of Joint Operational Programme "Black Sea Basin 2014-2020".

The **main purpose** of the project AgroNet is to initiate Black Sea basin cross-border cooperation aiming to increase trade opportunities and modernization in the agricultural and connected sectors through piloting modern trading opportunities in agriculture. The project intends to build an advanced online space via the Multilanguage platform AgroDeals https://agrodeals.net/ where all agriculture trade related information will be accessible within one consolidated space and free-of-charge. At the same time, open online source information can also be contributed and uploaded by different users. The AgroNet Platform's sources include multi-language and categorized information vis-à-vis national legislations, regulations, standards, market trends, web links, info graphs, etc. Further, the platform will provide buyers and sellers with certain road mapping information aiming to guide the process for what, where and how to sell and buy a variety of agricultural goods and services.

The aim of developing this Feasibility Study is to help farmers, agricultural cooperatives, wholesalers, exporters, retailers and processors, warehouses and others to improve their agricultural practices to be in line with increasing food safety international standards and give them access to agriculture and trade related information aiming to increase cross-border trade.

The feasibility study intends to help to find out which products are priority and which products are potentially attractive or feasible to export or import in the area of Black Sea Basin countries. It provides official statistics and data. The available information collected and analyze could be used by interested parties to conduct relevant cross-border trade.

In this particular case the focus of current feasibility study is on the five groups of products namely cherries, cereals (wheat, barley and maize), herbs and medicative plats, cheese and snails, which were identified as agriculture products with export potential based on the AgroNet project methodology guidelines.

Here below we will present the methods of analysis used and specificities of the export-import for these product groups in the Black Sea Basin countries, will provide Bulgaria country profile, a products' description, market analysis and others, outlined in the content of the feasibility study.

Methods of analysis

Conducting the study:

The survey was organized and conducted on the basis of a methodology provided by the AgroNet project lead partner Georgian Institute for Public Affairs and agreed with all partners in February, 2019. In particular, the products for export feasibility analysis were selected through the two stage selection process. The first stage included assessment of export potential of different agricultural products; it was based on two indicators including export potential indicator (EPI) and product diversification indicator (PDI). EPI identifies products in which exporting country has already proven to be internationally competitive and which have good prospects of export success in new or existing target markets. PDI identifies products, which are not exported competitively by the exporting country, but which seem feasible based on the country's current export basket and the export basket of similar countries.

Some of the data included in this Feasibility Study are collected from a desktop survey of internet sources and statistical information from the Bulgarian National Statistical Institute (NSI) and Eurostat, as well as data from surveys and reports with references to selected five products, available in the public space under a variety of donor funded projects in Bulgaria.

Apart of this, VEDA has collected its own pool of data on the five products in Bulgaria, based on individual meetings and interviews with SMEs managers and farmers, who were involved in growing, processing, packing and distributing of the these products in the country and abroad.

Scope of the study:

The research is sectoral. It covers enterprises and farmers who have as their main or secondary activity the production and processing of cherries, cereals, herbs and medicative plants, cheese and snails throughout the country and abroad.

Privacy:

National privacy rules are defined in the Statistics Act. According to Article 25 of the Law, it cannot be divulged or provided individual statistics, as well as statistical information which summarizes the data for less than three statistical units or for a aggregation in which the relative share of the value of a studied parameter per unit is more than 85 percent of the total value of this parameter for the all units of the aggregation.

Accessibility and transparency:

All the information and data for the five product groups, including ones related to their growing and processing, distribution and export realization will be available to users on the AgroDeal platform site.

Specificities of export-import in Black Sea Basin

Photo credit by Encyclopedia Britannica, Inc

The Black Sea Basin is bordered by Ukraine to the North, Russia to the Northeast, Georgia to the East, Turkey to the South, and Bulgaria and Romania to the West. The Black Sea is an important year-round transportation artery, linking the eastern European countries with world markets. Odessa, the historic Ukrainian city, together with the nearby port of Illichivsk, account for most of the sea's freight turnover. The ports of Novorossiysk and, to a lesser extent, Tuapse (both in Russia) and Batumi (Georgia) farther to the East specialize in petroleum. In Bulgaria, Varna and Burgas are the main ports. Constanța, in Romania, connects oil-bearing regions with foreign markets. Istanbul on the Sea of Marmara is Turkey's main port, while the Danube acts as a huge trade artery for the Balkan countries.

The Black Sea region is a separate geographical area, rich in natural resources and with a strategic location at the crossroads between Europe, Central Asia and the Middle East. The citizens of this densely populated region face many opportunities and challenges. The region is a growing market with great potential for development and an important hub for energy and transport flows. However, it is also a region of unresolved frozen conflicts, with many environmental problems and insufficient border controls contributing to the existence of illegal migration and organized crime, according to the COM(2007) 160/11.04.2007 of Commission of

the European Communities. Despite significant positive developments in recent years, differences between countries regarding the pace of economic reforms and the quality of governance remain. A dynamic regional response to the problems will be of great benefit to the citizens of these countries, while contributing to the overall well-being, stability and security of Europe. The European Union has already made significant efforts to stimulate democratic and economic reforms, to design stability and to support development in the Black Sea region through wide-ranging cooperation programs.

The Black Sea region is strategically important for several reasons. First, some of the countries in this region (Russia, Azerbaijan) are major energy suppliers not only to their neighbors but to the whole of Europe. Secondly, other countries such as Ukraine, Turkey, and Bulgaria are transit countries of energy carriers and in this capacity they are also subjects of the global energy market. Most countries in the region are also significant consumers of energy resources.

Despite the problems and risks in the countries of the Black Sea Basin region the export-import trade in general is functional, as the traders looking for opportunities to increase the relationships. Here below are some data about the trade situation in the recent five years between Bulgaria and the two other project partnering countries.

Trade between Bulgaria-Romania and Bulgaria-Georgia:

Million BGN by FOB

Country	2014	2015	2016	2017	2018
Georgia	360.5	316.4	323.1	278.3	282.4
Romania	3419	3691.8	4048.3	4261.9	4696

Source: Bulgaria National Statistical Institute

As can be seen from the table above, the trade between Bulgaria and Romania for the period 2014-2018 has increased significantly, while the trade between Bulgaria and Georgia has mostly decreased, with a slight increase in 2016, but in the next two years 2017 and 2018, there is a decline again.

Bulgaria Trade profile

The next paragraphs and tables provide concise information and specific statistical data regarding Bulgaria macroeconomics, agriculture and trade.

Country Overview

• Covers an area of **110 900 km²** of which 81 % is rural. Of the total area, 46.1 % is agricultural land while forests cover 37.4 %.

• Has a total population of roughly **7 million**, of which more than 2 million (or 37.1%) live in predominantly rural region.

• Has highly **polarized farm structures** and fragmented land ownership following the land restitution process.

• Has **rich natural biodiversity** and a significant share of high nature value farmlands and permanent grassland that contribute to preserving biodiversity (34 % of the land that can be used for agriculture).

• Has nearly half (48 %) of its territory covered by **mountainous/less favored areas.**

• Has a rural economy that is highly **dependent on agriculture**, characterized by high unemployment, an ageing population, poor access/quality of basic services (roads, sewage systems, etc.) and migration towards urban areas, but with good potential for rural tourism development.

Additional aggregated information for Bulgarian agriculture and economics for the year 2018 is presented in the following tables:

Main figures - Year 2018		
Population (1st January)	7 050 034	persons
Area*	110 996	km^2
Currency	BGN	lev
Nominal GDP at current prices	54 894	million EUR
GDP per capita at current prices	7 789	EUR
GDP per capita at purchasing power	15 934	PPS
Harmonised index of consumer prices	2.6%	change over previous year
Unemployment rate	6	% of labour force
Exports (goods & services)	35 589	million EUR (current prices)
Imports (goods & services)	35 122	million EUR (current prices)
Balance (goods & services)	468	million EUR (current prices)
Exports of agricultural products	4 323	million EUR
Imports of agricultural products	3 230	million EUR
Current account balance	3.6	% of GDP
General government balance	0.8	% of GDP
General government gross debt	23.3	% of GDP

Sources: European Commission, Eurostat, and Directorate General for Economic and Financial Affairs.

Macroeconomics				
Population (new European Commission methodology)				
Total population (number of persons), of which:	2018	7 050 034	1.4%	of EU-28
in predominantly rural regions (PR)	2018	13.0%	18.9%	in EU-28
in intermediate regions	2018	68.2%	36.2%	in EU-28
in predominantly urban regions	2018	18.8%	44.9%	in EU-28
Population in PR regions (number of persons)	2018	913 635	1.0%	of EU-28
GDP				
In EUR (current prices):				
total (million EUR)	2018	54 894	0.3%	of EU-28
GDP per capita (EUR/person)	2018	7 789	30 946	in EU-28
GDP per capita (PPS/person)	2018	15 934	30 946	in EU-28
Real GDP growth rate (% change over previous year)	2018	3.5%	2.1%	in EU-28
Gross value added				
Agriculture, forestry and fishing (% of total GVA)	2018	4.2%	1.6%	in EU-28

Financial aspects				
Agricultural expenditure				
Total expenditure (million EUR), of which:	2018	1 155.5	2.0%	of EU-28
Direct payments (%)	2018	67.8%	70.9%	in EU-28
Market measures (%)	2018	2.7%	4.6%	in EU-28
Rural development (%)	2018	29.4%	24.5%	in EU-28

Economic accounts of agriculture				
Agricultural output				
Agricultural goods output (million EUR), of which:	2018	3 837.4	0.9%	of EU-28
Crop output, of which:		70.5%	1.2%	of EU-28
Cereals (including seeds)		35.3%	2.8%	of EU-28
Industrial crops		23.0%	4.7%	of EU-28
Forage plants		2.6%	0.5%	of EU-28
Vegetables and horticultural products		4.1%	0.3%	of EU-28
Potatoes		0.7%	0.2%	of EU-28
Fruits		4.2%	0.6%	of EU-28
Wine		0.0%	0.0%	of EU-28
Olive oil		0.0%	0.0%	of EU-28
Animal output, of which:		22.8%	0.5%	of EU-28
Cattle		1.9%	0.2%	of EU-28
Pigs		3.3%	0.3%	of EU-28
Sheep and goats		1.9%	1.3%	of EU-28
Poultry		3.3%	0.6%	of EU-28
Milk		9.4%	0.6%	of EU-28
Eggs		2.3%	0.9%	of EU-28
Gross value added at basic prices (million EUR)	2018	1 542.4	0.9%	of EU-28
Agricultural input				
Total intermediate consumption (million EUR)	2018	2 389.0	0.9%	of EU-28
Agricultural income				
Indicator A (% change over previous year)	2018	-10.8%	-3.6%	in EU-28

Farm structure				
Holdings				
Total (No), of which:	2016	202 720	1.9%	of EU-28
UAA < 5 ha (%)	2016	82.6%	65.6%	in EU-28
Economic size < 4 000 €	2016	75.3%	55.7%	in EU-28
Holder < 35 years (%)	2016	7.4%	5.1%	in EU-28
Holder > 64 years (%)	2016	36.4%	32.8%	in EU-28
UAA per holding (ha)	2016	22.0	16.6	in EU-28
Labour force				
AWU (No)	2016	249 570	2.8%	of EU-28
Female farm holders (%)	2016	25.0%	30.8%	in EU-28
Male farm holders (%)	2016	75.0%	69.2%	in EU-28
Agriculture in % of total employment	2017	6.8%	3.9%	in EU-28

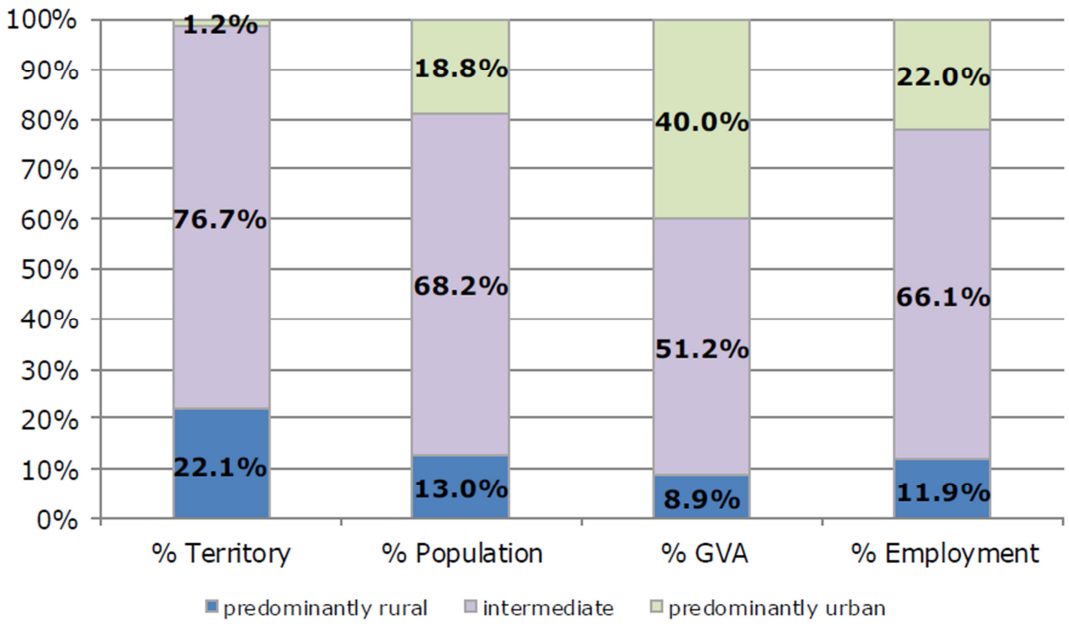
Sources: European Commission, Eurostat and Directorate General for Agriculture and Rural Development.

Updated: June 2019

Importance of rural areas

	Territory (km^2)	Population (persons)	GVA (Million EUR)	Employment (persons)
Year	2016	2018	2016	2017
Predominantly Rural Regions	24 486	913 635	3 684	365 400
Intermediate Regions	85 168	4 810 970	21 245	2 031 400
Predominantly Urban Regions	1 342	1 325 429	16 597	676 600
Total	**110 996**	**7 050 034**	**41 527**	**3 073 400**

Source: Eurostat. Updated: June 2019



As Bulgaria is a member of the European Union since 2007, the country benefits the common agricultural policy (CAP) of the European Union.

CAP is Europe's answer to the need for a decent standard of living for 22 million farmers and agricultural workers and a stable, varied and safe food supply for its 500 million citizens. As a common policy for all 28 EU countries, the CAP strengthens the competitiveness and sustainability of EU agriculture by providing direct payments aimed at stabilizing farm revenues, and finances projects responding to country-specific needs through national (or regional) rural development programmes, which also

cover the wider rural economy and life in rural areas. The CAP also provides a range of market measures, including tools to address the impact of price volatility and other market difficulties and additional elements, such as quality logos or promotion for EU farm products, which complete CAP action to support farmers. The CAP budget for 2014-2020 is €408.31 billion, with €308.73 billion intended for direct payments and market measures and €99.58 billion for rural development.

More information about CAP expenditure in Bulgaria for the year 2018 could be seen in the tables below:

Measures	2018	2018	
	1 000 EUR	% of total	% of heading
Decoupled direct aids	655 126	56.7%	83.6%
Other direct aids	121 085	10.5%	15.4%
Additional amounts of aid	0	0.0%	0.0%
Reimbursement of direct aids in relation to financial discipline	7 657	0.7%	1.0%
Direct payments	**783 867**	**67.8%**	**100.0%**
Olive oil	0	0.0%	0.0%
Textile plants	0	0.0%	0.0%
Fruit and vegetables	1 982	0.2%	6.3%
Wine sector	24 340	2.1%	77.0%
Promotion	578	0.1%	1.8%
Other plant products/measures	0	0.0%	0.0%
Milk and milk products	0	0.0%	0.0%
Beef and veal	0	0.0%	0.0%
Sheepmeat and goatmeat	0	0.0%	0.0%
Pigmeat, eggs, poultry and other	978	0.1%	3.1%
School schemes*	3 749	0.3%	11.9%
Market measures	**31 626**	**2.7%**	**100%**
Rural development	**339 966**	**29.4%**	**100%**
TOTAL	**1 155 459**	**100.0%**	

In general, the ***agricultural productivity*** is measured as the ratio of ***agricultural outputs*** to ***agricultural inputs***. While individual products are usually measured by weight, their varying densities make measuring overall agricultural output difficult. Therefore, output is usually measured as the market value of final output, which excludes intermediate products such as corn feed used in the meat industry. This output value may be compared to many different types of inputs such as labour and land (crop yield). These are called partial measures of productivity. Agricultural productivity is measured as the ratio of agricultural outputs to agricultural inputs. While individual products are usually measured by weight, their varying densities make measuring overall agricultural output difficult. Therefore, output is usually measured as the market value of final output, which excludes intermediate products such as corn feed used in the meat industry. This output value may be compared to many different types of inputs such as labour and land (crop yield). These are called partial measures of productivity.

In the next two tables are presented data for the Bulgarian agriculture for three years period, including the agricultural input and output's components:

Agricultural input

Input components	2016	2017	2018	2017/2016	2018/2017
	Million EUR			% Change	
Seeds and planting stock	88.4	86.1	70.7	-2.7%	-17.8%
Energy	479.5	483.0	460.5	0.7%	-4.7%
Fertilisers and soil improvers	176.3	174.0	180.8	-1.3%	3.9%
Plant protection products	144.2	132.2	141.4	-8.3%	7.0%
Veterinary expenses	109.1	104.2	93.6	-4.6%	-10.2%
Feedingstuffs	416.2	418.1	427.8	0.5%	2.3%
Maintenance of materials	137.7	131.4	145.1	-4.6%	10.4%
Maintenance of buildings	67.5	64.4	71.2	-4.6%	10.4%
Agricultural services	200.4	205.1	215.2	2.3%	4.9%
Other goods and services	132.1	143.3	164.9	8.5%	15.1%
Total intermediate consumption	**1 984.9**	**1 974.2**	**2 006.7**	**-0.5%**	**1.6%**
Fixed capital consumption	**392.0**	**382.9**	**398.8**	**-2.3%**	**4.2%**

Note: 2018 data are estimates and may still change.

Source: Eurostat, Economic Accounts for Agriculture: values at real basic prices (2010 = 100)

Updated: June 2019

Output components (constant prices)	2016	2017	2018		
	Million EUR		Million EUR	% of total	% of EU-28
Cereals:	**1069**	**1074**	**1139**	**35.9%**	**2.6%**
Wheat and spelt	661	686	680	21%	3%
Rye and meslin	2	2	2	0%	0%
Barley	95	67	62	2%	1%
Oats and summer cereal mixtures	4	3	2	0%	0%
Grain maize	288	296	372	12%	4%
Rice	11	12	13	0%	2%
Other cereals	8	8	8	0%	1%
Industrial crops:	**880**	**868**	**758**	**23.9%**	**4.2%**
Oil seeds and oleaginous fruits	708	657	607	19%	6%
Protein crops	32	64	53	2%	4%
Raw tobacco	72	67	13	0%	3%
Sugar beet	0	0	0	0%	0%
Other industrial crops	68	80	85	3%	2%
Forage plants	**72.7**	**98.7**	**85.1**	**2.7%**	**0.4%**
Vegetables and horticultural products	**157.2**	**169.3**	**150.8**	**4.8%**	**0.3%**
Potatoes	**22.8**	**34.8**	**22.3**	**0.7%**	**0.2%**
Fruits	**163.3**	**188.1**	**153.7**	**4.8%**	**0.6%**
Wine	**0**	**0**	**0**	**0%**	**0%**
Olive oil	**0**	**0**	**0**	**0%**	**0%**
Other crop products	**20**	**21**	**17**	**1%**	**1%**
Crop output	**2385.8**	**2453.5**	**2325.2**	**73.2%**	**1.1%**
Animals:	**484**	**462**	**446**	**14.1%**	**0%**
Cattle	125	113	117	3.7%	0%
Pigs	133	129	116	3.7%	0%
Equines	0	0	0	0.0%	0%
Sheep and goats	95	88	93	2.9%	2%
Poultry	131	131	121	3.8%	1%
Other animals	0	0	0	0.0%	0%
Animal products:	**399**	**410**	**403**	**12.7%**	**1%**
Milk	298	300	303	9.6%	1%
Eggs	70	76	75	2.3%	1%
Other animal products	30	34	25	0.8%	1%
Animal output	**882**	**872**	**849**	**26.8%**	**1%**
Agricultural goods output	**3 268**	**3 326**	**3 175**	**100.0%**	**1%**

Source: Eurostat, Economic Accounts for Agriculture (values at real producer prices). Updated: June 2019

Information about Bulgarian agricultural trade – export and import, in the year 2018 by category of products with EU countries and non-EU countries in million euros are presented in the table below:

Agricultural trade in 2018

By category of product	Total trade	Trade with EU countries		Trade with non-EU countries	
	Million EUR	Million EUR	% change 2018/2017	Million EUR	% change 2018/2017
Exports					
Commodities	2196.3	1728.4	10.4%	467.9	-9.76%
Other primary products	592.7	499.8	7.9%	92.8	-34.36%
Processed products	378.1	315.9	2.8%	62.2	-12.16%
Food preparations	597.4	405.0	8.2%	192.4	-9.85%
Beverages	64.0	49.9	28.3%	14.0	-7.43%
Non edible	494.0	254.0	9.5%	235.5	-19.06%
Total agricultural products	**4322.6**	**3253.0**	**9.1%**	**1064.9**	**-14.83%**
as % of total exports	15.4%	17.1%		12.1%	
Imports					
Commodities	800.3	566.0	-3.8%	234.3	-14.7%
Other primary products	855.7	660.5	-2.1%	195.2	29.0%
Processed products	351.2	318.2	7.8%	33.0	12.2%
Food preparations	593.1	509.4	6.0%	83.7	19.5%
Beverages	225.0	179.3	13.7%	45.7	21.3%
Non edible	405.1	297.2	14.9%	107.9	14.4%
Total agricultural products	**3230.5**	**2530.6**	**3.1%**	**699.7**	**6.42%**
as % of total imports	10.1%	12.5%		6.0%	
Balance					
Commodities	1396.1	1162.4		233.7	
Other primary products	-263.1	-160.7		-102.3	
Processed products	26.9	-2.3		29.2	
Food preparations	4.3	-104.5		108.8	
Beverages	-161.0	-129.4		-31.7	
Non edible	88.9	-43.2		127.6	
Total agricultural products	**1092.1**	**722.4**		**365.2**	

Source: Directorate General for Agriculture and Rural Development, based on COMEXT data

Updated: June 2019

COUNTRY TRADE PROFILE FOR CHERIES

Photo credit by Cherno More Informational Agency

Introduction and history

Cherry is a widespread fruit species in temperate climates. In Bulgaria there are favorable conditions for growing cherries, cheap production of high quality fruit, competitive in foreign markets as well.

Initially, the cherry was represented by single trees in fields, vineyards, gardens, along roads, and later larger plantations were created.

What are the plantations for cherry cultivation in our country:

Due to the valuable qualities of this fruit, the territory with cherries in the country is rapidly increasing. Whereas in 1950 there were about 9000 decares of cherry orchards, with a total

production of fruit of 23 thousand tonnes, in 1986 - the area was 110.7 thousand decares and the production - 83.8 thousand tonnes. Then, care for the plantations sharply decreases, and with that - the average yield per acre decrease. It is only in the last ten years that there has been an increased interest in the creation of new plantations, especially in the distinct cherry-growing regions such as Kyustendil, Pazardzhik, Plovdiv, Shumen, Sliven, Razgrad-Targovishte, Veliko Tarnovo, Lovech. In 2018, the area occupied by cherries is equal to over 130 thousand acres, with yields estimated at over 56 thousand tonnes.

The state of cherry production in the country

Cherry production is one of the most attractive fruit-growing sectors in Bulgaria. In terms of production, it ranks second after apples. Bulgaria has its place among the leading producers of cherries in the world, but has to overcome a number of challenges. The varietal and age structure of the plantations, the technologies used and the carelessness of many small farmers predetermine the bulk of production to go for processing. The mass cherry harvested in Bulgaria cannot find a market for fresh consumption. The Kyustendil region, popular with its cherries, has been declining for years with highly fragmented ownership of gardens (average size of 8 decares per garden), old plantations and varieties. The largest production area in the country is the South East region. There is increasing interest in the creation of new plantations in Northern Bulgaria.

Bulgaria is part of the common European market - the largest consumer of fresh cherries and one of the most solvent in the world. Local producers have the opportunity to take advantage of new, but already tried and proven varieties, rootstocks, planting technologies, formations, plant protection products. Successful sales of products for fresh consumption on the premium markets will require investment in quality certification, refrigeration, calibration, packaging and marketing. For smaller producers (below 50 decares of land), the association only guarantees the opportunity for investment in increasing the value added of the production. The role of the

Government in supporting the sector should be focused mainly on overcoming the sector's external challenges and to ensure the easier and cheaper access to land, water, energy, as well as to protect the ownership of producers. The biggest problem that emerges in the future is the lack of both specialized and general workforce that will be exacerbated.

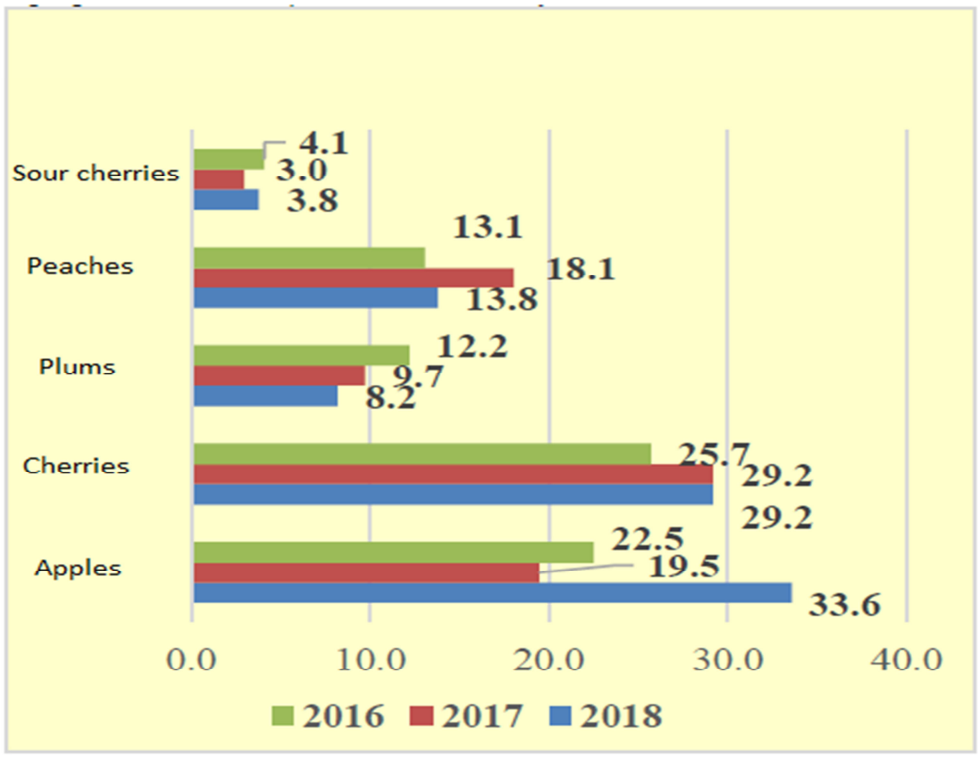
Bulgaria: Fruit production in numbers

There has been an unprecedented growth in fruit plantations over the last ten years. The growth is due almost entirely to the boom in recent years of the established plantations with cherries and plums. It is these two orchards that form nearly two-thirds of the country's orchard structure.

Between 2015-2018, cherry plantations in Bulgaria increased by 2600 ha, reaching 11 340 ha. It is no coincidence that the cherries are among the "youngest" fruit trees in the country - 16% of the area up to 4 years of age. Most new plantations were created in South Western and North Eastern, as well as in parts of South Eastern Bulgaria. The regional activity somewhat follows the three more serious markets for native production - Sofia, Romania, as well as the logistics and processing business in Southern Bulgaria.

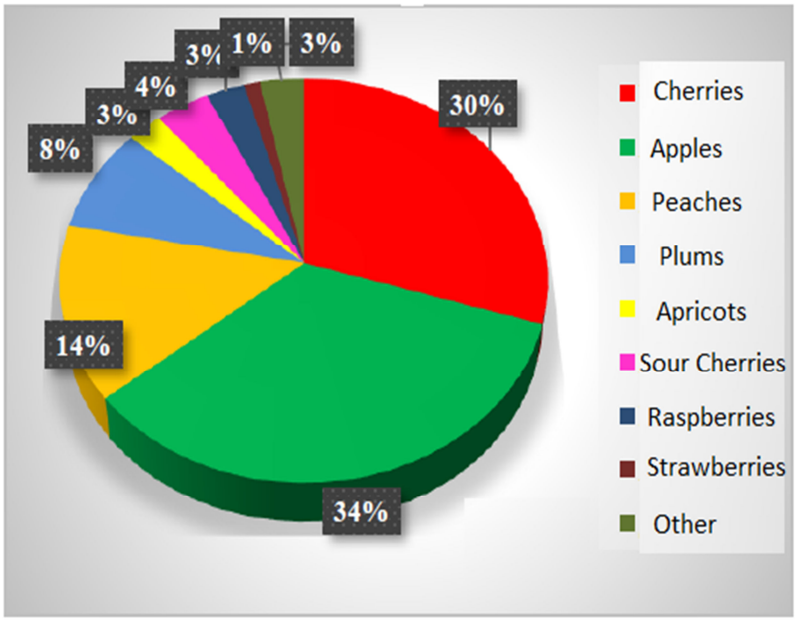
In 2018, the 98.1 thousand tonnes of fresh fruit were processed. 70.5 thousand tonnes of finished fruit production were produced. The largest share of processed fruit is apples, cherries and peaches. The share of individual species of processed fruit in the total volume of processed fresh fruit is given in the following graph:

Fresh fruit delivered for processing (thousand tonnes)



Source: Agrostatistics Department at Ministry of Agriculture Food and Forestry (MAFF)

The largest proportion of processed fresh fruit are apples - 34%, cherries - 30%, peaches - 14%, and plums - 8%



Percentage of fresh fruit processed in 2018

Source: Agrostatistics Department at MAFF

The following table shows that in 2018, the 98.1 thousand tonnes of fresh fruit were processed,

which is by 7.4% more than the previous year. Of the processed fruit in the country, the largest share was delivered by Bulgarian producers - 60%, followed by EU deliveries - 18%, and imports from third countries - 17%. Enterprises manage 378 hectares of land, of which 3% of the processed fruit is delivered. The share of processed fruit with materials supplied by the clients is 2%. As can be seen from the table, there are 33 enterprises of a total of 91 enterprises, processing cherries. Also, cherries supplied by Bulgarian producers occupy the largest share.

Main species of fresh fruit processed in Bulgaria in 2018

thousands tonnes

Species	Number of enterprises	Delivered by Bulgarian manufacturers directly or through dealers	Delivered by Bulgarian manufacturers directly or through dealers	EU supplies	Imports from third countries	Fruit processed with materials supplied by the client	Total	
Apples	31	1.48	14.96	c	c	0.82	33.6	34%
Cherries	33	0.16	22.33	4.93	c	c	29.19	30%
Peaches	22	-	4.68	9.14	-	-	13.82	14%
Plums	40	0.38	7.65	-	-	0.17	8.2	8%
Apricots	21	-	1.76	c	-	c	2.48	3%
Sour cherries	28	c	3.02	c	c	0.3	3.83	4%
Raspberries	33	0.19	2.41	-	-	0.16	2.76	3%
Strawberries	31	c	0.58	c	-	c	1.15	1%
Other		0.29	1.72	0.84	-	0.19	3.04	3%
Total	91	2.62	59.11	17.76	16.3	2.28	98.07	100 %
%		3%	60%	18%	17%	2%	100%	

Source: MAFF, Agrostatistics Division - Survey of Fruit Processing Companies in 2018

C – The data is confidential

- No case

In 2018, the ready fruit production is 70.5 thousand tonnes. The proportion of canned fruit (including jams and compotes) is 37%, frozen fruits are 15%, and fruit concentrates and juices represent 17%. These three main products make up 69% of the fruit production. In the finished production of cherries 29 thousand tonnes of fresh cherries are used as input. The output was 19.9 thousand tonnes. The Bulgarian realized finished production of cherries in the EU is 34%. In the country has been sold 15% of cherries, and as of December 31, 2018 there were left 30% of the cherry production on stock.

Ready production thousands tonnes

	Initial stocks as of 01.01.2018	Fresh inputs	Nested concentrate	Manufactured finished products	In the country	Shipments to the EU	Exports to third countries	Initial stocks as of 31.12.2018
Cherries	11.64	29.05	0.18	19.94	c	10.76	c	9.39
Peaches	16.25	13.8	c	16.59	2.61	13.86	2.53	12.88
Sour cherries	0.75	3.77	0.17	3.32	1.26	1.17	0.55	1.07

Source: MAFF, Agrostatistics Division - Survey of Fruit Processing Companies in 2018

C – The data is confidential

- No case

Product description - Cherry

Cherry is a fruit species that can successfully grow up to 800 m above sea level. It can be grown in areas where winter temperatures do not fall below minus 23-25 degrees and there are no large temperature amplitudes.

Cherry also does not tolerate high heat and drought in summer, especially when planted on drier and shallower soils. Under such conditions,

growth is poor, trees do not store well and frosts in winter are more common. The cherry is a relatively more dry plant and in most cases is grown under irrigation conditions. Drought resistance is best manifested when planted on deeper and more permeable soils that have the conditions to develop a more potent root system. For shallower soils and in areas with frequent droughts, one or two watering in the

summer have a very good effect. Excessive and prolonged soil moisture causes the roots to suffocate and the death of some of them, and sometimes of the whole tree.

Cherry trees are grown in the same place for over 30 years, which requires that all the requirements of the planting technology are met. One should pay attention to: choice of location; before planting preparation of the area, systems and planting distances; selection of suitable variety-rootstock combinations; scheme for planting and planting.

Planting:

The planting is done in the fall, from late October to early or mid-December - until large frosts occur. When this period is missed, it is planted early in the spring, but all previous events take place in the fall. Planting during the fall provides better harvesting and development of seedlings next year.

The cherry is grown without watering. The average annual rainfall in Bulgaria is 672 l / m. Assuming that each fruit species consumes the most water from the end of flowering to harvest, the cherry is in the most favorable position compared to the other tree species. It concerns a period of about 40 to 75 days, for which rainfall is sufficient for most of the cherry-producing areas in Bulgaria. This conclusion is borne out by our manufacturing practice. In Bulgaria, the cherry is grown successfully under non-irrigation conditions, the fruits are large, with attractive appearance and high tasting qualities. In extreme droughts and appropriate conditions, it is advisable to perform 1-2 watering after harvest.

Several species of cherries are grown in Bulgaria. Species grown in the country and their distribution by areas are presented in the following table:

Distribution of cherries by species

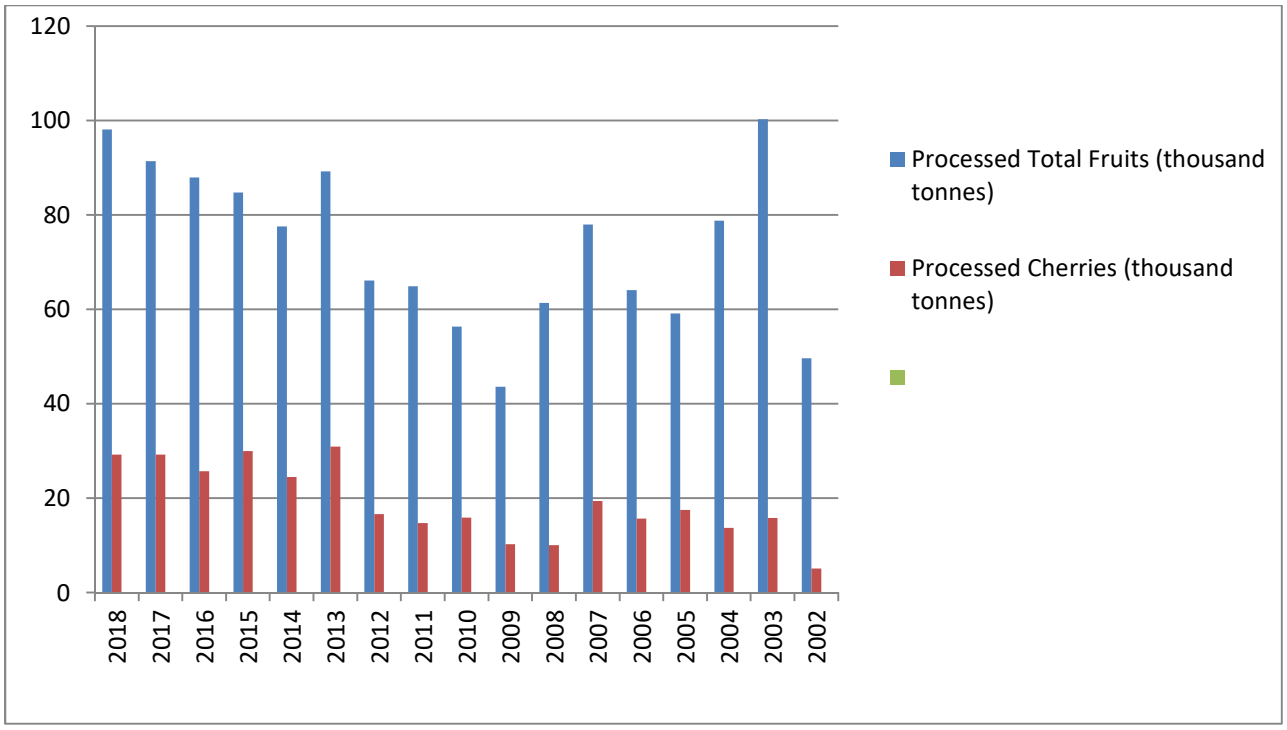
Varieties	Area (hectare)	Rel. share (%)
Van	4,176.3	33.3%
Bing	2,031.7	16.2%
Bigaro Burla	1,115.8	8.9%
Kozerska	558.8	4.5%
Bulgarian cartilage	347.4	2.8%
Other	4,302.7	34.3%
Total	**12,532.7**	**100.0%**

Source: MAFF, Agrostatistics Department, Fruit Structure Survey 2017

The table above shows that the largest share in the production of cherries is the Van species, followed by the Bing.

The next table and graph show the processed products in tonnes for the last 10 years and the share of cherries within the fruit production:

-	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Processed Total Fruits (thousand tonnes)	98.07	91.34	87.92	84.71	77.56	89.2	66.11	64.86	56.33	43.58	61.35
Processed Cherries (thousand tonnes)	29.19	29.19	25.69	29.95	24.48	30.9	16.62	14.74	15.87	10.22	10.04



With the help of the EU funds, cherry orchards in Bulgaria have doubled in the last ten years. The largest arrays are in the South East region. In 2018 over 20,000 tonnes of cherries were produced there, according to data from the Agrostatistics Department of the Ministry of Agriculture, Food and Forestry. In the town of Aytos it is located the main base of Italian companies that hold the cherry processing market and many manufacturers rely on them. The reason is that not every cherry species become suitable for the market for fresh consumption, where the prices are much higher.

The South Western region, more specifically the region around the town of Kyustendil, where the main cherry arrays were concentrated during the country period of socialism, retains the second position with 15,000 tonnes of cherries produced. It is close to the South Central region with 12 thousand tonnes of cherries. Here the main massifs are in the regions around the city of Plovdiv and Pazardzhik, and plantations were created with the help of EU funding.

The tendencies in cherry manufacturer prices for the last eight years could be observed in the

following table:

Cherry manufacturer's price indices by year

2011	2012	2013	2014	2015	2016	2017	2018
124.3	156.4	98.5	97.6	100.0	151.0	147.3	111.3

Source: National Statistical Institute

According to the cherry manufacturer's prices, there are a big variety in most of years, which comes from the different quantities of cherry produced and demand. The years with better climate conditions and higher levels of yield from cherry orchards, the prices fall down. However, as a whole the cherry prices are increasing due to the increase of areas with cherry orchards and the follow up production.

The production of cherries in Bulgaria is concentrated in the second and third quarters of the year, with the peak being in May and June. Over the last 4 years, NSI statistics show a decrease in the price of a tonnes of cherries by approximately 23% in the second quarter of the observed period by years.

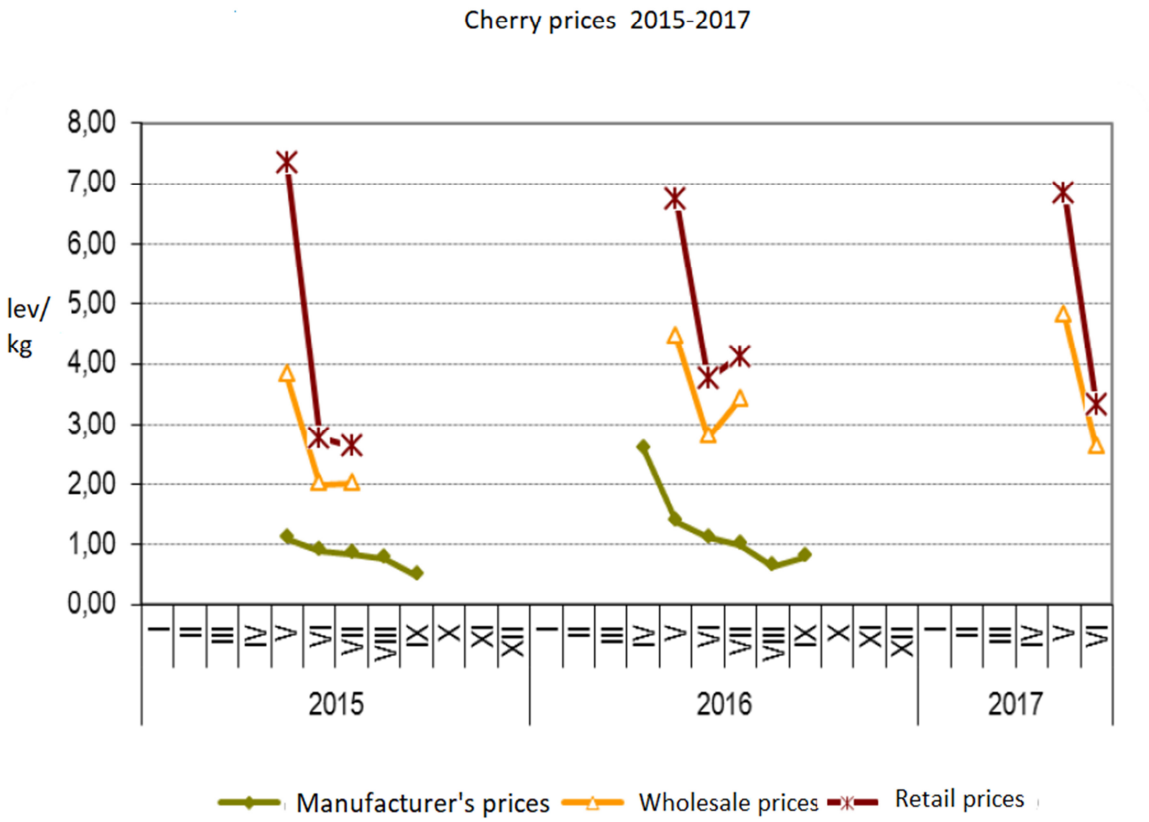
Cherry prices per year / leva

№	Unit of measurement	Quarter				Average per year
		I	II	III	IV	
2016	T	-	1439.04	768.90	-	1103.97
2017	T	-	1391.96	474.04	-	933.00
2018	T	-	1021.21	874.81	-	1011.66
2019	T	-	1107.54			

Source: Bulgaria National Statistical Institute

The following chart presents a comparison of the prices of cherries (in BGN per kilogram) from producers, wholesalers and retailers over a three-years period. The comparison shows several

times increase of the price of cherries from cherry gardens to final markets. For example, in 2015 the purchase price of cherries from a producer started from 1 lev per kilogram (approximately 0.50 euro cents), while the final price for a consumer reached 7 levs per kilogram (approximately 3.50 euro).

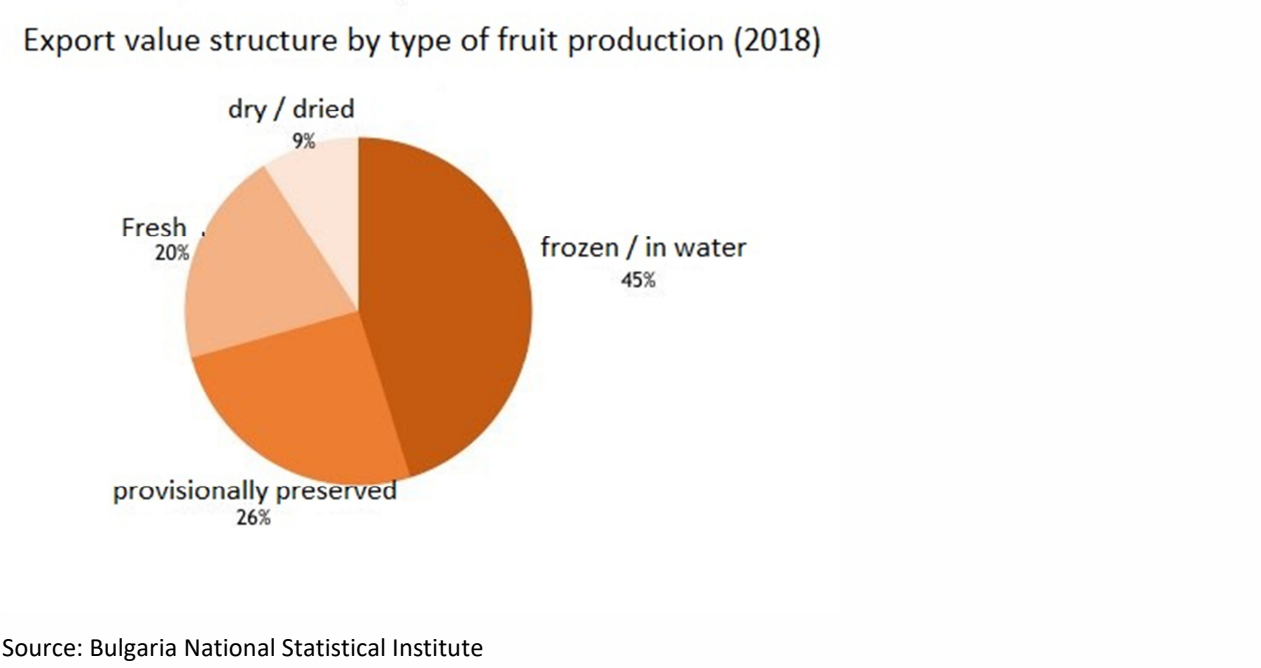


The situation described above discourages producers from investing in modernization and higher labor costs, which reflects in the recruitment of skilled labor force and to harvest the entire cherry production.

Export of Cherries

Bulgaria has established itself as an important global supplier in the niche of cocktail / pastry cherries (provisionally preserved / pulp). In 2018 exports in this category amounted to BGN 26 million, and for the last five years - nearly BGN 160 million. However, the quantity is significantly behind - from the peak of 15.2 thousand tonnes in 2016 to about 12 thousand tonnes in 2018. In recent years, Bulgaria is in the top three of the countries exporting cocktail cherries. The country holds one-fifth of world exports of primary processed cherries, according to the World Trade Organization. Cherries are also among the few fresh fruit that are often marketed abroad. In 2018 about 1350 tonnes fresh cherries (the second largest quantity in the last five years) were exported worth BGN 4 million. Exports of frozen or cooked cherries amount to another BGN 3 million.

Structure of fruit export from Bulgaria is presented on the following gtaph:



Source: Bulgaria National Statistical Institute

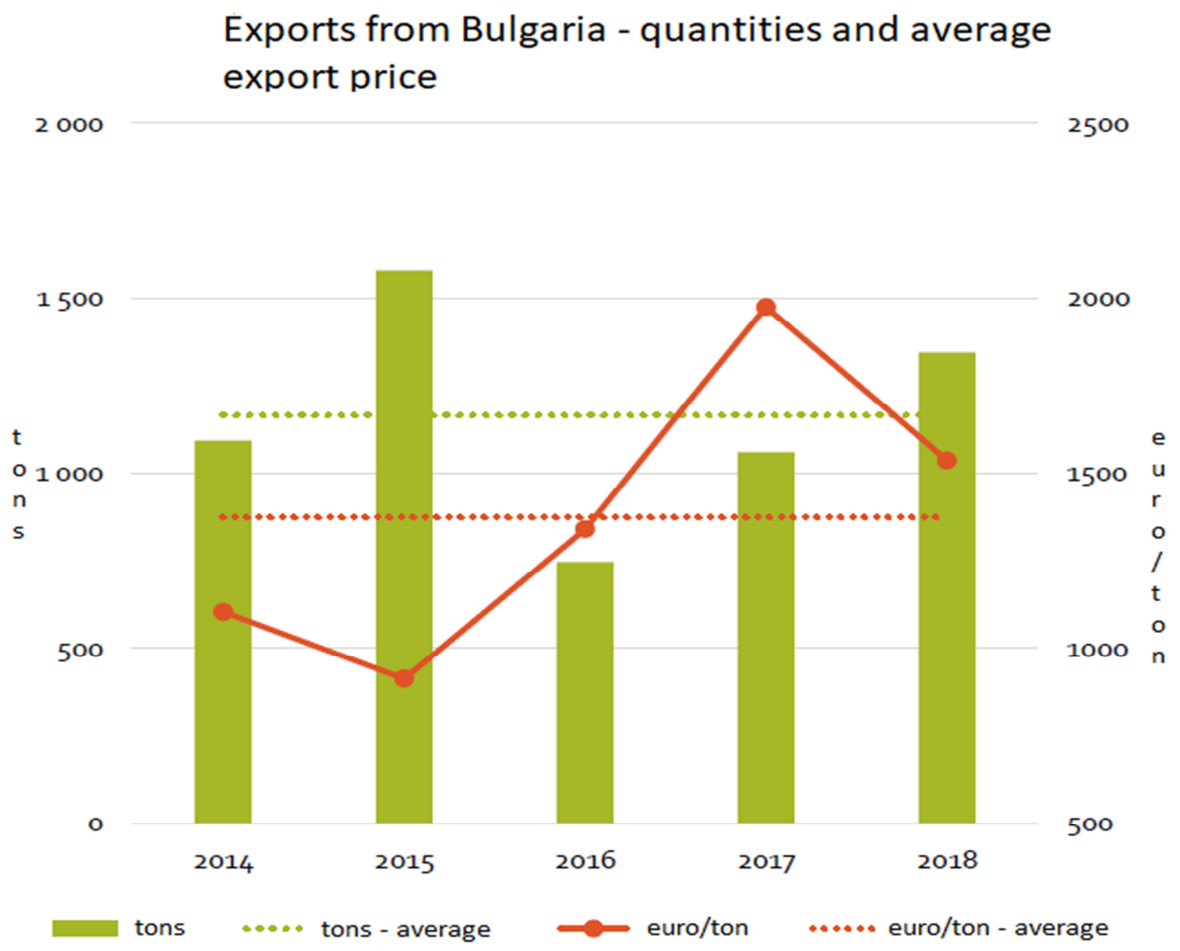
If we look at the product structure in the export of fruit, it can easily be concluded that it is strongly concentrated in 2-3 directions. They are also the main drivers for better export data for Bulgarian fruit in recent years. More than a quarter of export's value is due to cherries.

The export structure by type of cherries in the period 2014-2018 is presented in the table below. It shows that the largest share in cherry's export took the species Cherries - provisionally preserved:

Exports of cherries by species (million BGN)		
-	2018	2014-2018
Cherries - provisionally preserved	26	158
Cherries - fresh	4	15
Cherries - frozen / in water	3	13

In the segment of the fresh cherry production, where the potential for a higher producers' price premium is highest, unfortunately, there is no lasting and significant positive trend in cherry production. For the period 2014-2018, an average of 1000-1200 tonnes of cherries were exported annually. The good results are rather episodical. This suggests that only a small number of recently established cherry gardens are competitive in the global market.

The trend in the development of the export of cherries from Bulgaria over the last 4 years in terms of quantities and average export prices can be seen in the next graph:



Bulgaria has an untapped potential for cherry exports, estimated at about 700,000 US Dollars per year, according to an analysis of the Bulgarian consulting company for agribusiness "InteliAgro" in 2019. This year's harvest is very good, unlike the last three, which have been bad for farmers because of the weather.

Due to the rapidly growing global market for fresh cherries, excellent prospects are opening up for Bulgarian producers, according to the analysis of "InteliAgro". According to it, the trade in fresh cherries in the world has increased by over 70% in volume and by over 93% in value for the period 2014 - 2018.

Also, the growing purchasing power of a growing population of Asia and the hunger for a fresh production makes the fresh cherry market especially attractive.

The global fresh cherry market is projected to reach 1 million tonnes by 2023 at an average export price of EUR 5.4 per kilogram. For comparison, for the period 2012-2018, the global fresh cherry market has doubled from 350 thousand tonnes to 700 thousand tonnes and the average price per kilogram has increased from 3.5 euros to about 4 euros.
In Europe, the cherry prices are highest in Malta, Ireland, Spain and Luxembourg. Bulgaria falls into the low price segment, where the price is 50% below the global average - about 1 - 1.50 euros. In this group Bulgaria is together with Lithuania, Romania, Greece and Slovakia.
The top exporters of fresh cherries are Chile, the United States and Turkey, where are produced the largest quantities, appearing as Bulgaria's biggest competitors.

Bulgaria does not export large quantities of fresh cherries. For the last few years, 2015 was the strongest, when about 1,600 tonnes of fresh cherries were exported at a price below 1 euro per kilogram. For 2018, data show exports of about 1,400 tonnes of fresh cherries at a price of 1.50 euros per kilogram.

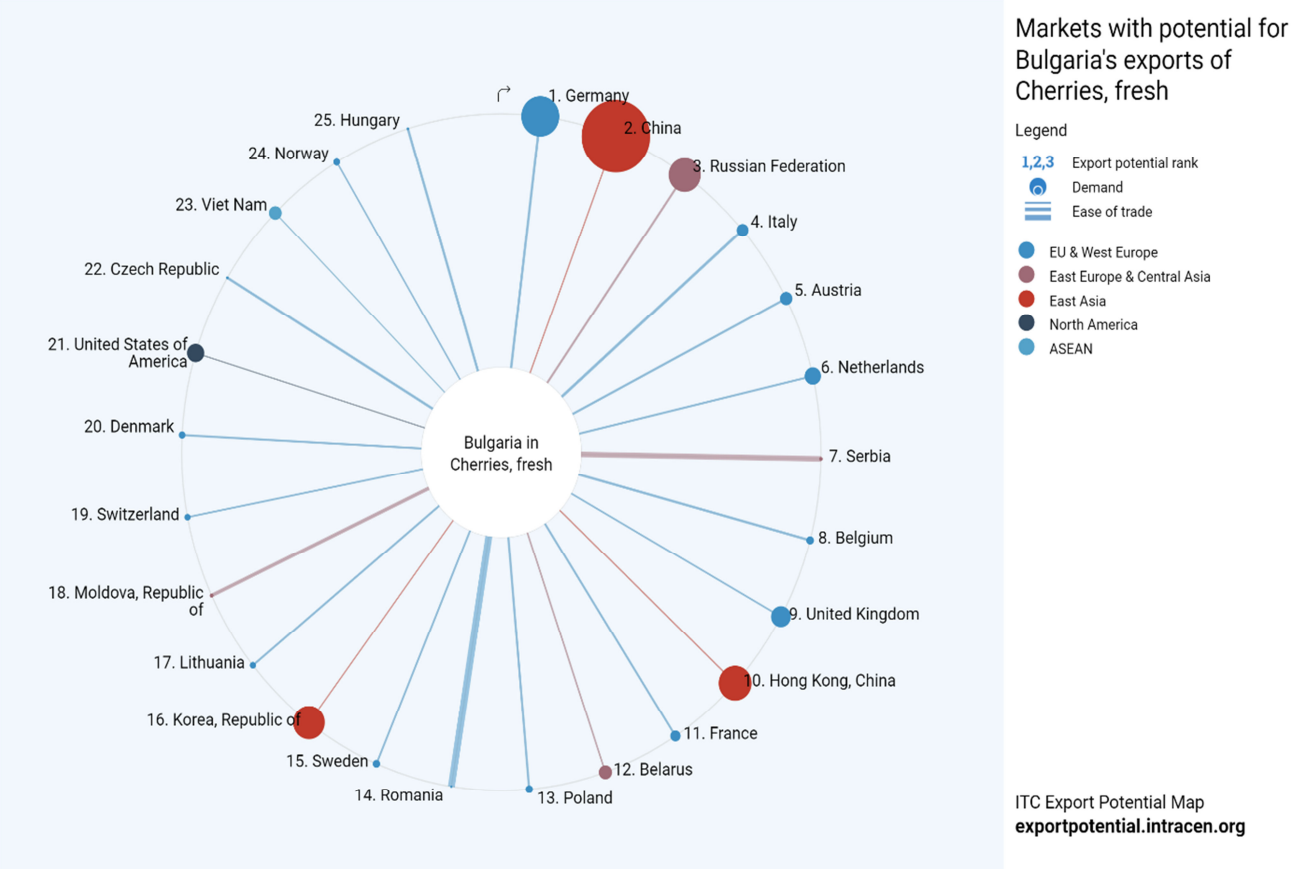
These data show that Bulgaria has significant unrealized trade potential for fresh cherries, valued at 683,000 US Dollars according to the consulting company “InteliAgro”.

In 2018, the largest quantities of fresh Bulgarian cherries were exported to Romania, Belarus, Germany and the Netherlands. Less quantity was exported to Lithuania, Poland, the United Kingdom, Italy, France and Austria.

Displacement the market layers will give many new opportunities for export to Europe, which can be used by Bulgarian producers and investors, and this potential can be expanded if invested in the cultivation of new species, semi-finished products and marketing.

The group of cherries is listed as one of the export potential groups by the International Trade Center (ITC).

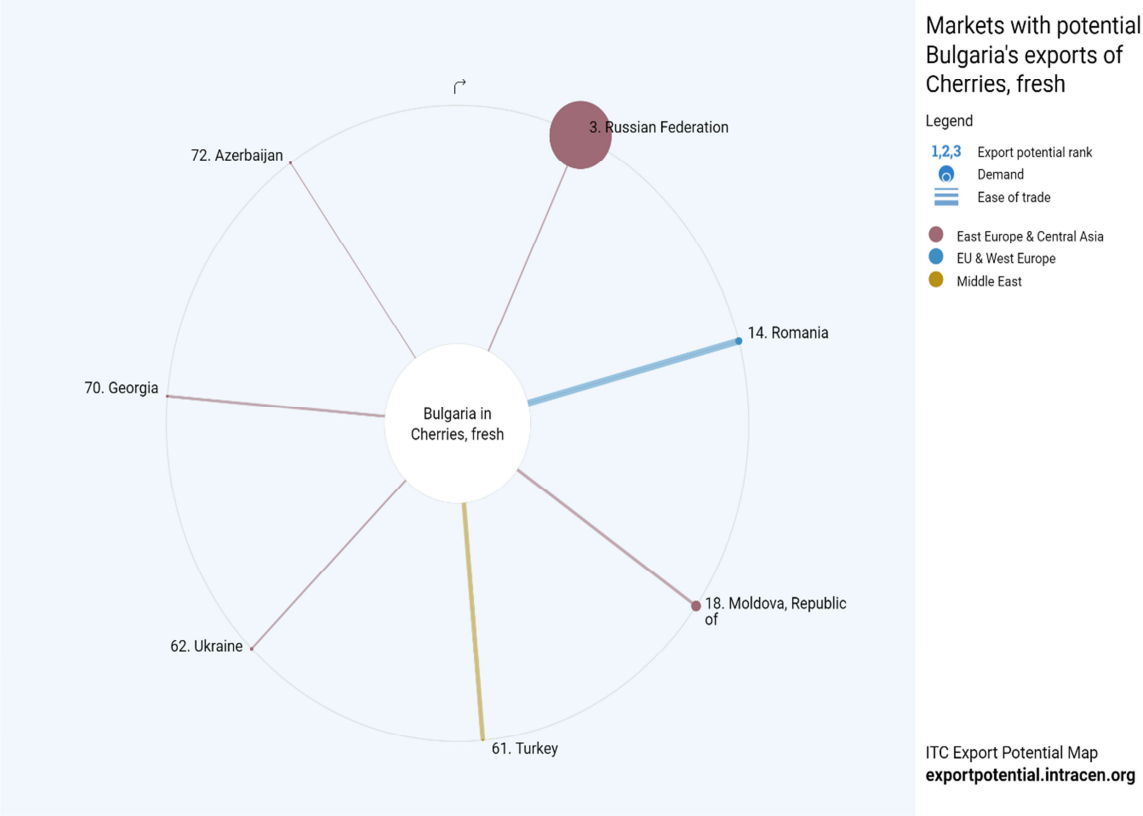
The chart below presents the analysis export potential of Bulgaria fresh cherries sector:



Source: Web-site of the International Trade Center (ITC): https://exportpotential.intracen.org/en/markets/analyze?fromMarker=i&exporter=100&toMarker=j&whatMarker=k&what=200860

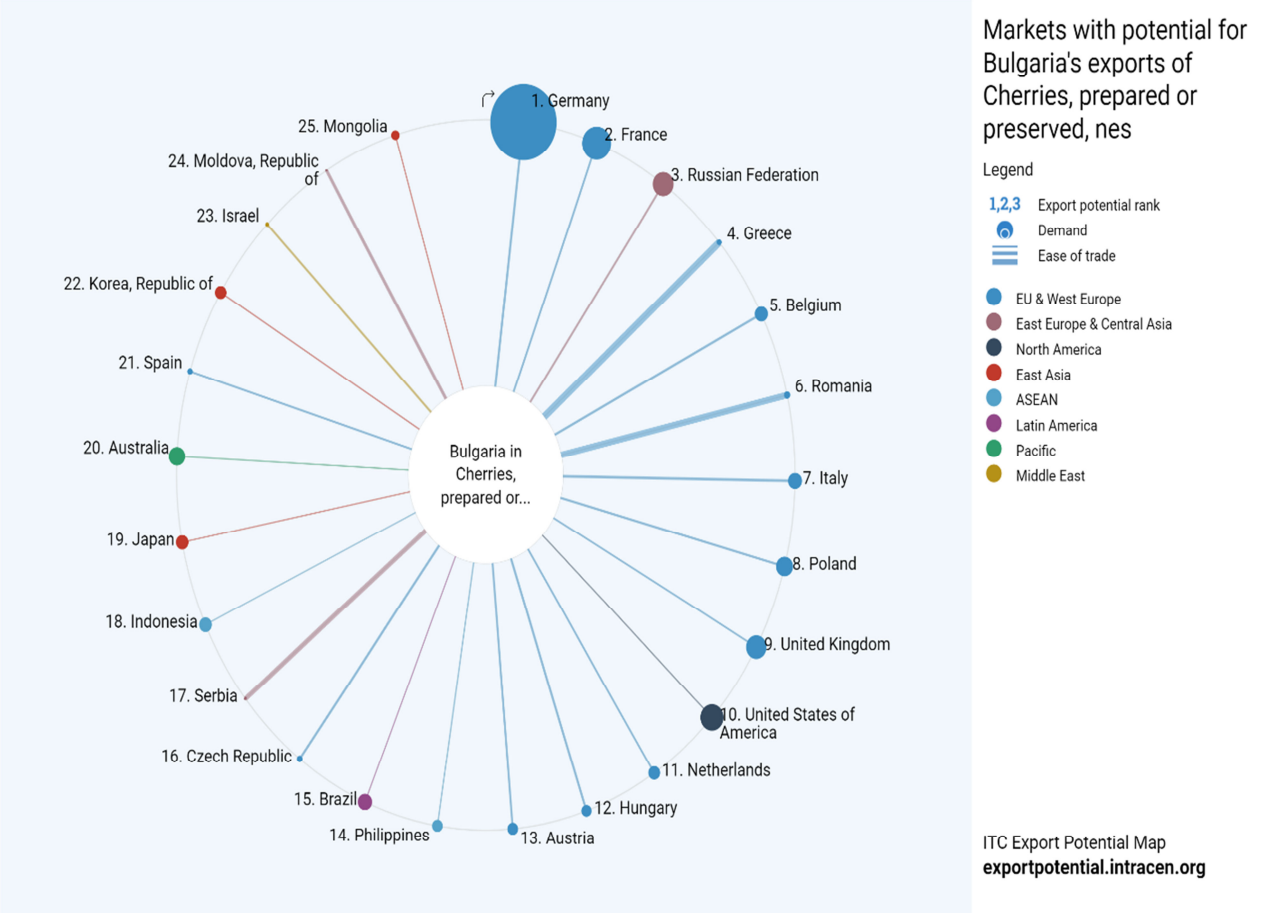
The markets with greatest potential for Bulgaria's export of the **group Cherries, fresh**, are some of the countries in East Asia like China incl. Hong Kong and Republic of Korea. Germany, the UK and Netherlands are the most feasible markets for export of fresh cherries from Bulgaria to European markets. Bulgaria export to Romania is the easiest of trade due to the common border and close location of the two countries.

The following chart shows the position of this sector of fresh cherries with references to the eligible countries under the Black Sea Basin Joint Operational Program.



Source: Web-site of the International Trade Center (ITC):
https://exportpotential.intracen.org/en/markets/analyze?fromMarker=i&exporter=100&toMarker=j&whatMarker=k&what=200860

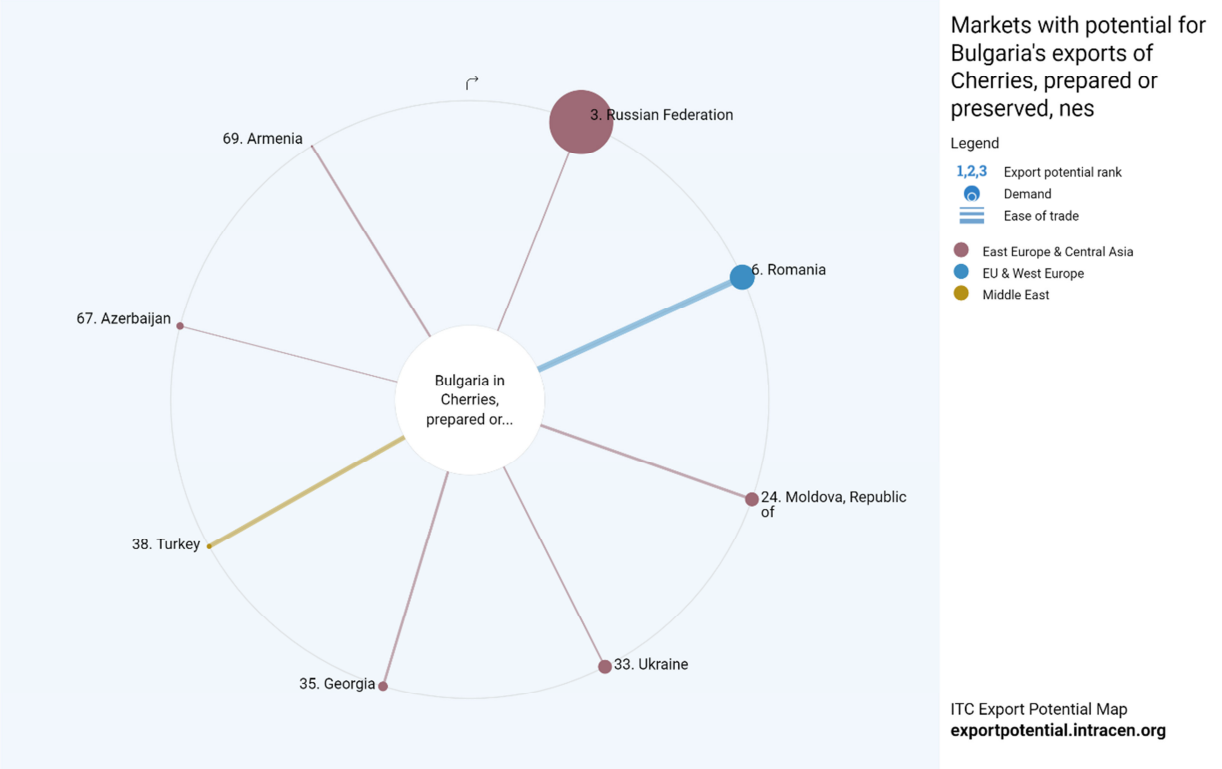
Romania still remains as a market area for the fresh cherries from Bulgaria as the export to this EU member state is ease both from the same trade regulations for all EU member states, and for the close proximity between Bulgaria and Romania. For the other AgroNet partner's country i.e. Georgia, the trade opportunities are not so perspective one. However, for the Black Sea Basin region, the Russian Federation is a perspective market with potential for Bulgaria exports of Cherries, fresh.



Source: Web-site of the International Trade Center (ITC): https://exportpotential.intracen.org/en/markets/analyze?fromMarker=i&exporter=100&toMarker=j&whatMarker=k&what=200860

The markets with greatest potential for Bulgaria's exports of 2**00860 Cherries, prepared or preserved,** nes are Germany, France and Russian Federation. Bulgaria has closest export links with Greece. Germany is the market with the highest demand potential for 200860 Cherries, prepared or preserved nes.

The following chart shows the position of this sector of cherries, prepared or preserved, nes with references to the eligible countries under the Black Sea Basin Joint Operational Program.



Source: Web-site of the International Trade Center (ITC):

https://exportpotential.intracen.org/en/markets/analyze?fromMarker=i&exporter=100&toMarker=j&whatMarker=k&what=200860

According to International Trade Center Bulgaria's export of cherries, prepared or preserved, nes in **World market** is presented in the table below:

Export potential	35.3 MN
Actual exports	27.5 MN
Untapped potential	19.6 MN
World export	280.1 MN
Bulgaria's export	27.5 MN

According to International Trade Center Bulgaria's export of cherries, prepared or preserved, nes in **Romanian market** is presented in the table below:

Export potential	1.0 MN
Actual exports	94.8 k
Untapped potential	929.0 k
Romania's export	2.3 MN
Bulgaria's export	27.5 MN

As can be seen from the table above, Bulgaria has untapped export potential to Romania, amounting to nearly 1 million US Dollars, with exports of just under 100,000 US Dollars.

According to International Trade Center Bulgaria's export of cherries, prepared or preserved, nes in **Georgian market** is presented in the table below:

Export potential	86.5 k
Actual exports	0
Untapped potential	86.5 k
Georgia's export	198.0 k
Bulgaria's export	27.5 MN

In general, there are export opportunities for the Bulgaria's export of cherries, prepared or preserved to Romania, Georgia and other countries in the Black Sea Basin region. An in-depth analysis may shed light on the causes and circumstances that hinder trade between these neighboring countries. From the previous observations, one of the main reasons for the low growth of trade is rooted in the complex transport links between the countries of the Black Sea region with underdeveloped transport infrastructure and the presence of customs barriers that do not facilitate the development of trade between Bulgaria and Romania as countries - EU member states on the one hand and their neighbors from the former Soviet Union.

Market Analysis Results

Based on the information for the production and marketing of cherries, which were presented in the previous chapters of this feasibility study, some factors that influence the sector could be outlined in a SWOT analysis. The SWOT analysis (strengths, weaknesses, opportunities and threats analysis) is a framework for identifying and analyzing the internal and external factors that can have an impact on the viability of a project, product, place or person. The following table presents SWOT analysis components and factors, which were identified for the purpose of the cherry market analysis in Bulgaria:

SWOT Analysis **STRENGTHS**	**WEAKNESSES**
❖ Cherry production is highly dependent on climatic conditions - the territory of the country is characterized by favorable agro-meteorological conditions; ❖ Availability of the main prerequisites for increasing interest in the creation of new cherry orchards: good soil and climatic conditions for their cultivation, traditions in cultivation and marketing of production, dynamics in species' composition and lightened technologies for their cultivation; ❖ The tendency of diversifying the species' structure of the fruit plantations, including the plantations with cherries. The new plantings are oriented towards: species resistant to diseases and	❖ In the last three years, there has been a significant decrease in the number of fruit-growing farms, with some farm enlargements being recorded, which are likely to be a result of direct area payments. Overall, however, the average size of a farm remains small; ❖ Some fruit producers, including cherries, are failing to avail themselves of the opportunity for financial support. There is a lack of financial resources in the sector to consolidate and modernize production; ❖ Producers are not united, which limits them both in market demand and in

pests, biotic and abiotic factors, less growing species with a modern sensory profile (appearance and taste), marketing oriented; ❖ There is a favorable market situation, which guarantees the realization of production on the domestic and foreign markets; ❖ There is an unprecedented growth in fruit plantations over the last ten years. The growth is due almost entirely to the boom in recent years of the established plantations with cherries and plums. It is these two orchards that form nearly two-thirds of the country's orchard structure.	product storage; ❖ Existence of irrigation problems (poor irrigation infrastructure, insufficient irrigation equipment, high cost of water), which have a negative impact on production efficiency; ❖ Population aging in rural areas creates problems due to the lack of labor. The main part of the labor force consists of minority population i.e. of Gypsies origin, who collect the fruits; ❖ Unwillingness of cherry pickers to associate with producers' organizations. The lack of effective producer organizations does not allow Bulgarian producers to take advantage of the main opportunity for European financing in the sector (through co-financing under operational programs of producer organizations) and limits the opportunities for good realization of the finished products, putting cherry picker's producers in a more weakness situation in dealing with traders and processors; ❖ Lack of trade arrangements between producers and traders for the sale of finished production; ❖ Fruit prices show a pronounced seasonality, with specific values depending on the level of local production and imports

	during the respective year. Fruit prices also depends on the prices of the means of production, including fuels and electricity, which have been steadily increasing in recent years; ❖ There are a variety of cherry species in the country, but not every cherry becomes a market for fresh consumption where the price is much higher. ❖ There is a shortage of a mobile refrigeration equipment for transport of cherry products, as well as refrigerated storage facilities for storage of production
OPPORTUNITIES ❖ Due to the rapidly growing global market for fresh cherries, excellent prospects are opening up for Bulgarian producers in this field as well; ❖ The growing purchasing power of a growing population of Asia and the hunger for fresh produce makes the fresh cherry market particularly attractive. The global fresh cherry market is projected to reach 1 million tonnes by 2023 at an average export price of EUR 5.4 per kilogram; ❖ The problem of manpower can be solved by increasing the export of fresh cherries, which prices will be significantly higher than the purchase price of cherries for internal country processing;	**THREATS** ❖ The top exporters of fresh cherries are Chile, the United States and Turkey. As long as they produce the largest cherry quantities, they appeared as the Bulgaria's biggest competitors; ❖ One of the biggest threats to cherry growers is unforeseen climate anomalies; ❖ Threats of plantation diseases; ❖ Country import of cherries from other regions in the Black Sea region at lower prices; ❖ The probability of the cherry harvest to continue to grow and not to be

❖ Cherries have an export potential that can be deployed if invested in growing new species, semi-finished products and marketing; ❖ Creation of cross-border cooperation through clusters or other types of organizations, integrating the production of the Black Sea countries; ❖ The only way for small cherry growers to be equal on the market is to associate, and associations must have specific preferences. ❖ There is potential for relatively high profitability, at relatively stable wholesale prices; ❖ Modernization of the varietal structure of part of the fruit plantations, including new Bulgarian species; ❖ Provision of further specific government support for quality fruit production and marketing, as well as provision of a new state aid for the fruit sector, incl. to cherries' sub-sector; ❖ Bulgaria has a chance to increase its exports of fresh fruit to Japan following the entry into force of a free trade agreement between the two countries on 1 February 2019. For fresh fruit, new opportunities are opening up. According to data, presented by the Bulgarian Chamber of Commerce, in the cherry season - a "small box" with a row of cherries in Japan is about 20-25 US Dollars. Bulgaria is the second largest exporter of canned cherries in the world, third - fourth on export of fresh cherries. In this regard, even if only cherries are exported to Japan, this is a very good opportunity for	purchased, with purchase prices constantly decreasing, especially for the cherries for processing.

Bulgarian producers; ❖ Ensuring a national and/or European financing for the purchase of refrigeration equipment for the sector.	

Marketing Strategies Approaches

A marketing strategy is a planning process that allows an organization to concentrate its limited resources on the best opportunities to maximize its sales and achieve a stable competitive advantage. The organization should be centered on the key understanding that customer satisfaction is the main goal, the main prerequisite for business success.

The marketing strategy is the basis for the company's activity in specific market conditions. The following major market strategies are distinguished in the international activity:

- A strategy for gaining or expanding a market share;
- Innovation strategy;
- Production differentiation strategy;
- Waiting strategy;
- A strategy for reducing production costs;
- A strategy for individualizing consumers.

In order to avoid mistakes in the development of the marketing strategy, it is necessary the company to answer as precisely as possible the basic question: "What are the stimulus and motives for the entry of one or the other company into the international market and what strategy to use?"

The decision to go to foreign markets should be based, above all, on the argument that this gives the company new perspectives that cover all the real costs and risks of realizing them.

In terms of cherry export to foreign markets, the following may be considered and implemented as appropriate approaches for marketing strategies:

- **The strategy for gaining or expanding market share** to certain indicators, which is achieved through the production and marketing of new varieties/species of cherries with improved consumer qualities (taste, appearance, durability), formation of consumer needs for new products based on fresh cherry (frozen, canned, cocktails, etc.), penetration into new fields of application of production. Expanding the market share of traditional production in conditions where all commodity markets are in one or another way distributed is only possible at the expense of a competitor exiting the market, acquiring a competitor in its market share, reducing the competitive capabilities of a competing firm etc. This is achieved by modifying or introducing into the market new models, applying both open and hidden methods of competition.

- The **innovation strategy** involves the creation of products that have no analogue on the market. First of all, these are basically new products, oriented towards new needs. The strategy of innovative imitation also implies the possibility of copying innovations developed by competitors. Such a strategy is pursued by companies with significant resources and production capacities, enabling them to quickly acquire and mass produce the copied product and sell it in those markets that have not yet been conquered by the pioneer company. In the field of cherry production and processing, such innovative foods would be possible in view of the growing global trend towards healthy lifestyles, as well as their use in folk medicine from antiquity as a result of the benefits and healing properties they possess - from a cure for rheumatism and arthritis to food for restful sleep.

- **The product differentiation strategy** implies the modification and refinement of traditional products manufactured by companies at the expense of introducing new technical principles into the product, introducing into the product such changes that may create new needs or create new areas for product use. With respect to the traditional cherry, differentiation can be in the field both in the variety of the species of the fresh fruit and in the final products

processed by cherries (jams, sweets, juices, nectars, fruit teas, concentrates, medicinal syrups, organic products, etc.)

- **The strategy for reducing production costs** requires: (a) the mass deployment of cost-effective technologies and equipment; (b) establishing controls on direct and overhead costs; (c) reducing research and advertising costs; (d) improving conditions for access to raw materials; (e) directing sales to a large group of consumers in a large number of national and international markets.

- **The wait-and-see strategy** is used when trends in conjuncture and consumer demand are uncertain. In such cases, large companies prefer to refrain from launching the product on the market and to study the actions of competitors. The possibility of such a wait and the subsequent surprising "leap" puts big companies in an exceptional position and gives them certain competitive advantages. However, they are usually very cautious about innovating, requiring comprehensive marketing research, prospective profitability estimates and controlled market share.

The following **circumstances** may be **particularly attractive for entering foreign markets**:

• Higher profits at the expense of higher volumes of sales of goods and services on foreign markets;

• A decrease in domestic demand for goods, which can be offset by an increase in exports;

• A more privileged investment regime for foreign economic activity in the selected market;

• The dispersal of entrepreneurial risk between the internal and external markets;

• An opportunity to extend the life cycle of the product;

• The opportunity for research costs to be allocated to a larger production volume;

• The prestige of the company increases when it becomes international.

At the same time, these advantages should take into account other factors that to some extent counteract a decision to enter the international market. All the pros and cons of international

marketing should be evaluated in detail. The decision to go to foreign markets should be based, above all, on the argument that this gives the company new perspectives that cover all the real costs and risks of realizing them.

Potential risks and the recommendation for their minimization

It is well known by every farmer that he/she can be left without fruit if he/she does not protect the fruit tree from diseases. This also applies to cherries, the proper cultivation of which is also pruning, watering and burrowing the soil around the trees at regular intervals. There is a pretty big list for all types of cherry diseases, but the most dangerous ones are the following six:

White rust - the most dangerous

Photo credit: Agrozona.bg

The most dangerous fungal disease of the cherry is the "white rust" known as cocomycosis, and its scientific name is cylindrosporiosis. When it affects a tree, the disease causes complete defoliation of the plant as early as mid-summer in July. These trees freeze in colder winters and produce non-standard seedlings. The disease can be recognized by the small brownish-red to brown spots, with circular to irregular shapes that appear on the top of the

infected leaves. When the weather is wet, numerous white piles of spores form on the underside of the leaves. As a result, the tissues between the spots turn yellow and later become brown and the leaves fall. However, the less affected leaves may remain on the trees.

White rust damage prevention measures

The first prophylactic spray is made immediately after flowering or, more precisely, during the flowering of the petals. It is then sprayed again for 7-14 days depending on the effect of the

fungicides used. Until the harvest, it is usually sprayed 2 or 3 times. Then one or two more sprays are made according to the degree of primary contamination and weather conditions.The sprays shrink by ½ the number of treatments for the disease in individual years.

All varieties of cherries with valuable economic qualities are susceptible to the disease.

The blossoms dry out from early brown rot

Photo credit: Agrozona.bg

In this disease, the first symptoms are observed in blossoms. Brown spots appear first on the petals, they grow all over the flower that dries. The infection creeps in on the flower petals and strikes the fruiting twigs, which also dry. In highly infected trees, the flowers appear to be burned by flames, and this is why this form of the disease is also known as the "burning" of the flowers.The disease also does not spare the fruits, on which a small, rounded brown spot appears, which grows and covers the whole fruit. The affected cherries remain in the trees where they mummify. The disease is caused by Monilinia laxa. It spent winter as a mycelium in infected branches and dried fruit. Spores multiply at most at a temperature of about 20C and above 90% relative humidity.

Early brown rot damage prevention measures:

Infected branches and dried fruits need to be removed. In addition, a chemical control may be applied which includes one pre-flowering, one or two flowering and one post-flowering spray.

The late brown rot destroys the fruit

A small circular brown spot appears on the infected fruit. It gradually grows, with the affected tissues become brown and rotting. The infested fruits drop early or dry on the branches. In Bulgaria, the late brown rot is caused by the Monilia fructigena fungus.

Late brown rot damage prevention measures:

The fight against it is the same as in early brown rot. One spray of about 3-4 weeks before harvest is sufficient.

Bacterial cancer of the fruit that forms tumors

The most dangerous enemy in our fruit nurseries is bacterial cancer. Small tumors with a granular structure and a pale yellow color are a clear sign that the plant is diseased. The agent of bacterial cancer attacks the roots and root cervix, which initially appear. It happens that the tumors are enlarged enough to resemble a small cabbage. At first, they are smooth and soft, but later they darken and harden. As early as next year, these formations break up and the front door opens to the plant's trunk for other microorganisms that cause rot. Tumors located on the central roots or at the base of the stem are particularly dangerous. The fact that Agrobacterium tumefaciens remains in the soil and in the tumors of attacked plants should not be overlooked. In addition, contagion can also come from many grasses attacked by it.

Bacterial cancer damage prevention measures:

It is important that the nurseries and gardens are planted on land that is not contaminated with the bacterium. The areas should be well drained and their acidity should not exceed 5.5 - 6.0. This can be maintained by fertilizing with ammonium sulfate. It is also important to use disease resistant pads.

The whole tree is killed by bacterial cancer (prigor)

The Bacterial cancer (prigor) can be most commonly seen on the trunk, skeletal branches and branches of the cherry tree. The cause of the disease is the bacterium Pseudomonas syringae p.v. syringae van hall. Where there is damage, sinking or swelling of the tissues can be seen. The crust becomes darker, greasy and shiny. Often at the site of damage, the crust is torn and the wounds are covered with resin. The buds are also affected by bacterial blight. They remain dry, do not develop after winter and are resin coated. When the incision is made, it can be seen that the pimples are necrotic. It is extremely rare to have symptoms of the disease on the leaves and

fruits. The trees have small fruits with sinking. If no action is taken, the disease covers the entire tree. It is interesting to note that the leaves of diseased plants do not fall in the autumn.

Bacterial cancer (prigor) damage prevention measures:

In summer, the branches are cut to dry. The pathogen is less active during this season, and plant defenses are increased. The wounds from the pruning are treated with a vegetable paste and the tools used are decontaminated with an alcohol for combustion. Completely dried trees are uprooted and burned. To prevent infection, trees are sprayed in the fall during November and early in the spring before the buds burst.

Increasingly anthracnose occurs

Photo credit: Agrozona.bg

In recent years, this disease has begun to attack cherries more and more frequently. It usually appears on the surface of the fruit during its ripening period in the form of light spots. If the weather is dry during this period, the fruits affected by anthracnose will dry out fairly quickly. For the disease distribution also contributes the windy and humid weather when anthracnose-causing fungus are spread over long distances and damage nearly all fruit of the tree.

Anthracnose damage prevention measures:

It is possible to increase the resistance of cherry trees to disease if lime stalks are smeared in spring and autumn, before flowering to make root nourishment with potassium sulphate solution (3 tablespoons of 10 liters of water) and in a timely manner to remove all dry branches. The Anthracnose is caused by fungi that hibernate on damaged and fallen fruits. Therefore, all diseased fruits should be harvested as soon as possible and burned outside the garden.

In addition to the potential risks associated with diseases of fruit plants, there are a number of environmental and socio-economic factors that threaten the production and export of fresh

cherries and their derived products.

All the circumstances that accompany one business in each industry are also present in the sector of agriculture i.e. the lack of manpower, lack of innovation, difficult access to financial resources. But in Bulgaria, there is another factor that has influenced the agriculture significantly and this is the nature. Besides all other negative environmental factors, the Bulgarian farmer faces the problem with the frost. The farmers' losses caused by the frost can be enormous. At the end of March, 2019, the frost has steamed the blooming gardens with cherries, peaches, plums and apricots after temperatures dropped to minus 4 degrees in many parts of the country. Damage to the fruit-bearing plantations on the ground reaches up to 85 per cent, according to Krasimir Kunchev, manager of Apple consult Ltd, Plovdiv for Agrozona. To tackle the problem, it is proposed that farmers have insurance protection against natural catastrophe frost.

The the last three years (2016, 2017 and 2018) have been bad for the cherry growers because of the weather. Fortunately, the 2019 has an exceptionally good harvest. The problem, however, is the labor force, with mostly low-skilled workers from Rome origin who have collected the fruits. At the beginning of the season, they worked for 40 Bulgarian cents per kilo at a purchase price of 60 Bulgarian cents per kg for cherry that goes for processing. In the height of the harvest season, they picked cherries at 50 Bulgarian cents / kg at a purchase price of 80 Bulgarian cents / kg to 1 Bulgarian lev per kilogram of cherries. The problem with manpower retention can be solved by increasing the export of fresh cherries, which prices will be significantly higher than the purchase price of cherries for processing.

Findings and recommendations

The **main findings** of the analysis of the sector of the cherries could be summarized in the following lines:

- The cherries have export potential and the ability to create economic growth and employment in the rural, remote and mountainous areas.
- The territory of the country is characterized by favorable agro-meteorological conditions which contributes to the good production of cherries.
- Bulgaria holds one-fifth of world exports of primary processed cherries.
- Due to the rapidly growing global market for fresh cherries, excellent prospects are opening up for Bulgarian producers.
- There are problems in the sector related to the scarcity and low skills of the labor force.
- There is a low level of mechanization and process automation in the sector due to lack of funds for investment in new technologies;

The **main recommendations** from the analysis for further development of the sector of cherries are as follow:

- It is necessary to promote and raise awareness of the population in the possibilities of creating sustainable growth, employment and income generation from cherries' growth in the country.
- To allocate funding from European and national funds for the introduction of innovation, research and technology in the sector.
- To provide tax preferences for start-ups in rural areas in order to attract skilled workers.
- To allocate funds from the state budget for promotion and participation in specialized international exhibitions and fairs of producers of cherries and related products.

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COUNTRY TRADE PROFILE FOR CEREAL PRODUCTS

Photo credit: BG Start Group

Introduction and history

Cereal production is a major sub-sector of crop production in Bulgaria, as grain is a major part of the country's food supply. Cereal products provide food for animals and humans. The bread and pasta provide about 80% of the calories and protein in the diet of the Bulgarian population. In 1939, about 65% of the arable land is covered with cereal products, about 27% of the total agricultural production is from them.

Due to changes in the nutritional balance of the Bulgarian population, areas with cereal products have been declining since the end of World War II. In parallel, the average yields increased significantly, which increase grain production to 10 million tonnes in the late 1980s. In the early 1990s, grain production fell almost 2 times, due to unfavorable natural conditions and restructuring of agriculture. In 1999, 5 million tonnes production are produced of 1815400 decares. The crops with cereal products are 42.8% of the arable land and 64.4% of the all agricultural crops in the country

For 2019, 10 592 739 decares are sown with wheat in the country, which is about 73 000 decares above 2018 levels at the same time. At that time, the area occupied by grain was 10 519 405 decares. The highest number of wheat fields is traditionally in the Dobrich region, where the fields are over 1.2 million decares, followed by the Pleven region, where the cereal products have occupied 765 thousand decares. The third largest wheat occupied area is in Burgas. There, the cornfields are 687 thousand decares, followed by Yambol, where farmers have already cultivated and planted 658 thousand decares of grain. The districts of Veliko Tarnovo, Varna, Ruse, Razgrad and Plovdiv are also among the ten sown areas.

The state of cereal production in the country

The Grain Production sector is of strategic importance for satisfying the food needs of the population, for the growth of the national economy and foreign trade, and for maintaining social peace in rural areas.

The important place of cereal products in agriculture is determined by a number of their characteristics, which make the cereal products more attractive to grow. Such features are:

1) their low water content, which makes them transportable - this feature allows them to be grown everywhere;

2) strong dependence on natural conditions and mainly on soil and climate;

3) retain their sowing qualities for a long time if stored under appropriate conditions;

4) they offer relatively favorable conditions for mechanized processing because they do not require irrigation, digging and other labor-intensive activities - this makes them independent of the labor factor;

5) An important advantage over the other crops is their high profitability.

Conditions and factors for the development of grain production

There are a number of factors that influence the development of the cereal production. They can be grouped into 2 groups:

1. Natural factors - In Bulgaria there are favorable soil and climatic conditions for the cultivation of various cereal products - wheat, barley, maize and others. Their cultivation depends to a large extent on the topography, altitude, fertility of the soil and their humidity, and a number of other factors. In this regard, cereal products are grown in the plains of the country.

2. Socio-economic factors - these are the way of production, the state policy in the field of agriculture, the labor force, markets, mechanization and chemistry, availability of processing facilities, etc.

Sectoral structure of cereal production

Over the last 50 years, significant changes have occurred in the sectoral structure of the cereal production. Until the mid-1960s, the areas and production of cereal products predominated in the country. In the 1970s, the share of the cereal products was rapidly increasing, taking a leading position to the end of the 1980s. In the last 10 years, again the cereal products have predominated, which relates to the increasing needs of the population.

1. Cereal products

The main cereal in Bulgaria is the **WHEAT**. Before the World War II, its areas were about 15 million decares, and by the end of the 70's they fell 2 times. Over the last 11 years, its areas have

been retained around 11-12 million decares and yields are about 3 million tonnes.

Wheat is sensitive to natural conditions, mainly to soil, climate and altitude. Humus-rich soils are the most favorable. These soils are found all over the country, but are primarily allocated in the Danube Plain, Upper Thracian Plain and South Eastern Bulgaria. It is in these regions that most of the country's wheat is produced. In 1999 30% of the wheat is produced in the North East Seaside Region, about 17%- in the North-East Transdanubian Region, and about 14% of the country's wheat in the South-East region.

Wheat can withstand short-term frosts up to –20 ˚C, but often frosts. This crop does not stand high temperatures, which is why the conditions in the Danube plain are the most suitable for it. It responds weakly to artificial irrigation and has low yields in areas above 1000m in height. For this reason, the North Eastern Bulgaria, the Middle and West Danube Plain are specialized in cereal cultivation. Today, about 2/3 of the wheat is harvested in Northern Bulgaria and mainly in the North East Seaside Region. The varieties of the wheat "Sadovo", "Levent", "Rusalka" and "Kubrat" are grown in the country.

Unlike wheat, the **RYE** has little economic importance for the country. This crop has limited biological capabilities, even under optimal conditions. It is grown on low-yielding shallow soils found in mountainous and semi-mountainous areas. The rye has many advantages: it grows earlier than other cereal products, the plant has a short vegetative season, it sprouts high and the stems are used as green fodder as well as for knitting of mats, used in vegetable production, and more. The main growing areas of this culture are the Rhodopes and South Western Bulgaria. It is less widespread in the Central Balkan Mountains. In the early 40's of the XX century the rye area is about 2.7 million decares, from which about 280 thousand tonnes of grain are extracted. By the end of the 1980s, the area had declined more than 11 times and the yields decreased about 10 times. Over the last 11 years, both areas and yields have increased, driven by increased demand in the internal market.

2. Grain-forage products - maize, barley, oats, soybeans, millet, sorghum, vetch and spelled.

Main culture is the **MAIZE.** It is second in importance after the wheat because it serves as a raw material in the food processing industry, as an animal feed, and for human food. The maize kernels are also used to produce dextrin, glucose, vegetable oils, medicines, alcohol, paper, starch, vitamins, and more. For the past 40 years, the corn has been grown mainly as a forage crop. It is distinguished by a number of features and specific requirements. Maize needs an artificial irrigation and can produce 2 harvests per year. It allows the use of mechanization, fertilization, and rapid introduction of new varieties. Its average yield is about 350 kg/decares. The highest maize's yields in the country are in the valley of the river Maritsa. The main cultivation area is the Danube Plain due to the most favorable soil and climatic conditions. The most unfavorable for maize cultivation are the conditions in the valleys of Struma, Mesta and in the Rhodopes. The main varieties grown in Bulgaria are "Horse Tooth" , " Hard" and others.

BARLEY is a traditional grain-forage product in Bulgaria. Its grain is rich in starch and protein, and some varieties are used in brewing, for the production of semolina and other valuable products. The barley is grown in the areas of wheat, but it is less demanding on soil and climatic conditions. In Southern Bulgaria the barley matures as early as the end of May, and in Northern Bulgaria - by the end of June. The main part of its area is in South Eastern Bulgaria, where the soil and climatic conditions are most favorable. Barley is also grown in the Danube Plain, the Pre-Balkans, South Western Bulgaria, and even in the Rhodope Mountains and along the upper reach of the Mesta River. Its yields increased in the 1960s and 1970s and reached 1,5 million tonnes. However, over the last 10 years, areas with barley and its yields have declined significantly, with private sector production reaching about 98%.

OAT is also a traditional forage product in Bulgaria. It is used as forage for animals and for human feed. It has limited biological capacity. Therefore, its areas and yields have been declining rapidly in recent years. The main values of this product are its unpretentiousness to the natural conditions and the long growing season. This allows it to be grown in areas with an altitude of 1300 to 1500m. Over the last 11 years, the areas and yields of oats have been expanding due to increase in demand. The share of the private sector reaches over 98% of production.

SOYBEAN is an important grain-forage product in Bulgaria. It grows on deep and fertile soils, which are irrigated. It is cultivated only in the Danube plain and in particular in the regions of Rousse, Turnovo and Pleven. A soybean's institute operates in the town of Pavlikeni. The soybean enriches soils with nitrogen and protects them from erosion. Despite these valuable qualities, the soybean's area and its yields have been declining over the last 11 years, but the private sector production has grown to 97.7% of the total soybean's production.

Millet, spelled, sorghum and vetch are also included in the forage crop. These cultures are poorly represented. About 10,000 tons are harvested annually, and only on private farms.

Territorial structure of grain production

Under the influence of the natural and socio-economic factors, 3-grain producing regions are formed in Bulgaria:

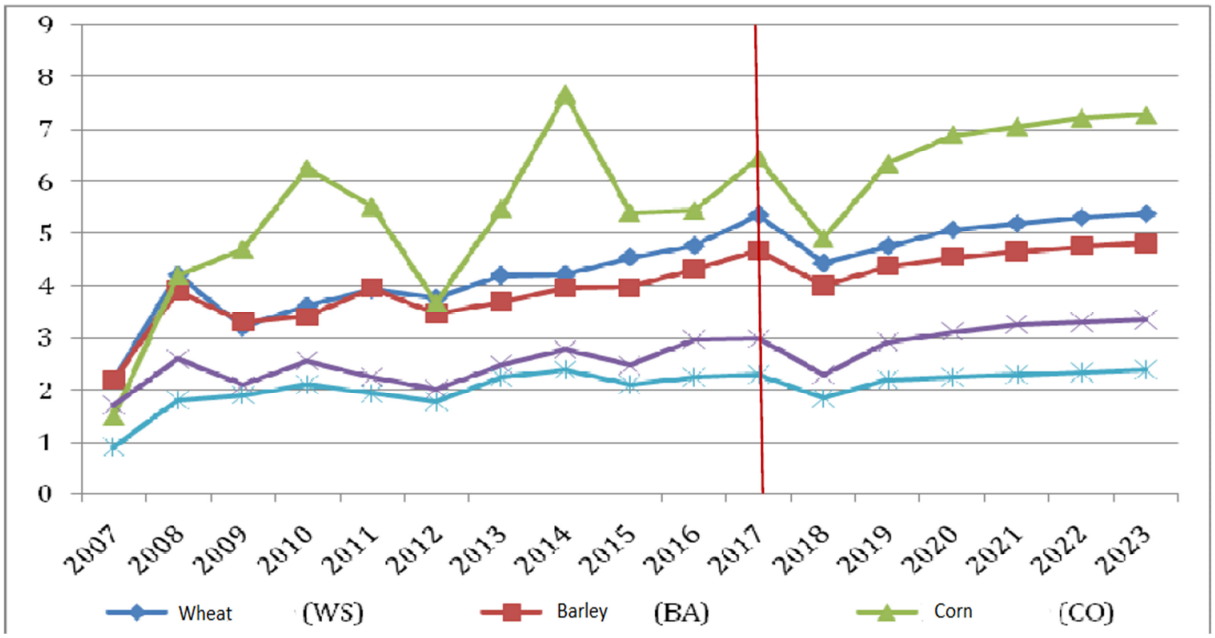
1. North East Bulgaria. It is the most prominent grain producing area specialized in the cultivation of wheat, maize, barley, haricot bean, broad beans and chickpeas. It concentrates more than 1/3 of the cereal products and about 37-38% of their yields. The region has the highest yields and the production has the lowest cost.

2. Middle and Western part of the Danube plain. About 30% of the cereal products are located there. The region specializes in growing maize, barley, wheat and partly soybean and rye. Based on the grain production, the region stands out with

its highly developed livestock breeding.

3. South East Bulgaria. It is the smallest cereal-producing region in the country. It concentrates about 14% of the area with yields almost 15% of the cereal products. The area specializes in growing wheat, barley and maize. It produces 14% of wheat, 5% of maize, 25% of oats and 26% of barley in the country.

The climatic conditions of the year determine to a great extent the level of average yields of cereal products, and they are the most common cause of observed annual fluctuations in the level of the indicator. With the use of quality seeds, improvement of technological level and timely implementation of agrotechnical activities, the negative impact of agrometeorological factors on average yields can be limited. The data in the graphic below show a steady increase in the average yields of wheat and barley in the period 2013-2017. In 2017 the favorable climatic conditions contributed to the achievement of high values of the indicator, respectively 5.35 t / ha for wheat and 4.66 t / ha for the barley. The increase in the level of harvested production per unit area was also realized in maize/corn - by 18% compared to 2016, but the level of average yields (6.44 t / ha) remained below the record level in 2014 - 7.68 t / ha.



Source: MAFF, project CARA

According to the NSI's preliminary data, in the first half of 2019 the export of agricultural goods increased by 6.2% compared to the export for the same period in 2018, to EUR 2,035 million. The biggest contribution to this has the registered growth in the value of exported cereal products (by 29.4%). Exports of vegetables increased significantly (by 33.3%), cocoa products (by 23.1%) and soft and alcoholic beverages (by 26.1%). The leading product groups in the structure of agricultural exports of the country during the period January-June 2019 are cereal and oilseeds plants, followed by fats of vegetable or animal origin, pasta, residues and waste from the food industry, etc. Thus, for the first half of 2019 a positive trade balance for Bulgaria was formed in the amount of EUR 340.0 million, with 4.2% less than in the same period of 2018. The EU countries remain the main partners in the Bulgaria's agricultural trade, accounting for about 68% of the total agricultural exports for the first six months of 2019 and 77% of the total agricultural imports for the period.

Product description - Cereals

The importance of cereal production is enormous. It provides bread for people and raw materials for the food industry. The cereal products are a major feed for farm animals and a significant share of the Bulgarian exports. There are many favorable climatic and soil conditions for grain production in Bulgaria. Fall and early spring rains facilitate the sowing of cereals. The rainfall in May and June guarantees their normal vegetation, and high summer temperatures - their ripening. The cereal products are adversely affected by summer droughts, hailstorms and snowless winters, when the crops sometimes freeze at low temperatures. The cereal's territorial structure as well as the average yields is strongly influenced by the organization of production, modern agro-technology, industriousness and the modern production experience.

Wheat

Wheat is an ancient crop that originated in South West Asia and has been consumed for more than 12,000 years. It is one of the first cereal products cultivated by humans. The recent studies show that the first wheat cultivation took place in a small area located in South Eastern Turkey. It self-pollination ability has further facilitated the emergence of a number of varieties in different parts of the world. It was considered as a source of life and played an important role in both the culinary and religious aspects. About one third of the world's population relies on wheat for their livelihood. With the spread of wheat in Europe, the use of wheat straw as a roof insulation began in the Bronze Age. This practice survived until the late years of the 19th century.

Wheat production is of paramount importance in crop production. The wheat is the main cereal product. Its absolute areas and relative dimensions are steadily decreasing. The main wheat area is the Danube plain. The highest successes in the production of wheat has Dobrudza region. The towns Stara Zagora, Yambol, Nova Zagora and Burgas are also specialized in wheat production.

According to operational information from the Ministry of Agriculture, Food and Forests (MAFF), wheat production from harvest 2018 amounts to 5.4 million tonnes, which is 6.3% less than the previous year's operating data. The decline in production is due to the lower average yield (by 9.5%), due to the unfavorable climatic conditions in the country during the spring and summer months. The harvested area amounts to 11 392 thousand decares - almost 4% more than the operational data for 2017.

The wheat harvest in 2018 started earlier than usual. The heavy rainfall in June and July made it difficult to harvest, led to a decrease in average yields and worsening in quality of the harvested

production. As a result of significantly increased exports in the previous season, the 2018/19 marketing year started with over 4 times lower transitional stocks of wheat, estimated at 110 thousand tonnes i.e. with 365 thousand tonnes below the level a year ago.

According to the National Statistical Institute, in recent years there has been a gradual decline in the consumption of bread and pasta by households in the country, which may be explained with the change in the people's way of eating. Given that, as well as the downward trend in the population, the consumption of wheat for flour and bread in the marketing year 2018/19[1] is projected to decline by 1.2% annually, amounting to around 850 thousand tonnes.

Given the reduced supply in the country, the total wheat export for 2018/19 is projected to be well below the previous year's record. Thus, in the coming months, an additional slowdown in export can be expected compared to the observed ones so far, and the total quantity exported by the end of the season could reach about 3.7 million tonnes. With this forecast the supply and consumption for the current 2018/19 year, the transitional wheat reserves are expected to reach about 120,000 tonnes at the end of the season. The relatively low closing stocks for the second consecutive year will continue to support prices.

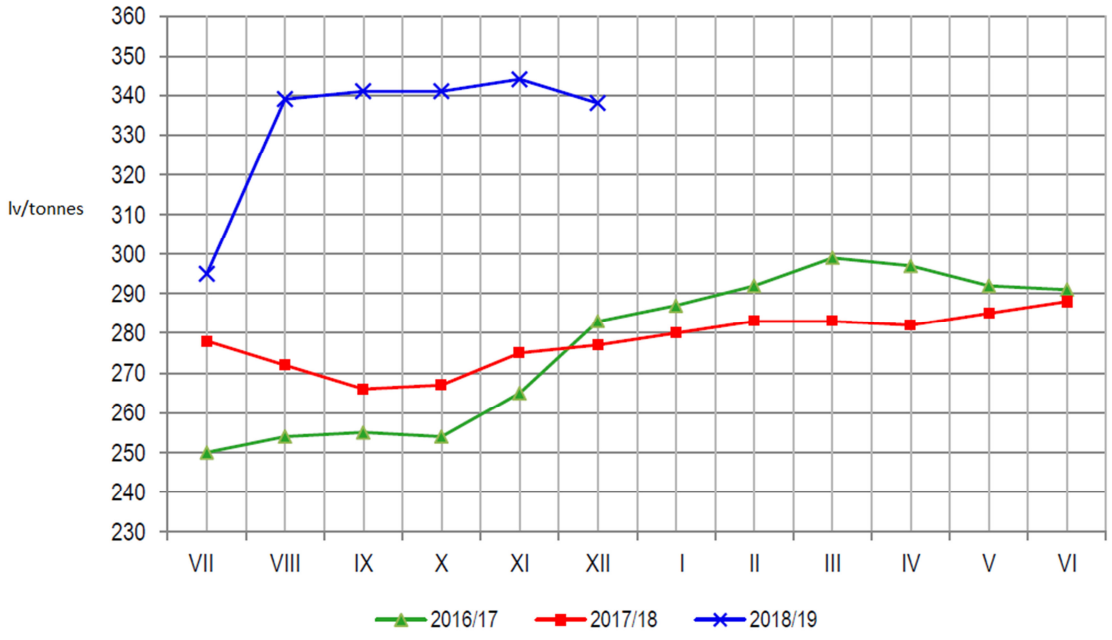
Purchase prices of wheat in Bulgaria

Since the start of the current 2018/19 season, the purchase prices of wheat have been moving well above levels a year ago, driven by lower supply both domestically and globally. For the period July - December 2018, the purchase price of the bread wheat increased by 22.2% to 333 BGN / tonne and that of feed wheat by 19.1% to 308 BGN / tone. The marketing year started with an average purchase price of wheat for July 2018 of 295 BGN / tonne, 2.4% higher than the previous month and 6.1% higher than a year earlier. In August, the bread grain rose sharply to an average of 339 BGN / tonne, followed by price stabilization around this level until December 2018. In January 2019, there were indications of further increase in bread wheat, as in the

[1] June 2018-May 2019

beginning of the third decade the purchase price reaches 356 BGN / tonne - already by 27.1% above the reported at the same time in 2018.

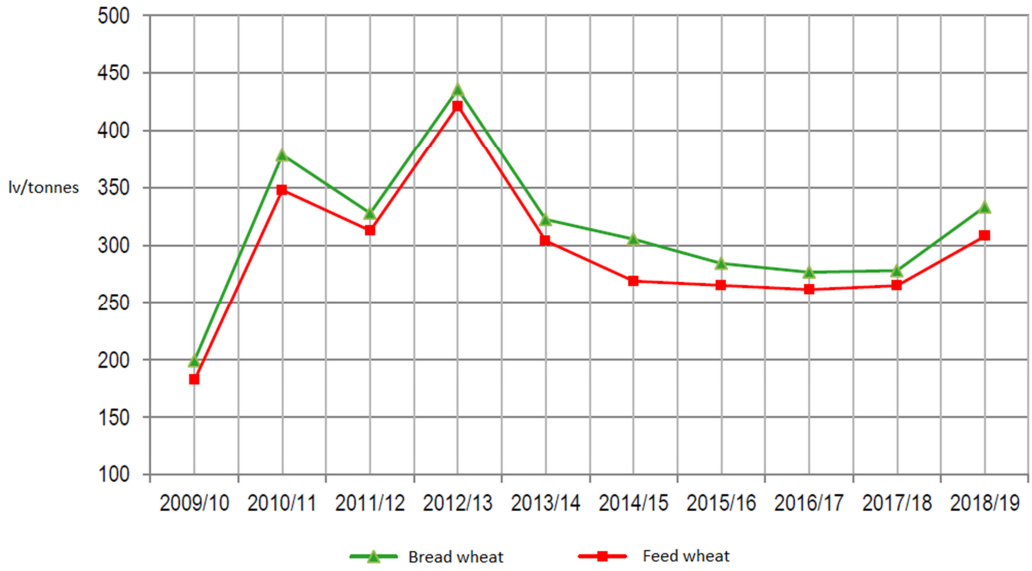
Purchase prices of wheat in the 2016/17 - 2018/19



Feed wheat has a gradual rise in price from an average of 274 BGN / tonne in July 2018 to 322 BGN / tonne in November 2018 and maintaining around this level in the last month of calendar year 2018. At the end of January 2019, the purchase price of feed wheat increased to 337 BGN / tonne, with an annual growth rate of 24.8% - close to that of the bread mill wheat.

Despite a significant increase over the last year, wheat prices remain well below the recorded highest levels of the 2012/13 marketing year and close to those of the 2011/12 season.

Average purchase prices of wheat in 2009/10 - 2018/19 years



The average purchase price of wheat for the past 2017/18 was 278 BGN / tonne - with an insignificant 0.5% (1 BGN / tonne) higher than the previous year. The feed wheat also reported a slight increase on an annual basis - by 1.3%, to 265 BGN / tonne. In the coming months, wheat prices in the country can be expected to remain significantly above the levels of the previous season. At the moment, the forecast data of the main analysts indicate a decrease in the global supply of wheat during the 2018/19 marketing year by about 1% annually. Given the relative preservation of global consumption, this will continue to keep wheat prices on international markets at relatively high levels.

Average annual purchase prices of wheat in 2009/10 - 2018/19, BGN / tonne (excluding VAT)

	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19*
Bread wheat	199	378	328	436	322	305	284	277	278	333
Feed wheat	182	348	313	421	304	269	265	262	265	308

* Average purchase price for the period July-December 2018

Source: SAPI's data, processed by MAFF

Wheat exports

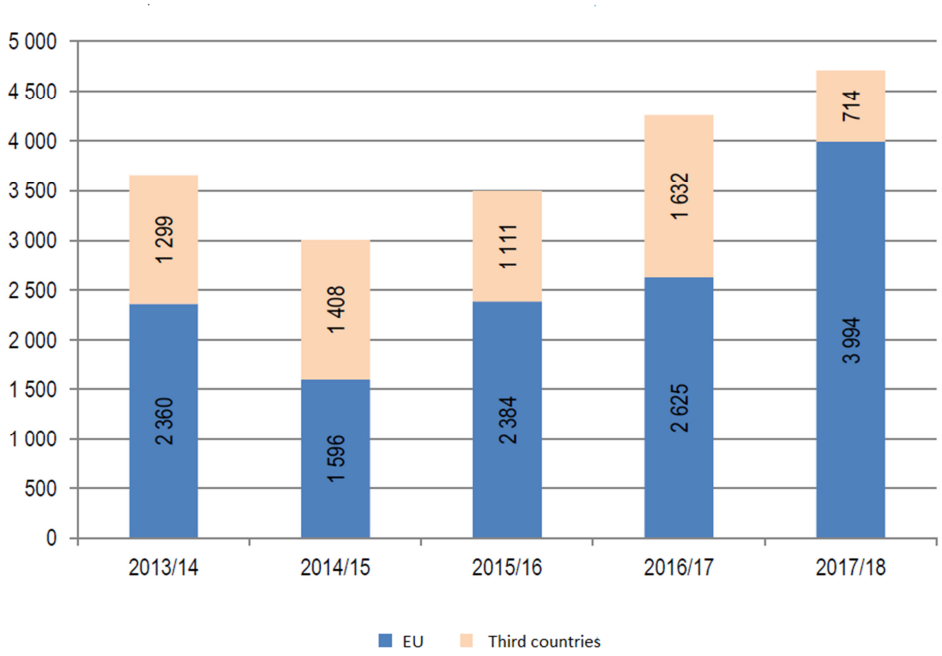
According to the preliminary data of the National Statistical Institute, during the first four months of the 2018/19 marketing year, a total of 2 383.7 thousand tonnes of wheat were exported and converted into wheat flour, which is 15.3% less annually. As a result of lower stocks this season, exports of wheat alone fell by 14.1% compared to the corresponding period last year, to 2 366.9 thousand tonnes. The decrease in the value of the wheat sold so far abroad is slightly lower (by 6.5%), given the higher export price (on average by 9% compared to last year). The wheat export of Bulgaria reports a slight movement in the last days of December 2018. Only in the second half of the month, about 100 thousand tonnes of grain are transported through the Varna Port. For the last two weeks of 2018, are exported an average of 77.9 thousand a tonnes, this is about 15.6% below the level, registered for the same period of 2017 as per the statistic of the Ministry of Agriculture, Food and Forestry. Almost 99% of wheat exports for the period July - October 2018 are shipments to EU Member States - a total of 2 335.9 thousand tonnes, with the largest quantities being sold in Spain (902 thousand tonnes), Italy (257.2 thousand tonnes) and Romania (222 thousand tonnes).

Wheat and flour exports from Bulgaria, tonnes

	2016/17	2017/18	Change 2017/18 against 2016/2017	2017/18 July – October	2018/19 July – October	Change 2018/19 against 2017/18 July - October
Wheat	4 257 712	4 707 951	10.60%	2 755 676	2 366 901	-14.10%
Flour	43 178	87 499	102.60%	42 015	12 100	-71.20%
Flour expressed in wheat	59 970	121 527	102.60%	58 354	16 805	-71.20%
Total wheat equivalent (1+3)	4 317 682	4 829 478	11.90%	2 814 029	2 383 706	-15.30%

Source: NSI data, processed by MAFF

Wheat exports from Bulgaria to the EU and third countries, thousand tonnes



According to NSI data, the total exported wheat for the 2017/2018 marketing year amounts to 4 829 thousand tonnes (including converted into wheat flour) - by 11.9% more on an annual basis. Of these, 4 708 thousand tonnes are wheat and 121.5 thousand tonnes are wheat equivalent, 10.6% and more than twice the previous year, respectively. In value terms, the annual growth of wheat exports is more sizable - by 21.8% to USD 903.6 million due to an increase in the average export price by 10.3% to 192 USD / tonne, driven by higher grain prices in Russia and Ukraine. About 85% of all wheat exports in 2017/18 are for EU Member States - a total of 3 994.3 thousand tonnes. The most significant quantities are directed to Spain (2,092.5 thousand tonnes), Italy (542.3 thousand tonnes), Greece (508.4 thousand tonnes) and Romania (470.8 thousand tonnes). Shipments to the EU increased by 52.1% compared to the previous year, with growth for Spain, Portugal and the Netherlands about or more than twice, and for Greece - by 36.7%.

Bulgaria's export of wheat in **World market**

Export potential	**977.1 mn**
Actual exports	**741.5 mn**
Untapped potential	**487.1 mn**

Bulgaria's export of wheat in **Romanian market**

Export potential	**115.5 mn**
Actual exports	**75.9 mn**
Untapped potential	**39.5 mn**

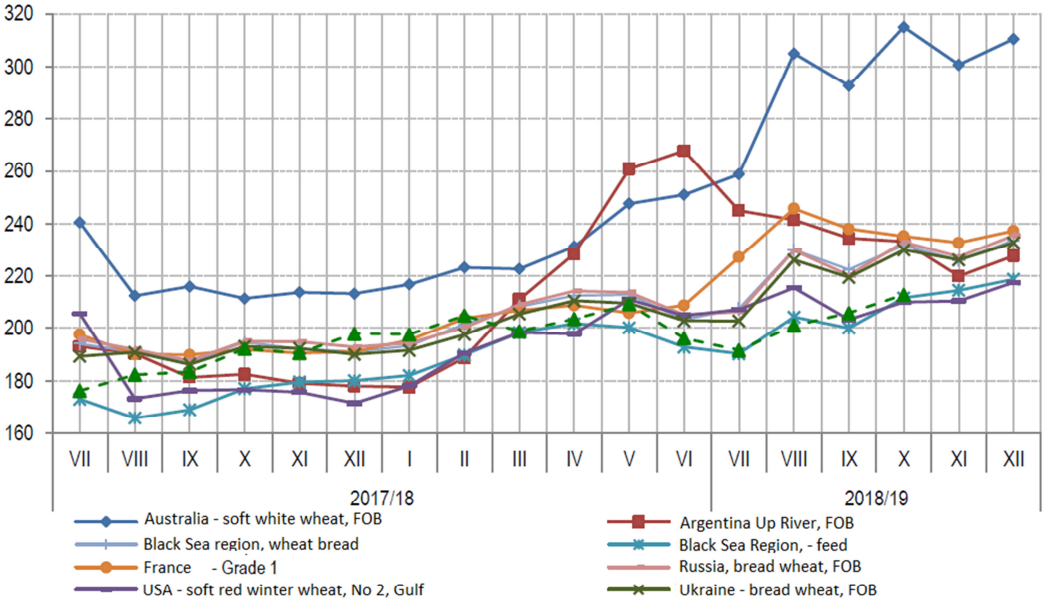
Bulgaria's export of wheat in **Georgian market**

Export potential	**6.6 mn**
Actual exports	**0 mn**
Untapped potential	**6.6 mn**

As can be seen from the tables above, Bulgaria has a wheat export potential to Romania of 115.5 mn, 39.5 mn of which are untapped export potential. With regard to Georgia wheat export potential, things are not the same. From export potential 6.6 mn, Bulgaria does not export any wheat to the country.

Under the influence of the reduced supply in the current 2018/19, there is an increase in wheat prices on the international markets. During the first four months of the season, Bulgarian wheat export prices have followed the trend in international grain markets, moving around the average quotations for feed wheat in the Black Sea region. According to data of the Bulgarian National Statistical Institute, the average export price of Bulgarian wheat (bread and forage), FOB Bulgarian Black Sea port for the period July - October 2018 is 203 USD per tonne - up to 10.5% higher on an annual basis.

International wheat prices in 2017/18 and 2018/19 purchase years, USD / tonne



Barley

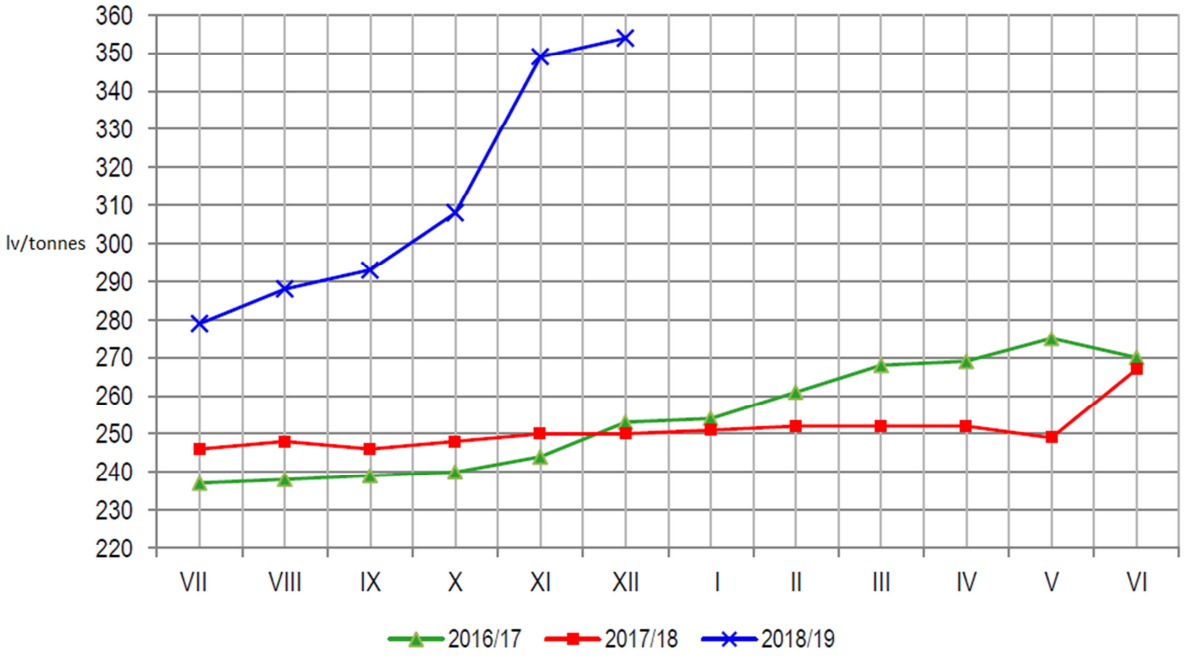
There is a significant decrease in the supply of barley during the 2018/19 marketing year due to a combination of lower initial stocks and a decrease in production. According to MAFF operational data, 509.7 thousand tonnes of barley were produced in the country in 2018, of which 501.2 thousand tonnes - autumn and 8.5 thousand tonnes - spring barley. Compared to the previous year's operating data, the total quantity decreased by 19.6% due to a decrease in the harvested area and the average yield as well. The total area harvested with barley is 1 177 thousand decares - 12.2% less on an annual basis, which is related to the tendency of farmers to redirect to other cereal products, such as wheat and rapeseed. Operational data indicate an annual decrease in the average yield of barley by 8.4%, to 433 kg / ha, under the influence of adverse climatic conditions in the country during the harvest period. Thus, the total supply of

barley in the marketing year 2018/19 is estimated at the level of 521 thousand tons. Although 23% less on a yearly basis (taking into account final production data for 2017), this amount is quite sufficient to meet the country's domestic barley needs, which have been moving around 300 - 320 thousand tonnes per year in the last few years.

Barley purchase prices in Bulgaria

In 2018/19 there is a tendency for the price of barley to rise, driven by the reduced supply both domestically and globally. For the first six months of the marketing year on average, the purchase price of barley increased by 25.7% on an annual basis to 312 BGN / tonne. Within the period, there has been a gradual expansion of the annual increase, and in December it is already trading at an average of 354 BGN / tonne, or 41.6% above the level a year ago.

Barley prices in the 2016/2017 - 2018/19 marketing years



Although significantly higher on an annual basis, barley prices remain below record highs for the

2012/13 marketing year.

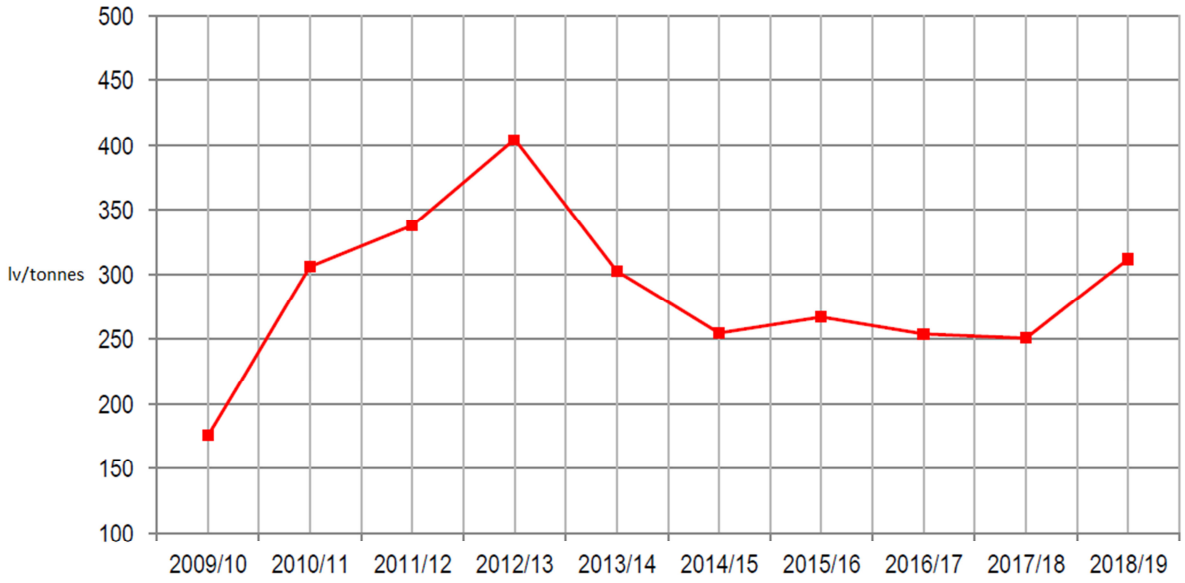
Average annual purchase prices of barley in 2009 / 10-2018 / 18 marketing years, BGN / tonne (excluding VAT)

	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/*19
Barley	176	306	338	405	302	255	267	254	251	312

Source: SAPI, MAFF

Average purchase price for the period July-December 2018

Average annual purchase prices of barley in the 2009/10 - 2018/19 marketing years

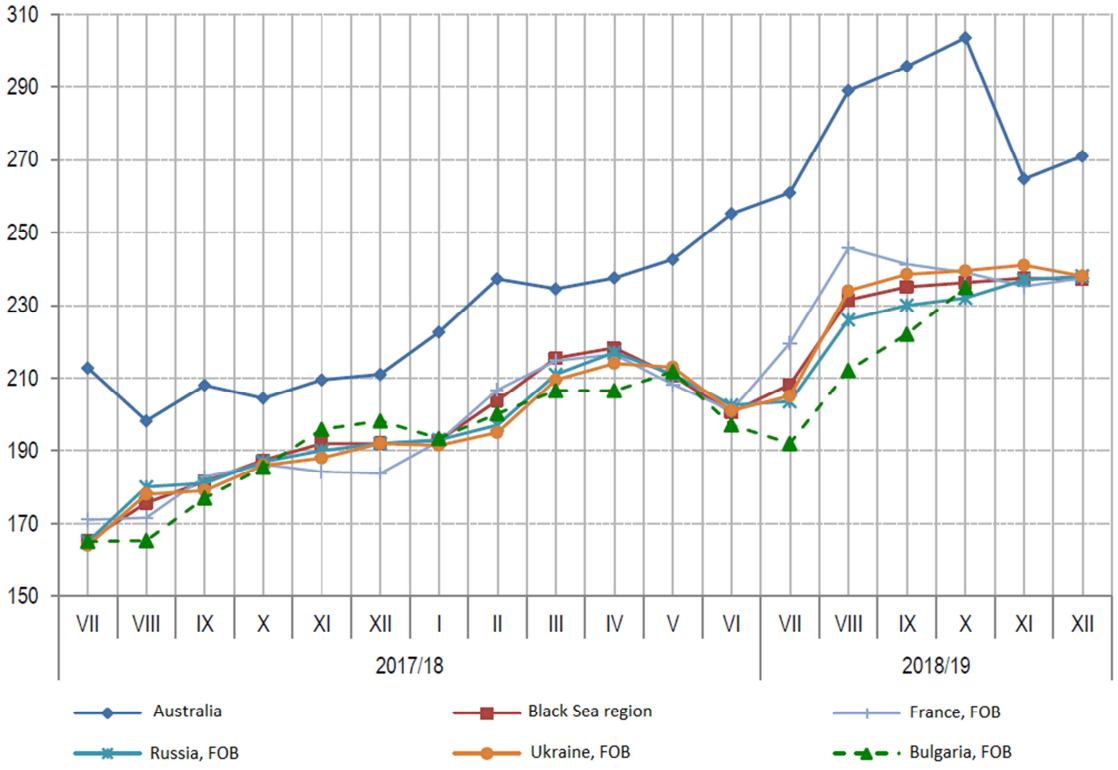


According to information, published at the Agro-market information system (https://sapi.bg/), the average purchase price of barley for the 2017/18 was 251 BGN / tonne, 1.2% lower than the previous season. In the period June 2017 - May 2018, barley is bought in the narrow price range from 246 BGN / tonne to 252 BGN / tonne. The increased purchase price of barley in the last month of the marketing year - June 2018 (up to 267 BGN / tonne), became an indication for the development of the barley market from the current harvest. Influenced by the projections for reduced global supply, an increase in the barley prices has been observed on the global markets in the first two months of the 2018/19 marketing year.

Prices on international markets

Reflecting the trend in the international markets, the average export price of barley, FOB Bulgarian Black Sea port, for the first four months of the 2018/19 marketing year marks annual growth by 24% to 215 USD / tonne. Since the beginning of the season, export prices in Bulgaria have been moving slightly below the quotations in Russia and Ukraine

International barley prices in 2017/18 and 2018/19 marketing years, USD / tonne

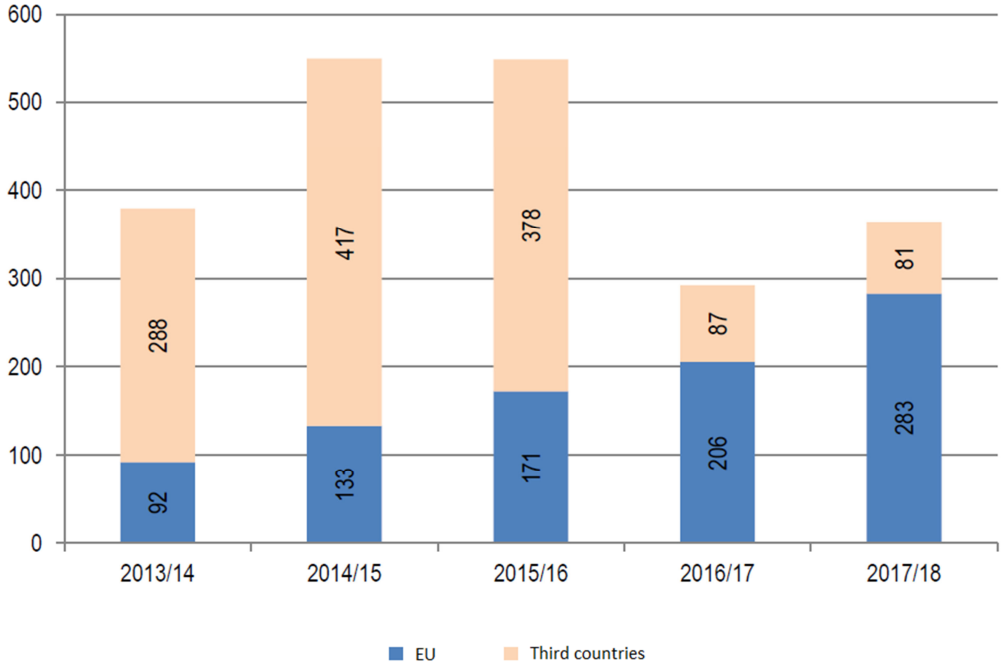


Export of barley

According to NSI preliminary data, 99.8 thousand tonnes of barley were exported from the country in July - October 2018 - almost 56% less than in the same period of 2017, which is explained by the significantly lower production in the country. The value of exports is slightly lower - by 48% to 20.2 USD millions as the average export price of barley for the period has seen an annual growth of nearly 18%, to 203 USD /tonne.

Over the last five marketing years, there has been a gradual increase in barley exports to EU countries, with their share of total exports reaching 78% in the 2017/18 season. Major contractors for Bulgarian barley within the European Union are Spain, Greece, Romania and Cyprus.

Barley exports from Bulgaria to the EU and third countries, thousand tonnes



Export of barley from Bulgaria in 2013/14 - 2017/18

Country	2013/14		2014/15		2015/16		2016/17		2017/18	
	thousands tonnes	thousands USD	thousands tonnes	thousands USD	thousands tonnes	thousands USD	thousands tonnes	thousands USD	thousands tonnes	thousands USD
EU - total	**92**	**22 884**	**133**	**26 746**	**171**	**30 769**	**206**	**34 120**	**283**	**50 421**
Spain	0	0	2	433	19	3458	67	10 475	140	23 231
Greece	30	7966	38	7820	62	11 865	96	16 724	84	16 296
Cyprus	27	6792	29	5994	29	5206	34	5715	31	6224
Portugal	0	0	0	0	0	0	0	0	16	2437
Romania	33	7537	59	11 533	55	9126	8	1200	13	2183
Germany	0	0	0	0	2	414	0	6	0	42
France	2	523	5	965	4	699	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	8

According to NSI data, during the 2017/18 marketing year the export of barley from the country amounted to 364.1 thousand tonnes, which represents an annual growth of 25%. The export during the year was favored by an increase in the average export price of 9% to 184 USD / tonne, influenced by the development of the international markets. The quantities are sold mainly in the EU Member States - 283.4 thousand tonnes (+ 38% annually), of which 139.6 thousand tonnes in Spain and 83.8 thousand tonnes in Greece.

Maize

The maize production ranks second in terms of cereal production. It is a staple food for farm animals. Its green mass is also used for feed, that is why the maize is also grown as a second crop. It is also a major raw material for the production of glucose, alcohol and other products.

There is a record high production of maize from the 2018 harvest, leading to a significant export growth. According to MAFF's Agrostatistics Department, maize production from the 2018 harvest amounts to 3 478 thousand tonnes, 35.7% higher than the previous year. This is due to a

combination of an increase in both the harvested area - by 11.7% and the average yield - by 21.5% due to favorable climatic conditions. Maize initial stocks, which start the 2018/19 marketing year, are estimated at around 220,000 tonnes. The amount is with 257 thousand tonnes (54%) less than a year earlier, as a result of significantly increased maize consumption in the 2017/18 season. The total maize supply in 2018/19 is expected to reach the level of 3 723 thousand tonnes - 21.5% more on an annual basis, as the increase in production from the 2018 crop exceeds significantly the decrease in the transitional stocks from the previous season.

The high domestic supply and the strong external market demand have contributed to a significant increase in maize exports during the current marketing year. There is a potential the realized quantities outside the country to reach 1.8 million tonnes by the end of the season. According to preliminary data from the Ministry of Agriculture, Food and Forests (MAFF), as of July 2019, the sown maize areas for the 2019 harvest amount to about 5.5 million decares, which is 24% more than the reported harvested areas for the previous year. The main factors behind this increase were the strong demand for maize for feed and industrial purposes, both domestically and in the European market from one hand. On the other hand, it was the replanting with maize part of the arable area for the autumn crops (mainly rapeseed), due to their unsatisfactory condition because of the lack of moisture in the soil (insufficient rainfall during the autumn-winter period).

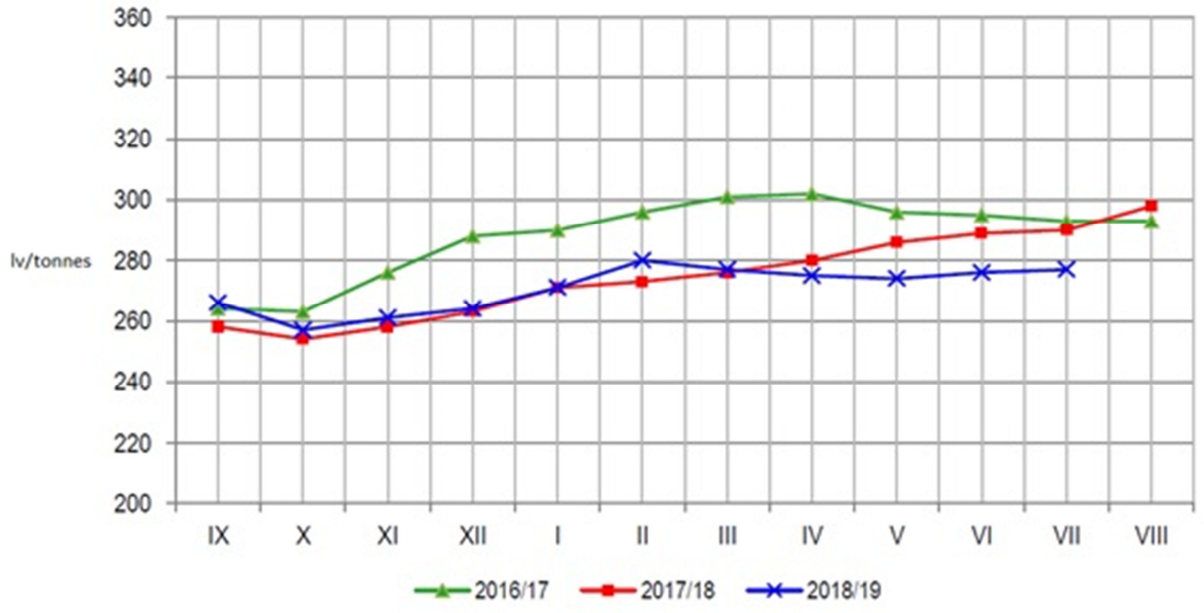
Growth rates in demand for maize for feed, human consumption and industrial use globally ahead of production are at the heart of the projected increase in areas sown. Estimates indicate that by 2023 maize areas are likely to reach 503 thousand hectares, which is 17% above the 2013-2017 average of 428 thousand hectares. The rationale for the projected increase comes down to the sustained expansion of processing capacity observed over the last few years, which will lead to an increase in demand for maize for industrial purposes - production of corn syrup, starch, sugar and more. With the expansion of maize production in the country, consumption will also grow, which is in line with the observed European and World trends. The amount intended for human consumption is projected to reach 47 thousand tonnes in 2023, realizing a

20% increase over the 2013-2017 period. At the same time, industrial processed quantities will increase - from 669 thousand tonnes in 2017 up to 868 thousand tonnes in 2023.

Maize purchase prices

Since the beginning of 2018/2019 season, the maize market in Bulgaria has been relatively quiet. Until March 2019, the purchase prices are moving about or slightly above the levels of one year ago, while in the last four months they have decreased on an annual basis. Overall, in the first six months of the 2018/19 marketing year, there has been a slight increase in maize prize from 266 BGN / tonne in September 2018 to 280 BGN / tonne in February 2019, driven by increased demand for exports. There is a slight decrease in the purchase price, to an average of 274 BGN / tonne for May 2019, under the pressure of increased global supply and the first forecast data for an increase in world cereal production next year. As of July, there is an upward correction to the price of up to 277 BGN / tonne, but maize is still slightly cheaper compared to a year earlier (by 4%). Average for the period September 2018 - July 2019, the purchase price of the maize is 271 BGN / tonne - 0.7% lower annual.

Purchase prices of maize for grain in 2016/17 - 2018/19 marketing years



The average maize purchase price for the 2017/18 marketing year was BGN 276 / tonne, down 4.1% from the previous year.

Maize export

According to NSI preliminary data, in the first eight months of the 2018/19 marketing year (September 2018 - April 2019), 1 484 thousand tonnes of maize were exported, with up to 22.6% compared to the same period of the previous year. The observed increase is due to higher supply in the country and more attractive export prices than those in the domestic market.

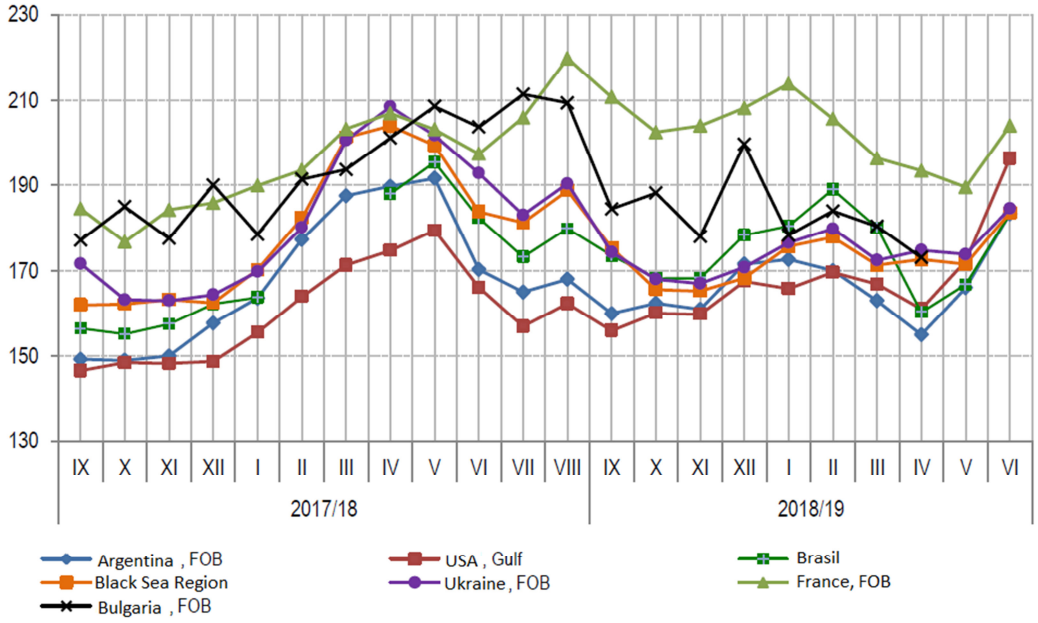
The quantities of maize, targeted for the EU countries, increased by 26% compared to a year earlier, to 1,285.2 thousand tonnes, or about 87% of the total exports for the period. Shipments are highest for Greece (516.8 thousand tonnes), Romania (241.9 thousand tonnes) and France (157 thousand tonnes), with annual growth for the all three countries (from 14.2 % to more than twice). In the previous 2017/18, maize exports amounted to just under 1.4 million tonnes – up to 38% annually, driven by higher demand due to lower global supply. In value terms, the annual export growth was 41.2% due to a slight increase in the average export price by 2.1%. Shipments to the EU hold about 83% of total maize exports over the 2017/2018 marketing year - 1 150.2 thousand tonnes, with 36.8% more compared to 2016/17. The main counterparties of the Union countries are Greece (296.3 thousand tonnes), Romania (253.9 thousand tonnes) and Italy (151.5 thousand tonnes).

Prices on international markets

A factor that can influence the increase of maize quotations on the international markets, and hence in Bulgaria, is the emerging decline in global maize supply while maintaining relative consumption. On the other hand, prices will remain under the pressure of expectations for a high supply of cereal products. From the beginning of the 2018/19 marketing year to January 2019, the maize prices on the international markets are moving above last season's levels,

reflecting strong demand. Over the next four months, prices have been below the reported levels in the previous year, mainly influenced by the first forecasts for high global cereal supply in 2019/20. However, in June, there was a significant increase in maize export prices related to the outlook for tighter maize supply in the next marketing year, mainly due to concerns about the US harvest.

International maize prices in 2017/18 and 2018/19 marketing years, USD / tonne

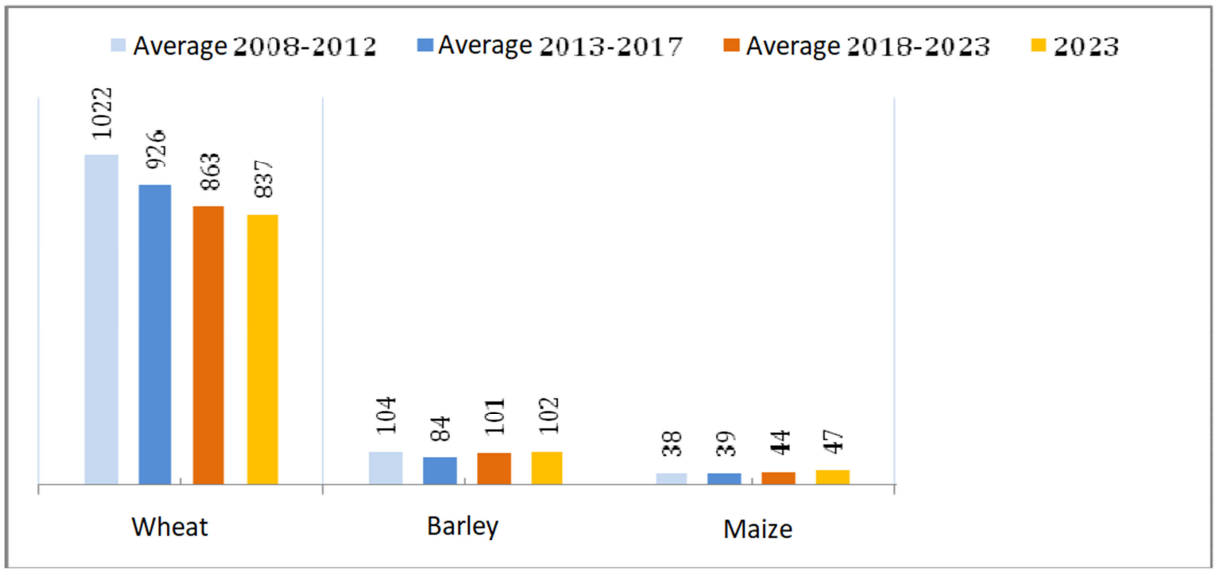


Average for the period between September 2018 and June 2019, the maize export prices to the USA, Brazil and France increased by between 2.8% and 5.2% annually, while quotations in Argentina, the Black Sea region and Ukraine reported a decrease of 1.3% to 4.1%. During the first eight months of 2018/19, the export prices of Bulgarian maize, FOB Black Sea port, varied from 173 USD / tonne up to 200 USD / tonne, with the highest level reached in December, 2018 and the lowest in April, 2019. Overall, since the beginning of the season export prices in Bulgaria have been moving around or above those in Ukraine, but below those in France, FOB, Atlantic. The average export price of Bulgarian maize is 183 USD / tonne, with 1.9% lower annually.

Review

According to the data of the National Statistical Institute, the consumption of bread and pasta per capita is constantly decreasing, in 2010 it amounted to 108 kg and in 2017 to 87.1 kg (a decrease of nearly 20%). According to the Center for Agri-Policy Analysis (CAPA) forecast model, which takes into account the declining population in the country as well as the expected price level, the amount of wheat used for human consumption will be gradually reduced. While in the period 2008-2012 the country consumption is an average of 1 022 thousand tonnes of wheat to meet the nutritional needs of the population, in the next five-year period a decrease of 9% was reported, falling to the level of 926 thousand tonnes. Following the negative trend, albeit less pronounced, in the period 2018-2023 grain processed into bread and pastry can decrease up to 863 thousand tonnes.

Consumption of cereal products for human feeding, thousand tonnes

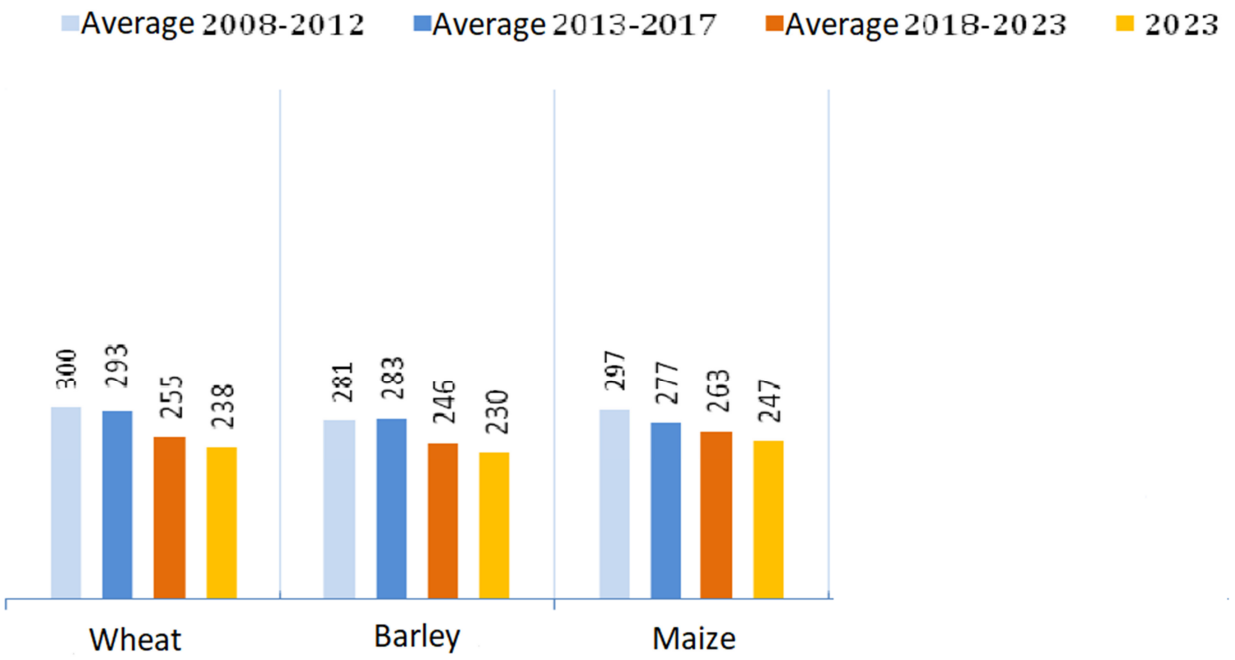


Source: MAFF, project CAPA

The mid-term prognosis for price developments outlines decrease for all studied cultures. It is assumed that, both in Bulgaria and internationally, no serious deviations from the normal

climatic conditions will be observed, which could lead to shortages of production and, consequently, to some increase in prices. The high average values established during the period 2013-2017 are difficult to reach due to the specific market situation in some of the years caused by the reduced quantity of supply in certain regions of the world due to natural factors. The absence of an assumption for drought or other disasters over the next five years implies the annual receipt of stable grain yields, respectively stable international market supply, which will have an impact on domestic prices.

Prices of individual products aggregated by periods



Source: MAFF, project CAPA

The estimated development of exports over the next five years shows that the annual exported quantities of wheat will range between 3.6 and 3.9 million tonnes. This is done on the basis of a decrease in production compared to the previous 2 recorded years, when the absolute maximum of the harvested wheat in the country, compared to all years since the 1990s, was reached. A more significant increase is expected in maize exports, which is likely to reach 1.8 million tonnes on average over the period 2018-2023 (a 24% increase over the 2013-2017 average).

The most significant export of cereal products goes through the port of Varna, but the Danube ports also play an important role.

Market Analysis Results

Based on the information for the production and marketing of cereal products, which were presented in the previous chapters of the feasibility study, some factors that influence the sector could be outlined in a SWOT analysis. SWOT analysis (strengths, weaknesses, opportunities and threats analysis) is a framework for identifying and analyzing the internal and external factors that can have an impact on the viability of a project, product, place or person. The following table presents SWOT analysis components and factors, which were identified for the purpose of this market analysis for cereal products in Bulgaria:

Photo credit by Framar.bg

SWOT Analysis **STRENGTHS**	**WEAKNESSES**
❖ A relatively stable industry with good years in terms of market and climate; ❖ High proportion of cereals and industrial crops to the utilized agricultural area; ❖ The wheat is the most widely grown crop in the country; ❖ Suitable soil and climatic conditions for grain production; ❖ Improved cultivation technologies accompanied by an increase in average yields; ❖ Good positions of the Bulgarian wheat and sunflower production worldwide; ❖ The grain production forms the positive foreign trade balance of the country; ❖ A large number of medium-sized grain properties; ❖ Relatively good purchase prices over the last two to three years; ❖ Availability of large plots for production; ❖ Experience gained in absorbing funds under the First and Second Pillars of	❖ Unequal and discriminatory support under the Common Agricultural Policy; ❖ Lack of long-term strategy for the development of agriculture and agricultural science; ❖ Unclear priorities in agriculture, changing according to the political situation; ❖ Lack of state support in the sector; ❖ High fuel prices and non-refund of excise duty; ❖ Advanced rise in prices of incoming production resources; ❖ Demolished irrigation facilities and neglected irrigation agriculture; ❖ Frequent fluctuations in purchase prices; ❖ High production costs and cost price; ❖ Highly fragmented land ownership; ❖ Strong dependence on climatic conditions; ❖ Inability to manage the climatic factor - droughts, floods, hail; ❖ Lack of disaster guarantee fund; ❖ Lack of a developed and efficient insurance system; ❖ Highly depreciated or insufficient infrastructure for storage and primary processing of grain; ❖ Adverse conditions and shortage of export

the Common Agricultural Policy; ❖ Comparatively modernized agricultural machinery; ❖ The rent paid in the sector is a guarantee of social peace and improved living status in the villages; ❖ Relatively easy access to credit from banks; ❖ Developed branch activity in the sector; ❖ Developed network of companies providing resources, services and consulting in the sector; ❖ Established school for selection of cereals and studied gene pool from all cultures; ❖ High relative share of the areas occupied with Bulgarian varieties of wheat and barley.	cereals' terminals and associated infrastructure; ❖ Insufficiently effective and working rules for sustainable land use and land consolidation; ❖ Municipal arbitrariness and lack of unified and transparent procedures for land leasing by the Municipal Land Fund; ❖ Shortage of qualified agricultural mechanists and specialists; ❖ Unfavorable age structure of employees in the sector; ❖ Uncertainty about long-term leasing and refraining from making long-term investments; ❖ Lack of parallel and ancillary roads for agricultural activities; ❖ Insufficiently developed links with scientific institutes; ❖ Significant administrative burden in the sector; ❖ The Bulgarian varietal leaf has been displaced in terms of maize and sunflower crops; ❖ Poor awareness of producers regarding stock exchange trading; ❖ Absence of the Law on Branch Organizations and criteria for representativeness; ❖ Unstable political environment - uncertain business environment; ❖ Failure to maintain forest protection belts; ❖ Unlawful encroachments on agricultural land and production.

OPPORTUNITIES	THREATS
❖ Relatively stable sector with good market climatic years; ❖ Potential for outstripping countries that traditional grain producers; ❖ Access to new international markets due to strategic location of the country; ❖ Opportunity to develop undeveloped areas; ❖ Potential for the development of processing industry; ❖ The renewed facilities and modern produc facilities are conducive to the entry of a yo generation of farmers into the sector; ❖ More favorable and targeted support under Common Agricultural Policy 2014-2020; ❖ Development of risk management systems; ❖ A simplified tax policy in the Agriculture sect ❖ Rising prices of agricultural products on w markets; ❖ Land consolidation; ❖ Creation of cooperatives and associations the supply of production resources; ❖ Consolidation of agricultural holdings and fo of association for joint market entry; ❖ Development of cooperation between scie and agribusiness; ❖ Making agriculture a priority sector of nati	❖ Annual increase in production cost; ❖ Price fluctuations; ❖ Delay in the process of consolidation ownership of agricultural land; ❖ Adverse targeting of European assista under the Common Agricultural Policy 2014-202 ❖ Difficult access to fixed and working capit ❖ Insufficient interest among young people agricultural entrepreneurship; ❖ Underestimation of the problem education and qualification of personnel in sector; ❖ Further reducing the competitiveness Bulgarian producers in the common markets; ❖ Abandonment of Bulgarian varieties neglect of the Bulgarian gene pool; ❖ Insufficient investment to conti modernizing the sector; ❖ Unstable economic and political climate; ❖ Lag behind new production technologies; ❖ Lagging the sector in tackling the adve effects of climate change; ❖ Delayed development of irriga agriculture; ❖ High prices and difficult access of produ to agricultural land;

policy and economy; ❖ Increasing the number of crops grown in gr producing farms; ❖ Facilitating access to European funds agricultural support; ❖ Facilitating access to European international markets; ❖ Continuous improvement and updating producers' knowledge and skills entrepreneurship training; ❖ Facilitated financing by banks for investmer the sector; ❖ Compliance with good agricultural environmental practices to improve soil fertility; ❖ Implementation of agri-environme measures for environmental protection; ❖ Producer participation in stock trading protect against price risks.	❖ Purchase of Bulgarian agricultural land fi foreign investors.

The traditional markets of Bulgarian goods are losing their importance and every season we are surprised by the opportunities for new destinations for export and search for new products. Diversification of cultivated cereal products is a very good solution to respond to the changing eating habits of the world's population. The focus should not only be on conventional agriculture, but also on the production of organic, bio- and biodynamic products.

The competitiveness of the grain production in Bulgaria compared to other European countries and those of the Black Sea basin is practically decreases due to rising land and rent prices, increased labor costs, seeds, fertilizers, fuels and preparations. Due to low market prices in

recent years, there has been increasing talk of an "invisible threat" from bankruptcies of small and medium-sized grain producers. These are companies with credit indebtedness to banks and trading partners, pursuing a disproportionate investment policy and being left without a fresh reproduction resource. To make matters even more complicated, the international financial markets are causing volatile commodity prices.

Investment funds and the huge resources which they have sometimes push the commodity market in a direction that quite often is counter-intuitive to the fundamental laws that drive the market i.e. the supply and demand. The free money is looking for profits and agricultural commodities are an attractive asset. Farmers will need to continue to invest in knowledge and acquire new skills - how stock markets work and how they can manage their risk of price changes.

According to the chairman of the Bulgarian Association of grain and feed traders, the trends in Bulgaria are for slower growth, but still upward movement of each commodity, higher technological cultivation, more knowledge from farmers, investment in better hybrids. Generally, the production will grow, of course depending on the climate, but the trends are up. Despite its relatively small territory, Bulgaria is moving quite well in the context of other countries in the Black Sea region, and even at a faster pace. The expert points out that there are only shortcomings in terms of risk management. According to the latest data, Bulgaria ranks 12th in the world in wheat exports. This outlines good market positions for the country.

Marketing Strategies' Approaches

Based on the information collected from the surveys, the following marketing objectives were defined:

- National aggressive policy aimed at achieving a faster real alignment of Bulgaria's agricultural subsidies with the EU Member States;
- Strong support for farmers;
- Retaining the Single Area Payment Scheme;
- Providing of a serious resource for the modernization of agricultural holdings;
- Further encourage young farmers;
- Guaranteed crisis and disaster risk management tools;
- Creation of working regulations for sustainable land use and land consolidation;
- Preparation of a single farmer register, integrating all registrations of farmers and serving farmers with funds from the national and European budget;
- Prevention of misuse of agricultural land;
- Encourage the conclusion of standardized and long-term leases with agricultural land owners;
- Promoting the development of land relations and the voluntary agreement of farmers;
- Continuous improvement of the competence and knowledge of manufacturers, through participation in seminars, trainings and specializations for new technologies;
- Use of species and hybrids with high biological potential, high adaptability and plasticity and resistance to abiotic and biotic stress factors;
- Application of modern production technologies to increase yields and improve quality;
- Creation of local and national supply, credit, production, marketing, servicing and other cereal producers' cooperatives to increase the competitiveness of the individual farmer;
- Awareness of Bulgarian producers on stock exchange mechanisms;
- Adequate and timely information to farmers on the state of agricultural markets;
- Construction of specialized export terminals on land and water, in order to improve the load and economic conditions for export of agricultural products from the country;
- Construction of parallel agricultural roads;
- Adaptation of the agricultural road network to the real farm structure;
- Preparation and implementation of a national strategy for the development of irrigated

agriculture;

- Provision of national and European budget for purposeful investment in the rehabilitation of the hydro reclamation network;
- Planning the price of irrigation water;
- Establishment of effective facilities for dealing with the harmful effects of water;
- Development by the scientific institutes of new high-yield, dry-resistant and cold resistant species;
- Investments by grain producers in the application of new technologies and know-how for overcoming droughts and frosts;
- Introducing alternatives to traditional crop production to deal with climate change;
- Improve satellite climate observations, increase the range of agro-indicators observed, and improve agro-climate forecasts;
- Creating an effective insurance system for the sector, including the extension of the risks covered by insurance and the possibility of insuring the farmer's income;
- Compliance with good agricultural and environmental practices;
- Use of new generation plant protection products that are environmentally friendly, applying "green measures";
- Shortening the link between scientific agricultural institutes and farmers for the development of a mutually beneficial partnership;
- Strengthening the transparency and publicity measures in the procedures for granting financial assistance from European and national funds;
- Simplification of the administrative procedures in the sector.

Potential risks and the recommendation for their minimization

The table below outlines some of the risks in front of cereal producers in the process of production and export of the cereal products as well as the measures to minimize the risks and to prevent losses.

Risks	Risk prevention measures
The cereal producers face a number of production, market and financial risks due to factors such as climatic conditions or trends in world markets and those in yields and prices.	EU financial support in the form of direct payments and subsidies can help producers in the EU Member States, including Bulgaria, to address these challenges. Direct payments from the EU help to maintain the profitability of grain holdings and can represent a significant part of their income, which may be higher than in most types of farming. As farmers receive subsidies regardless of their production, these payments can help them to adjust production to market developments. EU rural development measures support the introduction of risk management tools. Moreover, in case of urgent need, the EU intervenes to protect cereal producers from low market prices by buying cereal products for public storage. Finally, EU licenses and tariff quotas have been introduced to regulate certain aspects of cereals imports and exports.
A major problem for participants in the sector remains the lack of experience and competence in price risk management.	Training programs for participants in the production process, marketing and sale of cereal products.

Adverse weather conditions, including rain and hails, which can delay the harvesting of cereal production during the summer months.	Monitoring of agrometeorological forecasts for the month and organizing timely harvesting during forecasting of rainfall and hails. Creating a law for hail and setting aside funds to create a hail prevention system and protection against the hails.
The problem for farmers is the high humidity of the grain, because of the rain, which requires it to go through the drying process, which further increases their costs and narrows the profit margins.	In recent years, there has been a solution to the problem and an improvement in grain quality, thanks to investments in harvesting equipment and storage facilities.
The Bulgarian production competes with the grain grown in Russia, Ukraine and Romania, which are the main exporters from the Black Sea region.	The reason for the competitive position is the good quality of native maize, the lower costs of transport across the country and the lower costs of overloading and grain quality. Bulgarian producer receives the highest price from the exporters in the Black Sea region and according to the practice of recent years, there are good opportunities to sell the products.

The presence of a drastic decline in grain exports in 2018 compared to 2017 in the EU in generally, due to the dominant position of Russia and the high rate of the European currency, according to analysts in the sector.	According to most European analyzers the market is about to move, as already there is some decline in the activity of Russian sellers. As a result of lower harvest and aggressive exports, wheat stocks in Russian grain producers' warehouses are shrinking.
The cereal productivity, especially in organic farming, is limited by a number of factors, including diseases such as Tilletia caries of wheat, Pyrenophora graminea and Ustilago nuda of barley, Urocystis occulta of rye, etc.	To lead a successful struggle of paramount importance is to know the species composition of the main diseases of cereals and the possible ways to combat them.
A serious problem in the production of cereals is caused by seed-borne diseases.	In conventional agriculture, they are successfully controlled by treating the seeds with a chemical. In organic farming, this is achieved through alternative methods such as agrotechnical measures, the use of healthy seed and planting material, viable varieties, biopesticides and others.

Findings and recommendations

The main findings of the analysis of the sector of the cereal products could be summarized in the following lines:

- Wheat is the most widely grown cereal product in the country and has export potential

and the ability to create economic growth and employment in the rural and remote areas.

- The country has a good legal framework governing the cultivation and processing of cereal products.
- The excellent natural and climatic conditions in the country contribute to the diversity and quantity of cereal products and the opportunity for their processing.
- There are problems in the sector related to the scarcity and low skills of the labor force as a result of the low pay and population aging in rural areas.
- Bulgaria has a good strategic location, which contributes to the launch of new international markets.
- The country has good competitiveness in the international cereals products market.

The main recommendations from the analysis for further development of the sector of cereal products are as follow:

- Investment in weather forecasting tools
- To allocate fundings from European and national funds for the introduction of innovation, research and technology, including support for research institutes and laboratories for testing of new products from local sources.
- Provide tax preferences for start-ups in rural areas in order to attract skilled workers.
- To allocate funds from the state budget for promotion and participation in specialized international exhibitions and fairs of producers of cereal products.
- Developing trade relations with our neighboring countries and entering new farther markets
- Government support, both financially and through assistance, to local producers with a view to expanding them and enhancing their competitiveness.

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COUNTRY TRADE PROFILE FOR HERBS AND MEDICINAL PLANTS

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Introduction and history

Medicinal plants and herbs are important for the nature and health of people, for the development of the country's economy and for the livelihood of local communities. Some of them participate in the composition of forests and shrubs as predominant species and give the appearance of vegetation.

About 80% of the earth's population relies mainly on natural products (mainly herbs) for primary treatment of diseases. Most of the medicines used by the remaining 20% are based on or inspired by medicinal plants. Many types are used for more than one purpose - in phytotherapy and pharmacy, such as spices, flavors, colorants, preservatives in the food and cosmetics

industry, and others.

The use of herbs on the Bulgarian lands has thousands of traditions. Their attachment is woven into the folklore and customs of the people. Holidays, folk songs and tales, even the names of children, are drawn from nature. Today, almost every Bulgarian home uses herbs and fruits collected from the wild. Local people who live near places with wild medicinal plants pass on their knowledge from generation to generation. Today, we still reach first for herbs when we need a cure. Bulgaria has exceptional resources of native species of medicinal plants, with a diverse and high content of biologically active substances. This is due to the favorable climatic and soil conditions that the country has.

The Bulgarian medicinal flora is not only the richest in Europe, but also the best studied. The rich archives and herbarium of the specialized institutes of the Bulgarian Academy of Sciences are valuable for science and accessible to all. Bulgaria is a major supplier of herbs worldwide. With a territory tens of times smaller than that of India and China, in proportion to their area, the country is ahead of them in terms of exports of herbs.

The state of herbs and medicinal plants' production in the country

Medicinal plants and herbs are widespread in nature in Bulgaria, but their collection for industrial purposes and trade is restricted by law, which requires their organic cultivation. Taking into account the soil and climatic conditions of the different regions, the traditions among the population, the market demand, the cultivation of herbs in Bulgaria can be made from the experience gained in the cooperative system. If certain species of herbs and medical plants need to be cultivated, it is necessary to study the climatic conditions and the soil composition of the plots, to take into account the availability of available labor, market demand at present and in perspective, etc. The next zoning of herbs is entirely conditional, bearing in mind the regions in Bulgaria with traditions in the cultivation of the different species. They are as follows:

Mursal Tea: Slavyanka, Pirin and Rhodope Mountains; from 1,000 to 2,200 meters above sea level. Mursal Tea is known not only in Bulgaria and in the Rhodope Mountains. Over 4000 hectares have ubiquitously distributed natural deposits on the territory of the towns of Trigrad, Smugla, Smolyan, Devin**.**

Rose hip: Vidin, Montana, Targovishte, Lovech, Burgas, Kyustendil, Pernik, Razgrad, Karnobat, Kardzhali, Plovdiv, Sliven, Smolyan, Vratsa, Dobrich, Stara Zagora, Shumen.

Lemon Balm: Razgrad, Varna, Burgas, Vidin, Haskovo, Targovishte, Silistra, Plovdiv, Pazardzhik, Stara Zagora, Ruse, Shumen, Yambol.

Chamonile: Pazardzhik, Plovdiv, Stara Zagora, Kardzhali.

Medical Marshmallow: Veliko Tarnovo, Targovishte, Razgrad, Shumen, Blagoevgrad, Varna, Pazardzhik, Plovdiv, Sliven, Stara Zagora.

Lavender: Targovishte, Burgas, Blagoevgrad, Montana, Plovdiv, Stara Zagora, Varna, Dobrich, Ruse, Shumen.

St John's Wort: Targovishte, Dobrich, Sliven, Razgrad, Shumen, Vratsa, Pernik, Kyustendil, Blagoevgrad.

Garden Tea: Targovishte, Stara Zagora, Razgrad, Kardzhali, Burgas, Varna, Yambol.

Thyme: Stara Zagora, Targovishte, Veliko Tarnovo.

Valerian: Stara Zagora, Plovdiv, Pazardjik, Veliko Tarnovo, Targovishte, Bourgas.

White yarrow: Targovishte, Stara Zagora, Plovdiv, Pazardzhik.

Marjoram/Oregano: Targovishte, Stara Zagora, Plovdiv, Pazardzhik.

Marigold: Targovishte, Stara Zagora, Plovdiv, Pazardzhik.

Belladonna: Blagoevgrad, Sofia, Stara Zagora, Kyustendil.

About 200 species of herbs and medicinal plants are collected in Bulgaria. They are used in the pharmaceutical and food industries, in cosmetics and folk medicine and other areas.

In recent years, around 15,000 tons of herbs and medicinal plants have been collected and processed at the points of purchase of herbs, according to the reports of Regional Inspectorates of Environment and Water (RIEW). About 20 species of herbs are actively traded.

Herbs harvested from nature or cultivated are the basis of herbal tea production in the country. This production in Bulgaria is a successful model, even during a crisis. Tea production in the country is conditioned by the fact that in Bulgaria there is a culture of drinking tea, which leads to market demand for the product. The economic situation also plays a positive role. The comparatively low price (about 1 leva, equal to 0,5 EUR) and the fact that it is still a product intended for home consumption helps its demand, especially in times of crisis, when people rarely go out to restaurants. A factor in herb growing for tea production is also the price of coffee, which is the main competitor of tea, and whose price is much higher than that of the tea.

There is a problem with herb pickers. There are no exact data on the number of herb-pickers in Bulgaria. By 1989, they are known to be in the 400,000's, and that even today, hundreds of thousands of families rely on the proceeds from the collection, sale and purchase of herbs. Herb collectors are usually from areas rich in medicinal plants that have no other livelihood. They take everything that nature offers them - from the primrose, in the spring - to the hips, in the fall. They know well and can harvest many herbs as long as there is a market for them. They are

ready to work every year. The revenue of the collectors depends on the time and the market demand, and both are very variable. They are busy in spring and summer, but receive almost nothing for the winter. They don't even have simple equipment for collecting and carrying herbs. They do not even have a secure market and sell to whom they are called at a better price. Thus they fall prey to the many dealers in the chain. The pay is insignificant, and skills and knowledge, accumulated over years of hard work in the open air, are required. That is why the number of experienced pickers is constantly decreasing. The state aid provided through the Labor Offices in the country to those who are registered as unemployed refuses many herb pickers from treadmill work.

Many producers of reproducing material do not have the necessary knowledge, experience and facilities to produce quality sowing and seedlings. A fictitious appointment of specialists is also a common practice / agronomists / as it is required by law when the registered persons do not have the necessary entity.

Illegal trade in seeds and seedlings is observed leading to:

- Unfair competition;
- Lack of authenticity - lack of varietal and sometimes species purity or reproduction of low-yielding varieties and populations;
- Poor quality of seedlings / not meeting the minimum requirements for quality recorded in Ordinance 24 of the Law on Seed and Reproducing Material (LPRM);
- Stimulation of theft of seed and vegetative material from the field.

The information on the list of producers, traders and preparers of medicinal plant seeds and seedlings is out of date. There are many people in it who have ceased their activities or have never done so. Seeds and seedlings are also produced by persons not registered with the Executive Agency for Variety Testing and Seed Control.

Product description – Herbs and Medical Plants

Herbs are one of the most valuable things that nature has created. They are known to people of ancient times. In them the life-giving juice of the earth flows, and it is no accident that our nations sing them in their songs for centuries. There is a wide variety of herbs that are used to treat or assist in the treatment of many diseases as well as for healing and energizing. They contain a high percentage of biologically active substances.

They are rich in various compounds: alkaloids, glycosides, saponins, polysaccharides, tannins, flavonoids, lignans, coumarins, essential and fatty oils, vitamins, trace elements and more. Often, the extensive experience of traditional medicine and herbal healing has served as a starting point for the discovery and creation of a number of valuable and useful medicines.

Collecting herbs is not an easy job, because collectors need to be familiar with the properties of the herb, how it is applied, when and where it grows, how it is harvested, dried and stored, etc. We also need to be careful about its application, because there are also herbs that can harm us if we are not well informed about their use. Last but not least, herbs must be carefully collected so that their properties are not destroyed.

The main actors in the medicinal plant use chain are:

- collectors - carry out the direct collection of herbs from the fields
- herbal preparers/herbalists - buy fresh herbs and carry out primary processing - cleaning, drying, cutting, packaging. Some of them are organized by collectors
- brokers (dealers)
- exporters - sell the prepared herbs on international markets. Some buy and prepare at their own points.
- processors - subject the herbs to secondary or deep processing, produce and market medicines, cosmetics, foods.

Most of the Bulgarian herbs are exported for Germany, Italy, France and the USA. Herbalists must meet the growing expectations of cleanliness, quality and social responsibility of the end consumer in these countries if they want to get a good price for their product. However, some companies in Bulgaria that use high-tech equipment are some. The quality of herbs depends on how they are harvested, i.e. from the very beginning of their journey from the field to the shelves of medicines, cosmetics, nutritional supplements, food. Collectors and their picking skills are key to working efficiently and achieving high quality. Herbalist skills are important to maintain and improve quality. The main parameters that are monitored and used to evaluate the quality of herbs are:

- Quantity of biologically active ingredients
- Availability of microorganisms (microbiological analysis)
- Pesticide availability
- Appearance
- Taste
- Odor
- Existence of impurities - in recent years, with the refinement of methods and means of chemical analysis of raw materials that "capture" and the smallest traces of various undesirable compounds, as well as with the intensification of agriculture, the attention of traders has been focused on the purity of herbs from pesticides. In order to ensure high quality, it must be collected according to the rules and in accordance with good practices.

The Bulgarian flora contains over 4100 species of higher plants, of which about 760-770 species (19%) are medicinal. Of these, about 250 are used extensively in official and folk medicine. 270 types of herbs are raw materials for the pharmaceutical, perfumery, cosmetic and food industries. More than 100,000 kg of dried (or frozen) herbs is collected annually from about 20 species of plants for business purposes in the country. Due to the large volumes traded, these herbs are called "multi-toned herbs" in the sector.

Some of them are good stocks in the wild: linden,

rosehip, nettle, hawthorn, thorn, blackthorn, juniper, danewort thicket, dandelion, chamomile, blackberry, blueberry and more. Others are successfully cultivated in large areas: coriander, lavender, oil rose, common balm, mint, chamomile, white thorn, and more. These species make up the bulk of herbs collected, processed and exported.

Approximately 200 types of herbs and medicinal plants are collected, which are used in the pharmaceutical, cosmetic, food processing and traditional medicine industries. However, there are 20 species of active trading.

The linden, rose-hip and nettle are the most popular Bulgarian herbs abroad. The first of these is the linden blossom, from which about 1200 tons are exported annually. Exports of rose-hip berries are about 1100 tonnes per year, and about 1000 tonnes of nettles.

This natural resource is not inexhaustible, so its use is regulated by several laws. These are the Medicinal Plants Act, which lists 739 medicinal plants, the Biological Diversity Act, the Protected Areas Act, and the Forest Law.

There is currently a list of 24 herbs for which it is forbidden to be collected for commercial purposes, and for another 11 each year, the Minister of Environment and Water determines permissible quantities.

Herbs from protected species are also banned for collection from the wildlife. The aim is to stimulate their cultivated growth because it provides a high quality and large raw material without damaging the nature.

The herbs' cultivation provides opportunities for employment of the population in the mountain's regions where the soils are poor and the cultivation of other crops is difficult. Mint, lemon balm, chamomile, lime, rosehip, Mursal Tea, nettle and other crops are now grown on farmland.

Some of the big companies have closed their production cycle - from cultivating herbs on their own plots or on the basis of contracts with producers and pickers - to organizing the drying and packaging of the raw material in their production factories and the distribution of production from throughout the country.

A small part of the herb production process, including drying and hand packaging of herbs, is organized in adopted production facilities in hereditary properties in rural and mountainous areas, and create employment for local people in limited size.

The transportation of the ready production is usually done by personal means of transport by the company's owner - a sole trader or a limited liability company.

Part of medicinal plant production for healing purposes is organized by herbalists in the country who have several generations of experience in collecting and processing certain types of medicinal plants. They organize the sale of herbs on-line or through their own stores or during health seminars and individual meetings with clients.

Another part of the production is focused on purchase of herbs from local pickers, their processing and packing on small production lines for subsequent distribution in the commercial and pharmaceutical network in the region of production. An example is Selibium-Herbals company in the village of Aksakovo, Varna District.

Cultivation of herbs and medicinal plants is an economically viable alternative to owners of low-productive semi-mountainous and mountainous lands. As a rule, most herbs are unpretentious plants, they thrive successfully on any soil, and their range is so rich that plants are grown successfully in both the most dried areas and in marshy and swampy areas. Most of the crops are perennial, which increases their profitability. It is mainly invested in their production only in the first year.

Against the background of global warming, the cultivation of drought-resistant plants such as salvia, white oregano, maize, thyme, chamomile, marigold and many others is a good opportunity for many farmers in the country.

For successful **cultivation** it is necessary to know well the breeding technology and especially the species and variety composition. In the assessment and selection guidelines, the problem of high content of biologically active substances is first raised, followed by the problem of resistance against diseases and pests, followed by the ability to mechanize work processes.

When **picking and processing**, the flowers, juicy fruits and especially the leaves of the herbs must be put into baskets, boxes, crates, without being pressed, crushed and sealed so as not to be mechanically damaged and not to be steamed. Before being dried, the herbs are cleaned of spoiled parts, other plants, mineral and organic impurities accidentally hit. If insufficient frames or premises are provided for drying, the herbs are removed from the containers and spread in a clean and dry place, on clean mats where insects, rodents, birds and pets are not accessible.

The process of growing organic herbs and medicinal plants is followed by respective ways of their **storage and packing**. The package and storage processes of herbs and medicinal plants are of utmost importance. For the storage and packing there are separate stores for the herbs where no fumigation, insecticides or fungicides are used. Vacuum, steam or high pressure water cleaning is applied.

The dried herbs **are stored** in stacks on grills, pallets, racks or shelves in a way that eliminates the possibility of contamination, damage and / or mixing. They are arranged and stored according to certain rules so that individual batches can be identified by their numbers. Aromatic or poisonous medicinal herbs are stored in a separate room or at least separated from the rest by permanent or temporary partitions. In herb warehouses, permanent control of the presence of pests is carried out. When they occur, measures are taken to destroy them.

In herb preparation points / herb warehouses it is prohibited the storage of other goods or products, as well as activities that are not related to the processing and storage of herbs.

The **packing of herbs** in Bulgaria takes place in different ways - manual and / or machine depending on the company size and its production capacity, the type of packaged herbs, the market share of the company, availability of credit lines and / or access to European funding programs for the purchase of machines and equipment for SMEs, including grant schemes for farmers under the Rural Development Program, and other factors. Bulk herbs are packed in the form of bags and packages of biodegradable transparent material, allowing the customer to see the color or leaves inside the packaging or envelopes with a printed photograph of the herb, contained in the bag.

The **transportation of herbs** is carried out with vehicles that are clean, dry and, if necessary, covered with waterproof material. It must be done in a way that eliminates the risk of contamination or damage. Herbs can only be transported with other goods if the necessary conditions are in place to prevent contamination and contact between the herbs and other goods.

The herb **dissemination** and distribution is also done in different ways. Usually, it comes through offering:

- from the warehouses of collectors / herbalists and / or traders in the country;
- store facilities in factories where the production is organized;
- in the retail and pharmaceutical network of major cities in the country;
- via Internet - in on-line shops, on the manufacturers' web pages, in business and healthy food catalogs and data bases for trade and sales;
- at international trade fairs and at food and drink fairs, organized at national level, including specialized herbs' exhibitions such as FesTEAval in Sofia and "200 herbs – 2 000 000 work places" in Plovdiv;
- in specialized stores for healthy food, during bazaars and in large chains with separate places for offering organic food and

supplements for athletes and fitness practitioners;

– during presentations and healthy food seminars organized by herbalists and alternative medicine's practitioners;
– by courier services - for sending smaller shipments to end users and clients.

Herbs' Sector Data Availability

There is a lack of statistical and other official data for decision making and the formulation of the state policy towards the sector. Data on quantities of marketed herbs are collected only from the Regional Inspectorates of Environment and Water – subordinated units of the Bulgarian Ministry of Environment and Waters, and to the extent that the registered herb preparation points provide them at the end of each year. The collection of customs border control data on traded quantities was discontinued after Bulgaria's accession to the EU in 2007, when customs controls on exports to EU countries ceased. As this was the only system for collecting information on the types and quantities of herbs exported from the country, there are no up-to-dated data today.

Similar is the situation with the Bulgarian National Statistical Institute, which monitors and summarizes data in broader groups of agricultural products.

Apart from data from the Association of Herbalists in Bulgaria about the quantities and types of processed and exported herbs, based on information from their members, it is difficult to find any other information about the sector, and from there, to adopt adequate policies for its strengthening and development.

Specifically with regard to medicinal plants, the situation is similar. Only ten types of medicinal plants are collected in agrostatistics - rose, lavender, peppermint, valerian, common balm, coriander, fennel, anise, white thorn and sage tea. There is no information on species such as thymus, St. John's wort, medicinal rose, mursal tea, etc., which are the main raw material for the

production of medicinal tea. Aromatic and medicinal plants have been recognized as priority species and are included in the Rural Development Program 2014-2020 for support, but for most of them statistics are not collected.

The lack of information about these types of medicinal plants, described as priorities for the RDP 2014-2020, hinders the search for raw materials by producers and traders, the planning and evaluation of the quantities demanded and offered in the country and expected production price. This does not make it easier for farmers to sell their production. It is an obstacle to planning the cultivation of medicinal plants in the country, as well as to planning measures related to medicinal plants under the Rural Development Program and other operational and financing programs.

There is interest in the agricultural producers to grow medicinal plants, but the lack of information on the opportunities for realization, markets and prices prevent them to do this.

Among the herbs that are sought abroad are the rose hips, but their yield is reduced due to the cleansing of the terrains used for pastures, for which the farmers receive subsidies. Less and less people are gathering herbs. Several years ago they were more than 300,000 pickers. Now, in the active months, there are 100,000 people, mostly from regions with high unemployment such as Razgrad, Targovishte and Shumen. Half of them are people with low education, coming from minority groups.

Mr. Ivan Tsitselkov from the Association of Herbalists says that "The main problem is the lack of pickers and organized courses on herbal medicine. After the old herbalists pass on, nobody inherited their business after them." What can be done is that the money collected from so called forest fees to be reinvested in the industry in the form of education courses. Money now sinks into the budget and no one knows what kind of funds is collected from forest fees.

The Association also calls for state support for herbs, as in Poland and Serbia for example, where

there is donation for the sector. Otherwise, the country will lose more positions on international markets. Now the biggest competitors of Bulgarian exporters are companies from Romania, Turkey, Egypt and China.

The table below shows the trends for the areas in the control system for the last two years:

Table: Areas in control system, ha

	2016	**2017**
Total areas in a control system	160 635	136 629
* Wild growing crops	307 995	272 819

*Source: Ministry of Agriculture, Food and Forestry, according to data from the annual reports of the controllers of organic production.

Wild crops - mushrooms, herbs and berries are harvested from certified ecologically clean areas but the areas are not cultivated and are not included in the column "Total areas in a control system".

Certified ecologically clean areas, from which wild fruits, herbs and mushrooms are harvested in 2017 amount to 272,819 ha, are 11.4% less than in the previous year.

Areas occupied by technical crops in a control system in 2017 are 22 998 ha (including areas with oil rose, aromatic crops, medicinal plants and spices). Compared to 2016, there is a decrease of 7 514 ha or close to 25%. In the areas with aromatic crops, medicinal plants and spices, there is a decrease of 1,230 ha on an annual basis to 16,859 ha. The largest share of this group of crops occupies the areas with lavender, which amount to 4 346 ha, followed by those with coriander with 3 906 ha and fennel with 3 438 ha.

Export of herbs and medicinal plants

Each year 15,000-17,000 tons of medicinal plants and herbs are collected and processed in the country, of which about 90% are exported. These results put Bulgaria at the first place in Europe and at one of the first places in the world by quantity of the exported herbs, according to a publication on the website of the Ministry of Environment and Water in June, 2016.

Bulgaria is among the first five European countries to export herbs and spices to the European Union, according to the Association of Herbalists. Bulgarians export herbs to European countries like Poland, Hungary and Serbia. At the same time, however, in the past few years, problems have accumulated in the industry, which could lead to a collapse in production and the country to lose its competitiveness on the international markets.

In recent years the collection and export of wild herbs in Bulgaria has been decreasing. However, the country is still among the leading European countries on this benchmark. In 2018 there were exported 9,000 tonnes of wild dry herbs, and in 2017 - 12,000 tonnes. The country is extremely rich in medical plants, valued highly abroad, and it is no coincidence that last year's exports exceeded 10 million euros. Bulgarian herbs are exported to nearly 30 countries. The most sought after are nettles - roots and leaves, lime, lemon balm and hawthorn. Most of Bulgarian herbs are sold in Germany, France and Spain.

Most of the wild herbs are exported to Germany, where they are marketed on the local market as herbs, and as a final product in the form of tea or used in the food, cosmetic and pharmaceutical industries of that country. The bulk, however, is processed, packaged, transformed into a new end product and re-exported from the German side to distant markets such as the United States and Japan.

Among the most sought-after herbs abroad is linden blossom because of its strong aroma.

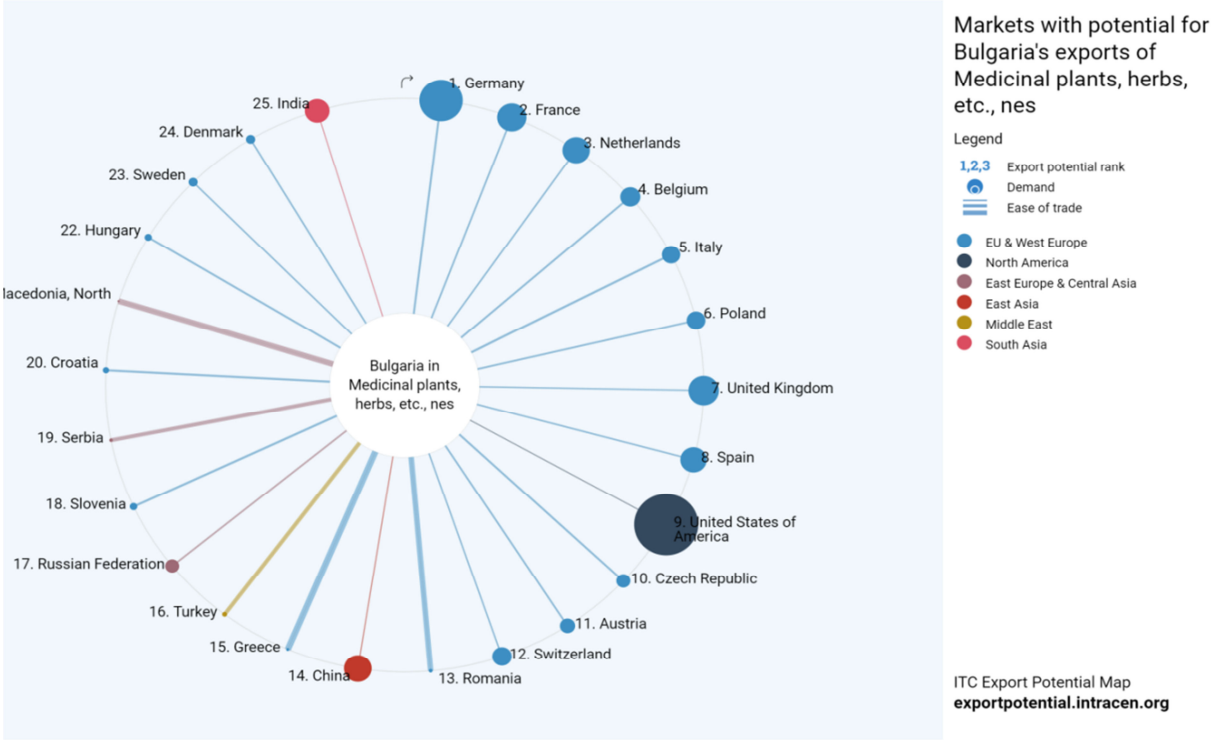
Quality and demand determine the higher price of this herb. Among the other herbs, it is bought as the most expensive one in our country. In recent months some of the buyers have paid up to the current 5 leva (equal to about 2,5 euro) per kilogram.

Other markets for which Bulgaria exports herbs include Poland, Egypt, Brazil, Argentina and Japan.

With regard to official statistics, herbs' export and import are included in the broader groups for statistical purposes and therefore no specific figures can be provided for the volume of its exports from the country, including for the volume of cultivated herbs.

The group of medicinal plants and herbs are listed as one of the export potential groups by the International Trade Center (ITC).

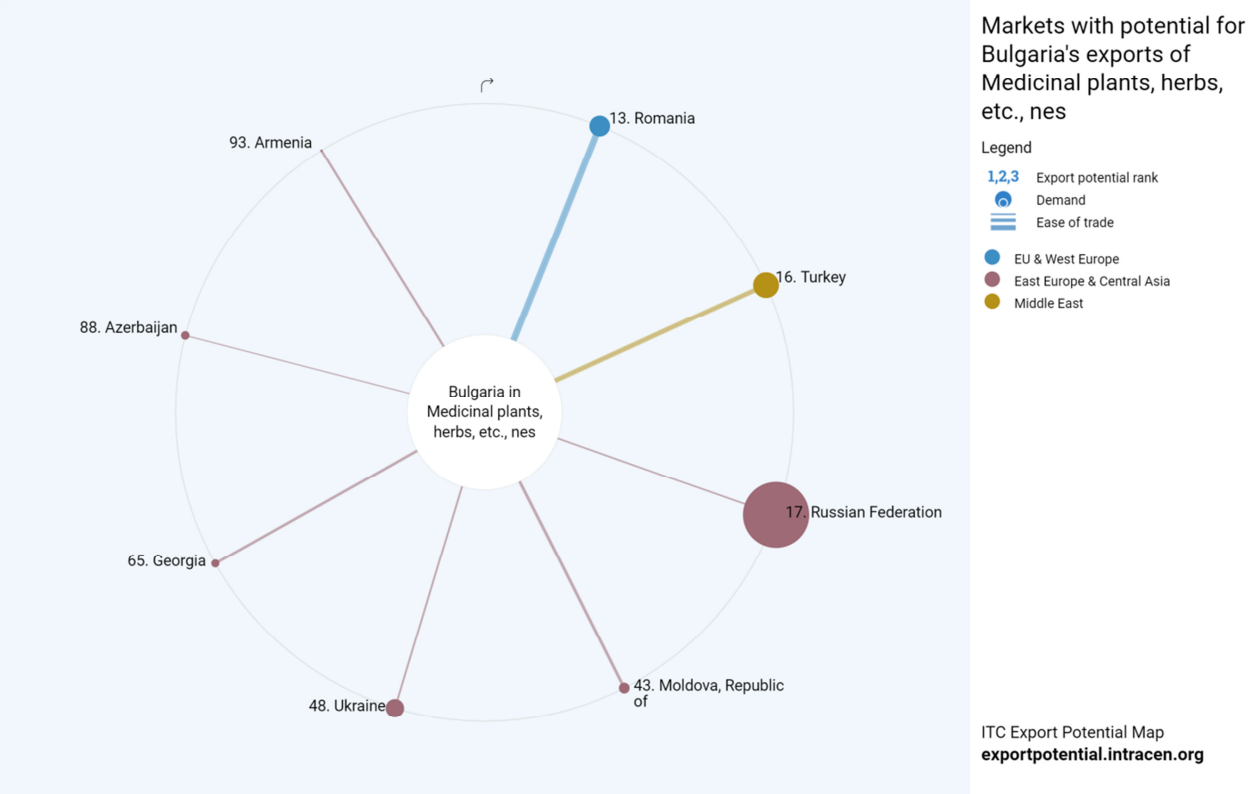
The chart below presents the analysis of export potential of Bulgaria medicinal plants and herbs sector:



Source: Web-site of the International Trade Center (ITC):
https://exportpotential.intracen.org/en/markets/analyze?fromMarker=i&exporter=100&toMarker=j&whatMarker=k&what=1211XX

The markets with greatest potential for Bulgaria's exports of 1211XX Medicinal plants, herbs, etc., nes are Germany, France and Netherlands. Bulgaria has closest export links with Greece. United States of America is the market with the highest demand potential for 1211XX Medicinal plants, herbs, etc.

The following chart shows the position of this sector with references to the eligible countries under the Black Sea Basin operational program.



Source: Web-site of the International Trade Center (ITC)

https://exportpotential.intracen.org/en/markets/analyze?fromMarker=i&exporter=100&toMarker=j&whatMarker=k&what=1211XX

The chart presents that the sector has export potential for Romania. The Bulgarian herbs and medicinal plants are not competitive regarding the other countries in the Black Sea Basin. This is because respective countries are also produce and export herbs based on the similar geographical climate, soil, water and other conditions. Also, the transport connections between Bulgaria and these countries are not very well arranged. The situation with transport tariffs and customs with these countries are more

burdensome than the situation with the EU member states, which are Bulgaria preferred export destination due to the free exchange of goods and people.

There is no established herb stock exchange that can states demand and price not only for Bulgarian but also for foreign companies, which cannot otherwise be marketed in the herb's market in Bulgaria.

According to International Trade Center Bulgaria's export of medicinal plants, herbs, etc. in world market is presented in the table below:

Export potential	**43.3 mn**
Actual exports	**29.9 mn**
Untapped potential	**21.1 mn**
World export	**2.7 bn**
Bulgaria's export	**29.9 mn**

As it can be seen from the table, Bulgaria takes a big portion of world export of medicinal plants, herbs, etc. However there is more than 21 million US dollars untapped potential.

The specific Bulgaria's export of medicinal plants, herbs, etc. to Romanian market is presented in the table below:

Export potential	**1.2 mn**
Actual exports	**434.7 k**
Untapped potential	**775.8 k**
Romania's export	**3.0 mn**
Bulgaria's export	**29.9 mn**

There is also export potential of this group of goods to the Bulgarian North neighbor, which is favored by the membership of the two countries in the European Union and close proximity of states' territories.

Bulgaria's export of medicinal plants, herbs, etc. to Georgian market is presented below:

Export potential	**35.6 k**
Actual exports	**26.6 k**
Untapped potential	**9.0 k**
Georgia's export	**2.2 mn**
Bulgaria's export	**29.9 mn**

The table's figures show that there is export potential of medical plants and herbs from Bulgaria to Georgia. However, the factors that influenced the trade between two countries like transport infrastructure availability, customs and trade regimes, product certification and labelling, etc. need further attention and government policies toward favoring export-import conditions between the two neighboring countries.

Market Analysis Results

Based on the information for the production and marketing of medicinal plants and herbs, which were presented in the previous chapters of the feasibility study, some factors that influence the sector could be outlined in a SWOT analysis. SWOT analysis (strengths, weaknesses, opportunities and threats analysis) is a framework for identifying and analyzing the internal and external factors that can have an impact on the viability of a project, product, place or person. The following table presents SWOT analysis components and factors, which were identified for the purpose of this market analysis for medicinal plants and herbs in Bulgaria:

SWOT Analysis	
STRENGTHS	**WEAKNESSES**
❖ Availability of a large variety of wild and cultivated herbs - a raw material for tea preparation; ❖ Bulgaria is at the first place in Europe and at one of the first places in the world by quantity of the exported herbs;	❖ In recent years, the collection and export of wild herbs in the country has decreased. However, it still ranks among the leading European countries on this indicator. In 2018, the export of wild herbs is 9,000 tonnes, and in 2017 - 12,000 tonnes. The country is extremely rich in medicinal plants, valued highly abroad, and by chance, exports for 2018 exceed 10 million euros;

❖ There is a good legislation framework in Bulgaria, which regulates the natural resources and their use in the country. The main laws in Bulgaria that focus on protection and regulation of herbs and medicinal plans' collection, processing, storage and transportation refer to the Medicinal Plants Act, which lists 739 medicinal plants, the Biological Diversity Act, the Protected Areas Act, and the Forest Law; ❖ Available financial support for cultivation of herbs - the Bulgarian flora is one of the richest and best studied in Europe. Valuable for science as well as for anyone whose livelihoods are related to herbs are also the rich archives, various collections and herbarium stored in the specialized institutes and universities, to which everyone concerned has access. In recent years, new types of herbs have been cultivated with practical properties, including cat's step, willow herb and others;	❖ Herbs sought abroad are also rose hips, but the production of rose hips has decreased due to clearing of the land used for pasture, for which the farmers in Bulgaria receive subsidies; ❖ People who collect herbs are also getting smaller number. Years ago, they were over 300,000. In 2018, in the active months, they were 100,000, mostly from high-unemployment areas such as Razgrad, Targovishte and Shumen. Half of them are people with low education from minority groups. According to representatives of the Herbalists Association, "The main problem is the lack of collectors and organized courses in herbalism. After the old herbalists passed away, nobody inherits their business after them"; ❖ Problems with herb pickers - There are no exact data on the number of herb-pickers in Bulgaria. By 1989, they are known to be in the 400,000's, and that even today, hundreds of thousands of families rely on the proceeds from the collection, sale and purchase of herbs; ❖ Problems with herb preparers - There are no exact data on the quantities of herbs that pass through the herb preparation points in the country. Specialists speak of more than 17,000 tonnes a year. The largest quantities are traded in wild linden, hawthorn, rosehip, thorn, and nettle. The Law on Medicinal Plants prescribes how to organize the purchase and preparation of herbs at special points, which are registered in regional inspections of environment and water. It also lays down rules for collection, drying,

	transport and storage. It requires herb preparers to train their pickers. However, few are aware of the quality of the herbs and that their own profit depends on the literacy of the herb pickers. There are very few companies in Bulgaria that use high-tech equipment; ❖ Lack of value added to raw materials from herbs - In the country, primary processing of herbs is done, such as drying, freezing, cutting, packaging, which does not add more than 5% of value. So is the maximum profit of herbalists. Therefore, in order to increase their income, they seek to export more and more herbs and often damage the wildlife. Instead of exporting bales of herbs from the country, it is necessary to export processed products that are of much greater value on the market. This means more work, more jobs, and more revenue for businesses, for the economy and for the state as a whole. If the raw material in a dried condition costs one euro, in a processed form as a final product it can cost 10-15 to 100 times more expensive. This is what companies in Bulgaria should strive for; ❖ Lack of advertising of technological and scientific achievements in the field of herbal processing and their use in different fields of application. The state should create conditions and promote not only the wealth of medicinal plants, but also to advertise that the country has institutes, there are science, productions and to create conditions for the development of processing capacities for medicines, food additives, cosmetics. The end product will costs a lot, but it will contain science, technology, and know-how;

	❖ Lack of statistical and other official data; ❖ There is no experience in product marketing; ❖ There is no established herb stock exchange that can state demand and price not only for Bulgarian but also for foreign companies, which cannot otherwise be marketed in the herb's market in Bulgaria; ❖ Problems in the production of high quality seed and planting material from herbs and medicinal plants. Many producers of reproducing material do not have the necessary knowledge, experience and facilities to produce quality sowing and seedlings. A fictitious appointment of specialists is also a common practice / agronomists / as it is required by law when the registered persons do not have the necessary entity; ❖ The money collected from forest taxes is not reinvested in the industry in the form of educational courses. They sunk in the budget, and no one has any information on what funds are collected from forest taxes; ❖ There are also weaknesses with regard to state support for herbs, as it is in Poland and Serbia, for example, where there are subsidies for the sector in these two countries. State support is not enough and this is leading the country to lose more and more positions on international markets; ❖ The natural resource is exhaustible, so its use needs to be regulated by several laws towards protection of wild herbs and cultivation of species that are protected for collection from the natures. Cultivation is important because it is the most successful approach to conserving

	wildlife habitats and overcoming the resource shortage of certain types of meditative plants. This is especially true for species that are rare and endangered, as well as for those that are used in particularly large quantities. Instead of the raw material being collected from natural habitats in the wild, it is sourced from cultivated areas. This provides a high quality and high volume raw material of herbs that better meets the requirements for the content of biologically active substances and hygienic and sanitary requirements of industries such as pharmaceuticals; ❖ Small, non-competitive farms where medicative plants are grown; ❖ Low level of mechanization - drying and processing equipment; Insufficient knowledge of crops and cultivation technologies; ❖ Lack of real funding / subsidy opportunities.

OPPORTUNITIES	THREATS
❖ There is scope for increasing per capital consumption of herbal and medicative teas within the country, as the prices of national production are relatively low compared to prices of imported products from EU and non-EU countries; ❖ In targeting potential growth markets, recognition of, and compliance with, food safety and quality standards is essential for the sector further sustainable development; ❖ Opportunities are also derived from other factors, which include innovative developments from non-traditional players in the retail and service sector; ❖ Consideration of future strategies and appropriate enabling policies to maintain sustainable development of the rapidly changing European and global herbal economy; ❖ Introducing new professional education and certification programs to encourage young people's orientation towards health care, utilizing herbs and medicinal plants in a variety of brunches (aroma therapy, nutrition, etc.); ❖ Introducing different types of sustainability awards; Cultural Events - Organizing and promotion of cultural and other events for the community (books & exhibition presentations, etc.) by offering herbs during side events like lectures on healthy lifestyles and the	❖ The reason for herbs' extinction is often the change in conditions or the destruction of habitats if there are deforestation, intensive agriculture, overgrazing, and construction, artificial drainage, drying or flooding of areas. This applies to water-loving species, such as water clover, valerian, marsh, water lily. The plowing and clearing of meadows and pastures threaten species such as naked confectionery and medicinal primrose, as well as widespread species such as dandelion, rosehip, thorn, and hawthorn; ❖ The threat also comes from companies from Romania, Turkey, Egypt and China, which are the biggest competitors of Bulgarian exporters as they offer large quantities of herbs at lower prices; ❖ On the supply side, expected supply response to expanding demand may not be as easy as it has been in the past, given the possible constraints to the availability of suitable land for herb cultivation in the country.

benefits of herbs and medicinal plants; ❖ Establishment of national networks of grocery / specialty stores for brands and trademarks of organic herbs and medicinal plants - Establishment of specialty stands for organic cultivated herbs in grocery stores, to be close to the customers, as well as opening specialized stores for healthy and organic food national wide to encourage healthy lifestyle, increasing consumption; ❖ Better legislative frameworks and support is an important factor to increase opportunities in front of the sector's development.	

Marketing Strategies Approaches

To provide favorable conditions for cultivation and production of medicinal plants and herbs, the producers' main activities need to focus on the weed control, monitoring for the development of diseases and pests, provision of water and nutrients.

In the early stages of sector development, the greatest danger is the weeds' increase - mechanical struggle is applied - weeding, digging, burning.

Providing watering and feeding through a specific development phase specific to each crop, conducive to development and increased yield.

Diseases and pests - Biological struggle after establishment over threshold of economic harm.

General principles of production strategies for sector development could include:
1. Principle of diversification - the human impact on agro ecosystems should be directed towards their stabilization. Less concentration and specialization of production. Creation of mixed farms.
2. The application of plant protection products shall be on the principle of reasonable minimum sufficiency (only as much as is necessary and only when it is inevitable).
3. Adequacy in the plant protection system. Approaches, methods and tools that best meet the pest's biological characteristics.

Herbal exporting companies do not announce prices and do not negotiate in a timely manner and mainly deals with last-minute orders, which makes the market with large imbalances and price variations. This, in turn, stops the process of cultivating herbs, because in the face of uncertainty in demand and prices, no one wants to commit to growing herbs, especially

perennials.

In Bulgaria there is no developed processing industry in the field of medicinal plants and herbs. Almost all herbs go to developed processing countries. They produce end products and most of the profits remain with them. Tea, medicines, supplements and cosmetics from Bulgarian herbs are coming back here and Bulgarians are buying them at a much higher price.

In Bulgaria, it is done primary processing of herbs like drying, freezing, cutting, packaging, which does not add more than 5% value. So is the maximum profit of herbalists. Therefore, in order to increase their income, they seek to export more and more herbs and often harm the wildlife.

The marketing strategies to increase export of medicinal plants and herbs need to consider the producers willingness to get more added value to their production, thus to get high price from the export. In this regard the suitable marketing strategies approaches could be:

- processing herbs in areas where they grow and gather so that local people can get more work and a better income, as well as to appreciate and view the herbs as a business opportunity;
- inclusion of medicinal plants and herbs in the composition of blanks and semi-finished products to be exported instead of as raw material;
- purchase of licenses and rights from western companies for production from local herbs of medicines, food additives, cosmetics, etc. in Bulgaria, which to be exported as finished products;
- Using new technologies for online marketing the healing properties and qualities of Bulgarian herbal products;
- Study of specific market niches in Europe and the Black Sea countries for the sale of blanks and finished products;
- Advertising of healthy lifestyle based on foods and supplements of herbal origin, which will increase the demand for Bulgarian products on the international markets.

Potential risks and the recommendation for their minimization

Most of the herbs that are bought, traded and processed in the country are collected from the wild nature. It is very generous but not inexhaustible! In the case of unreasonable and excessive use of the deposits, the medicinal plants diminish and may disappear. It is important to protect and manage them so as to ensure their renewal and long-term use. The threats to medicinal plants are different and often combine several negative factors. Most are the result of human activity and lead to a decline in stocks of a particular type of plant. Thus some species become rare and disappear. The reason for disappearance is often the change in conditions or the destruction of habitats when deforestation, intensive farming, overgrazing, construction, artificial drainage and draying or floodplain. The plowing and clearing of meadows and pastures threaten species such as naked confectionery and medicinal primrose, as well as widespread species such as dandelion, rosehip, thorn, hawthorn. Building on sand dunes, tapping into tourists and clearing beaches destroys the habitats of yellow horned poppy (Glaucium flavum) and the sea holly (Eryngium maritimum) . Mass and over-harvesting (over-exploitation) for medicinal and ornamental purposes, especially when roots and whole plants are harvested as an herb, endangering species such as adiantum capillus-veneris, snowdrop, and Gentian (Gentiana cruciata). Species such as rhodope haberlea (Gesneriaceae), rhodiola rosea (Crassulaceae), mursal (Pirin) tea are rare because they thrive under very specific conditions - humidity, sunshine, temperature, soil type, to which very few habitats respond. Other medicinal species are rare because they are difficult to reproduce and grow slowly. These are the gentiana lutea (Gentiana lutea) and gentiana punctata (Gentiana punctata), whose young plants bloom and form seeds for propagation only at the eighth year of emergence. The bear grape, on the other hand, grows very slowly, and from it the leaves are collected, cutting off the whole stems and thus destroying the plants. The snowdrop (Leucojum) young plants bloom and produce

seeds, through which it propagates at 5-6 years. The snowdrop is also propagated vegetatively by bulbs, but the bulb is divided and given daughter bulbs, through which the species is propagated only at the age of 8-10.

To overcome these risks, it is necessary:

- to introduce organic cultivation of the most sought for export herbs;
- to organize awareness campaigns among herb producers and harvesters about the harm of over-harvesting wild herbs;
- so ensure financing for organization of educational courses and training for participants in the process of production and harvesting of herbs, to enhance their knowledge and skills, which will actually help to utilize the valuable natural resource;
- allocation of funds for investment in the sector from European and national funding in order to address and mitigate the negative effects of climate change;
- strengthen the control and personal accountabillity for breaches of sectoral laws and regulations.

Findings and recommendations

The **main findings** of the analysis of the sector of the medicinal plants and herbs could be summarized in the following lines:

- The herbs have export potential and the ability to create economic growth and employment in the rural, remote and mountainous areas.
- The country has a good legal framework governing the cultivation and processing of medicinal plants and herbs.
- The excellent natural and climatic conditions in the country contribute to the diversity of herbs in the wild nature and the opportunity for their cultivation.
- The Bulgarian flora contains over 4100 species of higher plants, of which about 760-770 species (19%) are medicinal. 270 types of herbs are raw materials for the pharmaceutical, perfumery, cosmetic and food industries.
- There is a demand for Bulgarian herbs on the European and international markets due to the high quality and useful ingredients in them and the low price at which they are traded as row materials.
- As a result of the trends for healthy nutrition and environmentally friendly lifestyle, the demand for food and products of herbal origin is increasing, which opens opportunities for Bulgarian herbal producers and traders.
- There are problems in the sector related to the scarcity and low skills of the labor force in rural and mountainous areas as a result of the aging and decreasing population in them.
- There is a low level of mechanization and process automation in the sector due to lack of funds for investment in new technologies.
- Insufficient funding for the sector under the National Rural Development Program.

The **main recommendations** from the analysis for further development of the sector of medicinal plants and herbs are as follow:

- It is necessary to promote and raise awareness of the population in the possibilities of creating sustainable growth, employment and income generation from medicinal plants and herbs in the country on the basis of production of value-added products with herb origin.
- Part of the revenue generated from fees for collecting herbs in forest areas should be directed to improving the education and skills of herbs collectors and producers.
- In order to preserve biodiversity in the country, including the reduction of herb deposits and the diversity, it is necessary to encourage the organic cultivation by various forms of government support and legislative amendments.
- To increase the production and marketing of a variety of herbal products for healthy nutrition and environmentally-friendly living by supporting research and development processes in this area.
- To allocate fundings from European and national funds for the introduction of innovation, research and technology, including support for research institutes and laboratories for testing of new herbal products from local sources.
- Provide tax preferences for start-ups in rural and mountainous areas in order to attract skilled workers.
- To allocate funds from the state budget for promotion and participation in specialized international exhibitions and fairs of producers of herbs and related products.

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COUNTRY TRADE PROFILE FOR CHEESE

Photo credit: https://www.wallpaperflare.com/

Introduction and history

White brined cheese or just cheese is a dairy product created in Bulgaria and distributed in the countries of the Balkan Peninsula, the former Soviet republics, Turkey, Greece, the Arab world, and also in Mexico. It is made from cow, sheep or goat's milk, which is fermented and subsequently stored in brine.

It is traditional for Bulgaria and has unique taste qualities; unique among the other brined cheeses made in different countries. It is a staple food for the population and is used both for direct consumption and in recipes of various national culinary products, most of which are not subjected to additional thermal or other microbial disposal treatment.

The white brined cheese is one of the characteristic Bulgarian foods and an inseparable part of the table from ancient times. Its relatively easy way of making it has become widespread - any dairy farming household has been making cheese. In 1915, the first dairies appeared which started to use the craft method of work at that time. Although traditionally on the Bulgarian lands in the past, sheep's milk was used as raw material for cheese production, today ¾ of the cheese produced is from cow's milk. This is due to changes occurring in agriculture after September 9, 1944, when small dairies (over 3000 at the time) were nationalized and replaced by huge dairies that required the industrial production of cow's milk, and hence cow cheese. However, the highest quality and durable brined cheese is obtained from sheep and a mixture of sheep's and goat's milk.

The composition of the cheese is complex and varied - some of the substances contained in it pass from milk, others are added (such as table salt), and thirds are formed and accumulated during its ripening and storage.

Recently, with active public support, the Bulgarian State Standard for white brined cheese was revised into its traditional Bulgarian version, as in the new version of the document are incorporating the sheep, cow, goat and buffalo milk cheeses and the original production technology tested through decades of industrial production. This cheese is not made from raw milk as it has been accepted in the distant past at home, but the raw material for it is necessarily pasteurized. This guarantees to a great extent the microbiological safety of the presence of the bacteria of tuberculosis, brucellosis, salmonellosis, listeriosis and other infections of the zooanthroponosis type associated with the consumption of dairy products. Notwithstanding this guarantee, the new standard incorporates the modern safety criteria for Listeria monocytogenes for Europe and other developed countries, although the technology excludes the likelihood of its development in the product, namely the combination of raw material thermal processing and a serious biological maturation process, which leads not only to the accumulation of organic acids in concentrations incompatible with the development of the microbe, but it is also a purely

biological phenomenon of competition of the noble cheese microflora with pathogenic microorganisms MDL, including Listeria. These microbiological processes are very complex, poorly researched, occurring under the threat of primary and secondary microbial contamination of the raw material with diverse microbes originating from both the ecosystem and anthropogenic character.

The state of cheese production in the country

Milk production (cows, buffalo, sheep and goats) is of strategic importance for Bulgaria. Milk is a vital product present in daily nutrition, but in addition to its social and health effects, the dairy sector contributes to securing permanent work places in rural areas and to protecting the environment. Bulgaria is the only EU member state to fulfill about 65% of its quota, i.e. produces less than the level for internal consumption.

Data from the Agrostatistics Department at Ministry of Agriculture, Food and Forestry (MAFF) for 2012 until 2016 showed divergent trends. The total number of cattle has fluctuated over the years, without any lasting trend. In cows, though insignificant, their number increases to 357 thousand. The total number of sheeps also fluctuated over the period considered, but the fluctuation did not show any stability and trend in the number of sheeps. Buffaloes double in size, comparing 2012 and 2016 from 5.7 thousand to 13 thousand. With the total number of goats, the trend is reversed, with their total number significantly decreasing by almost 60 000, which, against the background of the herd size, represents a decrease of 20%. The number of farms engaged in milk production in 2015 continues to decline. For dairy cattle holdings, they decreased by 12 225 units (27%), which is similar to a 26% decrease compared to the previous year. The dairy sheep's farms decreased by 9 119 units (19.6%) in 2015. Compared to a year earlier, the rate of decline is slowing. In principle, almost all groups of farms are reduced, except the largest (with over 100 animals). A significant increase is reported by the Department of Agrostatistics at the MAFF in organically reared animals. The change in the number of cattle for the period 2014-2016 is from 1 622 to 9 134 animals.

Total in the country in 2015, 1 118 704 tonnes of milk were produced, of which 998 093 tonnes was cow's milk. For 2015 the number of dairy enterprises in Bulgaria is 215. Compared to 2000, their number decreased by about 52% (out of 445). The product range of processing enterprises is relatively small and quite traditional, does not differ in any specifics and uniqueness in order to aim for a specific price and specific niche positioning, which is why it faces massive competitive pressure.

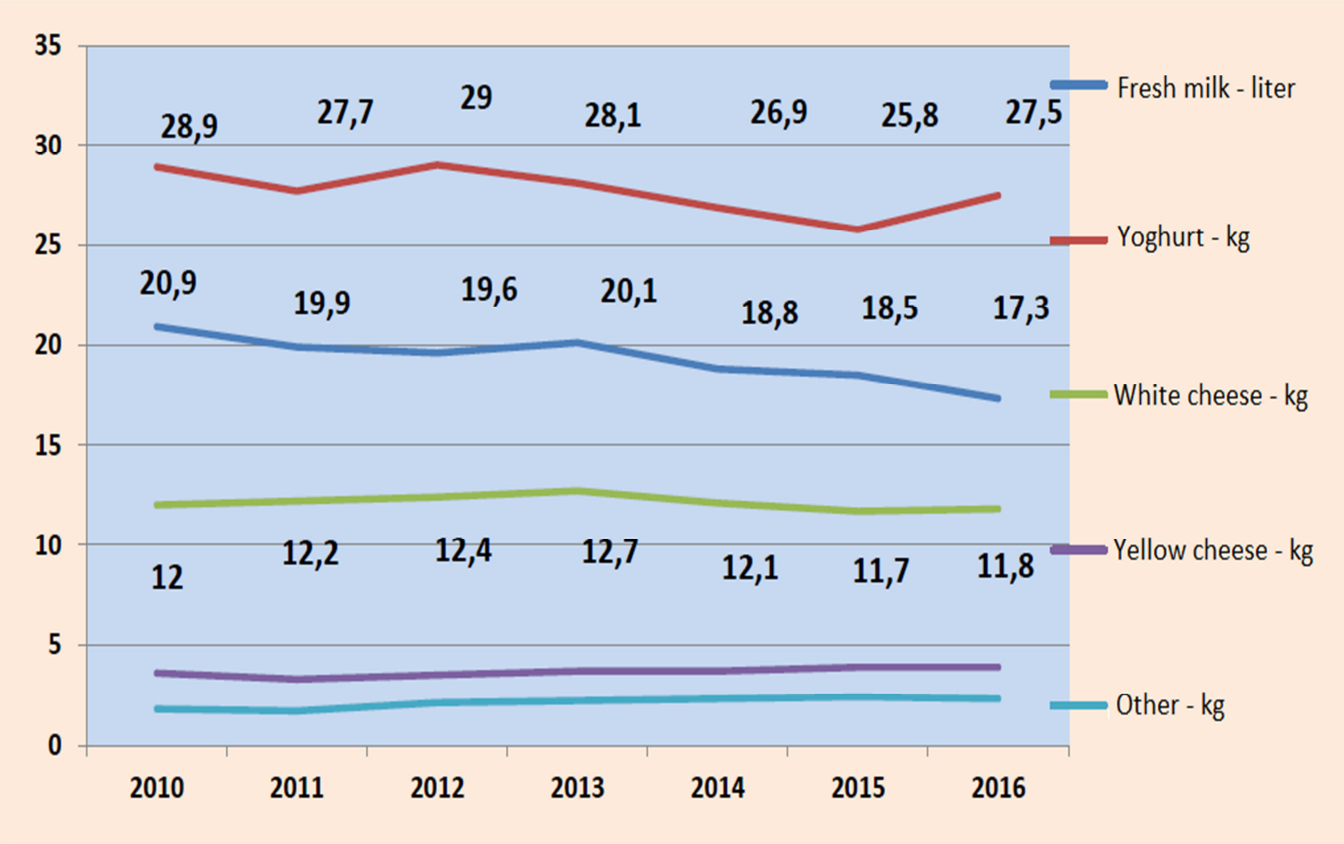
In the dairy industry in the country in 2015, the 215 dairies employed 6 792 employees and workers, hired under a labor contract. In 2015, the total value (excluding VAT) of the realized products from dairies is BGN 701.3 million. From the declared quantity of milk in 2015, the total processing at dairy enterprises is 523 million liters. Of these, 94% are cows, 3.6% are sheep, 1.5% are goats and 0.6% are buffalo. Compared to 2014, there was a slight increase in processed cow's milk by 2.7%, in goats - by 1.4%, in buffalo - by 7.8%. Processed sheep's milk declines on an annual basis in 2015/2014 by 25.1%.

Of the produced milk products, the largest in volume is the amount of yoghurt produced, packaged fresh milk and white brined cheese. The trend that emerges is an increase in the production of packaged milk on an annual basis by 15% in 2015compared to 2014. Yoghurt has also seen an increase in production by just over 6%. In this segment, the production of buffalo milk increased most significantly - by 91%. The increase in cheese produced in 2015 was lower, reaching 67 718 tonnes. In 2016, a positive trend was the desire of processors to diversify their products, especially in the range of cheeses, which are different from the traditional white brined cheese and yellow cheese.

The household member's consumption of basic dairy products has been declining over the years. Most significant is the decrease in the consumption of fresh milk, with consumption of almost 21 liters per capita by 2010. In 2016 consumption decrease to 17.3 liters. Cheese consumption remains almost constant - 11.8 kg / person in 2016. The continued steady decrease in the

population in the country can hardly change the current level of consumption and, accordingly, the expectations for the level of domestic demand for milk and milk products.

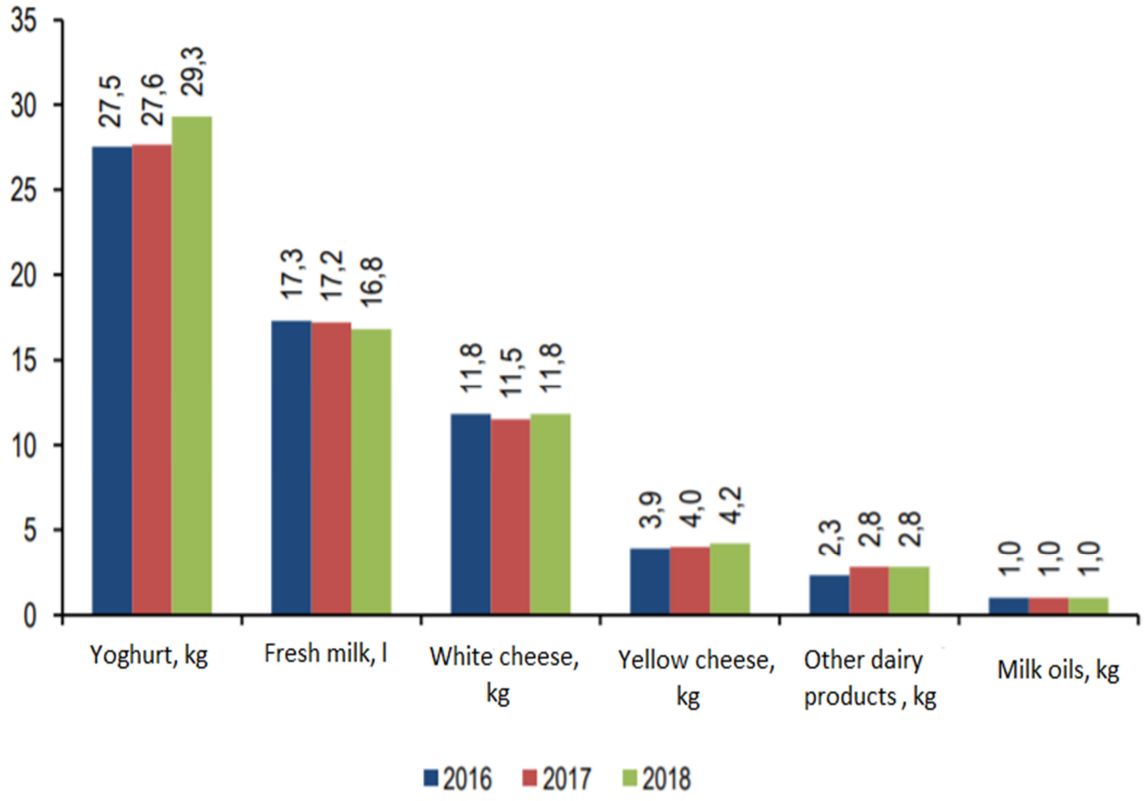
Consumption of dairy products in the country in the period 2010-2016:



Source – National Statistical Institute (NSI)

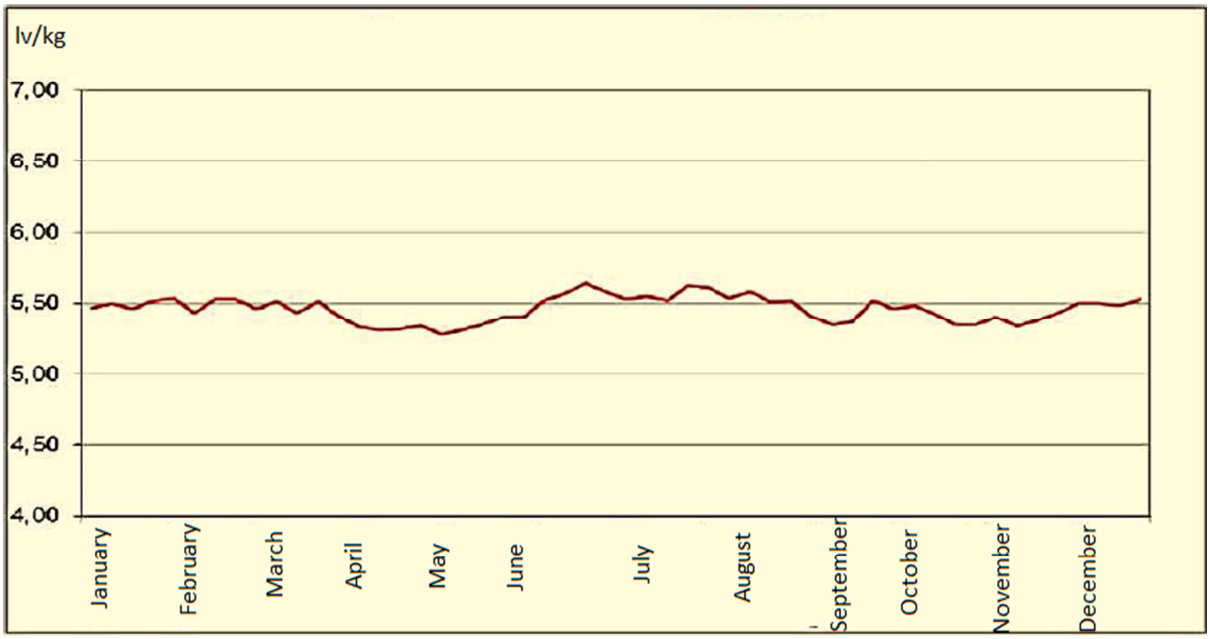
Consumption of household dairy products is the highest in yoghurt, fresh milk and cheese. According to data from the national Statistical Institute, in 2018, the household consumption of most basic dairy products is at or above the levels of the previous year.

Average consumption of milk and dairy products per person by household during the period 2016-2018:

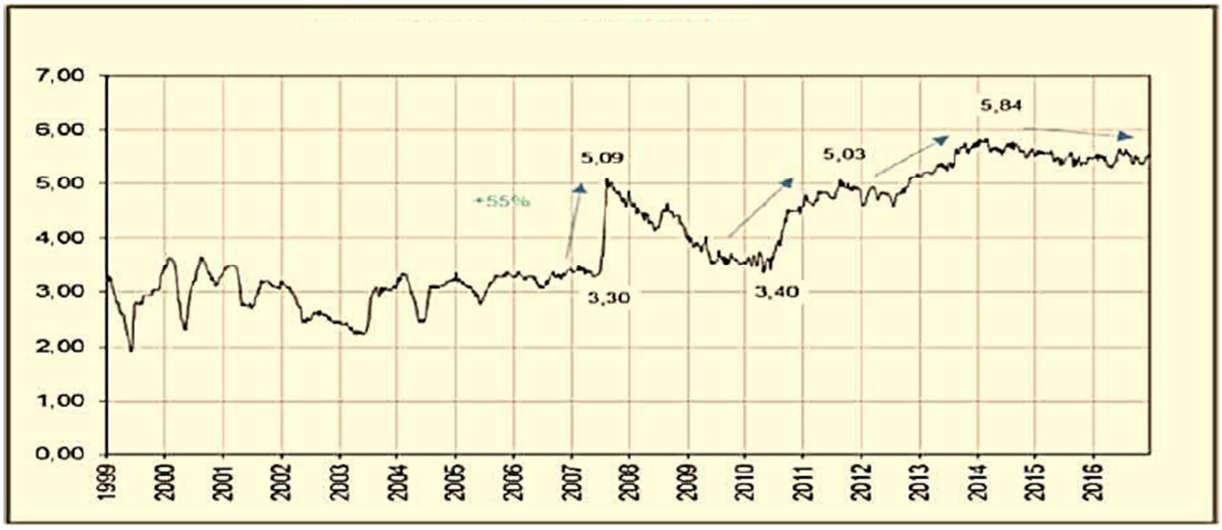


Since mid-2012, the price curve of cow's cheese has had a steady upward trend, which has been maintained throughout 2013 and the first two months of 2014. By the end of 2014, the curve is moving downward with some fluctuations, and the price of cow's cheese remains stable and ranges from 5.30 to 5.60 BGN / kg. In 2016, the stable nature of the price of cow's cheese is maintained, and with minor variations it moves around the level of 5.50 BGN / kg. At the beginning of 2016, the price started at 5.47 BGN / kg. Some movement in both directions is observed in spring and summer, and in autumn and winter the curve stabilizes again. At the end of December the values were 5.53 BGN / kg.

The next chart shows the fluctuation in the wholesale price of cheese in the different months of 2016:



The next chart shows the fluctuation in the wholesale price of cow's cheese for the period 1999-2016



Source: Annual Report State Commission on Stock Exchange and Markets 2016

In 2018, every Bulgarian consumed an average of 29.3 kg of yoghurt, a year earlier the amount was 27.6 kg. Cheese and yellow cheese's consumption increased by 2.6% and 5%, respectively. Cheese on the table goes from 11.5 kg in 2017 to 11.8 kg per capita in 2018. In yellow cheese, the jump is with 200 grams per household's person. Consumption of milk oils and other dairy products - sweetened milk or products with additives, remained at the level of the previous year. Thus, each person is given 2.8 kg of other dairy products and 1 kg of butter per capita.

Compared to the first half of 2018, available data for the same period in 2019 indicate an increase in the average per capita consumption of cheese households - by 3.5%, to 5.9 kg / person, while maintaining the consumption of yogurt - by 14.5 kg / person and reduction in consumption of fresh milk.

Liquid packaged milk production in 2017 is the highest in the South Central Region, with a share of 48% in the total production of liquid packaged milk at national level. In the South Central region, it is also reported the highest production of natural yoghurt, with a share of 38% of the total production of the product at national level, as well as the highest production of yellow cheese, representing 37% of the total country production.

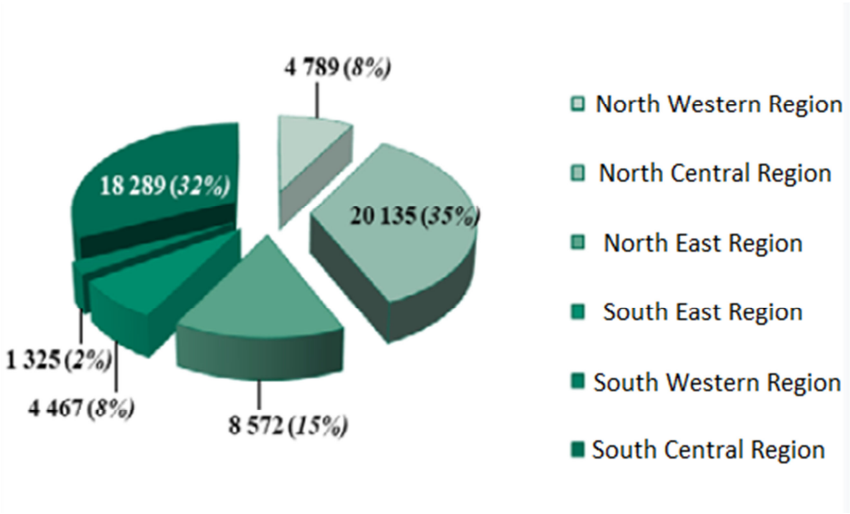
Most white brined cheese is produced in the North Central Region, accounting for 35% of total national production. However, a decrease of 7% in the production of this product was reported for the same region compared to 2016.

The Production of the basic dairy products in 2017 by statistical regions (NUTS 2) is presented in the next table:

Products	North Western Region	North Central Region	North East Region	South East Region	South Western Region	South Central Region	Bulgaria
Liquid Packaged Milk (thousand liters)	8 622	5 002	11 557	316	11 222	34 141	70 860
Natural yoghurt (tonnes)	10 982	33 704	15 208	7 281	22 769	56 169	146 113
White brined cheese (tonnes)	4 789	20 135	8 572	4 467	1 325	18 289	57 577
Yellow cheese (tonnes)	1 730	3 657	939	8 304	709	9 119	24 458

Source: MAFF, Agrostatistic department, survey "Activity of dairy enterprises in Bulgaria in 2017"

In the graph below can be seen the production of white brined cheese for 2017 by statistical regions/ tonnes



Source: MAFF, Agrostatistic department, survey "Activity of dairy enterprises in Bulgaria in 2017"

The situation in the EU

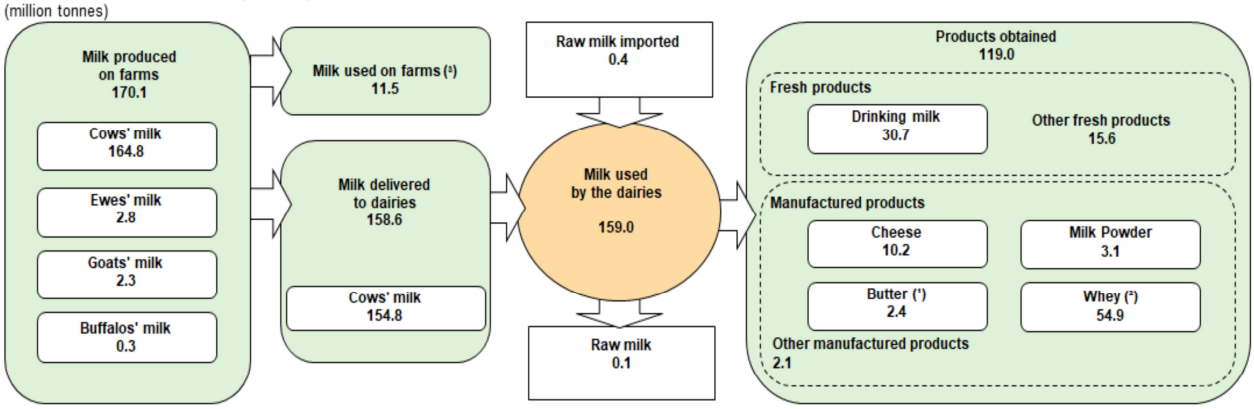
The countries with the highest consumption of fresh cheese for 2018 were Italy (967 thousand tonnes), France (585 thousand tonnes) and Germany (548 thousand tonnes), which accounted for 52% of total EU consumption. These countries are followed by the United Kingdom, Poland, Spain, Belgium, the Netherlands, the Czech Republic and Sweden, which together represent another 37%. The revenues from the European Union's fresh cheese market totaled $ 12.6 billion in 2018, remaining stable over the previous year. This figure reflects the total revenue of manufacturers and importers (excluding logistics costs, retail marketing costs and retailers' margins that will be included in the final consumer price). Overall, the consumption of fresh cheese continues to show a relatively stable trend. The most significant growth rate was registered in 2014 with a growth of 15% compared to the previous year.

The countries with the highest consumption of fresh cheese per capita in 2018 are Italy (16 290 kg per 1000 people), Belgium (13 307 kg per 1000 people) and Poland (10 450 kg per 1000 people). From 2007 to 2018, the most noticeable growth rate in terms of consumption of fresh cheese per capita, among the main consumer countries, was achieved by the Netherlands, while the other leaders had more modest growth rates. Driven by the growing demand for fresh cheese in the European Union, the market is expected to continue its upward trend over the next seven-year period.

In the EU, the raw milk production has risen to 170.1 million tonnes in 2017, 97 % of which was cow's milk. The production of raw milk on the EU's farms was a provisional 170.1 million tonnes in 2017, which represents a year-on-year increase of 1.9 million tonnes. The increase in production can be put in some context by looking at production levels in the run-up to the abolition of quotas; EU farms produced 164.8 million tonnes of raw milk in 2014 and 159.0 million tonnes in 2013. The vast majority of raw milk is delivered to dairies; only 11.5 million tonnes was used on farms, either being consumed by the farmer and his family, sold directly to

consumers, used as feed or processed directly. Of the 158.6 million tonnes of milk delivered to dairies, 154.8 million tonnes was cows' milk, the rest being a combination of ewes' milk, goats' milk and buffalos' milk.

Production and use of milk, EU-28, 2017
(million tonnes)



(1) Eurostat estimate for Ireland.
(2) Includes other yellow fat dairy products; expressed in butter equivalent.
(3) In liquid whey equivalent.
(4) In whole milk equivalent
Source: Eurostat (online data codes: apro_mk_pobta and apro_mk_farm)

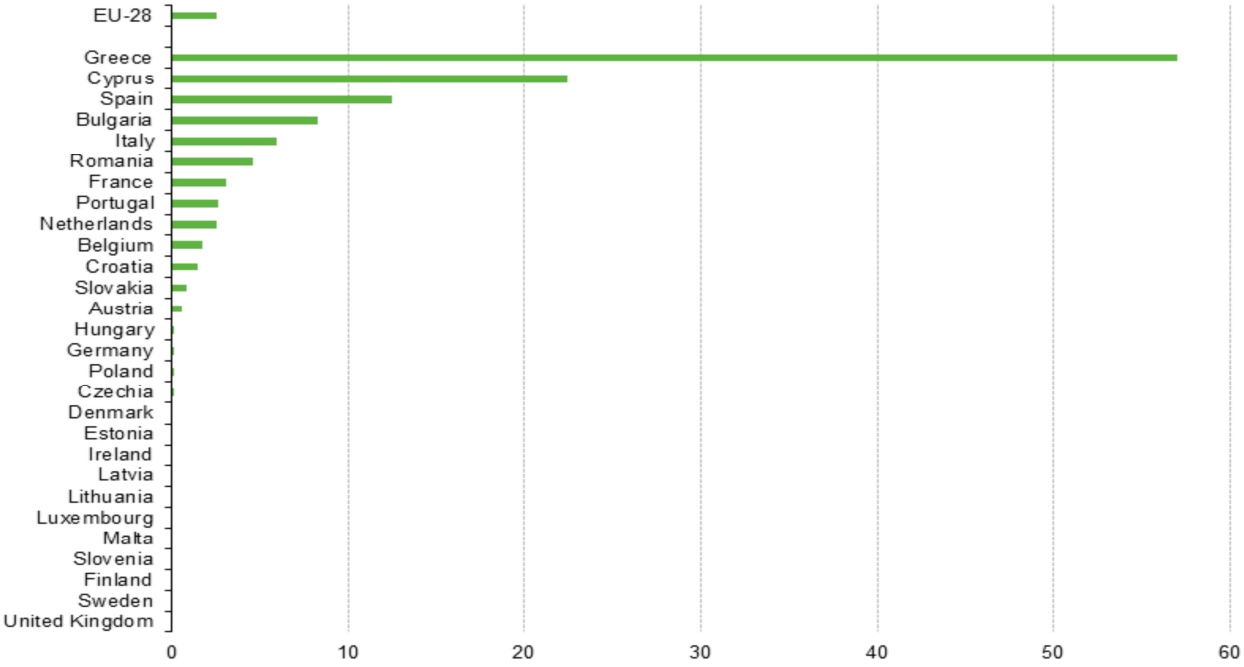
eurostat

The average apparent milk yield per cow across the EU topped 7 000 kg in 2017. There are a number of factors that can affect milk yields beyond the breed of dairy cow. There are a number of management factors like the feed, water supply and the frequency of milking. Disease, particularly mastitis, can affect the secretory tissues. Weather plays a role; in a hot drought, for example, grass growth, water supply and an animal's feed intake are all reduced. The apparent milk yield in the EU topped 7 000 kg per cow in 2017. As a national average, apparent yields were highest in Denmark (9 569 kg per cow), Estonia (9 143 kg per cow) and Finland (8 889 kg per cow) and lowest in Romania (3 231 kg per cow) and Bulgaria (3 713 kg per cow).
Among the main cows' milk producing Member States, apparent yields were well-above the EU average in Germany, the United Kingdom and the Netherlands.

Whilst cows' milk dominates the market for the milk used by dairies, there are parts of the EU

where milk from other animals is collected and processed in relatively large quantities. Spain produced 1.0 million tonnes of milk from ewes and goats, with Greece and France both producing 0.8 million tonnes. Italy also produced 0.7 million tonnes of milk from animals other than cows and this included almost all of the EU's production of milk from buffalos. Whereas milk collected from these other animals was dwarfed by that from cows in most of these countries, there were some exceptions. A majority (57.1 %) of the milk delivered to dairies in Greece came from ewes and goats in 2017 (see Figure 4). Between one fifth and one quarter (22.5 %) of milk delivered to dairies in Cyprus also came from ewes and goats.

Share of milk from animals other than cows, 2017
(% on total milk delivered to dairies)



Note: countries ranked by share of milk from other
Source: Eurostat (online data code: apro_mk_pobta)

eurostat

Two thirds of all EU's milk delivered to dairies used to make cheese and butter. The milk delivered to dairies is processed into a number of fresh and manufactured products. Dairy products are recorded in terms of their weight. It is thus difficult to compare the various products (for example, fresh milk and milk powder). In 2017, 156.9 million tonnes (98.9 %) of the

whole milk available to the EU's dairy sector was processed. This was 3.5 million tonnes more than in 2016. The production of 2.4 million tonnes of butter and so-called 'yellow products' in 2017 required 46.0 million tonnes of whole milk. The production of butter and yellow products also generated 42.9 million tonnes of skimmed milk. Together with the 16.4 million tonnes generated through the fabrication of cream, this skimmed milk was used for the processing of other dairy products.

Utilisation of milk and dairy products obtained, EU-28, 2017
(million tonnes)

	Utilisation of milk		Product obtained
	Skimmed milk	Whole milk	
Total	2.0	156.9	-
Sub-total of processes generating skimmed milk	-59.3	65.6	-
Butter and yellow products	-42.9	46.0	2.4
Cream	-16.4	19.6	2.8
Sub-total of processes consuming skimmed milk	61.3	91.3	
Drinking milk	12.8	17.5	30.7
Powder products	21.3	4.7	3.1
Concentrated milk	1.0	1.6	1.1
Acidified milk	1.7	6.6	8.2
Buttermilk	0.4	0.0	0.5
Cheese	17.4	58.1	10.2
Milk based drinks	0.9	0.6	1.7
Caseins	5.7	0.0	0.2
Other fresh products	0.2	2.1	2.3

Source: Eurostat (online data codes: apro_mk_pobta and apro_mk_farm)

eurostat

Indeed, 17.4 million tonnes of skimmed milk together with 58.1 million tonnes of whole milk was used to produce 10.2 million tonnes of cheese in 2017. Together, the production of cheese and butter used two-thirds (66.3 %) of all the whole milk processed by dairies. The EU produced 30.7 million tonnes of drinking milk, 12.8 million tonnes of which was from skimmed milk and a further 17.5 million tonnes of whole milk. Drinking milk accounted for about one tenth (11.1 %) of all the whole milk processed by dairies in 2017. A further 21.3 million tonnes of skimmed milk and 4.7 million tonnes of whole milk were processed into 3.1 million tonnes of milk powder products.

The next table shows the products for which milk produced in the European Union was used as an input / raw material:

Cheese	37.0%
Butter	29.3%
Cream	12.5%
Drinking milk	11.1%
Acidified milk	4.2%
Powder products	3.0%
Other products	2.9%

Here below are Eurostat data for cheese production in the European Union member states, including Bulgaria in the period between 2013 and 2018.

Production of cheese [TAG00040]
Source of data: Eurostat

Help | Current view: Default presentation

Table | Line | Bar | Map

TIME / GEO	2013	2014	2015	2016	2017	2018
European Union - 28 countries	:	: (c)	: (c)	: (c)	: (c)	: (c)
Euro area (19 countries)	:	:	:	:	:	:
Belgium	79.43	84.79	103.05	110.24	118.97	116.79
Bulgaria	67.62	77.40	76.80	79.56	89.40	91.90
Czechia	117.79	116.64	123.01	141.72	133.29	130.79
Denmark	324.90	368.90	391.30	428.00	450.50	452.00
Germany (until 1990 former territory of the FRG)	2 226.38	2 276.16	2 238.09	2 233.96	2 216.55	2 245.80
Estonia	43.83	40.53	43.10	43.29	44.40	44.83
Ireland	182.80	188.42	207.10	206.10	219.90	225.40
Greece	187.00	190.00	188.30	203.80	218.80	219.30
Spain	314.90 (p)	387.74 (p)	452.05	460.92 (p)	481.12 (p)	474.68 (p)
France	1 946.64	1 946.31 (p)	1 949.83 (p)	1 918.97 (p)	1 919.57 (p)	1 906.91 (p)
Croatia	32.64	32.20	33.97	36.08	34.68	31.02
Italy	1 157.74	1 176.02	1 206.67	1 232.23	1 261.13	1 308.03
Cyprus	19.85	19.99	23.18	26.60	27.79	27.93
Latvia	:	34.74	38.38	38.63	46.35 (p)	47.42
Lithuania	113.05	102.51	100.96	97.50	99.57	101.05
Luxembourg	: (c)	: (c)	: (c)	: (c)	3.21	2.77
Hungary	68.00	74.79	80.46	80.45	87.38	83.67

EC data browser (Latest commit 99c9cf6, built on 2019-10-09T10:01:16.418Z)

Compared to cheese production in the leading EU countries Germany, France and Italy, Bulgaria takes a modest share in EU cheese market. However, the tendency in our country cheese production is towards increase of the production in recent years.

Product description - Cheese

The white brined cheese can be made from cows, sheep's or goat's milk, or a mixture of sheep's, goat's and buffalo's milk. Milk is mainly produced in mountainous areas where, as a result of climatic and soil conditions, an ecosystem is created rich in plant and animal species. The rich taste of sheep's and goat's milk is combined with the natural increase in the region's typical sheep and goats. The milk is collected by the producers in refrigerated trucks and transported to the dairies. The milk is fortified within 48 hours of its collection. Initially, sheep and goat's milk was standardized and then pasteurized at 68 degrees for 10 minutes (slow pasteurization) or 72 degrees for 15 seconds (rapid pasteurization). The milk is then cooled to 34-36 degrees, yeast from bacterial culture and calcium chloride in a ratio of 10-20 g / 100 kg of milk are added; finally, 20 minutes later, enough yeast is needed for the coagulation to occur within 45-60 minutes. Shortly after the coagulation is finished, the cheese is cut into small cubes (1-2 cm wide) and left for 10 minutes. The cheese is transferred continuously and carefully into the cheese makers, draining and forming into small pieces. The forms thus filled are moved to stay in a room at a temperature of 16-18 degrees, where they remained for 18-24 hours in brine. During this period, they periodically turn around for better draining. The next day, the cheese is removed from the forms and temporarily transferred to wooden tubs or tins, where it is salted in layers, so that the final salt concentration in the total amount of cheese is about 3%.

After 2-3 days, the cheese is placed in tins or other containers with brine containing 7% sodium chloride (NaCl). The containers are moved to rooms for maturing at a temperature of 16-18 degrees and with a high relative humidity, where the cheese is matured for 10- 15 days until the end of the first stage of ripening. At the end of this phase, the moisture content of the white brined cheese is lower than 56% and its pH varies between 4.4-4.6. During the second stage of ripening, the white brined cheese is transferred to refrigerators at 2-4 degrees Celsius. The total ripening time for white brined cheese can last up to 2 months. Until distribution on the market, the white brined cheese is stored in refrigeration rooms with a temperature of 0 to 2 degrees.

During the cheese storage in tins or wooden trays, it must be filled with brine containing 7% salt and to avoid contact with air. Thus, it retains its freshness and rich taste.

The white brined cheese can be sold directly from the boxes or cans. As regards packaging, the white brined cheese is distributed in vacuum packs and in boxes where it is stored in its natural brine. These packages offer greater convenience to consumers. The best white brined cheese should be bought immediately after removal from the brine. If is pre-packaged, the package must contain brine to keep it moist. The white brined cheese is best when consumed fresh. If it does not happen immediately, it is stored in brine or milk. The milk will reduce the salinity and keep it moist and mild. Properly stored in brine or in milk and in the fridge, the white brined cheese will keep its quality for up to 3 months.

In 2017, in Bulgaria 146 114 tonnes of fermented milk, 70.9 million liters of liquid packaged milk, 57 577 tonnes of white brined cheeses and 24 458 tonnes of yellow cheese were produced. Fermented milk is 8.7% more than in 2016. White brined cheese is 8.6% more and the yellow cheese - 16.7% more. Most significant was the increase in yellow cheese from other milk than cow and sheep (+ 56.3%) and sheep cheese (+ 28.1%). The skimmed liquid packaged milk was 46.3% less than the previous, 2016 year. Major contributors to stable production were the favorable rainfall in the spring that improved grass availability and quality in the main production areas and the relatively low feed prices, which allowed farmers to use more compound feed.

The total value (excluding VAT) of milk and dairy products sold by the Bulgarian companies in 2017 was BGN 808.1 million, which is 16.9% more than the previous year. The most significant increase was observed in milk cheese different than cow and sheep cheese (+ 56.3%) and sheep cheese (+ 28.1%). The production of melted and smoked cheeses decreased by 40.3%, while that of fresh cheeses (including cottage cheese) increased by 42.7%, according to data from the Ministry of agriculture.

Average retail prices of white brined cheese (by types of stores and regions, in BGN/kg):

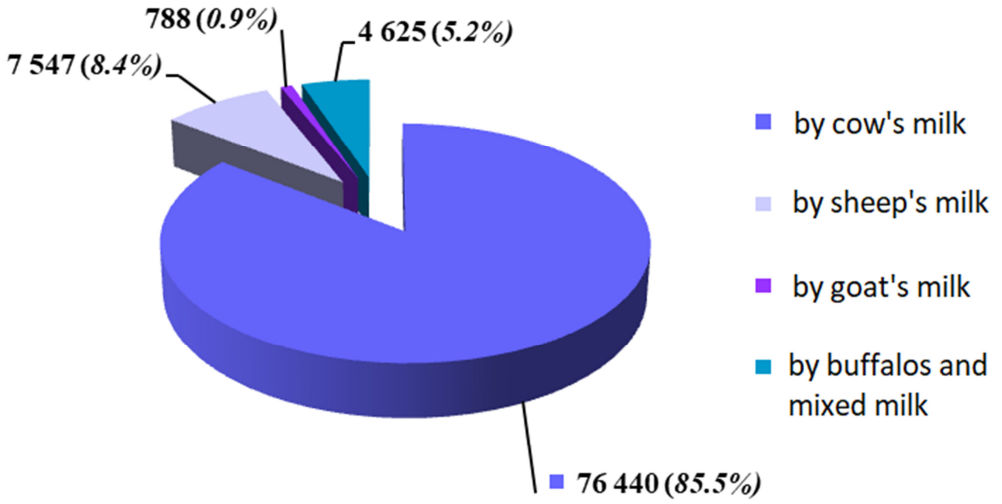
	2014	2015	2016
Total for Bulgarian market	5.95	5.98	6.15
Supermarkets (with an area above 301 sq. m.)	6.93	6.99	7.21
Big stores (41-300 sq. m.)	5.65	5.53	5.71
Small stores (up to 40 sq. m.)	5.39	5.44	5.41
Sofia	8	7.93	8.17
Miziya	5.37	5.39	5.48
Strandzha/Dobrudzha	5.65	5.79	5.83
Trakiya	5.67	5.66	5.95

Source: Nielsen, 2017 February by Retail Index Service for white brined cheese

As can be seen from the table above the average price per kilogram of white brined cheese for the whole market is growing - from 5.95 to 6.15 BGN / kg in 2016. In 2016 it was the highest in hypermarkets - 7.21 BGN / kg, and the lowest - in small shops 5.41 BGN / kg. Cheese is the most expensive in Sofia (the capital of the country) - 8.17 leva average price per kilogram, and the cheapest - in the region of Mizia - 5.48 BGN / kg, in 2016.

The total production of white brined cheese in 2018 is 3.3% above the 2017 level, due to a 6.4% increase in cow cheese, while the production of sheep cheese and cheese from other milk decreased by 2% and 15, 7% respectively.

Production of cheese by type of milk for 2017 (tonnes) is presented in the following graph:

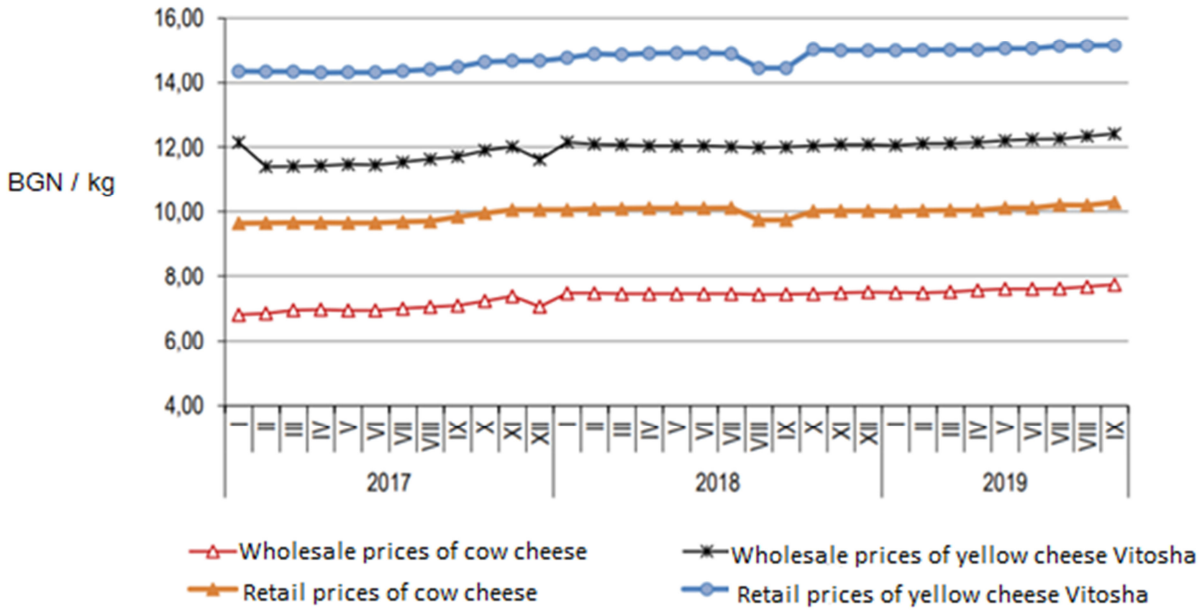


Source: MAFF, Agrostatistics Department, Surveys "Activity of Dairy Enterprises in Bulgaria in 2017"

As can be seen from the graph above, the largest share is the cheese made from cow's milk, and second is the cheese made from sheep's milk.

Cheese production for 2018 is estimated at over 91 877 tonnes, a slight increase below 0, 5% on an annual basis. The North Central Region has the largest share in the production of cheese with 21.3 thousand tonnes. The produced yellow cheese in 2018 was 25 888 tonnes, registering an increase of 5.8%, with under half of production is from enterprises in the South Central Region. The dairy processing enterprises in the country have produced six times more real cheese compared to the palm fat product in 2018. The production of cow's milk cheese amounts to 53 725 tonnes, while for cow's milk with added vegetable fat the amount is only 8 753 tonnes. This shows the national statistics for the period from January to September 2018. The process of processing the real cheese is most active in the period from April to August, when it varies from 6 198 kg to 6 180 kg. The peak was in May with a production of 7 128 kg cheese. The strongest months for dairy enterprises in the production of imitation products are April with 1 047 tonnes, May with 1 035 tonnes and June with 1 529 tonnes. The total amount of processed milk in the country amounts to 527 716 liters, with the majority, 493 368 liters is the cow's milk.

The figure below presents the average monthly prices of cow's milk cheese and yellow cheese brand Vitosha in the period January 2017 – September 2019 (BGN/kg):



Since the beginning of 2019, the cow's milk market in Bulgaria has been relatively quiet. Overall, average monthly purchase prices are moving slightly above the levels of one year ago (except January), with a slight decrease in the second quarter and a stabilization of about 0.581 BGN / kg from the end of spring to the beginning of autumn. On average, between January and September 2019, the purchase price of cow's milk in the country was 0.589 BGN / kg, with 1% higher on annual base. The observations show that the purchase prices of cow's milk in the country follow the trends on the European market, traditionally moving below the weighted average price for the EU. According to the European Milk Market Observatory, there has been a slight decrease in the weighted average price of raw milk in the EU in the first nine months of 2019, from around 35.02 euros / 100 kg in January to around 33, 60 euros / 100 kg in the last three months. Nevertheless, during the most part of the period, average cow's milk prices in the EU are slightly higher on an annual basis (by an average of 1.6% over the eight months), supported by sustained demand for both on domestic and on the world market. It is expected

that by the end of 2019 milk and dairy products prices will continue to move around or slightly above the levels of the previous year.

The table below presents the Average monthly prices of milk and milk products in the period January-September, 2019:

Period/Product	I-IX. 2018 average	I-IX.2019										change I-IX. 2019/ 2018
		I	II	III	IV	V	VI	VII	VIII	IX	average	
Wholesale price												
Fresh milk - BGN / l, bag	**1,20**	1,20	1,20	1,20	1,20	1,20	1,20	1,20	1,20	1,19	**1,20**	*0,0%*
Yoghurt - BGN / pc., packing 400g	**0,83**	0,84	0,84	0,84	0,84	0,84	0,85	0,85	0,85	0,85	**0,84**	*1,2%*
Cow butter BGN / kg	**16,10**	15,92	15,96	15,91	15,99	15,99	16,07	16,12	16,03	16,00	**16,00**	*-0,6%*
Cow cheese BGN / kg	**7,45**	7,49	7,48	7,51	7,56	7,60	7,60	7,61	7,67	7,73	**7,58**	*1,7%*
Yellow cheese Vitosha BGN / kg	**12,05**	12,05	12,11	12,11	12,14	12,2	12,24	12,25	12,33	12,41	**12,20**	*1,2%*
Retail prices												
Fresh milk -BGN / l, bag	**1,33**	**1,37**	1,37	1,37	1,37	1,37	1,37	1,36	1,36	1,36	**1,37**	*3,0%*
Yoghurt -BGN / pc., packing 400g	**0,92**	0,91	0,91	0,93	0,93	0,93	0,93	0,93	0,93	0,93	**0,93**	*1,1%*
Cow butter BGN / kg	**2,89**	2,97	2,97	3,01	3,00	2,99	2,99	2,99	2,97	2,99	**2,98**	*3,1%*
Cow cheese BGN / kg	**10,01**	10,01	10,03	10,04	10,04	10,11	10,11	10,20	10,19	10,28	**10,11**	*1,0%*
Yellow cheese Vitosha BGN / kg	**14,78**	14,99	15,00	15,01	15,01	15,05	15,05	14,73	14,72	15,15	**14,97**	*1,3%*

Export of cheese

Globalization in the dairy products' trade has significantly increased competition and affected the dairy markets. Overall, Bulgaria is a net importer of milk and milk products. For 2016 from the country, intra-Community deliveries and exported dairy products amounted to 44 777 tonnes, and were imported almost three times as much - 149 975 tonnes. The negative balance is $ 86 million.

As a result of the export of cheese to the Arab world in 1988, Bulgaria did not feel the first oil crisis so much because it was paying for oil there. Exports of Bulgarian cheese in the 1980s amounted to 100 thousand tonnes per year. At that time, milk production exceeded today's quantities; the same applies to the number of cattle and sheep.

The Bulgarian white brined cheese, cottage cheese and yellow cheese are with the best competitive positions in the dairy product range of the country. Until now, these products are aimed at ethnic niche markets where there is a Bulgarian community. The country exports about 1/3 of its annual production of Bulgarian cheeses. Of all dairy products, this segment has a positive trade balance. In 2016 the cheese and cottage cheese were exported with a volume of 25 307 tonnes and a value of 93 812 million dollars. The main export destinations are Greece, Romania, Germany, USA, Lebanon and other countries. The imported cheese and cottage cheese in the country is for 76 412 million dollars with a volume of 24 494 tonnes. The main importers to Bulgaria are Poland, Germany, the Netherlands, Romania and other countries. It is noteworthy that the country exports dairy products with the same tariff code at a higher price than it imports, which is a challenge in terms of maintaining and opening up new markets, as well as the correct price orientation for potential foreign markets for Bulgarian dairy products.

The next table shows the Intra-Community supplies and exports of white brined cheese and cottage cheese from Bulgaria for 2016

Country	Total tonnes for 2016	Total USD for 2016	Average USD/tonne for 2016
Total	25 307,8	93 812 613	3 707
Greece	7 014,8	25 987 883	3 704,7
Romania	3 620,9	6 815 396	1 882,25
Germany	3 299,7	13 881 593	4 206,86
USA	2 483,9	9 129 511	3 675,47
Lebanon	2 042,2	7 767 434	3 803,48
Australia	1 275,5	5 555 290	4 355,43
Iraq	764,8	3 982 539	5 207,28
Spain	756,9	2 036 102	2 690,02
UK	682,1	2 793 654	4 095,55
Cyprus	648,2	2 926 837	4 515,02
The Czech Republic	413,4	1 675 253	4 052,12
Sweden	360,5	1 987 112	5 512,36
Canada	248,8	1 270 804	5 107,38
France	236,6	1 198 275	5 063,85
Austria	228,6	1 071 314	4 686,64

Source: National Statistical Institute

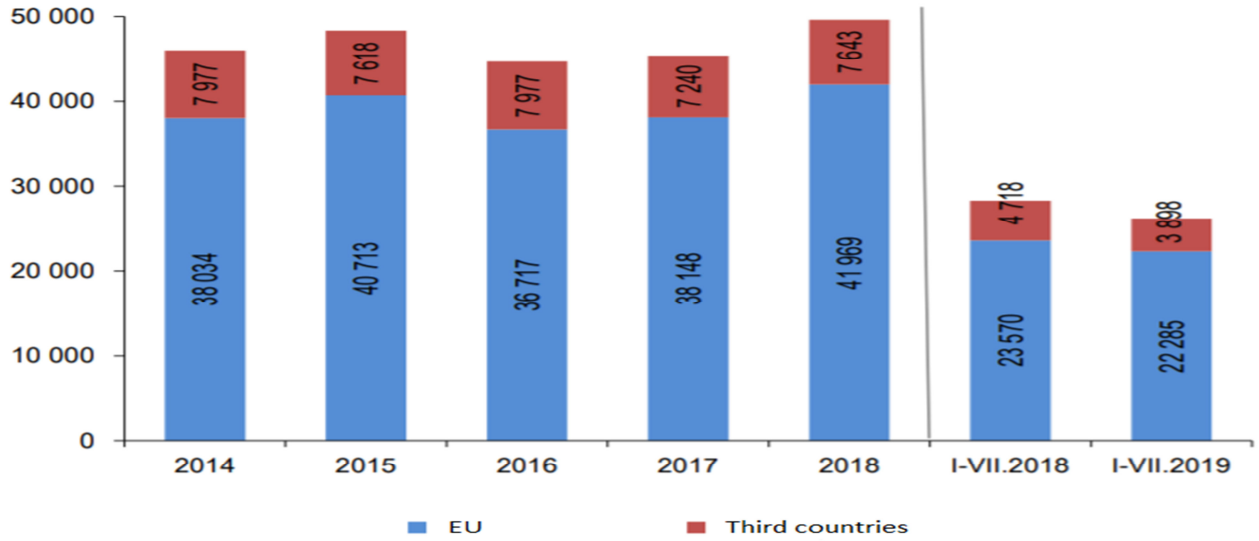
The export of dairy products from the country has been increasing in recent years, especially for white brined cheese. The reasons for this are the specifics and niche nature of this product, which remains sought after in separate markets, and at the same time its production is geographically limited. About 13 thousand tonnes of white brined cow's milk cheese is exported from the country annually for the period 2013-2017, and in the next 5 years this export is expected to decrease to about 11.5 thousand tonnes. This decrease will come from a decrease in the external consumption of these products with changes in taste preferences and a gradual unification of nutritional diets. There may be some increase in the export of various yellow

cheeses, whose exports for the period 2013-2017 reached an average of about 2.3 thousand tonnes, and in the next 5 years it will move in the range of 3.2 thousand tonnes.

Due to the higher price and the preference of a considerable part of consumers for products in the middle and low price range in Bulgaria, sheep's milk products fail to expand their market share and processors are directed to export. On average, about 85% of the sheep's cheese produced and 55% of the yellow cheese produced are exported annually, with consumption of sheep's dairy products in the country largely driven by farmers' sales. The export of sheep's white brined cheese was averaged about 5.5 thousand tonnes for the period 2013-2017, with an increase of 6.8 thousand tonnes between 2018 and 2022. The country's advantage in producing dairy products from sheep's milk is that they are consumed and sought in niche markets and hence less affected by price elasticity. Its share in world milk production has fallen steadily and from 2% at the beginning of the century, is now around 1.3%. Its consumption is increasing because of the increasing population in the markets where it is most sought after. Therefore, there are prospects for increasing exports of sheep's white cheese and yellow cheese, and they are rather favorable.

According to data of the Bulgarian national Statistical Institute, the total export of milk and milk products in 2018 increased by 9.3% on an annual basis, reaching 49 612 tonnes. A prerequisite for this is the increased industrial production of most of the major dairy products. Shipments of milk and milk products to EU countries in 2018 accounted for about 85% of total export, which is a 10% increase over the previous year. Traditionally, the most significant are the quantities for neighboring countries Greece and Romania, followed by those for Germany, Spain, the United Kingdom and others.

Export of milk and milk products in the period January 2014- July 2019 / tonnes



Source: National Statistical Institute (preliminary data for 2019)

The Export to third countries also reported growth - around 6%. The main destinations are the United States, Lebanon and Australia, for which are mainly exported white brined sheep's and cow's milk and yellow cheese.

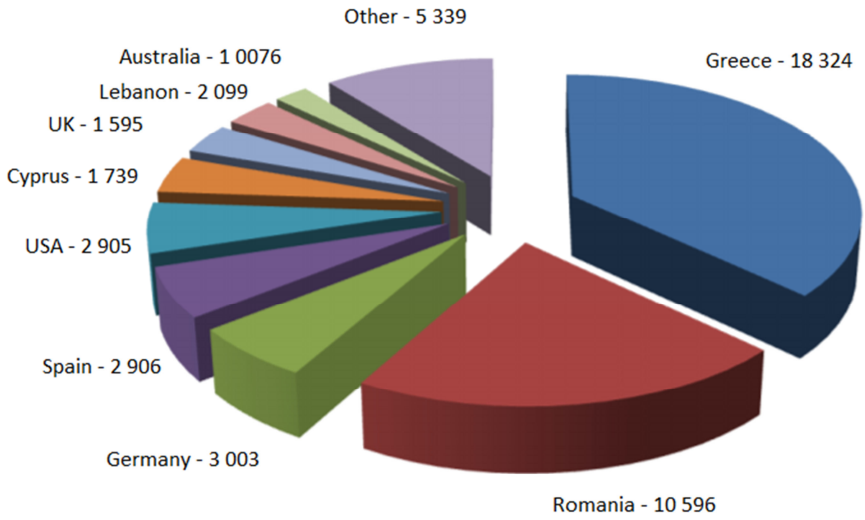
Export of milk and milk products by type, 2017-July 2019 / tonnes

Products	2017	2018	I-VII. 2018	I-VII. 2019	Change	
					2018/ 2017	I-VII. 2019/2018
Milk and milk products - total	**45 388**	**49 612**	**28 288**	**26 183**	**9,3%**	**-7,4%**
Milk and cream, not concentrated	7 638	13 872	7 192	6 667	81,6%	-7,3%
Milk and cream, concentrated or containing added sugar or other sweetening matter	2 086	1 347	679	1 338	-35,4%	96,9%
Fermented milk and cream, yoghurt	9 587	9 945	5 436	4 831	3,7%	-11,1%
Whey	819	408	224	237	-50,2%	5,8%
Butter and other milk fats, milk paste for spreading	595	530	307	344	-10,9%	12,0%
Cheese and cottage cheese	24 663	23 510	14 449	12 768	-4,7%	-11,6%

Source: NSI, processed by MAFF (preliminary date for 2019)

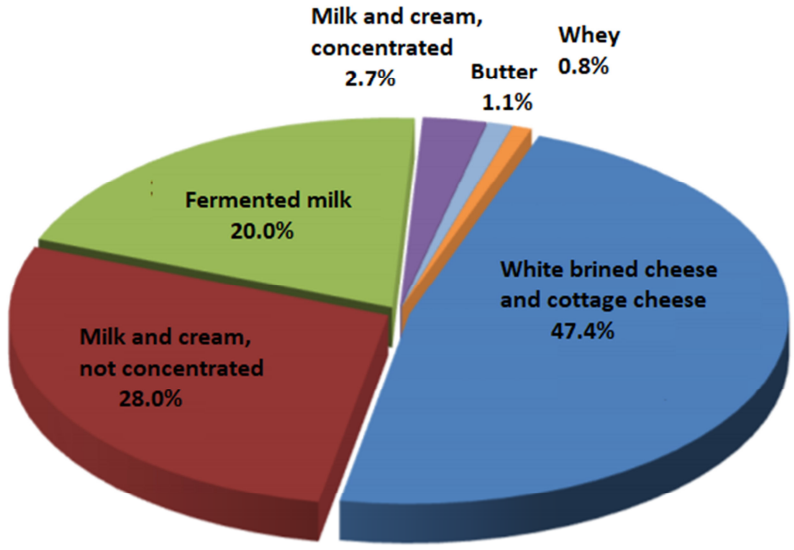
As can be seen from the table, the largest share is the export of white brined cheese and cottage cheese. As in 2017, the indicator values were higher.

The chart below shows the export of milk and milk dairy in 2018 by countries / tonnes



Source: National Statistical Institute

Export structure of milk and milk products in 2018 (quantity)



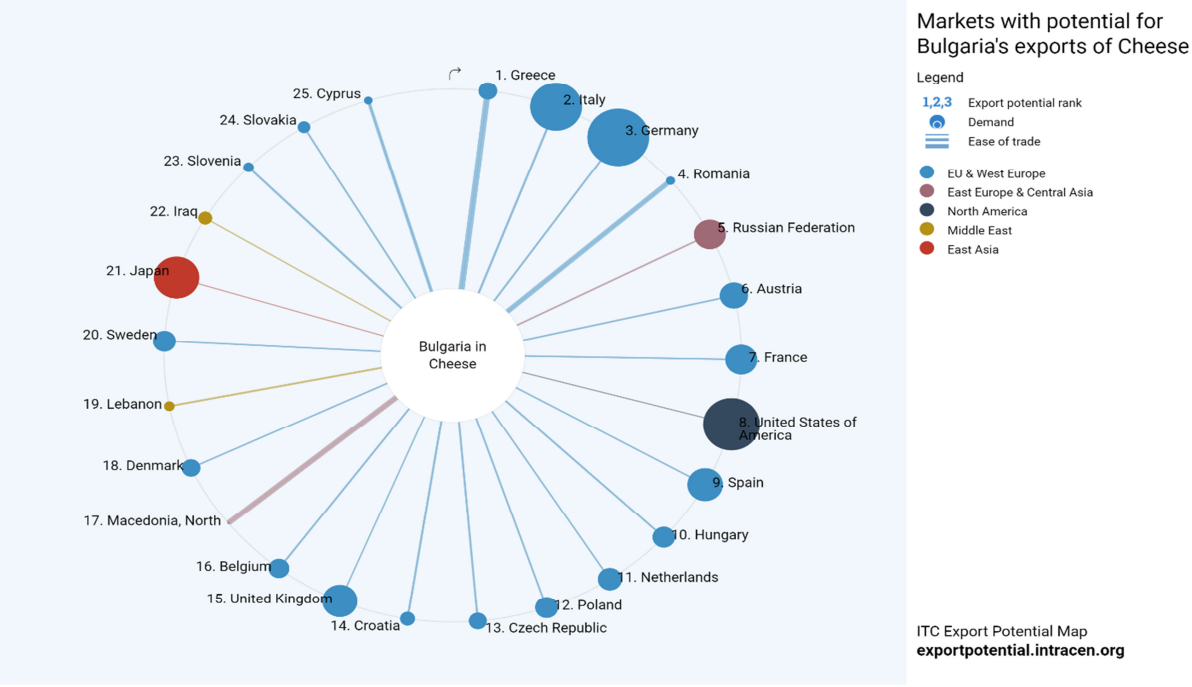
Source: National Statistical Institute

In 2018, cheese export, which typically accounts for about half of the total exported milk and milk products, has shrinked by 4.7% on annual basis as a result of the decline in export in white brined cheese and yellow cheese (a total of around 19%). Exports of brined cheese from sheep's milk remained at the level of the previous year (about 6.1 thousand tonnes), while those of fresh cheeses (including cottage cheese and whey cheese) increased by 7.8% (up to 4.6 thousand tonnes). The main destinations for Bulgarian cheeses in 2018 are Greece (6.5 thousand tonnes), USA (2.9 thousand tonnes), Germany (2.8 thousand tonnes), Romania (2.7 thousand tonnes) , Lebanon (2.1 thousand tonnes), the United Kingdom (1.1 thousand tonnes), Australia (1.1 thousand tonnes) and Spain (0.8 thousand tonnes).

According to the NSI preliminary data, in the period January – July, 2019 the total exported milk and milk products is 7,4% less on an annual basis, mainly as a result of shrinking exports of white brined cheese and cottage cheese. However, cheeses remain leading in the structure of dairy exports, with 4 002 tonnes of white brined cheese from cow's milk, 3 323 tonnes of brined cheese from sheep's or buffalo's milk, 1 774 tonnes of cheese being exported in the first seven months of 2019 and 2 516 tonnes of fresh cheeses (unfinished) and cottage cheese. Compared to the same period of 2018, a decrease is also reported for exported fermented milk and unconcentrated milk and cream. Significant growth on annual basis was recorded in the sales of concentrated milk and cream on the external markets (nearly twice), and more moderate in butter (by 12%) and whey (by 5.8%). There is a decrease in the quantities sent to Romania (by 36%), Spain (by 39%) and Germany (by 4%) and at the same time an increase for other traditional European markets such as Greece (by 14%), the United Kingdom (by 22%) and Cyprus (by 12%). Exports to third countries also reported a year-on-year decrease of 17.4% as a result of a decline of between 29% and 51% in exports to Bulgaria largest non-EU dairy markets (mainly cheese), Lebanon, USA and Australia. On the other hand, quantities sold in Serbia, Canada, Iraq, Macedonia and the United Arab Emirates are increasing. By the end of 2019, dairy exports are expected to be favored by high prices and strong external demand. Thus, the observed lag by July can be somewhat overcome and total exports for 2019 to be close to the level of the previous year.

Some 25% of the duties imposed by the United States on imports of certain agricultural products (including dairy products) from the EU Member States may have some effect on trade flows, as of 18 October 2019. Imports of certain agricultural products (including dairy products) from the EU Member States will cover only part of the Bulgarian exports of dairy products to the US market, and in particular certain tariff headings for cow's milk cheese. The additional duties partly affect the import of sheep cheese into the United States from certain EU countries, incl. leading suppliers such as Spain, Greece and Italy, but practically not Bulgaria (since the main tariff items for sheep cheese imported from Bulgaria do not have additional duties for Bulgaria). This could represent an opportunity to increase Bulgarian sheep cheese exports to the US market. Under favorable climatic conditions and sustained demand for European dairy products, a further increase in the EU milk supply of around 0.7% is expected in 2020, due to productivity gains (+ 1.2%) and a slower rate of decline in the number of dairy cows (-0.4%).

The group of cheese is listed as one of the export potential groups by the International Trade Center (ITC).

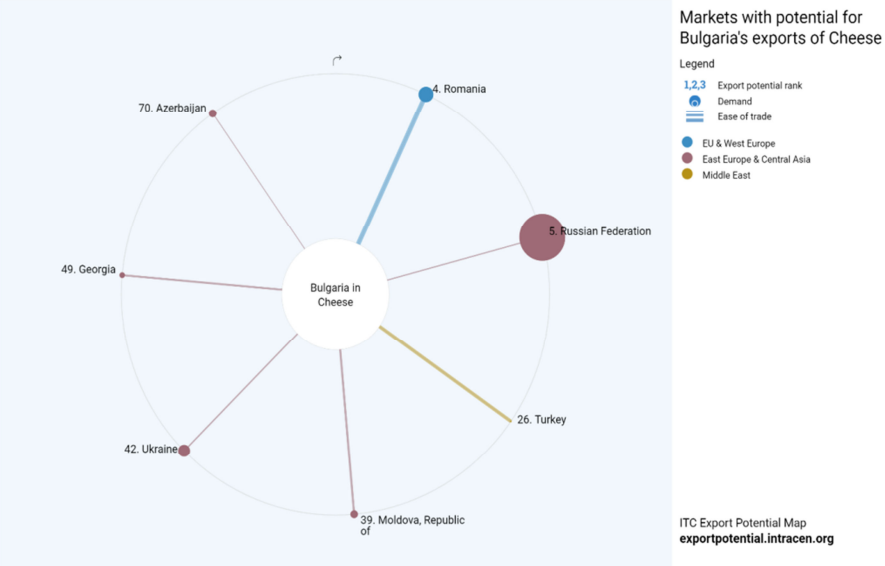


Source: Web-site of the International Trade Center (ITC):
https://exportpotential.intracen.org/en/markets/analyze?fromMarker=i&exporter=100&toMarker=j&whatMarker=

k&what=040690

The markets with greatest potential for Bulgaria's exports of 040690 Cheese are Greece, Italy and Germany. Bulgaria has closest export links with Greece. Germany is the market with the highest demand potential for 040690 Cheese.

The following chart shows the position of the sector of cheese production with references to the eligible countries under the Black Sea Basin operational program.



Source: Web-site of the International Trade Center (ITC): https://exportpotential.intracen.org/en/markets/analyze?fromMarker=i&exporter=100&toMarker=j&whatMarker=k&what=040690

Additional information for the Bulgaria cheese export potential is available in the next tables:

Bulgaria's export of cheese in World market

Export potential	103.2 mn
Actual exports	75.3 mn
Untapped potential	52.1 mn
World export	18.2 bn

Bulgaria's export	75.3 mn

Bulgaria's export of cheese in Romanian market

Export potential	4.9 mn
Actual exports	3.9 mn
Untapped potential	970.4 k
World export	18.2 bn
Bulgaria's export	75.3 mn

Bulgaria's export of cheese in Georgian market

Export potential	225.6 k
Actual exports	2.2 k
Untapped potential	223.4 k
World export	18.2 bn
Bulgaria's export	75.3 mn

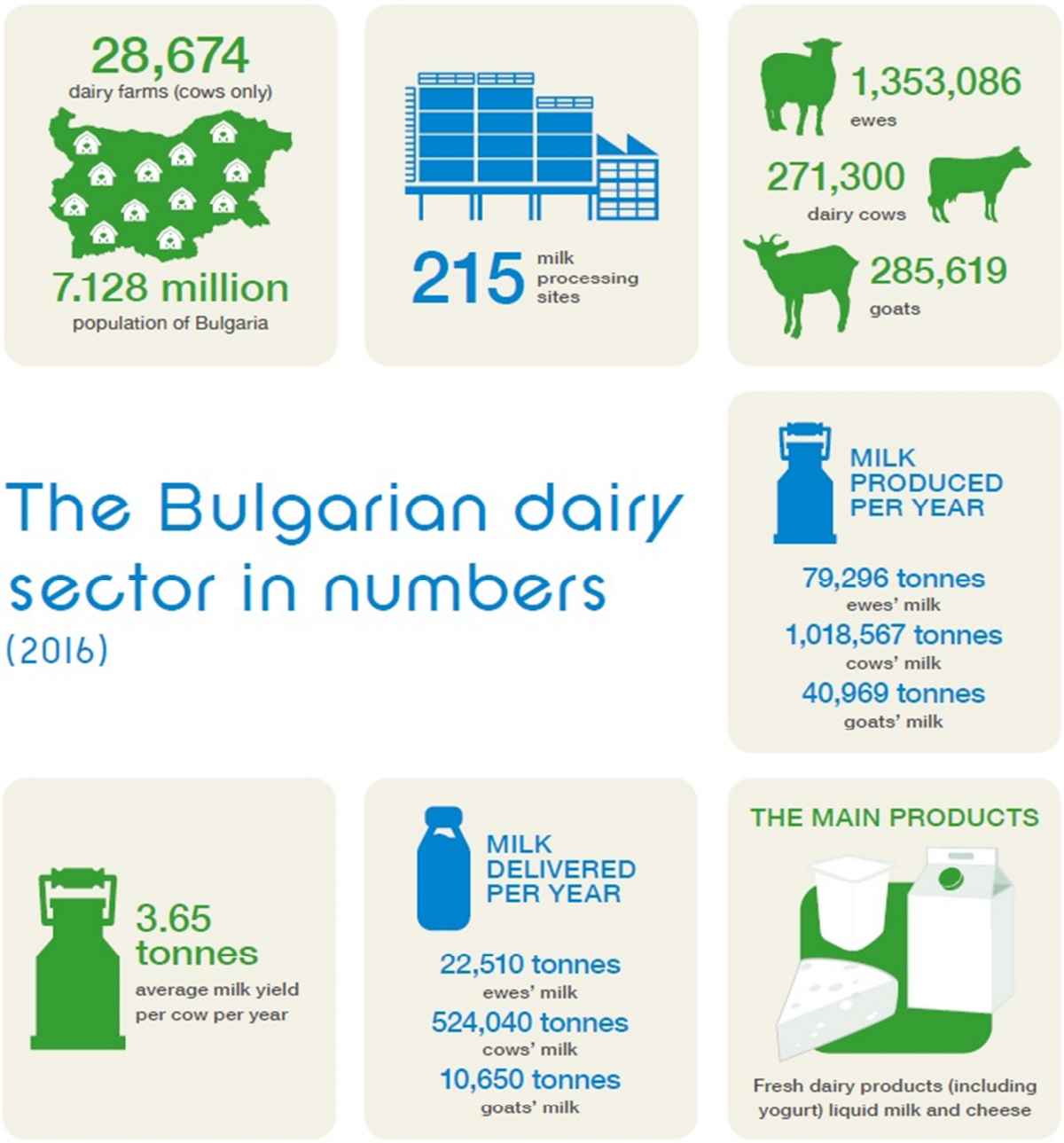
Market Analysis Results

The Bulgarian "lactosphère" is still in a substantial transformation process which is supported by domestic support programmes. Nevertheless, dairy investments from other EU countries underline the positive outlook for the Bulgarian dairy sector and the new Bulgarian approach to dairy exports within the EU trade strategy show promising first results.

Bulgarian dairy sector in numbers

Some general data for the Bulgarian dairy sector for milk and milk processing sites, and main

milk products (fresh dairy products and cheese) are presented in the next page, according to a publication of the European Dairy Association in the Dairy Focus 01/2018 Bulgarian.



Dairy farming is one of the main subsectors of animal husbandry in Bulgaria. In recent years many investments have been made at every stage of the milk production and processing chain – in the high quality of the genetic material, modernization of agricultural holdings and milk

collection centers as well as milk production facilities.

The milk production forms 39,4% of the animal production gross value and 9,2% of the total gross production of the agricultural sector in our country. Despite the relatively low average milk yield – 3 645 kg, the significant number of dairy farms makes the sector significant in social and economic terms for the rural areas.

Moreover in the last years the Bulgarian dairy sector undergoes intensive process of restructuring. There is a declining trend in the number of the dairy farms as small non-market structures, producing for their own needs are dropping out.

At the same time the dairy farms are consolidated and modernized. By the end of 2016, more than 85% of the dairy cows are kept in farms with over 10 cows, 80.3% of the ewes are in farms with over 50 animals and 53.3% of the goats in farms with over 50 animals.

The production of cowmilk is essential for the dairy sector in the country, forming about 89-90% of the total raw milk production. Sheep and goat farming are traditional for the country and they provide subsistence to a large part of the rural population.

In the recent three years (2014-2016) about 215 milk-processing establishments have been functioning in the country, employing about 7,000 persons. The total production of end products in the milkprocessing establishments in the country is about 300 thousand tons per year, amounting to about BGN 700 million per year.

Bulgarian dairy farms, including for cheece production, are making efforts to improve their efficiency by consolidating the herds, improving the breeding and selection work, ensuring rational animal feeding, optimizing the costs and increasing the average milk yield. During 2014 - 2016, an average productivity increase is reported for all types of dairy animals.

Export of dairy products

Within the group of the dairy products, the famous Bulgarian white brined cheese and yellow cheese (kashkaval) from cow or sheep milk are in very high demand on both domestic and foreign markets because of its excellent taste and established production tradition. This is why their exports increase from year to year. Bulgarian dairy products such as white brined cheese, yellow cheese (kashkaval) and fermented milk products are well received at many world fairs, and attract the interest of a growing number of consumers.

In recent years, special attention has been paid to the promotional programmes co-financed by the EU, which contribute to increase in the export of Bulgarian dairy products (white brined cheese, yellow cheese and yoghurt) both in EU and to third countries.

According the European Dairy Association, in 2016, the export of Bulgarian milk and dairy products amounted to EUR 105.7 million, representing nearly 3% of the country' s total agricultural exports. More than 80% of the total export of milk and milk products in the last several years is to the EU. Despite the enhanced competition on the European dairy market in the context of increased supply and the Russian ban on imports from the EU, in 2016 Bulgarian export of milk and dairy products to the Union grew by 15% compared to 2014.

The most significant quantities are exported to Greece, followed by the exports to Romania, Germany, Cyprus and Spain. Bulgarian dairy products are also very popular in countries like Japan, USA, Australia. Recognized and highly appreciated are Bulgarian cheeses in the Middle East, while China has also shown increased interest in recent years. For the past three years, export of milk and milk products to non-EU countries range from 7 to 8 thousand tons, mainly white brined cheese from cow and sheep milk and yellow cheese (kashkaval). Most significant quantities were exported to the US, Lebanon and Australia. Traditional Bulgarian dairy products with excellent taste qualities have been successfully marketed at major agricultural and food exhibitions such as Green Week - Berlin, SIA - Paris and others.

SWOT Analysis	
Strengths	**Weaknesses**
1) Increasing the level of specialization and concentration of production in agricultural holdings; 3) Younger farmers are more focused on introducing and using digitalization in agriculture than other farmers; 4) High level of awareness of the need for advanced training and use of consultancy services; 5) The enlargement of the sector contributes to greater farm sustainability, more efficient and cost-effective production; 6) Concentration of dairy animals and restructuring are associated with an increase in market orientation, improvement and modernization of the way of rearing and, hence, an increase in productivity, which leads to an increase in the efficiency and competitiveness of production; 7) Due to the orientation towards the large farms market, the activity becomes more transparent; 8) Awareness of the need and benefits, and consumption of more quality and healthy food; 9) Opportunity for farmers to participate in hundreds of events of various kinds related to the transfer and dissemination of knowledge	1) The sharp decrease of the employed in the Bulgarian agriculture suppresses the added value and the growth of production; 2) Low productivity and an assessment of the quality of the workforce and the type of work offered lead to lower wages in agriculture; 3) Low level of professional qualification of the agricultural managers, including young people; 4) Insufficient equity; 5) Low farms' credit ratings; 6) There is no good system to provide updated and competent knowledge for practical qualification of agricultural human resources; 7) Reduces the number of holdings at the expense of dropping out of some small holdings; 8) Transformation of family type dairy farming into corporate and hence adverse effects on employment and income, condition and vitality of rural areas; 9) Large farms rely on hired labor. Due to the unpopularity and the heaviness of the agricultural production, unskilled temporary workers are usually hired without a prospect of development, which creates instability of production; 10) Lack of land for fodder production, which creates a problem in the feeding of dairy animals; 11) There is a number of weaknesses in the breed

and innovation.	composition of animals, mainly found in the smaller and medium-sized farms; 12) Fluctuations in raw milk buying prices put additional pressure on the profitability of production. They are influenced by internal and external factors for the common market, such as the global financial crisis, the Russian embargo, the dropping out of the Union milk quota system and the shift in demand in the global market.
Opportunities 1) Increasing revenue through process and production modernization, knowledge transfer, introduction of innovations and risk management; 2) Small holders' consolidation and expansion to strengthen market orientation, productivity, efficiency and gross output; 3) Production is concentrated in larger holdings, which have lower production costs and can invest in new technologies as well as in improving the breeding capacity of the herd; 4) Increasing consumer purchasing power; 5) Increasing world population, reducing poverty and increasing food demand as Bulgarian exports increase; 5) Correct targeting of incentives for results-based support can strengthen the sector.	**Threats** 1) Producer factor income would fall drastically without subsidies, putting the economic viability of the sector at serious risk; 2) The low capitalization, economic failure and strong outside competition make the majority of the dairy sector uncompetitive; 3) Institutional weaknesses and economic inefficiencies among small and medium-sized producers direct them to unregulated sales and the shadow economy; 4) The share of imported foods is increasing; 5) The expenditures on research and development in the agricultural sciences is significantly reduced, both in absolute and relative terms; 6) By training of company managers, Bulgaria is among the most backward countries in the EU.

In addition, there are some finding from the research related to the dairy sector in Bulgaria. They showed that the sector has experienced several problems related to structural fragmentation, low productivity, lack of vertical and horizontal integration, as the small and medium-sized farms between 20-150 dairy cows and those between 100-300 sheeps being most at risk. The number of dairy herds in both cows and sheeps is expected to continue to decline, but without drastic downturns, which is due to the use of coupled support, which helps to retain the number of animals but contributes little to improving productivity and competitiveness of production.

The cow's milk prices are strongly correlated with prices of raw milk in the EU, with global supply increasing, which gives no reason to expect an increase in purchase prices. The problem for farms is the significant differences in raw milk purchase prices between farms of different size and location, so there should be opportunities for alternative milk sales, especially among small and medium-sized farms that are not well integrated in the chain.

Due to a shortage of raw milk and a gradual increase in domestic demand, imports of dairy raw materials and finished products are expected to continue to increase in the future. About 27% of total milk protein consumption in Bulgaria in the coming years will come from imports.

The decline in palm fat use in dairy production after 2014 can be explained by the cleansing of labeling and consumer resistance issues. The use of palm fats in the future won't be able to disappear, because of the low incomes of a considerable part of the population in the country, an increase in the price of milk fat and a decrease in palm oil prices on world markets.

The sheep's milk market is burdened by the cow's milk market connectivity. In order to develop and seek a higher level of sheep's milk purchase price in the future, a new market positioning of sheep milk products is needed, one of which is to increase exports, as well as to increase competition through the development of short chains.

Marketing Strategies Approaches

The major efforts in the sector are focused on investments at all stages of the milk and dairy chain, ranging from investments in high quality genetic material, modernization of farms, milk collection points and dairy processing plants, as well as and the promotion of trade, especially exports.

Potential risks and the recommendation for their minimization

The Bulgarian market is buried with imitation dairy products. These are foods in which the milk component is partially or completely replaced by non-dairy fats and proteins, most often by palm oil. For years, the dairy sector in Bulgaria has been subject to consistent regulation due to the state's desire to distinguish dairy products from their imitations. The requirements are intended to facilitate controls, raise consumer awareness and protect the interests of Bulgarian producers of raw milk and authentic dairy products.

The problem with the palm oil and imitation products is old. According to the Center for Agri-Policy Analysis (CAPA), nearly 12,000 tonnes of palm oil consumed in the production of imitation cheeses, yellow cheese and other dairy products have been eaten in the country a year. In 2017, there is an estimated 15% decline in the declared dairy products produced with vegetable fat - about 13.8 thousand tonnes. However, experts estimate that there are about 20-25%

undeclared quantities.

Amendments to the state's Ordinance prohibited the use of the word milk or its derivatives in the name of products containing vegetable fats. In addition, palm oil products will be commercially available only pre-packaged and at individual stands or separate areas bearing a clear label as imitation products. The changes also provide on the label, next to the product name to be written obligatory "Imitation product" with a clear indication of the component or ingredient used as partial or complete milk substitutes. Another Ordinance requires that dairy and imitation products to be produced in separate establishments. According to the agricultural ministry, the measures set out in the both regulations "has the character of actions against the 'double standard' in food, since they contribute to the clear demarcation of imitators from dairy products, in the production process and commercially available".

While many Bulgarian breeders are struggling to catch up with the production of euro-conforming milk, a huge proportion of Bulgarian dairies have decided on the raw material issue. Some have been supplying raw milk from Germany and Hungary since 2007, meeting all the requirements of cows' milk, in most cases concentrated, ie. dehydrated and defatted, for prices between 26 and 34 eurocents with transport included. In Bulgaria they add the necessary oils, process it and put it on the market. The whiter the cheese and the more homogeneous the structure, the more technology and the less real milk there is in it. The natural color of cow's cheese made from fresh cow's milk is yellowish.

Findings and recommendations

The main findings of the analysis of the cheese sector could be summarized in the following lines:

- The cheese products have export potential and the ability to create economic growth and employment in the rural and remote areas.
- Consolidation in the sector is observed.
- An increasing proportion of the population in the World is beginning to eat healthy, incorporating a variety of useful foods into their daily die, including cheese and dairy products.
- Lack of professional qualifications of employees in the agricultural sector, including managers.
- An increasing number of Bulgarian cheese producers are acquiring dairy raw materials for it production from imports.
- The market for imitation dairy products will not disappear completely due to the low incomes of a considerable part of the Bulgarian population, but the Government is working hard to monitor compliance with the introduced regulations both for cheese production and cheese marketing.

The main recommendations from the analysis for further development of the cheese production sector are related to the necessity of policies and measures, aimed :

- To promote and raise awareness of the population in the possibilities of creating sustainable growth, employment and income generation from cheese production in the country.

- To allocate fundings from European and national funds for the introduction of innovation, research and technology into development of cheese production sector.
- To provide tax preferences for start-ups in rural areas in order to attract skilled workers.
- To allocate funds from the state budget for promotion and participation in specialized international exhibitions and fairs of agricultural producers, including for dairy products.
- To support creating consortium between small farms.
- To encourage manufacturers to buy and use raw materials from Bulgaria.
- To increase organic production through state incentives in different forms.

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COUNTRY TRADE PROFILE FOR SNAILS

Photo credit VEDA

Introduction and history

The snails have been used as food since ancient times and were thought to be a dish for the aristocrats. The heliciculture technology (so-called cultivated snail farming) is relatively simple and environmentally friendly, and the meat produced by gastropods is delicious and extremely useful. The breeding of these animals is a relatively new area of the Bulgarian agriculture and has a high added value.

Gastropods are the scientific term for the mollusk class, which includes more than a thousand species. The snail meat is 70% pure protein and 30% amino acids. It contains no cholesterol or fat. Nutritionists and cosmetologists consider these animals a panacea and restaurateurs a delicacy. The snail caviar is expensive and its price is inferior to the beluga caviar. The slime that is separated and collected is also a rare and extremely valuable product.

Snails are hermaphrodite animals and both genitals are developed in them. It is curious that the snail's blood is colorless because it lacks red blood cells, so it cannot clot. Upon contact with air, the snail's blood acquires a bluish-blue color due to the substance hemocyanin, unlike hemoglobin in other animals. Research has been conducted at the Bulgarian Academy of Sciences to demonstrate the beneficial effects of snail blood on human tumors. Snails are extremely useful and are becoming increasingly used in cooking, cosmetics and medicine. Snail extracts have also boomed in the cosmetics industry due to their regenerative effect on human skin.

Ancient roman aphrodisiac

Snails were consumed as food back in the Neolithic. Their meat has the exceptional qualities of an aphrodisiac and has been consumed by the Romans since ancient times. To this day, snail meat is known as an "ancient Roman aphrodisiac". The cultivation of snails for consumption began to develop more extensively in the 1970s due to their high content of zinc, iron, magnesium, sodium, calcium, protein and minerals in the meat. Today, the snail meat is one of the most valuable and sought after delicacies in the world. It is little known that snail eggs are an expensive culinary delicacy because they contain valuable elements for the human body.

In addition to being a delicacy, snails are increasingly sought after as an extremely valuable medicinal product as well as a raw material for the cosmetic industry. The interest in snail farming in Bulgaria as a business has become a joint initiative of the National Snail Cluster and the Bulgarian Academy of Sciences.

Legal Framework

The snails are a protected species in Bulgaria under **the Biodiversity Act**. Section 37 of the Act declares the wild fauna and flora listed in Annex 3 thereto to be protected throughout the country, including the snail class - GASTROPODA, the aquatic lung snail class - BASOMMATOPHORA.

According to Article 41 (1) under the regime of conservation and regulated use of nature shall be placed the species of wild animals and plants specified in Annex No. 4, which include:

Snail Class	GASTROPODA
Helicides family	Helicidae
Garden snail	Helix pomatia
Wine snail	Helix lucorum

The Ordinance to amend and supplement Ordinance No. 44 of 2006 on Veterinary-medical requirements for livestock establishments (State Gazette, No 41 of 2006), issued by the Ministry of Agriculture and Food, regulates special veterinary and animal hygiene requirements for livestock establishments for growing snails. According to the Ordinance, the livestock farms for snail farming are hatcheries and fattening farms. Snail hatchers must have a snail storage chamber for reproduction, fertilization and egg laying halls, an egg dispensing laboratory, an incubator, and a caviar storage chamber, which are equipped with the necessary systems for this purpose according to an approved design for HACCP.

The snail storage chamber for reproduction must meet the following requirements:

- the temperature is between 4 and 7 ° C;
- the maximum density is 100 kg / m3;
- the humidity is 75%;
- has air-conditioning and ventilation systems;
- maintain a photoperiod up to 6 hours day and 18 hours night;

- has artificial lighting of at least 300 lux / m2 intensity.

Fertilization and egg laying rooms must meet the following requirements:

- the temperature is between 18 and 20 ° C;
- the maximum density is 300 pieces / m2 in hammocks;
- the humidity is 90%;
- have air conditioning and ventilation systems;
- maintain a photoperiod up to 18 hours a day and 6 hours a night;
- have artificial lighting of at least 1000 lux / m2 intensity;
- have an irrigation system in place;
- the water temperature is between 18 and 20 ° C;
- have a sewer.

The egg dispersion laboratory shall meet the following requirements:

- the temperature is between 18 and 20 ° C;
- the humidity is 70%;
- has air conditioning and ventilation systems;
- has artificial lighting with a minimum intensity of 50 lux / m2.

The incubator must meet the following requirements:

- the temperature is between 17 and 22 ° C;
- the humidity is 80%;
- has air conditioning and ventilation systems;
- maintain photoperiod up to 18 hours day and 6 hours night;
- has artificial lighting of at least 500 lux / m2 intensity.

The *caviar storage chamber* is between -2 and -4 ° C.

Additional facilities for feed storage, sanitation and personnel maintenance are being

constructed in accordance with an approved HACCP project.

Snail fattening farms must meet the following requirements:

1. have fattening parks which:
   - have a minimum area of 0.5 decares, divided into fattening fields (beds);
   - have a loose and permeable soil structure with a CaCO3 content of up to 10%;
   - they are supplied from an existing water supply system or other water source complying with the requirements of Ordinance No 18 of 2009 on the quality of water for irrigation of crops (SG, issue 43 of 2009);
   - are power supplied;
   - have a fence with a minimum height of 1.5 m;
2. the loading of the beds is carried out at a temperature between 18 and 30 ° C;
3. have a service area of 25 m2 for every 1000 m2 of growing area, up to 2/3 of which are used for a drying room;
4. paths have been constructed between the fattening fields with a width of 0.50 m to 0.70 m;
5. have wooden grills which:
   - are placed in two rows in the fattening field in a north-south direction;
   - are leg height up to 0.25 m;
   - are made of natural wood that has not been chemically treated;
6. have two wooden tunnels built in a natural wood bed that has not been chemically treated, the distance from the end of the board to the log being not less than 0.20 m;
7. have an irrigation system including a tank or a water mirror with a volume of 3 to 5 m3 per hectare.

Natural carbonate stone, plastic, galvanized and untreated plant materials are used in the construction of hatcheries and fattening farms.

The soil is treated against weeds and pests only with licensed products. Any systematic prophylactic treatment during snail fattening is prohibited. The land for construction of new

breeding sites for snail farming by different owners is at least 3 m away. When raising snails and other species of animals the distance is determined in accordance with Article 3, paragraph 1, item 2, letter "d" of the Ordinance.

The Council of Ministers Decree No. 233 of 2000 - Regulation on terms and conditions for registration and authorization of foreign trade (State Gazette No. 93 of 2000, amended and supplemented). The Decree regulates the conditions and procedure for the registration and authorization of transactions for the import and export of goods by legal entities and sole traders. It regulates the conditions for issuing certificates for the export of snails as well.

Order No RD-361 dated April 9, 2004 of the Minister of the Environment and Water states the regimes and conditions for use, purchase for the purpose of trade in the country and the export across the border of live snails, shells and meat of the species of vine snail (Helix lucorum) and garden snail (Helix pomatia) as follows:

- Period for harvesting from the nature and buying live snails for commercial purposes or farming - from 10 May to 30 June inclusive.
- Minimum size of collected bought and exported snails and shells - 28 mm in diameter.
- Persons who buy snails for trading purposes, including exporting across borders, are obliged to:

- Organize snail buying points equipped with a cool live snail storage room; Suitable packaging for the storage and transportation of live snails - wooden (apple) cartridges or knit sacks; Calibration sieve for sieving small-sized snails with a diameter of 28 mm.

- Notify the Regional Inspectorate of Environment and Waters in writing of the location and those responsible for the points by 1 May of the current year.

- Immediately return small sized snails to nature.

- By April 25 of the current year, the snail farmers should declare the quantities available at the relevant Regional Environmental and Water Inspectorate (REWI).
- By July 5 of the current year, exporters should declare in writing to REWI all quantities of snails purchased that have not been exported between May 10 and June 30 and their

storage location.

- Regional environmental and water inspections to check the declared quantities in the warehouses and farms under items 4 and 5 and to draw up reports.
- Issuance of the certificate for export of snails shall be carried out under the conditions of Decree No. 233 of 2000 (SG, No 93 of 2000, amended and supplemented).

The state of snail's production in the country

Starting a livestock business involves a great deal of investment, which is no longer in everyone's pocket today. Whatever we talk about, traditional livestock farming remains a labor-intensive business. That is why many Bulgarians are oriented towards heliciculture - cultivated snail farming. Heliciculture, commonly known as escargot snail farming, is the process of raising land snails specifically for human use as medication, either to use their flesh as edible escargot or, more recently, to obtain snail slime for use in cosmetics and snail eggs for human consumption as a type of caviar.

The snail business in Bulgaria is conducted in two ways. One is through snails' collection in the nature, and this has been done in Bulgaria for decades. The second is through growing snails on farms. Bulgaria stepped into this market in the wake of the crisis in 2009 - then a number of small entrepreneurs, attracted by low initial investment and the promise of a secure market, decided to set up their holdings. Subsequently, however, many of them failed due to their inability to sell their products. According to media interview with the owners of the Snail Farm & Retaurant ECO-TELUS in Bulgarevo (South East Bulgaria), in the period 2008 – 2009 there were started over 300 snails' farms. Besides the cost of agricultural land, the initial investment capital for building the farm's facilities, for buying small snails and forage, at that period has accounted on 10-12 thousands BGN (equal to approximate 5-6 thousands euro)

Almost 90% of the snail farms failed and closed the businesses due to fail to export and realizing the snail production abroad as well as on inability to cover the bank loans for the initial

investments. As of May 2019 only 20 snails' farms left and continue with the snails business. Some of them, including the farm in Bulgarevo has oriented to local market trying to enlarge their market share and distribution within the country through searching for local niches in educational and cultural tourism, cosmetics, catering, etc. By targeting 100% of sales in the country, these farmers avoid the potential export risks associated with road accidents when transporting snails across borders, high custom fees and duties, lack of knowledge for the laws in countries- final export destinations, language barriers, lack of security in buying pre-arranged quantities, delays in international payments and high bank charges, etc.

Snail yields vary widely. There are no official statistics on average yields in Bulgaria and no specific information can be provided about this. The data available from interviews with farmers is that the yields can be as high as 1-1.5 tonnes per decare, but can reach up to 2.5 tonnes (under very favorable conditions). The owner of the Snail Farm & Retaurant ECO-TELUS in Bulgarevo Pencho Petkov declared that he received 15 tonnes snails' yield from 3.300 decare in 2015 i.e. an average 4,5 tonnes per decare due to the excellent climate conditions in that year. In general, the yield depends on the type of cultivation, climatic conditions, quality of the material, the quantity of eggs allocated for reproduction, etc.

Snail cultivation requires a temperature between 24 and 26C. Then the air is not very dry and there is enough humidity. If the temperature is higher than 30C, the snail is feeling uncomfortable, as humidity is lower and more water is needed. In order to build a snail farm, it is necessary not only an area that is afforested with a certain type of grass, but also an irrigation system that is used daily.

Currently, it is legal to trade only on farms where snails are bought up year-round. However, poaching catches from the mountains are unquestionably marketed. The law prohibits the purchase of small snails with a shell diameter of less than 28 mm. But in the shadow market no one looks for the size. In Bulgaria, penalties in the law for collection outside the time allowed and for offering small snails are from 100 to 1000 BGN for citizens and from 200 to 5000 BGN for companies if it is a first violation. But no one was

heard to impose them. Licensed snail buying points must use a sieve to sift the smaller ones. A curious fact is that the wild snails' trade is only carried out in Bulgaria and Romania, according to representatives of the snail brunch.

The farm snails cost at least 3 times more than those caught in the nature. The price of snails per kilogram depends on how they are treated. According to local snail farmers, the price of snails per kilogram depends on how they are grown. Cultivated ones cost about 3.20 euros per kilogram. This is the wholesale shipping cost with transport / logistics included from the farm to the final destination. The average purchase price is between 4 and 4.5 euros per kilogram. Retail prices for snails in France and Belgium range from 6 to 8 euros per kilogram.

Cultivated snails in Bulgaria are exported throughout Europe, most consumed in Cyprus, Greece, Italy, France, Spain, Portugal. There is currently a boom in exports to the Czech Republic.

In Bulgaria the period for harvesting and buying live snails for commercial or farm breeding is from May 10 to June 30.

In Bulgaria, there is a snail cluster based in Italy. This cluster includes about 100 small snail farms that work together. The cluster helps each person to start a snail-owning business. Anyone wishing to start this business has to invest EUR 2500 to build the necessary terrain in which the snails will live for the next 15 years. The National Snail Cluster is increasing the number of its farms every year. Its main export destination is Italy. This is because the headquarters of the cluster are located in Kersko (Italy) and have contracts concluded for export only to this country.

Product description - Snails

Snails are unpretentious to the conditions of cultivation and to food, do not require great expenses, attention and area. In addition to the large farms that are involved in the cultivation of traditional Bulgarian wide-spread animals like cows, sheep, goats, chicken, there are medium

and small farms that develop the so-called non-traditional livestock breeding, which is considered snail farming. It is the small farms that are engaged in snail farming, and in Europe it is considered a family business. Particular interest in this type of business comes from Europe. In Italy, Spain, France and Greece, snails are consumed for lunch or dinner with a glass of good wine. In Bulgaria they are offered only in expensive restaurants. The taste of the meat is similar to that of chicken. Meat is dietary, contains vitamins, proteins, iron and calcium. It is quickly absorbed by the body, improves the digestive tract, and is useful for adults and pregnant women. Recently, more and more young people are choosing to make money from snail farming rather than eating it as gourmet.

Growing snails is not only a lucrative business but also a fast-moving business, since it can make a lot of good money in just one season with only a small investment. Experts say at least 20 000 euros can be earned from a 1 decare snail farm. But according to the owners of the snail farms in Bulgarevo and other locations in the country, the profit is in the range of 4-5 thousand BGN per decare. A profit can be expected after the 5-6 years from the farm launching since the income in the first year is zero; in the second year, the bigger part of the snail caviar is earmarked for breeding to create new snails, and the revenue over the next 2-3 years is to cover the costs of reproduction, purchase of food/special forage, farm's maintenance and upgrading, including for the establishment of a snails' processing unit and / or for storing meat in refrigerated chambers.

Systematics of snails

Although there is no type of snail that is considered unfit for consumption, people are mainly looking for four types of them. Only the species Helix aspersa (Small Gray and Large Gray) can be farmed in a rational and profitable way:

- The Burgundy snail (Helix Pomatia) is wild and does not lend itself to the promiscuity of intensive cultivation. It is the most consumed species in France. It is distributed in the fields of the Central and Eastern Europe. The other names of Helix pomatia are Big White and Garden Snail. Its shell is up to 4 centimeters high. Lives in gardens and wooded areas. Eat the leaves. Damage the crops. In nature it lives on average 7-8 years, but

some specimens can live up to 20 years. Its meat is eaten and contains 70% protein and 30% amino acids. It buries underground in winter.

- The small gray snail (Helix Aspersa Muller), also known as wrinkled, shagreen, variegated, is grown in farms and parks. It is very widespread along the West Coast of France, where the country's largest producers are. The snail is between 28 and 35 mm in length and reaches 15 grams in adulthood. His limestone shell has a variety of motifs, most often with black stripes. The small gray snail is a species that is easily grown as a Heliciculture. It adapts to different types of climate and environment. The farms can grow 400 small snails per square meter. The small gray is not too sensitive to contamination and can accumulate toxins in its tissues.

- The big gray snail (Helix Aspersa Maxima) or Gros Gris, as it is known in France, is native to North Africa. It was imported into Europe for farming purposes. It lends itself well to Heliciculture. With its rapid development and reaching 20 to 30 grams at maturity (or 33 pieces per kilogram), it is the highest yielding snail. It is characterized by high fertility, which can reach up to 200 eggs.

The color of the snail shell depends on the habitat: in a dry climate it is lighter and firmer and in a humid environment it is darker and softer. The climate features on the territory of Bulgaria allow the successful cultivation of Helix Aspersa Maxima, or Large Gray Snail, and Helix Aspersa Muller - Small Gray Snail. The latter are mainly sought after by Polish consumers and entrepreneurs.

Climate

It is very important to provide quality ventilation. The premises are cleaned every 3-4 days and air and soil humidity must be monitored. A temperate climate with high humidity (75% - 95%) is best suited for breeding snails, although most species can withstand a wider range of temperatures. The optimum temperature for many of them is 38 degrees. When the temperature drops below 20 degrees in the fall, snails hibernate. At 30 degrees they are not active, and at 27 degrees they stop their growth. When the temperature rises to 43 degrees or

becomes too dry, snails fall into lethargy. The wind is also detrimental to molluscs as it accelerates moisture loss.

Humidity

The snails are moisture-loving. They feel best when the moisture content of the soil is 80 percent. Irrigation sprayers such as those used for plants in countries with dry climates may be used to maintain an adequate level of humidity. The sharp deviations of the indicators have a negative impact on the abdomen. It can be used air humidifiers or heaters to ensure favorable indoor conditions.

Soil

To ensure good living conditions, snails need well-cleaned soil that is not saturated with sand or clay. The sandy soil does not retain enough moisture. Soil containing 20 to 40% organic residues is most suitable. Soils that are rich in calcium and magnesium compounds best stimulate growth. Calcium can be added to the soil, up to 10 kg per decare. It can also be placed in feeders so that snails have permanent access to it.

Implementation

Only active snails are selected for canning, processing or delivery. The best is to send and transport them alive. They are placed in a container filled with ice. This creates conditions (but no lower temperature) in which the snails fall into lethargy. If the weather is warm and the snails are active, they cannot be packed in cardboard boxes. Animals are not fed during transportation.

The proper cycle for starting snail farming begins in the fall when a deep plowing is done. In winter, the soil is left to rest until spring, followed by spring plowing and sowing of white clover. Tat encirclement is applied, wood grills are placed, and an electrostatic tape is inserted. It is covered with a grid that protects the snails from their enemies. Waiting for the farm to get into a rhythm and at the first possible moment the small snails are placed into the beds and the starting so-called fattening period. The first snails hatch in late April. Four months of fattening follow from May to August, with daily care. The next stage is the collection and drying of production for another two months. The work is usually completed by the end of November.

The most important thing about a snail farm is that the land is good. This tracks the production cycle - from loading the farm to collecting the produce.

The most important condition for snails growing is to have a good land and its location. It must be close to the settlement, so to avoid unnecessary costs of electricity, water, etc. The investment is no more than BGN 15,000, the heaviest of which is timber. Apart from the parameters of the tree, it should not be very resinous, since snails will not be able to move on it.

The most preferred in gastronomy are **the Helix Aspersa snails.** They are known for their **high quality meat**. In modern snail farms there are 2 methods of snail farming - the **Italian method (complete system) and the French method (incomplete system)**. Analyzes have shown that the most appropriate method for snail farming in Bulgaria is the French one, as it is the most favorable for the climatic conditions in our latitudes. The method enables snails to be grown in **close proximity to their natural environment,** and at the same time to achieve **high quality production.** The soil in the village of Bulgarevo is rich in limestone, which is essential for the construction of a healthy snail shell. In the French method, the fattening season lasts between 100 and 120 days and **ends approximately in mid-September, after which production begins.** It is more expensive in terms of investment and technology, but on the other hand it is more cost effective in terms of snails' quantity and growing time. French technology must have a reproduction room and an incubator for hatching small snails. While in the Italian method, parents are put on the farm. There they mate and give birth. However, many processes are not controlled. The Italian method is cheaper, but requires a longer fattening period of 10-11 months. Whereas under the French system, this period is about 4 months, which is ideal for a summer season in Bulgaria. Therefore, the Italian method is more applicable in warm countries where winter is mild. In the Italian method, snails are bred and raised outdoors, which should be applied in warmer countries such as Italy, Spain, Greece and others.

The Italian method is characterized by the fact that the animals are grown in their natural environment and feed on green vegetation planted on the farm - cabbage, beets, carrots, sunflowers and more. All year round, snails are outdoors. This method is hardly applicable in

Bulgaria, even in the Southern regions of the country. With this method snails grown in Bulgarian latitudes, mortality is in most cases over 80%, which is unprofitable and does not compensate for the slightly higher purchase price of ready-to-sell snails.

In the French method, snails are grown on fenced fields, on which is planted white clover. It is the first food of the little one - two-day snails. In the field there are wooden grills under which the snails are hidden during the day and are fed in the evening. Feeding the snails reared by this method is made with a special feed mixture, which is produced in the forage plants. In this method, the small snails are put into the field at the end of April or the beginning of May and are collected in October of the same year and are ready for sale.

The price of live snails in 2018 is about 30 Bulgarian cents per kilogram, which is drastically below the purchase price in 2017, when the kilogram was trading between 40 and 70 cents. In previous years, the value varied from about 60 cents in 2016 to 40-50 in previous years.

Export of snails

All norms, terms and conditions of use, purchase for the purpose of trade in the country and export of live snails, shells and meat of the species: vine snail (Helix lucorum) and garden snail (Helix pomatia) are explained in the Order No RD-361 dated April 9, 2004 of the Minister of Environment environment and water, which was presented in section Legal Framework.

The largest market share in the snails' trade is in the EU countries. They are characterized by a large population but also by a larger food culture than the other countries in the world. This is perhaps why the consumption of snails in Europe is increasing every year and snails, with their low fat content and the presence of various beneficial components for the human organism, become part of the healthy diet of the population. The nutritional qualities of snail meat are

most valued in the more developed economies in Europe.

Sector status

There is cyclicality in the interest in snail farming on a European scale - there are periods of real boom followed by a dying off interest in this business. Bulgaria is no exception. In 2013 the interest in Romania was very serious, many snails are raised in Greece too, which, based on market principles for supply and demand, reflects on the ability to sell products at a good price. These are part of the problems of every farmer.

The snails collected by residents of the largest gypsy neighborhood in Bulgaria, Stolipinovo, in the capital of the country, went to restaurants in Paris and Rome. The collected quantities were exported to France, Italy and several other countries in Western Europe, where the molluscs are sold as a delicacy. Some of them were used as raw material for the food industry in Greece or Cyprus.

Consumption of snails on a global scale is difficult to calculate because the one's own consumption is very high. However, world trade is estimated at between 450,000 and 500,000 tonnes per year. The most important markets are in Europe, in particular in France, Italy and Spain. There are no reliable figures for market growth in these countries, but it is important to note that these three markets cannot meet their needs on their own. In France, for example, 80 per cent of national consumption is imported. The same high percentage applies to Italy - 65 percent and Spain - 33 percent. Wild snails originate mainly from Hungary, Poland, Romania, the Czech Republic and Bosnia and Herzegovina. Balkan countries, including Bulgaria and Greece, export snails from farms.

Global Snail Market - Key Findings and Insights

In 2016, the global snail market amounted to 43K tonnes, which equated approximately to $154M in terms of wholesale prices. From 2007 to 2016, the global snail market was gradually growing; however, with some noticeable fluctuations in certain years. A significant drop in 2010 (-13% Y-o-Y) was followed by a robust increase through to 2014. Afterward, however, it plunged

again and then bounced back in 2016.

According to the report *"World: Snails (Except Sea Snails) - Market Report. Analysis and Forecast to 2025"* recently published by IndexBox, the countries with the highest snail consumption were Spain (16.5K tonnes), Morocco (6.0K tonnes), France (5.3K tonnes) and Italy (2.1K tonnes), together comprising near 69% of the global consumption of snails.

The highest annual growth rates of snail consumption from 2007 to 2016 were recorded in Morocco, with +21.6% growth, and France, with +5.9% growth. Morocco significantly strengthened its share in terms of the global consumption from 3% in 2007 to 15% in 2016. By contrast, the share of China decreased to the same extent. The shares of the other countries remained relatively unchanged over the period under review.

Among the leading consuming countries high per capita consumption levels were recorded in Spain (358 gr/year in 2016) and Morocco (174 kg/year), which was far above than the world average of 5.9 gr/year. In addition, high levels of per capita consumption of snails were noted in Portugal (155 kg/year in 2016), France (82 kg/year), Tunisia (82 kg/year), and Bosnia and Herzegovina (197 kg/year). Within 2007-2016, the highest annual growth rates of per capita consumption were observed in Morocco (+21.6% per year), France (+5.5% per year) and Portugal (+6.4% per year). As per capita consumption went upwards in the recent years, further market growth in these countries could be expected in the medium term.

European countries are remaining the largest consumers of snails. At the same time, the growing standard of living and the popularity of European cuisine in Asian countries provide certain prospects for the market growth in these countries; nevertheless, due to the specificity of the product, a sharp increase in its consumption is not expected.

Global production of snails posted slight but steady growth from 2007 to 2016, reaching 41K tonnes in the last year. In value terms, it stood at $173M, which refer to an estimated revenue

of snail producers.

The output of the five major producers of snails, namely, Morocco (15K tonnes in 2016), Spain (6.5K tonnes), Indonesia (5.9K tonnes), China (2.9K tonnes) and Romania (2.0K tonnes), represented more than three-quarters of global snails output. In Morocco, production levels increased by +4.8% annually from 2007 to 2016. The other countries also indicated a moderate growth in terms of snail output; by contrast, in Romania, it remained relatively flat over the period under review.

Snails is a widely traded commodity, with the share of export in total global output being about 80% in 2007-2016. High trade intensity is determined mainly by the substantial distances between the main centers of snails manufacturing and key consuming countries.

In 2016, the volume of global exports totaled 33K tonnes, with a mixed trend pattern over the last few years. A sharp 15% decline in 2010 was followed by robust growth through to 2014. However, it plunged again in the next year and then flattened in 2016. Morocco (9.2K tonnes), Indonesia (4.3K tonnes), Romania (2.7K tonnes), France (2.6K tonnes), China (1.9K tonnes), and Bosnia and Herzegovina (1.4K tonnes) were the main global suppliers of snails with a combined share of 66% of the global exports. From 2007 to 2016, Romania (+23.6% per year) and France (+23.3% per year) were the fastest growing suppliers among the major exporters. The volume of global imports totaled 31K tonnes in 2016, which equated $119M of the total value of imports. Imports dynamics was generally in line with exports: this trade flows globally complement each other. In 2016, Spain (10.2K tonnes), France (6.4K tonnes), Bosnia (1.7K tonnes) and Portugal (1.6K tonnes) were the leading destinations of snails imports, together making up 63% of global imports. From 2007 to 2016, Bosnia and Herzegovina had the highest growth rates of imports, with a Compound Annual Growth Rate of +24.9%; given the significant export volumes which almost mirrored those of imports, a rapid increase could be largely attributed to the re-exports. Romania (+12.1%) and France (+11.6%) also recorded tangible increase in terms of snail imports over the period under review.

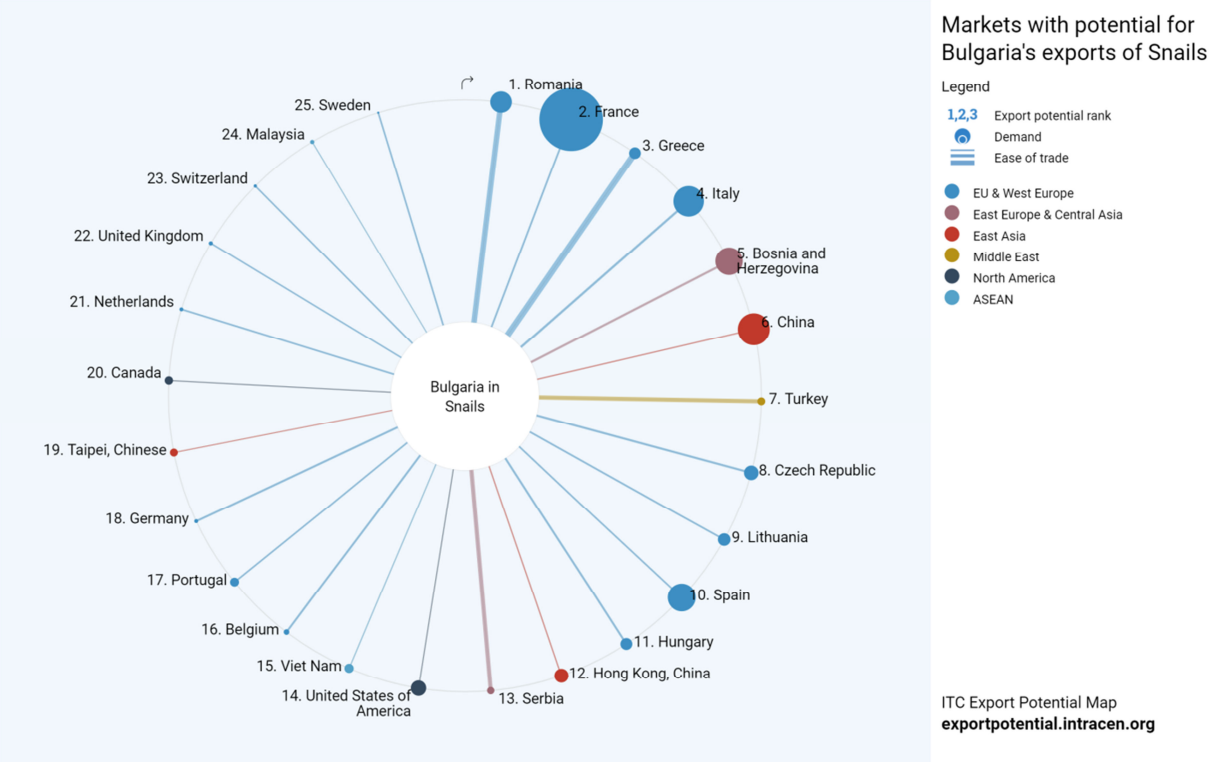
Future trends by 2025

For a long time, snails were considered to be a traditional dish in Mediterranean cuisine. Currently, most snails are still consumed in cooking, but the popularity of using snails in cosmetics is growing at a rapid pace. In addition, improved freezing technology and temperature control stimulated demand from the food industry. In addition, thanks to the worldwide popularization of the ecological and healthy lifestyle, as well as the growth of income and vogue for European cuisine in Asian countries, there is a growing demand in North American and South-East Asian markets. At the same time, snail meat is traditionally consumed in African countries, especially West Africa, where snails meat is a diet staple.

Growth in the popularity of healthy eating, marketing of snail products as a natural alternative, emergence of new products (snail caviar), growing demand for cosmetics made from organic products will contribute in the future to the mild upward trend in the market performance, which is rising with an anticipated Compound Annual Growth Rate of +2.0% for the nine-year period from 2016 to 2025, and is expected to bring the market to 50K tonnes by the end of 2025.

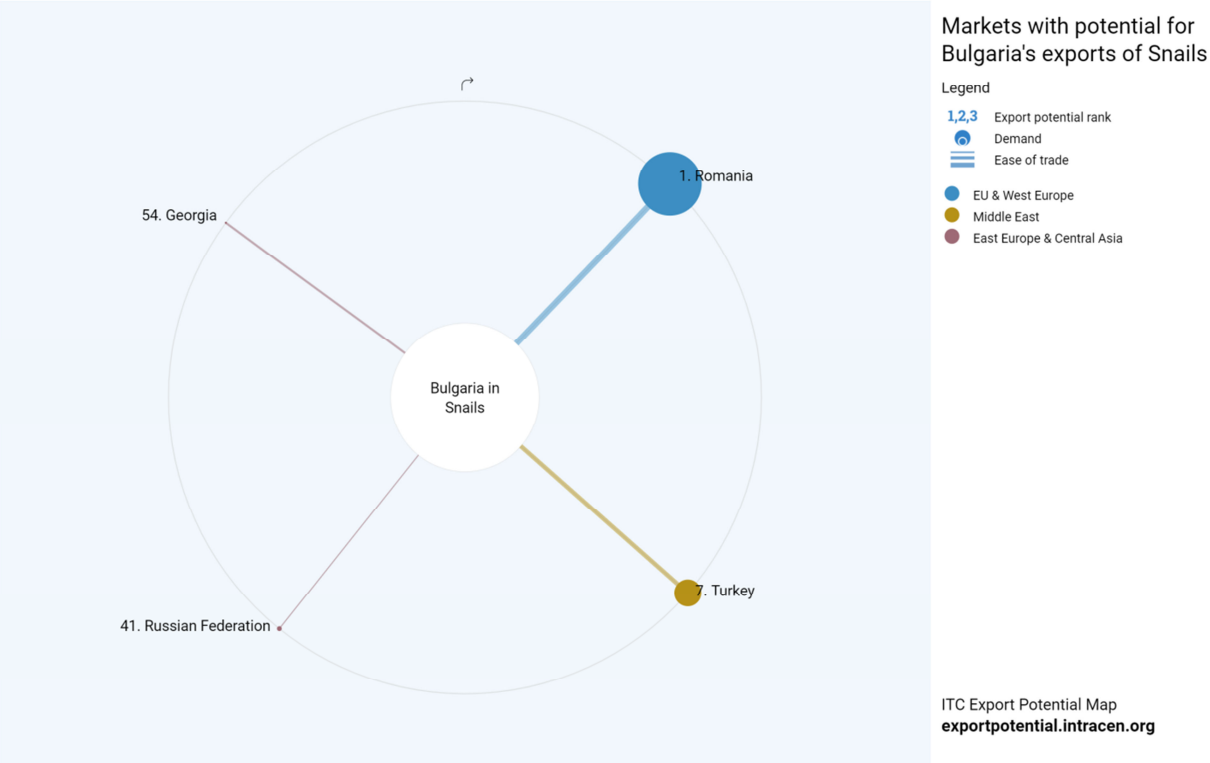
The group of snails is listed as one of the export potential groups by the International Trade Center (ITC).

The chart below presents the analysis export potential of Bulgarian snail sector:



Source of information: Web-site of the International Trade Center (ITC):
https://exportpotential.intracen.org/en/markets/analyze?fromMarker=i&exporter=100&toMarker=j&whatMarker=k&what=030760

The markets with greatest potential for Bulgaria's exports of 030760 Snails are Romania, France and Greece. Bulgaria has closest export links with Greece. France is the market with the highest demand potential for 030760 Snails.



Source of information: Web-site of the International Trade Center (ITC): https://exportpotential.intracen.org/en/markets/analyze?fromMarker=i&exporter=100&toMarker=j&whatMarker=k&what=030760

According to International Trade Center Bulgaria's export of snails in **World market** is presented in the table below:

Export potential	4.7 MN
Actual exports	1.8 MN
Untapped potential	3.2 MN
World export	65.7 MN
Bulgaria's export	1.8 MN

According to International Trade Center Bulgaria's export of snails in **Romanian market** is presented in the table below:

Export potential	1.6 MN
Actual exports	324.3 k
Untapped potential	1.3 MN
Romania's export	5.3 MN
Bulgaria's export	1.8 MN

According to International Trade Center Bulgaria's export of snails in **Georgian market** is presented in the table below:

Export potential	69.5 k
Actual exports	0
Untapped potential	69.5 k
Georgia's export	-
Bulgaria's export	1.8 MN

Market Analysis Results

Based on the information for the production and marketing of snails, which were presented in the previous chapters of this feasibility study, some factors that influence the sector could be outlined in a SWOT analysis. The SWOT analysis (strengths, weaknesses, opportunities and

threats analysis) is a framework for identifying and analyzing the internal and external factors that can have an impact on the viability of a project, product, place or person. The following table presents SWOT analysis components and factors, which were identified for the purpose of the snail's market analysis in Bulgaria:

SWOT analysis:	
Strengths	**Weaknesses**
○ Favorable climate conditions in the country (moderate summer temperatures without high heat and / or drought, water availability, etc.) that support snails' growing between April-May until September, October as well as mild winter conditions for the time the snails sleep hibernate. ○ Existence of agricultural land on agricultural farms enabling snail farming to be organized. ○ Provision of financing for agricultural producers under the Agriculture Development Program 2014-2020. ○ The need for relatively small initial investments to start a snail-raising business. ○ Relatively low labor intensive business with commitments in the period from April to May to September (once through feeders in the evening, without the need to intervene during their hibernation up to 8 months a year.	○ Recruitment of employees meets difficulties in rural areas, especially in the period of snail collection and / or processing due to an aging, low-skilled population in these areas and a constant tendency to their depopulation and negative population growth. ○ Lack of experience in establishment and maintenance of snail farming, due to development of the sector/activity in Bulgaria only in the last 10 years. ○ No introduction of technologies and innovations in the sector due to difficult conditions for granting loans from banks to farmers and lack of security in their market sales abroad, mainly to Belgium and France. ○ Lack of internal demand for meat and processed snail products due to lack of traditions and eating habits in the population regarding the use of snails. ○ Lack of government support and / or European subsidies and funding for creation of snail farms and/or establishment of bio production.

○ Because of the mucus, snails are protected from disease and no special treatment for diseases and illnesses is required as for the rearing of other farm animals.	○ No government protection for Bulgarian exporters of snail meat and other products (snails' caviar, pate) ○ There is no licensed company to certify the snail bio-production. ○ Due to the low purchase power of population, there is no market demand in the country for the products like snails' slims and caviar, which prices in EU market are respectively 40€ per gram and 1000€ per kg. ○ Lack of knowledge of local laws of the country – final export destination. ○ Export communication barriers related to low computer and language literacy of farmers.
Opportunities ○ Exporting added value snails' products like processed meat products, caviar, pate, etc. instead as a row material. ○ Search and entering into specific niches in the country to expand snail farms from the point of view of on-site processing facilities, restaurants offering snail specialties, tourist attractions such as the snail museum, educational walks in the farm to observe and get acquainted with the process of growing snails and / or preparing food.	**Threats** ○ Climate changes those results in either flooding farms and moving live snails and produce, or droughts that lead to water scarcity and quality food for cultivation. ○ Problems related to the operation of local power supply and engineering infrastructure in rural areas, which can disrupt the process of storing ready-to-export snails in refrigeration chambers, as well as the process of their hibernation. ○ Lack of security in buying pre-arranged quantities. ○ Delays in international payments and high bank charges, etc.

○ Creating demand in the local population for snail products and foods by promoting the benefits of their use and their useful qualities, extending the scope of their use in the food industry, culinary arts, medicine, healthcare, cosmetics and more. ○ Increase the state aid for snails' farmers and exporters to take part in exhibitions and trade fairs abroad that will allow them to establish business relationships with end users of their products (restaurants, cosmetics, etc.) ○ Globally increasing demand for protein-rich foods in relation to trends in healthy and environmentally friendly lifestyles. ○ The ability of snail meat to be transformed from delicacy to one that is purchased daily by a significant proportion of the population.	○ Contamination and / or excessive chlorination of drinking water from water supply systems in rural areas, which can lead to damage and destruction of snails during hatching and fattening. ○ The introduction of European and other quotas for the export of snails, which would impede the export of meat produced in the country and other products thereof. ○ Threats related to road and other type of accidents when transporting finished products in refrigerated chambers abroad, which will result in the destruction of all produced quantities and the bankruptcy of the farmer.

Marketing Strategies Approaches

A marketing strategy is a planning process that allows an organization to concentrate its limited resources on the best opportunities to maximize its sales and achieve a stable competitive advantage.

The following marketing strategies are derived for this purpose:

- To find a good, highly qualified management team that has worked in the international market for meat products for a long time.
- To choose the right location for setting up the farm - taking into account the region's population, strategic geographical location, temperature, soil, atmospheric conditions and more.
- To create a project that meets all the conditions for snail farming. The project sets out all the requirements, features, components, materials and partners' companies to support the construction of the farm.
- To overview the human resources needed to complete the proposal, including the necessary skills and / or the need of additional training.
- To reach out to local restaurants and to start selling to chefs who like to source local ingredients for their menu, and who likes to have fresh locally grown escargots on their menu. This also reduces the cost of shipping and has less impact on the environment.
- To make deals on a business-to-business basis. This will avoid the excessive cost of using intermediaries.
- To study the taste characteristics of the population, in particular what type of snails is most commonly consumed.
- To define the main target groups of buyers among grocery chains, smaller shops, restaurants and hotels.
- Seeking and finding financing, mainly through European Funds.
- Once good product quality is achieved and a strong brand is created, the next step is to build a website and let everyone know about your products and how to buy them, where to make online sales, afterwards.

Potential risks and the recommendation for their minimization

The large food chains operate with raw material from wild snail, which is of lower quality and cost. It is harvested in the nature, bought at 0,20-0,30 BGN and traded at 1 euro each on the stock exchange. While farm-raised snails are 3-4 times more expensive. It runs a gourmet snail and finds use in boutique restaurants rather than supermarkets, the farmer Pencho Petkov explains in media interview for bgtourism media.

Some of the potential risks that may arise in the process of growing and exporting snails, as well as appropriate measures to prevent them, include:

Potential risks	Measures for risk minimizations
Suspension of water supply from the water supply and sewerage company in rural and remote areas due to water supply network failures, drainage of dams, etc.	Providing access to own (wells, drainage, etc.) and / or alternative water sources.
Too high concentration of chlorine and / or other chemicals in the water supplied by the water supply companies to the population in rural and remote areas.	Establishment of a system for periodic inspection of the composition and quality of the water used for the needs of snail farms
Spraying with harmful chemicals from the air on farmland near the snail's farms.	Creation of information channels for timely notification to farmers of impending crops spraying.

Fattening of snails during the breeding period, which leads to poor meat quality.	Measures to comply with timetables for the fattening and collection of snails.
Poor quality of feed mixtures or those that are suitable for snails when changing feed supplier.	A study of alternative feed suppliers for the feeding of snails.
Stopping of power supply to farms, including refrigeration chambers for storage of finished products, due to accidents and force majeure events.	Provision of an alternative source for the farm's electricity supply (generator, solar heating, etc.)
Farm / hatchery misconduct by competing companies and unscrupulous individuals.	Provision of video surveillance, live security, etc.
Natural disasters such as floods, extreme droughts, hailstorms, very high or low temperatures outside the usual farmland conditions.	Observing weather forecasts and taking timely precautions to protect the snails from excessive heating / cooling due to temperature anomalies.
Damage to the refrigerated installation of the truck when transporting the production abroad.	Check the technical condition of the car and refrigerator before the start of each course.
Incidents (accidents, fire, theft, etc.) during transportation of products for export inside and outside the country.	Car and goods insurance for road accidents, fire and theft at home and abroad. Hiring qualified drivers with experience.

Findings and recommendations

The main findings of the analysis of the snail sector could be summarized in the following lines:

- The snail products have export potential and the ability to create economic growth and employment in the rural and remote areas.
- There is a small initial investments to start a business.
- The part of the world population that consumes gourmet cuisine, in particular snails, is increasing.
- Globally increasing demand for protein-rich foods in relation to trends in healthy and environmentally friendly lifestyles.
- Lack of professional qualifications of employees in the agricultural sector, including managers.
- There is no introduction of technologies and innovations in the sector

The main recommendations from the analysis for further development of the snail production sector are related to the necessity of policies and measures, aimed:

- To promote and raise awareness of the population in the possibilities of creating sustainable growth, employment and income generation from snail production in the country.
- To allocate fundings from European and national funds for the introduction of innovation, research and technology into development of snail production sector.
- Establishment of communication systems to inform the public about the benefits of consuming snail meat.
- To provide tax preferences for start-ups in rural areas in order to attract skilled workers.
- To allocate funds from the state budget for promotion and participation in specialized international exhibitions and fairs of agricultural producers, including for snails.

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