

**Czech University of Life Sciences Prague**

**Faculty of Economics and Management**

**Department of Economics**



**Diploma Thesis**

**Development Prospects for Viticulture and Winemaking  
in Selected Regions of the Russian Federation**

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## DIPLOMA THESIS ASSIGNMENT

Anna Ushakova

Economics and Management

Thesis title

**Development Prospects for Viticulture and Winemaking in Selected Regions of the Russian Federation**

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### Objectives of thesis

- To study the current state of wine industry in Russia;
- To make an analysis of indicators related to viticulture and winemaking in Russia;
- To compare Russian, European and CIS wine industries;
- To make a conclusion about development prospects for viticulture and winemaking in Russia.

### Methodology

- Basic statistical methods;
- Economic analysis;
- Marketing analysis;
- SWOT analysis.

## The proposed extent of the thesis

60 – 80 pages

## Keywords

Winemaking, Viticulture, Development, Investments, Brands, the Russian Federation

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## Recommended information sources

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### **Declaration**

I declare that I have worked on my diploma thesis titled «Development Prospects for Viticulture and Winemaking in Selected Regions of the Russian Federation» by myself and I have used only the sources mentioned at the end of the thesis. As the author of the diploma thesis, I declare that the thesis does not break copyrights of any their person.

In Prague on 27.03.2019

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# **Development Prospects for Viticulture and Winemaking in Selected Regions of the Russian Federation**

## **Abstract**

The diploma thesis aims at conducting a study on the development prospects for viticulture and winemaking in such subjects of the Russian Federation as Krasnodar kray, the Republic of Dagestan, the Republic of Crimea, city of federal significance Sevastopol, Stavropol kray, and Rostov oblast. Current state of these industries is evaluated by some important indicators such as areas under vines, yield of grapes, gross harvest of grapes, production and consumption of wine and other indicators. Import and export of wine as well as average consumer prices of grapes and wine are examined. Research among people, working in viticultural and winemaking industries, is carried out by means of questionnaire. Role of Russian government in regulation and support of these industries is provided as well as explanation of its importance to producers of grapes and wine. Investment attractiveness of the projects on planting new vineyards is presented. Complex conclusions on the matter are made.

**Keywords:** Viticulture, Winemaking, Fanagoria, Abrau-Durso, Inkerman, Massandra, the Russian Federation

# Perspektivy rozvoje vinařství a výroby vína ve vybraných regionech Ruské federace

## Abstrakt

Cílem diplomové práce je vypracování studie o perspektivách vývoje vinařství a výroby vína u takových subjektů Ruské federace jako je Krasnodarský kraj, Dagestánská republika, Republika Krym, Město federálního významu Sevastopol, Stavropolský kraj a Rostovská oblast. Současný stav tohoto odvětví je hodnocen několika důležitými indikátory jako jsou plochy vinic, výnos hroznů, hrubá sklizeň hroznů, produkce a spotřeba vína a další ukazatele. Zkoumá se dovoz a vývoz vína a průměrné spotřebitelské ceny hroznů a vína. Výzkum mezi lidmi, pracující ve vinařském a vinně zpracujícím průmyslu, se provádí pomocí dotazníku. Role ruské vlády v regulaci a podpoře těchto odvětví je poskytována stejně jako vysvětlení jejího významu pro producenty hroznů a vína. Prezentována je investiční atraktivita projektů na výsadbu nových vinic. V této věci jsou učiněny komplexní závěry.

**Klíčová slova:** Vinařství, Výroba vína, Fanagoria, Abrau-Durso, Inkerman, Massandra, Ruská federace

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# 1. INTRODUCTION

**Relevance** of the diploma thesis topic is connected with importance of revival of viticulture and winemaking in the Russian Federation. South of the Russian Federation has warm weather, fertile soils and many factors needed to planting new vineyards and sustainable development of this industry.

According to official statistics, because of *the USSR anti-alcohol campaign*, that began on the 7th of May 1985, 30% of vineyards were destroyed, which led to disappearance of unique grape varieties. This was followed by the introduction of market (free) prices for equipment, materials, reduction of government support for planting new vineyards. As a result, the uprooting of the vineyards significantly exceeded their planting. Reduction of areas under vines and reduction of yield of grapes became the main reasons for the decrease in grape harvest, reduction in sales, and loss of profit in organizations.

*The development of the viticulture industry* as a political priority today is a financially and socially significant direction in the system for developing plans and programs for strategic industry planning in the Russian Federation. The financial autonomy of this branch of agriculture limits its ability to fully realize the resource and production potential in the practice of strategic management, in connection with which the issue of government and institutional support for the development of viticulture becomes relevant. Moreover, at the present stage, one of the promising areas for the development of Russian economy is the strategy of reviving viticulture and winemaking.

**Viticulture** is a high-intensity, profitable and at the same time capital-intensive industry of the agro-industrial complex. Financial resources invested in the planting of vineyards are diverted from circulation for four years. In addition, considerable financial resources are needed for the planting of vines for this period.

*The industry of viticulture* in the Russian Federation has been restoring since 2007 year. There were more than 90 thousand hectares of vineyards in the Russian Federation in 2017 year.

Grape production is needed to be developed with *the market of grape wine*. *Grape wine* is one of the oldest drinks in the world, created in territories of warm and hot climates. Modern winemaking is a powerful branch of the alcohol industry, based on the latest achievements of science and technology and, above all, microbiology and biochemistry, mechanics and automation.

Public interest in wine production and the relevance of studying of this area are on the increase in the Russian Federation. The Russian government also shows an interest in the development of viticulture and winemaking, especially in the conditions of modern economic policy, which aims to reduce imported products. Thus, revenue to the federal budget of the Russian Federation from excise taxes on wine produced in the country increased in 2017 year by 52.9% in comparison to 2016 year and was equal to 15.59 billion rubles.

After a *period of crisis*, which Russian winemaking faced in the late twentieth century, only a few wineries managed to recover themselves. Development of viticulture and winemaking is still a problem that needs to be solved in the future because the Russian Federation has all needed factors for this development.

For *conducting a research* several Russian subjects, which specialize on vine growing and wine production, have been chosen. They are Krasnodar kray, the Republic of Dagestan, the Republic of Crimea, city of federal significance Sevastopol, Stavropol kray and Rostov oblast. The reason for choosing such subjects of the Russian Federation is that they are the leading regions in vine cultivation and wine production located in the south of the country and they have suitable climatic conditions to develop these industries.

## **2. OBJECTIVES AND METHODOLOGY**

### **2.1. Objectives**

The goal of the diploma thesis is to analyze the possible future development of viticulture and winemaking in selected regions of the Russian Federation.

The objects of the research are Krasnodar kray, the Republic of Dagestan, the Republic of Crimea, city of federal significance Sevastopol, Stavropol kray and Rostov oblast.

To achieve the goal of the research it is necessary to set the following objectives:

- To evaluate the current state of viticulture and winemaking in the Russian Federation;
- To make an analysis of indicators related to viticulture and winemaking in the Russian Federation in dynamics;
- To conduct a study on the government role in the regulation and support of these industries;
- To identify the main problems of the industries;
- To make a conclusion about development prospects for viticulture and winemaking in Krasnodar kray, the Republic of Crimea, city of federal significance Sevastopol, the Republic of Dagestan, Stavropol kray and Rostov oblast.

While carrying out a scientific research it is important to answer to research questions. For this diploma thesis they are:

- What are the main factors that prevent development of Russian viticulture and winemaking?
- What actions should be done to improve viticultural and winemaking industries' potential in the Russian Federation?

To fulfill these objectives it is highly important to choose proper methodological tools, which will be explained in the next chapter.

### **2.2. Methodology**

Methodology is one of the most significant tools of writing the diploma thesis. Suitably chosen methodology can help to carry out a good research.

To study the development of viticultural and winemaking industries in the Russian Federation data of different time periods will be chosen:

- To study some data such as areas under vineyards in the Russian Federation *a period of 11 years* will be chosen to show how it has changed through the years because the revival of viticulture and winemaking industries has been happening since 2007 year;
- To study other data related to these industries *a period of 1 year* will be taken just to show some phenomenon happening in viticultural and winemaking industries in the Russian Federation.

To analyze current state of viticulture and winemaking in the Russian Federation different types of methodological tools will be used.

**Basic statistical methods** will be used to analyze some data related to the industries of viticulture and winemaking. *Time series* will be used to analyze gross harvest of grapes in the Russian Federation in dynamics. *Moving average* will be used to analyze gross harvest of grapes and yield of grapes in the Russian Federation and *least squares* will be used to make a *forecast* of these indicators for 2018, 2019 and 2020 years. *Individual indexes of prices* will be used to analyze average consumer prices for grapes and still and sparkling wines in the Russian Federation.

**Analysis** of areas under vines, production of wines, consumption of alcoholic beverages, grape varieties in the Russian Federation, Russian market of still wines by country of origin, import of grape wines to the Russian Federation and export of grape wines from the Russian Federation in dynamics, revenue of agricultural organizations from sales of grapes, government support and regulation of viticultural and winemaking industries will be carried out. **Economic analysis** (effectiveness) of three investment projects will be made in order to show investment attractiveness of the industries of viticulture and winemaking.

**Comparison** will be used to make an analysis of areas under vines and production of wines in the Russian Federation and some other countries of the world.

On the diploma thesis **marketing methodology** (questionnaire) will be used. Due to the fact that the questionnaire's respondents will be only people, who work in the industries of viticulture and winemaking, the number of respondents will be too small (25 people), this research could be defined only as illustrative. The main aim of the questionnaire is to ask people, who have deep insight of the problems and opportunities in these industries, about their thoughts on the matter. That is why the questionnaire will include not only closed questions, but also open questions, and therefore it will be considered as qualitative research. According to answers *inductive reasoning* will be used

to analyze the most common tendencies happening in the viticultural and winemaking industries of the Russian Federation.

All *secondary data*, which will be used in diploma thesis, comes from *the next sources*: websites of International Organization of Vine and Wine, Federal State Statistics Service of the Russian Federation as well as Regional State Statistics Services of the Russian Federation, websites of regional Ministries of agriculture, official statistics of some International organizations and websites of some winemaking organizations of the Russian Federation as well as websites about viticulture and winemaking. *Primary data* comes from answers to the questionnaire.

There were *some limitations* of gathering data connected with viticulture and winemaking in selected regions. It was not possible to get total number of employees in winemaking organizations and number of employees, working on cultivation of grapes, data about revenues of the regions from winemaking industry, as it is a very specific data as well as total costs for production of wine and grapes because in different organizations they differs and because case study of this diploma thesis is some regions, that is why the data limitations are very common on carrying out this research. It was difficult to get answers to the questionnaire because numbers of organizations are limited, and not all employees wanted to take part in this research. Nevertheless the main idea of this questionnaire was to get deep knowledge of the problems and perspectives of viticulture and winemaking in the Russian Federation so people, who do not work in viticulture and winemaking, could not take part in the research. There are different types of wines, but on this research the main emphasis will be put on grape still and sparkling wines.

Chosen methods for conducting the research such as statistical methods suit for this purpose very well because the research is about the regions and not about company, where financial analysis will be more suitable. Comparison of Russian indicators with other countries can help to understand country's position in the world.

The theme of the diploma thesis is very unique; though many researches have written articles on the problem, it still remains a matter for further researches.

### 3. LITERATURE REVIEW

#### 3.1. History of development of viticulture and winemaking

The question *when viticulture and winemaking* appeared on the territory of the modern Russian Federation, in the Republic of Crimea and the Krasnodar kray goes further to the past. *The Greeks* began to colonize some of these territories at the same time as Italy and built three large cities: Phanagoria on the Taman Peninsula (archeologists find there coins with a bunch of grapes on them, which date back to the III century), Panticapaeum, which is Kerch now, and Chersonese, in the territory of current Sevastopol. These cities were a powerful Bosphorus kingdom. On the Taman peninsula rye and other grains were grown at those times, but grapes were not so popular there. Winemaking and viticulture developed mainly in the Republic of Crimea. However, there is a lot of evidence that the ancient inhabitants of the Crimea *Tauri* cultivated grapes and made wine long before the Greeks [1].

Officially it is believed that viticulture in Russia appeared in 1613, when the first grape seedlings brought by merchants were planted at the monastery at Astrakhan. In the same year, at the behest of Tsar *Mikhail Romanov*, a vineyard for royal family was planted [2].

*Peter I* ordered to plant vineyards near the village of Razdorskaya. Later he decided to domesticate grapes in the Terek valley. Don Cossacks and Armenians and Georgians moved to the Terek. They had considerable experience in winemaking, which they actively used in Terek. In the 18th century, thousands of barrels of wine were sent from Kizlyar to the north.

After the victory over the Crimean Khanate in 1783 year, it was the turn of the Crimea and the Krasnodar. In the Sudak valley, viticulture and winemaking began to develop with the help of *Potyomkin-Tavrichesky*, who even found his own winery. In the 1840s, *Mikhail Vorontsov* also paid much attention to winemaking, but on the southern coast of the Crimea. Unfortunately, during the Crimean War (1853-1856) development of winemaking came to an end [3].

Further winemaking developed progressively. So the next years of winemaking rise were the times of *Lev Golitsyn*. He founded wineries in the Crimea, on the territory of the present Krasnodar kray, dug cellars, and used modern French grapes varieties and technologies. The apogee of Russian winemaking is considered to be the year 1900th. At

the International Exhibition in Paris, Golitsyn champagne "Paradise" received not just a gold medal, which was distributed in dozens, but the Grand Prix. There was no such achievement either before Golitsyn or after him [4].

The next name is worth mentioning comes from the times of the USSR. **Anton Frolov-Bagreev**, a winemaking scientist, who in 1924 received a task from the government to develop a method for the production of very cheap sparkling wine at Abrau-Durso. He invented «Soviet champagne». Production of wine became extremely cheap.

There were 200 thousand hectares of vineyards in *the Soviet Union*. The annual planned increase of area under vines was 11 thousand hectares. Of course, some vineyards were aimed at achieving quantitative indicators, and not qualitative ones. The Soviet Union cannot be called an outstanding producer of wines, but it is possible to say that good wines in the style of the New World were produced there [5].

The development of viticulture and winemaking ended in 1985. **Mikhail Gorbachev** introduced a «dry law». After it there was a large-scale uprooting of vineyards. But some republics understood that the time of the Soviet Union was coming to an end, and they were not particularly involved in uprooting of vineyards. For example, Georgia and Moldova suffered not so much. But in Ukraine and Russia there was a serious uprooting: the industry was destroyed almost completely [5].

Globally *the year of 2003* can be considered as the birth of the new Russian winemaking. On that time a first winery that produced high-quality full-cycle wines was founded. It is necessary to pay attention to the fact that in the Soviet Union there was virtually no full-cycle production, there were only primary and secondary ones.

Full-cycle winemaking is planting, growing, harvesting, pressing, vinifying of grapes (the process of turning grapes into wine) and bottling of wine. In the Soviet Union there was just planting, growing, pressing and vinifying. This was the primary cycle, the production of wine materials. And as primary sector didn't pay attention to the quality of them, the quality of wine suffered. With creation of full-cycle production of wine the quality of wine became better. Today in the Russian Federation there are a little more than 90 thousand hectares of vineyards (including the Republic of Crimea and Sevastopol).

Although grapes can be grown even in the northern parts of the Russian Federation, they are mostly cultivated in the south of the country. The main viticulture and winemaking regions are Krasnodar kray, the Republic of Dagestan, city of federal significance Sevastopol, the Republic of Crimea, Rostov oblast and Stavropol kray, where

about 92% of all grapes in the Russian Federation are produced [6, p. 9]. Features of these subjects will be discussed in the next chapter.

### **3.2. Viticulture and winemaking in the Russian Federation: features and geography of production**

According to the Concept of the development of viticulture and winemaking in the Russian Federation for a period of 2016 – 2020 years and planned period until 2025 year viticulture and winemaking are economic activities, technologically related to each other and possessing significant potential for dynamic development. These types of entrepreneurs have been historically traditional industries for the southern regions of the Russian Federation and have been playing an important role in their economies [6].

Modern Russian viticulture and winemaking are concentrated in a number of major Russian regions, which have climatic conditions, which are suitable for the cultivation of technical, table and universal varieties of grapes.

On the territory of the Russian Federation there are **5 main regions** where domestic viticulture and winemaking are developed (figure 1). They are Kuban (Krasnodar kray), Terek and Derbent (the Republic of Dagestan), the Republic of Crimea (including Sevastopol zone), Stavropol kray, Don Valley (Rostov oblast) [7].

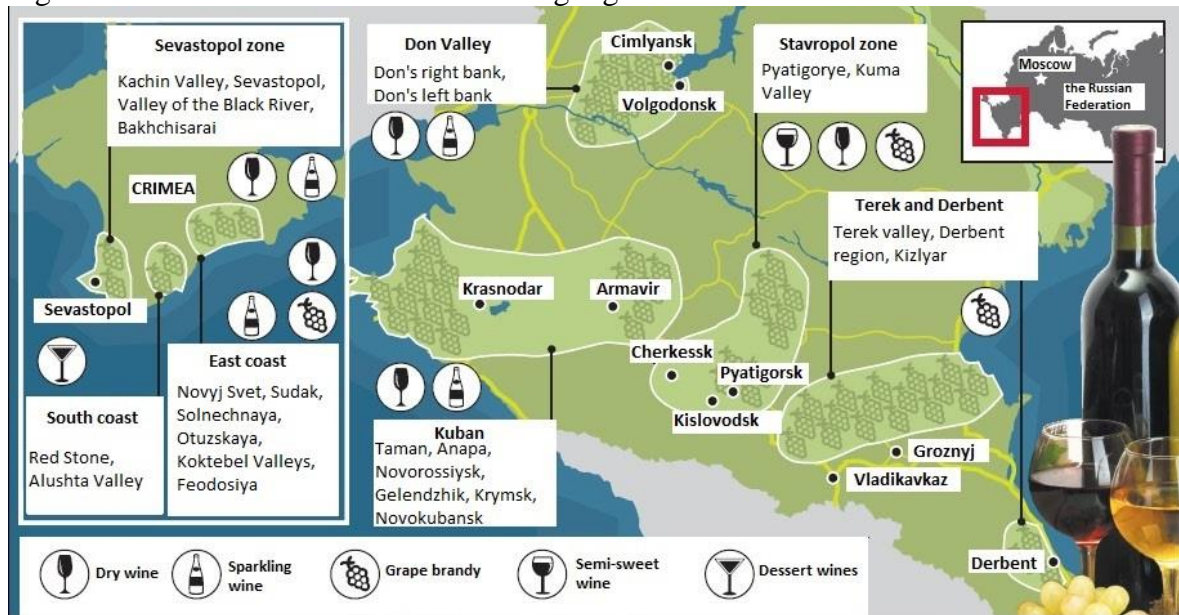
On the territory of the **Krasnodar kray** about 60% of all Russian vineyard areas are concentrated in several industrial zones: Priazovye, Taman, the Black Sea region, the North Caucasus and the Center.

Krasnodar kray has a mild and warm climate for horticulture, viticulture and winemaking and has several geographical advantages:

- It is located in the west of the warm Caucasus region, where the air in winter warms up to 5° C;
- Northern landscape of the region has plains, where the average winter temperature does not fall below -5° C;
- In the south of the region the piedmont of the Caucasus Mountain Range is located, which protects the area from sudden changes in temperature.



Figure 1: Main viticultural and winemaking regions in the Russian Federation



Source: Where is wine made in the Russian Federation? «Arguments and Facts» №45, 05 November 2014 [online]. Available at: <http://www.aif.ru/dontknows/infographics/1374337>. Accessed 25 October 2018.

Grapes grow in the region everywhere, but for industrial needs grapes are grown in certain areas. In the Krasnodar kray soil and climatic conditions were the basis for identifying **4 zones** of ecological optimum (Anapsko-Tamanskaya zone, Chernomorskaya, South Piedmont and Central zone), where grape production is costly effective. The largest areas under the vineyards are located in the following areas: Anapa, Gelendzhik, Novorossiysk, Krymskiy, Novokubanskiy, Temryuk regions [8, p. 2-3].

Anapsko-Tamanskaya zone includes Temrukskiy and Anapskiy regions. Anapsko-Tamanskaya zone is specialized in viticulture. The main grape production in the region is concentrated here. Grapes are produced here for fresh consumption and processing into high-quality vintage table, dessert and champagne wines. Further development of the industry in this zone will be at on better on-farm land use, increasing soils fertility, and also due to the usage of slopes [9].

Chernomorskaya zone includes two sub-zones. First one includes Novorossiysk, Gelendzhik and Tuapsinskiy regions. The second one includes the territory of Big Sochi. The main direction of viticulture on this zone is the cultivation of table grapes with different time of maturation, which ensures a wide period of fresh consumption [10].

Southern foothill zone is located in the southern and southeastern part of the Krasnodar kray. From the grapes, which are grown on this region, table wines and high-

quality champagne wine materials are made. Usually grapes in this zone are covered. Uncovered culture is possible in separate regions [11].

The Crimskiy region belongs to the southern foothill zone. The zone has a warm and humid climate; it does not specialize in viticulture, but for the last years areas under vines have been increasing.

Central zone includes extensive flat-lowland territory of the right bank of the Kuban. Grapes are grown here for producing table wines and brandy wine materials, as well as for fresh consumption [11].

Novokubansky district is located in the eastern part of the central zone of Krasnodar kray; it has a moderate continental climate and the most fertile soils in the kray.

During Soviet Union times *Dagestan* was one of the largest grapes growing regions for growing grapes.

The mountainous area of Dagestan divides the territory into several industrial zones, among which viticulture is the most successfully developed in the plateau and foothill areas with northern and southern zones:

- The flat zone in the south of Dagestan is characterized by moderately warm weather with arid continental climate and the minimum temperature in winter can be minus 15° C. In flat territory, vineyards are not covered for winter. The largest vineyard of the plateau is an array in Derbent, where the favorable weather makes it possible to grow all varieties of grapes with different maturation. Technical varieties of grapes are grown here;

- The southern foothills are on the territory at an altitude of 500-600 metres above sea level. Dessert and table varieties of grapes are grown here. Climatic conditions allow not cover the vines in the winter;

- The northern foothills and flat areas cover territories located at an altitude of up to 500 metres above the sea level, including the Terek-Sulak plain and the Terek delta. This territory has arid hot and long summer with at the same time frosty winters, when the air temperature drops below -25° C, that is why the grapes are grown in shelters here [12].

*Rostov oblast* belongs to the zone where grapes are grown using covering equipment. Grapes can be grown with the usage of uncovered machinery in the southern regions of the Rostov oblast.

A number of different grape varieties are grown in Rostov vineyards. The region focuses on growing of technical varieties of grapes for the production of sparkling wines.

In *the Stavropol kray* about 13% of the areas of domestic vineyards (more than 6.5 thousand hectares) are located. This is one of the leading industrial regions of viticulture and horticulture in the Russian Federation.

On the territory of *the Republic of Crimea and city of federal significance Sevastopol* mainly technical varieties of grapes are grown for the production of fortified and dessert wines. The total number of varieties reaches 100 items.

Among the main regions involved in viticulture and winemaking are the Bakhchisaray piedmont, a steppe near Simferopol, suburban Yalta, Alushta and Sudak [12].

Grapes can be stable and technical. Stable grapes are for consumer's consumption and technical grapes are for making wines, dried fruits, juices and others. 76% of all grapes in the Russian Federation are produced for making wines.

Main grape varieties, which are cultivated in the south of the Russian Federation, are presented in the Appendix 1.

*Wine* is one of the most popular alcoholic beverages produced from fermented fruit juice. The flavor of wine depends on the varieties of grapes, from which wine is produced, as well as climatic and weather conditions, soil quality and other factors influencing the characteristics and quality of grapes. In 2012 year a new classification of wine, responding to the world classification standards of wine, was created in the Russian Federation (figure 2) [13].

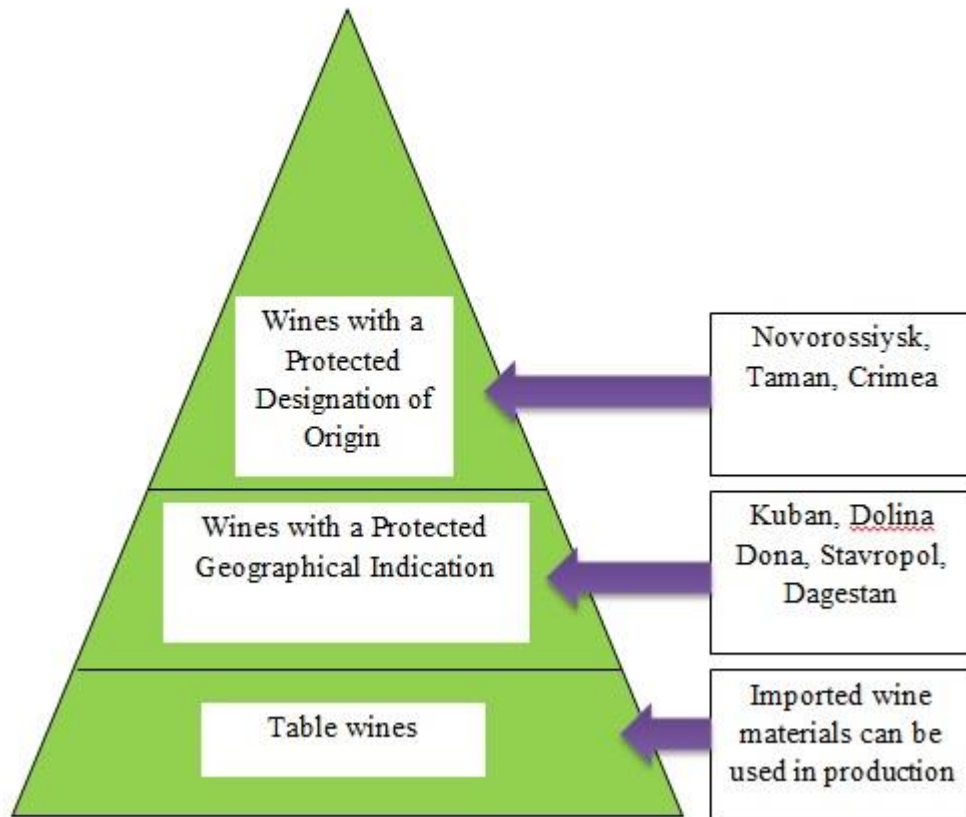
There are three *different types of wine (by colour)*: red, white and rosé.

Red wine has a red color, which is given to it by a special pigment contained in the skin of grapes. The most important types of red wine are Merlot, Cabernet Sauvignon, Syrah or Shiraz, Pinot noir, Malbec, Cahors.

White wine is produced from different varieties of white grapes; less often from red grapes without skin (it contains most colourants). The most important types of white wine are Chardonnay, Sauvignon Blanc, and White Muscat.

Rosé wine is produced from red grape varieties without skin or a mixture of red and white grape varieties. The most important types of rosé wine are Grenache Rosé, Cabernet Sauvignon Rosé and Muscat rosé.

Figure 2: Types of wines in the Russian Federation



Source: *Classification of Russian wines*. Wine in the Russian Federation. Encyclopedia of Russian wine [online]. Available at: [http://rusvina.ru/wineopedia/spravka/index.php?SECTION\\_ID=9&ELEMENT\\_ID=637](http://rusvina.ru/wineopedia/spravka/index.php?SECTION_ID=9&ELEMENT_ID=637). Accessed: 1 December 2018.

Wines are classified according to the content of sugar and alcohol into the following main types:

- Table wines: dry, off-dry, semi-sweet;
- Dessert wines: semi-sweet, sweet (muscat, tokai, cahors), liqueur (muscat, tokai);
- Dessert strong wines (port wine, Madera, etc.)

The production technology of white and red grape wines is different. White wine is made from crushed grapes without skin and seeds. Quickly pressed juice turns into wine during fermentation at a given temperature. Production of red wine requires maceration of juice for a certain time. Skin and seeds are not removed. They give the wine color, and tannins contained in them improve the structure of the wine. The main stages of making wine are presented below [14, p. 9].

1) Crushing of grapes, maceration, pressing.

Depending on the grape variety, the water content in ripe berries ranges from 70% to 80%. When crushing, maceration and pressing of grapes solid particles are mixed with liquid. Therefore for spinning (if possible) juice several operations are required. Substances contained in the peel and stalk, affect the quality characteristics of the wine and high or low quality of final products [14, p. 9].

2) Fermentation (from 10 to 30 days).

Fermentation is a process when natural sugar converts into alcohol. On this stage of producing wine yeasts are used. It usually lasts until all sugar is converted into alcohol, then the dry wine is produced. When making sweet wines, the process of fermentation is stopped before all the sugar converts into alcohol. An alcohol level depends on the level of sugar content in the must [15].

3) Clarification.

Remaining solids are removed (e.g. by filtration).

4) Aging of wine.

On these stage of wine production wine gains special flavor. Depending on what kind of wine should be produced, there are different ways of aging process: wine can be aged for several years or several months; the containers in which wine is aging can be stainless steel or oak (French, American or Russian oak barrels) [16].

There are a lot of winemaking producers in the Russian Federation; the most important once are located in south regions of the country. There were 79 organizations, which produce still wines, in the Russian Federation in 2015 year [17]. In Krasnodar kray there were 37 winemaking producers in 2016, in the Republic of Crimea there were 26 winemaking producers in 2017 year [18].

Further the most popular wine producers will be presented.

***Main wine producers in the Krasnodar kray:***

- ***Fanagoria*** is one of the largest wineries in the Russian Federation. Its vineyards occupy an area of more than 2,800 hectares and are a guarantee of the quality of their products [19, p. 138]. The company carries out a full cycle of winemaking; from the production of seedlings to the processing of grapes, the production of wine and the distribution system. Organization produces all types of wines, including sparkling wines, strong alcoholic beverages (cognac, brandy, chacha), has its own nursery, 2 restaurants, a

shop in China and schools of wine in Krasnodar and St. Petersburg, and produces oak barrels [20].

- ***Abrau-Durso*** is an agricultural enterprise; the main activity of it is the cultivation of grapes for the production of classic sparkling wines. Main grape varieties are Riesling, Pinot black, Pinot gray, Pinot white, Aligote, Cabernet Sauvignon, and Chardonnay. Company produces wines and sparkling wines. The vineyard area is 534 ha [19, p. 138].

- ***Soyuz-Vino***. Manufactured products of the company are table wines, elite wines, local wines, table wines, dry wines, semi-sweet wines. Soyuz-Vino has 200 hectares of vineyards [20].

- ***Kuban-Vino***. Products of the company are grape wines, aged wines, dry wines, sparkling wines, cognacs, Russian champagnes, off-dry sparkling wines, muscat wines [20].

***Main wine producers in the Republic of Crimea and Sevastopol:***

- ***Massandra*** is one of the largest Russian enterprises for growing grapes and producing high-quality vintage grape wines, fruits and other agricultural products. Massandra, which consists of eight wineries, owns 11 thousand hectares of land, of which about 4 thousand hectares are under vineyards [21]. Massandra has one of the biggest wine collections in the world and in 1998 it was officially listed in the Guinness Book of Records.

- ***Inkerman*** (located in city of federal significance Sevastopol) produces vintage, aged, ordinary and young wines. It is included in the group of companies Inkerman International. Inkerman cellars have their own are oak barrels [22].

- ***Koktebel***. The company focuses on cognacs, fortified wines and port wines. This is one of the few Crimean enterprises that has a full production cycle; from the cultivation of vines and its processing to the maturation of wines in oak barrels and their bottling. The area of vineyards of Koktebel is more than 2,000 hectares [21].

- ***Novyi Svet*** is the famous enterprise of the Crimea for the production of sparkling wines. The best masters of the Crimean winemaking here produce brut (no sugar) sparkling wines, the driest (0.8% sugar), dry (3%) and off-dry (5%) sparkling wines. The last two products make up 95% of all products [22].

- *Solnechnaya Dolina* is a winery in the Crimea (the village of Solnechnaya Dolina, Sudak), which produces dessert, strong and dry wines. The company cultivates more than 40 autochthonous grape varieties on their lands [21].

***Main wine producers in Rostov oblast:***

- *Cimlyanskye vina* is the largest producer of sparkling wines on the Don. The vineyards of the enterprise Cimlyanskye vina are the most northern zone of industrial grape growing in the Russian Federation. Today company produces more than 60 types of products, including sparkling wines. The area of vineyards is 1,100 hectares [23].

- *Vinodelnya Vedernikov* is one of the few farms that retain large-scale planting of autochthonous Cossack varieties (more than 40 hectares). The area of vineyards is 200 hectares [23].

- *Yantarnoe* produces grape and fruity wines. In the manufacture of wines the company uses 100% natural raw materials. The area of vineyards is 382 hectares [23].

In *the Stavropol kray* and *the Republic of Dagestan* there are mainly cognac's producers, and Dagestan has big areas under vines.

Viticulture and winemaking in the Russian Federation are not developed in their fully opportunities. There are some wine producers, which have long history, and there are wine producers, which were founded not so long ago. There are a lot of areas where grapes can be cultivated in the south of the Russian Federation. Still these industries have a lot of problems, which will be studied in the next chapter.

### **3.3. Main problems of viticulture and winemaking in the Russian Federation**

A lot of Russian scientists have written articles about the industries of viticulture and winemaking in the Russian Federation and highlighted some problems in these industries. In this chapter some of them will be studied.

The first article is «Innovations of wine growing of Russia. The modern condition and prospects of development of wine growing sub-branch in the Russian Federation», which was written by A. Ermolaev, doctor of agricultural sciences.

According to the author, viticulture and winemaking play a great role in Russian economic industries. Products of these industries have consumer demand and provide income to the federal budget. These industries give a lot of workplaces and have a big

gross output. However, viticulture is a highly capital-intensive branch of agricultural production [24, p. 3].

The author believes that the main goals in developing these industries are improving the yield and the quality of grapes, the competitiveness of winemaking, reduction of imports and introduction of new technologies of production of grapes [24, p. 4].

The second article is «Analysis of the state and prospect of strategic development of wine growing in Russia», which was written by I. Rykova, R. Gubanov and S. Aksionov.

The authors believe that nowadays the development of the industry of viticulture is financially and socially significant in the system of making strategical plans to industries in the Russian Federation. The government and institutional support of this industry is becoming more and more important because its financial independence limits its opportunities to fully realize its resource and industrial potential [25, p. 173].

The authors believe that the main factors, which prevent grapes production in the Russian Federation from developing, are not good climatic conditions for grapes in comparison with European countries; unfavorable structure of countries importing grapes, included in the sanctions list; high costs for organization of production [25, p. 174].

Authors believe that it is highly important to improve the strategical planning of viticulture in the Russian Federation, one of the most aspects of which is financial support of the industry. Authors think that for increasing in the effectiveness of resource usage in the viticulture industry it is needed to study the next directions: agronomy, investments, production, economics, logistics, sales (table 1) [25, p. 175].

In table 1 the criteria of analysis of the activities of organizations are presented. It is important to evaluate and compare these indicators in all directions, but from the result calculations of the parameters of the investment in the industry depends return on investment in grape production, free cash after payments of all mandatory payments are not just to maintain a break-even for the viticulture industry, but for ensure a certain stock of financial strength.

The third article is «Tendencies of recovery viticulture in Russia in the WTO», which was written by A. Kulov and A. Orlova.

Authors think that the existing economic policy does not consider the start of active period of fruit-bearing of vineyards while estimating of economic activity of commodity



producers, which has an impact on the financial results of activities of enterprises. Taxes also play a negative role on grapes producers, when producers do not have privileges [26, p. 35].

Table 1: Methods of analysis of viticultural organizations on micro level

Scope of analysis	Indicators
Agronomy	Soil and climatic characteristics. Types of soil under vineyards, %. Grape varieties and the area under it, hectares. The average degrees, Celsius per year. Harvest by grape varieties, tonnes. Yield by grape varieties, center from hectare.
Investments	Investments from external sources, thousand rubles. The volume of investments at the expense of own funds, thousand rubles. Amount of subsidies received, thousand rubles. The volume of investments in the context of areas: buying of agricultural machinery; purchase of equipment; capital construction; buying of agricultural land.
Production	The number of personnel employed in production, people. The cost of soil preparation (including fertilizer) for grape varieties per 1 hectare, rubles. The cost of planting (taking into account the cost of seedlings) by grape varieties per 1 hectare, rubles. The cost of installing a trellis by grape varieties per 1 hectare, rubles. The cost of maintenance work for the vineyards by varieties of grapes on 1 hectare, rubles. The cost of bringing 1 hectare of vineyard to fruit-bearing age by grape varieties per 1 hectare, rubles. The cost of grapes varieties from 1 hectare by year, rubles.
Economics	The structure, volume and cost of production of products for internal and external consumption. Revenue from sales of products for external consumption.
Logistics	The area of own warehouses, square meter. The volume of one-time storage of products, tons. The number of units of agricultural machinery for the main production, for the transportation of products within the enterprise and beyond, piece.
Sales	The number of counterparties-buyers per year. Volume of sales, thousand rubles. The list of counterparties with a share in sales of 15% (tonnes, litres).

Source: RYKOVA, Irina. Analysis of the state and prospect of strategic development of wine growing in Russia. Vestnik of Rostov state university of economics №1, 2016, p. 176. ISSN 1991-0533

The government support does not need to be the instrument for restoring of viticulture, but be one of the elements of economic mechanism for the development of the industry. The economic mechanism for the development of the viticulture is the system of price, financial, credit instruments and measures of government support for restoring and

expansion of production of grapes on the base of innovations. One of the most important instruments of government support of growing vineyards is the creation of economic conditions for stimulation of investments for a planting of new vineyards. Special investment credits for paying taxes during growing of vineyards (before harvesting) should be implemented [26, p. 36].

The fourth article is «Russian winemaking is waiting for a reboot» written by E. Bikchurina. The article is written on a publicistic style and is based on interviews of some people who do business in viticulture and winemaking sector.

The author emphasizes that deficiency of domestic raw materials, high capital intensity and regulation of the industry are the main problems decreasing its development. Growing vines and making wines is a very high-tech and costly process. Planting and growing 1 hectare of vineyards until fruit-bearing age costs about 1.5 million rubles. This is without considering the risks associated with weather conditions. Wine production requires equipment and capacities that are not produced by domestic enterprises, they must be imported from abroad, which also requires a lot of money [27].

The low rate of development of areas which are suitable for growing grapes can be explained by the passive government policy in the allocation or redistribution of such areas. Insufficient subsidization of viticulture, variability of excise policy are problems, too [27].

The fifth article is «Russian wine market: dynamics and development tendencies» written by R. Gaifulina.

The author has the next ideas about Russian wine market:

- Over the past few years the development of Russian wine market has been gradually continuing, an important role for this was played by the macroeconomic factors;
- An increase in the well-being of the population led to the fact that the domestic consumers began to choose more exquisite wines, and therefore more expensive wines. Cheap table wines from France and Spain began to be replaced by wines from the New World;
- One of the problems of the market in the Russian Federation is the absence of wine brands [28].

The sixth article is «Competitiveness of Russian wine trade (evidence from Krasnodar Krai)» is written by L. Tsvetlova.

The author believes that there are the next main problems in winemaking in the Russian Federation: planting of vineyards is becoming more and more costly (350 – 500 thousand rubles per 1 hectare); Russian standards of quality do not match the world standards. For increasing of Russian wine competitiveness author suggests the next measures:

- Reduction of the duty for getting a license for wine producers, who use in the production of wine domestic grapes and reduction of license requirements for small wineries;
- Legalization of «garage» winemaking<sup>1</sup>;
- Increasing of private investments in small wineries;
- Reduction of imports of wine materials.

Author believes that Krasnodar kray is attractive and has all necessary conditions for ensuring competitiveness of production of wine [29, p. 70].

The seventh article is «Gardening and wine growing development in Dagestan» written by A. Nazirov and A. Magomedov.

Authors believe that there are the next main problems in the industries of viticulture and winemaking in the Republic of Dagestan:

- Unavailability of credit resources for 3-5 years and high interest on loans;
- Lack of adequate emergency insurance;
- Lack of modern agricultural equipment;
- Lack of modern processing industries;
- Bad agricultural production infrastructure [30, p. 53].

After studying some articles it became clear that scientists have similar vision of the development of Russian viticulture and winemaking industries. They believe that it is possible to develop these industries, make them more competitive and perspective.

Despite some positive changes, there are still a lot of problems in the industries of viticulture and winemaking:

- 1) Low level of investments in viticulture;
- 2) Lack of high-quality seedlings of vines;
- 3) Lack of new technologies in growing of vines and production of wine, lack of modern equipment and machinery;

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<sup>1</sup> The term is applicable to small farms producing about 1,000 bottles of wine a year from their own grapes by forces of, as a rule, one family

- 4) Lack of qualified personnel in the industry;
- 5) Consumer's desire to buy foreign wine (e.g. from France, Italy, Spain);
- 6) Unpopularity of Russian wines' brands;
- 7) High costs of getting licenses for winemaking producers;
- 8) High interests for getting credits for opening a business.

After comparison of researches of scientists about problems in viticulture and winemaking in the Russian Federation it is clear that all of them have similar opinion about these industries, their importance to the country and to development of economy and production of high quality wines. One of the most important roles in reaching these goals the government plays. In the next chapter Russian government regulation of these industries will be studied.

### **3.4. Government regulation of viticulture and winemaking in the Russian Federation**

Considering the unique and favorable natural and climatic conditions for growing grapes in the southern regions of the Russian Federation, the potential of existing production and infrastructure capacity, as well as growing demand for high-quality wine products in the world in the recent years, viticulture and winemaking are promising segments of Russian agro-industrial complex.

However, it should be noted that viticulture and winemaking are business with a significant degree of risk, due to bad impact on the production of agricultural products (grapes) of natural phenomena, and significant administrative burden government regulation.

High capital intensity and long payback periods of investment projects, in which the full production cycle processing of grapes into wine (from planting the vine to the realization of a bottle of wine) lasts at least 5 years. These reasons determine low investment attractiveness of such projects for doing business and active government participation in their implementation is needed.

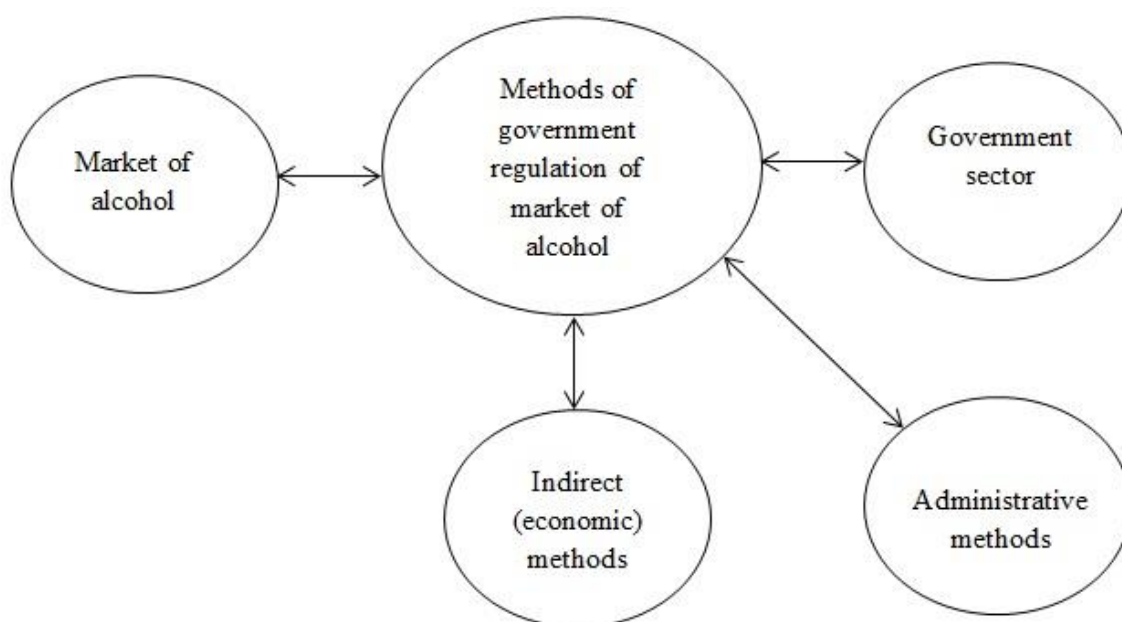
Government regulation of the alcohol market in the Russian Federation is carried out using the following methods (figure 3) [31].

1. Through the government sector by means of tools such as using the establishment of state-owned capacity and ownership of the control stock of companies,

that are manufacturers of alcohol products (controlling stock; use of state-owned production facilities) (for example, Massandra).

2. Administrative methods, such as licensing, standardization, labeling, declaring, production and turnover control, quoting, setting minimum prices, export and import control licensing.

Figure 3: Methods and instruments of government regulation of the market of alcohol in the Russian Federation



Source: ZHUK, Aleksandr. State regulation of the spirit's market in the Russian Federation: on the way to state monopoly? *Industry Markets*, №2, 2014. ISSN 2226-1982.

3. Indirect (economic) methods, that are introduction of a list of excisable goods, tax policy, setting of rates of excise duties for the provision of licenses (tax policy of the country; establishment of a list of excise goods; setting fees for the provision of licenses) [32, p. 105-106].

By Federal Laws «On the development of agriculture», «On seed production», «On the quality and safety of food products», «On government regulation of production and circulation of ethyl alcohol, alcoholic and alcohol-containing products and the restriction of consumption (drinking) of alcohol products», documents in the field of technical regulation, as well as the law of the Eurasian Economic Union the legal basis for the implementation of viticulture and winemaking, as well as state support for these activities has been established.

Grapes quality and safety are stated by technical regulations of the Customs Union (TR CU 021/2011) «On food safety» and national standards, including GOST 25896-83, GOST 27198-87, GOST R 53990-2010, GOST R 52681-2006, GOST R 50522-93, GOST 6882-88. By Federal law «On seed production» the legal basis for the activity on production, processing, storage, sale, transportation and the use of vine seedlings, as well as the organization and conduct varietal control and seed control is established [33].

Acts of the law of the Eurasian Economic Union, which regulate winemaking issues, are technical regulations «On food safety», «Food products in part of its labeling», «Safety requirements food additives, flavors and technological resources», «On safety of machines and equipment», «On safety of alcoholic products», Agreement on the regulation of the alcohol market within the Eurasian Economic Union [34].

In addition, the Russian Federation, being the successor of the USSR, has been a member of the International Organization of Vine and Wine since 1956 year and in the implementation of industry regulation at the national level is guided by standards, guidelines, other documents used in winemaking techniques of the International Organization of Vine and Wine, including the International Code of Wine Practice.

The main federal laws regulating the production and the turnover of wine are federal laws «On state regulation of production and circulation of ethyl alcohol, alcoholic and alcohol-containing products and the restriction of consumption (drinking) of alcohol products», «On the development of agriculture», «On the quality and safety of food products», «On advertising».

Regulation of production of wine and turnover of wine production are carried out under the relevant secondary legislation, interstate standards and national standards and other documents in the field of technical regulation (technological conditions, technological instructions, and standards organizations).

Authority for the development of government policy and regulation in the field of viticulture as a sub-sector of agriculture is carried out by the Ministry of Agriculture of the Russian Federation. Control and supervision functions in the field of quarantine and plant protection, safe using of pesticides and agrochemicals are carried out by the Federal Service for Veterinary and Phytosanitary Surveillance [35].

Over the past 10 years, the authority to develop a government winemaking policy and regulations repeatedly passed from one federal authority executive to another. Currently, they are divided between the Ministry of Agriculture of the Russian Federation

and the Ministry of Finance of the Russian Federation. Subjects of the Russian Federation and local authorities have separate authorities in the field of government regulation of production and turnover of wine products.

In addition, control functions of production and turnover of wine, supervision and provision of services (including licensing) in this area is carried out by the Federal Service on the regulation of the alcohol market.

By Decree of the Government of the Russian Federation of 30 December 2009 №2128-p the «Concept for the implementation of government policies to reduce alcohol abuse consumption and prevention of alcoholism among the population of the Russian Federation until 2020 year» was approved, which includes creation of conditions for the development of Russian winemaking and increasing production of Russian quality wines.

This became the basis for improving the Russian legislation based on the principle of creating a link between viticulture and winemaking and environment for production of wine and sparkling wine from grapes, grown on the territory of the Russian Federation.

Government of the Russian Federation signed a decree of 13 July 2013 №585 «On making changes in the list of agricultural products, production, primary and subsequent (industrial) processing is carried out by agricultural producers», according to which grape, champagne and sparkling wines produced by agricultural producers from own grapes and processed by them in the Russian Federation, included in the list of agricultural products, production, primary and subsequent processing of which is carried out by agricultural producers [36]. This change allowed winemakers to receive agricultural producer status and government support in accordance with the Federal Law «On the Development of Agriculture».

Decree of the government of the Russian Federation from 25 July 2006 №458 «On the attribution of types of products to agricultural products and to the products of primary processing produced from agricultural raw materials of its own production» states that agricultural products, which are used as raw materials in the industrial processing of products or sold without further industrial processing to consumers, including garden products, vineyards, in particular, table grapes, table and wine varieties, and wine varieties, as well as grape wines and grape musts can be related to products of primary processing produced from agricultural raw materials of own production [37].

In accordance with subparagraph 2 of paragraph 6 of article 346.2 of Tax Code of the Russian Federation organizations and individual entrepreneurs engaged in the

production of excise goods cannot use a unified agricultural tax<sup>2</sup>, so the application of a unified agricultural tax to agricultural producers carrying out the production of wine products from grapes of their own production is impossible [38].

In 2014 changes were made in the Budget Code of the Russian Federation allowing government support wine producers, who use in the production of wine products grapes, which are grown in the Russian Federation [39].

The Federal Law «On the development of small and medium entrepreneurship in the Russian Federation» states that financial support for small and medium entrepreneurship (provision of subsidies, budget investments, state and municipal guarantees) cannot be provided for small and medium-sized businesses engaged in production and/or sale of excise goods [40, article 14].

Changes were also made to the Federal Law «On government regulation of the production and circulation of ethyl alcohol, alcohol and alcohol-containing products and on limiting consumption (drinking) of alcohol products», in accordance with which:

- Classification of wines was introduced based on world's experience in wine geographical classification;
- The right of production and circulation of wine produced from grapes grown in the territory of the Russian Federation can use all categories of agricultural producers, including peasant (farmer) households and individual entrepreneurs, for whom a simplified licensing of alcohol products and simplified licensing procedures are done;
- Declaring of the amount of harvested grapes for the production of wine products is introduced. Based on declarations, the calculation of the need for agricultural commodity producers in federal special marks will be done;
- The establishment of the register of grape plantings is introduced [41].

In accordance with the Tax Code of the Russian Federation for wines and sparkling wines with a protected geographical indication or a designation of origin excise rates have been reduced [38, article 193].

Agricultural production support (except activities, which are included in the federal target programs) belongs to the public authorities of the subject of the Russian Federation and it is financed by the budget of the subject or federal budget [32, p. 52].

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<sup>2</sup> Unified agricultural tax is a tax regime, which was created specifically for entrepreneurs and organizations that are engaged in the production of agricultural products in the Russian Federation



Government support for development of viticulture and winemaking is carried out in accordance with the «Government program for the development of agriculture and regulation of markets of agricultural products, raw materials and food for 2013-2020», approved by Government decree of the Russian Federation dated 14 July 2012 №717, as well as regulatory legal acts of the subjects of the Russian Federation [42]

According to this Government program, the main activities on government support are carried out in the form of subsidies to budgets of subjects of the Russian Federation from the federal budget in order to co-financing expenditure commitments arising from the implementation of powers of government authorities of the subjects of the Russian Federation in the field of agriculture, including:

- Subprogram «Development of Crops Production, Processing and Marketing of Products of Plant Origin» for partly compensation of costs on the planting and care of the vineyards;
- Subprogram «Development of Crops Production, Processing and Marketing of Products of Plant Origin» for partly compensation of costs under investment loan agreements concluded for a period from 2 to 8 years, for planting and maintenance of perennial plants, including vineyards, construction and reconstruction of grafting complexes for perennial plantations (including vineyards), refrigerators for storing grapes, for construction, renovation and modernization of wine production facilities, produced from own grapes grown on the territory of the Russian Federation [43, p. 3];
- Subprogram «Development of Crops Production, Processing and Marketing of Products of Plant Origin» for partly compensation of costs of agricultural producers to pay insurance premiums, accrued under the contract of agricultural insurance in crop production in case of loss of the harvest and planting vineyards;
- Subprogram «Support for breeding and seed production» to partly compensation of the direct costs incurred for the construction of breeding and nursery centers for the production of certified planting material of vines [42].

Government regulation of viticulture and winemaking in the 21st century in the Russian Federation is becoming more important strategic direction. There are some laws and decrees, which regulate these industries in the country (they were noted above). The main government program for agricultural products is «Government program for the development of agriculture and regulation of markets of agricultural products, raw materials and food for 2013-2020», which includes government support for agricultural

producers of grapes. «Concept of the development of viticulture and winemaking in the Russian Federation for a period of 2016 – 2020 years and planned period until 2025 year» was introduced to the government in the first reading, although was not accepted. This concept has a lot of ideas about developing these industries as well as recommended sums of governmental support of them. All in all, Russian government tries to revive viticulture and winemaking in the Russian Federation, because these industries can bring more incomes to the federal budget as well as in the current situation of import substitution it is extremely important to make Russian own production of grapes and wines as in the south of the country weather, climatic conditions, soils and territories are good for developing this production. Moreover, with bigger governmental support it will be easily for grape producers to enlarge their vineyards and take care of them. The system of taxation for wine producers is favorable for those producers, who use grapes, which were grown in the same Russian subject.

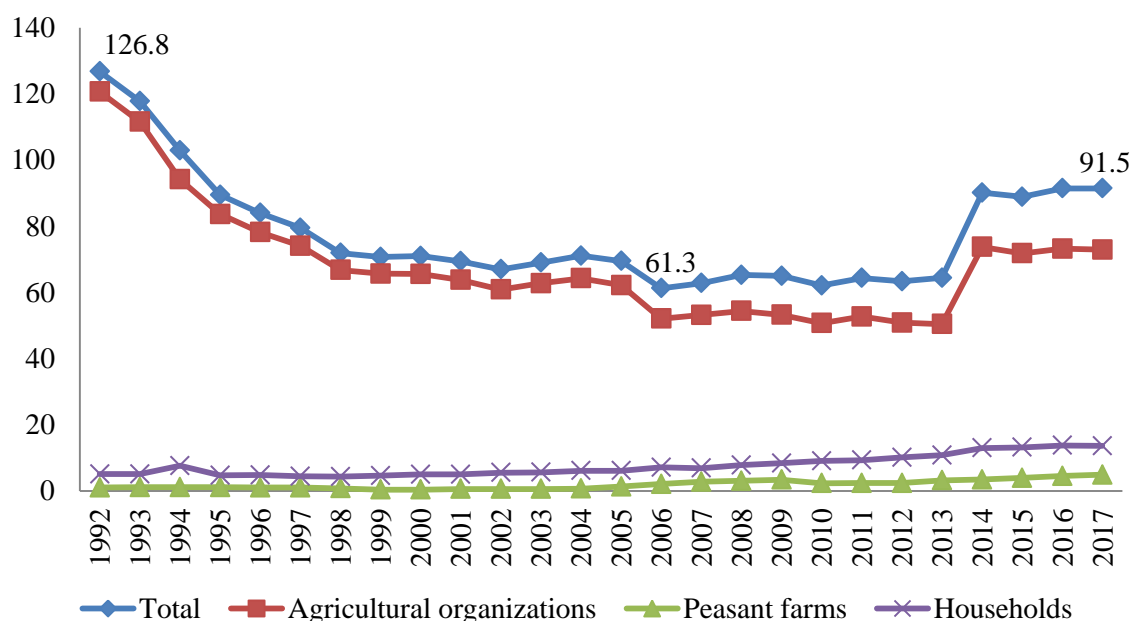
In the literature review of this diploma thesis basic theoretical information about viticulture and winemaking is presented. History of the development of grapes and wine production is an important part of the research because past experience can help to understand current situation in the industries and the main problems in them. Main regions in the Russian Federation, where viticulture and winemaking are one of the most important economic activities, as well as their characteristics are also presented on this chapter. Main features of these industries and main problems of the industries are studied. At the end of the chapter government regulation of the industry is presented.

## 4. PRACTICAL PART

### 4.1. Current state of viticulture and winemaking in the Russian Federation

Since the USSR<sup>3</sup> times viticulture has been one of the most important branches of agriculture. In south regions of the Russian Federation there are a lot of areas, where vines can be grown. Unfortunately, because of anti-alcoholic reform areas under vineyards have been destroyed very much and since those times areas under vineyards had been showing a decline until 2006 year (figure 4) [43]. From 1992 year to 2006 year areas under vines fell significantly by 51.6% from 126.8 thousand hectares to 61.3 thousand hectares accordingly. From 2007 year a revival of viticultural industry in the Russian Federation has been going on. Russian government stimulates planting of new vineyards by giving subsidies to grapes producers. From 2007 year to 2013 year areas under vines have been fluctuating and increased only by 2.5%.

Figure 4: Areas under vines in the Russian Federation in 1992 - 2017 years, thousand hectares



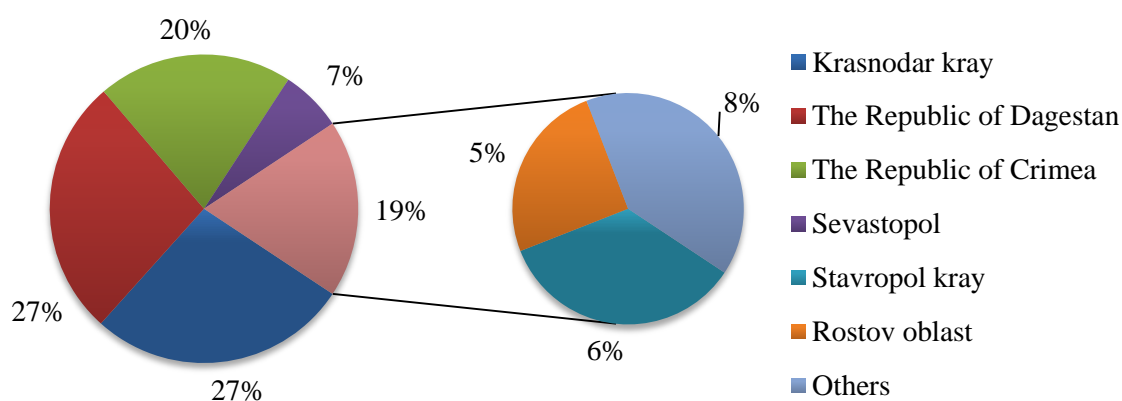
Source: Federal State Statistic Service. *Areas, gross harvest and yield of fruits, berries and grapes in the Russian Federation* [online]. Available at: [http://www.gks.ru/wps/wcm/connect/rosstat\\_main/rosstat/ru/statistics/publications/catalog/doc\\_1265196018516](http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/doc_1265196018516). Accessed 7 January 2019.

<sup>3</sup> The Union of Soviet Socialist Republics

With joining of territories of the Republic of Crimea and Sevastopol to the Russian Federation areas under vines in 2014 years increased dramatically by almost 40% from 64.4 thousand hectares in 2013 year to 90.2 thousand hectares in 2014 year (primary because of areas under vineyards in Crimea and Sevastopol, which accounted for 24.6 thousand hectares). From 2014 year areas under vineyards have been increasing steadily year by year (by 1.4% in 2017 year in comparison to 2014 year). Still every year more and more vines are planted because government believes that more grapes can be produced in the Russian Federation and it encourages producers to enlarge territories under vines. Agricultural organizations had 79.8% of total areas under vines, households had 14.9% and peasant farms had only 5.3% in 2017 year.

Krasnodar kray and the Republic of Dagestan have the biggest areas under vines, which accounted for 25 thousand hectares and 24.8 thousand hectares in 2017 year accordingly (figure 5) [43]. The third place by areas under vines is taken by the Republic of Crimea (18.7 thousand hectares in 2017 year). Then Sevastopol areas under vines and areas under vines in Stavropol kray come (5.92 thousand hectares and 5.91 thousand hectares in 2017 year accordingly). Areas under wines in Rostov region accounted for 4.2 thousand hectares in 2017. The remained 6.8 thousand hectares of areas under vines were in other region of the Russian Federation.

Figure 5: Structure of areas under vines by Russian subjects in 2017 year, % of total

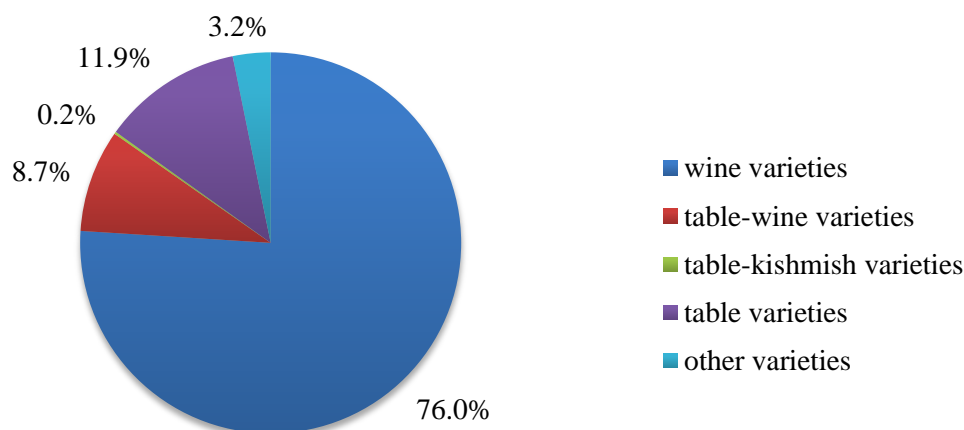


Source: Federal State Statistic Service. *Areas, gross harvest and yield of fruits, berries and grapes in the Russian Federation* [online]. Available at: [http://www.gks.ru/wps/wcm/connect/rosstat\\_main/rosstat/ru/statistics/publications/catalog/doc\\_1265196018516](http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/doc_1265196018516). Accessed 7 January 2019.

In dynamics from 2007 year to 2017 year areas under vines in Krasnodar kray increased by 2.6% (by 0.6 thousand hectares) [44], in the Republic of Dagestan areas under vines increased by 8.9% (by 2 thousand hectares) [45], in Stavropol kray areas under vines decreased dramatically by 17.4% (by 1.2 thousand hectares) [46], in Rostov oblast areas under vines increased by 6.1% (by 0.3 thousand hectares) [47], areas under vines in other Russian regions increased dramatically by 52.3% (by 2.3 thousand hectares). In the Republic of Crimea from 2014 year to 2017 year areas under vines increased by 2.1% (by 0.4 thousand hectares) and in Sevastopol areas under vines decreased by 5% (by 0.3 thousand hectares) [48].

In the structure of grape varieties in Russian agricultural organization in 2016 year wine varieties predominated (76% of total grape varieties), table varieties accounted for only 11.9%, table-wine varieties accounted for 8.7%, table-kishmish varieties accounted for 0.2% and remained 3.2% accounted for other varieties (figure 6) [49]. So in the Russian Federation most vines are grown for winemaking. But still a lot of import grapes and wine materials are used for winemaking and import substitution of grapes and wine musts cannot be implemented in the near future due to a lot of problems in the industry of viticulture and not enough gross harvest of grapes.

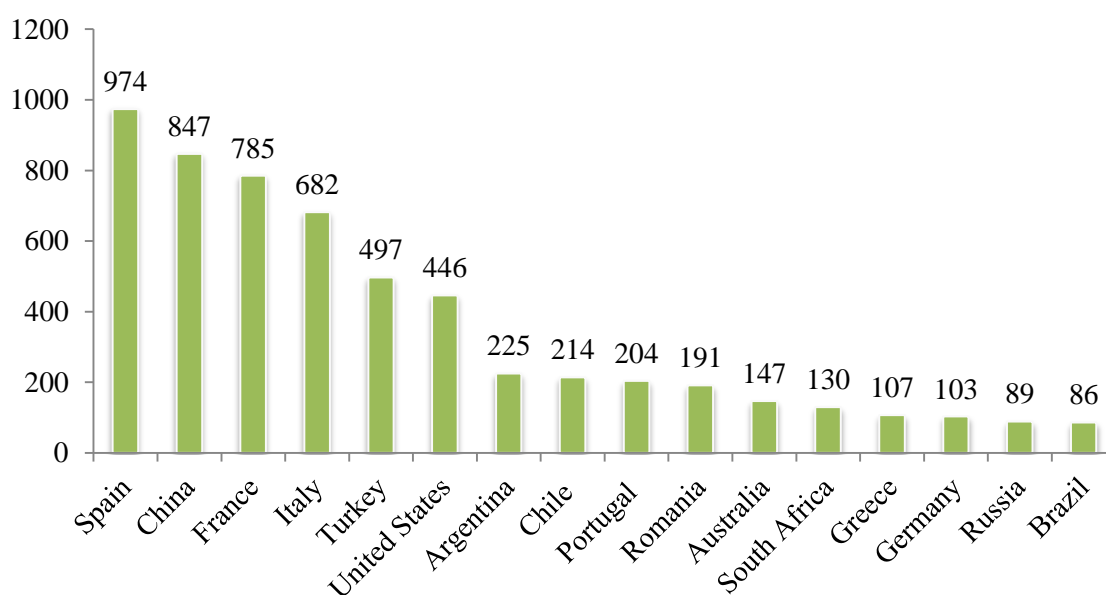
Figure 6: Structure of areas under vines by grape varieties in agricultural organizations of the Russian Federation in 2016 year, % to total



Source: Federal State Statistical Service. *Russian statistical yearbook 2017: Statistical handbook*, p. 383. Moscow, 2017. ISBN 978-5-89476-440-5.

While making an analysis of some phenomena it is important to compare some indicators to world standards or to other companies or countries just to understand how things are happening. When talking about indicators on a country level the only possible way of comparison is on an international level. Accordingly to International Organization of Vine and Wine in 2015 year Spain had the biggest areas under vines (974 thousand hectares), then China came (847 thousand hectares), France had 785 thousand hectares, Italy had 682 thousand hectares, Turkey had 497 thousand hectares and the United States had 446 thousand hectares (figure 7) [50]. The Russian Federation was on 15<sup>th</sup> place in the world by areas under wines, which accounted for 89 thousand hectares in 2015 year, which was 10 times lesser than areas under vines of the total leader Spain. However, the Russian Federation has its opportunities to enlarge areas under vines in the southern regions of the country to almost 200 thousand hectares (as it used to be in the times of the USSR).

Figure 7: Areas under vines in the world in 2015 year, thousand hectares



Source: International Organization of Vine and Wine. State of the viticulture world market April 2018, p. 4 [online]. Available at: <http://www.oiv.int/public/medias/5958/oiv-state-of-the-vitiviniculture-world-market-april-2018.pdf>. Accessed 8 January 2019.

The change in socio-economic phenomena over time is studied by statistics using the method of constructing and analyzing of time series. Time series are the values of statistical indicators that are presented in a certain chronological sequence. For analyzing gross harvest of grapes (in tonnes) in the Russian Federation in 2008 – 2017 years time

series indicators were calculated (Appendix 2). For calculating absolute change of gross harvest of grapes with chained base formula 1 has been used.

$$\Delta y_{i/i-1} = y_i - y_{i-1}, \quad (1)$$

where  $y_i$  is the value of gross harvest of grapes in  $i$  period,  $y_{i-1}$  is the value of gross harvest of grapes in  $i-1$  period [51, p. 80].

Absolute gross harvest increase with chained base in 2017 year means that this indicator decreased by 21.26 tonnes in 2017 year in comparison with 2016 year. The maximum absolute gross harvest increase with chained period in 2013 year means that in 2013 year there was the maximum increase of this indicator, which was equal to 179 tonnes. All in all, gross harvest of grapes has been fluctuating through the years with decrease in 2008, 2012, 2015 and 2017 years.

For calculating absolute change of gross harvest of grapes with fixed base formula 2 has been used.

$$\Delta y_{i/0} = y_i - y_0, \quad (2)$$

where  $y_0$  is the value of gross harvest of grapes in base period [51, p. 80].

Absolute gross harvest increase with fixed base shows that in 2017 year this indicator increased by 259.3 tonnes comparing to 2007 year. However, the biggest increase of gross harvest of grapes was in 2016 year (280.6 tonnes) comparing to the base year of 2007.

For calculating dynamic index with chained base formula 3 has been used [51, p. 81].

$$I_{i/i-1} = \frac{y_i}{y_{i-1}} * 100 \quad (3)$$

Dynamic index of gross harvest of grapes with chained base means that in 2017 year indicator accounted for 96.47% from the previous year, in 2016 year it accounted for 115.65% from the previous year.

For calculating dynamic index with fixed base formula 4 has been used [51, p. 81].

$$I_i = \frac{y_i}{y_0} * 100 \quad (4)$$

Dynamic index of gross harvest of grapes with fixed base means that in 2017 year indicator accounted for 180.86% from 2007 year, in 2016 year it accounted for 187.49% from the 2007 year.

For calculating rate of increase (decrease) with chained base formula 5 has been used [51, p. 82].

$$R_{i/i-1} = \frac{y_i - y_{i-1}}{y_{i-1}} * 100 \quad (5)$$

Rate of increase (decrease) of gross harvest of grapes with chained base shows that in 2017 year there was a decrease of this indicator by 3.5% comparing to 2016 year. This decrease is explained by bad weather conditions in 2017 year. In 2013 year this indicator increased by 63.3% comparing to 2012 year.

For calculating rate of increase (decrease) with fixed base formula 6 has been used [51, p. 82].

$$R_{i/0} = \frac{y_i - y_0}{y_0} * 100 \quad (6)$$

Rate of increase (decrease) of gross harvest of grapes with fixed base shows that in 2017 year gross harvest of grapes increased by 80.8% comparing to 2007 year and in 2016 year indicator increased by 87.4% comparing to 2007 year. It can be concluded that in 2016 year there was the biggest gross harvest of grapes through the period from 2007 – 2017 years.

For calculating absolute value of a percentage of increase (decrease) with chained base formula 7 has been used [51, p. 83].

$$A_{i/i-1} = \frac{y_{i-1}}{100} \quad (7)$$

Absolute value of gross harvest of grapes of a percentage of increase (decrease) with chained base means that in 2017 year 1 percent of decrease since 2016 year is equal to 6.01 tonnes.

Extrapolation is a method of scientific research, which is based on the distribution of past and present trends, patterns, relationships for the future development of the object of forecasting. Extrapolation methods include the moving average method, the exponential smoothing method, and the least squares method. In statistics, a moving average is a sequential series of average values with a certain smoothing period and is calculated to determine the tendency for a random variable to change. The essence of the method of least squares is to minimize the sum of the quadratic deviations between the observed and



calculated values. The calculated values are found by the regression equation. This method can be used for forecasting of indicators in the future using formula 8 [52].

$$y_{t+1} = a * x + b, \quad (8)$$

where  $y_{t+1}$  is a forecasting indicator,  $a$  and  $b$  are coefficients of linear regression function,  $x$  is conditional time symbol.

For using the least square method and moving average for gross harvest of grapes the next calculations have been made (table 2). The linear regression equation is  $y = 34.076x + 221.1$ , which was got by using Regression instrument in Excel (dependent variable is  $y$  and independent variable is  $t$  in the table 2). For calculating column  $\tilde{Y}_t$   $t$  should be put in this equation. Moving average was calculated for 5 years and it is sum of the first 5 values of  $y$ , then the next 5, starting from the second value and so on.

Table 2: Calculated data for time series analysis of gross harvest of grapes in the Russian Federation in 2007 – 2017 years and forecast for 2018 – 2020 years

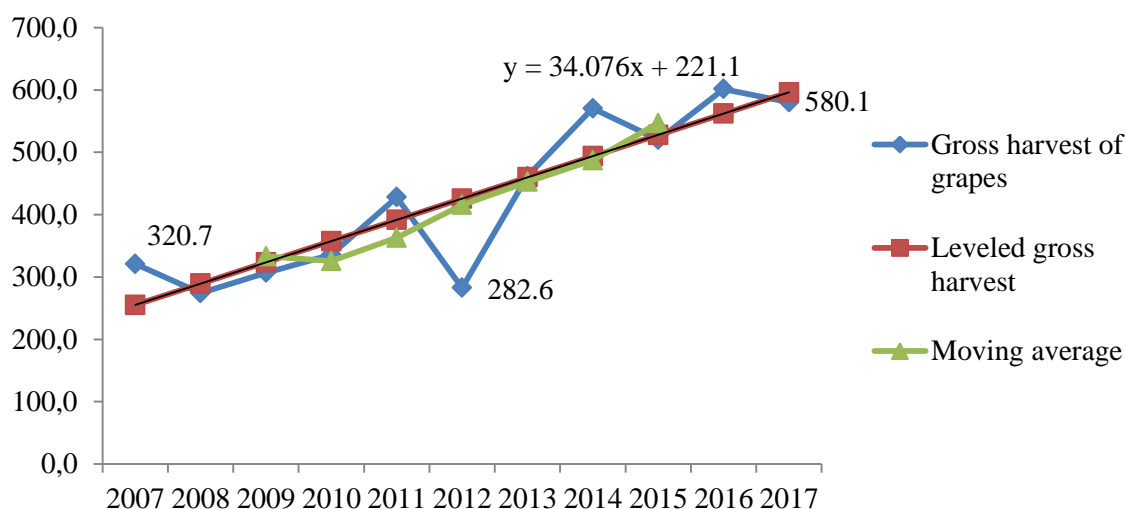
Year	t	y (gross harvest of grapes, tonnes)	$y_t$	$t^2$	$\tilde{Y}_t$	$y - \tilde{Y}_t$	Moving average for 5 years
2007	1	320.7	320.73	1	255.18	65.55	
2008	2	274.2	548.40	4	289.25	-15.05	
2009	3	306.6	919.87	9	323.33	-16.70	333.02
2010	4	335.8	1343.13	16	357.40	-21.62	325.40
2011	5	427.8	2138.90	25	391.48	36.30	362.89
2012	6	282.6	1695.73	36	425.56	-142.93	415.64
2013	7	461.6	3231.50	49	459.63	2.01	452.48
2014	8	570.4	4563.16	64	493.71	76.69	487.19
2015	9	520.0	4679.81	81	527.78	-7.80	546.69
2016	10	601.3	6013.33	100	561.86	39.47	
2017	11	580.1	6380.85	121	595.94	-15.86	
2018	12			144	630.01		
2019	13			169	664.09		
2020	14			196	698.16		

Source: Federal State Statistic Service. *Areas, gross harvest and yield of fruits, berries and grapes in the Russian Federation* [online]. Available at: [http://www.gks.ru/wps/wcm/connect/rosstat\\_main/rosstat/ru/statistics/publications/catalog/doc\\_1265196018516](http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/doc_1265196018516). Accessed 7 January 2019. Author's computations.

Gross harvest of grapes was fluctuating since 2007 year (figure 8). The lowest level of this indicator for the period accounted to 282.6 tonnes in 2012 year. The highest level of indicator accounted for 601.3 tonnes in 2016 year; in 2017 year there was a decrease of the indicator to 580.1 tonnes. Moving average for 5 years allowed to smooth fluctuations of

the indicator and showed that there was a tendency of increase of the indicator through the years. The method of least squares helped to make a prediction for the next three years (table 2). Thus, in 2018 year the gross harvest of grapes could be 630.01 tonnes (though there is still no information about it, so it cannot be compared to the real results), in 2019 year it will be 664.09 tonnes and in 2020 year it will be 698.16 tonnes.

Figure 8: Gross harvest of grapes, leveled gross harvest and moving average for 5 years in the Russian Federation in 2007 - 2017 years, tonnes

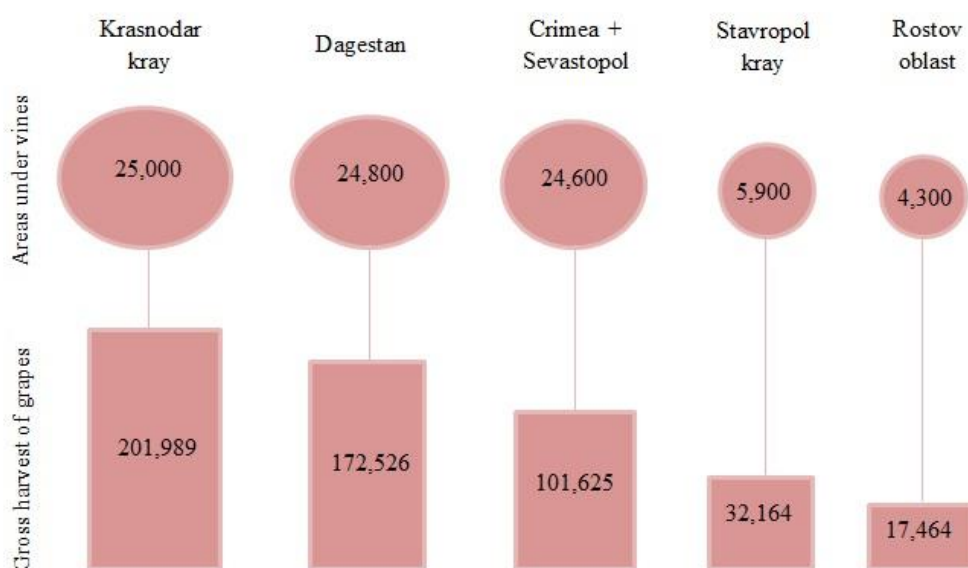


Source: Federal State Statistic Service. *Areas, gross harvest and yield of fruits, berries and grapes in the Russian Federation* [online]. Available at: [http://www.gks.ru/wps/wcm/connect/rosstat\\_main/rosstat/ru/statistics/publications/catalog/doc\\_1265196018516](http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/doc_1265196018516). Accessed 7 January 2019. Author's computations.

The areas under vines and gross harvest of grapes by regions are presented on the figure 9. The leader between them is Krasnodar kray with 25,000 hectares of vines and 201,989 tonnes of grapes harvested in 2017 year. The Republic of Dagestan takes the second place and had 24,800 hectares of vines and 172, 526 tonnes harvested in 2017. The Republic of Crimea and Sevastopol had 24,600 hectares of vines and 101,625 tonnes of grapes harvested in 2017. That means that yields of grapes in Crimea and Sevastopol are not so high comparing to other Russian viticultural subjects, which is a problem that should be solves to increase gross harvest of grapes. Stavropol kray had 5,900 hectares and 32,264 tonnes of grapes harvested in 2107 year and Rostov oblast had 4,300 hectares and 17,464 tonnes of grapes harvested in 2017 year.

According to the Crimean Ministry of Agriculture, in 2017 year 674 hectares of vineyards were planted in the region, in 2016 year 559 hectares were planted, in 2015 year 269 hectares were planted and in 2014 year 250 hectares of vineyards were planted in the Republic [53].

Figure 9: Areas under vines (hectares) and gross harvest of grapes (tonnes) in main winemaking regions of the Russian Federation in 2017 year



Source: Federal State Statistic Service. Areas, gross harvest and yield of fruits, berries and grapes in the Russian Federation [online]. Available at: [http://www.gks.ru/wps/wcm/connect/rosstat\\_main/rosstat/ru/statistics/publications/catalog/doc\\_1265196018516](http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/doc_1265196018516). Accessed 7 January 2019. Made by author.

For studying yields of grapes in the Russian Federation the least square method and moving average were used as well as for gross harvest of grapes previously. For using the least square method and moving average for yields of grapes the next calculations have been made (table 3). The linear regression equation is  $y = 1.7536x + 66.905$ , which was got by using Regression instrument in Excel (dependent variable is  $y$  and independent variable is  $t$  in the table 3). For calculating column  $\tilde{Y}_t$   $t$  should be put in this equation. Moving average was calculated for 5 years and it is sum of the first 5 values of  $y$ , then the next 5, starting from the second value and so on.

Yield of grapes was fluctuating since 2007 year (figure 10). The lowest level of this indicator for the period accounted for 61.1 centners per hectare in 2012 year. The highest level of indicator accounted for 94.5 centners per hectare in 2016 year; in 2017 year there was a decrease of the indicator to 84.9 centners per hectare.

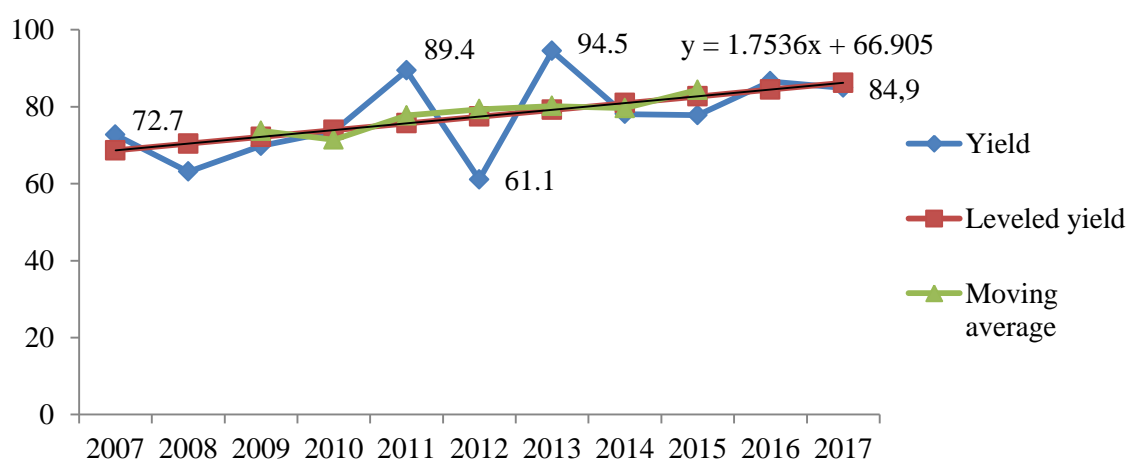
Table 3: Calculated data for time series analysis of yield of grapes in the Russian Federation in 2007 – 2017 years and forecast for 2018 – 2020 years

Year	t	y	$y_t$	$t^2$	$\hat{Y}_t$	$y - \hat{Y}_t$	Moving average
2007	1	72.7	72.7	1	68.7	4.0	
2008	2	63.1	126.2	4	70.4	-7.3	
2009	3	69.8	209.4	9	72.2	-2.4	73.74
2010	4	73.7	294.8	16	73.9	-0.2	71.42
2011	5	89.4	447	25	75.7	13.7	77.70
2012	6	61.1	366.6	36	77.4	-16.3	79.36
2013	7	94.5	661.5	49	79.2	15.3	80.18
2014	8	78.1	624.8	64	80.9	-2.8	79.62
2015	9	77.8	700.2	81	82.7	-4.9	84.38
2016	10	86.6	866	100	84.4	2.2	
2017	11	84.9	933.9	121	86.2	-1.3	
2018	12			144	87.9		
2019	13			169	89.7		
2020	14			196	91.5		

Source: Federal State Statistic Service. Areas, gross harvest and yield of fruits, berries and grapes in the Russian Federation [online]. Available at: [http://www.gks.ru/wps/wcm/connect/rosstat\\_main/rosstat/ru/statistics/publications/catalog/doc\\_1265196018516](http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/doc_1265196018516). Accessed 7 January 2019. Made by author.

Moving average for 5 years helped to smooth fluctuations of the indicator and showed that was a tendency of increase of the indicator through the years

Figure 10: Yield of grapes, leveled yield of grapes and moving average for 5 years in the Russian Federation in 2007 - 2017 years, centners per hectare



Source: Federal State Statistic Service. Areas, gross harvest and yield of fruits, berries and grapes in the Russian Federation [online]. Available at: [http://www.gks.ru/wps/wcm/connect/rosstat\\_main/rosstat/ru/statistics/publications/catalog/doc\\_1265196018516](http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/doc_1265196018516). Accessed 7 January 2019. Author's computations.

The method of least squares helped to make a prediction for the next three years (table 3). Thus, in 2018 year the gross harvest of grapes could be 87.9 centners per hectare (though there is still no information about it, so it cannot be compared to the real results), in 2019 year it will be 89.7 centners per hectare and in 2020 year it will be 91.5 centners per hectare.

Yield of grapes in the main winemaking regions of the Russian Federation has been increasing from 2007 year (table 4). Thus, yield under grapes in Krasnodar kray in 2017 year increased by 16% comparing to 2007 year and accounted for 93.6 centners per hectare. The highest yield of grapes in Krasnodar kray was in 2016 year and it accounted for 114.9 centners per hectare. Yield of grapes in the Republic of Dagestan increased significantly in 2017 year by 37.2% comparing to 2007 year and it accounted for 104.4 centners per hectare, which was the highest among researched regions and the highest for the period in the Republic. Yield of grapes in Stavropol region increased by 19.3% in 2017 year comparing to 2007 year and accounted for 77.9 centners per hectare. Yield of grapes in Rostov oblast increased by 32.9% in 2017 year comparing to 2007 year and accounted for 55.4 centners per hectare.

Table 4: Yield of grapes by main winemaking Russian regions in 2007 - 2017 years, centners per hectare

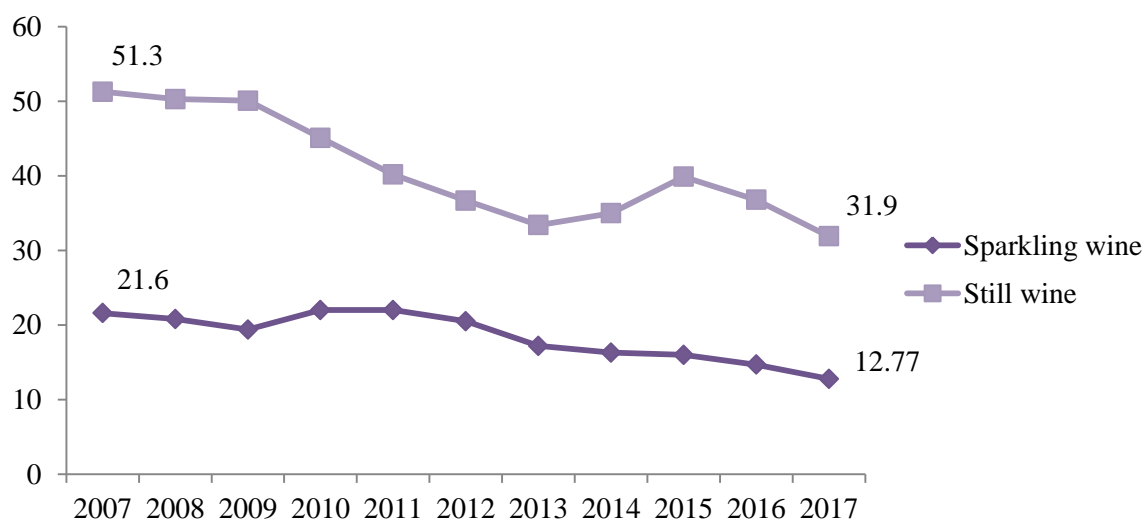
Year	Krasnodar kray	The Republic of Dagestan	The Republic of Crimea	Sevastopol	Stavropol kray	Rostov oblast
2007	80.7	76.1	x	x	65.3	41.7
2008	74	57.7	x	x	52.2	49.1
2009	83.9	64.1	x	x	54.7	54.4
2010	79	77.7	x	x	60.2	64
2011	112.5	79	x	x	60.4	66.2
2012	77.4	39.2	x	x	44.2	60.4
2013	103.2	89	x	x	89.5	62.5
2014	99.1	90	46.7	57.1	69.1	70.5
2015	88.3	95.4	49.8	51.1	58.8	52.9
2016	114.9	92.7	44.2	59.5	101.1	54
2017	93.6	104.4	53	62.9	77.9	55.4
2017 in % to 2007	116.0	137.2	x	x	119.3	132.9

Source: Federal State Statistic Service. *Areas, gross harvest and yield of fruits, berries and grapes in the Russian Federation* [online]. Available at: [http://www.gks.ru/wps/wcm/connect/rosstat\\_main/rosstat/ru/statistics/publications/catalog/doc\\_1265196018516](http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/doc_1265196018516). Accessed 7 January 2019. Made by author.

Yield of grapes in Sevastopol accounted for 62.9 centners per hectare in 2017 year. The lowest yield of grapes was in the Republic of Crimea. Even though increasing through years, yield of grapes still was low in 2017 year. It accounted for 53 centners per hectare in the Republic of Crimea.

Production of still and sparkling wines has been decreasing from 2007 year (figure 11) [54]. Production of still wine decreased by 62% in 2017 in comparison to 2007 year and it accounted for 31.9 million decalitres. Production of sparkling wines decreased by 59% in 2017 year in comparison to 2007 year and it accounted for 12.77 million decalitres.

Figure 11: Production of still and sparkling wines in the Russian Federation in 2007 - 2017 years, million decalitres<sup>4</sup>



Source: Federal State Statistic Service. *Production of main products in physical terms* [online]. Available at: [http://www.gks.ru/free\\_doc/new\\_site/business/prom/natura/god10.htm](http://www.gks.ru/free_doc/new_site/business/prom/natura/god10.htm). Accessed 12 January 2019. Made by author.

According to analysts, the reasons for the decline in production of wines are the government attempts to reduce alcoholism and the decline in consumer incomes. People buy less expensive wine, preferring more budget options. However, the production of fruity wines increased rapidly by 2.5 times in 2017 year in comparison with 2016 year. This is due to the fact that fruity wines take a big share of the budget market.

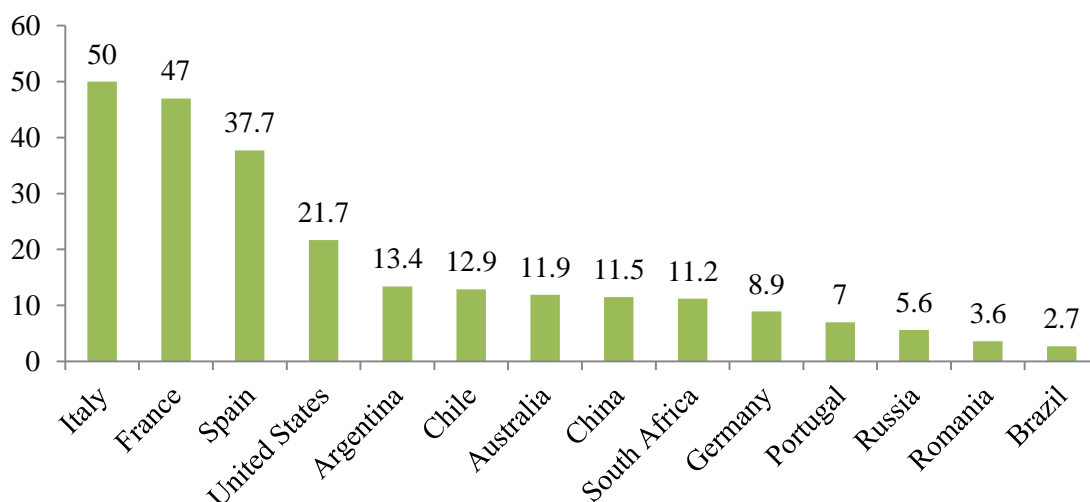
Krasnodar kray was the biggest producer of still and sparkling wines in the Russian Federation in 2017 year. In 2017 year 13.6 million decalitres of wine was produced in the

<sup>4</sup> 1 decalitre = 10 litres

region, which accounted for 42% of the total Russian still wine production and 3.6 million decalitres of sparkling wines, which accounted for 28% of the total sparkling wine production. The amount of tax revenues from the industry in the regional budget increased by 1.7 times in 2017 year and was equal to more than 5 billion rubles [55]. Viticultural and winemaking industries are one of the socially significant in the agricultural sector of Krasnodar kray. The industry has created more than 10 thousand jobs. Viticultural and winemaking industries provide 1.5% of revenues to the regional budget and create more than 1% of the gross regional product.

While speaking about world production of wine there are the main three leaders in this industry, which are Italy (50 million hectolitres of wine produced in 2015 year), France (47 million hectolitres) and Spain (37.7 million hectolitres) (figure 12) [55]. The Russian Federation is only on 12 place by wine production in the world (5.6 million hectolitres of wine produced in 2015 year).

Figure 12: World wine production in 2015 year, million hectolitres<sup>5</sup>



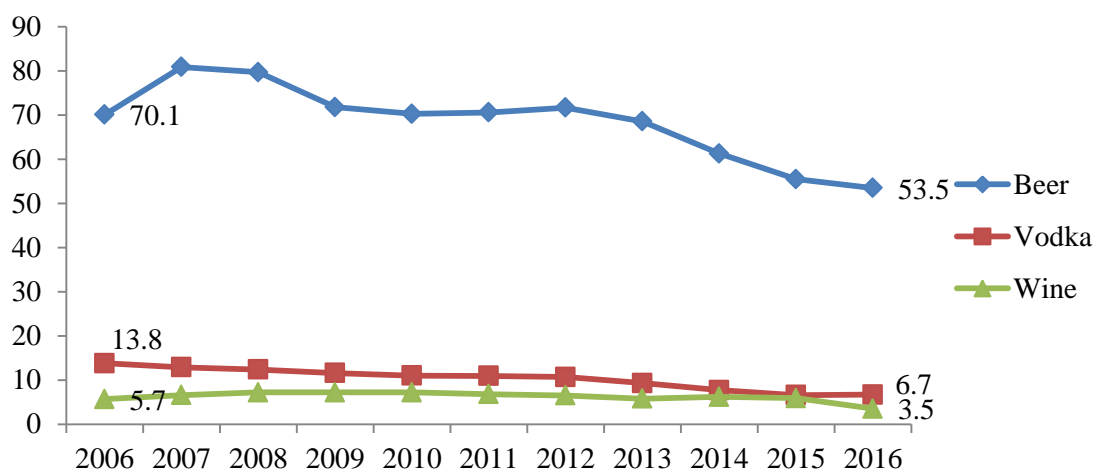
Source: International Organization of Vine and Wine. State of the viticulture world market April 2018, p. 7 [online]. Available at: <http://www.oiv.int/public/medias/5958/oiv-state-of-the-vitiviniculture-world-market-april-2018.pdf>. Accessed 12 January 2019.

There is a tendency of reducing of consumption of alcoholic beverages in the Russian Federation since 2007 year (figure 13) [56]. Thus, consumption of the most popular alcoholic beverage in the country, which is beer, decreased by 33.9% from 2007 year to 2016 year and it accounted for 53.5 litres per capita in 2016 year. Consumption of

<sup>5</sup> 1 hectolitre = 100 litres

vodka reduced by 48% in 2016 year in comparison to 2007 year and it accounted for 6.7 litres per capita in 2016 year. Consumption of wine decreased by 47% in 2016 year in comparison to 2007 year and it accounted for only 3.5 litres per capita in 2016 year.

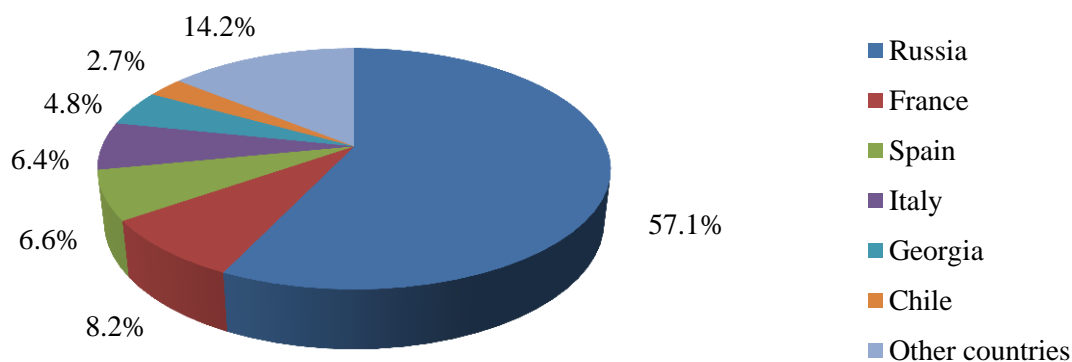
Figure 13: Consumption of alcoholic beverages in the Russian Federation in 2007 - 2016 years, litres per capita



Source: Market of alcohol products in Russia: results 2017. KOLORO [online]. Available at: <https://koloro.ru/blog/issledovaniya/rynok-alkogolnoy-produktsii-v-rossii-itogi-2017.html>. Accessed 13 January 2019. Made by author.

In the Russian market of still wines in 2014 year Russian still wines took the most market share (57.1%) (figure 14) [57]. Still wines from France (8.2% of market share in 2014), Spain (6.6% of the market share), Italy (6.4% of market share), Georgia (2.7% of market share) and Chile (2.7% of market share) were popular, too.

Figure 14: Russian market of still wines by countries of origin in 2014 year, % of total



Source: Fanagoria. *Growth rules: what Russian wine sales depend on* [online]. Available at: <http://www.fanagoria.ru/media/entry/pravila-rosta-ot-chego-zavisyat-prodazhi-rossijskogo-vina>. Accessed 13 January 2019.



Import of grape wines into the Russian Federation from January to October of 2018 year accounted for 31,766 thousand decalitres or 801,562.2 thousand US dollars (table 5) [58]. By average prices of 1 decalitre French wines were the most expensive ones (51.39 US dollars per 1 decalitre), then Italian wines come (37.76 US dollars per 1 decalitre), Georgian wines costed 30.31 US dollars per 1 decalitre. The biggest import cost was from Italy (223,728.2 US dollars) as well as from other countries (207,416.2 US dollars).

Table 5: Volume and costs of import of grape wine into the Russian Federation in January - October 2018

Indicator	Spain	Italy	Georgia	Ukraine	France	Other countries
Volume of import, thousand decalitres	6,191.4	5,924.7	3,020.8	2,858.6	2,794.5	10,976
Import cost, thousand US dollars	119,559.4	223,728.2	91,558	15,698.1	143,602.4	207,416.2

Source: Analytical center under the government of the Russian Federation. *Market of alcohol IV quarter 2018*, p. 22 [online]. Available at: <http://ac.gov.ru/files/publication/a/20509.pdf>. Accessed 17 January 2019.

Import of grapes into the Russian Federation in 2010 year accounted for 409 thousand tonnes (576 million US dollars), in 2015 year it accounted for 256 thousand tonnes (283 million US dollars) and in 2016 year it accounted for 193 thousand tonnes (185 million US dollars). Thus, volume of import of grapes reduced by 53% in natural value in 2016 in comparison with 2010 year. Import of grape wines into the Russian Federation in 2010 year accounted for 55,148 thousand decalitres (825 million US dollars), in 2015 year it accounted for 39,990 thousand tonnes (693 million US dollars) and in 2016 year it accounted for 40,399 thousand tonnes (728 million US dollars). Thus, volume of import of grape wines reduced by 27% in natural value in 2016 in comparison with 2010 year.

Export of grape wines from the Russian Federation from January to October of 2018 year accounted for 252.8 thousand decalitres or 5,719.1 thousand US dollars (table 6). Russian wines are not popular abroad, that is why export of wines has a low cost. Most wines were exported into Ukraine (105.3 thousand decalitres or 1,709.8 thousand US dollars). To China 61.2 thousand decalitres or 1,306 thousand US dollars were exported, then export to Kazakhstan, Latvia and Abkhazia came. Export of Russian wines into other countries accounted for 32.2 thousand decalitres or 1,106 thousand US dollars.

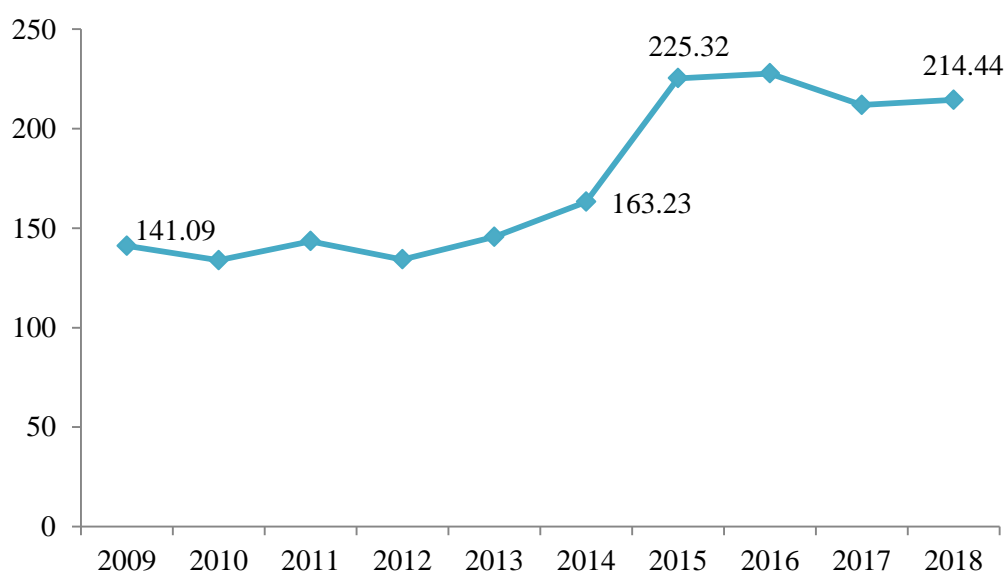
Table 6: Volume and costs of export of grape wine from the Russian Federation in January - October 2018

Indicator	Ukraine	China	Kazakhstan	Abkhazia	Latvia	Other countries
Volume of export, thousand dectalitres	105.3	61.2	34.8	17.2	7.5	32.2
Export cost, thousand US dollars	1,709.8	1,306	961.7	210.4	425.2	1,106

Source: Analytical center under the government of the Russian Federation. *Market of alcohol IV quarter 2018*, p. 24 [online]. Available at: <http://ac.gov.ru/files/publication/a/20509.pdf>. Accessed 17 January 2019.

Average consumer prices for grapes in the Russian Federation were increasing from 2009 year (figure 15) [59]. In April of 2015 year there was a sharp increase in price of grapes comparing to April of 2014 year, which accounted for 38%, or 62.09 rubles per kg. This could happen because of implementing of sanctions on some agricultural products and because of increase in prices in the Russian Federation after gaining Crimean territories. The highest price for grapes was in April of 2016 year (227.77 rubles per kg).

Figure 15: Average consumer prices for grapes in the Russian Federation in April of 2009 - 2018 years, rubles per kg



Source: Federal State Statistics Service. Central Base of Statistics Data [online]. Available at: <http://www.gks.ru/dbscripts/cbsd/DBInet.cgi?pl=1921001>. Accessed 18 January 2019.

To analyze changes in prices individual indexes of prices can be used. In order to calculate price indexes with chained base the next formula 9 can be used [60].

$$I_p = \frac{p_i}{p_{i-1}}, \quad (9)$$

where  $p_i$  is the price in  $i$  period,  $p_{i-1}$  is the price in the previous period.

In order to calculate price indexes with fixed base the next formula 10 can be used [60].

$$I_{p_0} = \frac{p_i}{p_0}, \quad (10)$$

where  $p_0$  is the price in the base period.

Index  $I_p$  for 2018 (1.01) year means that in April of 2018 year there was an increase in prices by 1% comparing to April of 2017 year (table 7). The biggest increase in prices for the period was in April of 2015 year ( $I_p = 1.38$ ), which means that prices increased by 38% comparing to April of 2014 year.

Index  $I_{p_0}$  for 2018 year means that in April of 2018 year there was an increase in prices by 52% comparing to April of 2009 year. The biggest increase in prices for the period was in April of 2016 year ( $I_p = 1.61$ ), which means that prices increased by 60% comparing to April of 2009 year.

Table 7: Indexes of average consumer prices for grapes in the Russian Federation in April of 2009 - 2018 years

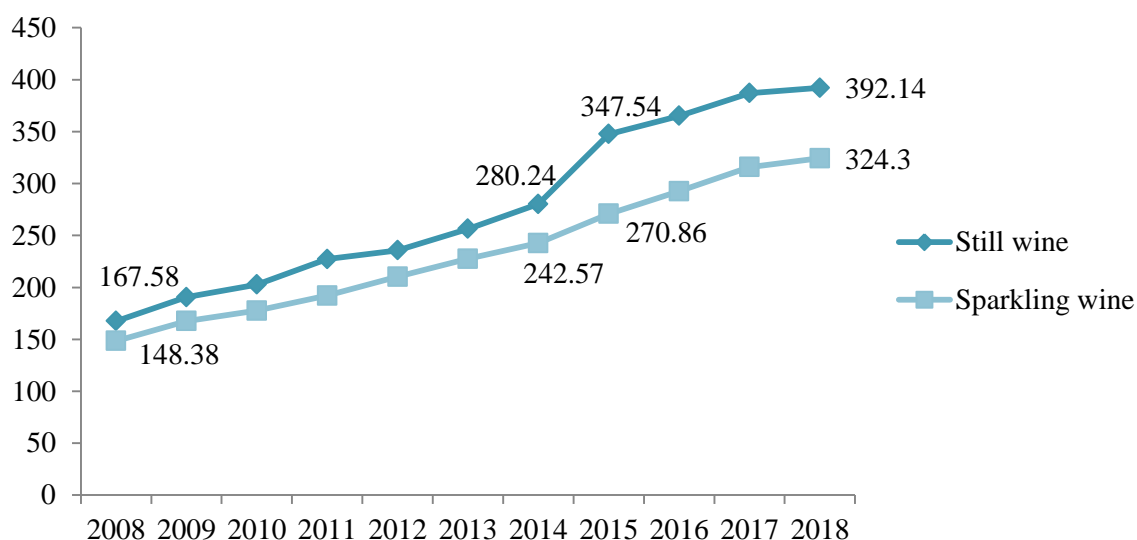
Year	p (rubles per kg)	$I_p$	$I_{p_0}$
2009	141.09	x	x
2010	133.87	0.95	0.95
2011	143.41	1.07	1.02
2012	134.27	0.94	0.95
2013	145.57	1.08	1.03
2014	163.23	1.12	1.16
2015	225.32	1.38	1.60
2016	227.77	1.01	1.61
2017	211.93	0.93	1.50
2018	214.44	1.01	1.52

Source: Federal State Statistics Service. Central Base of Statistics Data [online]. Available at: <http://www.gks.ru/dbscripts/cbsd/DBInet.cgi?pl=1921001>. Accessed 18 January 2019. Author's computations.

Average consumer prices for still and sparkling wine were increasing steadily from 2008 year (figure 16). In April of 2015 year there was a sharp increase in price of still

wines comparing to April of 2014 year, which accounted for 24%, or 67.3 rubles per litre. This could happen because of the same reasons as for prices of grapes, indicated earlier. The highest price for still wines was in April of 2018 year (392.14 rubles per litre). The highest price for sparkling wines was in April of 2018 year (324.3 rubles per litre).

Figure 16: Average consumer prices for still and sparkling wines in the Russian Federation in April of 2008 - 2018 years, rubles per litre



Source: Federal State Statistics Service. Central Base of Statistics Data [online]. Available at: <http://www.gks.ru/dbscripts/cbsd/DBInet.cgi?pl=1921001>. Accessed 18 January 2019.

For computation of indexes of average consumer prices for still and sparkling wines in table 8 formulas 9 and 10 have been used.  $I_p$  for still wines in 2018 year (1.01) means that there was an increase in prices of still wines in April of 2018 year in comparison to April of 2017 year by 1%. The biggest increase in prices of still wine was in April 2015 year in comparison to April 2014 year by 124%.  $I_{p0}$  for still wines in 2018 (2.34) means that there was an increase in prices of still wines in April of 2018 year in comparison to April of 2008 Year by 34%.

$I_p$  for sparkling wines in 2018 year (1.03) means that there was an increase in prices of still wines in April of 2018 year in comparison to April of 2017 year by 3%. The biggest increase in prices of sparkling wine was in April 2015 year in comparison to April 2014 year by 12%.  $I_{p0}$  for sparkling wines in 2018 (2.19) means that there was an increase in prices of sparkling wines in April of 2018 year in comparison to April of 2008 year by 119%.

Table 8: Indexes of average consumer prices for still and sparkling wines in the Russian Federation in April of 2008 - 2018 years

Year	p (still wines, rubles per kg)	p (sparkling wines, rubles per kg)	still wines		sparkling wines	
			I <sub>p</sub>	I <sub>p0</sub>	I <sub>p</sub>	I <sub>p0</sub>
2008	167.58	148.38	x	x	x	x
2009	190.5	167.53	1.14	1.14	1.13	1.13
2010	202.63	177.64	1.6	1.21	1.06	1.20
2011	227.20	192.14	1.12	1.36	1.08	1.29
2012	235.70	210.19	1.04	1.41	1.09	1.42
2013	256.32	227.49	1.09	1.53	1.08	1.53
2014	280.24	242.57	1.09	1.67	1.07	1.63
2015	347.54	270.86	1.24	2.07	1.12	1.83
2016	365.09	292.50	1.05	2.18	1.08	1.97
2017	387.03	315.86	1.06	2.31	1.08	2.13
2018	392.14	324.30	1.01	2.34	1.03	2.19

Source: Federal State Statistics Service. Central Base of Statistics Data [online]. Available at: <http://www.gks.ru/dbscripts/cbsd/DBInet.cgi?pl=1921001>. Accessed 18 January 2019. Author's computations.

Total sales of grapes of agricultural organizations in 2018 year in natural value increased by 2% comparing to 2017 year and accounted for 219,282.351 tonnes (table 9) [61]. Total sales of grapes in 2018 in cost value year decreased by 4% comparing to 2017 year and accounted for 5,651,507.7 thousand rubles, which means that selling prices of grapes decreased. Krasnodar kray sold most volume of grapes (106,653 tonnes), Dagestan sold 55,183 tonnes and Crimea sold 27,768 tonnes in 2108 year.

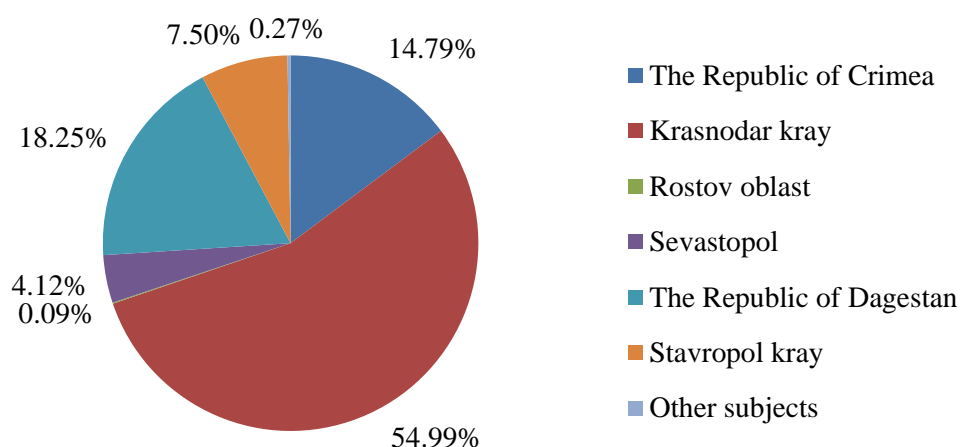
Table 9: Total sales of grapes and revenue from sales by agricultural enterprises in subjects of Russian Federation in 2018 year

Subject	Total sales of grapes, tonnes	Revenue, thousand rubles
The Republic of Crimea	27,768	835,895
Krasnodar kray	106,653	3,107,602
Rostov oblast	155	5,037
Sevastopol	8,777	232,726
The Republic of Dagestan	55,183	1,031,498
Stavropol kray	19,699	423,742
Other subjects	1,048	15,008
Total	219,282.351	5,651,507.7

Source: Federal State Statistic Service. *Sales of agricultural products by agricultural enterprises in 2018 year* [online]. Available at: [http://www.gks.ru/wps/wcm/connect/rosstat\\_main/rosstat/ru/statistics/publications/catalog/doc\\_1265196018516](http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/doc_1265196018516). Accessed 14 March 2019. Made by author.

Thus, most revenue from sales of grapes in 2018 year agricultural organizations of Krasnodar kray received, which accounted for almost 55% of revenue from grapes in all agricultural organizations in the Russian Federation (figure 17). The Republic of Dagestan received 18.2% of total revenue, the Republic of Crimea received 14.7% of total revenue.

Figure 17: Revenue from sales of grapes by agricultural enterprises in subjects of the Russian Federation in 2018 year, in % to total



Source: Federal State Statistic Service. *Sales of agricultural products by agricultural enterprises in 2018 year* [online]. Available at: [http://www.gks.ru/wps/wcm/connect/rosstat\\_main/rosstat/ru/statistics/publications/catalog/doc\\_1265196018516](http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/doc_1265196018516). Accessed 14 March 2019. Made by author.

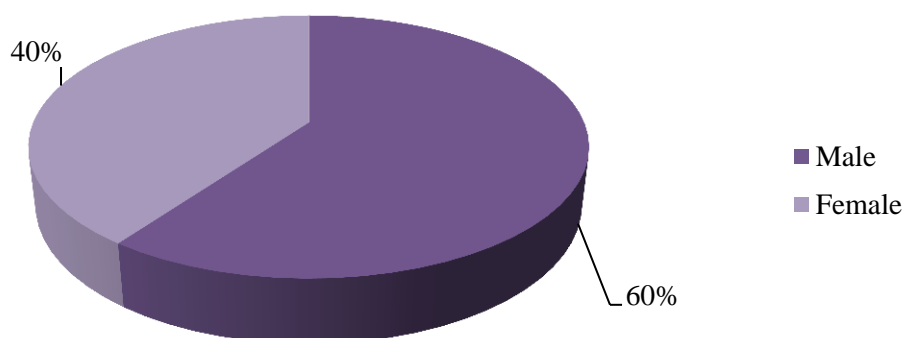
On this chapter current state of viticulture and winemaking in the Russian Federation has been evaluated. Areas under vines in the country decreased dramatically from 1992 year due to different reasons. The most areas under vines are located in Krasnosar kray and the Republic of Dagestan, then the areas under vines of the Republic of Crimea comes. In the structure of grape varieties there was 76% of wine varieties in 2016 year and only almost 12% of table varieties. In the world the Russian Federation was on only 15<sup>th</sup> place by areas under vines in 2015 year. Gross harvest of grapes has been fluctuating since 2007 year bur it has a tendency to increase. Most gross harvest of grapes in 2017 year was picked up in Krasnodar region, then in the Republic of Dagestan. In the Republic of Crimea only half of Krasnodar kray's gross harvest of grapes was picked up due to the fact that yields of grapes in the Republic is one of the most lowest in the Russian Federation. Production of still and sparkling wines has been decreasing since 2015 year. In the world the Russian Federation was on the 12<sup>th</sup> place in 2015 year by production of wine.

The most share of Russian wine market is taken by Russian wines, though consumption of wine is low and becoming more and more lower. Import of grapes as well as wines has been decreasing through years. Prices on grape and wines have been increasing through the years. To understand the problems in the industries of viticulture and winemaking a questionnaire has been used, which will be analyzed in the next chapter.

#### **4.2. Analysis of conducting a survey among people who work in viticultural and winemaking industries in the Russian Federation**

While conducting a research it is important to know thoughts of experts on the problem. Marketing methods are one of the most popular ways to do it. For carrying out this research questionnaire was chosen. It consists of 26 questions (appendix 2). There are closed as well as open questions, some questions are basic, which are about basic information about respondents, other questions are about respondents' preferences on wine and the last block of questions is the most important one as it consists of professional questions about the current state of viticulture and winemaking in the Russian Federation. The number of respondents is too small (that is 25 people) because the respondents are only people, who work in the industries of viticulture and winemaking, that is why this research can be named only as illustrative one and as this research can be named as qualitative one. The questionnaire was sent to winemaking companies as a Google survey and a lot of respondents did not take part in it that is primarily one of the main cons of conducting a survey via internet. The first question was «What is your gender?». From all respondents there were 15 men and 10 women that is 60% and 40% accordingly (figure 18).

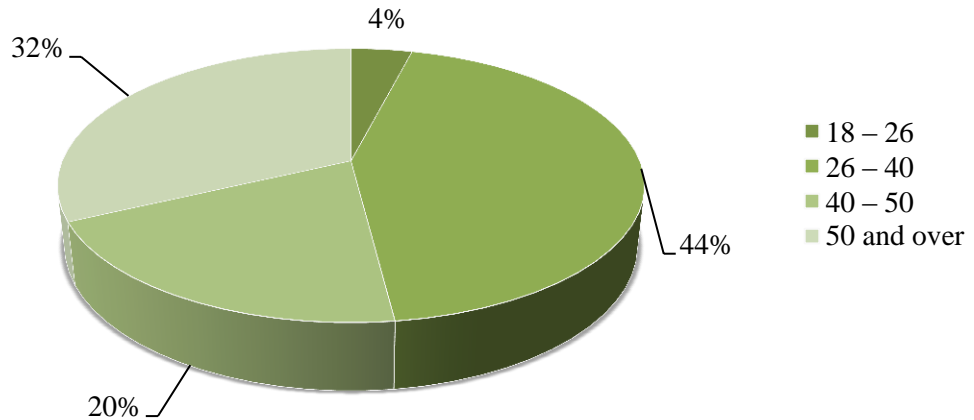
Figure 18: Respondents' structure by gender, %



Source: Answers to the questionnaire carried out by author

Respondents have been divided to several groups according to their age (figure 19). From 25 people there were no people under 18 years old, 1 person in a group 18 – 26 years old, the majority of respondents (11 people) was in a group of 26 – 40 years old, 5 respondents were in a group of 40 – 50 years and there were 8 people in the group of 50 years and over.

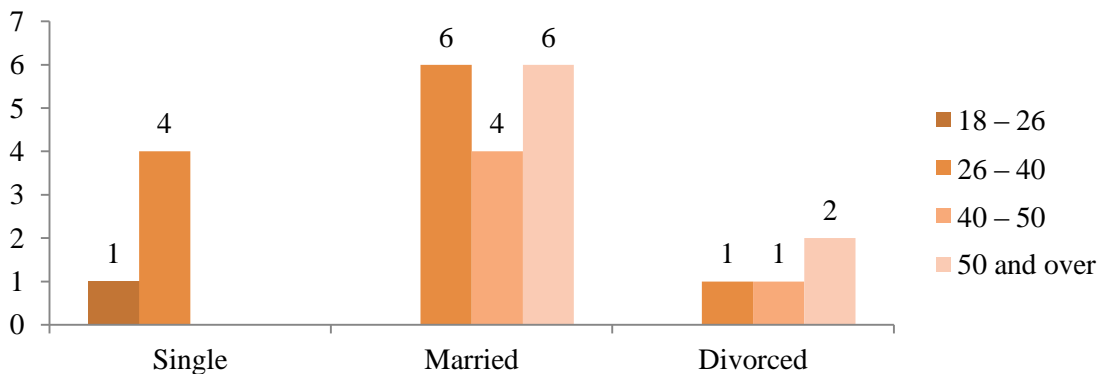
Figure 19: Respondents' structure by age, %



Source: Answers to the questionnaire carried out by author

The most respondents were married (figure 20). There were 6 married respondents in the age of 26 – 40 years, 6 married respondents in the age of 50 and over and 4 respondents in the age of 40 – 50 years. There were 4 respondents in the age of 26 – 40 years and only 1 single respondent in the age of 18 – 26 years. The smallest group of respondents contains 4 people: 2 in the age of 50 and over, 1 in the age of 26 – 40 years and 1 in the age of 40 – 50 years.

Figure 20: Groups of respondents according to their age and marital status, person

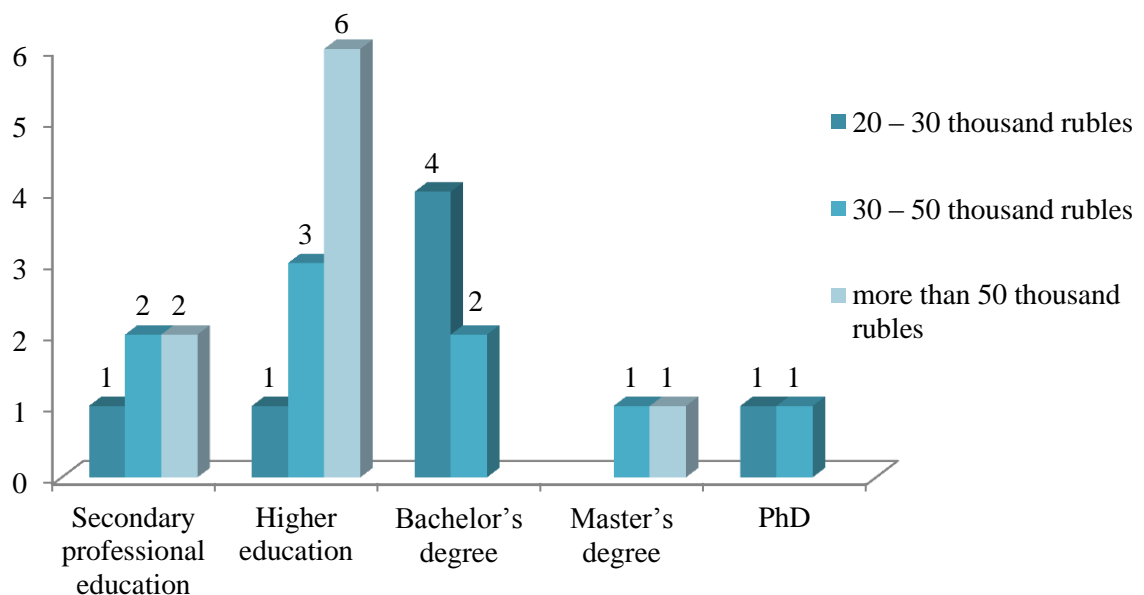


Source: Answers to the questionnaire carried out by author



Respondents with higher education have the highest incomes (in the Russian Federation it was and still in some universities is a degree with 5 years of studies) (figure 21). That is 6 people with higher education have monthly income more than 50 thousand rubles, 3 respondents have monthly income 30 – 50 thousand rubles and only 1 respondent has monthly income 20 – 30 thousand rubles. 2 respondents with professional education have monthly incomes more than 50 thousand rubles, 2 respondents have monthly income 30 – 50 thousand rubles and only 1 respondent has monthly income 20 – 30 thousand rubles. 4 people with BCs degree have monthly income 20 – 30 thousand rubles and 2 respondents have monthly income 30 – 50 thousand rubles. 1 person with MSc degree has monthly income 30 – 50 thousand rubles and 1 respondent has monthly income more than 50 thousand rubles. 1 PhD respondent has monthly income 30 – 50 thousand rubles and 1 PhD respondent has monthly income more than 50 thousand rubles.

Figure 21: Groups of respondents according to their level of education and monthly incomes, person

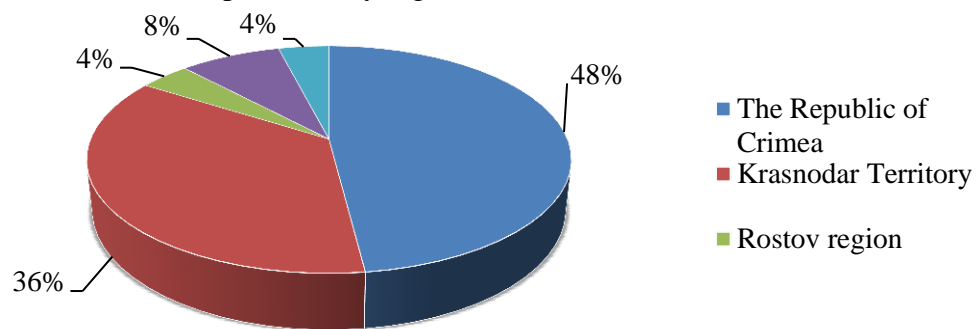


Source: Answers to the questionnaire carried out by author

Most respondents, who took part in the questionnaire, were from the Republic of Crimea (12 people) (figure 22). 9 respondents were from Krasnodar kray, 2 respondents were from Stavropol Regions and only 1 respondent was from Rostov oblast and 1 respondent was from the Republic of Dagestan because in Rostov oblast there are not so many wineries and in the Republic of Dagestan there are primary vineyards and it is almost

impossible to find their e-mails on the internet. What is more, the Republic of Dagestan specializes on cognacs and this alcoholic beverage is not the main theme of this research. In the survey employees from the next organizations took part: University of Magarach, Mariinsky wines peasant farm, Wine Lab, Factory of vintage wines Koktebel, Kuban vino, Moscow Champagne Winery, 1st Winemaking Cooperative, 2nd Winemaking Cooperative, Abrau-Durso, Inkerman, Massandra, Fanagoria. Private specialists took part in the questionnaire as well.

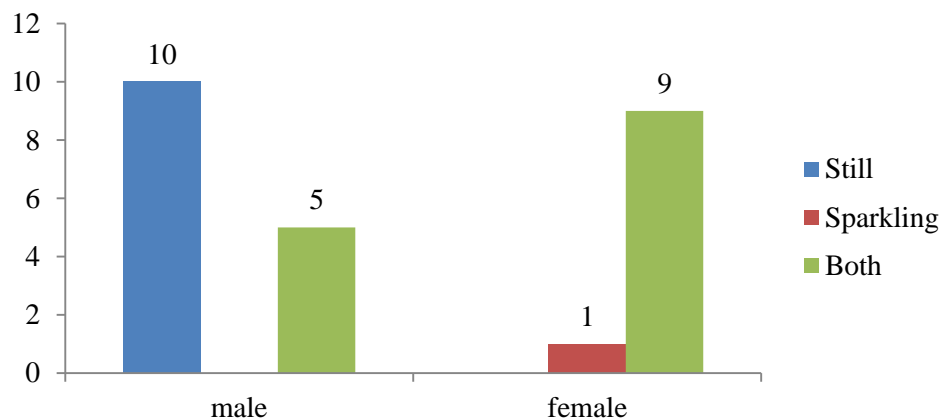
Figure 22: Structure of respondents by regions, %



Source: Answers to the questionnaire carried out by author

According to respondents' answers 100% of them drink wine. Almost all female respondents (9 people) prefer to drink both still and sparkling wine and only 1 respondent prefers to drink only sparkling wine. Male respondents prefer to drink still wine (10 respondents) and 5 male respondents drink both types of wine (figure 23).

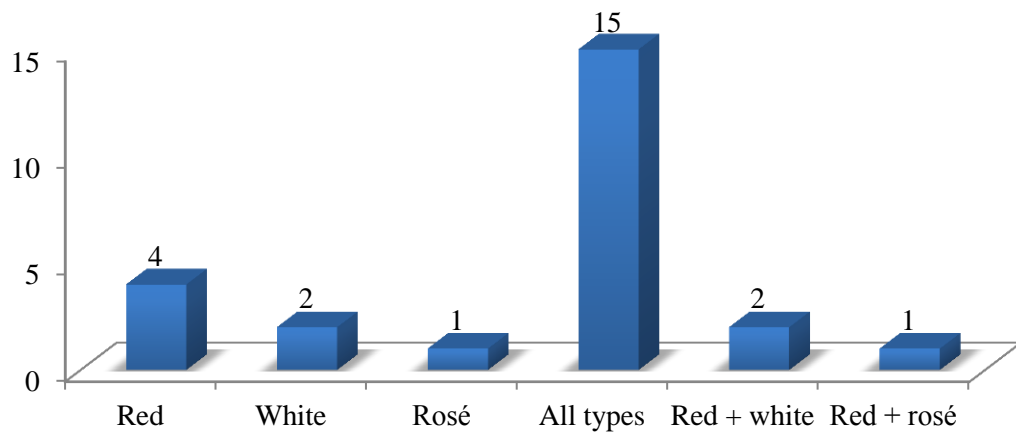
Figure 23: Relationship between gender of respondents and preferred type of wine, person



Source: Answers to the questionnaire carried out by author

Most respondents (15 people) prefer all types of wines (red, white, rosé), 4 respondents prefer to drink only red wine, 2 respondents prefer to drink only white wine, 2 respondents prefer to drink both red and white wines, only 1 respondents prefers to drink only rosé wine and only 1 respondent prefers to drink red and rosé wines (figure 24).

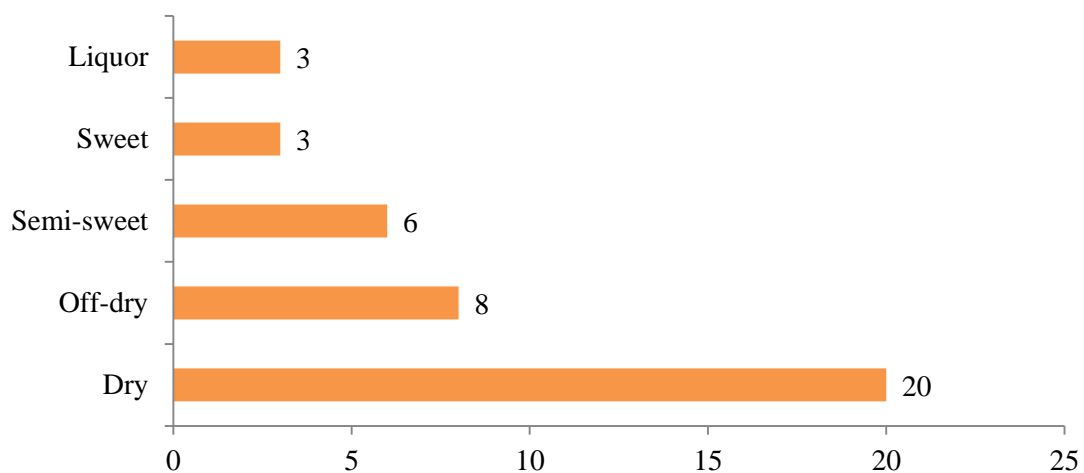
Figure 24: Respondents' preferences in wine colour, person



Source: Answers to the questionnaire carried out by author

Respondent's preferences on type of wines according to sugar contents were also studied (figure 25). Dry wine is the most popular one, 20 respondents choose it, 8 respondents like off-dry wine, 6 respondents like sweet wine, 3 respondents choose sweet wine and 3 respondents choose liquor wine.

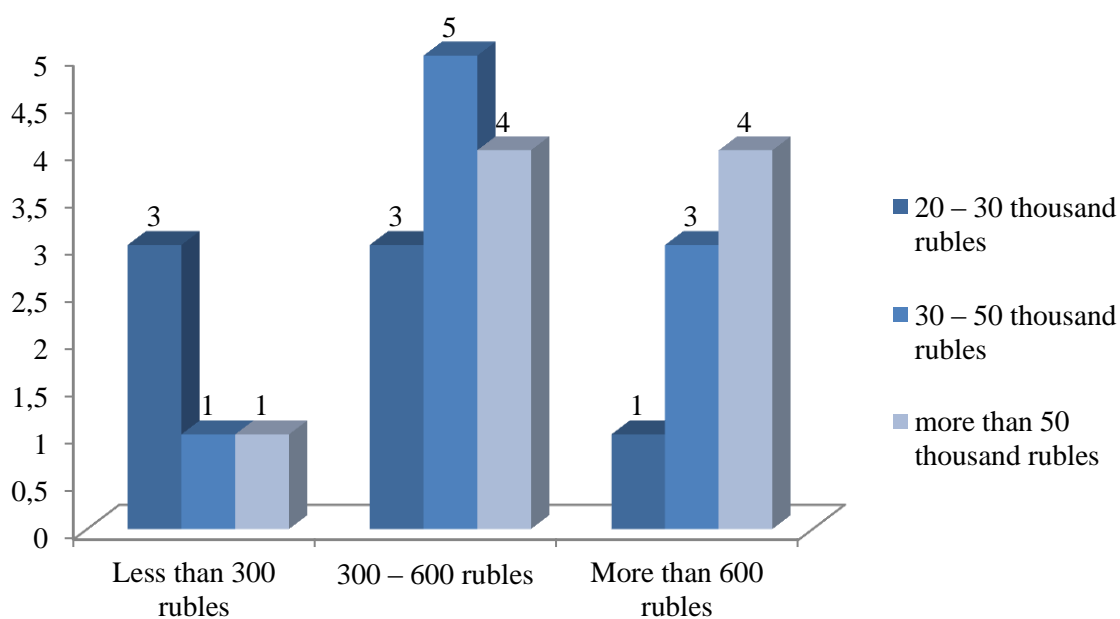
Figure 25: Respondents' preferences on type of wines, person



Source: Answers to the questionnaire carried out by author

On the figure 26 there is dependency between respondents' monthly incomes and prices on wine, which they usually buy. Respondents with high monthly incomes (more than 50 thousand rubles) usually choose a bottle of wine (0.75 litter), which costs 300 – 600 rubles (average segment) or more than 600 rubles (luxury segment), only 1 respondent with high monthly income buys a bottle of wine for a price less than 300 rubles. Respondents with average salaries (30 – 50 thousand rubles) usually choose a bottle of wine with a price of 300 – 600 rubles, more rarely with a price more than 600 rubles and only 1 respondent buys for a price less than 300 rubles (cheap segment). Respondents with low monthly incomes (20 – 30 thousand rubles) prefer to buy a bottle of wine for less than 300 rubles or for 300 – 600 rubles and only 1 respondent buys it for more than 600 rubles.

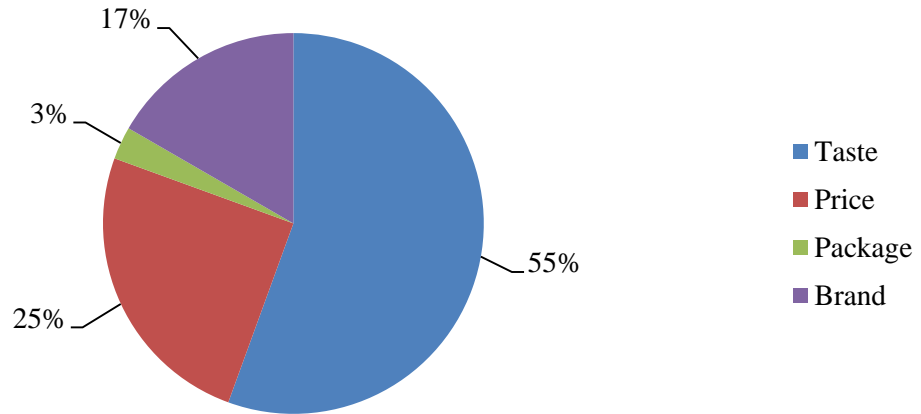
Figure 26: Relationship between respondents' monthly incomes and prices on bottle of wine (0.75 litre), which they usually buy in shops, person



Source: Answers to the questionnaire carried out by author

While choosing wine the most important criteria for respondents is taste (55% of importance), price is important on 25%, brand on 17% and the least important criteria is package (3%) (figure 27).

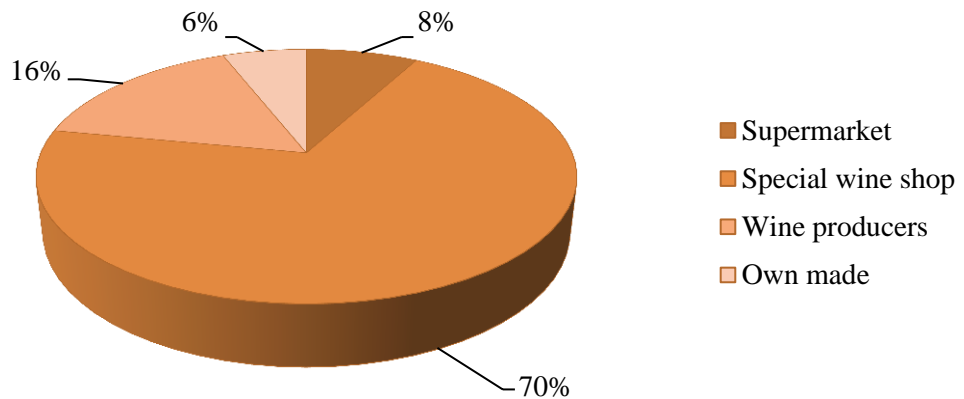
Figure 27: Respondents' criteria while choosing wine, %



Source: Answers to the questionnaire carried out by author

Most respondents buy wine in special wine shops (70%) (figure 28). 16% of respondents buy it directly from wine producers, 8% of respondents buy it in supermarkets and 6% of respondents drink their own made wine.

Figure 28: Places where respondents usually buy wine, %



Source: Answers to the questionnaire carried out by author

According to respondents' answers consumption of wine for 60% of them last years remains the same and for 40% of respondents consumption of wine has increased. Most respondents (33%) drink wine 2 – 3 times a week, 25% of respondents drink wine every day (some of them makes degustation) and 17% of respondents drink wine once per a week, 25% of respondents drink wine a couple of times per a month or rarely.

The next questions will be qualitative; the main task of them is to get deep understanding of main trends in viticulture and winemaking in the Russian Federation.

On the question «Wine of what Russian producers do you prefer?» the most frequent answers were Abrau-Durso, Inkerman, Massandra, Fanagoria and «garage» wines. On the question «Wine of what foreign producers do you prefer» the most frequent answers were Italian, French, Spain, Chilean, German wines and some respondents told that they don't drink foreign wine at all. Apart from wine respondents drink cognac (mostly male respondents), beer, cider, chacha, martini, whiskey and tequila.

On the question «How do you think is Russian wine a good competitor for foreign wine?» there were next answers: most respondents (80%) think that yes, Russian wine is very good comparing to foreign wines, 10% of respondents think that no and 10% of respondents cannot answer the question. What is more, some respondents think that Russian wines are becoming more and better, other respondents think that Russian consumers do not trust Russian wines and still prefer foreign ones; some respondents think that wines that are made from autochthonous varieties of grapes are good competitors.

On the question «How do you think is it better to produce wine from domestic or foreign raw materials? Why?» 90% of respondents think that it is better to use domestic grapes to produce wines and only 10% of respondents think that it does not matter and it depends on producer and quality. The main reasons for the first answer are: 1) On the northern Black Sea coast there is a good climate and a lot of sun, a long dry autumn, a lot of calcium in the soil, which is good for growing grapes; 2) Wine is a product of an area. The quality of Russian wine materials is much higher than the imported ones; 3) For boosting the economy.

On the question «How do you think does government pay enough subsidies to grape producers?» 40% of respondents think that yes, Russian government pays enough subsidies, 40% of respondents think that government does not pay enough subsidies, 10% of respondents cannot give an answer and 10% of respondents think that it is very difficult to get subsidies, and that it is needed to be simpler. What is more, some respondents think that in recent years, the government's attention to viticulture and winemaking has already become global compared to 2000 - 2010 years.

On the question «How do you think what are the main problems in viticultural and winemaking industries in the Russian Federation?» respondents gave next answers: 1) Problems of getting excise stamps and sales of products; 2) Excess control from the

government; 3) Stealing; 4) Falsified products on the market; 5) Little attention is paid to small producers; 6) Lack of professional specialists, bad motivation of young people to work in agriculture; 7) Lack of good viticultural equipment and winemaking equipment; 8) Very high interests to get loans; 9) Lack of domestic seedlings; accordingly, not enough planting material, and with imported seedlings new harmful objects are imported, including quarantine ones; 10) Many old and abandoned vineyards and their revival is necessary. From all the answers the most frequent ones were excess control from the government, lack of professional specialists in the industries of viticulture and winemaking, lack of good machinery and equipment, high interest rates, lack of domestic seedlings.

All respondents think that it is possible to develop viticulture and winemaking in their regions. On the question «How do you think what should be done for developing of these industries?» respondents gave next main answers: 1) To make process of getting licenses easier; 2) To cancel VAT and excise taxes; 3) To make government support more broad; 4) To make taxes lesser; 5) To give more subsidies; 6) To change government policies; 7) To develop motivational politics; 8) To get investments; 9) To plant new vineyards; 10) To create own nurseries; 11) To work harder.

After conducting a survey among some viticultural and winemaking organizations' employees in the case study regions some conclusions can be made. The quantitative questions showed that respondents have different monthly incomes (accordingly to their jobs) and this influences on the price of wine that they usually buy. Male respondents prefer still wines, while female respondents prefer both still and sparkling wines. Red wine is the most popular one among respondents, on the second place there is white wine; rosé wine is still not so popular. Accordingly to the contents of sugar, dry wine is the most popular one among respondents, on the second place there is off-dry wine and then semi-sweet wine. The most important criterion while buying wine among respondents is taste, on the second place there is price and on the third place there is brand. Respondents prefer to buy wine in specialized wine shops, then to buy wine directly from wine producers, then supermarkets come; some respondents prefer to drink their own made wine. The qualitative questions helped to understand the main trends in the industries of viticulture and winemaking. Answers to these questions showed that despite some positive changes there are still a lot of problems in the industries. Respondents believe that it is possible to develop these industries, which will be good for the economies of their regions as well as

for economy of the whole Russian Federation; what is more it will be good for wine quality and for competitiveness of Russian wine on domestic market. From the answers of respondents it is clear that Russian government plays a crucial role in development of these industries. It will be studied deeply in the next chapter.

### **4.3. Role of government in viticulture and winemaking in the Russian Federation**

Russian government plays an important role in development of viticulture and winemaking. It has two directions, which are regulation of these industries and provision of subsidies. In the present chapter both of them will be studied.

As it was studied in Literature Review there are three methods of government regulation of market of alcohol: by government sector, administrative and economic methods. The main government service in the Russian Federation, which regulates market of alcohol, is Federal Service for Regulation of the Alcohol Market of the Russian Federation.

Economics methods include such important instruments as excise rate setting and national tax setting. Excise rates for different types of wines are presented on the table 10 [62]. In 2017 year excise rates increased comparing to 2016 year (for grape and fruity wines they increased by 9 rubles, for sparkling wines they increased by 10 rubles, for sparkling wines with a Protected Geographical Indication they increased by 1 ruble and for wines with a Protected Geographical Indication they remained the same).

Table 10: Excise rates for still and sparkling wines in the Russian Federation in 2016 - 2017 years

Type of wine	2016	2017
Grape and fruity wines	9 rubles per 1 litre	18 rubles per 1 litre
Wines with a Protected Geographical Indication	5 rubles per 1 litre	5 rubles per 1 litre
Sparkling wines	26 rubles per 1 litre	36 rubles per 1 litre
Sparkling wines with a Protected Geographical Indication	13 rubles per 1 litre	14 rubles per 1 litre

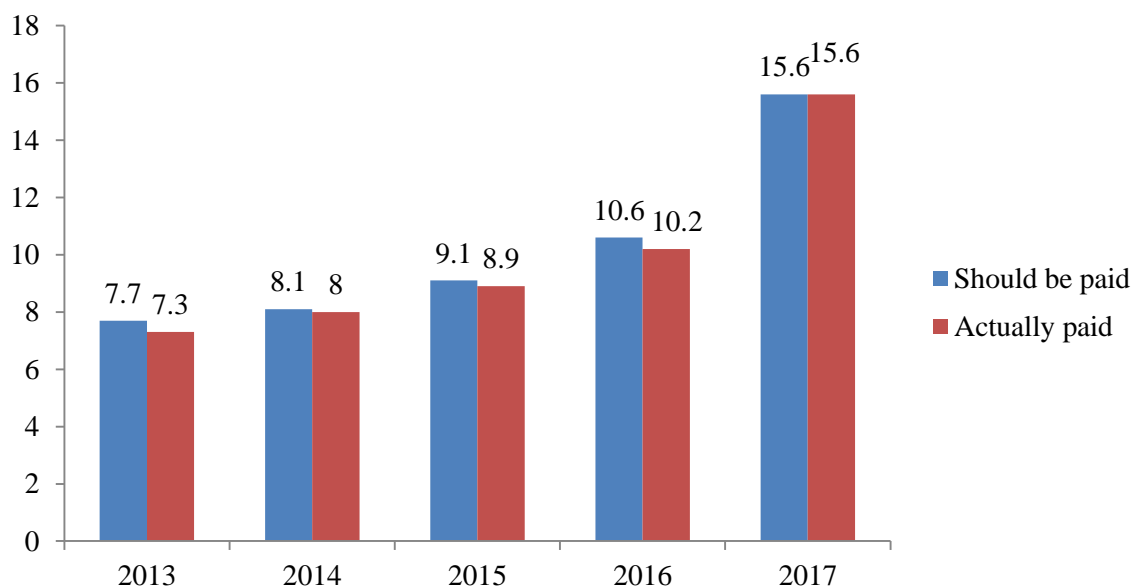
Source: Analytical center under the government of the Russian Federation. Market of alcohol III quarter 2017, p. 4 [online]. Available at: <http://ac.gov.ru/files/publication/a/14622.pdf>. Accessed 10 February 2019.



Excise taxes play an important role in federal budgeting. Revenues from excise taxes increased by last years (figure 29). In 2017 year revenue from them increased by almost 114% in comparison with 2013 year. The amount of actually paid excise taxes is not always equal to the amount of planned excise taxes. Only in 2017 year they were equal to each other.

There are different rates of national tax for getting licenses according to type of economic activity. The license for the production, storage and supply of still and/or sparkling wine produced by peasant (farmer) farms, individual entrepreneurs recognized as agricultural producers as well as the license for the production, storage and supply of produced wines with a protected designation of origin, wines with a protected geographical indication, a sparkling wine with a protected designation of origin, a sparkling wine with a protected geographical indication cost 65 thousand rubles [63].

Figure 29: Revenues from excise taxes on wine produced in the territory of the Russian Federation, billion rubles



Source: Analytical center under the government of the Russian Federation. Market of alcohol IV quarter 2018, p. 30 [online]. Available at: <http://ac.gov.ru/files/publication/a/20509.pdf>. Accessed 10 February 2019.

There are such important instruments of administrative methods of government regulation as marking, declaration, production and turnover control, regulation of export/import and others.

Alcohol products produced in the Russian Federation, with the exception of alcohol products supplied for export, are marked with federal special marks. Alcohol products imported into the customs territory of the Russian Federation are marked with excise stamps. The cost of federal special marks and excise stamps is 1,690 rubles for 1,000 units excluding value added tax [64, article 30].

Federal Service for Regulation of the Alcohol Market of the Russian Federation inspects organizations for identifying illegal production and turnover of ethyl alcohol and alcohol products. As some respondents answered on questionnaire (chapter 4.2), falsified products are one of the most important problems of viticulture and winemaking on the market of alcohol. It can be not only falsified wine selling but also bad wine materials from which wine is produced. According to inspection results in 2018 year in the Russian Federation from inspected 175,677.8 decalitres of ethyl alcohol and 928,425.7 decalitres of alcoholic products 157,394.5 decalitres of ethyl alcohol and 367,018.4 decalitres of alcoholic products were produced illegally (table 11) [65]. So this still remains a big problem even if Russian government tries to do production and turnover of illegal alcohol more and more difficult. For doing it The Unified State Automated Information System (an automated system designed for government control over the production and turnover of ethyl alcohol, alcohol and alcohol-containing products) was created. But still some producers manage to make fake products with fake federal special marks and so on. It is more common to produce illegal vodka but some illegal wine, too.

Table 11: Results of inspections for illegal alcohol in the Russian Federation in 2018 year, decalitres

Indicator	Ethyl alcohol	Alcoholic products
Total inspected amount	175,677.8	928,425.7
Revealed products whose production and turnover was made illegally	157,394.5	367,018.4
Confiscated by inspection results	3,956.0	175,245.2
Confiscated and destroyed by court order	137,806.1	221,180.5

Source: Federal Service for Regulation of the Alcohol Market. Information on the results of inspections to identify illegal production and turnover of ethyl alcohol and alcohol products for 2018 year [online]. Available at: [http://fsrar.ru/statisticheskaja\\_informacija](http://fsrar.ru/statisticheskaja_informacija). Accessed 11 February 2019.

Government regulation of export and import operations is one of main instruments to support domestic commodity producers. All commodities in the Russian Federation are

classified according to Foreign Economic Activity Commodity Classification, which is connected with base rate of customs duty, excise taxes, value added tax (VAT) and other special requirements (table 12) [66]. Despite long classification of sparkling wines and still wines base rate of customs duty and VAT for them remain the same: 12.5% and 20% accordingly. For fresh grapes base rate of customs duty is 5%.

Table 12: Product code, import customs duties and VAT for wines and grapes imported into the Russian Federation

Commodity	Product code	Base rate of customs duty	VAT
<b><i>Sparkling wines</i></b>			
With Protected Designation of Origin			
Shampane	2204 10 110 0	12.5%	20%
Asti Spumante	2204 10 910 0	12.5%	20%
Other with an actual alcohol concentration of at least 8.5%	2204 10 930 1	12.5%	20%
With Protected Geographical Indication			
With an actual alcohol concentration of at least 8.5%	2204 10 940 1	12.5%	20%
Other	2204 10 940 9	12.5%	20%
Others varietal wines			20%
With an actual alcohol concentration of at least 8.5%	2204 10 960 1	12.5%	20%
Other	2204 10 960 9	12.5%	20%
<b><i>Still wines with capacity of 2 litres or less</i></b>			
With Protected Designation of Origin	2204 21 060 0	12.5%	20%
With Protected Geographical Indication	2204 21 070 0	12.5%	20%
Others varietal wines	2204 21 080 0	12.5%	20%
<b><i>Fresh grape</i></b>			
Table varieties	0806 10 100 0	5%	20%
Other	0806 10 900 0	5%	20%

Source: Foreign Economic Activity Commodity Classification [online]. Available at: <https://www.alta.ru/tnved/>. Accessed 15 February 2018. Made by author.

Wines, which are imported into the territory of the Russian Federation, must have licenses, must fit technical regulations, must have excise marking, they are subject to sanitary and epidemiological supervision (control). Natural grape wines and grape musts, country of origin or country of departure of which are Ukraine, or which are moved through the territory of Ukraine [67].

Grapes, which are imported into the Russian Federation, must go through phytosanitary control, must fit technical regulations, must have additional control over the classification and it has tariff preferences when importing from developing, least developed countries and CIS<sup>6</sup> countries.

Fruits and nuts, counties of origin of which are the United States of America, countries of the European Union, Canada, Australia, the Kingdom of Norway, Ukraine, the Republic of Albania, Montenegro, the Republic of Iceland and Liechtenstein, cannot be imported on the territory of the Russian Federation until 31 December 2019 [68].

Alcohol market is regulated by government sector as well. For example, one of the leading winemaking organizations in the Republic of Crimea Massandra belongs to the government.

Government support is very important to the development of viticulture and winemaking in the Russian Federation. Government subsidizes the next activities connected to these industries:

- Planting and maintenance of young vineyards;
- Destruction of old unproductive vineyards;
- Purchase and landing of high quality planting material.

The subsidies come from federal and regional budgets as well as from non-budget funds. For every region there are their plans of subsidies.

Government support for Krasnodar kray for planting and maintenance of vineyards in 2018 year was increased by 88% comparing to 2015 year and was equal to 420 million rubles (table 13) [69]. The rates of subsidies for the planting vineyards were increased by 2.6 times, for the installation of a trellis were increased by 3.5 times.

Table 13: Government subsidies to viticulture industry in Krasnodar kray in 2015 - 2018 years, million rubles

Subsidies	2015	2016	2017	2018	2018 in % to 2015
For planting and maintenance of vineyards	223.1	381	360	420	188.26

Source: Ministry of agriculture of the Russian Federation. Reference book about government support [online]. Available at: <http://www.gp.specagro.ru/region/4052/2/13/10/2016>. Accessed 20 February 2019.

<sup>6</sup> Commonwealth of Independent States

In the Republic of Dagestan government support for viticulture in 2018 year was increased by 17.5% comparing to 2017 year (table 14). This primarily was because of the subsidies firstly given for the processing of grapes in the amount of 100 million rubles. From 564 million rubles given to grapes producers in 2018 year 460 million rubles were from the federal budget and 124 million rubles were from the regional budget.

Table 14: Government subsidies to viticulture industry in the Republic of Dagestan in 2017 - 2018 years, million rubles

Subsidies	2017	2018	2018 in % to 2017
For planting and maintenance of vineyards	480	464	96.67
For the processing of grapes	-	100	-
Total	480	564	117.50

Source: Ministry of agriculture of the Russian Federation. Reference book about government support [online]. Available at: <http://www.gp.specagro.ru/region/3630/2/12/2/2019>. Accessed 20 February 2019.

In the Republic of Crimea government support for planting and maintenance of vineyards increased by 4 times in 2018 year comparing to 2014 year and was equal to 399.3 million rubles (table 15). However, it decreased in 2018 year in comparison to 2017 year by 6.6%.

Table 15: Government subsidies to viticulture industry in the Republic of Crimea in 2014 - 2018 years, million rubles

Subsidies	2014	2015	2016	2017	2018	2018 in % to 2014
For planting and maintenance of vineyards	78.3	85	189.5	441.97	399.3	509.96

Source: Ministry of agriculture of the Russian Federation. Reference book about government support [online]. Available at: <http://www.gp.specagro.ru/region/31/2/12/2/2019>. Accessed 20 February 2019.

Government support to viticulture in the city of federal significance Sevastopol in 2019 year will be increased by 107% comparing to 2018 (table 16). With the attraction of state support, the agro-industrial enterprises of Sevastopol were able to carry out work on planting vineyards on an area of over 158 hectares. The budget also subsidized the care of young grape plantations with a total area of 785 hectares in 2018 year. In addition, farmers

have been compensated for part of the costs for the installation of trellis constructions carried out in 2018 on a total area of 329 hectares and plan work on a total area of 41 hectares for planting vineyards in 2019 [70].

Table 16: Government subsidies to viticulture industry in the city of federal significance Sevastopol in 2018 - 2019 years, million rubles

Subsidies	2018	2019	2019 in % to 2018
For planting and maintenance of vineyards	154.5	320	207.12

Source: Ministry of agriculture of the Russian Federation. Reference book about government support [online]. Available at: <http://www.gp.specagro.ru/region/31/2/12/2/2019>. Accessed 20 February 2019.

In Stavropol kray in 2018 year government subsidies were equal to 99.1 million rubles, most money was for planting and maintenance of vineyards (91.1 million rubles) (table 17).

Table 17: Government subsidies to viticulture industry in Stavropol kray in 2018 year, million rubles

Subsidies	2018
For planting and maintenance of vineyards	91.1
For production of European covered grape varieties	3
For purchase of specialized equipment for the production of grapes	3
For the uprooting of grape plantations that are over 20 years old or affected by emergencies	1
for the cultivation of planting material of grape plantations	1
Total	99.1

Source: Ministry of agriculture of the Russian Federation. Reference book about government support [online]. Available at: <http://www.gp.specagro.ru/region/5191/2/12/2/2019>. Accessed 20 February 2019.

The least amount of subsidies Rostov oblast got (table 18). In 2018 year government support was 28.5 million rubles, which by 26.67% bigger than in 2016 year, but by 13.64% less than in 2017 year.

In 2019 year it is planned to increase government subsidies on viticulture and winemaking from 1.4 billion rubles up to 3 billion rubles.

Table 18: Government subsidies to viticulture industry in Rostov oblast in 2016 - 2018 years, million rubles

Subsidies	2016	2017	2018	2018 in % to 2016
For planting and maintenance of vineyards	22.5	33	28.5	126.67

Source: Ministry of agriculture of the Russian Federation. Reference book about government support [online]. Available at: <http://www.gp.specagro.ru/region/4800/2/12/2/2019>. Accessed 20 February 2019.

Most subsidies for planting vineyards in 2018 year got the Republic of Dagestan (464 million rubles), then Krasnodar kray (420 million rubles), the Republic of Crimea (399.3 million rubles), Sevastopol (320 million rubles), Stavropol kray (91.1 million rubles), Rostov oblast (28.5 million rubles) come. This distribution is different because Krasnodar kray and the Republic of Dagestan are the leading regions in the Russian Federation for grapes production, the Republic of Crimea and Sevastopol are important grape producers, too, and they need big support to recreate this industry; in Rostov oblast and Stavropol kray the areas under grapes are not so big but still they need some support, too, because they have all needed weather conditions to the production of grapes.

Government regulation of viticulture and winemaking as well as government support of these industries play an important role in their development and the development of regions' economies. By governmental, administrative and economic methods government regulates viticulture and winemaking in the Russian Federation. From one point, it is a good thing to protect domestic commodity producer from foreign competitors and to protect consumers from grapes and wines of bad qualities but from another point, for domestic producers because of some governmental regulations it is very difficult to run a business. Government support for viticulture is becoming better through the years, which helps domestic grape producers increase areas under grapes. However, as some grape producers told, the mechanism of getting subsidies is too difficult. Still recently government encourages grape producers to enlarge territories. The attractiveness of such kind of business as viticulture will be studied in the next chapter.

#### **4.4. Attractiveness of investment projects in viticulture and winemaking in the Russian Federation**

In order to understand the attractiveness of investment projects to viticulture *three investment projects* with costs and payback periods will be studied. The data, which will be used in the projects, was the actual costs of the work and materials as well as prices in 2017 year. It should be highlighted that the cost of land (10 hectares) is not included in the total costs of the projects and that the costs and revenues shown in the projects are the not highest or lowest ones and the possible subsidies from the government are not necessary the same as in reality because it depends on some factors. Therefore, it is just examples of possible projects.

*First project* is «Cultivation of 10 hectares of table grapes of traditional varieties».

For the cultivation of 10 hectares of vineyards 5 employees on an ongoing basis are needed. The grapes will be planted in the spring according to the following planting pattern: the inter-row spacing is 3 meters, between the bushes is 1.5 meters (3x1.5 meters).

The need for grapes seedlings for planting on 10 hectares will be 22,220 seedlings (at a norm of 2,222 seedlings per 1 hectare), the cost of 1 seedling is 65 rubles. Recommended grape varieties are Delight, Augustine and Moldova.

Investments of the 1st year on soil preparation and planting vineyards will amount to 2 million rubles, including wages, fertilizers, fuel, seedlings, overhead costs. In accordance with the legislation of the Russian Federation, the compensation of expenses will amount to 1.6 million rubles (80% of the costs).

For maintenance work of young vineyards in the first year of the growing season, 450 thousand rubles are needed, including wages, fertilizers, fuel, overhead costs. Subsidies on work will amount to 360 thousand rubles (80% of the costs).

Thus, the cost of the 1st year will amount to 2.45 million rubles without subsidies, with getting subsidies it will be 490 thousand rubles.

Investments of the 2nd year will be 600 thousand rubles for maintenance of young vineyards in the second year of vegetation, including wages, fertilizers, fuel, overhead costs. Subsidies will be up to 480 thousand rubles (80% of the costs).

In addition to this, in the second year of the growing season, it is necessary to install a trellis.

In this project a single-plane trellis will be used, the installation of which requires:



1. Concrete pole (supporting and intermediate) in the amount of 6,700 pieces, including:
  - Supporting poles in amount of 1,700 pieces, the cost of 1 supporting pole is 250 rubles;
  - Intermediate poles in amount of 5,000 pieces, the cost of 1 intermediate pole is 270 rubles.
2. Wire (steel 3.0 mm thick) 4 tons; the cost of 1 ton of wire is 62.5 thousand rubles (the wire is pulled in three rows).

The installation of a trellis will require 2.09 million rubles, including wages, fertilizers, fuel, overhead costs. Compensation for the installation of a trellis will amount to 1.672 million rubles (80% of the costs). Thus, the costs of the 2nd year will amount to 2.570 million rubles without subsidies, including subsidies it will be 538 thousand rubles.

Investments for the 3rd year will be 800 thousand rubles for maintenance work on young vineyards in the third year of vegetation, including wages, fertilizers, fuel, overhead costs. The subsidies will amount to 640 thousand rubles (80% of the costs), thus the costs for the agricultural producer will be 160 thousand rubles for the maintenance work.

Investments for the 4th year will be 1 million rubles for maintenance work on young vineyards in the fourth year of the vegetation, including wages, fertilizers, fuel, overhead costs. The subsidies will amount to 800 thousand rubles (80% of the costs), thus the costs of the agricultural producer will be 200 thousand rubles for the maintenance work.

The annual increase in the cost of maintenance is due to the addition of new types of work in the vineyards, the costs of means of protection and so on.

To carry out all the agro technical work in the vineyards fully and on set dates, it is necessary to buy specialized machinery and equipment that can be bought within 3 years. The total cost of all machinery and equipment for viticulture will be 2.105 million rubles (table 19) [71].

Cost compensation (50%) for the purchase of equipment for 3 years will amount to 1,052.5 thousand rubles, including 810 thousand rubles for the 1<sup>st</sup> year, 100 thousand rubles in the 2<sup>nd</sup> year, 142.5 thousand rubles for the 3<sup>rd</sup> year.

***Effectiveness of the project.*** Excluding natural, climatic and anthropogenic risks, in the fourth year of the growing season there will be a harvest of 40 tons of grapes with a

yield of 40 centners per hectare, and on the fifth and next years, the total output of grapes will be 100 tons, with a yield of 100 centners per hectare.

Table 19: Costs of required specialized machinery and equipment

Equipment	Costs, thousand rubles
<b>1 year</b>	
Tractor Belarus MTZ-82	1300
Cultivator-KVO-3	200
Sprayer	120
Total for the 1 <sup>st</sup> year	1620
<b>2 year</b>	
Covering unit	200
<b>3 year</b>	
Gas drill	40
Opening unit	100
Blowing unit	145
Total for the 3 <sup>rd</sup> year	285
Total for three years	2105

Source: CIG equipment <http://ruscig.ru/en/katalog-produktsii/>. Author's computations

In the process of harvesting grapes, 40 percent of it will lose its marketable appearance, as a result of which this volume of harvested harvest will not be possible to sell it as fresh grapes, but it can be handed over to the region's winemaking organizations for industrial processing.

The selling price of fresh grapes will be 80 rubles per kg, and the price of selling grapes for wine-making organizations will be 30 rubles per kg. Data on gross harvest of grapes and sales revenue is shown in table 20 [72, 73].

Table 20: Total output of grapes and revenue from sales

Indicators	4 year	5 year	6 year	7 year	8 year
Gross harvest of grapes, tones	40	100	100	100	100
Revenue from sales, thousand rubles	2,400	8,000	8,000	8,000	8,000
Revenue from sales of fresh grapes, thousand rubles	1,920	4,800	4,800	4,800	4,800
Revenue from sales for industrial processing, thousand rubles	480	3,200	3,200	3,200	3,200

Source: *Yield of grapes from 1 ha* [online]. Available at: <http://openfile.ru/dacha-i-sad/>. *Grapes wholesale*. Agro 24 [online]. Available at: <https://agro24.ru/product/vinograd-optom/>. Author's computations.

Thus, the revenue for the fourth year will amount to 2.4 million rubles, and starting from the fifth year, the annual revenue will be 8 million rubles.

In table 21 the cumulative cost of 10 hectares of vineyards before fruit-bearing age is presented, the total cost will amount to 9,191 thousand rubles [74].

Table 21: Total cost of planting and maintenance work on grapes before fruit-bearing age (excluding subsidies), thousand rubles

Indicator	1 year	2 year	3 year	4 year
Planting vineyards	2,000	-	-	-
Maintenance work	450	600	800	1,000
Installing a trellis	-	2,090	-	-
Cost of agricultural equipment	1,620	200	285	-
Other costs	35	36	37	38
Total	4,105	2,926	1,122	1,038
Total for four years	9,191			

Source: Vinogradplodoprom [online]. Available at: <http://www.stavvinprom.com/investitsionnaya-privilekatelnost-otrasli/>. Author's computations

The first profit will be received on for the 4th year and thus, the payback of the project on the planting 10 hectares of table grapes of traditional varieties will be in the 5<sup>th</sup> year. With subsidies the first profit will be received on the 4th year and thus, the payback period for the project on planting 10 table grapes of traditional varieties will be in the 5th year (table 22).

Table 22: Total cost of planting and maintenance work on grapes before fruit-bearing age (including subsidies), thousand rubles

Indicator	1 year	2 year	3 year	4 year
Planting vineyards	400	-	-	-
Maintenance work	90	120	160	200
Installing a trellis	-	418	-	-
Cost of agricultural equipment	810	100	142.5	-
Other costs	35	36	37	38
Total	1,335	554	339.5	238
Total for four years	2,466.5			

Source: Vinogradplodoprom [online]. Available at: <http://www.stavvinprom.com/investitsionnaya-privilekatelnost-otrasli/>. Author's computations

The *second project* is called «Production of grapes of technical uncovered varieties on an area of 10 hectares».

For the cultivation of 10 hectares of vineyards 5 employees on an ongoing basis are needed. The grapes will be planted in the spring according to the following planting pattern: the inter-row spacing is 3 meters, between the bushes is 1.5 meters (3x1.5 meters).

The need for grapes seedlings for planting on 10 hectares will be 22,222 seedlings (at a norm of 2,222 seedlings per 1 hectare), the cost of 1 seedling is 60 rubles. Recommended grape varieties are Levokumsky, Podarok Magaracha.

Investments of the 1st year on soil preparation and planting vineyards will amount to 1.8 million rubles, including wages, fertilizers, fuel, seedlings, overhead costs. In accordance with the legislation of the Russian Federation, the compensation of expenses will amount to 1.512 million rubles (80% of the costs).

For maintenance work of young vineyards in the first year of the growing season, 400 thousand rubles are needed, including wages, fertilizers, fuel, overhead costs. Subsidies on work will amount to 320 thousand rubles (80% of the costs).

Thus, the cost of the 1st year will amount to 2.290 million rubles without subsidies, with getting subsidies it will be 458 thousand rubles.

Investments of the 2nd year will be 500 thousand rubles for maintenance of young vineyards in the second year of vegetation, including wages, fertilizers, fuel, overhead costs. Subsidies will be up to 400 thousand rubles (80% of the costs).

In addition to this, in the second year of the growing season, it is necessary to install a trellis.

In this project a single-plane trellis will be used, the installation of which requires:

1. Reinforced concrete pole (supporting and intermediate) in the amount of 6,700 pieces, including:

- Supporting poles in amount of 1,700 pieces, the cost of 1 supporting pole is 250 rubles;

- Intermediate poles in amount of 5,000 pieces, the cost of 1 intermediate pole is 270 rubles.

2. Wire (steel 3.0 mm thick) 4 tons; the cost of 1 ton of wire is 62.5 thousand rubles (the wire is pulled in three rows).

The installation of a trellis will require 2.09 million rubles, including wages, fertilizers, fuel, overhead costs. Compensation for the installation of a trellis will amount to

1.672 million rubles (80% of the costs). Thus, the costs of the 2nd year will amount to 2.590 million rubles without subsidies, including subsidies it will be 518 thousand rubles.

Investments for the 3rd year will be 600 thousand rubles for maintenance work on young vineyards in the third year of vegetation, including wages, fertilizers, fuel, overhead costs. The subsidies will amount to 480 thousand rubles (80% of the costs), thus the costs for the agricultural producer will be 120 thousand rubles for the maintenance work.

Investments for the 4th year will be 700 thousand rubles for maintenance work on young vineyards in the fourth year of the vegetation, including wages, fertilizers, fuel, overhead costs. The subsidies will amount to 560 thousand rubles (80% of the costs), thus the costs of the agricultural producer will be 140 thousand rubles for the maintenance work.

To carry out all the agro technical work in the vineyards fully and on set dates, it is necessary to buy specialized machinery and equipment. The total cost of all equipment for viticulture will be 1.62 million rubles (table 23). Cost compensation (50%) for the purchase of machinery and equipment will be 810 thousand rubles.

Table 23: Costs of required specialized machinery and equipment, thousand rubles

Equipment	Costs
<b>1 year</b>	
Tractor Belarus MTZ-82	1300
Cultivator-KVO-3	200
Sprayer	120
Total	1620

Source: CIG equipment <http://ruscig.ru/en/katalog-produktsii/>. Author's computations

***Effectiveness of the project.*** Excluding natural, climatic and anthropogenic risks, in the fourth year of the growing season there will be a harvest of 50 tons of grapes with a yield of 50 centners per hectare, and on the fifth and next years, the total output of grapes will be 120 tons, with a yield of 120 centners per hectare.

All gross harvest of grapes will be sold to the region's winemaking organizations for industrial processing; the sale price of grapes will be 30 rubles per kg. Data on gross grape harvest and sales revenue are shown in table 24.

Table 24: Total output of grapes and revenue from sales

Indicators	4 year	5 year	6 year	7 year	8 year
Gross harvest of grapes, tones	50	120	120	120	120
Revenue from sales, thousand rubles	1,500	3,600	3,600	3,600	3,600

Source: *Yield of grapes from 1 ha* [online]. Available at: <http://openfile.ru/dacha-i-sad/>. *Grapes wholesale*. Agro 24 [online]. Available at: <https://agro24.ru/product/vinograd-optom/>. Author's computations.

Thus, the revenue for the fourth year will amount to 1.5 million rubles, and starting from the fifth year, the annual revenue will be 3.6 million rubles.

In table 25 the cumulative cost of 10 hectares of vineyards before fruit-bearing age is presented, the total cost will amount to 7,946 thousand rubles.

Table 25: Total costs of planting and maintenance work on grapes before fruit-bearing age (excluding subsidies), thousand rubles

Indicator	1 year	2 year	3 year	4 year
Planting vineyards	1,890	-	-	-
Maintenance work	400	500	600	700
Installing a trellis	-	2,090	-	-
Cost of agricultural machinery and equipment	1,620	-	-	-
Other costs	35	36	37	38
Total	3,945	2,626	637	786
Total for four years	7,946			

Source: Vinogradplodoprom [online]. Available at: <http://www.stavvinprom.com/investitsionnaya-privlekatelnost-otrasli/>. Author's computations.

The first profit will be received on for the 4th year and thus, the payback of the project on the planting 10 hectares of table grapes of traditional varieties will be in the 6<sup>th</sup> year. With subsidies the first profit will be received on the 4th year and thus, the payback period for the project on planting 10 table grapes of traditional varieties will be in the 5th year (table 26).

When organizing activities for the first and second projects, it is better to use single agricultural tax, which is a special tax regime that has been developed and introduced specifically for agricultural producers. According to Article 346.4 of the Tax Code of the Russian Federation, the object of taxation for agricultural producers is income reduced by

the amount of expenses. The tax rate is set at 6% (Art. 346.8 of the Tax Code of the Russian Federation) [47].

Table 26: Total cost of planting and maintenance work on grapes before fruit-bearing age (including subsidies), thousand rubles

Indicator	1 year	2 year	3 year	4 year
Planting vineyards	378	-	-	-
Maintenance work	80	100	120	140
Installing a trellis		418	-	-
Cost of agricultural machinery and equipment	810			-
Other costs	35	36	37	38
Total	1,303	554	157	226
Total for four years	2,240			

Source: Vinogradplodoprom [online]. Available at: <http://www.stavvinprom.com/investitsionnaya-privlekatelnost-otrasli/>. Author's computations.

The *third project* is «Production of technical grapes on an area of 10 hectares and production of wine».

In the Russian Federation it is allowed to buy licenses for several types of activities (production and sales). The volume of sales of wine and sparkling wine produced from its own grapes is allowed up to 50,000 litres per a year.

Preferences for producers of wine products from Russian grapes were created. According to the Tax Code of the Russian Federation, the cost of licensing for the production, storage and supply of produced wine products from own grapes was reduced 12 times and it is 65,000 rubles, previously the license cost was 800,000 rubles. The excise tax is also reduced, now the cost of 1 litre of wine produced from Russian grapes is 5 rubles instead of 18 rubles, and 1 litre of sparkling wine costs 14 rubles instead of 36 rubles.

For the cultivation of 10 hectares of vineyards 5 employees on an ongoing basis are needed. The grapes will be planted in the spring according to the following planting pattern: the inter-row spacing is 3 meters, between the bushes is 1.5 meters (3x1.5 meters).

The need for grapes seedlings for planting on 10 hectares will be 22,220 seedlings (at a norm of 2,222 seedlings per 1 ha), the cost of 1 seedling is 80 rubles. Recommended grape varieties are Cabernet Sauvignon, Saperavi, Chardonnay, Rkatsiteli.

Investments of the 1st year on soil preparation and planting vineyards will amount to 2.345 million rubles, including wages, fertilizers, fuel, seedlings, overhead costs. In accordance with the legislation of the Russian Federation, the compensation of expenses will amount to 1.876 million rubles (80% of the costs).

Investments of the 1st year will be 400 thousand rubles for maintenance of young vineyards in the second year of vegetation, including wages, fertilizers, fuel, overhead costs. Subsidies will be up to 320 thousand rubles (80% of the costs).

Thus, the cost of the 1st year will amount to 2.745 million rubles without subsidies, with getting subsidies it will be 549 thousand rubles.

Investments of the 2nd year will be 500 thousand rubles for maintenance of young vineyards in the second year of vegetation, including wages, fertilizers, fuel, overhead costs. Subsidies will be up to 400 thousand rubles (80% of the costs).

In addition to this, in the second year of the growing season, it is necessary to install a trellis.

In this project a single-plane trellis will be used, the installation of which requires:

1. Reinforced concrete pole (supporting and intermediate) in the amount of 6,700 pieces, including:

- Supporting poles in amount of 1,700 pieces, the cost of 1 supporting pole is 250 rubles;

- Intermediate poles in amount of 5,000 pieces, the cost of 1 intermediate pole is 270 rubles.

2. Wire (steel 3.0 mm thick) 4 tons; the cost of 1 ton of wire is 62.5 thousand rubles (the wire is pulled in three rows).

The installation of a trellis will require 2.09 million rubles, including wages, fertilizers, fuel, overhead costs. Compensation for the installation of a trellis will amount to 1.672 million rubles (80% of the costs). Thus, the costs of the 2nd year will amount to 2.59 million rubles without subsidies, including subsidies it will be 518 thousand rubles.

Investments for the 3rd year will be 600 thousand rubles for maintenance work on young vineyards in the third year of vegetation, including wages, fertilizers, fuel, overhead costs. The subsidies will amount to 6480 thousand rubles (80% of the costs), thus the costs for the agricultural producer will be 120 thousand rubles for the maintenance work.

Investments for the 4th year will be 700 thousand rubles for maintenance work on young vineyards in the fourth year of the vegetation, including wages, fertilizers, fuel,



overhead costs. The subsidies will amount to 560 thousand rubles (80% of the costs), thus the costs of the agricultural producer will be 140 thousand rubles for the maintenance work.

Starting from the fifth year of fruit-bearing age, the costs for production of European grape varieties will be 1 million rubles. In accordance with the legislation, work on fruit-bearing vineyards of European varieties are subject to subsidization, the percentage of compensation will be 10% of the costs, thus the subsidies will amount to 100 thousand rubles, and the costs of agricultural producers will be 900 thousand rubles for maintenance work. To carry out all the agro technical work in the vineyards fully and on set dates, it is necessary to buy specialized equipment that can be bought within 3 years. The total cost of all equipment for viticulture will be 2.105 million rubles (table 27). Cost compensation (50%) for the purchase of machinery and equipment will be 1052.5 thousand rubles.

Table 27: Costs of required machinery and equipment

Equipment	Costs, thousand rubles
<b>1 year</b>	
Tractor Belarus MTZ-82	1300
Cultivator-KVO-3	200
Sprayer	120
Total for the 1 <sup>st</sup> year	1620
<b>2 year</b>	
Covering unit	200
<b>3 year</b>	
Gas drill	40
Opening unit	100
Blowing unit	145
Total for the 3 <sup>rd</sup> year	285
Total for three years	2105

Source: CIG equipment <http://ruscig.ru/en/katalog-produktsii/>. Author's computations.

To implement the production and sales of wine, it is necessary to build an equipped winery building with an area of 200 square meters, which costs 3.4 million rubles and buy technological equipment, which costs 8 million rubles. The main equipment needed for winery is conveyor, lifts, crusher, screw pump (2 pieces), pneumatic press (2 pieces), kieselguhr filter, plate filter, imperial pump (3 pieces), piston pump (2 pieces), chiller, musts containers (1,400 litres, 2 pieces), fermenters for white (1,400 litres, 8 pieces),

fermenters for red (1,400 litres, 8 pieces), cooling (processing), cooling tanks, storage tanks, semiautomatic filling machine, oak barrels (50 pieces).

For the production of wine under the current legislation, it is needed to obtain a license for the production of wine products. For a peasant (farm) enterprise, one license for several types of activities (production and sale) with a value of 65.0 thousand rubles for 5 years can be obtained. The volume of sales of wine, sparkling wine produced from its own grapes is allowed to produce up to 50,000 litres per year or 70.0 thousand bottles of 0.7 litres. Wine produced from own grapes is an excisable commodity and in accordance with the Tax Code of the Russian Federation the cost of 1 litre of wine is 5 rubles. The excise price for a 0.7 litre bottle of wine is 3.5 rubles. Organizations engaged in the production of alcoholic beverages in the Russian Federation, as well as agricultural producers (organizations, individual entrepreneurs, peasant (farmer) farms), buy federal special brands worth 1.85 rubles per bottle of wine. For the release of wine it is needed: bottle, which cost is from 10 rubles; label, which cost is from 10 rubles; cap, which cost is from 20 rubles.

***Effectiveness of the project.*** Excluding natural, climatic and anthropogenic risks, in the fourth year of the growing season there will be a harvest of 60 tons of grapes with a yield of 60 centner per hectare, and on the fifth and next years, the total output of grapes will be 80 tons, with a yield of 80 centner per hectare. The entire volume of the harvest will be processed at own winery. With the selling price of 1 bottle of wine 400 rubles, the profit from sales in the fourth year will be 24 million rubles, and from the fifth year the annual revenue will be 32 million rubles (table 28).

Table 28: Wine sales revenue

Indicator	4 year	5 year	6 year	7 year
Gross harvest of grapes, tones	60	80	80	80
Produced bottles of wine, thousand pieces	60	80	80	80
Profit from sales, thousand rubles	24,000	32,000	32,000	32,000

Source: *Yield of grapes from 1 ha* [online]. Available at: [http://openfile.ru/dacha-i-sad/Grapes\\_whoolesale](http://openfile.ru/dacha-i-sad/Grapes_whoolesale). Agro 24 [online]. Available at: <https://agro24.ru/product/vinograd-optom/>. Author's computations.

The total costs of palnting and maintenance of 10 hectares of vineyards before fruit-bearing age, the purchase of specialized equipment, the construction of the winery building, the purchase of technological equipment will be 27,176 million rubles (table 29).

Table 29: Costs of growing 10 hectares of European grape varieties and wine production (without subsidies), thousand rubles

Indicator	1 year	2 year	3 year	4 year	5 year
Planting vineyards	2,345	-	-	-	-
Maintenance work	400	500	600	700	1,000
Installing a trellis	-	2,09	-	-	-
Cost of agricultural machinery and equipment	1,62	200	285	-	-
Technological equipment	-	-	-	8,000	-
Licensing	-	-	-	65	-
Building of winery	-	-	3,400	-	-
Other costs	38	40	43	2,7	3,15
Total	4,403	2,83	4,328	11,465	4,15
Total for five years	27,176				

Source: Vinogradplodoprom [online]. Available at: <http://www.stavvinprom.com/investitsionnaya-privlekatelnost-otrasli/>. Author's computations.

The first profit from the sales of wine will be on the 4 year and thus the payback period on the planting 10 hectares of technical varieties of grapes and the construction of the winery will be in 5 years. The first profit from the sales of wine will be on the 4 years and the payback period on the planting 10 hectares of technical varieties of grapes and the construction of the winery will be in 5 years (table 30).

Table 30: Total cost of planting and maintenance work on grapes before fruit-bearing age (including subsidies), thousand rubles

Indicator	1 year	2 year	3 year	4 year	5 year
Planting vineyards	469	-	-	-	-
Maintenance work	80	100	120	140	100
Installing a trellis	-	418	-	-	-
Cost of agricultural machinery and equipment	810	100	142	-	-
Licensing	-	-	-	65	-
Building of winery	-	-	3,400	-	-
Technological equipment	-	-	-	8,000	-
Other costs	38	40	43	2,7	3,15
Total	1,397	658	3,705.5	10,902	4,25
Total for five years	20,912.5				

Source: Vinogradplodoprom [online]. Available at: <http://www.stavvinprom.com/investitsionnaya-privlekatelnost-otrasli/>. Author's computations.

When selling wine products there is a question about paying taxes, the optimal taxation is the general taxation system, including the following tax payments: income tax, property tax, value added tax, license fee.

After creating three investment projects and studying their financial effectiveness it is clear that if weather conditions and other circumstances will be good, then planting 10 hectares of vineyards is a profitable business. Within 4 or 5 years depending on the type of a project it is possible to gain profit. When stimulating of planting new areas under vines government and regional agricultural ministries should probably create such projects just to show people, who are interested in them, the attractiveness of this type of investments and, of course, to show their risks.

In the analytical part of diploma thesis four main blocks of research have been made: current state of viticulture and winemaking has been evaluated, the main problems in these industries and some possible solutions of them have been identified by means of questionnaire, some government instruments for regulation of the industries have been researched and investment attractiveness of viticultural industry has been presented. It turned out that there are a lot of problems in these industries in the Russian Federation, so some improvements should be proposed.

## 5. RESULTS AND DISCUSSION

Viticulture is an important branch of agricultural sector of some south regions of the Russian Federation. Winemaking is closely connected with viticulture, as about 75% of all grape varieties in the country are wine varieties, so these industries are closely connected to each other. Even though they create not much contribution to gross domestic product in the Russian Federation, they create jobs for people and help to develop agriculture in the regions. After conducting the research a lot of problems on these industries have been raised. The main of them are:

- Strict government regulation and insufficient support of these industries. Viticultural and winemaking producers think that there is too much government control, which prevents these industries from developing. This includes too high excise and VAT taxes on production, too high prices on licensing of winemaking (and difficult process of licensing and getting excise stamps) as well as low level of support of viticultural producers, including not developed legislative system of giving subsidies to them (conditions of getting subsidies are too complicated for producers). This also includes too high loan interests for agricultural producers;
- Territories, which are suitable for planting vines, are not fully used in the south of the Russian Federation. Many vineyards were destroyed before 2007 year and they were not planted again. A lot of vineyards are in bad condition and they need care and maintenance. What is more, there are difficulties for private investors to make investments in the government lands, which are suitable for growing vines;
- Nursery base for viticulture is almost absent. Thus, most seedlings are imported abroad, sometimes with diseases and quarantine objects. Often imported seedlings are not good for Russian weather conditions;
- Machinery and equipment in viticultural and winemaking industries are too old and in insufficient amount. This problem is not only about absence of modern equipment for production of wines with good quality, but also about absence of refrigerators and places, where fresh grapes can be stored;
- There are not enough people, who work in these industries, as well as there are not enough good specialists. What is more, in the whole agricultural sector (not only in viticulture) there is a bad motivation for young people to study and work;
- Not enough domestic production of grapes, so a lot of wine materials and grape musts are imported abroad, often with a bad quality. Thus, some winemaking

producers in the Russian Federation use in the production of wines not their own fresh grapes, but imported materials of bad quality and as a result the quality of wine is low;

- Falsified alcoholic beverages in the Russian Federation. Even though Russian government tries to make production and sales of falsified alcohol less, there is still a big share of them in the domestic market. For example, instead of wine, wine products can be sold for the same price but the quality of such wine products is a matter of a big question, or it can be bad consistence of this beverage on a high price. This problem is a really important one because these alcoholic beverages can be very dangerous for people's health;

- In the Republic of Crimea and Rostov oblast yield of grapes is very low (almost two times less than in Krasnodar kray and the Republic of Dagestan);

- In Stavropol kray and Sevastopol areas under vines decreased through years;

- Russian consumers still prefer imported wine from Spain, France, Italy, Georgia or Chile. That is because they do not trust domestic wine producers and they believe that quality of foreign wines is better. But it can be a mistake because: 1) Russian wines with a Protected Geographical Indication and with a Protected Designation of Origin are produced from domestic grapes of good quality; 2) Foreign wines can be produced from bad wine materials. Another problem with consumer preferences is that they prefer cheaper wines. In this segment of Russian wine market there are wine products, fruity wines and imported wines with a bad quality. So the problem is in the prices of wines, which were increasing through the years.

For problems, which were discussed, the next solutions can be suggested:

- Changes in legislative system of the Russian Federation on the matter of viticulture and winemaking. This includes making a law about viticulture and winemaking, where government support for these industries will be justified and a plan for subsidies by years and directions of subsidies will be provided. This also includes simplification of the system of getting subsidies and probability to give more subsidies for viticulture than in 2018 year. For credits for opening a business or buying agricultural machinery and equipment some changes are needed, too. That is in the field of making interest rates less on some conditions. Government insurance of viticultural producers can be implemented, too;

- Planting of new vines and uprooting of old vines. A lot of vines have been created recently, but still areas under vineyards in 2017 year have increased by only 1%

since 2014 year. This is due to the fact that some vineyards have been uprooting without planting again. For this task more governmental subsidies should be given to viticulture producers as well as investment attractiveness of this industry should be presented to investors. For example, in the Russian Federation there is a website, which is called «To the Far East», where some business plans with initial investments and payback period are presented. So government can create something like that for viticulture and winemaking. Register of vineyards has been created in the Russian Federation but it does not work fully on the Internet. This web page has been created to show all existing vineyards in the country. But areas that can be used for vineyards can be added there, too, just to show investors what areas and where they can use for their projects;

- Founding nurseries as well as breeding centers for viticulture, where seedlings of grapes can be grown, with adaptation to Russian weather conditions and with resistance to diseases, can be implemented. This point is very important for import substitution, because in the Russian Federation there are not enough nurseries and import of seedlings from abroad is not always good for viticulture because of diseases;

- Technical re-equipment is needed with replacement of old machinery and equipment in the industries with modern, effective and meeting international standards ones. This can be done by creating of leasing organizations and by loan rates reduction as well as giving more amount of subsidies to producers to buy new equipment and machinery;

- Getting a good education in viticulture and winemaking by students and professionals by such means as higher education, some courses and professional oriented lectures in high schools. Practical training for students should be organized in some winemaking companies and in vineyards;

- Creation of a motivational system for people, working in these industries, such as bonuses, social packets and so on;

- Reduction of falsified alcohol should be made mainly by government regulation, making more strict laws on the matter and more strict punishment;

- Planting of vines with higher yield and better conditions for their growing should be done in the Republic of Crimea and Rostov oblast;

- Creation of widespread Russian wine brands. This can be done by marketing tools of the winemaking companies. First, it is very important to take part in wine fairs in the Russian Federation as well as in other countries. Second, developing of

web sites is very important. Russian companies often do not develop their web sites, they do not upload new information there and so on. Thirdly, Internet marketing can be useful, too. Instagram, VKontakte, Facebook and others Internet programs can be used to create a good image of the company;

- Reduction of prices on wines by reducing tax burden. After production of wine, paying all taxes, logistics costs and other costs consumer prices on wine in some regions of the Russian Federation become too high for consumers, sometimes even the same price as price on good imported wines. For example, a bottle of wine «Drevniy Chersones» (Inkerman) costed from 350 rubles in the Republic of Crimea, but in Moscow it costed 550 rubles (in 2017 year). So consumers of wine would prefer to buy cheaper wine.

Of course, it will take a lot of time and efforts to implement these changes in the industries of viticulture and winemaking. Government plays an important role in the development of these industries. Winemaking and viticultural producers as well as investors play important roles, too. Only creation of effective strategy for the development of viticulture and winemaking can help to reach these goals, to increase areas under vines, yield of grapes and as a result to increase gross harvest of grapes and production of good Russian wines.



## 6. CONCLUSION

Viticulture and winemaking began their history many thousand years ago. Although Tauri and Greek people cultivated vines and made wine long time ago, it is believed that the history of these industries in the territory of Russia began in 17<sup>th</sup> century. In the times of the USSR these industries were well developed, but then areas under vines reduced dramatically. Since 2007 year viticulture and winemaking in the Russian Federation have been developing again.

There are 5 main regions of viticulture and winemaking in the Russian Federation: Krasnodar kray, the Republic of Dagestan, the Republic of Crimea and Sevastopol, Stavropol kray and Rostov oblast. Every region specializes in productions of different type of wines. The leading region by production of grapes and wine is Krasnodar kray.

A lot of scientists tried to make a research concerning industries of viticulture and winemaking; all scientists understood the role of these industries in southern regions of the Russian Federation and evaluated their current state and problems. While conducting this research, almost all the problems were confirmed.

Government plays an important role in regulation of these industries in the Russian Federation. Development of these industries is becoming an important strategic direction. There are some laws, which regulate these industries (they were studied in the chapter 3.4), but there is still no law about grape and wine producers in the country. The main government program for agricultural products is «Government program for the development of agriculture and regulation of markets of agricultural products, raw materials and food for 2013-2020», which includes government support for agricultural producers of grapes. Russian government tries to revive these industries as they can bring more incomes to the federal budget and develop economics of the regions. From one point, government regulation of these industries protects domestic producers from foreign competitors and consumers from grapes and wines of bad qualities, but from another point, it can be difficult for producers to run a business because of some laws.

Areas under vines have been increasing steadily in the Russian Federation; every year new vines are planted. Yield of grapes as well as gross harvest of grapes have been increasing, too, but not in all viticultural regions. However, production of still and sparkling wines has been decreasing as well as their consumption. Thus, there is a tendency of reducing consumption of alcohol in the country. Import of grapes and wines to the Russian Federation has been decreasing, too. Export of wine is very low, primarily to

Ukraine, China, Kazakhstan, Abkhazia, Latvia. Prices on grapes and wines have been increasing all the time.

Conducting a marketing research, which was a questionnaire, was very useful to writing diploma thesis. People, who work on the industries of viticulture and winemaking, pointed out the main problems of these industries and possible ways to solve them. They believe that these industries should be developed and that the quality of Russian grapes and wines are not worse than the quality of imported ones, but that there are too many problems that should be solved, of course with the help of the government and motivational system for workers.

Making up three investment projects for planting vines and building a winery showed that in good conditions and proper government support investments on these industries will be profitable within 4 – 5 years.

While conducting a research, some main problems in viticulture and winemaking in the Russian Federation have been found. Possible solutions to these problems have been suggested in the end of the diploma thesis.

The Russian Federation is not the leader in the world in producing wines and grapes, but this country has all opportunities to develop viticulture and winemaking as it has territories near the Black and Azov seas with good soils and weather conditions. Better government regulation and support as well as investments and motivation of the personnel can help to do it. Of course, it is a matter of further research, but hopefully these industries will be further recreated and developed in the future.

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## 9. APPENDIX

### Appendix 1. Main grape varieties in the Russian Federation

Variety	Characteristics
Aligote	It is French grape variety of medium maturation, which is widely spread in the Russian Federation and other countries. It has high fruitfulness, especially at young age. It is used to produce table wines, sparkling wines and cognac wine materials and grape juices.
Albillo Krumskiy	It is Spanish grape variety of medium maturation, which is mainly spread in Crimea. In Georgia it is called Tsulukidzis Tetri. The true name of the variety is not established. It differs in high resistance to bad conditions of cultivation and phylloxera. In some years, it has a big shedding of flowers.
Bastardo Magarachskiy	It is grape variety of average maturity with high yield. It was derived from crossing varieties Bastardo and Saperavi. Vines are spread in Crimea and Moldova. It has high sugar content and high yield. It is relatively resistant to fungal diseases. It can be used for production of high-quality dessert wines, and for production of strong and table wines.
Cabernet Sauvignon	It is one of the best French grape varieties of medium, sometimes late maturation. It is cultivated in most viticultural regions. It is relatively resistant to fungal diseases and pests. It is used to produce high-quality red table and strong wines and sparkling wines.
Merlot	It is French grape variety of medium maturation. It is used for the preparation of high-quality table and dessert wines, as well as in blends as an improver of more simple red varieties. According to its morphological and biological characteristics, it is close to Cabernet-Sauvignon, but surpasses it in yield and sugar content.
White Muscat	It is high-quality grape variety with nutmeg aroma, medium maturation time. It is widely spread in all viticultural areas. On the Don it is known as Ladan. It differs in exclusively high sugar content. It is not demanding on soils, thermophilic, it is resistant to frost, drought and fungal diseases. It is used to produce great vintage dessert and semi-sweet wines, wine materials for champagne.
Rosé Muscat	It is French high-quality grape variety of medium maturation. It is spread in small quantities in almost all southern areas of viticulture. It is used to produce original dessert wines with a specific varietal muscat aroma.
Saperavi	It is Georgian high-quality grape variety of late maturation. It is widely spread

	in all southern areas of viticulture. It is relatively resistant to drought and spring frosts. It has good sugar content, high acidity, intense colour of the skin of berries. It is used for the production of high-quality red table, strong and dessert wines such as Cahors.
Sauvignon	It is French grape variety of medium maturation. At early gathering, it is used to make high-quality sparkling wine materials, while late harvesting it is used to produce dessert and strong wines.
Chardonnay	It is French grape variety of medium maturation. It has high sugar content and steady preservation of acidity. It is used for the production of high-quality sparkling wine materials, table wines and for blending as a sparkling wine improver.
Riesling	It is German high-quality grape variety of medium maturation. It is widespread in all areas of viticulture. After maturation, it maintains a stable high acidity; it has an original varietal aroma. It is used to produce high quality table wines, sparkling wine materials and juices.
Golubok	It is Russian grape variety with a high content of tannins and dyes. It is used for the production of wines and juices.
Verdello	It is Portuguese grape variety. It is mainly used for making strong wines.
White Kokur	It is widespread in Crimea, where Kokur and dessert wines are produced from it.
Pinot noir	It is French grape variety, which is used for wine production.

Source: *Grape varieties in the Russian Federation*. VINOFAAN [online]. Available at: [https://www.vinofan.ru/inf/grapesorts/countries\\_russia/](https://www.vinofan.ru/inf/grapesorts/countries_russia/). Accessed 10 December 2018. *Brief description of grape varieties in Crimea*. Crimean grape [online]. Available at: <http://vinogradna.ru/kratkaya-xarakteristika-sortov-vinograda-v-krymu.html>. Accessed 10 December 2018.

## Appendix 2. Time series of gross harvest of grapes in the Russian Federation

Indicator	Name	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Absolute level of gross harvest of grapes, tonnes	$y_i$	320.73	274.20	306.62	335.78	427.78	282.62	461.64	570.39	519.98	601.33	580.08
Absolute change (increase/decrease): base chained	$\Delta y_{i/i-1}$	x	-46.53	32.42	29.16	92.00	-145.16	179.02	108.75	-50.42	81.35	-21.26
fixed base	$\Delta y_{i/0}$	x	-46.53	-14.11	15.05	107.05	-38.11	140.91	249.66	199.25	280.60	259.35
Dynamic index: base chained	$I_{i/i-1}$	x	85.49	111.82	109.51	127.40	66.07	163.34	123.56	91.16	115.65	96.47
fixed base	$I_i$	x	85.49	95.60	104.69	133.38	88.12	143.94	177.84	162.12	187.49	180.86
Rate of increase (decrease): base chained	$R_{i/i-1}$	x	-14.51	11.82	9.51	27.40	-33.93	63.34	23.56	-8.84	15.65	-3.53
fixed base	$R_{i/0}$	x	-14.51	-4.40	4.69	33.38	-11.88	43.94	77.84	62.12	87.49	80.86
Absolute value of 1% increase (decrease)	$A_i$	x	3.21	2.74	3.07	3.36	4.28	2.83	4.62	5.70	5.20	6.01

Source: Federal State Statistic Service. *Areas, gross harvest and yield of fruits, berries and grapes in the Russian Federation* [online]. Available at: [http://www.gks.ru/wps/wcm/connect/rosstat\\_main/rosstat/ru/statistics/publications/catalog/doc\\_1265196018516](http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/doc_1265196018516). Accessed 7 January 2019. Author's computations.

### **Appendix 3. Questionnaire**

1. What is your gender?
  - Male
  - Female
2. What is your age?
  - Under 18
  - 18 – 26
  - 26 – 40
  - 40 – 50
  - 50 and over
3. What is your marital status?
  - Single
  - Married
  - Divorced
  - Other
4. What is your highest reached education?
  - Incomplete secondary education
  - Complete secondary education
  - Secondary professional education
  - Higher education
  - Bachelor's degree
  - Master's degree
  - PhD
  - Other
5. What organization do you work in?
6. What is your monthly income?
  - less than 20 thousand rubles
  - 20 – 30 thousand rubles
  - 30 – 50 thousand rubles
  - more than 50 thousand rubles
7. What region do you live in?
8. Do you drink wine?



- Yes
  - No
9. What kind of wine do you prefer?
- Red
  - White
  - Rosé
  - Other
10. What kind of wine do you prefer?
- Dry
  - Off-dry
  - Semi-sweet
  - Sweet
  - Other
11. What wine do you prefer?
- Sparkling
  - Still
  - Other
12. How much money do you usually pay for a bottle of wine (0.75 ml) in the shop?
- Less than 300 rubles
  - 300 – 600 rubles
  - More than 600 rubles
13. According to what criteria do you usually buy wine?
- Taste
  - Price
  - Package
  - Brand
  - Other
14. Where do you usually buy wine?
- Supermarket
  - Special wine shop
  - Market
  - Other

15. What other alcoholic beverages do you drink?
16. Wine of what Russian producers do you prefer?
17. Wine of what foreign producers do you prefer?
18. How do you think is Russian wine a good competitor for foreign wine?
19. What are the most popular wines in your region?
20. Your wine consumption in last years:
  - Increased
  - Remains the same
  - Decreased
  - Other
21. How often do you drink wine?
  - Every day
  - 2 – 3 times a week
  - Once a week
  - A couple of times per a month
  - Other
22. How do you think is it better to produce wine from domestic or foreign raw materials? Why?
23. How do you think does government pay enough subsidies to grape producers?
24. How do you think what are the main problems in viticultural and winemaking industries in the Russian Federation?
25. How do you think if there is opportunity for development of viticulture and winemaking in your region?
  - Yes
  - No
  - Other
26. How do you think what should be done for developing of these industries?