

Development of wine tourism in the city of Sevastopol

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Abstract. One of the successful and planned directions of Sevastopol's development is the wine tourism development based on viticulture, which is the basis for this sphere of tourism. Based on the materials collected during the survey of the district, as well as literary, fund, and Internet sources, the peculiarities of viticulture and winemaking in Sevastopol were analyzed. Having considered the main physical and geographical components of the term terroir (climatic, soil, hydrochemical, geological features) on the example of the Zolotaya Balka vineyards, the distinctive features of a particular terroir were highlighted: strongly limestone soils, orographic isolation of vineyards by mountains, a special climatic situation isolated by the influence of an amazing windrose, the combination of steppe and sea winds equally. The article substantiates the creation of a new wine tourism route "Zolotaya Balka – Uppa Winery".

1 Introduction

Viticulture has long been developing on the Crimean Peninsula. This became possible due to a number of historical and physical-geographical prerequisites that positively influenced the grape development as an independent agricultural crop.

The purpose of the work is to study the viticulture peculiarities as factors in the development of modern types of tourism in the city of Sevastopol.

To achieve this purpose, the following tasks were formulated: to consider the main prerequisites for the viticulture development of the city of Sevastopol in the modern period; to justify the creation of a promising wine tourism route for the city of Sevastopol.

Wine terroirs of the Crimea have always been distinguished by a variety of components that characterize this term. In particular, the south-west of the Crimean Peninsula has a number of differences from neighboring terroirs in climatic, geological, hydrochemical, and other parameters, which creates special conditions for growing grapes.

It should be noted that modern tourist routes of the city of Sevastopol are sometimes not informative enough and do not use the potential for 100%. Wine tours are no exception.

It can be considered expedient to create promising wine tours in combination with historical and educational elements of tourism to justify their all-season. Also, such routes are more interesting for a large circle of recreants with their diversity.

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2 Materials and Methods

Viticulture as a branch of agriculture depends on many factors, such as the geographical location of the vineyard, agro-climatic and hydrological features of the territory, underlying soils and landscape characteristics. The paper uses the term *terroir*, which is a combination of all of the above factors. *Terroir* is a combination of soil and climatic factors and special characteristics of the terrain (relief, wind roses, the presence of reservoirs, forests, surrounding flora and fauna) that determine the varietal characteristics of agricultural products. Historical and economic factors, as well as the current geopolitical situation, have played an important role in the culture of viticulture.

In the study area, the landscapes most favorable for viticulture should include mountain-coastal sub-Mediterranean, mountain, and foothill forest, plain steppe and plain-coastal steppe landscapes, due to the complex combination of components (soils, moisture, solar exposure, wind rose, geological basis, microclimate, and others) within each of the above landscapes [1].

The Balaklava *terroir* is located on limestone soils formed about 70 million years ago after the sea has gone from the territory of the modern peninsula. The *terroir* is surrounded by mountains on all sides, located in an intermountain basin. The formation of a unique climate here is facilitated by the combined influence of steppe and sea winds passing into the basin through a few gorges. The main difference between local soils and other *terroirs* of the Crimean Peninsula is excellent drainage.

The standard of geographical distribution of vineyards is considered to be the interval between the 40th and 48th parallel, and in the Balaklava *terroir* the vines grow on the 44th parallel.

The most important condition for the compilation of new wine tours was the environmental component and interest in vineyards [2]. It is necessary to build them in such a way as to minimize possible damage from the actions of recreants in the territories through which the routes will pass.

An important indicator for the creation of new wine tours was the transport accessibility of the objects included in the tour. Since routes can have not only a marketing character, but also a recommendation, it is important that the recreant can visit all points of the route independently, while minimizing costs and reducing travel time.

Wine tourism has a well-defined place in the recreation system. It can be attributed to two of the four subtypes allocated in recreational nature management: therapeutic and recreational subtypes. At the regional level, wine tourism can be based on categories reflecting the economic orientation: resorts, vacation retreats, and boarding houses are distinguished in the therapeutic type, and cultural and historical elements of "population blocks", resource-commercial, landscape, geomorphological resources of the natural block are distinguished in the tourist recreation [3].

Modern technologies of viticulture and winemaking were considered on the example of the PJSC "Zolotaya Balka" for several reasons. First, Zolotaya Balka provides the most detailed information about the technologies of grape growing and wine production. Second, it is the largest center of viticulture and wine production in the city of Sevastopol. Thus, PJSC Zolotaya Balka can be considered an excellent example for considering typological schemes of viticulture and wine production.

There are several main types of wine production centers in Sevastopol:

1. Wineries that do not have vineyards on the territory of the city of Sevastopol. For example, "Sevastopol Champagne Winery", all vineyards of which are located on the territory of the Bakhchisarai district of the Republic of Crimea;

2. Wineries that have insufficient resources (in the form of vineyards on the territory of the city of Sevastopol) for the wine production. Such enterprises include Inkerman and

Alcadar. Inkerman has a very small area of vineyards, although all of them are located within the city of Sevastopol. It produces a large amount of wine by purchasing wine materials from other factories. Alcadar, in turn, has vineyards not only in Sevastopol, but also on the territory of the Bakhchisarai district of the Republic of Crimea, but produces significantly less wine than Inkerman, selling part of the wine materials to competitors;

3. Wineries, the raw material base of which is located entirely on the territory of the city of Sevastopol. Such enterprises include Zolotaya Balka and Uppa Winery.

3 Results and Discussion

In vineyards under dead fallow in conditions of intensive production, there is an increasing exploitation of the natural soil fertility. With a high intensity of use, soils lose their fertility, and the transformation of nutrients into hard-to-access and inaccessible forms occurs, the natural process of fertility reproduction is disrupted, which leads to soil degradation, weakening of stability and reducing the productivity of agroecosystems. Currently, the anthropogenic impact on the grape plantations soil is expressed in a large number of technological methods for caring for the plant and soil [4].

Compacted soil is difficult to penetrate for water, and water permeability is the most important indicator of the soil physical condition and its fertility [5]. Deterioration of the water-physical properties of soils inevitably leads to an active progression of erosion processes. The structureless top layer is effortlessly washed away by water flows along the compacted waterproof plough pan.

The optimal soil density for grape cultivation is in the range of 1.0–1.4 g/cm³ (chernozems – 1.0–1.4 g/cm³, brown forest soils – 1.0–1.1 g/cm³). On skeletal soils, where the density is explained by the presence of stones and crushed stone, the fine-earth fraction is porous and quite accessible to the roots – 1.6–1.8 g/cm³ [6].

For the expedient construction of new routes on the territory of the city of Sevastopol, it is necessary to assess the recreational attractiveness to make sure whether changing the structure of routes will be cost-effective. The coefficients (indices) of the district specialization, calculated according to certain formulas, were used for the assessment. First, $K1 = Tr / Ts$, where Tr is the share of the tourist and recreational sphere in the economy of the city of Sevastopol, and Ts is the share of the tourist and recreational sphere in the country economy. Based on the data on the gross regional product structure obtained on the official statistical website of the city of Sevastopol, we get the share of tourism in the city's economy equal to 7.7% of GRP [7]. Data on the tourism share in the GRP structure of the Russian Federation, which is 3.4%, were taken from the website of the Federal State Statistics Service [8]. We get the calculated formula: $K1 = 7.7 / 3.4$. The coefficient turns out to be equal to 2.26.

There is also a second indicator for assessing recreational attractiveness: $K2 = Tr/s / Nr/s$, where Tr/s is the share of the tourist and recreational sphere of the city of Sevastopol in the country's economy, and Nr/s is the share of the district's population in the country's population. According to the official statistical website of the city of Sevastopol [7], the city's population is 428,753 people (as of January 1, 2017). The population of the Russian Federation according to the Federal State Statistics Service [8] is 146,804,372 people (as of January 1, 2017). We get the calculated formula: $K2 = 2.26 / 0.003 = 753.33$. The territory under study is considered recreationally attractive if both coefficients $K1$ and $K2 > 1$. Based on the data obtained, it is safe to say that the city of Sevastopol is recreationally attractive and it is advisable to develop wine tourism routes here to increase the efficiency of their use.

The Zolotaya Balka – Uppa Winery wine route (Fig. 1) begins in the south-east in the Balaklavsky district of the city of Sevastopol, coming from the Yalta district of the

Republic of Crimea. The axis of the route is an important highway “Yalta - Sevastopol”, passing through the South Coast of the Crimea. The described route consists of three types of recreational nature management facilities, three nature conservation facilities and two wine production centers with their vineyards. Recreational objects include archaeological monuments (1 object), the largest temples (2 objects) and architectural monuments (5 objects).

This route begins at the border of the Yalta district of the Republic of Crimea and the Balaklava district of the city of Sevastopol. The first stop on the route is a nature conservation facility – the Baydars'kyy Zakaznyk. Its area is 28 thousand hectares, and it is the largest nature reserve of the city of Sevastopol and the second largest on the Crimean Peninsula. The Chernorechenskoye reservoir is located in the center of the Baydar Valley, and there are huge reserves of clean underground water on the reserve territory. During a long trip between two nature reserves, vacationers are invited to visit a variety of beaches on the southern coast of Crimea: from sandy to pebble, from wild to favorite by tourists.

Then the recreants are invited to visit another landscape reserve – Cape Aya. The reserve was created in 1982, adding to its territory a natural monument "Grove of Pitsunskaya pine and high juniper on Cape Aya", "Bitiliman natural limit" and a protected tract "Grove of Stankevich pine". The total area of the reserve was 1,132 hectares. Out of 500 plant species, 82 are listed in the Red Book [9].

Not far from Cape Aya there is the Chorgun Bridge-aqueduct – one of the few architectural monuments associated with water supply. The project was implemented in the 1840s, presented in the form of an 18-kilometer zone of tunnels and aqueducts. With its help, water was supplied from the Chernaya River to the city of Sevastopol (to the docks of the Lazarev Admiralty). Next to the aqueduct near Balaklava there is the Temple of the Twelve Apostles – one of the oldest Churches on the territory of the Crimean Peninsula. According to some sources, one of the first buildings of the complex was built by the ancient Greeks in the period of early Christianity.

In the city of Balaklava, it is advisable to combine visits to two objects – the Chembalo fortress and the Balaklava underground Museum complex.

To the north of Balaklava there is the largest winery “Zolotaya Balka” with its vineyards. The first building dates back to the 60s of the last century. The tourist attraction of the Zolotaya Balka was also provided for the first people of the state. On the territory of the modern plant and its vineyards, the first winemakers were Tauri. After them, the Greeks cultivated grapes here. After the Greeks, the Genoese, Venetians, and even Turks cultivated grapes for export and used it as an antiseptic during hostilities. During the felling of vineyards in the 80s, most of them were saved by deception: the company's management said that they made juice from grapes, not wine. Alexander Nikolaevich Vitmar created the Zolotaya Balka. In addition to the Zolotaya Balka, he created vineyards near Yalta. Zolotaya Balka is visited not only by residents of the CIS, but also by foreigners. As the factory workers say, this is still a very small number of people. Visiting the company is possible all year round. After that, the recreants have the opportunity to visit the architectural monument – the Chorgun Tower.

The next object to visit is the "Uppa winery" with its enterprises. The company was founded in 2007 by the famous sommelier Pavel Shvets. "Uppa" in translation from the Tatar language means mother. The farm is located on 16 hectares, of which slightly less than half (about 7 hectares) is under vineyards). They are located on the slopes of the mountain at an altitude of 350-400 meters north of the village of Rodnoye. This place is considered one of the best areas of the city of Sevastopol for viticulture, especially the southern and southeastern expositions of the Chernorechenskaya Valley. To date, more than 11 grape varieties are grown, the seedlings of which were brought from France (province of

Burgundy). This is one of the youngest enterprises in Russia, but, at the same time, one of the most famous.

The Monastery of Our Lady of Korsun was founded in 2009. Until this year, it was the St. George priory. A temple of the Korsun Icon of the Holy Virgin Theotokos was built on the territory of the monastery. At the end of the XIX – beginning of the XX century, a "Little France" appeared in Sevastopol - Maximov's dacha. On the territory of the estate there is a mansion, a chapel, an Arab house, and some office premises. The estate is also decorated with a greenhouse, a vineyard, and an aviary.

On Cape Fiolent there is a monument to A. S. Pushkin, opened in 1999 for the 200th anniversary of the poet's birth. The monument is located in the place where Alexander Sergeevich stayed in the St. George Monastery in 1820 [10]. In addition to natural and architectural monuments, beaches are also worth visiting on the same territory. In particular, the Jasper beach, which is popular with tourists, is made of small pebbles and with clear water. The final point of the route is the Orthodox male St. George Monastery, located south of Cape Fiolent, founded in 891 by the Tauride Greeks.

The wine route «Zolotaya Balka – Uppa Winery»

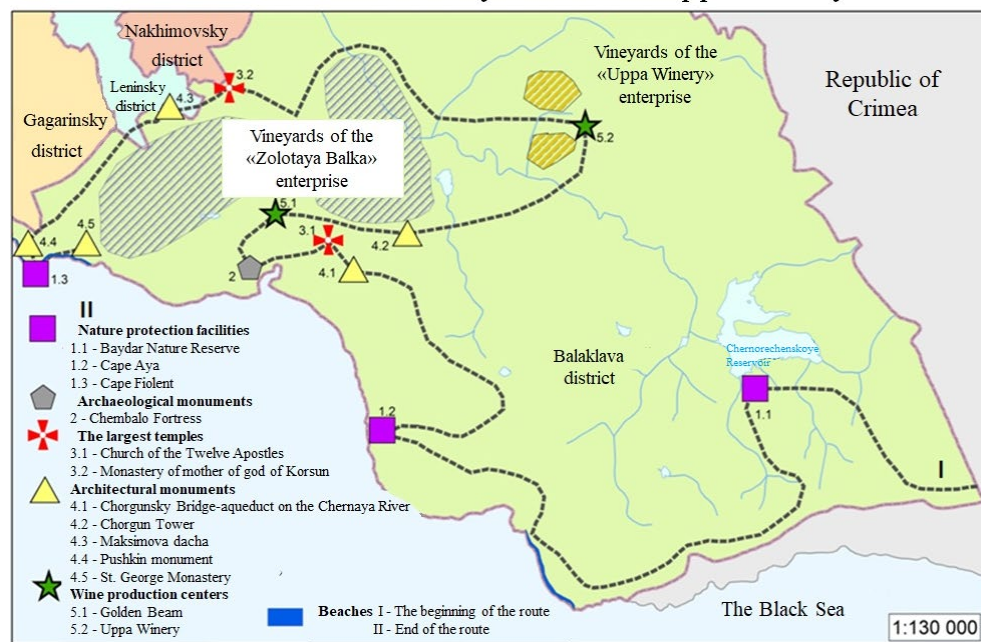


Fig. 1. The wine route “Zolotaya Balka – Uppa Winery”.

4 Conclusion

Viticulture is one of the main sources of district economic development, being a historical branch of the region, therefore wine tourism can be considered promising, due to its all-season and versatility due to its combination with other types of tourism. The compiled route may be of interest to recreationists, being the continuation of independent travel of tourists throughout the Southern Coast of Crimea.

The paper describes the nature management of the city of Sevastopol. A scheme was created, based on which it is possible to identify the most interesting tourist area in the southern part of the city of Sevastopol, which can be considered the most attractive for

conducting a wine route. It is the area with the highest concentration of interest to visit objects.

Wine tourism is considered a rather promising direction of tourism in the Sevastopol region, therefore, both in previous years and in the future, it is planned to actively develop it.

The creation of the presented tourist wine route was justified by a high assessment of the recreational attractiveness of the area based on the area's specialization indices. It has a good development perspective. An important criterion for the successful functioning of wine routes is visiting beaches and conducting active water recreation in the summer and autumn season, when the water is still warm and the air temperature is considered quite comfortable for recreation.

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References

1. K. Pozachenyuk, I. Yakovenko, *Miscellanea Geographica. Regional Studies on Development*, **22(2)**, 102-108 (2018)
2. A.A. Dorofeeva, A.N. Kazak, L.B. Nyurenberger, *IOP Conference Series: Earth and Environmental Science*, **315(7)**, 072040 (2019)
3. A.V. Evseev, A.G. Goretskaya, *Recreational resources, tourism, and local history, Problems of regional ecology* 183 (2012).
4. E.A. Egorov, I.A. Ilyina, K.A. Serpukhovitina, *The system of viticulture of the Krasnodar Territory: methodological recommendations* (Krasnodar: Department of Agriculture and Processing Industry of Krasnodar Krai, 2007) 125.
5. V.S. Petrov, *Scientific foundations of the biological system of soil maintenance in vineyards* (Novocherkassk, 2003) 170.
6. U.G. Croci, R. Knoll, S. Rumrich, W. Schweizer, I. Svoboda, *Wine. Illustrated reference book* (M. Bertelsmann Media Moskau, 2005) 63-78.
7. *Economy of Sevastopol: Results of socio-economic development of the city of Sevastopol for January – September 2016*. URL: <http://investsevastopol.ru/ru/ekonomika-sevastopolya>. (Accessed 22.01.2021)
8. *Crimean vineyard: Fighting soil erosion*. URL: <http://vinogradna.ru> (Accessed 21.10.2021)
9. V.G. Ena, I.T. Tverdokhlebov, S.P. Shantyr, A.I.V. Ena, An.V. Ena, *Southern coast of Crimea. Travel guide. Essays on nature, history, economy. Tourist and sightseeing routes along the Western and Eastern South Coast* (Simferopol: Business-Inform, 1996).
10. A.V. Ena, *Natural-territorial complexes of the Crimean sub-Mediterranean region, problems of their protection and directions of rational use* (Kiev: Institute of Geophysics of the Academy of Sciences of Ukraine, 1986).