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**PLEVEN**

**BY ACTIVITY 3.2.1 .:**  
***DESCRIPTION OF WINE GRAPE VARIETIES***  
***AND MICRO AREAS OF PRODUCTION IN THE***  
***HASKOVO AND KARDZHALI DISTRICTS***

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**This report was prepared by a team of scientists from the Institute of Viticulture and Enology, Pleven, Bulgaria for the purpose of the project DIONYSOS. The analysis of the report uses own research; references to scientific literature in the field of viticulture, wine, history, geography, soil science, climate and tourism of bulgarian and world scientists; official statistics of NSI, MAFF, NIMH; officially published documents such as districts and municipalities development strategies in the districts of Haskovo and Kardzhali; the Law on Wine and Spirits of the Republic of Bulgaria; the Low of Tourism of the Republic of Bulgaria; official wine cellar websites, tourist information centers, travel agencies; and other sources.**

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## CONTENTS

<b>1. HISTORICAL FACTS FOR THE RISE AND DEVELOPMENT OF VINE AND WINE GROWTH IN THE HASKOVO AND KARDZHALI DISTRICTS.....</b>	<b>4</b>
<b>1.1. Origin of viticulture and cultivation of the vine on the Bulgarian lands</b>	
<b>1.2. Viticulture and winemaking in the Bulgarian lands from antiquity to the late XX century.....</b>	<b>5</b>
1.2.1. Viticulture and wine at Thracians of I-st millennium to VI century b.c. ....	5
1.2.2. Viticulture and wine in the First and Second Bulgarian State VII-XIV century.....	7
1.2.3. Viticulture and wine during the period of Ottoman Empire XV-XIX century.....	7
<b>1.3. Artifacts related to viticulture and wine production.....</b>	<b>8</b>
<b>1.4. Artifacts and tourist sites in the districts of Haskovo and Kardzhali.....</b>	<b>9</b>
<b>1.5. Development of wine tourism in Bulgaria.....</b>	<b>20</b>
<b>1.6. Wine Roads.....</b>	<b>21</b>
<b>1.7. Wine festivals and exhibitions in Bulgaria.....</b>	<b>24</b>
<b>1.8. Development of tourism in the districts of Haskovo and Kardzhali Кърджали .....</b>	<b>27</b>
1.8.1. Economic parameters of tourism development in both areas.....	27
1.8.2. Potential for development of tourism in Haskovo district.....	30
1.8.3. Potential for development of tourism in Kardzhali district.....	33
<b>1.9. Festivals of wine and other holidays in the districts of Haskovo and Kardzhali.....</b>	<b>35</b>
1.9.1 Festivals of wine and other holidays in the districts of Haskovo.....	35
1.9.2. Festivals of wine and other holidays in the districts of Kardzhali.....	35
<b>2. GEOMORPHOLOGY, GEOLOGY AND CLIMATE IN THE REGION OF THE HASKOVO AND KARDZHALI DISTRICTS.....</b>	<b>38</b>
<b>2.1. Relief.....</b>	<b>38</b>
<b>2.2. Land usage.....</b>	<b>43</b>
<b>2.3. Soils.....</b>	<b>45</b>
<b>2.4. Bioclimatic characteristics.....</b>	<b>49</b>
2.4.1. Climate conditions of the area.....	49
2.4.2. Characteristics of the biotic factors determining the risk for the successful realization of a quality grape and wine harvest .....	54
<b>3. VITICULTURE AND WINEMAKING IN THE HASKOVO AND KARDZHALI DISTRICTS.....</b>	<b>59</b>
<b>3.1. Varietal potential of the territory.....</b>	<b>59</b>
<b>3.2. Potential for the production of wines with geographical indications - Protected Geographical Indications (PGI) and Protected Designations of Origin (PDO). Review of the regulatory framework.....</b>	<b>62</b>
<b>3.3. Areas and production of grapes and wine.....</b>	<b>65</b>

<b>3.4. Main wine grape varieties grown in the districts of Haskovo and Kardzhali.....</b>	<b>69</b>
<b>3.5. Magnitude of the viticultural exploitation in the districts of Haskovo and Kardzhali.....</b>	<b>76</b>
<b>4. CONCLUSION.....</b>	<b>79</b>
<b>5. DESCRIPTION OF THE WINERIES FUNCTIONING ON THE TERRITORIES OF THE HASKOVO AND KARDJALI DISTRICTS.....</b>	<b>84</b>

# 1. HISTORICAL FACTS FOR THE RISE AND DEVELOPMENT OF VINE AND WINE GROWTH IN THE HASKOVO AND KARDZHALI DISTRICTS

Viticulture and winemaking have been and continue to be an important part of the history of the Balkan Peninsula. The grapes and the wine here have always been present at the table of local people. They have been ritually used for holidays, rituals, local customs and traditions of time immemorial, symbolizing the connection between the earth, the sky, the water, and the fire. Grapes and wine are symbols of the flesh, the blood, and the spirit. On substance and spirituality. For this reason, some customs have survived to this day, passed from generation to generation - from the era of the Ancient World, Thrace, ancient Greece, the Roman Empire and the Christianization of Europe. Evidence of the cult of the vine, its fruit - the grapes, and the fermented juice - the wine on these lands are numberless. This cult, according to archaeologists, was the most expressive of the Thracians. Testimonies can be seen by the dozens of discovered juvenile vessels, jugs, amphorae, boucles, goblets, rhytons and drawings, found during the excavations of tombs, fortresses and sanctuaries. They all show that the dawn of human civilization would not be so bright and full of myths and legends of heroes and gods, if there was no wine and paying tribute to his patron - the god of wine and joy Dionysus.

## 1.1. Origin of viticulture and cultivation of the vine on the Bulgarian lands

*Patrick E. McGovern*, in his book “*Ancient Wine. The search for the origins of winemaking*” (2009), notes that worldwide the number of varieties and varieties of varieties selected today exceeds more than 10 000, as a consequence the development of the selection work, this list is constantly expanding. Much of them are cultivated and created through various selection methods: interspecific hybridization, inbreeding, selection of sustainable parents, clones of the best varieties, testing of affinities on different types of rootstocks, etc. The same author, cited by Bulgarian historian-archaeologists (*Marazov, 2016, Porozhanov et.al., 2017*), claims that as a result of research in his laboratory he has proven the presence of wine chemical remains from Iranian pots dating back to about 7 400 BC.

The same opinion is *Bot (2010)* quoting a number of scientists noted, that the cultivation and domestication of the grapevine appears to have occurred between the seventh and the fourth millennia BC, in a geographical area between the Black Sea and Iran. The varieties grown in this region are gradually spreading in the Middle East, Middle East and Central Europe.

*Todor Nachev(1981)*, in his rich scientific Ph.D. work “*Vine Growing on the Bulgarian Lands from its Beginning to the 20th Century*”, referring to more than 300 scientific works, summarizes, that during the Neolithic and Eneolithic / 6-3th millennium BC / on the Bulgarian lands there were the main factors determining the cultivation of the wild vine, the emergence of the basic, the first forms of the cultural vine *vitis vinifera sativa. D.C.* Such historical testimonies are the findings of charred grape seeds found near Lovech and Kardzhali proving the existence of some of the first cultural varieties of vines in the world. The local population has led a settled way of life in some caves, especially for the settlement, and along the river valleys that occur in northeastern Bulgaria, the sub-Balkan fields, the Thracian valley, Strandzha and Sakar.

From the archaeological excavations of the settlement mounds revealed that during the *Neolithic* and *Eneolithic* epoch, hoe work is already used in agriculture and was one of the main livelihoods for the local tribes lived at that time. The main agricultural tools were made

of stone, horns and bones of animals (near by *Plovdiv* and *Stara Zagora*); horns with a groove for flint incisors. *Karanovski sickles* are from the early Neolithic and the oldest in Europe. Similar sickles are found in Asia Minor, Egypt, Northern Iraq, Persia and Palestine. From the same period dates and livestock. The sheep, the goat, the pig, the ox, were domesticated. The man used wool, skins, milk, meat, bones (*Mihov*, 1956; *Georgiev*, 1957). These data shows that from the 7th - 3rd millennium BC primitive agriculture and livestock permanently were part of the lifestyle of the man who inhabited these lands.

Favorable natural conditions such as climates, soils, waters are among the main factors and favorable to the cultivation of the vine on a certain territory (*Nachev*, 1981), and in terms of overcoming the production risk, the climatic characteristics of the region are the most significant (*Katerov et al.*, 1990).

Evidence of the existence of favorable climatic conditions for the growth of wild vines spread on the Balkan Peninsula during the Neolithic period was found in archaeological research findings of grape seeds dating from the same period in the present lands of Moldova (*Pelyach*, 1970), Bulgaria (*Kitov and Pavlov*, 1973), Greece (*Logothetis*, 1970, 1975). At that time, the presence of wild vine *Vitis vinifera silvestris*, near the Neolithic settlements is an important prerequisite for the cultivation of the vine in an area (*Nachev*, p.25). Wild vine was spread throughout our country: the Danube plain, the Black Sea coast, Southwestern Bulgaria, Thracian Lowland (*Stefanov and Kitanov*, 1962).

**All that has been said here indicates, that in 6-3 thousand BC in Bulgarian lands originated the first forms of cultural vine *Vitis vinifera sativa*.**

*Nachev* (p.40-41), based on the scientific methods and published results of the studies of different authors, studies the grape seeds from Neolithic settlements in Kardzhali and in the village of Ezero /near Nova Zagora/. The results show that in southern Bulgaria, at the end of the Neolithic and the beginning of the *Bronze Age* / the beginning of 3rd millennium BC / the cultivation of the wild vine was in an advanced phase and has already begun the cultivation of vines whose grape seeds bear the morphological features typical of the cultural vine (*Vitis vinifera sativa*). These vines closely approximate the local varieties of the ecological and geographic group - *prol. pontica Negrul*.

*Nachev's* results from explored charred seeds of grapes from Lovech show that they date back to 1900 -1500 BC. (the beginning of the 2nd millennium), which proves that the local population in Northern Bulgaria has consumed grapes that resemble the grapes of local wine varieties: *Kokorko*, *Vinta*, *Mavrud varnensky*, *Garvan*, *Papazka black*, *Marash red*, *Pamid* and others.

## **1.2. Viticulture and winemaking in the Bulgarian lands from Antique world to the late XX century**

### **1.2.1. Viticulture and wine at Thracians of I-st millennium B.C. to VI century.**

Today's territory of the Balkan Peninsula was inhabited by 3 main ethnic groups - to the west - the Illyrians; the eastern parts and northwest coasts of Asia Minor - the Thracians, the southern part of the peninsula, the western coasts and the Aegean islands - the Greeks (*Nachev*).

*Porozhanov et.al.*, (cit., p. 179), based on literary sources studied by them, suggests that the earliest evidence of the use of cultivated vines in the Thracian lands of Southeast Europe was obtained at archaeological sites in Thrace dating back to the 3rd millennium BC. In the second and especially in the 1st millennium BC archaeological data was much more. In the 1st millennium BC the source data of all kinds showed growing vines, winemaking and drinking thick unmixed with water wine as one of the characteristic features of the Thracians. Furthermore, in the cultivation of vines and drinking wine, rites related to divine protection of

fertility and health are documented. It is no coincidence to speak of civilizations of grain and wine or of meat and milk – the use of wine related to rituals and traditions is the subject of study by ethnologists, culturologists and anthropologists. The same authors, based on ancient written sources, illustrate the attitude of the Thracians to the cultivation of the vine and wine drinking:

„ 1. The oldest evidences are the Homer's ones (IX-VIII c. BC). They refer to the second half of the 2nd and first centuries of the 1st millennium BC. In Iliad, telling about the Trojan War (13th century BC), when talking about the Achaeans under the walls of Troy (Anatolia), he gave information that their tents were full of wine, brought from Thrace (Europe) across the wide sea (Homerus, Ilias 9, 72), as Phrygia in Asia Minor was called rich in vineyards (Homerus, Ilias 3, 184). But in the *Odyssey*, we present the Thracian priest Maron (Europe), who endowed *Odyssey* with goat winebag with sparkling red wine and 12 huge amphorae with sweet wine without admixture - a wonderful drink - sweet as honey wine that he mixed with water 20 times as much and a pleasant divine fragrance scattered (Homerus, *Odyssea*, 9: 196-205).

2. *Plato* (427-347 BC) in his work *Laws* said that ...the Thracians, in general, drink wine without mixing it with water, both they and women, sprinkling their clothes with it, consider this as a good custom, bringing happiness. (*Platon*. De leg. 1, 637 d).”

It is obvious that the Thracians, unlike the Greeks, do not dilute the wine with water. Moreover, sprinkling clothes with wine is a ritual = a good custom that brings happiness, undoubtedly related to health and rich crop, i.e. with the God Dionysus. Here, both the specifics of wine and the climatic features should be taken into consideration (*Porozhanov et.al.*, cit., p. 180).

The same authors conclude that the ancient Thracians have their own name of wine. This is the word *zelas*, which is different from the Greek *oinos* and the Roman *vinum* and shows a very old own millennial tradition of wine growing and wine use. The authors are emphatic that the wine is permanently present in the rituals, in the everyday life, in the festive cycle and the ceremony of the Thracians in ancient times, which makes determine the ancient Thracian territory as one of the cradles of the vine growing, wine culture and cult of wine.

Prof. *Ivan Marazov*, a prominent scholar-tracologist (cit., Pp. 18-19), from many studied sources, states that the Thracians were connoisseurs of good wine, and this quality is recognized by the entire Antique world. It was therefore believed that the god of wine Dionysus was born in the lands of Thrace. The third generation of his Thracian dynasty is presented by Orpheus. The legendary King of *Cicones*, Maron, was a son (or grandson) of Dionysus himself.

These traditions have been handed down over the millennia to today, and have continued in folk beliefs, legends and rites. Bulgarian folklore has inspired a second life of the sacred past, reviving the vine and wine again, linking traditions as a bridge between the past and the future. Prof. Marazov wrote (ibid.):

*“Winery is a tradition not only with a past but also with a future. It has not interrupted these lands for more than five millennia. The steps of Dionysus resound today and its "divine drink" keeps its fragrances in his lands. There is hardly any other area of folklore where the Thracian pagan tradition, such as wine-making or, rather, wine-drinking has been preserved. There is a real "civilization of the vine and wine" that goes beyond the technological dimensions of its production and preserves itself in the nature of the holidays created by it. This attitude to the wine and the customs associated with it, proving that the old traditions are still alive. Because wine is a fire, flesh, blood, life. There is no official calendar or personal holiday, there is no meeting between relatives or friends that is not celebrated with a glass and a toast. And if one can claim some continuity between the ancient Thracians and the Bulgarians today, it can be sought in the general and enthusiastic attitude towards to the*

wine. *Blood is thicker than wate, says a Bulgarian proverb. But it seems to taste wine is transmitted through blood*".

### **1.2.2. Viticulture and wine in the First and Second Bulgarian State VII-XIV century**

After the conquest of the Balkans from the Roman Empire, the viticulture and wine-making continued their development, and according to some information from this period, the cultivation of white vines on the Black Sea coast, especially around Achyalo and Mesembria (present-day Nessebar) (Borislavov, 2009).

A number of historical testimonies and sources prove that the vine and the wine were an important part of the lifestyle of the Proto-Bulgarians and the Slavs during the Middle Ages - from the foundation of the Bulgarian state (681) until its fall under Ottoman domination (1396). At *Khan Krum* (811) a special law against drunkenness was created. Following the adoption of Christianity as the official religion in 864 has stimulated viticulture and winemaking. Wine was a distinctive sign of well-being. This is mentioned in some documents (Borislavov, cit., P.55-58) - King *Peter I* (reigning the X-XI century, in the "Anonymous Bulgarian chronicle"), in "Shestodnev" (lat. *Hexaameron*) by of John Exarch. In the „Gospels" of Tsar *Ivan Alexander* (XII-XIII century), a depicted miniature of cutting a vine with a koser<sup>1</sup>. In 1205 Count *Geoffroy de Villehardouen* and his knights, participants in the *IV Crusade*, found "...a magnificent wine in Assenovgrad". The *Mavrud* (an old local variety), which the Crusaders tried, made them generous, and they spared the town and its inhabitants by pogrom. According to some studies, the wines from Melnik and Plovdiv in XIII-XIV century were traded in Dubrovnik.

During the Middle Ages in the *Bachkovo Monastery*, according to a typic from the end of the XI century, was given to the monks four cups of wine daily ration, and to the bigger holidays, such as Easter and Pentecost from six to eight cups. According to found clay cups of this age, the glasses have been with approximate volumes of 180-230 milliliters (Borislavov, p.57).

### **1.2.3. Viticulture and wine during the period of Ottoman Empire XV-XIX century**

At the beginning of the period viticulture almost lost because Islam bans the use of alcohol, including wine. The Bulgarian aristocracy has been destroyed, as well as many monasteries - the main producers of grapes and wine. However, information from the lawyer of *Mehmet II, Selim I* and *Suleiman I*, suggest that viticulture and wine within the empire were highly developed and, that the Ottoman law has had a positive attitude towards to the vineyards, the grapes, must and wine. According to *Nachev* (p.109) positive attitude is dictated by the fact that the Empire was developed viticulture and wine for millennia, with very suitable soil and climatic conditions. The other reason is that the local population has been experienced in growing vines and making wine. The third reason was the lack of mildew and phylloxera. This was undoubtedly favorable for growing vines with little labor and resources. The Ottoman laws patronized the cultivation of vines - mostly table grapes, because grapes were a favorite fruit, and for Muslims and Christians, made syrups, sweets, jam. And the wine was taxed on the fact that it was produced and traded, and so it entered considerable funds in the Turkish treasury. A *tithe tax* (one-tenth part of something, paid as a contribution) on the vineyards of some farmers with developed viticulture reached up to 40% of the tithe of all plant production (ibid., p.110).

More testimonies of Bulgarian wine have given travelers, prisoners of war and adventurers, who passed through the lands of the Ottoman Empire. For example, *Adam von Kielsheim* (1616) said that "From Belgrade to Constantinople there is a little nice wine". But

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<sup>1</sup> Koser - a type of Thracian viticulture tool similar to a small sickle.

in the 60s and 70s of the XVII century there has noticed the rise in Bulgarian wine. French diplomat *Charles Peysonel* in his “Tract for Trade around the Black Sea” noted that “*Bulgaria produces too much red wine, but poor quality. Every year there are 5000-6000 cars from Russia and Poland to load these wines*”(Borislavov, p.59-61). Here you can see a contradiction in the judgment of the French diplomat, that defines wine as "poor quality", while traded thousands of liters of wine. If the former is true, it is not possible for the second to happen, because wine was bought for the aristocracy and the rich in those countries. This evaluation should rather be seen as a sign of existing competition and leniency to wines from Eastern Europe at that time.

A little later in 1706, a compatriot of Peysonel, the french doctor *Paul Lukas*, made a compliment to the *Stanimashko wine* (wine from Asenovgrad). He was heavily impressed by “*local wine that is magnificent*”, as well as by the size of the wine crates - barrels used by the local winemakers. This shows that the scale of production have been great and the wine was intended for trade, even locals wineries exported outside the empire (Borislavov, s.61).

During the Bulgarian Renaissance, with the opportunity offered to bulgarians to buy land in the 30s and 40s of the 19th century, the areas with vineyards increased. The wealthier Bulgarians have developed the wine trade, mostly for Austro-Hungary, Romania, Poland, Russia. Several specialized wine regions have been formed - Vidin, Pleven, Veliko Tarnovo - for red wines of the *Gamza* variety; Chirpan - variety of *Cherven misket*; Asenovgrad - *Mavrud*; Melnik - variety *Shiroka Melnishka vine*. *Georgi S. Rakovski* (1860) gives advices on how to grow vines, which vine varieties are appropriate, how to cut, etc. In addition, a great number of emigrants emigrating outside Bulgaria transmit their knowledge and experience to the Austro-Hungarian Empire and Moldova.

According to *Batakiev* (1927), the total area of the vineyards in Bulgaria until the Bulgarian Liberation (1878) was about 50 000 hectares.

After the Liberation, according to *Georgiev* (1898) for 1888 and *Sirakov* (1909) for 1897, the total area of the vineyards was -71 730 hectares and 114 815 ha respectively.

### **1.3. Artifacts related to viticulture and wine production**

The wealth of artifacts is the basis for the development of tourism in many of its varieties - cultural, historical, rural, wine and more. By artifacts Bulgaria ranks 3rd place in the world after Greece and Italy. These artifacts are a sign of the high material culture of the peoples inhabiting the Balkan Peninsula - Hellenes, Thracians, Romans, Slavs and Bulgarians. Most of these finds are related to viticulture and wine-making: tools, stone wineries, written monuments. Vine and wine have been inextricably linked to the traditions of the Thracians. Evidence of this is the rich and unique treasures - the *Pangurishte gold treasure*, the *Rogozen treasure*, the *Vulchentyn treasure* and others, showing a unique with its jewelery vessels used to drinking wine. These vessels are made with craftsmanship, difficult to apply today, even with modern equipment. The *golden mask of the Thracian king Teres* dates back to the 6th century BC. (discovered by *Georgi Kitov*), *Perpikon* - sanctuary of the Thracian, sanctuary of Orpheus nearby Tatul, reveal the cult of the Thracians to the god of wine – ZAGREY, honored later by the Hellenes and known to the world as Dionysus (*Dimitrov*, 2014).

More than 250 gold, silver and bronze *phialas*<sup>2</sup> (more than half of the finds dating back to the Ancient World) are of Thracian origin, found in the territories of Southern Ukraine, Romania and most of them in Bulgaria. The Thracian jugs, with which the wine was spilled on the phialas, make up about 1/3 of all found in the world - 90 units. The relative share of the *rhytons* is also large - a total of 40 units found on the territory of our country. In

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<sup>2</sup> Phialas - a low cup used for liquids in sacrifices

Thrace were found more and precious amphora-rhytons, some with strange structure (*Marazov*, ref, p.20). Furthermore, the signs of high culture and attitude to the vine and wine are also reflected in many other monuments - plate, drawings, reliefs, vessels, coins with grape and wine subjects, detected in all parts of the country (*Borislavov*, *ibid*).

#### **1.4. Artifacts and tourist sites in the districts of Haskovo and Kardzhali**

One of the richest and still less thoroughly studied in the field of archeology and ethnography, is the region of Southeastern Bulgaria and more specifically the geographic area of the Eastern Rhodopes, the rivers Maritsa and Arda and Sakar Mountains, entering the administrative boundaries of the districts Haskovo and Kardzhali.

Undoubtedly the warm Mediterranean climate and beautiful nature have been attractive for living since prehistoric times. Cultural layers in these lands from different eras continuously provide information about how they lived, what were the manners and customs to this day. Much of the archaeological sites have not been fully explored, along with them there are newly discovered. All of these historical sites apply for funding to continue the studies have yet to discover their items, treasures, rituals and secrets to the world.

The lack of the most popular and most visited in our country - sea and ski tourism in the districts of Haskovo and Kardzhali, can be compensated and imposed as a destination for cultural and historical tourism, with an emphasis on the archaeological sites and natural landmarks. These places, with their beautiful nature and accessibility, are increasingly attracting tourists, and tourism can become one of the main sources of income and the creation of socio-economic synergies. Found dolmens, sanctuaries, remains of settlements, fortresses, churches, monasteries, etc. on these lands, prove that besides to a strong socio-economic life, spiritualism has also taken place. Vine and wine have always been part of the everyday life and traditions of the population on these lands.

The sacred Rhodope Mountains are alive, because is the intertwined the spirit of Thracians, Hellenes, Romans, Proto-Bulgarians and Slavs. The ancient gods and demigods, mythical heroes, fairies and beautiful daughters of the Rhodope Mountains still roam and live in it. There still hear their echo, their laughter. They dance around the sacred altars under the music and songs of Orpheus. They glorify the love of Orpheus and Eurydice. Eat from served gifts and drink the wine of Dionysus, wine harvested and aged in the hills of these mystical lands.

The territory of the Eastern Rhodopes and Sakar is dotted with sanctuaries, fortresses, hamlets and numerous stone facilities for the production of wine -*sharapani*, belonging to the ancient Thracians. Such *sharapani* were found and researched in the Megalithic Complexes near the village of *Kovil*, Krumovgrad municipality (img. 1) and the village of *Gorno Briastovo*, Mineral Bani municipality (img. 2). *Sharapanas* are dated by carbon analysis and refer to VIII-VI c. BC (*Geleva-Tsvetkova*, 2016).

##### **A) Tourist sites related to viticulture and wine production**

**The area of Sharapanite** is located above the village of *Gorno Bryastovo* and is named after the preserved monuments of the ancient Iron Age in the region, representing *sharpani* or wineries (img.1). *Sharapanas* are carved in rocks in the form of circular or rectangular trays with a depth of up to 0.60 meters and a diameter of up to 2 meters and have drains for drainage of the liquid. Two by two troughs placed one below the other, are connected with a chute. Another similar *sharapana* dated from the megalith is found near the village of *Kovil*.

**Image 1: Sharapana, village Gorno Briastovo**



Source: <https://privojda.com>

**Image 2: Sharapana, Megalithic settlement, village Kovil**



Source: [Wikipedia.bg](https://www.wikipedia.bg)

**Perperikon** is an archaeological complex located 15 km from the town of Kardzhali. It was inhabited 8000 years ago, during the Stone Age, after which under the Thracians grew up in a sacred rock city, and later there lived Romans, Byzantines and Bulgarians. Perperikon was destroyed by the Ottomans in the 14th century. Today, there can be seen the remains of the ancient city of Perperikon, the tomb of the rulers, monuments from the antiquity, remains of a medieval fortress. Perperikon is the largest megalithic complex on the Balkan Peninsula. The studies in Perperikon (img. 3), near Kardzhali, in recent years prove that the whole area of the sanctuary is full with thousands of wine presses cut in the rocks, the majority of which are underground. Here was made the sacred fluid of God Dionysos in these mysterious pools, overflows and carved canals. With this wine the rituals and prophecies in the temple were carried out, and in the *days of Dionysos* Thracian clans performed wild orgies in drunkenness of the red drink. It is believed that Perperikon was one of the sanctuaries of god Dionysos.

*“... When Octavian, the father of August, led his army somewhere in the distant parts in the **Holy Mountain of Dionysos**, he questioned the god’s oracle about his son, it was confirmed by the priests that his son would become master of the whole world, since wine was*

*spilled over the altar, a smoke rose up over the top of sanctuary up to the sky, a sign such as what Alexander the Great himself received when he sacrificed the same altar. ”*

*Gaius Suetonius Tranquillus*

**Image 3: Perpericon**



Source: [perperikon.bg](http://perperikon.bg)

**Tatul** is one of most magnificent megalithic monuments founded on our territories. It is Thracian sanctuary located near the village of Tatul, just 200m away and about 15 km from Momchilgrad.

The sanctuary is a rock massif and its the top - a truncated pyramid. The complex consists of two sarcophagi, a quadrilateral bed for the main altar and a three-meter well. It dates from the end of the 5th and the beginning of the 4th millennium BC. Evidenced for it is found pottery in the region (photo1 and photo 2). The rock pyramid and the tombs around it were formed in the 18th - 11th c. BC, when the sanctuary experienced its first big heyday. There is a circle of clay altars on which the sacrifices were made around. There are found hundreds of cult objects - clay human idols and spindle of vertebrae, samples of vessels, objects of bronze, images of the Sun God. During the excavations in 2004 - 2007, there were found unique clay objects related to cult of the Sun- three wheels for models of the *Heavenly chariot* and part of a golden mask. In 2011 it was conducted campaign “Wonders of Bulgaria” was held and after an electronic vote and **Tatul** was selected as one of the 10 wonders of Bulgaria<sup>3</sup>.

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<sup>3</sup> <http://www.bulgariatravel.org>

**Photo 1: General view of the sanctuary  
Tatul**



Source: own archive

**Photo 2: Carved grave cut in the Rock, II-nd millennium B.C.**



Source: own archive

**Utrobata (Uterus) cave** - located about 20 km from Kardzhali, in the rocky area *Tangardak Kaya*. It is a small cave, the entrance and the interior of which resemble a female womb. It is believed that it was somehow used by Thracians in their rituals to express their cult to the *Mother Goddess*. Utroba Cave is a sanctuary dating back to Thracians, near the village of Ilinitza, just 12 km from Kardzhali in northwest direction. An additional shaped and carved by human hands horizontal slit in the rock. The opening of the cave is 3 m high and 2.5 m wide and the depth of the cave is approximately 22 m. An altar, more than 1 m high, at the bottom of the cave was carved out (img.4).

**Image 4: The uterus cave**



Source: <https://vsyakajena.com>

**Devil's bridge, near Ardino** - a unique Roman bridge over the Arda River, located about 10 km from Ardino. This bridge was once part of a major medieval main road between the Aegean Sea and Thrace (img. 5).

**Image 5: Devil's bridge**



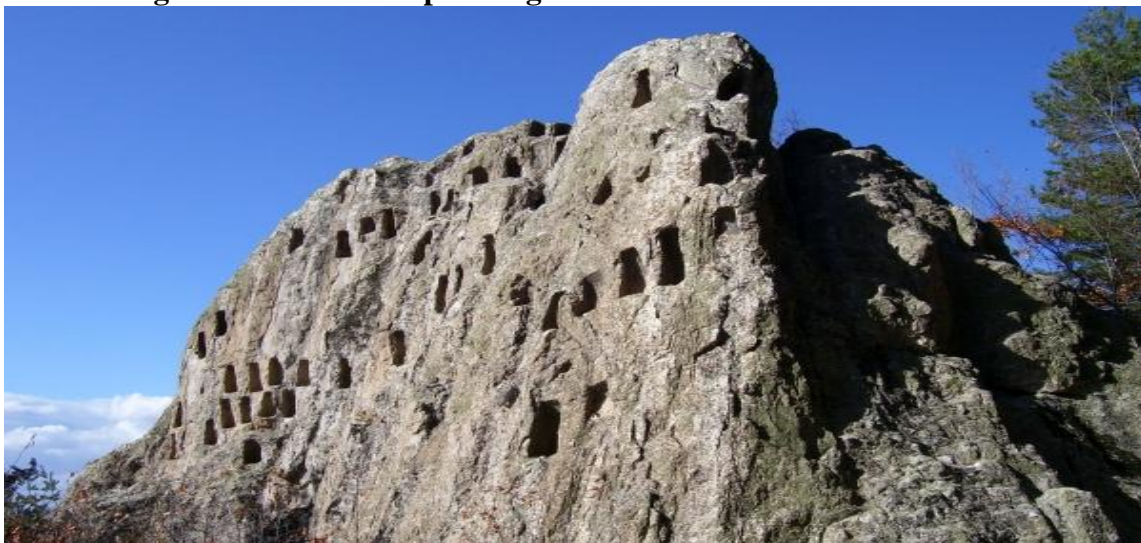
, source: [www.dariknews.bg](http://www.dariknews.bg)

**Rock-cult complex “Orlovi skali”(Eagle Rocks)** is unique for Bulgaria because of its size and good condition. It is located 3 km away from Ardino and consists of 100 rocky niches, 70 cm high and 34 cm deep, carved out of sight in the vertical volcanic rocks. Niches are trapezoidal, and now there are 97 in total, as three were destroyed (img. 6).

In Bulgaria such niches are found only in Eastern Rhodopes along the Arda River. They definitely are work of human hands and scientists agree that were built by the Thracians. They are dated from 4-5 BC and are supposed to belong to the *Odryssi* tribe.

There are many theories about exactly what rituals have been done at the Eagle Rocks. The most common assumption is that in niches the Thracians were placed funerary urns. As part of the ritual, scientists believe that there has been ritual burning, because many pieces of burnt clay have been found around the rocks. According to Professor Valeria Fol, however, the carved holes are more a consequence of a one-time ritual action associated with the Thracian beliefs, not repeated ritual funerals<sup>4</sup>.

**Image 6: Rock-cult complex Eagles Rocks**



. Source: [www.brat-bg.com/bg](http://www.brat-bg.com/bg)

## **B) Artifacts related with Thracians**

### **Thracian cult complex Nochevo**

This Thracian cult complex is located in *Parmak kaya* near the village of *Nochevo*, Kardzhali. Among the pine forest there are many scattered rocks with well preserved trapezoidal rock niches, as well as arched dry caves. Some of the caves are Tashlak and Koja In, and around them there are many ancient cuttings and facilities. Local people have named every distinguishable rock group with names such as Carpet, Blind Head, Aries and others. The complex is easily accessible.

### **Biyuk tepe - village Jenda**

The Thracian sanctuary complex *Biyuk tepe* is located near the village *Jenda*, southwest of *Haskovo*, in the Rhodope Mountains. It can be reached in about 30 minutes from the village *Sokolite*. Typical trapezoidal niches, rocky altars and rock tombs can be seen.

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<sup>4</sup> <https://brat-bg.com/bg/>

### **The Sanctuary of the Nymphs and Aphrodite**

It is the best preserved Thracian sanctuary in Bulgaria. It is built on the ruins of an ancient cult center that originated around karst mineral springs during the early Iron Age. It is located in a picturesque area near the *village Kasnakovo*, municipality. *Dimitrovgrad*, a few kilometers from Haskovo.

### **The Bulgarian Stonehenge (Cromleh at Dolni Glavanak)**

The Cromleh, in translation- "*circular stone*", is a megalithic facility with cult function. It is built of large stone blocks that are arranged in a circle. An archaeological survey shows that the cromleh was built around 8th-6th century BC. and has functioned for quite a long period, because by him were discovered artifacts from the Middle Ages. It is located near village Dolni Glavanak, Madzharovo municipality.

**The Thracian cult complex** in the village of *Angel voivoda*, Mineralni bani Municipality. It is not one of the most famous cult complexes, because it has not been studied sufficiently through archaeological excavations. It is situated on a rocky peak and around it there are traces of a fortress wall. The complex has been destroyed and it can not be ascertained whether there were no graves or cult sites adapted for ritual action.

**Thracian sanctuary complex** is located near the village Nebeska, Chernoochene municipality, 42 km from Kardzhali. The rock formations in the complex have very attractive forms, reminiscent of human faces, animals and mushrooms. Numerous niches and cavities in the rocks probably were used as tombs. Between the complex Nebeska and this end of the village of Jenda, communication has probably taken place through fires, as they are located on one level and visible to each other.

**The rock tomb Kara In** is located east of Kardzhali in the array Ak Kaya, in the Rhodopes. It represents a small cave which is closed by a stone slab. According to scientists, it dates back to the Early Iron Age and was used by the Thracians. The entrance has the shape of a trapeze and the chamber is dome-shaped.

**Kalpak Kaya** is a Thracian rock sanctuary located northwest of Kardzhali in the Rhodope Mountains, south of the village of Nenkovo. Can be seen carved trapezoidal niches, as well as remains of ancient Thracian settlement. Various legends and stories are associated with the place. Even today, it is a mystery how ancient people climbed up to rock to carve the niches.

**The Alexandrovo tomb** was discovered in year 2000, near the village *Alexandrovo*, Haskovo district. The tomb dates from the 4th century BC. and belonged to a notorious aristocrat or Thracian king. It is one of the most significant discoveries of archeology in Bulgaria, the most preserved of it being the frescoes, which are unique of its kind. Since 2009 near the tomb has been built the *Museum of Thracian Art*, which is made as a copy of the *Alexandrovo tomb*, which is accessible to tourists.

**The Thracian cult complex Garvanitza** is located near the village *Gorno Briastovo*, Haskovo district. It is 569 meters above sea level in the Mechkovets mountain ridge, in the Eastern Rhodopes. Rock formations can be seen along the hill, with a large number of altars, menhirs, chutes, rock cuttings and other sacred objects carved. The place is suitable for walking, rock climbing or picnic.

### **Thracian fortress - village Ivantzi**

The fortress is located to the east of the village *Ivanci*, 3 km northeast of the town of Kardzhali. The peak on which it is built is accessible only from the west and north, and to the south there is a vertical rock from which an incredible view is revealed (img. 7).

**Image 7: Thracian Fortress, village Ivantsi**



Source: [www.ahrida.org](http://www.ahrida.org)

### **C) Other historical sites**

**The fortress Svety Duh** (Holy Spirit), or known as Toplitsa, is of asymmetrical multifaceted form. Remains of the fortress can be seen today on the Holy Spirit Hill in Mineralny Bani. Toplitsa has undergone a total of 4 construction periods - Roman, Late Roman, Early Byzantine and Medieval. It played a guarding role on the road that leads to and from the Eastern Rhodopes and the springs at the base of the neighboring hill. Its walls are preserved up to 3.5 m in height, 2 m ample and surrounding an area of about 0.2 ha. In the 12th century the Holy Spirit formed medieval necropolis. During the excavations there were found a huge amount of rich gold and silver works.

**Konstancia Fortress** is located near Simeonovgrad, on Asara Hill and dates back to late Antiquity around the 4th century BC. It is formed as one of the largest and most ancient cities in Northern Thrace, existed in the 4th century BC until the beginning of the 13th century. The entrance of the fortress is from the north. According to the legend, this is the home of the last Roman Emperors, whose dungeons hide their wealth. This late Antiquity fortress initially retained the invasion of barbarians. It collected all the valuables from the province. The Early Christian basilica at the fortress is located at the top of the fort.

**Fortress Monyak** is located at 586 meters above sea level, in the Eastern Rhodopes, near the town of Kardzhali (img. 8). It is one of the highest and largest medieval fortresses in the Rhodope Mountains. It dates back to the 12th - 13th century. The fortress is difficult to reach because the terrain is very steep. It offers panoramic views of the town of Kardzhali and *Studen Kladenets Reservoir*.

**Image 8: Fortress Monyak**



Source: [www.bulgariantravel.org](http://www.bulgariantravel.org)

**The Regional History Museum in Kardzhali** was created for the purpose of collecting, preserving and promoting the cultural and historical heritage of the region of the Eastern Rhodopes (photo 3). It is located in a beautiful building, built in the early 20's of the 20th century. Surrounded by a beautiful park, harboring more than 30 plant species, which can be seen only in Bulgaria. In the 80's of the twentieth century, the building was adapted for a museum. The exhibition was opened in 1987. The museum contains more than 50,000 artifacts tracking life in the Eastern Rhodopes from 6th thousand BC until the beginning of the 20th century, chronologically and thematically differentiated in expositions: Archeology, Nature and Ethnology.

**Photo 3: Regional History Museum in Kardzhali**



Source: own archive

**Via Militaris** (also known as *Via Diagonalis* and *Via Singidunum*) connected *Serdika* (Sofia) to Constantinople. It has been used since the 5th century BC and had an important strategic importance. It is believed that part of Via Militaris is still preserved in *Dolni Glavanak*. The

route of the road passes directly through the village, and then continues in the direction of the village of *Topolovo* until its traces are lost in the ruined fields (img. 9).

**Image 9: Via Militaris**



Source: [www.haskovo.bulgaria.com](http://www.haskovo.bulgaria.com)

**Medieval bridge - Borovitsa River** The bridge is located near the village of Nenkovo, northwest of Kardzhali, in the Rhodopes. It is built on the river Borovitsa, which is one of the great tributaries of the Arda River (img. 10). The bridge dates back to the Middle Ages and is asymmetrical, with five arches of different sizes. Roadway has impressive size - 58 meters long. The turbulent river waters have destroyed part of it. It is rebuilt at one end, but after repeated destruction to date is unusable.

**Image 10: Medieval bridge - Borovitsa River**



Source.: [www.pochivka.bg](http://www.pochivka.bg)

#### **D) Natural sights**

**Skalni gabi (engl. - Stone mushrooms)** is a natural phenomenon of natural rock formations. The site is located near the village of *Beli Plast*, Kardzhali Municipality. According to the legend, the stone mushrooms are the four beautiful daughters of a local coalman, captured by

hordes of invaders and slaughtered by them in an attempt to escape. Officially is a natural landmark since 1974. The area is protected for interesting bird species such as: Egyptian vulture, canary, swallow, etc. can be seen on its territory.

**The Kardzhali pyramids** are rock formations, which are located near the town of Kardzhali in the Rhodope Mountains. Officially is a natural landmark since 1974. They are formed more than 40 million years ago. The most interesting group of rocks are the *Stone Wedding*. The Kardzhali pyramids are one of the most visited rock formations in Bulgaria.

**“Studen Kladenets” Reservoir** is a dam located along the Arda River and on the border between the municipalities of Kardzhali and Krumovgrad. It is used to regulate the high seasonal runoff of the Arda River, for irrigation and for the production of electricity. The *Studen Kladenets Reservoir* is suitable for water sports and fishing.

**The rocks over the village of Dujdovnitsa** are situated at one of the hills in the Eastern Rhodopes. Thracian rock niches are an impressive attraction for tourists which resemble a huge frieze in the rocks. The Thracians have built sanctuaries in places with cleansing and energizing force and deserves to reach them, although they are difficult to access.

**Abrasive Wells - Studen Kladenets village** are located in the Rhodope Mountains, along the Arda River, to the east of Kardzhali. They are rock formations similar to wells formed by the river, carrying debris of mineral quartz. Their size is different - some reach a diameter of 7-8 m and a depth of 10-15 m. Represent comfortable shelters for wintering fish. There is a tourist trail next to the site.

**“Trakietz” Reservoir** is located on the Harmanliyska River in the Eastern Rhodopes, over the village of Trakietz in Haskovo District. It irrigates 13,800 hectares of arable land in the Haskovo and Uzunjov fields. Used for industrial water supply. There are good conditions for fishing.

**Aida peak** is located in the Rhodope Mountains, just 20km from Haskovo. It is 860 meters tall and has a telecommunication base on its top. A bit below the base is the *Mechi Skali* (Bears Rocks) locality, where there is a nice pavilion with a unique beautiful view. In the vicinity there is a cave, interesting rocks, *Thracian sharapani* and other picturesque places.

#### **E) Other places for tourism and recreation**

**Haskovski mineralni bani (Haskovo Mineral Baths)** - Its glory at the spa center *Haskovski mineralni bani* have been bearing since age of the Romans. The water is hyperthermal (57 °C) with neutral (7.22) pH and is unique in its mineral composition. Mineral water treats chronic obliterating diseases of the peripheral vessels; diseases of the locomotory system; diseases of the peripheral nervous system; gynecological diseases; skin diseases and others. The resort has modern 3 and 4 star hotels and apart from Bulgaria, it is visited by tourists from Greece, Turkey, Western Europe and Israel.

**Solentsi Mineral Complex** The complex is located northwest of Dimitrovgrad. Water is salty, due to the formation of mineral salts under natural evaporation. It has a temperature of 35 degrees. People also use it for drinking with problems with the gastrointestinal tract.

**Camping Alexandrovo** is located northeast of Haskovo. There are wireless internet, tables and benches, safe, washing machine. Pets allowed free. It has a place for caravans, campers

and tents. The location of the camping is very suitable for sightseeing in the area, as well as for visiting the neighboring Greece and Turkey.

### **Conclusion:**

Numerous archeological monuments and artifacts are undeniable testimonies, that in the Balkan Peninsula, and in particular the area surrounding the Eastern Rhodopes, Arda and Maritsa rivers and Sakar Mountains and in northern Greece and the Aegean, proving that the cultivation of the vine and wine making in Europe, conscious human activity first were originated and evolved in these places. Later on viticulture, wine making and the cult of wine - Dionysus, were carried over in Mediterranean and the rest in Europe.

Cultural and historical evidence and facts related to the development of viticulture and wine production, in themselves represent a unique competitive advantage for the districts of Haskovo and Kardzhali, which is still insufficiently used, both in towards attracting more tourists and in promoting local wine production. This is an enormous opportunity for the two border areas to offer and advertise wine tourism in these places. The combination of tourism products and services on both sides of the border will create a much richer and diverse opportunities for recreation and enrich the image of the region as a destination for tourism.

### **1.5. Development of wine tourism in Bulgaria**

For the economic benefits and dimensions of wine tourism, it is difficult to write and speak, but already in several world-famous wine-growing areas such as *Bordeaux*, *Champagne* (France), *Porto* (Portugal), *Napa Valley* and *Sonoma Valley* (California) *La Rioja* (Spain) attract thousands of tourists annually with this activity. The main purpose of visiting these tourists is the wine, which gradually unfolds on the basis relation “*terroir- vineyard - winemaking – wine*”. All of this provokes a wide variety of offers - from tasting, touring the cellars, walking in the vineyards, nature, cooking courses, "do-it-yourself" wine, to relaxing in wine-spa centers. Gradually this “fashion” and its positives wich carries, have seen increasingly well in Bulgaria.

If we follow the real development of this kind of specialized tourism in Bulgaria, the beginning is still in the 70s and 80s of the XX century. At that time visits and tastings were organized for foreign tourists whose site was located near the Black Sea coastal cellars near Varna, Pomorie and Burgas. The idea of this type of visit was tourists to learn about the history, traditions and local culture related to our native wine, thus has expanded the proposed package. *Tsakov* (2011) points out that ***the beginning of organized wine tourism in Bulgaria can be determined in 1975 in the Lyaskovets winery***. *Liaskovets Winery* welcomed tourists, led by the state-run tour operator *Balkatourist*. At the beginning they are offered mostly pure varietal wines for tasting, and a little later the program has gradually expanded to include a tour of the manufacturing facilities of the company. In 1985 the winery was organized “Wine Museum”.

Since the 90’s of the 20th century and in other regions of Bulgaria began the development of wine tourism, following the global processes of demand and supply, as a new marketing and management decision to improve the realization of the production. After the privatization and modernization of the wine industry, some owners of wineries have invested in the creation of a hotel and organize wine tours. The first pioneers are *Damianitsa* (Petrich), *Black Sea Gold* (Pomorie), *Vinprom - Asenovgrad*, *Todoroff* and *Villa Vinifera* (Brestovitsa, Plovdiv). New wineries such as *Katarzhina* (which is in the area of Haskovo), *Bessa Valley*, *Starosel*, *Chateau “Medovo”*, etc., also included wine tourism as a new business opportunity (*Alexieva*, 2009 ).

According to the National Vine and Wine Chamber in Bulgaria, by 2018, 310 cellars have been registered. Wine tourism offers nearly 63 cellars in 2008, 100 cellars by the end of 2014, and by 2018 their number is 115. I.e. almost double increase compared to 2008. Of these, only 12 cellars offer accommodation for 2014 (Terziyska and Georgiev, 2014) and now by 2018 they are 18. The main services offered by most wineries are tasting, eating, lecture by an oenologist, visiting their own vineyards and purchasing wine and souvenirs from their own shops (Dimitrov, 2014).

Specifically, in research from Bulgarian side under a project DIONYSOS the area of Haskovo and Kardzhali districts is that here wine tourism has also been offered for over 15 years, by some wineries such as: Katarzhina, Castra Rubra, Chateau Kolarovo and others, still opening their doors for visits. The cellars located along the Maritsa River between Sakar and the Rhodopes offer various interesting and attractive products, which will be discussed later.

## 1.6. Wine Roads

There are already numerous of scientific evidence and economic examples of the fact that economic unions in the form of “*Wine Roads*” carry a number of socio-economic benefits. The creation of “*Wine Roads*” is a prerequisite for achieving a multiplier effect and sustainability not only for the members of this type of cluster, but also for the region in which they operate by using both endogenous and exogenous competitive advantages of companies. In our survey conducted with the management of 20 cellars on the territory of Bulgaria in 2014 (Dimitrov, 2014, p.143) one of our questions in a survey - "does your cellar participated in clusters or another type of wine tourism association?", 30% answered "Yes", 25% answered "No" and the remaining 45% "Not participate ". This proves that the association between winemaking enterprises is still at an early stage of cluster formation and is about to developing in this direction. At the present time of this research project DIONYSOS ‘2018, on the territory of both regions Haskovo and Kardzhali still no established and functioning joint tourist product of wine tourism as a “*Wine Road*”.

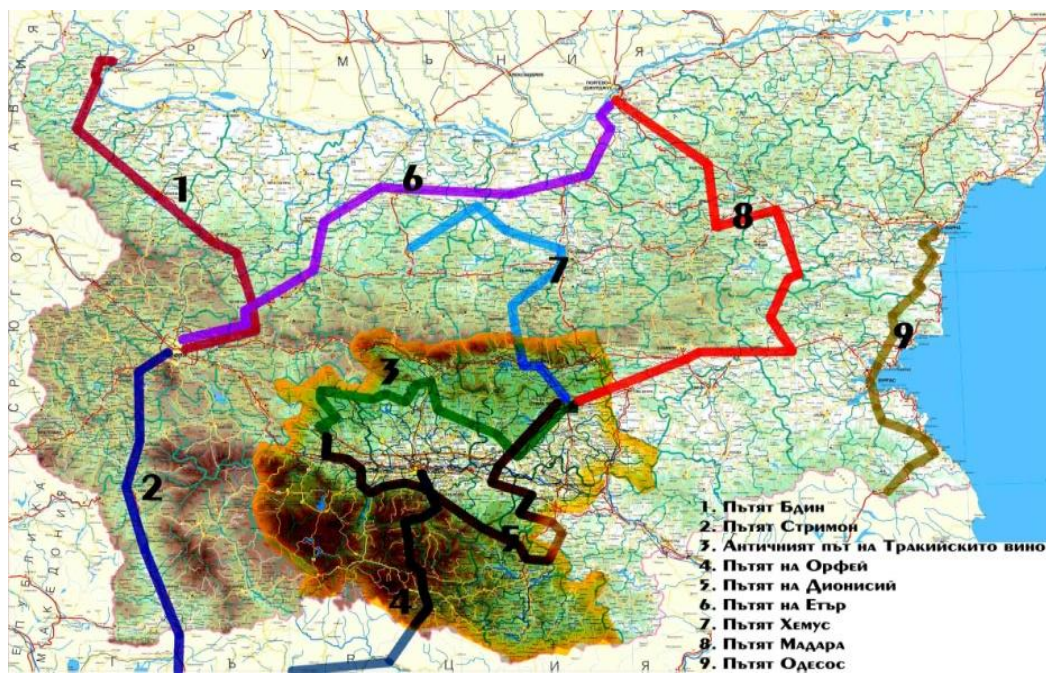
### Attempts to create wine roads

In Bulgaria, following the example of the leading countries with a well developed wine sector, offering wine products "Wine Roads", attempts are also being made to create such networks. Such experience is the initiative of the *Regional Chamber of Viticulture and Wine (Trakia)*, part of the *National Vine and Wine Chamber*. The project launched in 2007 and named "1333 Small Wineries" Program. The ambitious project is aimed at creating, promoting a business initiative and developing "Wine Roads", mainly in Central South Bulgaria. The program outlines several basic steps for the realization of the project idea, which are:

- ✓ Giving assignments for building vinification capacities;
- ✓ Organizing seminars for professional training;
- ✓ Establishment of a trade department for the National Vine and Wine Chamber, which liaises with the tour operators and the “*Wine Roads*” Administration, in order to attract and manage the tourist flows;
- ✓ Development of a strategy for the sale of the produced boutique wines, which includes the production and printing of labels, marketing researches, advertising activities in the country and abroad;
- ✓ Building and participating in the activities of the Regional Partnership Center in terms of funding under various EU Operational Programs.

In June, 2105 we conducted an interview with Mr. *Konstantin Madjarov*, President of RCVW-Trakia, under whose initiative the project started. He said that during this period he had relied on technical assistance from the Ministry of Tourism for identifying the tourist sites

to be included in these 9 routes - the *Road of Bdin*; *Strimon*; *Orpheus*; *Dionysius*; *Etar*, *Hemus*; *Madara*; *Odessos* and the *Ancient Road of Thracian wine* (see fig. 1). Three of these routes - *Orpheus Road*, *Dionysius Road* and *Ancient Road of Thracian wine* passing through the city of Plovdiv, with the tourist base including over 50 hotels, balneological sanatoriums and other resting places. The project also plans to build 15-20 new hotels. There is information about all the natural and cultural-historical landmarks of this Roads of all member municipalities. According to Madjarov, the problem is that there is no legal regulation and support for the economic initiative on the part of the state, and this is an obstacle to network development. Other problems are that tour operators are not aware of how to determine the routes and the number of wineries in the visit. This often leads to confusion and contradiction between cellars and tour operators. As can be seen on the map of RLWK-Trakia, two of these routes are planned to be on the territories of Haskovo and Kardzhali districts. Even a small part of the route “Orpheus Road” crosses the territory of neighboring Greece.



**Fig. 1: Map of Wine Roads in Bulgaria, publ.by RLVK-Trakia**

Legend: 1. Road Bdin; 2. Road Strimon; 3. The Ancient Road of Thracian wine; 4. Road of Orpheus; 5. Road of Dionysius. 6. Road of Etar; 7. Road Hemus; 8. Road Madara; 9. Road Odesos

“*Danube Wine Destinations*” is a cross-border project under OP “*Cross-border Cooperation Romania-Bulgaria 2007-2013*”. The project started in 2011, covering the border regions of Bulgaria and Romania on both sides of the Danube River - from the Black Sea to the joining of the two countries' borders with Serbia. The objectives of the project are:

- Promoting the cross-border region by creating and developing a Bulgarian-Romanian wine tourism product.
- Increasing the tourist flow and promoting the undiscovered treasures in the region - both its natural and environmental advantages.
- “*Danube Wine Destinations*” have to create a new cross-border partnership between businesses, industry organizations, local authorities and non-governmental organizations.
- The main task is the new co-integrated wine tourism product to underline the identification of the region.

• To promote the image of the cross-border area, as well as within its borders and outside<sup>5</sup>. The same project, though covering almost half of the country on the Bulgarian side, has not made any progress since its creation so far (*Dimitrov and Dimitrova, 2016*).

At the time of 2018, a joint idea is being developed to create and organize “**12 wine-culinary destinations throughout Bulgaria**”. The initiative is part of project of Ministry of Tourism – “**Find and Share Bulgaria**”, developed jointly with Ministry of Agriculture, Food and Forestry. At the end of 2018 this is expected to outline the two ministries and offer 12 *wine-culinary destinations* covering the entire country. One of these future destinations is proposed to cover the region of Sakar - Topolovgrad, Harmanli, Lyubimets and Svilengrad<sup>6</sup>.

It is clear that there are already some initiatives in creating cluster associations in the form of “Wine Roads”. It is important, however, than private initiative by stakeholders (cellars, tour agents, tour operators, business, institutions, science) will have technical and financial support from the state in the face of municipalities and ministries.

### **European practices**

Since 2001 it was founded the **Spanish Association of Wine Cities (ACEVIN)**, whose purpose is to develop national tourism brand associated with wine tourism with the Ministry of Industry, Tourism and Trade. Since then, 21 Wine Roads have been created in Spain, of which 17 have been certified with the Spanish Wine Roads brand and the other 4 are in the process of being certified. Belonging to the Spanish Wine Roads ensures a guaranteed quality of service and equipment. ACEVIN defines quality standards for the dual purpose - on the one hand, all members must meet the conditions regarding the facilities and services offered and on the other hand the criteria for classification of new products that are part of the wine on the basis of certain standards.

**Austria** has one of the longest routes on the Wine Roads in the world, located in Lower Austria, with an overall length of 830 km. The road passes through more than 150 settlements and offers around 1700 locations for wine lovers - from the most modern cellars to taverns and richly decorated gourmet restaurants. Annually, all members of this wine route are subject to compliance with strict quality criteria - ranging from equipment farm, equipment wineries and taverns to 4-star hotels<sup>7</sup>.

**RECEVIN** (European Wine Cities Network) consists of cities or a group of cities belonging to the European Union, with a strong economic dependence on wine-growing and located in areas protected with a guarantee of the quality of their wines<sup>8</sup>. More than 800 cities, most of which are grouped into national associations, are members of this international European organization. The RECEVIN member countries are Austria, France, Germany, Greece, Hungary, Italy, Portugal, Slovenia, Spain, Serbia, and from 2014 Bulgaria. Between 2004 and 2006, RECEVIN implemented the VINTUR project - European Wine Tourism Area as part of Interreg III. The main objectives of the VINTUR project are to improve the operational coordination of the Network of wine cities and regions through new tools for cooperation and exchange; knowledge and technology, through optimal management and information transfer and development processes; sharing actions to develop a methodology for offering quality in tourism and wine culture. As a result of the project, two VINTUR documents for European accreditation of wine routes were produced:

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<sup>5</sup> [www.danubewinery.com](http://www.danubewinery.com)

<sup>6</sup> <http://bnr.bg/post/101002285/razrabotenite-12-vineno-kulinarni-destinacii-na-teritoriata-na-balgaria-shte-badat-obaveni-prez-esenta>

<sup>7</sup> [www.wineroute.at](http://www.wineroute.at)

<sup>8</sup> [www.recevin.net/?lng=en](http://www.recevin.net/?lng=en)

1. A guide to European wines, which establishes a quality management system for wine tourism at European level;
2. European Wine Charter, which sets the lines of participation and cooperation of different agents for development and self-regulation.

## **Conclusion**

The organization of Wine Roads in Bulgaria should be based both on the production of quality wines, terroir and tourist potential of the regions. This requirement fully corresponds to the outlined 51 micro-regions for the production of quality wines with PDO and PGI. In some of the micro-regions there are only one or two cellars. The solution is to combine several micro areas in a tourist product as Wine Roads. A problem is rather in building a partnership to create a common, aggregate tourist product, which can enter different by economic status, business activity and non-profit entities, united around one product - the wine produced in the region. At the same time, all products associated with wine, tourism activities and services need to be standardized in a certain way in terms of quality, as covering those standards be subject to constant monitoring. It is necessary to adopt and introduce certain rules and procedures, which must be respected by all members of such an organization. There are already such well-functioning Wine Roads, and European practices show that only good relations and relationships between partners have a success in attracting and serving tourists. Cross-border areas, although they are far from economically more advanced centers, can attract tourists with exactly this kind of partner networks. Once built and established good connections and relationships can be added or improve existing products and services. Tourism and wine together create the conditions for diversification - combinations between wines and all types of tourism offered in cross-border regions. On the other hand, individual wine micro-regions can derive a number of benefits, if they specialize in the production of wines from local varieties that will be substantially different in aromas, flavors and character of West European wines. Typical local wines made from local grape varieties, with typical local food combined with local holidays, panoramic tours, visiting local attractions will help enrich tourists with local culture and leave a lasting impression. Also, this kind of activities will create the opportunity for higher incomes and synergies. The traditions in the border regions will be maintained and developed.

The state has a very important role in the development of such networks, which should initiate and possibly assist mainly with financing and advertising Wine roads.

These European practices are not the only ones that show a purposeful policy in the imposition of wine tourism, along with wine tourism and the development of many other related activities. And Bulgaria and Greece are already members of RECEVIN and provided that they jointly implement collaborative products based on wine tourism, is a good prerequisite for future cooperation. Moreover, at the *International Wine Tourism Conference* held in Budapest, Hungary in April, 2018, part of the tourist companies specializing in the organization and supply of wine tourism are interested in the wine and culinary tourism of Bulgaria and Greece.

### **1.7. Wine festivals and exhibitions in Bulgaria**

In our study (*Димитров и Димитрова, 2015*) we draw attention to the fact that despite the increasing popularity and admirers of wine tourism, it is still not so popular in Bulgaria. The reasons for this are complex - lack of advertising, there are almost no clusters between those interested in the development of this type of tourism, regional and state support. There are generally no regional and state policies that can give a significant boost to

enotourism, as is already known. Such support could be a purposeful and long-term tourism policy. Most tourism policies and strategies are based on regional development policies. In European rural development policies, the major role that tourism can play in their development is crucial. Some of these regional strategies for growth in wine tourism, referring to organization of wine festivals and events (Taylor, 2006). And precisely such a role can play wine tourism, as part of rural tourism products (Marques, 2006, cit. by Tomljenovich, 2006).

### **Wine Festivals and Wine Holidays**

In the past 15 years, holidays and events, focusing on the vine and wine and the traditions and customs of the local population associated with them, have begun to take place in some regions of the country.

One of the most traditional and celebrated Bulgarian holidays is the *Feast of the vine-grower and winemaker*, whose patron is *St. Trifon-Zarezan*. The holiday is celebrated at 1.02. (new style), but in most wine-growing regions of the country is celebrated on 14.02 (old style). The men go to the vineyards, and where they are cut off (cutting old shoots on the vine). Then they are watered with red wine, which symbolically "heals" the wound to make the crop more abundant). On the feast traditionally women get up early to prepare bread, appetizers and wine. The men go to the vineyards by cutting down the vineyards, and where they are cut off (cutting old shoots on the vine) they are watered with red wine, which symbolically "heals" the wound is more plentiful harvest. A priest prays to the Lord. The priest is for a good year and a plentiful harvest. Under the sounds of folk music all play people on the square. Drinking a lot of wine is a tradition in honor of the protector of St. Trifon-Zarezan. It is believed that the feast was celebrated in Antiquity by the Thracians in honor of *God Zagrey* - the god of wine, or as the Greeks have borrowed from them and called it - Dionysius. Later, with the acceptance of Christianity, the rituals, customs, and symbolism that the Thracians have expressed have been preserved. The holiday was not chosen by accident at this time of year. Then the weather gets warmer and begins to grow on the plants, including on the vine. This is the beginning of the biological development of plants. So Saint Trifon-Zerezan is a symbol of the reviving life, of the new. Krasteva and Rafailova (2009) report that in some parts of Bulgaria the feast is known as "*Carnival of Wine*" (Yambol), but is more popular as "*Cutting*" (Ivaylovgrad; Brestovitsa, Plovdiv).

In Melnik since 2012, every year the *Melnik wine festival "Golden Grape"* is held. Festival is held in early February, as guests are provided with the opportunity to enjoy Melnik's wines and appetizers produced in the region, combined with the folklore of the Pirin region.

In the village of Brestovitsa (Plovdiv district), in the year 2018, on 18 and 19 September, an eighth edition of the International Festival "*Brestovitsa - Grapes and Wine*" was held. The festival is organized by the Municipality of Rodopi, Local Initiative Group (LIG), local wineries and non-governmental organizations. The main purpose of the festival is to popularize the local livelihood of the village of Brestovitsa - viticulture and wine making, and preserving the folk traditions and customs.

Like the French wine *Beaujolais nouveau* (a type of young French red wine), the city of Plovdiv has imposed its own festival and a reserved trademark of wine tourism - the "*Young Wine Festival*". For the first time the festival started in 2009 and gradually became one of the biggest cultural festivals in Plovdiv. It was founded on the initiative of the Council of Tourism - Plovdiv and cellars in the region. The festival is held in the end of November every year, as wineries from all over Bulgaria present their wines. In the cultural program of festival there are various events - Dionysius procession, walk in Lipidarium, dance attractions, fire spectacle, concerts, exhibitions and films. All combined with the taste of the young wines offered. In the current 2018, the festival will be held for the ninth time at the end

of November. This year over 40 wine producers from all over the country are expected to participate with their new production. Organizers say the event has grown to a seven-day festival, with more than 60,000 visitors annually, according to official data.

At the end of July 2018, the 5th *Wine Festival in Bourgas* will take place, and the organizers declare that 35 wineries are participating, as well as elite wines from several countries - Italy, France, Argentina, Australia, Chile. In October, a second edition of the "Fish and Wine" Festival will be held in Bourgas, where fish delicacies are combined with local wines. In the town of Kameno, Bourgas also have their own Wine Festival for two years, celebrated on 14<sup>th</sup> February<sup>9</sup>.

In Stara Zagora from 2011 is organized *Avgustiada - Wine Festival and cultural heritage*. Its organized by October at Stara Zagora's Day. Wine producers, representatives of the food industry, connoisseurs of wine, gastronomy and cultural heritage, representatives of different spheres of business from the country and abroad participate in the festival. *Avgustiada* is named after the Roman name of the city of Augusta Traiana. The aim of the business, the municipality and wine lovers is Stara Zagora to create a sustainable tourist attraction, to draw attention to the cultural and historical heritage not only of the city's inhabitants, but also tourists from Bulgaria and abroad.

In Kazanlak, in the beginning of June, *Rose Festival* is held and for several years the program also includes the *Rose Wine Expo Festival*, which collects traders and manufacturers from all over the country. As the name of this festival suggests, only rosé wines from the local cellars are presented. The ultimate goal is not to give estimates and broadcast for winners, but to promote the wine and the specific culture it creates. Interesting is the slogan of the festival: "*Wine and roses again together in the valley of the Thracian kings*", which directly addressed to the rich history in this region associated with wine and Bulgarian rose oil. The festival combines a national competition "Golden Killix" for the best rosé wines in Bulgaria. This is a trade show of established and new wine-producing companies from the country and abroad, and a gourmet area for the enjoyment of senses with the presentation of innovative food and natural products partnering with wine or its derivatives. The rich art program accompanying the festival follows the idea of the ancient Thracian orfeadi and incorporates arts, music, dance and *vinorel* - a painting with wine. In the days of the event generously provides an opportunity for artists and their distinctive talents and artists from the region.

### **Wine Fairs and Exhibitions**

Wine fairs and exhibitions are also considered as events, most of which contain wine tourism. Except that winemakers can expose and promote the best of their cellars, to visitors and wine lovers are given the opportunity to taste different wines from the native and world wine regions. One of the specifics of such exhibitions is direct contact *producer-consumer*, thus the wine lovers have the opportunity to learn more from the "spring" and enrich their wine culture. Many of the cellars of such forums offer a wide range of catalogs, brochures and other materials to advertise their own wine tourism.

The traditional Bulgarian exhibitions related to viticulture and wine-making are *Vinaria* - Plovdiv (February-March), VINOTUR (Varna - wine and tourism fair in early April), *Wine Salon* (in Inter Expo Center, Sofia in November). These events confirm the ever-increasing interest to the wines of producers, harvesters, tour operators and wine lovers and its cultural transformations.

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<sup>9</sup> <https://dariknews.bg/regioni/burgas/ide-vtoriia-festival-na-vinoto-v-kameno-2078089>

## 1.8. Development of Tourism in Haskovo and Kardzhali Districts

An important role for the development of tourism in a region or destination, are available quality tourist facilities and service. These are accommodations (hotels, motels, guest houses) and restaurants (restaurants, bars, taverns). They are among the main tourist services for which a specific trip is undertaken and organized, whether for the purpose of exploration, business, or other kind of visit. The quality of accommodation and meals usually depends on the visitor's stay. The more comfort and services offered the longer and is pleasant stay for tourists. This is the basis for increasing revenue and development of the region as a preferred destination.

### 1.8.1. Economic Parameters of Tourism Development in Haskovo and Kardzhali Districts

Previous analyzes highlight the great potential of Haskovo region for tourism development. One of the priorities of the Regional Strategy by 2013 is “*Turning Tourism into a Profitable and Prospective Branch*”.

According to National Statistic Institute (NSI) data on *revenues from nights spent* in Haskovo district (Table 1), there is a decrease of about 1 million BGN in 2017 compared to 2012. It is interesting to note that this decrease is mainly due to the decrease in the income from overnight stays realized by the Bulgarian tourists, while the value of the realized earnings by foreign tourists has slightly increased. At the same time statistics show that the *number of overnight persons* in places of accommodation, including and foreigners has increased from 56,680 to 65,772 in 2017 compared to 2012. During the analyzed period, the *number of nights spent* also increased – 97,119 to 123,232 (+). Except for 2015 when they were only 92,595, it can be concluded that there is a sustainable trend of increase. The period under review covers the years since the last global financial crisis, as well as 2014 and 2015, during which generally had a decline in tourism in Bulgaria. However, in 2016 and 2017 there is an increase in the values of all indicators, which is indicative that the tourism in Haskovo region is developing in ascending line. Based on the data available for the past three years (2015 - 2017), it can be summarized that the interest of foreign visitors to the offered tourist services in Haskovo region is increasing.

**Table 1: Activity of the accommodation and accommodation places in Haskovo district, between 2012 and 2017**

Year	Accommodation places - number	Beds number	Nights spent - number		Arrivals in accommodation establishment - number		Revenues from nights spent - BGN	
			Total	incl. and by foreigners	Total	incl. and by foreigners	Total	incl. and by foreigners
<b>2012</b>	44	1582	97119	28589	56680	16032	5728757	1628358
<b>2013</b>	40	1527	102036	30297	57443	16495	3529984	1056965
<b>2014</b>	39	1589	107381	23645	57856	15606	3729862	936378
<b>2015</b>	37	1458	92595	23477	56998	16258	3580532	961042
<b>2016</b>	40	1588	112202	28110	64213	18035	4148724	1243899
<b>2017</b>	34	1446	123232	34279	65772	20057	4740747	1707014

Source: National Statistical Institute (NSI)

The accommodation places according to their categorization (see Table 2) show a decrease of 10. Most of them are hotels, motels and guest houses (with more than 10 beds)

with 1 and 2 star, followed by a 3 star. Only one hotel in the Haskovo region has a higher category with 4 stars. Despite the reduction of the hotels with 1 and 2 stars, for those with 3 stars the number of hotels is kept.

**Table 2: Accommodation places according to their categorization in Haskovo district, between 2012 and 2017**

Година	Accommodation places - number	Category 1 and 2 stars - number	Category 3 stars - number	Category 4 and 5 stars - number
2012	44	32	11	1
2013	40	30	9	1
2014	39	27	11	1
2015	37	25	11	1
2016	40	27	12	1
2017	34	23	10	1

Source: NSI

Haskovo district has sufficient accommodation facilities - both in quantitative and qualitative terms. Large deficits are in tourism products and their marketing, which should attract more tourists.

For Kardzhali district data shows the rate of double increase in *revenues from nights spent* from 1 389 534 BGN for 2012 compared to 2 695 686 BGN for year 2017. The reported growth compared to the base year results from the revenues realized by both Bulgarian and foreign tourists (Table 3).

The number of nights spent for the same period also increased almost double - 45 476 nights in 2012 to 76 071 nights in 2017. The most realized nights - 87 719 were registered in 2014.

**Table 3: Activity of the accommodation and accommodation places in Kardzhali district, between 2012 and 2017**

Year	Accommodation places - number	Beds - number	Nights spent - number		Arrivals accommodation establishment in - number		Revenues from nights spent - BGN	
			Total	incl. and by foreigners	Total			
2012	29	932	45476	10559	29465	6099	1389534	360170
2013	32	1004	60010	11553	42106	7520	1938214	445019
2014	36	1139	87719	16858	50625	9846	3067852	783282
2015	35	1105	74029	14889	51082	10126	2912208	741648
2016	36	1163	82897	15090	54486	9325	2611229	634428
2017	34	1152	76071	14974	48640	8648	2695686	668042

Source: NSI

There is also a slight increase in the number of places of accommodation. In 2012, for the whole Kardzhali region they were 29 places, and in 2017 were 34 registered (Table 4). Most of them are categorized with 1 and 2 stars. In 2017 there are 9 hotels categorized with 3 stars. For the whole area there is not yet a registered hotel with 4 or 5 stars.

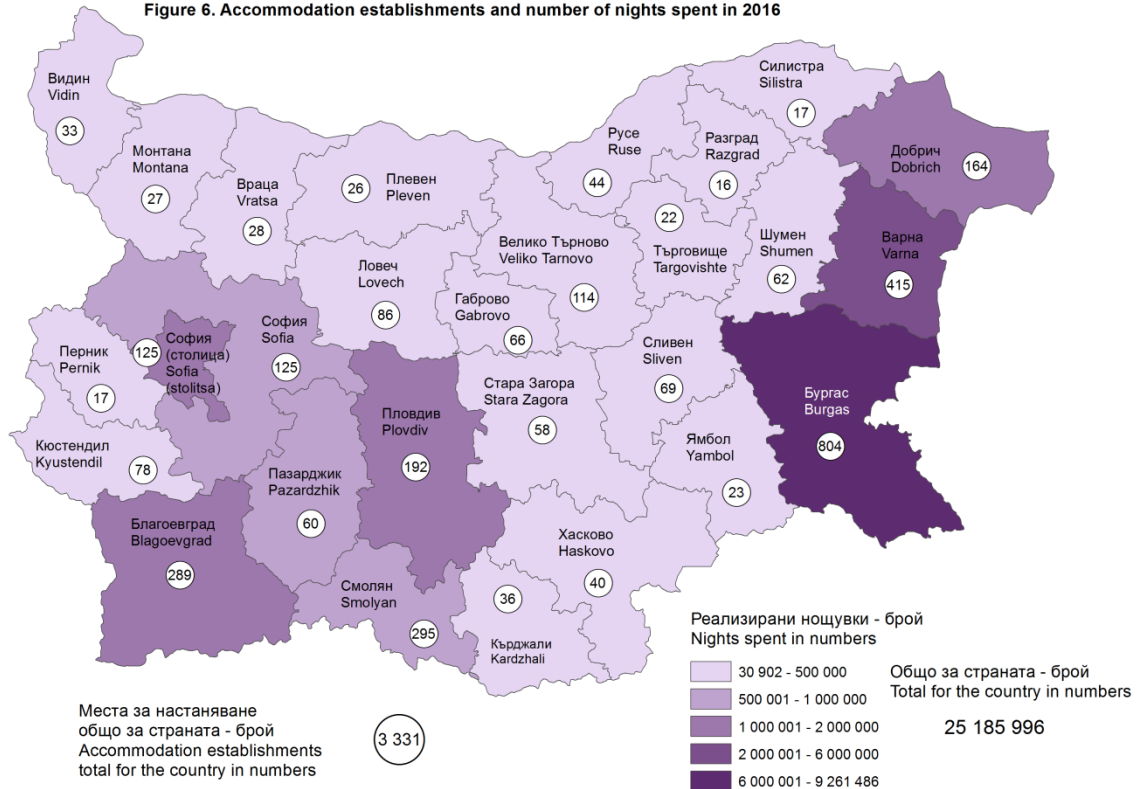
**Table 4: Accommodation places according to their categorization in Kardzhali district, between 2012 and 2017.**

Година	Места за настаняване - брой	Категория 1 и 2 звезди – брой	Категория 3 звезди – брой	Категория 4 и 5 звезди – брой
2012	29	23	6	-
2013	32	26	6	-
2014	36	28	8	-
2015	35	27	8	-
2016	36	27	9	-
2017	34	25	9	-

Source: NSI

These data show that there is positive growth in tourism development common to both districts, which is about average for the country. There is insure in terms of accommodation, but most of it falls into the low category - with 1 and 2 stars, which affects the number of nights spent. In order to attract wealthier tourists in both areas, have to seek opportunities to improve the material and technical base of accommodation facilities and infrastructure around them. On the other hand, there is low bed occupancy, which indicates that most of the nights spent are overnight, less than two nights or more. The figure clearly shows that the districts of Haskovo and Kardzhali, the number of accommodation facilities and nights spent are among the areas with lower occupancy. Especially drastic is the comparison with two cross-border regions with Greece - Smolyan and Blagoevgrad where the indicators – *accommodation places* and the number of *nights spent* are significantly more. The reasons for this are that in the districts of Smolyan and Blagoevgrad there is much more developed tourism. There is mainly practice on ski tourism, but during the other seasons there is an interest in cultural-historical, eco, rural, balneo and wine tourism (especially around Melnik and Sandanski).

Фиг. 6. Места за настаняване и реализирани нощувки през 2016 година  
 Figure 6. Accommodation establishments and number of nights spent in 2016



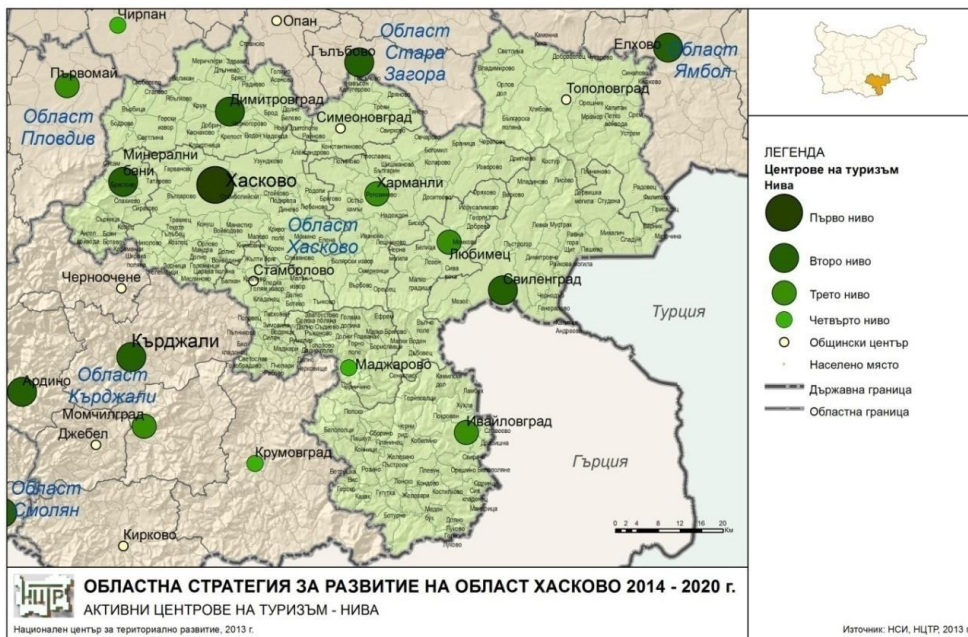
Source: NSI

Fig. 2: Accommodation establishments and number of nights spent in Bulgaria by 2016.

### 1.8.2. Potential for Tourism Development in Haskovo District

In “*Regional Development Strategy of Haskovo District*” the following more important resources and advantages for the development of tourism are selected:

- ✓ Favorable physical and geographic features - mild climate, beautiful and ecologically pure nature, rich flora and fauna with exceptionally biodiversity, numerous natural landmarks;
- ✓ Interesting heritage, including architectural and historical monuments from ancient and medieval archaeological, monuments of the Bulgarian National Revival, monasteries, old houses and churches, historical sites, etc .;
- ✓ Well-developed network of accommodation in cities and relatively good infrastructure;
- ✓ Presence of a rich cultural calendar in the individual municipalities;
- ✓ Rising initiative in the tourism sector: revival of traditional crafts, opening of new museum collections, improvement of access to tourist sites, development of a number of projects in the sphere of tourism and opening of tourist information centers, expansion of the advertising of the region as a tourist destination.



Source: “Regional Development Strategy of Haskovo District 2014-2020”

Map 1: Active centers of tourism – levels

The same strategy notes is yet undeveloped and untapped tourist potential, given that there are wide range of forms of tourism:

- *Balneo and Spa tourism*: Although relatively modest dimensions, the area has the potential of mineral waters and development of spa tourism in *Haskovski mineralni bani* (engl.: *Haskovo Mineral Baths* - national resort in 1952) and the town *Merichleri*.
- *Cultural tourism*: The location of the area at a crossroads, determines rich cultural layers and the presence of many valuable objects and artifacts. The historical and archaeological sites are a prerequisite for the development of cultural and route tourism (so-called "*cultural routes*").
- *Hunting tourism* - the activity is carried out by the four forest farms in the area, and the state hunting farm in Topolovgrad has three hunting grounds, where international hunting tourism is practiced. A specific form is the photo hunting, which is characteristic of the *Nature Conservation Center “Eastern Rhodopes”* in Madjarovo. There are conditions for ornithological and amateur observations of Griffon and Egyptian vulture, Black vulture and White stork.
- *Rural tourism* is not developed in the field, though that it has good preconditions.

This strategy underlines that **the Haskovo district has potential for the development of wine tourism in the wine-making centers.**

### Tourist attractions and routes in Haskovo district

#### *Natural resources*

Eastern Rhodopes are a unique territory characterized by rich plant life. The strong Mediterranean influence, the geological past of the mountain and the peculiarities of local life and culture have helped to form and preserve diverse habitats, which has led to extremely high biodiversity. The region has 46 protected areas with an surface of 6 449.5 ha, including 1 reserve, 16 protected areas and 29 nature landmarks. There is a procedure for declaring the Eastern Rhodopes Nature Park, which will cover municipalities from the districts of Haskovo and Kardzhali. Along with the Rhodopes, on the territory of the Haskovo region there is a part

of Sakar Mountain, where about 600 plants are found, 44 of which are included in the *Red Book of Bulgaria*<sup>10</sup>.

### ***Cultural-historical heritage***

The region is one of the richest in historical and architectural sites, according to data of *National Institute for Real Estate Cultural Heritage* (NIRECH) declared and announced, the real estate values amount to 597, of which more than 50 are of national importance. The region is extremely rich in real cultural values from prehistory, especially from the Early Thracian era (11-6 BC). In the valley of the Maritsa River there are traces of the Neolithic, Chalcolithic, Bronze Age, in Sakar Mountain - from the Iron Age. There are many metallic facilities, tombs, cult sanctuaries and dolmens. More than 100 Thracian mounds were excavated in the region near the village of *Mezek*, *Alexandrovo*, near *Simeonovgrad*, on the territory of *Madzharovo*, *Tatarevo*, *Vulche pole*, *Voyvodovo* and *Gorski Izvor*. In Roman times here it passed the road connecting Europe and Asia Minor. Medieval culture is also reflected in rock churches, towers and temples. In 18-19th century the vicinity of *Uzundzhovo* has conducted the biggest in the Balkans Fair. This was the main gateway for the transport of industrial goods from Western and Central Europe to Asia Minor and a wholesale location. After the Liberation of Bulgaria, under the provisions of the Berlin Treaty of 1878, the lands of today's Haskovo region remain under Turkish rule, as part of them were returned to Bulgaria in 1885 and the rest in 1913.

### ***The most significant historical monuments in the area are:***

From the Proto-Thracian and Thracian Ages: Thracian tomb, *Mezek*, Thracian masonry tomb near village *Dolno Lukovo*, near the village of *Dolni Glavanak*, Menchir – village of *Chichul* stone in the village of *Ovcharovo*, rock tombs and rock niches in the Eastern Rhodopes. A valuable monument is the newly discovered *Thracian tomb near Aleksandrovo village*, decorated with frescoes, reflecting the system of the royal ideology of the Thracians - a cultural monument of world value. With the help of the **Japanese government**, a *Thracian art museum* was built in 2009, where a copy of this tomb was displayed, to preserve the original for future generations and research experts.

### ***Cultural-historical heritage in municipalities in Haskovo District***

**Lyubimets Municipality** - Dolmens in the villages of *Oryahovo*, *Izvorovo* and *Valche pole*; *Thracian cult complex of rock niches "Gluhite kamani (Deaf stones)"* and a medieval church - *Malko Gradishte* village; the fortress of *Kurg Kale* - village of *Valche pole*; the churches in the villages of *Malko Gradishte* - "*St. Atanasii*" and *Georgi Dobrev*o village.

**Simeonovgrad Municipality** - the medieval fortress *Constantia*; *Baniovata maaza*; *Hadji Velev's house*; the churches "*St. Virgin Mary*" and "*St. Nicola*" in *Simeonovgrad*, village of *Dryanovo* - "*St. John the Apostle*".

**Stambolovo Municipality** - *Thracian Rock Niches* near *Dolno Cherkovishte* Village; *Thracian tomb* in village of *Kralevo*; *Thracian tomb* - village of *Pchelari*; *Thracian tomb* - *Popovets* village; *medieval fortress* - village of *Rabovo*; the churches in village of *Stambolovo* "*St. Peter and Paul*", village of *Tsareva Polyana* "*St. Prophet Elijah*", village of *Tankovo* village "*St. Constantine and Elena*" and village of *Zhulti bryag* "*St. Dimitar*", village of *Gledka*.

**Topolovgrad Municipality** - Thracian Dolmen - *Hlyabovo* village; *Thracian tomb*; the fortresses of *Paleokastro* and *Vishegrad*; the churches "*St. Georgi*" - *Topolovgrad*, "*St. Dimitar*" - *Orlov Dol*; the monastery "*St. Trinity*" - village of *Ustrem*.

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<sup>10</sup> Културно-исторически забележителности в Хасковска област, IPA Cross-Border Programme CCI Number 2007CB16IPO008- PDF

### 1.8.3. Potential for development of tourism in Kardzhali district

*Regional Development Strategy of Kardzhali district* considers the rich resources of natural and cultural heritage, as a prerequisite for achieving rapid sectoral growth in the territory. The specific features of the area favor to upgrade different forms and create opportunities to develop almost all types of tourism - entertainment, cultural, religious, ecological, rural, hunting, sports, holiday.

As a priority, the strategy emphasizes the need to invest in the marketing of tourist destinations, focusing on the uniqueness and diversity of the offered tourist product. The following major activities are indicated:

- ✓ Valorization of the rich natural and cultural heritage, and activation of the rich natural and anthropogenic, as well as tourism resources in Kardzhali district through development and inclusion in cultural and tourist routes.;
- ✓ Stimulating tourism in municipalities with an outstanding natural and cultural tourist resource.;
- ✓ Development of natural, cultural and historical attractions - restoration, conservation, exhibition, equipment, introduction of techniques and programs for interpretation and animation, etc.;
- ✓ Construction of suitable transport infrastructure to tourist sites;
- ✓ Implementation of integrated projects with cross-border and transnational character;
- ✓ Supporting public awareness activities through communication campaigns to improve awareness of the natural, cultural and historical heritage.;
- ✓ Increasing the professional qualification of the employed in tourism.;
- ✓ Development of integrated tourist products and routes, between the municipalities of Kardzhali region, and along with other areas.

### Tourist attractions and routes in Kardzhali district

#### *Natural resources*<sup>11</sup>

**Ardino Municipality** - Cave "Hladilnika" to the mouth of the river *Davidkovska*; Thracian fortress "Kaleto" - a natural landmark and historical site; Tourist Complex "*Belite brezi*", Ardino. The air in this complex helps in the treatment of pulmonary and allergic diseases.

**Dzhebel Municipality** - Tectonic Lakes near the village of Lebed; *The Broken mountain*, characterized by deposits of mineral perlite; *Swan lakes* with the natural wild lilies growing in them; *Acer Stone / Sivrikaia /*, the *Chamula Nature Reserve*. There discovered mineral water in the square "Borovets" in the town of Djebel, there is an opportunity to build a sanatorium and spa center. The water is clear, colorless, odorless and has a temperature of 34 ° C and a flow rate of 720 dm<sup>3</sup> per minute.

**Kirkovo Municipality** has a rich biodiversity. Very rare and protected plant and animal species occur on its territory. The municipality has a protected area - Gyumyurdzhinski Snezhnik 8300 hectares. Natural landmarks are the rock formations - *the Lion*, which is an area of 0.03 ha near the village of Benkovski and *the Mushroom* with an area of 0.02 ha near the village of Dedets. On the territory of the municipality there are several centuries-old trees: 150-year-old oak tree in the village of Benkovski; eastern platanus at 350-year-old in the village of Fotinovo; and an elm 200 -year-old in the village of Chakalarovo. Near the village of Kirkovo have several mineral water fields, which successfully treat skin, kidney and gastrointestinal diseases.

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<sup>11</sup> The information has been collected and synthesized by the site <https://www.thasos.hu/files/kardzhali-soufli.pdf>

**Krumovgrad Municipality** – *Valchi Dol Nature Reserve* - an ornithological reserve for conservation of a colony of Griffon cherry. In the reserve grow rare plants - *Rhodope silvaryak*.

**Kardzhali Municipality** – “Kardzhali” Reservoir; “Studen Kladenets” Reservoir; “Stone wedding” at the village of Zimzelen; “Temple-womb” above the hut "Borovitsa" in the *Tangardak Kaya* locality.

**Momchilgrad Municipality** – *Borovets Nature Reserve*; *Fossil forest*, Raven village.

**Chernoochene Municipality** – “Borovitsa” Reservoir; Game Breeding “Jenda”.

### ***Cultural-historical heritage in municipalities in Kardzhali district***

**Ardino Municipality** - *Devil's Bridge* on the Arda River, Dyadovtsi Village; *Thracian sanctuary Eagle Rocks*; *The Krivous fortress*, 3 km. from the village of Bashevo.

**Dzhebel Municipality** - The castles of *Ustra* and *Mollassar* from Roman times; Ancient rock tomb *Harman kaya*; Rock tomb near *Vodenicharsko* village; *Stage-amphitheater* in the village of Mishevsko.

**Kirkovo Municipality** - *Thracian fortress* at Voyatene peak; *The rock Thracian tombs* near the village of Podkova and Veslets; *Late antiquity and medieval fortress and village* in Asara near the village of Krilatitsa, declared an archeological monument of culture; *Ancient settlement with a sanctuary* near the village of Zagorichene; *Rock niches* in the village of Rastnik; *Rock mushrooms* in the village of Dobromirtsii; *Roman fortress* near the village of Ostinovo; *Medieval settlements* - village of Purvitza, Orlitsa village; *Cyst necropolis* - Apriltsi; *Thracian settlement* - Domishte village; *Necropolis* - Domishte village; *Medieval village* - Purvica village. *Churches* are preserved in the villages of Preseka, Gorski Izvor and Djerovo and *fortresses* in Chakalarovo, Kremen and Djerovo. Fully preserved and functioning to date, there are many bridges made by local masters, mastering the art of stone masonry. Bridges are remained from Roman times. They are best preserved in the villages of Drangovo, Shumnatitsa, Gorski Izvor, Lozengradci and Tihomir.

**Krumovgrad Municipality** - There are remnants of Thracian sanctuaries, tombstones, necropolises and medieval fortresses on the territory of the municipality. Interesting Thracian cult monuments are the niches, cut into vertical rocks along the Arda River. Mosque “*Seytlyar Dzhamisi*”, built in 1855; the church of “*St. Ivan Rilski*” in Krumovgrad; in the village of Egrek there is a Roman bridge and mills.

**Kardzhali Municipality**- Thracian, Roman and Proto-Bulgarian fortress "Perperikon". Archaeologists involved in the excavations argue that Perperikon was an ancient temple of God Dionysus, similar to that of Delphi; *Thracian fortress* near the village of Lisitsite; Late antique and medieval fortress near the village of Visegrad; The Medieval monastery “*St. John Prodrom*” of VI-VIII century. The church of “*St. George the Victorious*”, in the town of Kardzhali; Monastery complex “*Uspenie Bogorodichno*”; Regional Museum of History - Kardzhali (with more than 45 000 exhibits).

**Momchilgrad Municipality** - megalithic complex near the village of Tatul. Archaeologists believe it was a Thracian sanctuary dedicated to Orpheus.

**Chernoochene Municipality** - Megalithic Thracian monuments - rock niches, tombs and sharapans and niches near the village of Bezvodno; *Medieval military fortress* of *Gradishte* peak.

### ***Cultural and Historical Routes:***

At the initiative of the *Ministry of Tourism* are created thematic cultural and historical routes covering several territories in the country, which have different natural and architectural landmarks. Some of the sights are of national and global importance. In such a route called "*On the Road of the Thracians*" are included some landmarks of Kardzhali

district. The route "On the Road to the Thracians" includes the cultural and historical sites on the territory of Plovdiv - the *Deaf Stones* - Strandjevo - Perperikon - Kardzhali - Tatul - Benkovski.

## **1.9. Festivals of wine and other holidays in Haskovo and Kardzhali districts**

### **1.9.1. Festivals of wine and other holidays in Haskovo district**

In the town Ivaylovgrad celebrated the feast of Viticulture and Winery in St. Trifon's Day – February 14. Several cellars operate in the municipality of Svilengrad, whose location is in the vicinity of the settlements, where the feast of the Viticultor and Winemaker - St. Trifon is traditionally celebrated. These are *Katerzhina Estate*, Winery "Lozev", Winery "Dimitrovche", Winery "Mezek". According to the owner of winery "Dimitrovche" Kostadin Stefanov, besides his cellar, another 4-5 cellars will soon be built and will open doors for visitors. The idea is to turn the village of Dimitrovche into a destination for wine tourism.

In the Municipality of Lyubimets on February 14 honored "*Viticultor and Winemaker Day*". The program also includes a competition for the best home-made wine. The winner of the contest is declared "King of Wine". The event organizes a culinary exhibition-bazaar of traditional dishes, lots of music, people and dances<sup>12</sup>.

In the Harmanli Municipality, an accompanying event at the Festival Haramana, held on September 8th and 9th, is organized by 4 local wineries an extreme wine tour "South Sakar 4x4". These are the family cellars - *Villa Bassarea*, *Bratanov Winery*, *Malkata zvezda Winery* and *Chateau Kolarovo*, which offer 4 wines for tasting, accompanied by local delicacies<sup>13</sup>.

#### ***Other holidays***

In May, the town. Ivaylovgrad organized five days *Festival of Arts "Almond tales"*<sup>14</sup>. In September, *Traditional Autumn Fair* is organized in Svilengrad, in addition to companies from all over Bulgaria there is an accompanying cultural program.

In the town of Harmanli, in the beginning of September, they organize a *Festival of harmana*, whose aim is to preserve and popularize the traditions, culture and customs in the region of Harmanli Municipality. A variety of local tastes, rituals, crafts and livelihoods are presented. For tourist have a possibility for presentation, tasting, participation in exhibitions. Folklore performance, rich program. Reconstructions of the past. Participation of prominent guests<sup>15</sup>.

In the village of Rabovo, Municipality of Stambolovo, a *Bread Festival* is held in late July<sup>16</sup>.

The *National Folk Festival "Amber Grape"* in the village of Lozen, Lyubimets municipality, stimulates the presentation of local traditions, customs, preservation and transmission of the intangible cultural heritage<sup>17</sup>.

### **1.9.2. Festivals of wine and other holidays in Kardzhali district**

Nowadays, the popularity of Kardzhali region is growing, thanks to the cultural and historical tourism, which is mostly connected with viticulture and wine-making Thracian

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<sup>12</sup> <http://www.lyubimets.org/index.php/news/3744-2018-01-29-08-15-42>

<sup>13</sup> <http://winetours.bg/extreme-wine-tour-4%D1%854/>

<sup>14</sup> <https://ivaylovgrad.bg/>

<sup>15</sup> <https://opoznai.bg/events/view/festival-na-harmana>

<sup>16</sup> <http://stambolovo.bg/?show=news&id=232>

<sup>17</sup> <https://lozenfest.com/>

heritage. According to Professor Nikolay Ovcharov - Perperikon, the sanctuary of God Dionysius, is visited annually by over 250 thousand tourists<sup>18</sup>. *The Perperikon Festival* has become an international art festival and has been organizing since 2001 in the shortest night - June 22. The program of the festival includes many cultural events - theater productions, carnival and music scenes. The Perperikon spectacle, symbolizing ancient beliefs and prophecies related to wine, is interesting. The hidden purpose of the festival is that our journey from the mysterious past goes to the mysterious future. It links with the pan-European idea of preserving the rich diversity of cultural heritage.

On February 14, the Municipality of Kardzhali celebrates Trifon Zarezan - the wine-maker's festival in the area with tasting wines, music and dances. A Best Wine Competition is held, accompanied by a festive program<sup>19</sup>.

### ***Other holidays***

Every year in Kirkovo Municipality, in the beginning of September, is organized a *Pepper Festival*, as a accompanied event is the contest for “*The most delicious homemade lutenitsa*”<sup>20</sup>. Among the tobacco crash, many tobacco growers have turned to some vegetable crops as a pepper as well. Kirkovo municipality, in addition to helping its fellow citizens in this new venture, has an ambitious look to make Kirkovo a rural and eco-tourism destination. Including wine tourism is perfectly fits into the concept of the municipality for tourism development. The international road to Greece and the Makaza Pass are within the boundaries of the municipality. With the steadily increasing flow of tourists and goods that are almost transiting, it is necessary to create tourist products to attract their attention. Another way is to create a market for agricultural and other goods that can attract Greek citizens from nearby to Kirkovo Greek municipalities.

In the town of Kardzhali is organized a *Banitca Festival*, which takes place in the middle of September. The program of a festival includes over 200 homemade recipes of banitca, a program of folk ensemble “Trakia”, an art workshop, a craft alley, a photo exhibition and a folk costume<sup>21</sup>.

### **Conclusion on potential for development of tourism in Haskovo district:**

- The region has the necessary tourist facilities (hotels, guest houses and restaurants), beautiful nature, unique and attractive archaeological sites.;
- The *Regional Strategy of Haskovo District* does not mention the potential of gambling tourism that attracts tourists from the Republic of Turkey and Greece, especially in Svilengrad and Haskovo. But gambling is one of the rapidly growing types of tourism here and brings significant revenue.;
- Wine cellars, some of which offer wine tourism, can successfully offer a wide range of individual (company) and joint tourism products, programs and packages.;
- Positive development for tourism in the area is that it has good accessibility - it is located at an important international crossroad. The relief is a hilly, relatively good and upgrading infrastructure. The area is bordered by two neighboring countries - Greece and Turkey, of which most of the tourists come from Haskovo.;
- Wine tourism can be diversified very well with other types of tourism.;
- Already there are the beginnings of joint tourism products of wine tourism between of four boutique wineries of the region's such as: *Extreme wine tour “4x4”* - Day of the

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<sup>18</sup> [www.novjivot.info/08/17/4150](http://www.novjivot.info/08/17/4150)

<sup>19</sup> <https://opoznai.bg/events/view/den-na-vinaria-kardjali>

<sup>20</sup> [https://www.kirkovo.bg/index.php?pid=5,46&gallery\\_folder=3](https://www.kirkovo.bg/index.php?pid=5,46&gallery_folder=3)

<sup>21</sup> <https://www.sabori.bg/ob-kardzhali/view.html?oid=96546>

open doors of the cellars, as part of the *Haramana Festival* organized by the municipality of Harmanli and four of the boutique and sign of the region's wineries.;

- Transitional Mediterranean climate, characterized by hot summers and mild winters, suggesting the possibility of visits during all four seasons. Therefore Haskovo can become a destination for four seasons, and wine tourism allows offering all year round.

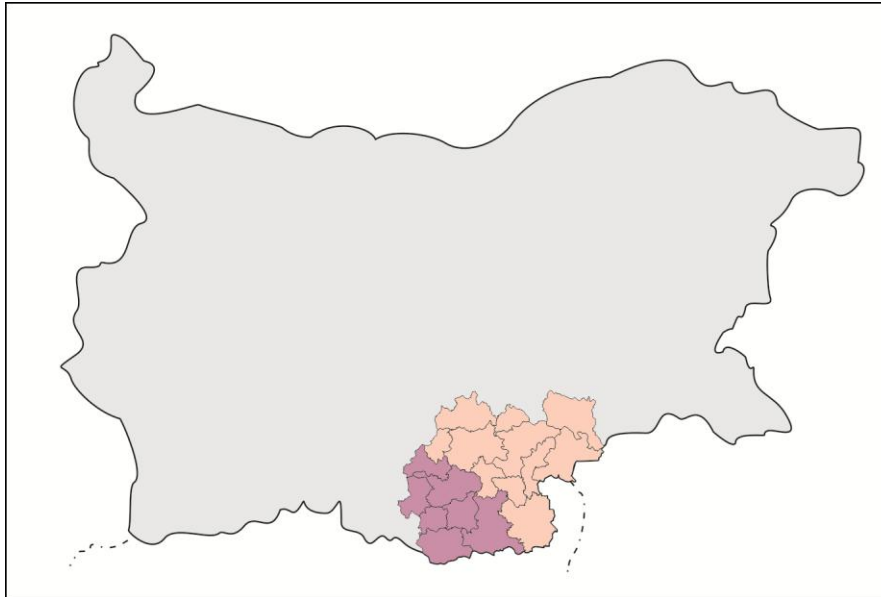
#### **Conclusion on potential for development of tourism in Kardzhali district:**

- Kardzhali region more successfully develops cultural, historical, ecological and hunting tourism.;
- The richness of archaeological, natural and anthropogenic landmarks are insufficiently developed for tourist visits.;
- Only one wine cellar is registered on the territory of the district – in municipality of Momchilgrad. Which makes Kardzhali a weak potential to attract wine lovers. However, wine tourism can be developed by building small family wineries, near the most visited tourist sites, or tasting rooms for hotels.;
- The mild climate and proximity to the Aegean Sea, can turn the area into a destination for four seasons.;
- The area has a relatively small bed base, but there is an investment interest in the construction of guest houses and small family hotels, especially around the town of Kardzhali.;
- The international road *Haskovo-Kardzhali-Komotini* and its increasing workload, is of strategic importance for attracting tourists. More tourism advertising and signs near the road are needed, offering different opportunities for visits and recreation.;
- Various routes can be created with different themes: historical; bicycle; horses; eco paths; along the large water basins, etc .;
- Organizing celebrations and festivals in the area, such as the *Pepper Festival* - Kirkovo, the *Banitca Festival* - Kardzhali, will make it more attractive and visited by lovers of delicious and authentic food.

## 2. GEOMORPHOLOGY, GEOLOGY AND CLIMATE IN THE REGION OF THE HASKOVO AND KARDZHALI DISTRICTS

### 2.1. Relief

The Haskovo and Kardzhali districts are located in southern Bulgaria and occupy part of the Thracian Lowland, the Eastern Rhodopes and the Sakar Mountain. Haskovo district is on the border with two countries - the Republic of Greece and the Republic of Turkey, Kardzhali district has a common border with the Republic of Greece (map 2).



**Map 2: Haskovo and Kardzhali Districts**

According to the provisions and the territorial division of the Regional Development Law, Haskovo is included in the South Central Planning Region. This planning region consists of Plovdiv, Kardzhali, Haskovo, Pazardzhik, Smolyan and Stara Zagora. For its part, the Haskovo region is situated in the southeastern part of the South Central Region and includes 261 settlements distributed on a territorial basis in 11 municipalities - Haskovo, Dimitrovgrad, Simeonovgrad, Topolovgrad, Mineralni bani, Harmanli, Lyubimets, Svilengrad, Stambolovo, Madzharovo and Ivaylovgrad with total area of 5543 km<sup>2</sup> (map 3).

The relief of the area is too diverse. The Northern and Central part is occupied by the Upper Thracian Lowland, characterized by the large, low-lying lands and high groundwater that contributes for the intensive use of the agricultural land. The flat nature of the relief and the fertile soils has a positive impact on the development of all branches and sub-sectors of agriculture, the construction of irrigation systems and transport arteries. To the south, an extensive area occupied by the low parts of the Eastern Rhodopes and the slopes of the Sakar Mountains. The Eastern Rhodopes are known as the cradle of the megalithic culture because they are the region with the highest concentration of megalithic monuments from the Thracian civilization.



**Map 3: Administrative-territorial structure of the Haskovo district.**

To the north of the Arda River are the hills of the *Chukata* and the *Forest*, the *Valchepolska valley* and the Haskovo hilly land, which occupies a large part of the territory. To the west of the Arda River are Dragoyna ridge and Mechkovets ridge. The highest peak in the eastern part of the Rhodope Mountains is *Mount Orlitsata* in Greece, which is 1483 m high. *Mount Mechkovetz* (Aida peak) - with its 860 m, is the highest point in the area.

The Eastern Rhodopes are a unique territory with rich and diverse flora and fauna. The strong Mediterranean influence, the geological past of the mountain and the peculiarities of the local life and culture have formed and preserved the diverse habitats, which has led to extremely high biodiversity.

Traditional vineyards are grown in the area. The region is famous with the grape varieties Merlot, Cabernet Sauvignon, Pamid and Bolgar. The few wine centers on the territory of the region attract the supporters of the so-called “wine tourism”.

**Haskovo Municipality** is located in the central part of the South Central Planning



Region, administratively belongs to the district of Haskovo. The Haskovo Municipality is located in north-western part of the Haskovo District. To the north it borders the Dimitrovgrad municipality, to the east with the municipalities of Simeonovgrad and

Harmanli, to the west with the Mineralni bani municipality and to the south with the municipality of Stambolovo, the municipality of Kurdjali and the municipality of Chernoochene (Kardzhali district). Haskovo Municipality covers approximately 13.3% (739.8 km<sup>2</sup>) of the territory of Haskovo District (5543 km<sup>2</sup>). It covers 37 settlements - 1 city and 36 villages.

Haskovo has a key importance for the area, as it is the fastest and the shortest road connecting Europe and the Middle East.

The territory of the Haskovo municipality has a typical hilly relief and it is a northern extension of the Eastern Rhodopes, which is why it is called East Rhodope footpath or Haskovo hilly area – this is the used name for this region in the geographical maps. The hypsometric limits are between 50 and 400 meters above sea level. Horizontal subdivision of the relief is from 0.5 to 2.5 m / km<sup>2</sup> and vertical - from 25 to 100 m / km<sup>2</sup>.

The horizontal and vertical subdivision of the relief in the region of the East Rhodope footpath is not large, so the relief is favorable for the soil formation processes, transport, construction etc. The river valleys are slightly incised in the terrain, therefore their slopes are sloping, with a small slope and their characteristics determine the typical slight hilly relief.

The specific relief character and its combination with the other components of the natural environment have a strong influence on the scale of development and the directions for the formation of the sectoral and territorial farming structure, its production specialization and its complex development.

On the territory of Haskovo municipality there are developed clay deposits, marble limestones, andesites and others. One of the clay deposits in the municipality of Haskovo is, northwest situated of the village of *Nova nadezhda*. On the territory of the village of Garvanovo there are granites and andesites quarries. Nine kilometers to the northeast of Haskovo and to the south-west of the village Krepost is located a quarry “*Krepost*” for marble limestone. Northeast of the village of Klokotnitsa there is a quarry “*Klokotnitsa*” for mining of inert materials for construction.

**Svilengrad Municipality** is an administrative-territorial unit within the meaning of the Law on Administrative and Territorial Structure of the Republic of Bulgaria (LATSRB), a part of Haskovo District, and a statistical territorial unit of LAU 2 level (municipality) under the NUTS Nomenclature of the EU. The administrative center of the municipality is the town of Svilengrad. In accordance with the *Law of Regional Development Haskovo region*, respectively Svilengrad municipality is included in the South Central Region.

The territory is situated on an area of 705.37 km<sup>2</sup>, while the Svilengrad municipality occupies third place in size in Haskovo region. In the northeast it borders with the Municipality of Topolovgrad, while in the northwest with Harmanli municipality, in the west with the municipality of Lyubimets, in the south with Greece and in southeast with Turkey. At its northeastern side are the slopes of Sakar Mountain, in the southwest - the Eastern Rhodopes, and in the central part is the valley of the Maritsa River. Geographically the territory of the municipality includes parts of the Upper Thracian Plain, Sakar and Rhodopes. The municipality of Svilengrad includes 24 settlements: 1 town (administrative center) and 23 villages. The administrative center of the municipality of Svilengrad is the town of Svilengrad, which is situated along the two banks of the Maritsa River, at an altitude of 52 m.

According to the landscape zoning, the territory of the municipality of Svilengrad is situated on the border between the East Rhodopes subregion and the Tundzha area with a natural boundary between them - the Maritsa river. The altitude varies mainly in the range of 150 - 200 m. The relief is slightly hilly, with the altitude decreasing from the northwest to the southeast. The eastern slopes of the Rhodopes from the south, the plain along the Maritsa River valley in the center and the Sakar Mountains in the north predetermine the functional distribution of the territory. Its central planar parts are occupied by highly efficient and fertile

agricultural lands, while the southern and northern ones are covered with forests and they are poorly urbanized.

The landscape of Svilengrad municipality is diverse plain and hilly, with low hills. The central part is occupied by the Upper Thracian Lowland, characterized by extensive lowland landscapes and high groundwater, which contributes to the use of the agricultural land. To the northeast are the low level slopes of the Sakar Mountains, to the west the Eastern Rhodope Ridge Forest, and to the northwest - the Haskovo hilly land. The average altitude varies from 70 m (town of Svilengrad) to 703 m. The rock base is very varied. There are southern Bulgarian granites, crystalline shale, gneiss, marble, limestone, andesite and others.

As a consequence of the favorable natural environment, specific terroir and large scale investment in the wine production field, there are the beginnings of establishing image of a “*wine-growing*” area.

**Harmanli Municipality** is located in Southeastern Bulgaria, in the central part of the Haskovo district. The territory of the municipality is situated on the border of the Thracian Lowland, Sakar Mountains and the Eastern Rhodopes. Its territory has a diverse topography and changing altitude. Most parts of this territory is flat and the rest has mountainous and semi-mountainous relief. Two thirds of the settlements are located in the Sakar Mountains and one third in the Eastern Rhodopes. As an example, characterizing the diverse relief and changing altitude, can be given with the following two geographical locations: 1.The beginning of the *Harmanlian Gorge* (at 80 m height); 2.The end of the *Mominho-Klisur Gorge* (300 m high). It is accepted that the average altitude of the municipality is about 200 meters.

The flow of the Maritsa River divides into two almost equal parts the territory of the municipality. The tributaries of the Maritsa River - the *Harmanliyska* and the *Biserska River* run through the territory.

The relief and prevailing moderate continental climate determine the diversity of plant species occurring in this region. The most common tree species are white and black pine, acacia, walnut, cedar, birch, ash. In the valleys of the rivers, the willow and the poplar grow. In the agriculture and horticulture sector, the most frequently cropped crops are vegetables, with the largest share of red pepper and tomatoes, gardens with watermelons and melons, and perennials such as vines. Grain crops are also grown - bakery and forage crops, as well as technical crops - mainly oriental tobacco varieties.

The municipality is famous for its beautiful nature. Here are a number of natural landmarks such as “Kumuriuka” and “Kurudere” - areas with natural waterfalls. The protected area “Defileto” is a gorge with exceptional natural beauty and a place for recreation.

**Lyubimets Municipality** occupies the southeastern part of South Central region within the Haskovo district. Compared to the total area of the South Central Planning Region - 22,365 km<sup>2</sup>, the municipality occupies 344,26 km<sup>2</sup>, or 1,54% of the territory.

The landscape of Lyubimets Municipality is diversified. It has a plain, hilly and low mountainous relief. The northern and central part is occupied by the Thracian Lowland, characterized by extensive lowlands and high groundwater that favor the use of agricultural land.

To the east are situated the low branches of the Sakar Mountains, to the south the East Rhodope Mountains, and to the west Haskovo hill land. The average altitude varies from 70 m (Lyubimets) to 703 m (Shinovets peak).

The rock base is very diverse, there are southern Bulgarian granites, crystalline shale, gneiss, marble, limestone, andesite, etc.

Ivaylovgrad municipality is part of the East Rhodopes physico-geographic area. The slopes of the mountains descend and overflow into the plains of South Thrace, which is on

Greek territory. The relief is diversified, occupied by the low branches of the Eastern Rhodopi Ridge, which is between 70 and 700 meters above sea level.

The rock base is very colorful. There are southern Bulgarian granites, crystalline shale, gneiss, marble, limestone, andesites, etc. The relief is determined by smooth curves of the low Rhodope ridges, that “spilled” into wide valleys. The average slope of the relief is 4.8%. Many of these mountain areas are covered with poor skeletal soils and are deforested. Built from unstable sedimentary and volcanic rocks, characterized by intense erosion processes.

Relief and fertile soils positively influence the development of agricultural sectors, as well as the construction of irrigation systems.

***Stambolovo municipality*** is located south of the town Haskovo, and is located in the northeastern part of the Eastern Rhodopes. The territory of the municipality extends from the Haskovo Plain to the Arda River, and is 22 km away from the town of Haskovo and 55 km from the town of Kardzhali. The municipality borders between Haskovo and Kardzhali districts and has an area of 277 km<sup>2</sup>.

The geological structure of the relief is characterized by a wide diverse of rocky complexes and geological structures. A large part of the territory is covered with volcanogenic-sedimentary rocks of the Paleogene complex, composed of rhyolitic, andesitic, tuffs and tuffs mixed with different marine sediments. Metamorphic rocks, represented by gneiss, amphibolites, mica slates, etc. are revealed on the territory. In the valley of the Arda River there are formed stripes of alluvial deposits, composed mainly of sands and gravel with Quaternary age.

The relief of the municipality is intersected, semi-mountainous. In southwest, a vast of the area is occupied by low branches of the Eastern Rhodopes, whose spaces are covered with poor skeletal soils and are deforested. The Rhodopes is made up of metamorphic rocks, which are mostly deeply sunken and covered with Paleogene limestone, sandstone and conglomerates, or with mixed material of underwater volcanic eruptions - tufts, andesites and rheolites characterized by intense erosion processes .

The orographic conditions, combined with their characteristic soils, predetermine the limited species composition of agricultural crops. The specific nature of the relief in the different parts of the area and its combination with other components of the natural environment (climate, water, soils), have a strong impact on the scale of development and directions for formation of the sectoral and territorial structure of agriculture, its production specialization and complex development.

The diversity of relief is enhanced by the erosion of the rivers, which has formed a labyrinth of hills and a complex valley network. The terrain of the municipality is crossed by the middle course of the river Arda, along with its tributaries.

The ***Kardzhali District*** occupies 3,209.1 km<sup>2</sup> in the southeastern part of the Republic of Bulgaria, which represents 2.9 per cent of the country's territory. It is located in the South Central region. Kardzhali district occupies the greater part of the Eastern Rhodopes. The relief is predominantly mountainous and semi-mountainous. The highest points in the area are peak *Veikata* (1463 m) in the south and the west side - peak *Alada* (1241 m) and the peak *Chilyaka* (1450 m). The terrain is crossed by the upper and middle course of the Arda River, along with its tributaries *Varbitsa river*, *Krumovitsa river* and *Perperek river*. In the valleys of these rivers are the most fertile lands and the largest settlements. Along the Arda river is a town of Kardzhali, on the Varbitsa river – town of Momchilgrad, on the Krumovitsa river – the town of Krumovgrad.

According to the geographic zoning of Bulgaria, the Kardzhali region is located in the Eastern Rhodopes subregion of southern Bulgaria and covers the low mountainous hilly relief, along the middle course of the river Arda. Average altitude is 329 m.

**Kirkovo municipality** is second in population and third on territory in Kardzhali district. Located in the region of the Eastern Rhodopes over an area of 538 km<sup>2</sup>. Kirkovo borders with the municipalities of Krumovgrad, Zlatograd, Djebel and Momchilgrad. To the south it borders with Republic of Greece.

The relief of Kirkovo municipality is flat-hilly to hilly- foothill. Within the boundaries of the municipality fall the northern slopes of the East Rhodope Mountains - *Maglenik* and *Gyumyurdzhinski Snezhnik*. The average altitude is 523 m. The highest point of the municipality is the peak *Veikata* - 1 463 m. This is the southernmost geographical point of Bulgaria. *Vesikata* is the highest peak of the East Rhodopes ridge of Gyumyurdzhinski snezhnik on Bulgarian territory. In the same ridge is the highest peak in the Eastern Rhodopes – peak *Orlitsa*, but it is on the territory of Greece.

## 2.2. Land usage

The total area of the territory of two districts - Haskovo and Kardzhali - amounts to 878 738 ha and represents 39.4% of the area of the South Central Region and 8.0% of the territory of Bulgaria (Table 5).

**Table 5: Territorial balance of Haskovo and Kardzhali districts, hectares (ha)**

Statistical region Districts Municipalities	Total	Territory by kind					
		Arable land	Forest	Urbanized	Water flows and territory	Mining and digging raw materials	Transport and infrastructure
<b>Bulgaria</b>	<b>11037178</b>	<b>6423476</b>	<b>3828372</b>	<b>495279</b>	<b>197561</b>	<b>25905</b>	<b>66585</b>
<b>South central region</b>	<b>2230596</b>	<b>1062549</b>	<b>1021289</b>	<b>84014</b>	<b>48599</b>	<b>1135</b>	<b>13010</b>
<b>Haskovo district</b>	<b>555984</b>	<b>336629</b>	<b>180070</b>	<b>23784</b>	<b>11977</b>	<b>405</b>	<b>3119</b>
Dimitrovgrad	58320	43267	6867	5959	1561	217	449
Ivaylovgrad	81468	30566	48649	775	1113	22	343
Lyubimets	34427	20724	11106	1113	1255	19	210
Madzharovo	24717	6790	16229	398	1203	7	90
Mineralni bani	21467	11393	8902	712	383	8	69
Svilengrad	70032	52848	12677	2285	1764	12	446
Simeonovgrad	22294	16248	4372	989	560	1	124
Stambolovo	27670	14244	11897	967	406	0,1	156
Topolovgrad	71077	44118	23905	2090	655	81	228
Harmanli	70032	46242	19543	2836	1073	0	338
Haskovo	74480	50191	15924	5661	2004	37	663
<b>Kardzhali district</b>	<b>322754</b>	<b>128888</b>	<b>174150</b>	<b>11067</b>	<b>7242</b>	<b>28</b>	<b>1379</b>
Ardino	33974	13192	18940	967	785	7	83
Dzhebel	22964	7657	14375	693	152	0	87
Kirkovo	53912	18925	32488	1758	567	0	174
Krumovgrad	84370	38378	43036	1611	1016	7	322
Kardzhali	58793	22703	27954	4133	3648	13	342
Momchilgrad	36030	15974	17899	1149	784	1	223
Chernoochene	32710	12059	19458	756	289	0	148

Source: National Statistical Institute, 2018.

Within the territory of Haskovo district with the largest territorial area is the municipality of Ivailovgrad - 81 468 ha (14,7% of the total area), followed by the municipalities of Haskovo - 74 480 ha (13,4%), Topolovgrad - 71077 ha 12.8%), Svilengrad and Harmanli with 70 0032 ha (each one with a relative share of 12.6%).

Within the Kardzhali district the largest area is the Krumovgrad municipality - 84 370 ha (26.1% of the total area), followed by the municipalities of Kurdzhali - 58 793 ha (18.2%) and Kirkovo - 53 912 ha 16.7%).

In the structure of the land resources available to both areas, the agricultural territories occupy the leading position - 53.0% of their total area, compared to 47.6% for the South Central Region and to 58.2% for the country. This circumstance determines the resource availability and potential for development of agricultural production in the separate region.

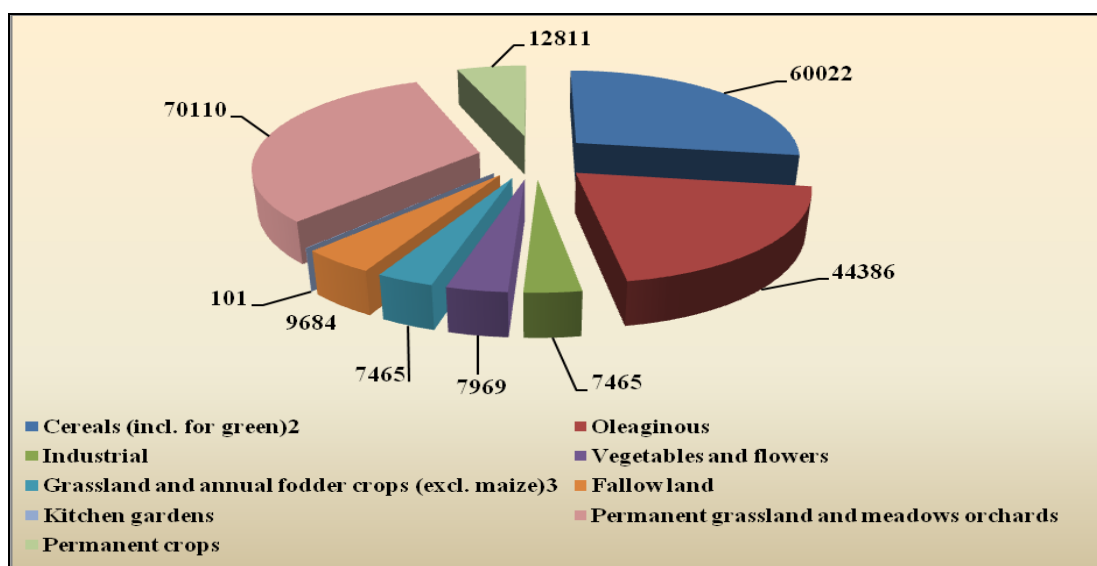
The forest areas occupy 40.3% of the area covered within the districts of Haskovo and Kardzhali, situated mainly in the municipalities of Ivailovgrad and Krumovgrad, respectively 48 649 ha and 43 036 ha.

Water currents and water areas account for 2.2% of the total area of both territories, exceeding the country's average structural level of 1.8%.

For mining used only 433 hectares of the total area covered by the districts of Haskovo and Kardzhali, concentrated mainly within the municipality of Dimitrograd - 217 ha. Of minerals with the greatest importance for the economic development of Haskovo are the sources of industrial minerals - mainly limestone used for the needs of the cement industry and also marbles limestone, andesite, dolomite, rhyolite, stone materials, which are used in general and road construction.

Urbanized areas account for about 4.0% of the Haskovo and Kardzhali districts territories and 0.5% of the total area are intended for transport and infrastructure.

The structure of the used agricultural area within Haskovo district is shown in Fig. 3. Permanent grassland and orchard gardens account for the greatest share - 31.9%, followed by cereals (wheat, barley, maize, etc.) and oilseeds (mainly sunflower and rapeseed), respectively 27.3% and 20.2%. The share of permanent crops is 5.8%. In terms of area of permanent crops in 2017 Haskovo ranks fourth in the country with a size of 12 811 ha, following the districts of Plovdiv - 19 754 ha, Stara Zagora - 14 303 ha and Burgas - 13 855 ha.

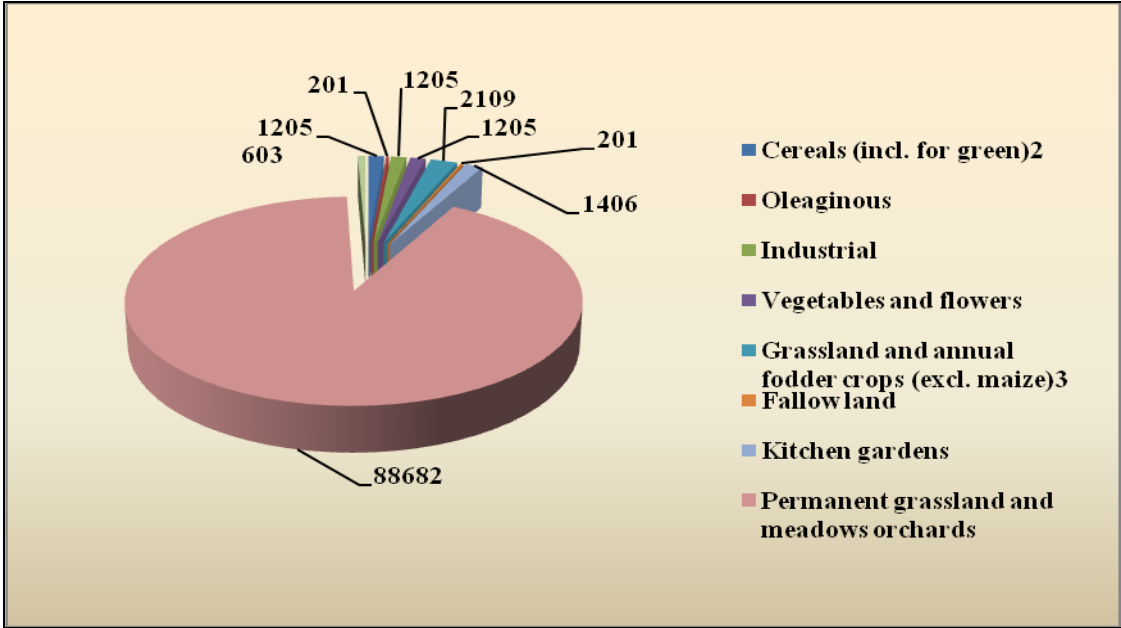


Source: MAAF, Agrostistics Department, 2017

**Fig. 3: Utilized agricultural area in Haskovo by group of crops in 2017, ha**

The permanent plantations in the area represented mainly by the vineyards with wine grapes varieties - 6998 haq according to the EAVW data for 2017, and the fruit plantations - cherries, peaches, apples, plums. The regions with well-developed viticulture and wine-making comprise the municipalities of Lyubimets, Ivailovgrad, Svilengrad, Harmanli and Stambolovo.

The permanent grassland and meadows orchards dominate again in the structure of the utilized agricultural area (UAA) in Kardzhali region with the share of 91.6%. Grassland and annual fodder crops have a relative share of 2.2%, and kitchen gardens, industrial crops, vegetables and greenhouses accounts respectively for 1.5%, 1.2% and 1.2% of the UAA in 2017 (Fig. 4).



Source: MAFF, Agrostistics Department, 2017

**Fig. 4: Utilized agricultural area in Kardzhali by group of crops in 2017, ha**

Traditional for the Kardzhali region is the production of oriental tobacco. According to the official data published in the updated version of the Kardjali Development Strategy 2014-2020, the 2016 tobacco areas are 670 ha compared to 2427 ha in 2013, representing a decrease of 72.4%. In line with the European and global policy to curb smoking, respectively shrinking tobacco production, the trend is likely to continue in the long term. Preserving the vitality of the region in the social sphere implies the search for alternative livelihood, such as fruit and vine growing. At present, the area of permanent crops in the district is only 603 ha (of which 135 ha are vineyards) or 0.6% share of the utilized agricultural area. Compared to 2013, the area under permanent crops decreased by 301 ha (by 33.3%). One of the reasons for the low prevalence and the limited interest in fruit growing and viticulture is the specific cultivation of crops, whose proper application requires specialized knowledge and skills. In this aspect there is potential for development of the social capital in the area through conducting trainings of farmers. The development of viticulture as an alternative means of livelihood can contribute to the achievement of sustainability in the region, both economically, socially and ecologically.

**2.3. Soil**

The soil is a complex natural system made up of mineral particles, organic matter, water, gases, macro and microorganisms. The soil cover is a particularly important

component of the natural environment. Formed for millions of years, it is a mirror of the state of the landscapes and it reflects and breaks the interconnections between the other components of the natural environment (rocks, waters, climate, vegetation, human activity) (Ivanov, 2016). Thanks to its fertility soil cover is a very important natural resource, a means and a subject of labor in agriculture. As a result of human activity, the fertility of the soil can change (increase or decrease) or preserve. There are three types of fertility - natural, potential and economic. The first is related to the presence of humus and other nutrients formed during the long period of natural soil development. Potential fertility is associated with the possibility of artificially increasing nutrients in the soil by adding fertilizers of natural or artificial origin. Economic fertility is expressed by the value of agricultural produce per unit area on a given type of soil.

Factors for soil formation are three groups: abiotic, biotic and anthropogenic:

**Abiotic factors:**

*The soil-forming rock* is the material from which the soil is formed. The mechanical, mineral and chemical composition of the base scale determines the water, physical and chemical properties, and the course of chemical processes in the soil.

*The climate* determines the horizontal and vertical distribution of soils. It is influenced by the climate elements - air temperature and precipitation. They in turn determine the amount of moisture in the soil. Air temperature determines the direction and speed of physical, chemical and physicochemical processes in the soil. At higher temperatures, processes take place at a higher rate and the activity of soil microorganisms increases. The decomposition of organic matter and weathering of mineral particles occurs in the presence of moisture in the soil. Overheating it leads to a slowdown in these processes.

*The relief* as a climatic factor determines the vertical distribution of the soils, and by its altitude, slope, exposure, determines the distribution of shallow and deep soils. In the larger slopes, the rainwater comes from the rainwater. Therefore, on the slopes the soil cover is thin or almost absent. Back, deep soils are formed in the plains, lowlands and valleys.

*Water* is an important factor for all soil-forming processes - weathering and erosion. Their presence determines the formation of some of the soil types.

**Biotic factors:**

*Vegetation* affects soil formation by providing the main source of biomass that becomes humus. Different types of vegetation affect soil in different ways. And due to this influence, the respective changes occur and different types of soils are formed. Vegetation determines the water and heat regime of the soil, determines its structure and prevents it from erosion.

*Micro and macro organisms* participate in the mineralization of the organic matter in the soil and enrich it with the nutrients necessary for the development of the plants.

*Animals* affect the structure of the soil, its porosity, water permeability, etc. Some of them affect the changes in the mineral and chemical composition of the soil. Particularly strongly affecting microorganisms.

**Anthropogenic factors**

The human influence on soils is in two directions. Positive influence is expressed in actions to improve the composition and fertility of soils. Negative is the impact of human activity on improper treatment of soils, especially on inclined terrains. This causes an increase in water and wind erosion. Until soil deterioration leads to improper irrigation and fertilizer fields. This leads to soil contamination, swamping and deterioration of their fertility.

**Soil-geographic zoning**

The diverse conditions of soil formation in Bulgaria (from transient mediterranean to subalpine climate, over 3000 species of vegetation, different soil forming rocks, relief) have determined the formation of diverse soils with different fertility and agrotechnical qualities.

Of the 25 main soil types in the world, 16 of them are found in Bulgaria. The most common are the cinnamon forest soils (29% of the country's territory), followed by the soils (23% of the country's area). Gray forest soils occupy about 17%, brown forest - 15%, alluvial-meadow soils - 7%, reeds - 6% of the country's territory (Ivanov, 2016). The cultivation fund in Bulgaria is composed mainly of black earth soils and black earth troughs (30 million decares), cinnamon forest soils (7 million decares), and other soils occupy about 5 million decares of the total fund (Alexandrov, 2006).

On the territory of Bulgaria three soil zones are separated:

*North-Bulgarian forest-stepped soil zone* - covers the Danube plain and the Fore-Balkan (up to 600-700 m above sea level). From north to south, the change in the formation of rocks, the climate and the vegetation cover also determine the change of the soil types and their combinations. The main types of soils in this area are the chernozems, of which there are 5 varieties (carbonate, typical, deluged, degraded and heavy clayey chernozems) and gray forest soils.

*South-Bulgarian xerothermal soil area* - covers the territory of Southern Bulgaria (up to 700-800 m above sea level). Due to the more varied and warmer transient continental climate and xerophytic vegetation, specific soil types have been formed. The main soil type in this area is the cinnamon forest soils, which are the largest soil-borne soil type in Bulgaria and the reedbeds. They are located in southern Bulgaria; to the lowlands and valley fields border with the reeds, and to the foothills - with the pseudo-subsoil soils. Cinnamon forest soils are divided into: typical and leached.

*Mountain soil area* - covers the mountainous areas (over 700-800 m) covered with deciduous and coniferous forests, as well as extensive pastures and meadows with different variations of the mountain climate.

The two areas of research (Haskovo and Kardzhali) included in the Dionysos project are located in the Southern Balkan Xerothermal Soil Zone. The main and most widespread bioclimatic soil types in these areas are cinnamon forest soils, reedbeds and alluvial-meadow soils.

*The cinnamon forest soils* are the most widespread soils in Bulgaria and occur only in southern Bulgaria - on the southern slopes of Stara Planina and the main slopes of the other mountains south of it and the associated valleys, the hilly lands of the Srednogorie, Tundzha region, Strandzha, Eastern Rhodopes, Osogovo, Rila, Pirin, Rhodopes (up to 800 m above sea level). In total, they account for about 22.0% of the total area of the country. Of these, 9.8 million dca or 41% are processed (Ivanov, 2016). Their formation takes place in the transition-continental and transitional Mediterranean climate and with the participation of warm-hearted broad-leaved, forest vegetation, varied soil substrate (heavily crushed and leached granites, granite, gneiss, mica shale, etc.). Cinnamon forest soils are divided into typical, leaned and decanted cinnamon forest soils (Koinov et al., 1980).

*Typical forest cinnamon soils* have limited distribution in hilly and deeply dissected areas. They are developed on a carbonate basis and are characterized by shallow profile, low power, dense construction. Mechanical compositions are mild to heavy loam with humus content (3-5%).

*The leaned cinnamon soils* are the most widespread soil type in Bulgaria. They are distributed in the main agricultural areas. They are characterized by a 75-120 cm soil profile, humid horizon power (up to 35 cm). Mechanical compositions are more clayey than typical cinnamon soils but are less humus (2-3%).

*The resin* are predominantly distributed in the valleys to the south of the Balkan Mountains, the Upper Thracian Lowland and the Bourgas Lowlands, Sofiyska, Pernishka, Radomirska, Kyustendil and other valleys. They occupy about 5.4% of the country's area and are almost entirely cultivated. They are formed on waterproof Pliocene lake sediments and

andesite tufts and tufts, Mediterranean climate influence, insignificant slope. They are distinguished by heavy mechanical composition (clay content 50-75%), specific physico-mechanical water properties. When wetting the soil, it swells, increases its volume, gains great plasticity and stickyness. Conversely, it wrinkles, hardens and forms wrinkles when it dries. The smells also have a low water-repellency and a great water-holding capacity. They are divided into carbonate, typical, leached and degraded.

*Carbonate and typical resins* are distributed in the Upper Thracian Lowland. They are characterized by a lower soil horizon (45-60 cm), a less compacted humus horizon and a higher humus content (3.5-4%) compared to leeches (45-60 cm).

*Listed resins* are characterized by a powerful humus horizon, which together with the transitional one reaches 50-80 cm, with heavy mechanical composition, tight construction and high humidity.

*Degraded resins* are characterized by a lack of carbonates, a light mechanical composition, a small amount of humus.

### **Haskovo region**

The soil fertility is extremely rich and is represented by all soil types typical of the area: chernozem-resins, leached cinnamon forest and alluvial-meadow soils (*Sapundjiev and Mitreva, 2016*).

#### *Chernozems*

Characteristic of these soils is the heavy mechanical composition - the content of physical clay in the ornitha and the subornitus (50 to 75%), the powerful humus horizon (25-50 cm), the powerful profiles (80-130 cm), the humus content of the 2,5- 4.5%, deep groundwater level and poor erosion. These areas occupy a relatively small area of the area, but are highly fertile in the clever application of scientifically grounded agrotechnology. Due to their rich colloidal clay composition, the rocks often have unfavorable physico-chemical and water-air properties, which are a limiting factor for their use in perennial crops.

#### *Leached cinnamon forest soils*

The main soil characteristics of these soils are that the content of physical clay in the ornithine is between 20 and 60%, in the suborbit - 30-65%, the humus horizons average between 25 and 55 cm, the humus content is between 1.0 and 4.0%, deep groundwater level, average erosion rate and up to 10% stony ground (stones and gravel from ornate). The range of natural fertility of this type of soils is quite extensive, but with cleverly selected and managed land use, these areas can be relied on at a relatively high production potential. In most of this type of soil, especially in the more leafy and less leeway, it is appropriate to cultivate a number of arable crops - corn, sunflower, wheat, beans, cotton and others. In soils with a mild mechanical composition (higher degree of sandiness) are extremely suitable for growing vineyards of dessert and wine grape varieties.

#### *Alluvial-meadow soils*

Their area is over 6000 km<sup>2</sup>. or about 9.0% of the territory of Bulgaria (*Ivanov, 2016*). The soils of this group have various characteristics. The mechanical composition is from bonded sand to slightly clay (physical clay content 5-70%), the humus horizons are between 20 and 60 cm, and the soil profiles - 60-140 cm, the wide variation of the soil response - pH of 5 , 5 to 8.5, humus content 1.5 to 6.0%, average groundwater level, no erosion. Frequent accumulated to poorly salted, slightly swampy and moderately stony alluvial meadow soils often occur. The mild mechanical composition and its associated water, air and heat properties make these soils one of the most preferred agricultural areas. The most intensive agriculture in the Thracian Lowland, along the valley of the Maritsa River and its tributaries, is concentrated on them. They are suitable for a wide range of agricultural crops, viticulture and fruit growing. According to their characteristics, this type of soil is characterized by a relatively lower fertility, but in many cases with the nasal soils, it is possible to rely on

successful planting practices. Their lower humus content and light mechanical composition place the issues of increasing the organic matter in them, improving their nitrogen-phosphorus regime and the recommended use of irrigation as methods for increasing the soil fertility of the alluvial- meadow soils.

### **Kardzhali region**

The predominant soil type in the area is cinnamon forest soils. They are also found in smaller sizes of brown forest soils, rendzins (humus-carbonate), alluvial, cinnamon-subzolsols, deluvial and, in insignificant size, other soil types. According to the Soil Register in Bulgaria, a large share of the most unfavorable agricultural land in the country is concentrated in this area. In agricultural categories, according to the classification category, soils with average productivity are predominant to poor and unfit for agricultural use. The most fertile soils are in the valleys of the Arda River and its tributaries and in the northern parts of the municipality on the border with Haskovo municipality. These characteristics determine the poorly covered viticulture and wine production in the region of Kardzhali region.

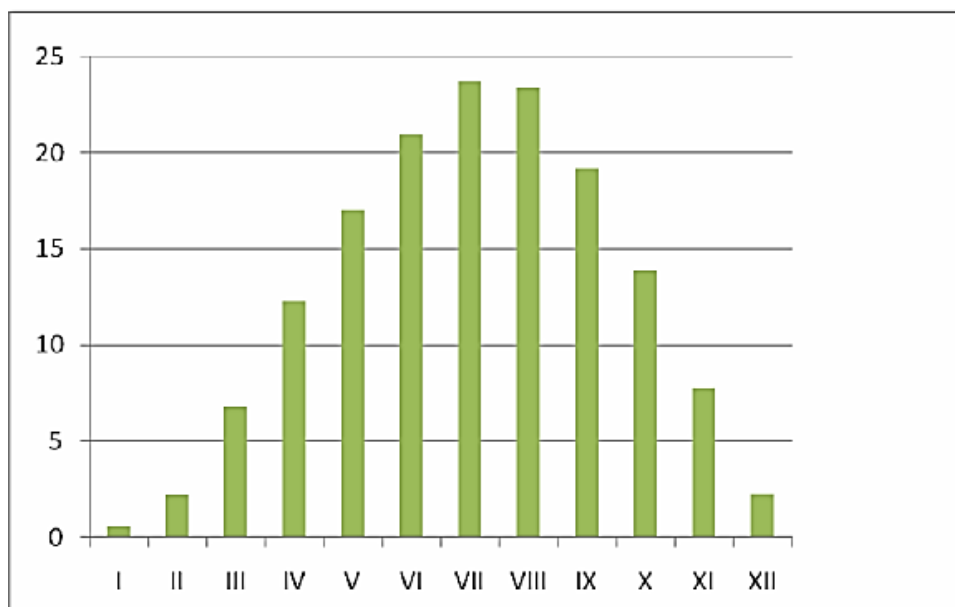
## **2.4. Bioclimatic characteristics**

### **2.4.1. Climate conditions of the area**

It is generally known that the vineyard culture reacts very strongly to the climatic conditions. Meteorological conditions in a given year and in a given area have a major impact on the quality of the grape harvest. According *Davitaya* (1959) in the wine as a mirror reflected the vine variety and location of its cultivation.

Southern geographical location of Haskovo and proximity to the Aegean Sea, which separate it from relatively lower slopes of the Eastern Rhodopes, as well as the easy penetration of warmer air in the valley of the Maritsa River, determine a transitional climate between the continental influence from the north and the Mediterranean from the south. Compared to the neighboring regions, the Mediterranean climate impact is more pronounced here. It is expressed mainly by higher annual average temperatures and the significant shifting of the main precipitation minimums and maximums. Winter is mild and short, summer - long and hot. The absolute value of the maximum temperatures is considered to be one of the most favorable in the country.

The average annual air temperature of the plain and lowland regions ranged from 12,2 to 12,8 ° C, while the Eastern Rhodopes and Sakar Mountain from 12,6 to 13,5 ° C at an average temperature in January plus 0,5 ° C and in July 23,2 ° C (Fig. 5). The thermal potential of the region with its territorial differentiation reflects the species structure of the cultivated crops, among which there are highly thermophilic - cotton, tobacco, grapes, etc.



Source: meteorological station, Haskovo

**Fig. 5: Average monthly and annual air temperature for the region of Haskovo municipality, in °C**

The data presented in Table 6 indicate the presence of a mild and warm winter. In the high summer heat temperatures are measured to 40 - 42oC. For the year the days are distributed as follows: ice days - 10; frosty days - 84.7; summer days - 126.9. Typical of the region is the sunny, warm and relatively long autumn. Climate conditions and water resources are a very important prerequisite for the implementation of the economic activity in the municipality. The regional climate, assessed as one of the most favorable in the country, provides opportunities for economic initiatives in the municipality and agricultural participation of the local population.

**Table 6: Mean monthly and annual temperature (°C) for the region of Haskovo**

Year	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	Av. annual value
2011	0.8	3.6	6.7	12.6	18.4	21.5	23.5	27.3	20.4	11.1	12.5	3.3	<b>13.3</b>
2012	-0.7	-1.8	7.8	14.2	17.2	24.3	27.7	25.8	21.2	16.7	9.1	0.6	<b>13.5</b>
2013	2.1	4.9	8.0	14.2	20.0	21.8	24.3	25.7	19.9	12.0	9.4	1.7	<b>13.7</b>
2014	3.8	6.3	9.4	12.7	16.9	20.7	23.7	24.1	18.2	12.5	7.4	4.8	<b>13.4</b>
2015	3.0	4.0	6.5	11.8	19.3	20.8	25.8	24.9	20.9	12.7	11.2	4.9	<b>13.8</b>
2016	1.1	8.9	9.3	15.6	16.4	23.3	25.9	24.7	20.4	12.7	7.5	1.3	<b>13.9</b>

Source: NSI, Statistical Yearbook, 2012-2017

The data presented in Table 1 indicate the presence of a mild and warm winter. In the high summer heat temperatures are measured to 40 - 42oC. For the year the days are distributed as follows: ice days - 10; frosty days - 84.7; summer days - 126.9. Typical of the region is the sunny, warm and relatively long autumn. Climate conditions and water resources are a very important prerequisite for the implementation of the economic activity in the municipality. The regional climate, assessed as one of the most favorable in the country, provides opportunities for economic initiatives in the municipality and agricultural participation of the local population.

The area is relatively windy. The windless days are about 80 in the year. With the greatest speed are southern winds. Maximum number of days with a stormy wind (speed

greater than 20 m / sec) is at least once a year. When comparing the individual seasons to a percentage of quiet weather, it is clear that the autumn is the quietest - 25.5%, while winter is 19.9% the most windy. The annual rose of winds shows the highest frequency from the north at an average speed of 1.8 m / sec.

The region is characterized by moderate precipitation - an average of about 600 mm, with the snow cover from low to moderate. The main rainy maximum is different for the different parts: along the Maritsa River it is October - November. Then fall 11-12% of precipitation and in the Eastern Rhodopes is December (11 - 13% of precipitation). The main rainy minimum is during the summer months from June to August, which is indicative of the fact that during the vegetation period there are significant, prolonged droughts. Because of this, as well as due to the open horizon, the duration of the sunshine is too high - over 2100 hours per year.

According to data from the Haskovo Meteorological Station for 2011, the average annual rainfall is 726 mm, the average monthly values are presented in Table 7.

**Table 7: Monthly and annual amount of precipitation for Haskovo – mm**

Year	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	Av. annual value
2011	50	149	63	37	25	65	155	6	55	112	24	44	<b>785</b>
2012	140	144	7	35	214	29	5	9	13	85	6	135	<b>822</b>
2013	121	72	48	46	6	76	41	7	12	55	58	9	<b>551</b>
2014	51	5	117	104	87	78	26	33	171	187	29	159	<b>1048</b>
2015	41	104	172	39	42	44	32	38	128	97	74	1	<b>814</b>
2016	106	51	51	25	90	56	16	27	1	34	86	21	<b>563</b>

Source: NSI, Statistical Yearbook, 2012-2017

Relative air humidity shows values significantly higher than other parts of the country and ranges from 57 to 84%, with a minimum in September and a maximum in December. Combined with other natural conditions and resources - relief, water, flora and fauna, *the climate has a significant impact on the development of tourism in the Haskovo region. There are very favorable soil and climate conditions for the establishment of vineyards as potential for development of viticulture and winemaking.*

Climatically, the territory of the Svilengrad Municipality falls into the Continental Mediterranean climatic region, the South-Bulgarian climatic suburb, a climatic region of the Eastern Rhodope river valleys, with a noticeable influence on the temperate sea coastal region of the Aegean Sea. Svilengrad Municipality is located in the Continental-Mediterranean climate area, which determines the continental-Mediterranean climate of the municipality. The most characteristic features of this type of climate are the warm summer and the mild winter (January temperatures above 0° C), the relatively small annual temperature amplitude, the autumn-winter peak of maximum precipitation and the lack of an annual sustainable snow cover. According to data of the meteorological station Svilengrad, the region of the municipality is characterized by a long duration of sunshine - 2240 - 2249 hours, with maximum for the months of July and August. The average annual air temperature in the municipality varies between 12.6° C and 13.6° C. Average July temperatures are between 22 - 24° C and average January temperatures for the municipality fluctuate from 0 to 1 - 2° C above 0° C. Prevailing winds are northwest and northeast. During the cold half-year period, southwestern and southern winds with a Foehn wind-effect. Average monthly values of the wind speed varies around – 1.6 m/ sec. According to the data of the meteorological station Svilengrad, average annual days with fog are 30.9. The region of Svilengrad municipality is

characterized by average annual precipitation 696 mm with a minimum during the summer months. The snow cover is weak and short-lasting with a number of days with snow 16 - 30.

*Lyubimets Municipality* is located in the Continental-Mediterranean climate area, which determines the continental-Mediterranean climate of the municipality. The most characteristic features of this type of climate are the warm summer and mild winters (January temperatures above 0° C), the relatively small annual temperature amplitude, the autumn-winter peak of precipitation and the lack of an annual sustainable snow cover. The average annual air temperature in the municipality varies between 12.6° C and 13.6° C. The average July temperatures are between 22 - 24° C and the average January temperatures in the municipality fluctuate from 0 to 1 - 2° C. The sum of temperatures during the active vegetative season reaches 4000° C and is one of the largest in the country. Inner-year atmospheric pressure is characterized by a maximum in December or January, and a minimum in July it is the opposite of that of the air temperature. Its values for January and December are respectively 1020.78 hPa and 1020.22 hPa and for July 1011.41 hPa. Average annual for the country is 0 ° C and atmospheric pressure 1013 hPa.

The number of dry (with relative humidity below 30%) and wet (with relative humidity over 80%) days is an important indicator of atmospheric humidity. Lyubimets municipality falls within the group of areas with the driest days of the year and respectively the least wet days. This determines an average annual air humidity of about 69%. The annual precipitation in the municipality is about 500 mm. The maximum precipitation is winter (November - January), and the minimum is summer - autumn (July - September). There is a secondary May-June maximum precipitation. Very frequent are the intense and torrential precipitation in May and June, with the rainfall from May to August being 1 to 2 times.

*Ivaylovgrad Municipality* is located in the Continental-Mediterranean climate area, which determines the continental-Mediterranean climate of the municipality. The most characteristic features of this type of climate are: warm summer and mild winters (January temperatures are above 0° C). Relatively small annual temperature amplitude, autumn-winter maximum precipitation and lack of sustainable snow cover. The average annual air temperature is 12.8 ° C. Absolute minimum temperature is -19.5° C, and absolute maximum is 40.5° C. The average temperature for the coldest months is about 3-4 degrees higher than the average for the country. Summer is relatively hot and dry. Averages in July temperatures are between 21 - 23° C. The number of sunny days in the year is the highest for the country. The ratio of winter and summer precipitation is typical for the Mediterranean region. The driest is August, when the average rainfall is 20 mm/ m<sup>2</sup>. The average January temperatures for the municipality fluctuate from 0 to 1 - 2° C above zero. The sum of temperatures during the active vegetative season reaches 4000° C and is one of the largest in the country. This climate suggests the need for artificial irrigation, but is suitable for growing tobacco, grapes, almonds, perennials, etc.

The relative humidity of the atmospheric air is one of the main indicators of the processes of evaporation, transpiration of atmospheric impurities, etc. Ivaylovgrad municipality falls into the group of areas with the most dry days during the year and respectively the least wet days. The average annual humidity is about 70%. The prevailing winds are northwest and northeast. During the cold season often blowing southwest and south winds.

The area is characterized by an average annual rainfall of 711 mm. Most precipitation falls in winter - an average of 230 mm and at least in summer - 118 mm. The rate of precipitation of snow is relatively low (5-6% of the annual amount) and is the lowest compared to all other regions of the country. High temperatures do not allow to forming a continuous snow cover. The seasonal and territorial distribution of precipitation compared to the requirements of individual crops, indicates the need for ubiquitous artificial irrigation.

*Stambolovo Municipality* in terms of climate falls in Southern Bulgarian climatic region and especially in the climate of the Eastern region, which is influenced by the warm Mediterranean influence. The climate of the territory is continental-Mediterranean, determined by the nature of the atmospheric transfer and the transformation of the air masses on the surface of the relief.

Winter is relatively soft. The minimum temperatures during the winter months are relatively high. Summer is sunny and hot, with maximum temperatures reaching 40° C. The average winter temperature is around 0° C and in the summer is 24° C. The average annual temperature ranges from 11 to 13° C. The annual temperature sum is about 4000° C. In the autumn-winter period under the influence of Mediterranean cyclones, accounted for some of the greatest rainfall. There are two maximums: winter - November, December, January; spring - May, June, July; and a minimum - August, September. Due to the southern location of the area, most of the winter precipitation falls as rain or rain and snow. The thermal potential of the region with its territorial differentiation has an impact on the species structure of the cultivated crops, among which there are also highly heat-treated such as tobacco, grapes, etc. The main precipitation maximum is different for different parts: along the river. Arda it is December. Then, 11-13% of the precipitations fall. The main precipitation minimum is during the summer months - from June to August, which is indicative of the fact that during the vegetation period is significant, prolonged droughts. The seasonal and territorial distribution of precipitation compared to the requirements of individual crops, indicates the need for ubiquitous artificial irrigation in lowland areas of the municipality.

The climatic potential favors the development of various economic sectors. Combined with other natural conditions and resources - relief, soils, waters, flora and fauna, the climate has a significant impact on the agricultural specialization and profile of the different parts of the municipality.

Because of the listed geographical features, there are small climatic differences on the territory of *Harmanli Municipality*. Dominant moderate continental climate, characterized by mild and warm winters and relatively hot summers. Significant is the number of sunny days in the year and the annual temperature amplitude is relatively small. The maximum of precipitation is autumn - winter, and the minimum is summer. In winter there is no sustainable snow cover.

*Kardzhali district* falls into the South-Bulgarian climatic region and more precisely in the East-Rhodopian climate region with warm Mediterranean influence. From the nature of atmospheric transfer and transformation of air masses on the surface of the relief, is determined by the formation of trans-Continental and trans-Mediterranean climate. The average annual temperature is about 12 - 13° C, with annual precipitation ranging from 700 - 800 mm..Winters are relatively mild. The minimum temperatures during the winter months are relatively high - the average is around 0° C. Days with retention of snow cover are 39. Summer is long and hot, with maximum temperatures reaching 39-40° C and average of 24° C. In the autumn-winter period, under the influence of Mediterranean cyclones drop some of the greatest rainfall. There are two maximums: winter - November, December, January; spring - May, June, July, and a minimum - August, September. Due to the southern location of the area, most of the winter precipitation falls as rain or rain and snow.

Precipitation (one of the weakest in the country) at the end of summer and spring is very poor. These periods coincide with critical periods of development of spring crops and climatic conditions make less suitable and unsuitable for most of them.

The wind in the area is oriented from north-northwest and south-southwest. The average annual wind speed is 1.66 m/ sec, which defines it as weak.

*Kirkovo Municipality* in climatic terms, its territory belongs to the East Rhodope hilly-mountain climatic region of the South-Bulgarian climatic sub-region with Mediterranean

influence. The low-mountain relief and the warm air currents coming from the Aegean Sea are the main factors shaping the climate. The winter is relatively mild, summer is long and hot. The average annual precipitation is 521 mm. The duration of sunshine is 224 hours per year, and the average annual air temperature is between 11 and 13.2 ° C. On average, around 216 days a year, from the beginning of April to the beginning of November, observed stably maintain temperature over 10° C. Relative air humidity is lowest in the summer months from 57 to 67%, and the highest in the winter months is 78-83%. Average annual humidity is 72%.

*The climatic characteristics of Haskovo and Kardzhali districts show that there are very good conditions for the establishment of vineyards as potential for development of viticulture and winemaking. In addition, a prerequisite for offering tourism for four seasons.*

#### **2.4.2. Characteristics of the biotic factors determining the risk for the successful realization of a quality grape and wine harvest**

The bioclimatic characteristics of the region are not significantly different from the average for the country, which determines the influence of the biotic factors typical for Bulgaria on the risk for the successful realization of a quality grape and wine harvest. Among the biotic factors determining the yield and quality of grape production, a major share have diseases vine. Obtaining high and sustainable yields from the vineyards is unthinkable without their protection from diseases and pests. Different methods and means of prevention and control are used for this purpose. In general, infectious diseases on the vine may be divided into two groups depending on the characteristics of the pathogens, the damage caused and the methods for their prevention and control.

**The first group** includes systemic diseases that affect the entire plant. The causes of these diseases can be viruses, bacteria or fungi, and their aetiology is chronic and most often continues until the plant completely dies. Usually their treatment is impossible and, in addition to affecting the quantity and quality of the yield obtained, they reduce the longevity of the vineyards. Often, the diseases of this group occur latently (without symptoms), which favor their rapid spread, including the vine propagation material. For this reason, the most effective control method is the prevention that begins before the establishment of the vine plantation and involves the planting of healthy sanitary vine seedlings obtained by the methods of clonal and sanitary selection.

Researches on the issues of vine sanitary selection in Bulgaria began in the late 1960s at the Institute of Viticulture and Enology - Pleven. In the early 1970s the first methodology and scheme for vine individual clonal selection for obtaining healthy planting material were worked out and published (Ivanov *et al.*, 1972; Ivanov *et al.*, 1972a), that on the basis of ongoing studies were periodically updated (Abrasheva *et al.*, 1993; Abrasheva *et al.*, 2004; Genov *et al.*, 2009). In the 1980s, the first mother plantations for super-elite (basic) and elite (certified) vine propagation material were established by the methods of clonal and sanitary selection. In 2000, the renovation of the mother plantation at the Institute was initiated as in parallel with the investigations on diseases carried by the planting material researches were aimed at studying the European legislation and sanitary selection schemes of the leading viticultural countries in Europe. In the EU vine planting material categories are defined by Directive 68/193/EEC, as amended by Directive 2002/11/EC and Directive 2005/43/EC. The category of prebasic material was introduced to the existing categories of basic, certified and standard planting material. The amendments in the regulatory framework of the EU and the country's accession to the European Union led to changing and harmonization of the Bulgarian legislation therefore a national certification system for vine planting material was established. In Bulgaria this is regulated by the Seeds and Planting Material Act (prom. SG.

issue 20/04.03.2003) and Ordinance No. 95 of 04.08.2006 on trading of vine planting material.

The diseases in Bulgaria object of obligatory sanitary selection are *Grapevine fanleaf virus* (GFLV), *Arabis mosaic virus* (ArMV); *Grapevine leafroll virus* (GLRaV), complex of rugose wood (GVA and GVB); *Grapevine fleck virus* (GFkV); crown gall *Agrobacterium* spp. and dead-arm *Phomopsis viticola*. Of the viruses investigated in Bulgaria GFkV, the causative agent of fleck disease has relatively the highest level of incidence (24.8 %) (Genov *et al.*, 2009; Kamenova *et al.*, 2007). The high rate of its distribution is caused by the latent course of the disease in the European and some American grape varieties. Furthermore GFkV was not until recently included in the list of viruses for which laboratory diagnostic methods were applied due to its identification at a later stage and respectively obtaining of antibodies for diagnostics (Boscia *et al.*, 1994). In accordance with Directive 2005/43/EC and Ordinance 95 it is obligatory only the rootstocks to be tested for GFkV as that is a precondition for its further development with the propagation material. Second in distribution is GLRaV-3 (13.83 %) (Genov *et al.*, 2009). The most severely infected are Druzhiba, Storgozia and Rubin varieties due to the fact that they do not show the symptoms typical for the disease. Smaller share belongs to GLRaV-1 (2.64%) and GFLV (1.45%), while *Arabis mosaic virus* - ArMV was not found in any of the tested vines. GVA (3.23%) was distributed mainly in mixed infections with GLRaV and GFkV.

Phytoplasmas are bacteria belonging to domain *Procariota*; branch *Tenericutes*; class *Mollicutes*; order *Acholeplasmatales*, family *Acholeplasmataceae*; genus: '*Candidatus Phytoplasma*' (IRPCM, 2004). Phytoplasmas are localized in the phloem plant tissue and are carried by insects sucking juice. Vine diseases caused by phytoplasmas are a complex disease generally called Grapevine yellows. They are associated with genetically different phytoplasmas of which the most important are *Flavescence dorée* and *Bois noir*.

*Flavescence dorée* (FD) is the most important and devastating phytoplasma vine disease. When the vector is not controlled, the number of infected vines can reach 80-100% for several years (Smith *et al.*, 1997). In France and Corsica large areas have been affected and that process is still ongoing, in spite of the mandatory measures for uprooting the diseased vines and vector control using insecticides (Smith *et al.*, 1997; Steffek *et al.*, 2007). In the area of Aleksandrovac, Serbia more than 800 ha of vineyards were affected and eradicated. Losses on investments reached 3.2 million Euro. The lost profits of the producers from the reduced quantities of wine were much more (Steffek *et al.*, 2007)

The causative agent of *Bois noir* (BN) belongs to 16SrXII-A subgroup of stolbur. Phytoplasmas from this subgroup attack a wide range of hosts, such as vegetables, tomatoes, potatoes, carrots; field crops - beet and some weeds. Bindweed (*Convolvulus arvensis* L.) and nettle (*Urtica dioica* L.) are considered the main reservoir of infection in vineyards. BN has another vector, cicada *Hyalesthes obsoletus*. This insect is polyphagous and prefers grassy weeds more than vine. *H. obsoletus* hibernates in the nymph stage and only perennial plant species can serve as hosts. However, adults can be found on many other plant species. The most important hosts are bindweed and nettle. Bindweed is an important reservoir of BN in Europe. Since the vector feeds incidentally on vine, BN spreads more slowly than FD.

From vine yellows in Bulgaria so far only Bois noir (BN) has been found (Avramov *et al.*, 2008; EPPO, 2006; Genov, 2012a; Sakaliev *et al.*, 2007), while the causative agent '*Ca. Phytoplasma solani*' was reported also for blackberry (*Rubus fruticosus*) and maize (*Zea mays* L.) (Bobev *et al.*, 2013; Genov *et al.*, 2014). *H. obsoletus* and *Reptalus* spp. are found in Bulgaria as vectors of BN on vine (Avramov *et al.*, 2011). So far FD has not been established, but the presence of its vector - the cicada *Scaphoideus titanus* Ball was registered (Avramov *et al.*, 2011). Furthermore, FD and its vector are available in close proximity to Bulgaria, in Serbia at least since 2003 (Duduk *et al.*, 2003; Duduk *et al.*, 2004; Magud and Tosevski,

2004), where it caused serious damage to wine producers. There is real risk of FD incidence in Bulgaria, causing epidemics in vineyards.

Crown gall causes huge damages to viticulture worldwide, as its incidence is the greatest in areas characterized by unfavorable climatic conditions for vine in the winter-spring period. The disease has been reported from Europe, North and South America, the Middle East, Australia, South Africa, Japan and China. In our country, the disease is spread in all viticultural regions (Genov, 2012). Following the wide development of the disease during the period 1966 - 1975 the dying of 4600 ha of fruit-bearing vineyards has been registered (Malenin, 1996). The minimum negative temperatures during the months of February, March and April are of utmost importance for the crown gall development Bulgaria. The amount of rainfall, temperature and relative humidity, have the strongest effect in May and June (Genov, 2007). There are no officially registered chemicals for control as the systemic survival of the agent in the vine conductive system limits their application. The preparations used in the past based on dinitro-orto-crezol (DNOC) are currently prohibited due to their high toxicity, but they have effect only on tumors and do not kill the bacteria in vines.

Measures to control crown gall are especially important in farms for the production of vine propagation material. In this connection, to the methodology for individual clonal selection in vine and the first scheme for obtaining sanitary healthy vine seedlings (Ivanov *et al.*, 1972), including initially only economically important viral diseases at a later stage crown gall and excoresis were added (Abrasheva *et al.*, 1993; Abrasheva *et al.*, 2004).

For the control of systemic diseases, the methods and means for diagnosing and identifying the causative agents, including visual, microbiological, serological and molecular, as well as the time of their application are essential (Genov *et al.*, 2009).

**The second group** of diseases has a seasonal nature and develops only during the vegetation of the vine. The most common causative agents are fungi and mainly affect the green parts of the grapevine. Diseases in this group can be severely damaging and destroy up to 100% grape harvest. The control of these diseases is also a preventive one, and following 2014, compliance with the general principles of integrated pest management for crops (Directive 2009/128 / EC and Regulation (EC) No 1107/2009) is mandatory. The General Principles of Integrated Pest Management and the National Action Plan for Sustainable Use of Pesticides are regulated by the Law on Plant Protection, prom. It is foreseen to result in a more targeted use of all available pest control measures, including pesticides, and to contribute to reducing the risks to human health and the environment and dependence on pesticide use.

**The mildew** (*Plasmopara viticola*) was carried from America to Europe in 1878, and was first established in Bulgaria in 1895 (Harizanov *et al.*, 1980). It attacks all the green parts of the vine. Winters in the old leaves, which, when there is a drop of water and an air temperature above 11 ° C, carry out the first infections, forming sporangia with zoospores. In rainy weather, the zoospores infect the growing green parts of the vine. The mildew causes direct damage to grape yield and quality, as well as indirect damages, causing premature fall of the leaf, which increases the sensitivity to low winter temperatures.



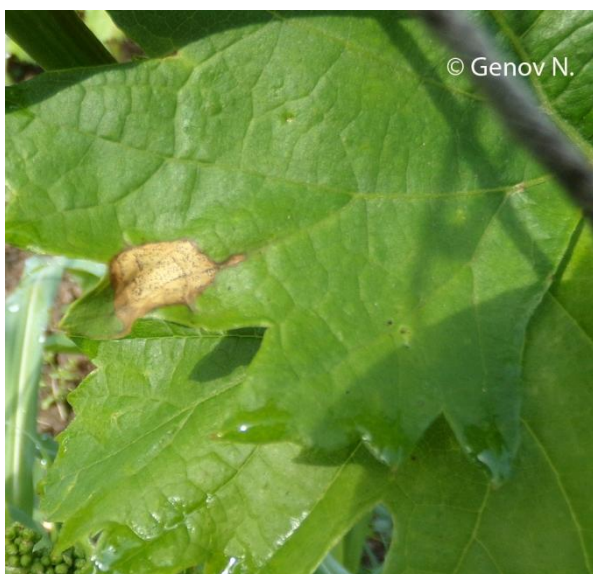
**Powdery mildew** (*Erhysiphe necator* c. f. *Oidium tuckery*), also known as oidium, was first reported in Bulgaria by Kostov in 1900 (Harizanov et al., 1980). It attacks all green parts (leaves, grapes, different parts of the flower and shoots), but the strongest are the damage to the grapes, which are covered with gray white batter, and the nipples are gripped and the seeds are exposed. At first, it appears as a whitish puddle on the listed parts, which have the appearance of ash-sprinkled ash, which in the past is called "ash" (Harizanov et al., 1980). The mushroom is wintering in fruit bodies, but most authors consider that the main source for primary infections in the spring is the wintering mycelium shoots in the buds. Once the primary infections have occurred, the fungus does not need free water for secondary contamination through conidiophores. Grapes are highly susceptible to the disease three to four weeks after flowering. Early infection can result in a smaller grain size and a reduction in sugar content.



**Gray mould** of grapes is caused by *Botrytis cinerea*. This fungus is common in nature and attacks different cultures of phylogenetically remote plant species. The most common and destructive phase of the disease is the infestation of the ripening clusters. Infected berries first become soft and watery. Berries of white varieties become brown and wrinkled, and the black varieties become reddish in color. At high relative humidity, the affected grapes are covered

with a gray mould from the fungus mycelium. The dead berries are wrinkled, mummified and dropped on the soil. The fungus is wintering in mummified berries, dead tissues and other organic residues in vineyards, as well as in many alternative hosts. In spring, the fungus develops from small, dark, rigid structures (sclerotia). Then the fungus forms conidiospores that spread throughout the growing season. When flowering ends, the fungus infects the dead parts of the inflorescence. Falling into the berries, the fungus can remain at rest until the content of fruit sugar increases and the acids are reduced to levels that ensure its growth. Grapes that avoid contamination during flowering can be infected around and during grape harvest in the presence of favorable environment conditions. Any injury to the berries mostly from hail, birds, insects, powdery mildew can provide an opportunity for contamination, even in the absence of appropriate conditions.

**Black rot** until recently was considered almost unknown vine disease in Bulgaria. It was brought to Europe from North America. In 1885 it was observed in France by Viala and Ravaz, who reported it for the first time in phytopathological literature. This was the most spread and harmful disease in the humid regions of the southern states and along the Gulf of Mexico (Brown, 1956 acc. to Vanev 1963). Later, the disease was found in Italy, Russia, Georgia, Azerbaijan, Ukraine and others. In countries where black rot is an economically important disease (USA, Canada, etc.) the pathogen is considered to be the fungus *Guignardia bidwellii* (Ellis) Viala & Ravaz with anamorphic *Phyllosticta ampellicida* (Englem.) Van Der Aa) = *Phoma uvicola* (Viala et Rawaz). *G. bidwellii* is [ascomycetous fungus](#), forming pseudocetes with cylindrical or club-shaped ascus containing 8 unicellular hyaline (transparent) ascospores (Vanev, 1963; Harizanov et al., 2009). Margaritov (1960) found black rot on vine leaves, shoots and berries in Pomorie region. At the same time the disease was found on ripened berries of Bolgar variety in the region of Pleven. In 1961, limited manifestations of black rot were observed in Pleven, Ruse, Plovdiv and Vidin districts (Vanev, 1963). Vanev isolated the fungus *Phoma uvicola* (Viala et Rawaz): the isolated sample had black, spherical or slightly flattened pycnidia, 100 to 198 µm in diameter. They had a circular ostiole from which an exudate of picnisporae leaked out. Exposed to air the exudate dried out in the form of yellowish ribbons releasing the picnisporae in water. The size of the spores varied between 5 and 11.5 µm in length and 3.1 to 5 µm in width. There is morphological diversity of spores - with rounded corners and sharp at both ends. In our country the pathogen overwinters in the infested parts as pycnidia. According to Vanev (1963; 1995) the superior form *Guignardia bidwellii* has not been detected in Bulgaria.



In Bulgaria until recently there were no registered licensed plant protection products against black rot. The main practices used were aimed at reducing the size of infection, namely: collection and destroying of all infected parts, spring plowing of attacked vineyards, pruning of infested shoots at rest and their destruction (Kostadinova and Lyubenova, 2011). In France and Switzerland plant protection products (PPP) with active substances from different groups are applied for the disease control: Strobilurin (trifloxystrobin + tebuconazole); DMI fungicides (tebuconazole, myclobutanil, flusilazole, penconazole); Dithiocarbamates (metiram, mancozeb) (Kostadinova and Lyubenova, 2011; Malenin 2003).

**Vine pests**, depending on the degree of infestation, can cause serious damage to the foliage and the grape harvest, which in most cases affect adversely vines resistance to low temperatures and some diseases. The most important economically insects are controlled annually, but together with them there are less familiar pests, that require researches on their phenological development and working out a system for their control (Lyubenova et al. 2015).

Several in-depth researches have been carried out on the problem of the protection of vines from pests in Bulgaria. The biology, ecology, the influence of the abiotic factors on the multiplication of a large number of enemies on the vine, their preference for different varieties were studied. Economic loss thresholds (AEIs) for different enemies are defined. The advantages of integrated struggle that preserves the biological equilibrium of vineyards and preserve production and the environment from pollution are established. A large number of chemical preparations from different pest control groups have been registered. Some of them are toxic to beneficial insects and mites, and some have been showing insufficient efficacy over the years (Lyubenova et al., 2015).

Among the **abiotic factors**, late spring frosts, summer droughts combined with high temperatures and hailstorms are the greatest threat to the grape harvest.

### **3. VITICULTURE AND WINEMAKING IN THE HASKOVO AND KARDZHALI DISTRICTS**

#### **3.1. Varietal potential of the territory**

Because of its ecological plasticity and high quality of the fruit, the vine is the most widespread culture in the world. For thousands of years, a man has been conscious of the plants that have provided him with food for his livelihood, thus choosing thousands of forms and varieties distinguished by morphological or economic qualities. As a result of the development of humanity, the team of vine grape varieties from their natural habitats and their propagation and distribution, a large number of varieties are grown today, the main set of which is country-specific. Most of these varieties have a limited distribution, but there are also those which, due to their valuable economic qualities and high adaptability, are widely distributed and are grown in many areas of the country.

The variety in modern viticulture is one of the most important factors determining the quality of grapes and wine (Simeonov, 2014). The main wine varieties in Bulgaria have high technological indicators, which do not appear in all wine-growing regions. The quality of the produce of each variety strongly depends on the soil-climatic conditions in the micro-region of its cultivation. Local varieties must also be propagated in the most appropriate terrains, corresponding to their specific ampelographic features.

On the basis of the multi-year studies of the complex of natural conditions, agrobiological properties and technological qualities of varieties of vines and the accumulated experience in grape production and its processing in wine, four wine regions are outlined: North Bulgarian, East Bulgarian, South Bulgaria and Southwest (Stoev *etc.* 1960, Katerov *et al.*, 1990, Roychev, 2012).

All areas of the Dionysos project are located in the South-Bulgarian wine-growing region.

The south-Bulgarian wine-growing region to the north is limited by the Balkan Mountains, to the west and southwest of the Rhodopes, to the south of Sakar and to the east of the Strandzha and Bakadzhik hills, covering the Thracian Lowlands and the Sub-Balkan Valley. Here the climate is continental. The natural conditions in the southern region determine the specialization of viticulture in the wine production line, designed for quality and table red dry wines, as well as for the production of table grapes. In individual micro-regions there are conditions for the production of quality white wines and wines with a protected designation of origin.

On the basis of the temperature conditions, each of the wine-growing regions is divided into three sub-regions, on which the characteristics of the climatic and soil conditions and the directions of the viticulture with the respective variety composition have been prepared.

**The first subregion** covers the warmest places with a total temperature sum in the vegetation period from 3700° C to over 4000° C. In southern Bulgaria the subregion covers the hilly, sloping terrain of almost the entire Thracian valley from the valley of the Tundja to the west to the slopes of Sredna Gora - Septemvri and Karabunar and to the south of the slopes of Sredna Gora along the Brezovo line, the village of Bratya Daskalovi, Stara Zagora, Sliven, Straldzha to the northern slopes of the Rhodopes (including) along the line of Patalenitsa, Perushtitsa, Kuklen, Asenovgrad and Harmanliyka River to Svilengrad. This includes the valley of Arda from Kardzhali to Ivaylovgrad.

There are five wine-growing areas in this sub-region: dessert grape production with early, mid-ripe and late dessert varieties and wine varieties for red table wines. The main varieties for red wines are Cabernet Sauvignon and Merlot. From local varieties for red wines are grown Pamid, Mavrud (around Asenovgrad) and Petrich region - Shiroka melnishka loza.

**A second subregion** has a total temperature sum of 3500 ° C to 3700 ° C, which in some places drops to 3400 ° C. In southern Bulgaria, the second sub-region covers the Karnobat microregion - the slopes of the Bakadjik hills - Straldzha, Sungurlar Valley, the Balkan valley (to Kazanlak), the Karlovo region, the southern slopes of Sredna Gora - Brezovsko- Zelenikov Mikroraion and the region of Hissar, Starosel, Krasново. The main direction of winemaking is the cultivation of wine varieties for quality and table white wines and sparkling wines. In the warmer micro-regions of this sub-region, relatively more early red wine varieties and medium ripening dessert varieties can be grown for later dessert grape production - mainly Bolgar. Mainly the local varieties are Misket red, Dimyat and Tamyanka. To this sub-region belongs the micro-region of the villages of Kalugerovo, Vinogradets and Tserovo (with the main variety Pamid) and the northern slopes of the Rhodopes - Radilovo, Bratsigovo, Peshtera, Iskra and Topolovo (Plovdiv region).

**A third subregion** with a total temperature of 3100 ° C to 3500 ° C covers narrow stripes and half-mountainous places on the southern and northern slopes of Stara Planina and Sredna Gora, the northern slopes of the Rhodope Mountains, the slopes of Iskar Gorge, Mesta River valley, Kyustendil Plain, Dobrudja and Ludogorie. The main direction of this sub-region is the cultivation of varieties to satisfy local needs. In the warmer places, a larger vineyard with varieties for the production of quality white table wines and sparkling wines from western European and our newly established varieties of vines with a shorter vegetation period can be developed.

In the past, a limited range of dessert and wine varieties of varieties with a different production line have been grown and cultivated in the South Bohemian wine-growing region. Of the local varieties, the most popular are the white varieties Dimyat, Misket red, Tamyanka, Vinenka, Kokorko, Misket vrachanski and Marash white; the red wine varieties Gamza,

Mavrud, Pamid, Shevka, Zarchin, Marash red and Shiroka melnishka loza and the dessert Chauş and Bolgar. Among the introduced varieties are mainly the varieties of Cabernet Sauvignon, Syrah, Gamay noir, Grand Noir, Pinot Gris, Alicante Bouschet, Muskat Ottonel, Aligote, Rkatsiteli and table grapes varieties Italy, Muscat de Hamburg, Queen of the vineyards, Chasselas, HarsLevelue and Pearl de Csaba.

In the last 10-15 years there has been a trend of certain changes in the structure of the dessert and wine vine varieties covered in the South Bohemian wine region. The extremely favorable soil and climatic conditions of this region on the one hand, the access to European pre-accession and then structural and thematic funds from the second country and the desire of the wine-producing companies in Bulgaria to change and diversify their production as a style, organoleptic characteristics and third- to the creation of many new plantings with varied varieties of origin and destination. The valuable local varieties of Misket red, Dimyat, Tamyanka, Mavrud, Pamid and Shiroka Melnishka loza are preserved and a number of reputed foreign high quality varieties of Cabernet Sauvignon, Merlot, Syrah, Cabernet Franc, Pinot Noir, Kot, Sangiovese, Marcelan, Carmen, Murveder, Dornfelder, Grenache, Riesling italian, Chardonnay, Viognier, Sémillon, Traminer and the varieties of Victoria, Cardinal, Palieri 5 and others. Many valuable varieties - Bulgarian selection - Rubin, Bouquet, Melnik 55 (Early Melnishka loza), Drujba, Naslada, Misket kailashki, Velika etc. have been planted in many micro-regions and the quality of the grapes and the wine is closely approximated to the standards in the respective direction of production. This pronounced trend is based on several main guiding principles:

- despite the fact that wine production is quite conservative and jealously guarding its traditions, there are new wine styles on the world wine markets, mostly based on their naturalness, preserved and emphasized fruit aromas, soft and harmonious tastes consumed as young or moderate aged up to 1 year of production. This is a trend imposed by the New World countries - Chile, Argentina, Australia, New Zealand. The new style relies primarily on the characteristics of the raw material and the technology is called upon to preserve and highlight what is the result of the generous nature of the southern hemisphere and the specifics of the variety. Old Europe still has a conservative approach, relying heavily on the development of wine, the transformation of grape matter, aging in a barrel and a bottle.

- economic realities tolerate rapid realization, often within a few months, without long aging, under which conditions these varieties have an advantage, which mostly concerns most Bulgarian local varieties.

- the wine market in Bulgaria under international agreements is open to foreign wines and already feels pressure from them.

The new times and the changing demands of the market have radically changed the attitude of producers and consumers towards Bulgarian varieties. More and more wine practitioners are aware of exactly what the feeling is that the wine originates and has fully revealed the potential of Bulgarian varieties. The struggle of wineries to validate the wine map and to dominate the market has led many world critics to show what we lack as Bulgarians and as winemakers - self-esteem, self-esteem and respect for local varieties. Every foreigner who has come to our country wants to touch the Bulgarian, to everything that distinguishes us from other peoples - cuisine, folklore, history, traditions, wines. It is very difficult, however, to respect the varieties that are not nearly grown in the wineries of the wineries and those that they do not process. Aliens openly show their respect for Bulgarian varieties, considering their huge potential before the Bulgarians themselves.

Bulgaria has exceptionally good wines, enough capable and knowledgeable oenologists, wonderful vineyards and cellars and a wonderful attitude to wine. Bulgarian wineries need less self-confidence and more respect for Bulgarian varieties, because they are a national value. In the context of these trends and guidelines, the production of local varieties

of wine will allow Bulgaria to be competitive on the market by offering products with specific and unique organoleptic potential.

### **3.2. Potential for the production of wines with geographical indications - Protected Geographical Indications (PGI) and Protected Designations of Origin (PDO). Review of the regulatory framework**

According to the normative regulation in force at present in our country, the wines produced are classified as (Law on Wine and Spirits, Art 35-40):

1. PDO (Protected Designation of Origin) wines - produced in a defined geographical area, micro-region or locality and whose quality characteristics are mainly determined by the specific geographical environment and the inherent natural and human factors. The grapes originate entirely from the production area.

2. PGI (Protected Geographical Indication) wines - the name of the area of production is used to indicate the wine, with at least 85% of the grapes from which the wine is produced originates in the specified region.

3. Varietal wines without PDO / PGI - shall be based on the name of the vine variety and / or the vintage year. Offering them on the market requires registration of the producers and obtaining a production certificate.

4. Wines without PDO / PGI - All other wines other than those listed above.

#### **A) Wine with a protected geographical indication (PGI)**

The Bulgarian wine names with a protected geographical indication registered in the European Union are two: **PGI “Danube Plain”** and **PGI “Thracian Valley”**. The areas covered by this study fall within the second geographical indication. According to the approved specification, suitable for the production of wine with PGI “Thracian Valley” are the areas of the municipalities of Dimitrovgrad, Harmanli, Haskovo, Ivaylovgrad, Lyubimets, Madjarovo, Mineralni bani, Simeonovgrad, Stambolovo, Svilengrad, Topolovgrad from Haskovo district and the municipalities Ardino (without the territories of the villages of Ahryansko, Byal izvor, Gurbishte, Dyadovtsi, Enyovche, Jultushha, Kroyachevo, Lenishte, Mak, Mlechino, Padina, Pravdolyub, Rhodopsko, Svetulka, Sedlartsi, Sinchets, Sarnsko, Temenuga, Turnoslivka, Chubrika, Yabulkovets), Dzhebel (without the territories of villages Kontil, Lebed and Pripek), Kirkovo (without the territories of the villages Lozengradci, Strijba and Tihomir), Krumovgrad (excluding the territory of the village of Chernichevo), Kardzhali, Momchilgrad and Chernoochene.

The wine grapes varieties which are allowed to produce wine with PGI “Thracian Valley” are:

- for production of white wine – *introduced varieties* - Muscat Ottonel, Chardonnay Blanc, Sauvignon blanc, Traminer Rot, Riesling Weiss, Pinot gris, Ugni blanc (Trebbiano), Riesling, Rkatsiteli, Aligote, Viognier, Semillon, Sylvaner, Furmint, Harsh Lavelius, Gewürztraminer, Colombard;

- *local wine grapes varieties* – Dimyat, Misket cherven, Misket vrachanski, Kerazuda, Kokorko;

*varieties, selected in Bulgaria* – Kamchia, Misket varnenski, Riesling bulgarski, Misket markovski, Misket sandanski, Misket sungurlarski, Chernomorski brilyant, Chernomorski eleksir, Aheloy, Orpheus, Sungurlarski biser, Pomoriyski biser.

- for red wine and rosé - introduced: Cabernet Sauvignon, Cabernet franc, Merlot, Pinot noir, Gamme noir, Syrah, Grenache, Gamelo fréo, Alicante bouschet, Petit verdot, Caladoc, Carmenere, Marcellan, Murveder, Malbec, Tempranillo, Dornfelder and Regent;

- local varieties: Gamza, Mavrud, Shiroka Melnishka vine (Broad Melnik Vine), Pamid, Shevka;

- varieties selected in Bulgaria: Bouquet, Rubin, Evmolpia, Trakiiska slava (Thracian glory), Septemvriiski rubin (September ruby), Early Melnishka vine, Melnishki rubin, Melnik Jubileen 1300, Melnik 82, Plovdivska Malaga, Hebros, Kuklenski Mavrud.

The maximum allowable yield is set at 13 000 kg / ha and the maximum yield of 100 kg of grapes is 70 liters.

The wine characteristics described in the specification are as follows:

☐ *White wines* - rich golden color with greenish tones; intense and multi-layered aroma; volumen, balanced, harmonious rich taste with a pronounced fruity character.

☐ *Rosé* - strong fruity aroma with accents of forest strawberry and cherry.

☐ *Red wines* - dark ruby shining color with garnet glow; aroma with characteristic strong fruity notes with discrete accents of red peppers, spices and chocolate; solid taste with well-balanced tannins.

Wines are produced using traditional white and red wine technology and can be labeled with the following traditional names, indicating the way of production, aging and quality: “Novo”, “Premium”, “Premium Reserve”, “Reserve”.

### **B) Wine with a protected designation of origin (PDO)**

Bulgaria maintains a total of 52 designations of origin for wine protected in the EU in accordance with Regulation (EC) №1308 / 2013, five of which fall within the territory of Haskovo District.

PDO wines produced in outlined five micro-region located on the territory of Haskovo region, can be marked with the following traditional names indicating ways of winemaking, aging and quality: “New”, “Premium oak” or “First boot in Barrel”, “Reserve”, “Special Reserve”, “Collectible”, “Rosenthaler”.

#### ➤ Wine with protected designation of origin “Haskovo” (PDO “Haskovo”)

The production area covers the lands of the settlements: Orlovo village, Polyanovo village, Dolno Voyvodino village, Tsareva poliana village, Tankovo village, Susam village, Bolyarovo village, Vaglarovo village, Mandra village, Kozlets village, Krivo pole, Elena, Uzundzha village, Harmanli village, Chernodub village, Sva reka village, Matochina village, Mladinovo village, Shtip village, town of Svilengrad.

Authorized wine grape varieties for production of PDO “Haskovo” are:

- for white wines - the local varieties Dimyat and Tamyanka;

- for red wines and rosé - the introduced varieties Cabernet Sauvignon, Merlot and Syrah and the local variety Pamid. The maximum allowable grape yield fixed in the specification for the production of wine with PDO "Haskovo" is 9000 kg / ha. The maximum yield of wine of 100 kg of grape is 65 liters for red wines and 60 liters for white wines, rosé and wines of the Pamid variety.

The specific agrotechnics of vineyards includes:

- formation - Umbrella, Moser, middle-length two-armed cordon;

- pruning - mixed and short with a load of 54 eyes per vine;

- planting distances - from 2.0 m to 3.4 m between line spacing and from 1.0 to 1.5 m in the inter-row distance - up to 4500 vines per hectare.

#### ➤ Wine with protected designation of origin “Sakar” (PDO “Sakar”)

The outlined area of production covers the territory of the settlements Dimitrovche, Momkovo, Mustrak, Svilengrad and Mezek.

The authorized wine varieties for the production of PDO "Sakar" PDO are:

- white wines -: the introduced Sauvignon Blanc, Chardonnay and Viognier;

- red wines and rosé - the introduced Merlot, Cabernet Sauvignon, Cabernet Franc, Syrah and Malbec and the *local variety Mavrud*.

The maximum allowable yield of grapes is 9000 kg / ha, and the maximum yield of wine from grapes 100 kg of 65 l for red wine and 60 l for white wines and rosé wines.

The specific agrotechnics of vineyards includes:

- formation - Umbrella, Moser, middle-length two-armed cordon;

- pruning - mixed and short with a load of 54 eyes per vine;

- planting distances - from 2.0 m to 3.4 m between line spacing and from 1.0 to 1.5 m in the inter-row distance - up to 4500 vines per hectare.

The wine from a local variety Mavrud “Sakar PDO” produced in the region, have a rich dark garnet flavor of smoky skin, toasted bread and black fruit, flavor with notes of pepper, meat and sweet spices, soft tannins with a chocolate flavor.

➤ Wine with protected designation of origin “Lyubimets” (PDO “Lyubimets”)

The area for wine production with PDO “Lyubimets” covers the territory of the settlements Belitsa, Georgi Dobrev, Kolarovo, Levka, Lozen, Malko gradishte, Mustrak, Oreshets, Lozenets, Oryahovo, Branitsa, Bulgarin, Dositeevo, Shishmanovo, Kapitan Petko voyvoda, Ovcharovo.

Permitted wine varieties are:

- for the production of white wines - Chardonnay, Traminer, Sauvignon Blanc, Muscat Ottonel and the *local variety Tamianka*;

- for the production of red wines and rosé - the introduced varieties Cabernet Sauvignon, Merlot, Syrah, Cabernet Franc, Pinot Noir, and Petit Verdot and *local varieties, incl. varieties of Bulgarian selection Pamid, Mavrud, Shiroka Melnishka loza, Evmolpia, Thracian glory, Rubin, Ranna Melnishka loza, Melnishki Rubin*.

The maximum allowable grape yield fixed in the PDO "Lyubimets" PDO is 9000 kg / ha. The maximum yield of wine from grapes 100 kg of 65 l for red wine and 60 l for white wine, rosé wines and the variety Pamid.

Applicable agrotechnics of vineyards includes:

- Formation - Umbrella, Moser, Gyuyo, middle-length two-armed cordon;

- Pruning - mixed and short with a load of 54 eyes per vine;

- Planting distances - from 2.0 m to 3.4 m between line spacing and from 1.0 to 1.5 m in the inter-row distance - up to 5000 vines per hectare.

Distinctive for the region are the wines produced from local and selected varieties, which have the following organoleptic characteristics:

- white wines of the local Tamyanka variety - straw-yellow color with a greenish tint; aroma of ripe white fruits; fresh, full-bodied and balanced flavor with a pleasant aftertaste.

- red wines of *local varieties*:

**Pamid** - light red color; aroma of well-ripened grapes with fruity notes; well-balanced soft and smooth taste.

**Mavrud** - dark ruby color; fruity aroma of cherry with accents of marzipan and coffee; tender and sweet body with soft freshness, a harmonious and spicy finish of spices.

**Shiroka Melnishka loza** (Broad Melnik Vine) - ruby-red color with garnet shades; aroma of wild strawberries, mature cherry, spicy spices and notes of tobacco; soft and fruity flavor with spicy spices at the finish.

- red wines from *selected varieties*:

**Evmolpia** - ruby red color; flavor, which are interwoven notes of tobacco, autumn leaves and nuts; soft taste with pleasant freshness.

**Trakiiska slava** (Thracian glory) - ruby color; fruity aroma with accents of black berries and plum; dense and mild taste.

**Rubin** (Ruby) - dark red color; multi-layered aroma with notes of black ripe fruit, vanilla and leather; very well structured body.

**Ranna Melnishka loza** (Early Melnishka vine) - ruby red color; a specific and rich fruity aroma, dominated by a mature cherry with tobacco notes; soft taste. When aged in oak barrels, are achieved finished and balanced wine, soft tannins and velvety flavor, with notes of vanilla and chocolate.

**Melnishki Rubin** - dark ruby color; multi-layered aroma dominated by red berries, mulberry, mature cherry with tons of spices and a hint of tobacco; juicy fruity taste with a touch of red fruit and spicy spices.

➤ Wine with protected designation of origin "Stambolovo" (PDO "Stambolovo")

Areas of production are the lands of the villages Gledka, Tsareva poliana, Kralevo, Stambolovo, Malak izvor, Golyam izvor, Tankovo, Zimovina and Lyaskovets.

Authorized for the production of white wines with PDO "Stambolovo" is only the local wine variety Tamyanka. Red wines are allowed to be produced from the introduced varieties of Cabernet Sauvignon and Merlot and from the local variety Pamid.

The maximum allowable grape yield fixed in the specification for the production of wine with PDO "Stambolovo" is 9000 kg / ha. The maximum yield of wine of 100 kg of grape is 65 liters for red wines and 60 liters for white wines, rosé and wines of the Pamid variety.

Applicable agrotechnics of vineyards includes:

- Formation - Umbrella, Moser, middle-length two-armed cordon;
- Pruning - mixed and short with a load of 54 eyes per vine;
- Planting distances - from 2.0 m to 3.4 m between line spacing and from 1.0 to 1.5 m in the inter-row distance - up to 5000 vines per hectare.

The white wines of the local variety Tamianka variety are characterized by a straw-yellow color with a greenish tinge, a fine musky aroma with shades of white fruit, citrus and flowers, and the taste of the wine is balanced and dense.

Red wines of variety Pamid with PDO "Stambolovo" are distinguished by a light red color, aroma of ripe red fruits, light and pleasant taste.

➤ Wine with protected designation of origin "Ivaylovgrad" (PDO "Ivaylovgrad")

Area for the production of wine with PDO "Ivailovgrad" cover the town of Ivaylovgrad, the village of Sviraci, the village of Drabishna, the village of Slaveevo, the village of Belopolyane.

Permitted varieties for the production of wine with PDO "Ivaylovgrad" are:

- for white wines: the local variety Tamyanka variety and the introduced Chardonnay and Traminer.

- for red wines - introduced varieties Cabernet Sauvignon, Merlot, Pinot Noir, Syrah and Alicante Bouschet.

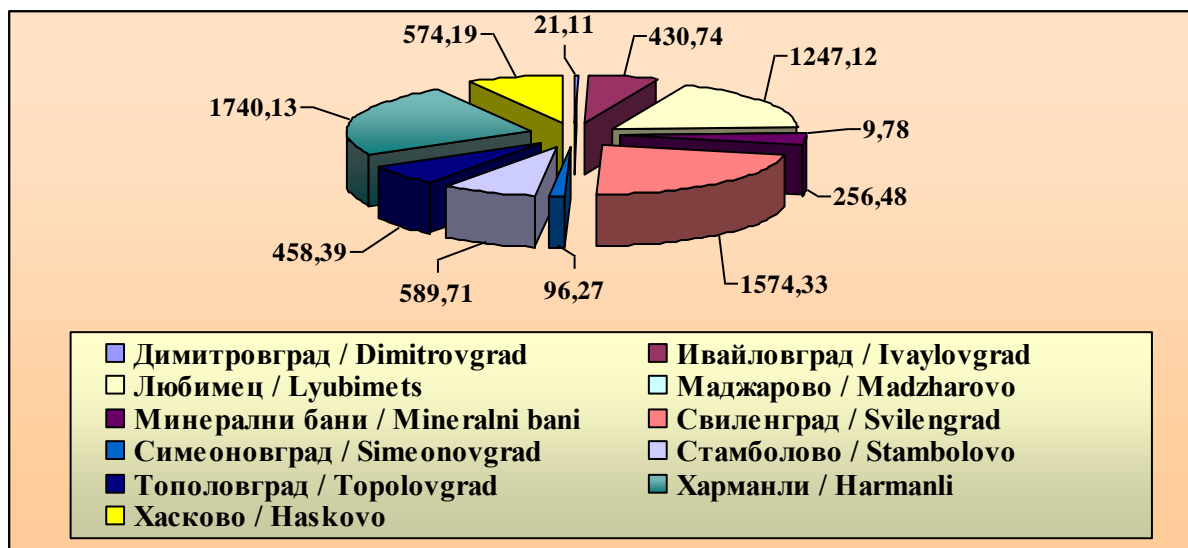
The maximum allowable grape yield fixed in the specification for the production of wine with PDO "Ivailovgrad" is 9000 kg / ha. The maximum yield of wine of 100 kg of grape is 65 liters for red wines and 60 liters for white wines, rosé and wines of the Pamid variety.

Applicable agrotechnics of vineyards includes:

- Formation - Umbrella, Moser, middle-length two-armed cordon;
- Pruning - mixed and short with a load of 54 eyes per vine;
- Planting distances - from 2.0 m to 3.4 m between line spacing and from 1.0 to 1.5 m in the inter-row distance - up to 4500 vines per hectare.

### 3.3. Areas and production of grapes and wine

According to the official data of the Executive Agency on Vine and Wine, the total area of vines with wine varieties in the territory of Haskovo and Kardzhali districts in 2016 amounts to 7,134 ha.

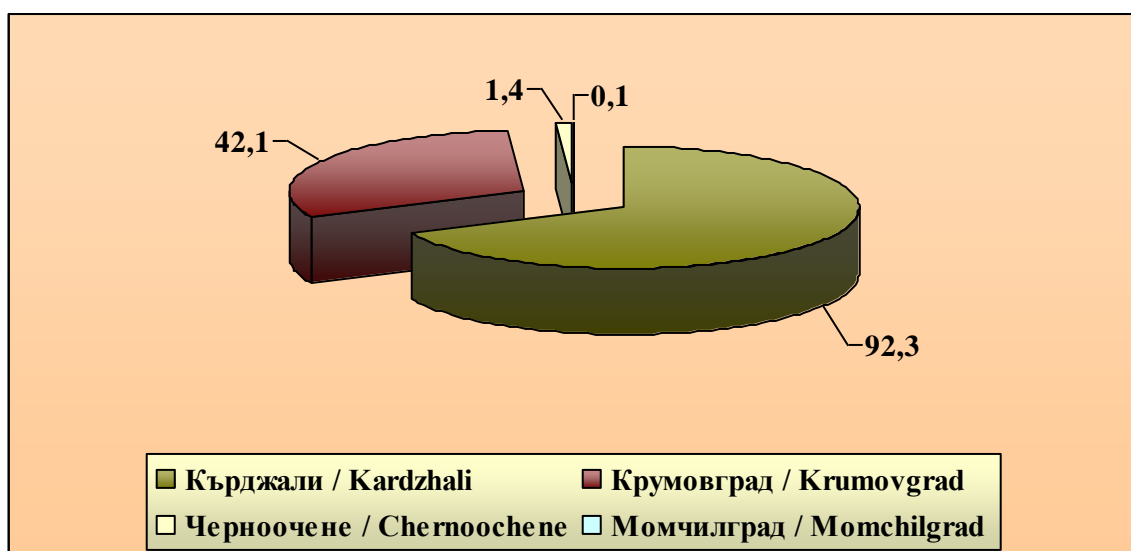


Source: Executive Agency on Vine and Wine, 2016

**Figure 6: Area of vineyards with wine grapes varieties in Haskovo district by municipalities in 2016, ha**

The predominant part of the vineyards is concentrated in Haskovo region - 6,998.24 ha. There is an increase of the area compared to 2015 with 112.24 ha, which is indicative of the presence of investment activity in the sector.

From the data illustrated in fig. 6 it is evident that the share of vineyard areas in the municipality of Harmanli is the largest – 24,9% of the total area of the plantations in Haskovo district, followed by Svilengrad municipality – 22,5% and the municipality of Lyubimets - 17,8%. On the other municipalities with a significant amount of area under vines are Municipality Stambolovo – 589,7 ha; Haskovo district – 574,2 ha; Municipality Topolovgrad – 458,4 ha; Ivaylovgrad Municipality – 430,7 ha; and Municipality of Haskovski Mineralni Bani – 256,5 ha.



Source: Executive Agency on Vine and Wine, 2016

**Figure 7: Area of wine grapes varieties in the municipality of Kardzhali by municipalities in 2016, ha**

The size of the areas planted with wine vineyards in the territory of Kardzhali region is considerably smaller – 135,8 ha, which stems both from the specifics of the soil and climatic conditions of the region, as well as from the traditions of tobacco production - a major occupation for a large part of the population in the region. The vineyards with wine varieties are located mainly in two municipalities - Kardzhali (92,3 ha or 68,0% of the area of the vineyards in the area) and Krumovgrad (42,1 ha which representing 31,0% of the total area). Very small is the size of the vineyard areas in the municipalities of Chernoochene and Momchilgrad, respectively 1,4 ha and 0,05 ha (Figure 7).

According to information submitted by declarations in EAVW of produced grapes in 2016, in the Haskovo district produced 18 513.4 tons of wine grapes. In the structure of production predominant share occupies the grapes of red wine varieties - 11 648,7 tons (62,9% of the total production). Produced grapes of white wine varieties amounted to 6 864,7 tonnes (37,1%).

In the structure of production of white wine grapes largest share belonged to the introduced varieties Chardonnay and Sauvignon Blanc, respectively 43,0% and 17,2% of the total production (Table 8).

The grapes produced by local varieties - Misket red, Dimyat and Tamianka are 805.1 tons in total and represent 11.7% of the total white wine grapes. The greatest amount of variety Muscat red - 410.7 tons, at least Tamianka variety - 102.3 tons.

In structural terms, the production of red wine grapes is also dominated by the introduced varieties. The largest share in quantity produced in 2016 is Merlot variety - 35.7%, followed by Cabernet Sauvignon - 32.6% and Syrah - 12.0%.

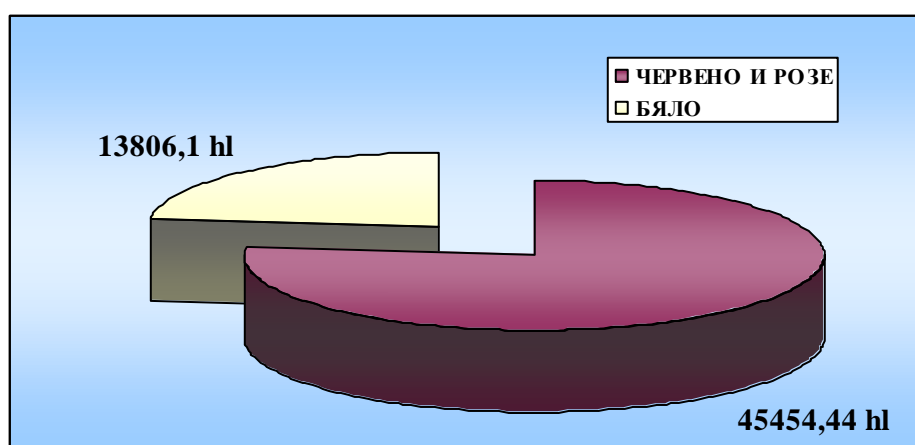
**Table 8: White and red grape varieties produced in Haskovo and Kardzhali districts in 2016**

Variety	Produced quantity, tons	% of total production
<b><i>White wine varieties</i></b>	<b>6864,7</b>	<b>100,0</b>
Chardonnay	2951,4	43,0
Sauvignon Blanc	1178,8	17,2
Muscat Ottonel	541,2	7,9
Rkatziteli	499,4	7,3
<b><i>Misket red</i></b>	<b>410,7</b>	<b>6,0</b>
Traminer	334,6	4,9
<b><i>Dimyat</i></b>	<b>292,1</b>	<b>4,3</b>
Viognier	167,8	2,4
<b><i>Tamianka</i></b>	<b>102,3</b>	<b>1,5</b>
Semillon	57,6	0,8
Aligote	45,7	0,7
<i>Riesling bulgarski</i>	45,2	0,7
Pinot gris	20,5	0,3
Grenache Blanc	15,9	0,2
Müller turgao	8,9	0,1
Petit manceng	8,3	0,1
Muskadel	6,2	0,1
Riesling	5,8	0,1
Sauvignon gris	4,8	0,1
Other white varieties	167,5	2,4

<b><i>Red wine varieties</i></b>	<b>11648,7</b>	<b>100,0</b>
Merlot	4163,2	35,7
Cabernet Sauvignon	3800,7	32,6
Syrah	1395,9	12,0
<b><i>Mavrud</i></b>	<b>635,4</b>	<b>5,5</b>
Cabernet Franc	477,5	4,1
Cot	286,9	2,5
Verdot Petit	157,3	1,4
Tempranillo	119,2	1,0
Pinot noir	92,6	0,8
<i>Rubin</i>	67,6	0,6
Alicante Bouschet	65,7	0,6
<b><i>Pamid</i></b>	<b>48,9</b>	<b>0,4</b>
Sangiovese	41,9	0,4
Carmenere	17,0	0,1
Grenache	16,8	0,1
Ancellota	15,0	0,1
<b><i>Gamza</i></b>	<b>15,0</b>	<b>0,1</b>
Regent	11,7	0,1
Murvedr	11,7	0,1
Marselan	4,0	0,0
Other red varieties	204,7	1,8
<b>Total produced grapes:</b>	<b>18 513,4</b>	<i>x</i>

Source: Executive Agency on Vine and Wine, 2016

Produced grapes of red local varieties – **Mavrud**, **Pamid** and **Gamza** amounted to 699,3 tons and represented 6,0% of total production of red grapes in Haskovo and Kardzhali. Leading position in the production of grapes from local varieties occupies variety Mavrud – 635,4 tons, which largely characterized the product portfolio of wineries in the region in the context of the production of wines from local varieties. An interesting fact is that the traditional for North Bulgaria a local red wine variety Gumza, is located in the variety structure of production in Haskovo district, although in a small quantity - 15 tons.



Source: Executive Agency on Vine and Wine, 2016

Figure 8: Produced wine in the districts of Haskovo and Kardzhali in 2016, hl

The total quantity of wine produced in 2016 within the research area is 59 260,5 hl. The red and rosé wines have a predominant share in the total structure of production – 76,7%, which is logical considering in view of the typical terroir for both areas, suitable especially for the production of red wines (Fig. 8). White wines occupy 23.3% of total production.

### 3.4. Main wine grape varieties grown in the districts of Haskovo and Kardzhali

The data, presented in Table 9, illustrate the varietal structure of vineyards with white wine grapes varieties, located on the territories of Haskovo and Kardzhali districts. The presence of foreign varieties dominated over 50% of the total area occupied by white wine grapes varieties in the both territories. The most widespread were the popular varieties Chardonnay Blanc (18.0% of the total area of white wine grapes varieties in the district of Haskovo), Rkatsiteli (11,4%), Sauvignon blanc (7,4%), Muscat Ottonel (6,1%). In order to diversify the assortment structure and strive to cover the greater part of the consumer preferences on the domestic as well as the international market in recent years the investment interest was directed towards not very familiar in Bulgaria but finding a place on the international market varieties such as Viognier (3.6% of the total area of vines with white wine varieties in Haskovo district), Traminer Rot (2,1%) and Semillon (1,2%). On the territory of the municipality of Lyubimets were located the largest part of the vineyards with introduced white varieties - Chardonnay (118,2 ha), Sauvignon blanc (59,6 ha), Muscat Ottonel (31,0 ha), Traminer (21,1 ha ). One of the most widespread varieties for the industrial production of wine from white wine grapes varieties in the years when Bulgaria occupied a significant place in the world wine trade - Rkatsiteli was spread mostly in the region of Topolovgrad Municipality (117.7 ha). The investment interest in the Viognier and Semillon varieties was the largest in the Harmanli municipality, respectively 23.1 ha and 14.3 ha.

**Table 9: Varietal structure of vineyards with white wine grapes varieties in Haskovo and Kardzhali region in 2016, ha**

<b>Haskovo district</b>			
<b>Variety</b>	<b>Municipality</b>	<b>ha</b>	<b>% of the area</b>
<b>1</b>	<b>2</b>	<b>2</b>	<b>4</b>
<b>Misket cherven</b> <i>(local variety)</i>  (24,2% of total area with vineyards with with the wine grapes varieties)	Lyubimets	15,9	4,4
	Mineralni bani	1,1	0,3
	Svilengrad	29,8	8,3
	Topolovgrad	100,5	28,0
	Harmanli	97,5	27,2
	Haskovo	113,9	31,8
	<b>Total:</b>	<b>358,7</b>	<b>100,0</b>
<b>Chardonnay Blanc</b>  (18,0%)	Ivaylovgrad	5,2	2,0
	Lyubimets	118,2	44,4
	Mineralni bani	8,1	3,0
	Svilengrad	72,1	27,1
	Simeonovgrad	8,1	3,0
	Topolovgrad	4,7	1,8
	Harmanli	38,2	14,3
	Haskovo	11,9	4,5
<b>Total:</b>	<b>266,5</b>	<b>100,0</b>	

<i>Dimyat</i> (local variety)  (17,3%)	Dimitrovgrad	0,1	0,0
	Ivaylovgrad	8,7	3,4
	Lyubimets	16,6	6,5
	Mineralni bani	5,5	2,1
	Svilengrad	199,1	77,8
	Stambolovo	23,1	9,0
	Harmanli	0,1	0,0
	Haskovo	2,8	1,1
	<b>Total:</b>	<b>256,0</b>	<b>100,0</b>
<i>Rkatsiteli</i>  (11,4%)	Dimitrovgrad	0,1	0,1
	Lyubimets	0,3	0,2
	Svilengrad	21,8	12,9
	Stambolovo	19,2	11,4
	Topolovgrad	117,7	69,7
	Harmanli	8,8	5,2
	Haskovo	1,0	0,6
	<b>Total:</b>	<b>168,9</b>	<b>100,0</b>
<i>Sauvignon blanc</i>  (7,4%)	Lyubimets	56,9	51,6
	Svilengrad	11,2	10,2
	Simeonovgrad	1,8	1,6
	Topolovgrad	2,2	2,0
	Harmanli	34,9	31,6
	Haskovo	3,3	3,0
	<b>Total:</b>	<b>110,3</b>	<b>100,0</b>
<i>Muscat Ottonel</i>  (6,1%)	Dimitrovgrad	0,1	0,1
	Lyubimets	31,0	34,4
	Svilengrad	9,1	10,1
	Simeonovgrad	16,8	18,7
	Stambolovo	1,9	2,1
	Topolovgrad	18,2	20,2
	Harmanli	3,2	3,6
	Haskovo	9,7	10,8
	<b>Total:</b>	<b>90,0</b>	<b>100,0</b>
<i>Muscat A Petits Grains Blancs (Tamyanka)</i> (local variety)  (3,9%)	Ivaylovgrad	2,4	4,2
	Lyubimets	8,3	14,4
	Mineralni bani	6,0	10,4
	Simeonovgrad	12,5	21,7
	Stambolovo	20,1	34,9
	Harmanli	2,4	4,2
	Haskovo	5,9	10,2
	<b>Total:</b>	<b>57,6</b>	<b>100,0</b>
	<i>Viognier</i>  (3,6%)	Ivaylovgrad	4,1
Lyubimets		9,6	17,8
Mineralni bani		7,0	13,0
Svilengrad		10,1	18,7
Harmanli		23,1	42,9
<b>Total:</b>		<b>53,9</b>	<b>100,0</b>
	Lyubimets	21,1	67,8

<b>Traminer Rot</b> (2,1%)	Svilengrad	0,8	2,6
	Topolovgrad	1,0	3,2
	Harmanli	8,2	26,4
	<b>Total:</b>	<b>31,1</b>	<b>100,0</b>
<b>Semillon</b> (1,2%)	Lyubimets	3,9	21,4
	Harmanli	14,3	78,6
	<b>Total:</b>	<b>18,2</b>	<b>100,0</b>
<b>Other white wine-grape varieties</b> (4,8%)	Lyubimets	26,5	37,9
	Svilengrad	19,9	28,4
	Simeonovgrad	1,8	2,6
	Stambolovo	0,3	0,4
	Topolovgrad	4,4	6,3
	Harmanli	10,1	14,4
	Haskovo	7,0	10,0
	<b>Total:</b>	<b>70,0</b>	<b>100,0</b>
<b>Total area of white wine grapes varieties in Haskovo district: 1481,2 ha</b>			
<b>Kardzhali district</b>			
<b>Aligote</b> (74,6% of total area with vineyards with white wine grapes varieties)	Krumovgrad	41,9	<b>100,0</b>
<b>Dimyat</b> (local variety) (19,2%)	Kardzhali	10,8	<b>100,0</b>
<b>Muscat Ottonel</b> (6,2%)	Kardzhali	3,5	<b>100,0</b>
<b>Total area of white wine grapes varieties in Kardzhali district: 56,2 ha</b>			

Source: Executive Agency on Vine and Wine (EAVW), Vineyard register, 2016

Of local Bulgarian white wine grapes varieties, the most common were Misket cherven, Dimyat and Tamyanka (*Muscat A Petits Grains Blancs*). The Misket cherven variety occupied a dominant share in the structure of the vineyard area with white wine grapes varieties within the territory of Haskovo district – 24,2% (358,7 ha). The area of the vineyards of this variety is concentrated mainly in the municipalities of Haskovo – 113,9 ha (31,8% of the total area of the vineyards with Misket cherven variety), Topolovgrad – 100,5 ha (28,0%) and Harmanli – 97,5 ha (27,2%).

Variety Dimyat occupied an area of 256,0 ha, which represented 17,3% of the area of vines with white wine grapes varieties in the district. The area of the vineyards was concentrated mainly on the territory of the municipality of Svilengrad - 199,1 ha (77,8% of the total area of the varieties). Larger areas for the production of wine grapes from varieties of Dimyat are in the municipalities of Stambolovo - 23,1 ha and Lyubimets - 16,6 ha.

Permitted for the production of wines with a protected designation of origin, white local variety Tamyanka covered an area of 57,6 ha, which is only 3,9% of the total area of the vineyards with white wine grapes varieties in Haskovo region. Potential for the production of white wines of Tamyanka variety was predominantly in the municipalities of Stambolovo – 20,1 ha (34,9% of the total vineyard area occupied by the variety), Simeonovgrad – 12,5 ha (21,7%), Lyubimets – 8,3 ha (14,4%), Mineralni bani – 6,0 ha (10,4%) and Haskovo – 5,9 ha (10,2%). In the territory of Kardzhali district the most widely spread was the introduced wine

grapes variety Aligote – 41,9 ha (74,6% of the total area of vineyards with white wine grapes varieties in the area). Areas concentrated entirely on the territory of the municipality of Krumovgrad. The production of white wine grape was represented only by the local variety Dimyat, which occupied an area of 10,8 ha (19,2%), located in the region of Kardzhali municipality. There was a small area of plantations of the foreign variety Muscat Ottonel - 3,5 ha, which is in the same municipality.

The data shown in Table 10 illustrated the varietal structure of vines with red wine grapes varieties within the two areas considered.

In the Haskovo region, the imported wine grapes varieties (almost 90,0% of the total area of red wine varieties) were a major predominance. The most important for the development of red wine production in the region is Merlot – 3396,7 ha (61,6% of the total area of red wine grapes varieties), which means that the specifics of the wine are well known and sought after, both domestically and internationally. The variety was grown in all 11 municipalities covered by Haskovo district. The largest was the size of the areas in the municipalities of Harmanli – 911,1 hectares (26,9% of the total area of Merlot vineyards in the area), Svilengrad – 800,8 ha (23,6%), Stambolovo – 447,9 ha (13,2 ha), Lyubimets – 439,9 ha (13,0 ha), Haskovo – 325,7 ha (9,6%), Ivaylovgrad – 209,0 ha (6,2%) and Mineralni bani – 173,4 hectares (5,1%).

Cabernet Sauvignon plantations covered an area of 965,9 ha (17,5% of the area of red wine grapes varieties in the Haskovo district), which are spread mainly on the lands of the municipalities of Harmanli – 273,3 ha (28,3% of the area of the varieties), Lyubimets - 212,1 ha (22,0%), Svilengrad - 143,9 ha (14,9%) and Topolovgrad - 141,6 ha (14,7%).

The third introduced variety, with a significant share in the structure of the vineyards of red wine grapes varieties - the variety Syra covered an area of 322,2 ha (6,0% of the total vineyard area with red wine grapes varieties). The production of Syra grapes is mainly concentrated in the municipalities of Lyubimets - 108,5 ha (32,7% of the total area of the vineyards with this variety), Harmanli - 93,5 ha (28,1%) and Svilengrad - 90,4 ha (27,2%). In recent years, the subject of investment interest were varieties Cabernet Franc – 142,5 ha (2,6%), Cot – 61,2 ha (1,1%), Pinot Noir – 30,9 ha (0,6%) and Verdot Petit – 19,0 ha (0,3 ha). They were mostly distributed in the municipality of Harmanli.

The area of the main local varieties - *Pamid and Mavrud* represented overall of 7.2% of the total vineyards area with red wine grapes varieties in Haskovo region.

**Table 10: Varietal structure of vineyards with red wine grapes varieties in Haskovo and Kardzhali region in 2016, ha**

Haskovo district			
Variety	Municipality	ha	% of the area
1	2	2	4
<i>Merlot</i> (61,6% of total area with vineyards with red wine grapes)	Dimitrovgrad	17,4	0,5
	Ivaylovgrad	209,0	6,2
	Lyubimets	439,9	13,0
	Madzharovo	6,2	0,2
	Mineralni bani	173,4	5,1
	Svilengrad	800,8	23,6
	Simeonovgrad	24,6	0,7
	Stambolovo	447,9	13,2
	Topolovgrad	39,7	1,2
	Harmanli	912,1	26,9

	Haskovo	325,7	9,6
	<b>Total:</b>	<b>3396,7</b>	<b>100,0</b>
<b><i>Cabernet Sauvignon</i></b> (17,5%)	Ivaylovgrad	83,8	8,7
	Lyubimets	212,1	22,0
	Madzharovo	2,53	0,3
	Mineralni bani	13,6	1,4
	Svilengrad	143,9	14,9
	Simeonovgrad	10,3	1,1
	Stambolovo	35,3	3,7
	Topolovgrad	141,6	14,7
	Harmanli	273,3	28,3
	Haskovo	49,5	5,1
	<b>Total:</b>	<b>965,9</b>	<b>100,0</b>
<b><i>Syra, Syrah</i></b> (6,0%)	Dimitrovgrad	0,1	0,0
	Ivaylovgrad	19,5	5,9
	Lyubimets	108,5	32,7
	Mineralni bani	9,9	3,0
	Svilengrad	90,4	27,2
	Simeonovgrad	4,4	1,3
	Stambolovo	0,3	0,1
	Topolovgrad	3,5	1,1
	Harmanli	93,5	28,1
	Haskovo	2,1	0,6
	<b>Total:</b>	<b>332,2</b>	<b>100,0</b>
<b><i>Pamid</i></b> (local variety) (4,7%)	Dimitrovgrad	2,7	1,0
	Ivaylovgrad	58,7	22,4
	Lyubimets	25,1	9,6
	Madzharovf	1,0	0,4
	Mineralni bani	16,3	6,2
	Svilengrad	35,7	13,6
	Stambolovo	28,5	10,9
	Topolovgrad	22,4	8,6
	Harmanli	36,6	14,0
	Haskovo	34,6	13,2
	<b>Total:</b>	<b>261,6</b>	<b>100,0</b>
<b><i>Mavrud</i></b> (local variety) (2,5%)	Lyubimets	44,1	31,8
	Mineralni bani	8,5	6,1
	Svilengrad	44,2	31,9
	Simeonovgrad	2,8	2,0
	Stambolovo	1,2	0,9
	Topolovgrad	0,6	0,4
	Harmanli	35,3	25,5
	Haskovo	1,8	1,3
	<b>Total:</b>	<b>138,5</b>	<b>100,0</b>
<b><i>Cabernet Franc</i></b> (2,6%)	Lyubimets	55,7	39,1
	Mineralni bani	7,2	5,1
	Svilengrad	17,2	12,1
	Simeonovgrad	5,3	3,7

	Stambolovo	8,6	6,0
	Harmanli	47,0	33,0
	Haskovo	1,5	1,1
	<b>Total:</b>	<b>142,5</b>	<b>100,0</b>
<b>Cot</b> (1,1%)	Lyubimets	18,8	30,7
	Svilengrad	17,6	28,8
	Simeonovgrad	0,5	0,8
	Harmanli	24,3	39,7
	<b>Total:</b>	<b>61,2</b>	<b>100,0</b>
<b>Rubin</b> (selected in Bulgaria) (0,8%)	Ivaylovgrad	7,1	15,3
	Lyubimets	4,7	10,2
	Svilengrad	1,8	3,9
	Simeonovgrad	4,7	10,2
	Stambolovo	3,3	7,1
	Harmanli	24,7	53,3
	<b>Total:</b>	<b>46,3</b>	<b>100,0</b>
<b>Pinot Noir</b> (0,6%)	Ivaylovgrad	10,6	34,3
	Lyubimets	4,5	14,6
	Simeonovgrad	1,4	4,5
	Topolovgrad	1,9	6,1
	Harmanli	10,2	33,1
	Haskovo	2,3	7,4
	<b>Total:</b>	<b>30,9</b>	<b>100,0</b>
<b>Evmolpiya</b> (selected in Bulgaria) (0,5%)	Lyubimets	0,4	1,5
	Svilengrad	25,1	94,7
	Harmanli	1,0	3,8
	<b>Total:</b>	<b>26,5</b>	<b>100,0</b>
<b>Verdot Petit</b> (0,3%)	Lyubimets	3,2	16,8
	Svilengrad	2,2	11,6
	Simeonovgrad	1,9	10,0
	Harmanli	11,7	61,6
	<b>Total:</b>	<b>19,0</b>	<b>100,0</b>
<b>Other red wine-grape varieties</b> (1,8%)	Dimitrovgrad	0,2	0,2
	Ivaylovgrad	19,3	20,1
	Lyubimets	26,2	27,3
	Svilengrad	19,4	20,3
	Harmanli	29,4	30,7
	Haskovo	1,3	1,4
	<b>Total:</b>	<b>95,8</b>	<b>100,0</b>
<b>Total area of red wine grapes varieties in Haskovo district: 5517,1 ha</b>			
<b>Област Кърджали</b>			
<b>Pamid</b> (local variety) (58,2%)	Krumovgrad	0,1	0,2
	Kardzhali	46,1	99,6
	Momchilgrad	0,1	0,2
	<b>Total:</b>	<b>46,3</b>	<b>100,0</b>
<b>Merlot</b> (18,2%)	Kardzhali	13,1	90,3
	Chernoochene	1,4	9,7
	<b>Total:</b>	<b>14,5</b>	<b>100,0</b>

<b><i>Mavrud</i></b> <i>(local variety)</i>  (12,8%)	Kardzhali	<b>10,2</b>	<b>100,0</b>
<b><i>Cabernet Sauvignon</i></b> (10,8%)	Kardzhali	<b>8,5</b>	<b>100,0</b>
<b>Total area of red wine grapes varieties in Kardzhali district: 79,5 ha</b>			

*Source: Executive Agency on Vine and Wine (EAVW), Vineyard register, 2016*

Variety Pamid occupied an area of 261,6 ha, which was 4,7% of the overall vineyard area with red wine-grape varieties. The main micro-regions for its production were in the municipalities of Ivaylovgrad – 58,7 ha (22,4% of the total vineyard area), Harmanli – 36,6 ha (14,0%), Svilengrad - 6%), Haskovo – 34,6 ha (13,2%), Stambolovo – 28,5 ha (10,9%) and Lyubimets – 25,1 ha (9,6%).

The local red wine-grape variety Mavrud was grown on an area of 138,5 ha (2,5% of the total area of vineyards with red wine-grape varieties). Plantations of the variety were found in eight municipalities, of which the largest size of the vineyards in the municipalities of Svilengrad - 44,2 ha (31,9% of the area of all the plantations), Lyubimets - 44,1 ha (31,8%) and Harmanli – 35,3 ha (25,5%).

On small areas the Rubin and Evmolpia varieties selected in Bulgaria are distributed, respectively 46,3 ha and 26,5 ha. The Rubin vines are mainly concentrated on the territory of the municipality of Harmanli – 24,7 ha, while the Eumolpia plantations are mainly in the region of Svilengrad municipality – 25,1 ha.

The red wine grapes varieties grown in the Kardzhali region are mainly represented by the local wine grape variety Pamid (58.2% of the total area of the vineyards with red wine grape varieties in the area), whose area is 46,3 ha and is located almost entirely on the territory of the Municipality of Kardzhali. The other main local variety grown in the region - Mavrud has occupied 10,2 hectares. Only the Merlot variety and the Cabernet Sauvignon variety are included in the varieties introduced in the area, with an area of 14,5 ha and 8,5 ha respectively.

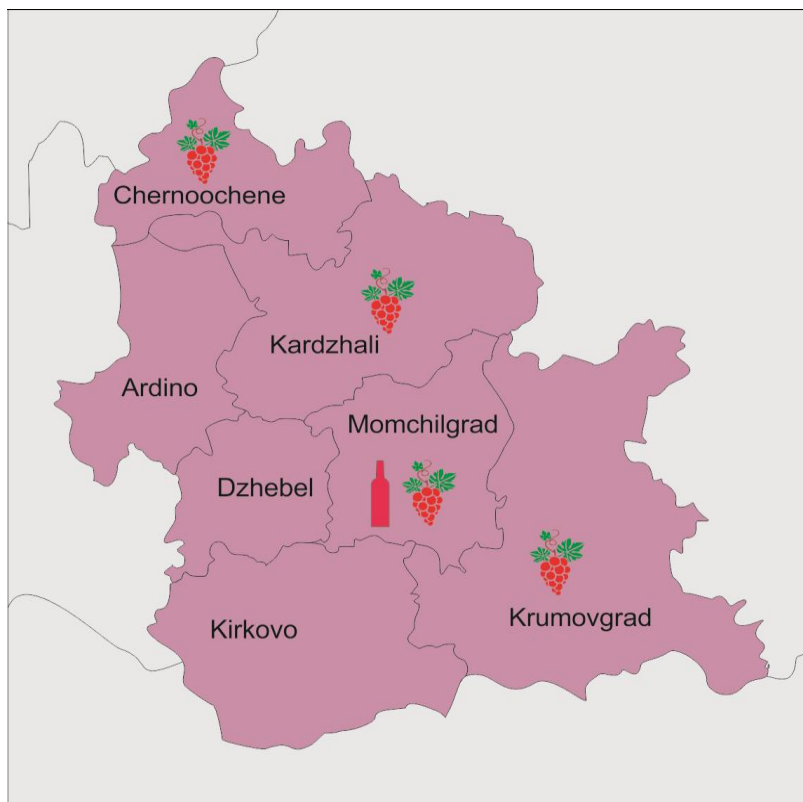
In the ecological aspect of the guidelines for future development of viticulture in the districts of Haskovo and Kardzhali, the issue of the conservation and sustainable use of genetic resources as a basis of production activity is of particular importance. The gene pool of the vine, as a component of biodiversity, is a vehicle of adaptive and innovative potential for sustainable development of production systems under the conditions of the dynamically changing natural and economic environment. Globally, the threat to the conservation of genetic resources arises because of the concentration of production of several wine grape varieties - Cabernet Sauvignon, Merlot, Chardonnay, Syra and others, driven by the economic interests of the producers. This, in turn, limits the distribution of local varieties with unique organoleptic and economic qualities, bearers of traditions and cultural identity. There is a need to increase the entrepreneurial interest in the field of creating and growing vineyards of local varieties suitable for the region, which will expand the possibilities for the production of wines with specific and unique quality characteristics. The successful combination of viticulture, wine making and wine tourism is a way to create an attractive image of the destination, generating synergy in the three main aspects of sustainable regional development - ecological, social and economic.

### 3.5. Magnitude of the viticultural exploitation in the districts of Haskovo and Kardzhali

In accordance with the guidelines of the ongoing European policy in the wine sector, Bulgarian wine sector, part of which is wine production in Haskovo and Kardzhali, faces challenges to increase their competitiveness, preserving traditions and increasing social and environmental role in regional development aspects. In accordance with the guidelines of the ongoing European policy in the wine sector, Bulgarian wine sector, part of which is wine production in Haskovo and Kardzhali, faces challenges to increase their competitiveness, preserving traditions and enhancing social and environmental role in regional development aspects. The specificity of the production process in the viticulture defines it as one of the most intensive sectors of agriculture, from the point of view of the input of labor resources. In this sense, and also in view of the positive dynamics of international trade in wine, viticulture and wine production, can be defined as activities with potential for generating income and employment. Based on the specificity of the combination of factor conditions and organizational and economic relations at regional level, each region can create sustainable competitive advantages that will have a positive effect on the regional economy (Borisov and Radev, 2011, Kanchev et al., 2012, Miteva, 2015, Kirechev, 2012, Dimitrova and Simeonov, 2016).



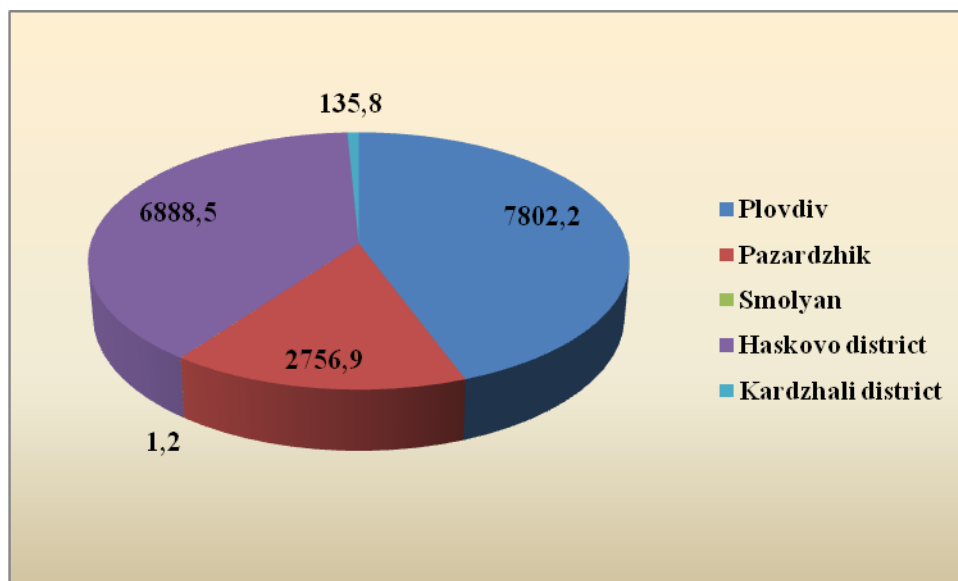
**Map 4: Micro regions of wine production in Haskovo district**



**Map 4: Micro regions of wine production in Kardzhali district**

The South Central Region, which obtained Haskovo and Kardzhali, is the region with the highest percentage of the gross output of grapes in the gross output of plant growing - 3.4% compared to 3.0% in the Southwestregion, 2.9% in the Southeast and 0,4% in the three regions of Northern Bulgaria, according to NSI official information for 2014 (Dimitrova and Dimitrov, 2017). This is indicative that in regional plan, the traditions in this area are preserved to the greatest extent viticulture and wine-making are important for the livelihood of the local population as well as for regional economic development. There is potential for improving the competitive position of local grape growers and wineries, which should be developed through appropriate economic and marketing approaches, mainly based on the specific nature of local production, resulting from the great diversity of varieties and the unique characteristics of typical local varieties of vines.

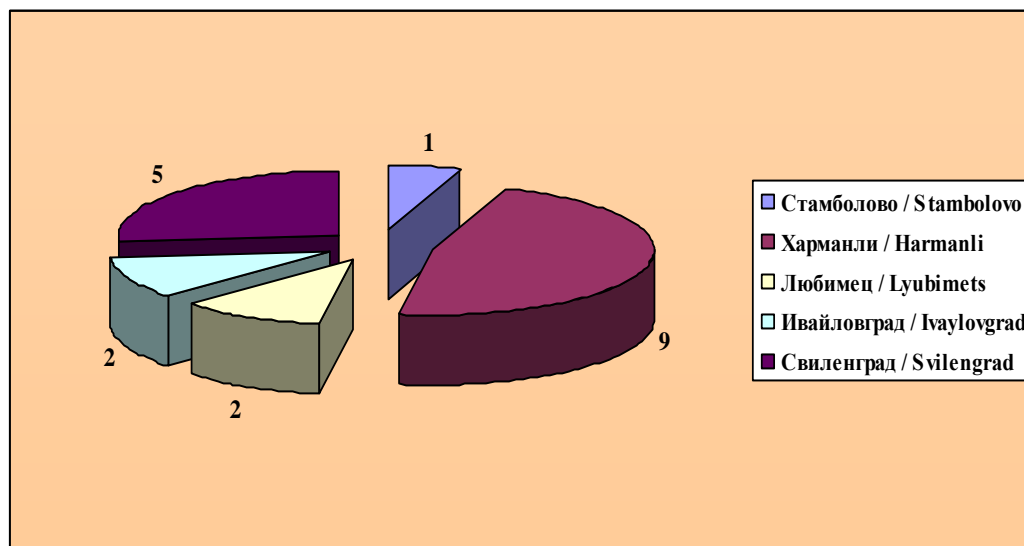
According to the National Statistics Institute in 2015 in the South Central region is concentrated 29.3% (17 584.6 ha) of the area of vineyards with grape varieties in the country. Within the boundaries of the region, Haskovo ranks second after the Plovdiv region, according to the relative share of wine vineyard area in the total area of plantations in the South Central Region - 39.2% (Figure 9). At the national level, the districts of Haskovo and Kardzhali manage 11.7% of the vineyards for the production of wine grapes in the country.



Source: NSI

**Figure 9: Structure of the area with wine grape varieties in the Southern Central Region by districts in 2015, ha**

In the same year there were 204 wine producing enterprises in the country, of which 18 (8.8%) in the Haskovo district. According to the Executive Agency for the Vine and Wine in 2016 the number of wineries in the area is 19, with most grape processing enterprises operating in the municipality of Harmanli - 9 and in the municipality of Svilengrad - 5 (Figure 5). The municipality of Lyubimets registered two wineries and the same number enterprises in the municipality of Ivaylovgrad. There is one winery in Stambolovo municipality (fig. 10).



Source: Executive Agency on Vine and Wine (EAVW), Vineyard register, 2016

**Figure 10: Number of wineries in Haskovo district in 2016**

In the Kardzhali district there is a wine-producing enterprise, which is located in the municipality of Momchilgrad.

Respectively, of the high share of the areas managed in the region in the overall picture at national level, the production of grapes also represents a high percentage of the total

quantity of the harvested production in that year - 9.3% of the produced wine grapes in the country and 27.9% of the production in the South Central Region.

The participation of Haskovo and Kardzhali districts in wine production at national and regional level is also significant. The amount of wine produced in both areas represents 27.1% of wine production in South Central Region, respectively 4.9% of the wine produced in the country. It is unfortunate fact, that overall production of wine with geographical indication in the country has a small share in the assortment structure of production. According to MAFF (Agrarian Report 2017), in Bulgaria are produced 360 984 hl of wine with a Protected Geographical Indication (PGI), which represent 29.9% of the total wine production. Wines with a protected designation of origin (PDO) amount to 9511 hl, which is only 0.8% of the total production volume. South Central Region, where the districts of Haskovo and Kardzhali are located, is one of the leading regions in the production of wines with geographical indications. In 2016 in the region are produced 110,135 hectoliters of wine with PGI and 1596 hl of wine with PDO, representing respectively 30.5% and 16.8% of the total national production of wines with PGI and PDO. Availability and maintenance of plantations with native varieties in the both areas is a potential for the production of wines with geographical indications, which has to be explored and developed.

Evidence of entrepreneurial interest in viticulture - a basis for maintaining and enhancing the viability of grape and wine production, respectively in the local area, is the increase in areas under wine varieties in both areas, which is observed in 2015 compared to 2009. Based on the official statistics of the Ministry of Agriculture, Foods and Forestry, the Agrostatistics Department, of the baseline study – “Structure of the Vineyards in Bulgaria - July 2009” and “Structure of the Vineyards in Bulgaria - July 2015” is observed a growth of the area with wine varieties:

- in Haskovo District – with 11 ha (+ 0.16%), from 6875 ha to 6886 ha;
- in the Kardzhali region – with 12 ha (+ 9.7%), from 124 ha to 136 ha.

The tendency of vineyard renovation in both areas is also observed, including the expansion of the areas, this reflects the country-wide guideline for an increase in areas with introduced varieties. In this aspect there is a need to explore and promote the benefits of production of grapes and wine from local varieties and to emphasize their role in achieving sustainable development of the area.

## 4. CONCLUSION

### **Conclusions for Haskovo district for objectives of the project “Dionysos”**

Haskovo district has an important socio-economic and cultural significance not only for the region, but also for the Republic of Bulgaria. The *Strategy for the development of Haskovo District 2014-2020* underlined that wine production is increasing, and two of the major factories for production of machinery and equipment for food industry in the country are based in this area. Part of the specialization of these two companies is in the production of machines and equipment for wine-making industry - fermentors for white and red wines, bottling lines, presses, pumps and a number of others.

The same strategy it highlighted that crucial to the economic development of the region is the presence of large number of small and medium-sized enterprises. Undoubtedly, some of these companies are the wineries, which, apart from being one of the largest employers in this part of the country, are also an important source of income for the municipalities in which they are located.

Agriculture in the region is above the national average, as a large share of it takes viticulture - producing table and especially of wine grapes. This is indicative of the sustainability of wine sector and will continue to develop in near future.

Transport corridors and fully completed in 2015. “Maritsa” highway, the international railway route Belgrade – Sofia - Istanbul, as well as the rehabilitated roads of the Republican Road Network, are also a good prerequisite for future socio-economic development of the area. Good infrastructure has proven to be important not only in the supply and development of tourism, but also in the regional economy of the Haskovo region. On the other hand needs upgrading tourism infrastructure - construction of new and modernization of part of the previously used hotels as well as increasing their categorization. Some of the leading wineries in the area opened their doors to visit, have excellent infrastructure to meet the tourists with medium and high incomes. Expectations are that new wineries will be found in the next 3-4 years. This will undoubtedly increase not only winemaking, but will increase the diversity of tourism products related to wine tourism. They will in turn enhance the prestige and establish the image of the area, as a quality destination for wine tourism.

Favorable mild and warm climate, the availability of diverse terrain and beautiful nature, water basins, including mineral springs, are among the most favorable and still underutilized resources available to Haskovo district for offering tourism. The mild climate and easy accessibility in Haskovo are a good prerequisite for offering tourism all year round. This is an a good opportunity for the area to become a **destination for four seasons**.

It marks the importance and opportunity of the area to offer and to specialize in some types of tourism: balneological, cultural cognitive, hunting and rural tourism. Wine tourism is defined as part of the rural, and undoubtedly it is. But considering the analysis here and the presence of wineries in Haskovo region, which have already specialized in offering wine tourism, it should be taken as a separate type of tourism. Therefore, it is important to explore in greater depth its features and competitive advantages. To analyze its material base, to highlight its strengths and weaknesses, as well as to produce new tourism products and services, to develop appropriate marketing approaches and marketing channels for realization. This can be done by combining various company products of wine tourism, in the form of “*Wine routes*” or in clusters known in scientific literature as “*Wine Roads*”.

The initiation of some well-established European practices and standards is another future, goal that must be realized if the area wants to develop as a wine destination. Practice shows that tourist sites with defined quality standards of products and service are more frequented than others where requirements are low. A particular example is the presentation of quality wines, in a good and hygienic environment, by well-trained and courteous staff, its a prerequisite for a well-presented product. And vice versa - if visitors tested wines with low quality, presented incompetent, there is a risk of a bad image not only for the cellar, but also for the whole region.

Organizing of wine festivals and exhibitions in the analyzed municipalities definitely have high interest and attendance. The right direction for promotion and development of wine tourism is organization of such an initiative by some of the cellars in the municipality of Harmanli, such as “Extreme Wine Tour - 4x4”. This initiative is relatively new and still underdeveloped product to attract tourists. But following the latest global trends in offering wine tourism, initiatives of this type have enjoyed great success and attendance.

The diversification between the wine and other types of tourism in Haskovo is a prerequisite for a wider range of products and options for organizing visits and attracting more wealthy tourists. For example, between wine and hunting tourism or wine with culinary tourism. Haskovo region can also offer eco-tourism, which also has a lot to offer – fishing; eco-routes; observations of rare bird species, such as black stork; observations of rare plant and animal species; natural phenomena.

As noted in the analysis, large deficits are in tourism products and their marketing. Therefore, in the near future, companies whose business is related to tourism should focus their efforts on marketing and market demand. The creation and consolidation of networks and routes related to wine tourism will help not only to preserve the existing wine and tourism potential, but will create opportunities for integrating other businesses and initiatives.

### **Conclusions for Kurdzhali district for objectives of the project “Dionysos”**

In some of the specific objectives for achieving sustainability in agriculture, which is laid down in the *Regional Strategy for Development of Kardzhali Region 2014-2020*, are:

- ❑ Creating unique products based on specific local industries, turning them into an attraction and a means of promoting the destination - "brand / trademark";
- ❑ Development of organic farming and offering traditional cuisine;
- ❑ Strategic positioning of the produced products on the Bulgarian market, and at reaching sufficient volume, orientation to foreign markets.

Part of the targets of project “Dionysos” are supporting and turn the region into an attractive tourist destination. In Kardzhali district viticulture and winemaking have existed for millennia. Evidence of this are many found rocky wineries(Sharapani), tools associated with viticulture; amphorae; jugs; cups; coins and many other artifacts, reveal the great material and spiritual heritage bequeathed by the peoples who inhabited these lands. Perperikon and Tatul are visited annually by over 250,000 tourists from Bulgaria and abroad. This shows great potential for future development of the area. However, there are no more detailed socio-demographic data for visitors - sex; age; status; nationality. These data will provide a more accurate picture of which visitors, what interests they have and which countries they come from. It would be better to advertising and positioning the created tourism products And on the other hand to create new and better oriented to specific target groups, following their preferences.

Although tourism infrastructure has been renewed, especially in and around Kardzhali, further investment in this direction should be sought. Its important for the development of tourism is the improvement of the infrastructure to tourist sites in all municipalities - roads, car parks, service spaces, signboards, information in several languages, etc. There are many natural and historical monuments in the Kardzhali region. This shows that the area has very high potential and prerequisites for the development of tourism. Tourism will provide more revenue, and this will improve the regional economy. There are excellent conditions for combining different types of tourism or creating thematic routes. For example, eco-tourism; cultural and historical; religious; rural; hunting; bicycle routes.

Vine-growing in the Kardzhali region is small and fragmented. Yet vineyards are relied on as a source of income, especially in the lowland areas to Haskovo. According to EAVW, only one cellar is registered in the whole Kardzhali region. Creating more wineries in the Kardjali district, in addition to providing livelihood for part of the population, will create the basis for attracting more wine lovers to the territory of the region.

There is interest in wine and culinary tourism. Wine tourism combined with local culinary specialties, will open up the “appetite” and interest of tourists to the region. n support of this statement may indicate that there is interest in creating family cellars and offering local specialties at the boutique restaurants. And all this is due to the progress of tourism in Kardzhali region. It is therefore necessary to provide opportunities for:

- ✓ Cooperation and business initiatives;
- ✓ Linking of corporate tourist products and services into common tourism products;
- ✓ Enriching the tourist offer in all municipalities;
- ✓ Diversification and specialization in tourism supply;

- ✓ Training of staff needed for tourism - hotels, restaurants, guides, information, etc .;
- ✓ Implementing good practices;
- ✓ Implementing quality standards;
- ✓ Orientation towards bio tourism and preservation of natural resources;
- ✓ Advertising and promotion in Bulgaria and abroad;
- ✓ Cross-border cooperation in the field of tourism.

### **The potential of local varieties and quality wines for the development of the region**

The area of Haskovo region has a well developed viticulture and wine production, which shows the relatively high share of the area in the total area of vineyards and in the total production of wine, as well as within the South Central region and at the national level. Overcoming the development challenges of the wine sector in the region in a competitive environment requires improving the competitiveness of the proceedings as an opportunity to increase the added value. The added value can be achieved through diversification of production and markets, ensuring high quality and authenticity, improving marketing through the use of geographical indications.

In this aspect, the conservation of genetic resources from local varieties vines - Mavrud, Pamid, Misket red, Dimyat, Tamyanka and others, which occur in the studied areas, except to a purely breeding value and contribution to the conservation of biodiversity, is also a source of still insufficiently realized potential for the production of traditional wines with unique qualitative characteristics. This potential of wines from local varieties can provide competitive position of small and medium winemaking enterprises both in their direct involvement in the wine market on the one hand, and the development of diversification activities such as wine tourism on the other.

The conservation of local varieties of vines should be taken as a prerequisite for achieving synergy in terms of sustainable development in economic, social and environmental aspect. Against the backdrop of the widespread use of the introduced white and red wine varieties - Chardonnay, Aligote, Misket Ottonel, Cabernet Sauvignon, Merlot, Syra, etc., and increased competition on the international market with a stronger emphasis on wine quality, is necessary to prioritize the cultivation of local varieties. The cultivation of local varieties, which are still spread on the territory of Haskovo and Kardzhali districts, creates opportunities for occupying a specific market niche based on the unique characteristics and authenticity of the traditional wines produced in the country. In addition, they have the potential to produce mixed wines between introduced and local varieties, which have received very high marks from international experts in recent years. Such wines are most often obtained from the combinations of the varieties Cabernet Sauvignon, Merlot, Mavrud and Rubin.

In social terms - the preservation of genetic diversity by stimulating production of local products is also a mechanism for combating depopulation, that have settled permanently in the rural areas of the country. Maintaining this genetic potential also contributes to the preservation of local cultural identity for future generations.

In the ecological aspect of the opportunities for sustainable development at the sectoral level on the one hand the capacity of ecosystem services is increased, and the other hand - are created conditions to maintain the diversity of plant and animal species inhabiting the specific vineyard landscape.

Established from millennia in the country practice in the wine sector, based on the vital importance of local wine grape varieties, both as a valuable genetic resource and a

potential source of income and livelihood for the inhabitants of traditional wine-growing area Haskovo district is an established wine-growing micro-region in Bulgaria. The maintenance of varietal diversity in wine viticulture should become a recognized need, contributing to the realization of the three main priorities of European agrarian policy - viable food production, sustainable management of natural resources and activities, related to climate change and balanced territorial development. In this sense, in addition to direct support for the conservation of genetic resources, it must be capitalized upon the opportunities for improving the organization of the supply chain, contributing both to raising the profitability and viability of farms and to satisfying consumer interests in specific market niches. All this provokes the need for integrated interaction between researcher-breeders, wine cellars, consumers and regional and local administrations, to support efforts to minimize the loss of genetic diversity, ecosystem services, traditional knowledge and local identity. Stabilization of the sector as a means of achieving balanced regional economic development and social and environmental synergy, is a function not only of technological innovation, but mainly of the implementation of organizational and marketing strategic decisions, improving the efficiency and competitiveness of production in accordance with current market requirements.

In recent decades, as a leading concept in marketing and organizational aspects, dictated by drive for sustainable development of the wine-growing sector, the combination of traditions and innovations is shaped, as a synthesis of comparative advantages and uniqueness of the terroir, concretised within a certain geographic region. The production of quality wines with a *Geographical Indication* (GI) ( a *Protected Designation of Origin* (PDO) and a *Protected Geographical Indication* (PGI)), used for years as a marketing tool for positioning wine in a higher price range, acquires a new reading in the context the need to preserve local production with an emphasis on typical Bulgarian varieties of vines. As part of EU quality policy, geographical indications integrate social and economic goals in the aspect of regional development. The effect of the usage of geographical indications, as a mechanism for protection and development of local production, can be searched in the direction of overall improvement of the socio-economic environment, maintenance of the productive activity in the region, consolidation and flexibility of supply chains, with a stronger focus on the quality of output, better satisfaction of local consumer demand, creating employment and profitability for the population. On the territory of Haskovo and Kardzhali districts there is potential for production of wines with a protected geographical indication - PGI "Thracian Lowland". Most settlements in the region of Haskovo listed as areas for the production of wines with a protected designation of origin - PDO "Ivaylovgrad", PDO "Haskovo", PDO "Lubimets", PDO "Sakar" and the PDO "Stambolovo".

In response to growing consumer requirements regarding food safety and the application of production methods preserving the environment - basis for stable development and the organic production of grapes and wine should be provided. This includes assessing the agri-environmental potential, choosing the right product, marketing and organizational-management decisions in the context of the regional development of viticulture.

Viticulture and wine-making should be seen as opportunities for development of a family business, contributing to the viability of local communities within Haskovo and Kardzhali districts, preserving traditions, diversity of genetic resources and specific viticultural landscape for future generations.

## 5. DESCRIPTION OF THE WINERIES FUNCTIONING ON THE TERRITORIES OF THE HASKOVO AND KARDZHALI DISTRICTS

### WINERIES AND WINE TOURISM IN HASKOVO DISTRICT

#### Haskovo Municipality and Stambolovo Municipality

##### Vinprom “*Haskovo*” and wine cellar “*Stambolovo*”

Vinprom “*Haskovo*” and wine cellar “*Stambolovo*” are managed by a joint management team and united in “New Industrial Company”. The wines produced by these two companies are awarded medals from many international and national competitions. The total vessel capacity available in both cellars is 7 million liters. In the last years 6 million kg grapes have been vinified of the varieties: Merlot, Cabernet Sauvignon, Chardonnay, and the local ones - Tamyanka, Pamid and Mavrud. A natural product of the combination of favorable climatic conditions, improved technological skills and centuries-old traditions is the creation of “*Merlot wine from Stambolovo*” with Protected Geographical Indication, “Merlot from Sakar” with Protected Designation of Origin, and red and high quality from the region of Haskovo and Stambolovo from the Cabernet Sauvignon and Merlot. The wines are aged in oak barrels, barriques type, to get their shine, a noble bouquet, a soft and harmonious taste to create memorable experiences, leaving a lasting impression on connoisseurs.

As wine producers, Vinprom “*Haskovo*” and winery “*Stambolovo*” are synonymous of quality. Apart from the Bulgarian market, the company exports to Russia, the Czech Republic, England, India, Angola and others.

#### Svilengrad Municipality

##### KATARZYNA ESTATE

*Katarzyna Estate* is located in the Thracian Lowland wine-growing region, which covers the whole southern part of Bulgaria (south of Stara Planina), on the territory of the village Mezek and Svilengrad, on the border between Greece and Bulgaria and 15 km from the border with Turkey. The mansion was created in the former frontier zone, separating the two countries, into a virgin nature untouched by human activity in recent decades.

The area is characterized by mild winters, rainy spring, dry and hot summers and warm autumn, which favors to get very ripe and concentrated red grapes and moderately fresh white grapes.

*Katarzyna Estate* owns 750 hectares of vineyards in one of the best wine-growing regions in Bulgaria. Depending on the climatic features of the region and the type of soil, *Katarzyna*'s technologists chose to grow the following varieties: Merlot, Cabernet Sauvignon, Cabernet Franc, Sirah, Cot, Verdot Petit, Tempranillo, Carmenere, Chardonnay, Sauvignon Blanc, Viognier, Muscat Ottonel, Semillon, Traminer and Mavrud. Depending on the varietal characteristic and search for optimal technological maturity, white varieties are harvested between August 10 to 30, and red from September 5 to October 20.

The winery has created and creates various series and brands of quality white, rosé and red wines with PDO and PGI, such as *Mezzek*, *Cheval der Katarzyna*, *Contemplations*, *La Bella*, *Le Voyage*, *Chopin*, *Question Mark*, *Encore*, *11<sup>th</sup> Harvest*, *La Verite*, *Le Blanc*, *Le Rose*, *Le Rose*, *La vien Rose*, *Les Fleurs*, *Les Amandiers*, *Les Magnifiques*, *Question Mark Gold*, *Katarzyna Reserve* and others. From the local variety *Mavrud* produce brands *Katarzyna Mavrud*, *Mezzek Mavrud*, *Cheval Mavrud*.

**Wine Tourism:** *Katarzyna Estate* is open for visits from Monday to Sunday, and on the winery website: [www.katarzyna.bg](http://www.katarzyna.bg) - there are contacts for organizing a visits and wine tasting. Katarzhyna offered a tour of vineyards, the winery and tasting selected wines. There is an option for tasting more wines, if desired by the customer. The number and type of the wines for the testing should be specified in advance. In addition to an enoteca where wine is stored at the first harvest of the winery, there is also a restaurant in which customers can pre-indicate their wishes.

**Information and contact:** [www.katarzyna.bg](http://www.katarzyna.bg)

## **Wine House “Lozev” – Svilengrad**

Family-owned **Wine house “Lozev”** proudly claim:

*“We, while preserving the old traditions of wine production, we have selected the best grapes from our vineyard on the land of the Siva River, the Ezegger area and created ecological production. We believe that water will continue to give life and we will drink from it, as we drink from our history and roots. As we look with a forward-looking look and we look for vast space. In pursuit of a dream - to preserve the soul of a spring.”*

The spring of this cellar is undoubtedly the tradition of growing grapes and making good wine. The vineyards are warmed by the southern sun, lying in the stretch and tranquil valley of Maritsa River near Svilengrad, between two mountains - the Rhodope and Sakar. The wines of the cellar are made from Merlot, Syrah, Marcelan and Cabernet Sauvignon. The wine cellar has own restaurant in the town of Svilengrad, where visitors can combine wines with European cuisine and local specialties.

**Information and contact:** <http://lozewine.com>

## **Wine Cellar “DIMITROVCHE”**

The owner of the **Dimitrovche** Mr. *Kostadin Stefanov* is of this type of wineries, who hope to break through the “pure” wine, typical for the region, preserving the local yeast, without adding a “drop” of the modern wine technologies, which are flooded the wine world. Stefanov carefully selects not only the varieties in his vineyards, following their development on the hills around the village of Dimitrovche. The vineyards are processed by classical method used in the farms of some of the best producers of wine grapes in the world. The owner have adapted the technology for growing vines to the particularities of the region and as he say: *“We added as a “pinch” a delicious spice to the ancient Bulgarian tradition”*. The effort to preserve the "old", authentic flavor continues that wants Stefanov even bottles, corks and labels which closes the wine are native production.

“Dimitrovche” offers white, red, rosé and even *orange wine*. Stefanov and his team try to satisfy the more picky and to leave a memory to everyone who has tasted Dimitrovche's wine.

**Wine Tourism:** The owner shares us that in the village Dimitrovche soon will be built another 4-5 family wine cellars, which will attract tourists here all year round. The mild climate, the beautiful countryside, the monuments of the Thracians wich they have made wine in these places from ages, the forests and the proximity to the borders with two countries are the possibility of Dimitrovche village and its wines to shape the region as a wine tourism destination for four seasons. Wine cellar “Dimitrovche” offers a walk around the vineyards and nature along the village, a picnic and wine tasting.

**Information and contact:** +359/876423111 /  
[www.dwinery.com](http://www.dwinery.com)

## **WINERY MEZEK - LTD, Village of Mezek**

The beautiful “*Mezek*” cellar is located in the village of Mezek, just off the border with Greece. The owner Mr. *Sasho Karapaev* decided to build a small winery in the yard of his house. He began with a modest 60 liters in 2000 and reaches to 10 tonnes per year. The grapes buy from the local producers in the area, where it is possible to mature in beautiful climatic conditions. Gradually, he built the premises for the production and aged the wine in the barrels. There is also a tasting room.

**Wine tourism:** *Sasho Karapaev* is a man of art, who created a special atmosphere in his cellar. The premises are placed various antiques carrying special mood of visitors. Wine tasting here is a real ritual. Customers are mainly tourists passing through Mezek in the direction of Greece or coming from Greece. The cellar is visited by many visitors not only from the country, but also from abroad.

The slogan of the winery “*Mezek*” is: “*One love - for life*”.

**Information and contact:** +359/ 888 878 295 / <http://mezek.eu/>

## **Lyubimets Municipality**

### **CONCERTO - LYUBIMETS**

The **Concerto** winery has 200 ha of vineyards and the capacity is 4 million bottles per year. The wines are produced in some of the fully renovated 107 ferro-concrete vessels, which is rare in Bulgaria. The cellar has enormous potential - unique terroir, beautiful vineyards and a team of experienced specialists. In the vineyards of *Concerto Winery* grown varieties such as Merlot, Cabernet Sauvignon, Syrah, Pinot Noir, Chardonnay, Sauvignon Blanc and Viognier, as these are just some of the varieties of which are expected excellent wines.

**Information and contact:** +359 2 4051795, +359889 533 174

e-mail: [sales@platinumbrands.bg](mailto:sales@platinumbrands.bg) [concerto@concerto.bg](mailto:concerto@concerto.bg)

### **WINERY ESTATE “VILLA LYUBIMETS”**

*Villa Lyubimets* is a trademark of “*Villa Lyubimets*” Ltd, registered in 2005. The company owns 500 hectares of vineyards in the regions of the towns of Lyubimets and Hissar. Plantations with selected grape varieties are grown in the most modern viticultural techniques and technology under strict control. The company is oriented towards on producing of quality products of new generation, in order to fully satisfy the needs and taste of connoisseurs of good wine.

Owners declare:

*“The wines of the Villa - white, red and rosé - are made from grapes, which we cultivate with great care and love. We draw inspiration from the melodious rustling of the vine leaves and the breathtaking sunsets, which each evening paints the vineyards. We choose the beautiful bottles very carefully because we are entrusting them to keep the fruit of our dreams - the elixirs called “Villa Lyubimets”.”*

The main brands of Villa Lyubimets are: Pagane, INSOLO, Electo and Nexo.

Slogan: “*Feel the spirit of Villa Lyubimets!*”

**Information and contact:** Vineyards near the town of Lyubimets/

Tel .: +359 888 441 971 – Mr. Blagoy Zhechev

<http://www.villalyubimets.com>

## Harmanli Municipality

### CASTRA RUBRA

village of Kolarovo, Harmanli municipality

“**Castra Rubra**” literally from Latin means "red fortress" and is named after the eponymous fortress which rose from 15 centuries ago, nearby to the winery. From here it passed the ancient Roman road *Via Diagonalis*, known as *Via Militaris*. The road was connecting Rome with Constantinople. One of the most successful wines of “*Castra Rubra*” is named to *Via Diagonalis*. The cellar was built in 2006 and fits exclusively into the landscape of the village of Kolarovo, where one of the largest vineyards in Bulgaria is located. The specific terroir here - red forest and decaying soils, warm climate, sunshine, airy hills, are the basis of the commitment and the continuation of millennial traditions of wine making. The cellar is owned by more than 200 ha varieties such as: Merlot, Cabernet Sauvignon, Syrah, Cabernet Franc, Alicante Bushe, Sanjovese, Pinot Noir, Verdot Petit, Cot, Sauvignon Blanc, Sauvignon, Pinot Gris, Chardonnay, Viognier, Grenache Blanc, and Petit manseng. In addition to these varieties, the local variety Mavrud and the Rubin variety (Bulgarian selection) are also grown. *Castra Rubra* produces a wide range of quality wines - white dry wine; dry red wine; pink dry wine; sparkling wines, noble sweet wine (wine of overripe grapes).

**Wine tourism:** The cellar has a modern base providing the opportunity to create excellent wines. Architecturally, the cellar is made of stone and wood in harmony with the environment. The building has a fermentation hall, wine cellar for maturing in barrels and aging in bottles, a grape harvesting site. Moreover, for the convenience and good stay of the visitors there are two reception rooms: a tasting room and a guest room.

The cellar accepts groups on preliminary queries. Visitors can enjoy walks through the vineyards, visits to the Castra Rubra fortress, a walk in the winery itself and a tasting with catering.

**Information and contact:** + 359/888688658 - marketing - for visits and tastings

[www.telish.bg](http://www.telish.bg)

### TERRA TANGRA

**Terra Tangra** winery was founded in 1999. Its located on the southwestern slopes of Sakar Mountain, along the river Maritsa in Thracian Lowland. **Terra Tangra** has 400 hectares of vineyards certified for organic production of grapes and wine. Terroir of the vineyards is characterized by many sunny days during the year, constant wind and little rainfall, leads to a high temperature gradient. The technology on organic grape growing requires strict monitoring and compliance requirements which take care agronomists, and technologists monitoring the exact date for picking each individual variety. Terra Tangra is specialized in the production of selected white, rosé and red wines in limited series. The fermentation of wines is a classical - with great attention to details, the preservation and extraction of natural substances from grapes that make the wine characteristic, memorable and useful. In recent years the wines of the Terra Tangra established themselves on the national and world market. The quality of the wines speaks the winning of prestigious awards and medals at international fairs such as: *Decanter*, *International Wine Challenge* - Vienna, *Mundis Vini*, *Wine Award International*, etc.

**Information and contact:** Tel: + 359/879966070, email: [office@terratangra.com](mailto:office@terratangra.com)

[www.terratangra.com](http://www.terratangra.com)

## Villa Bassarea

The owners of **Villa Bassarea** have stopped by that name in order to be able to differentiate themselves from the traditional name, symbolizing a new beginning, and pay tribute to the past of their craft - making good wine. Villa Bassarea is a boutique winery with a different approach to winemaking, located in the southern part of the Thracian Lowland wine-growing region, in the town of Harmanli, next to the newly built *Maritza highway*, and just eight kilometers away to the ancient Roman road - *Via Diagonalis*. Vineyards are entrusted to the care of experienced vine-growers. Specificity, the distinctive character of the wine brand "Bassarea" comes from the fact that some of the vines are over forty years, and the vineyard from which it comes is maintained by experienced vine-growers. This experience provides the distinctive character of Bassarea's wine. Through strict supervision of each step of the production process it is confirmed, that each grain of grape, drop of juice and the necessary ingredient are of the best quality. The idea behind this ambitious project is to blend the knowledge and processes defined by modern technology, a respect for our ancestors and the pursuit of making exciting and remarkable wine. The wines of the cellar are produced from the varieties: Chardonnay, Viognier, Cabernet Franc, Syrah, Merlot and Cabernet Sauvignon.

**Wine tourism:** Bassarea's doors are widely open to anyone who wants to learn about the production process, the philosophy of making wine, and touching the wines of the winery to the terroir of South Sakar. Access to the winery is easy. It is located in Harmanli, at the exit of the town in the direction of Svilengrad, just 300 meters away to *Maritza highway*. At the moment, in the immediate vicinity of the cellar, a regional enotec is built, where apart from the wines of **Bassarea**, wines from all the cellars in the region will be offered.

**Information and contact:** Kamen Koev + 359/886052535

[www.bassarea.bg](http://www.bassarea.bg)

## BRATANOV family winery & vineyards

**BRATANOV family winery & vineyards** is the result of the hard work and dedication of a father and his sons who have taken on their worthy mission to restore the family's wine tradition after a interrupt from 50 years. Its own 24 ha vineyards are located on the sunny hills of Southern Sakar near the village of Shishmanovo, Harmanli municipality. This mystical mountain in Southeast Bulgaria is one of the best terroirs in Europe for red wine varieties. The winds of the Aegean Sea penetrating to the Maritsa River valley, together with the generous sunshine and the sandy-clay soils, provide the perfect conditions for growing high-quality grapes. After careful analysis of the soil and climate characteristics are planted international varieties such as : Merlot, Syrah, Cabernet Franc and Chardonnay, and local - Rubin (Bulgarian selection) Tamianka, Gamza and Mavrud, the plantations of the last two local varieties are still young, established in 2016. This range of varieties grown on some of the most blessed and beautiful terroirs in the whole area, offering unique and unforgettable wines. In their own winery, opened for the first harvest in the autumn of 2010, the wines are produced in limited series and with minimal technological intervention. Thus it is provided control over the whole process of wine production - from grape to bottle. The strong symbiotic relationship between the land and the grapes, between the different varieties in blends, not least between different generations, give an idea of the name of the first series of blended wines – “*Symbiose*”. And as an expression of the belief, that the next generation will continue the wine tradition, are born wines from the series – “*The Successors*”. Each reflects the character and preferences of the child, whose name it bears - *Elitsa Syrah, Chardonnay*

*Beloslava* and *Rose Maria*. Its *Elitsa Syrah* 2011 brings the first official awards for the winery - it ranks among the *Top 50 Bulgarian wines* for 2013 in the magazine “DiVino”, and in June 2014 it is awarded with a bronze medal from the prestigious international contest of *Dekanter*. Since 2014 offered the first wines from the series “*Single Vineyard*”, made from the best grapes from specific parcels with local varieties - Tamianka and Mavrud. In June, 2014 *Tamianka Single Vineyard 2013* was awarded by the international jury of the *Balkan Wine Competition '2014* with a gold medal.

**Wine tourism:** The future plans of **Bratanov family winery & vineyards** include the construction of a tasting hall, but even now the winery is open for visits after a preliminary request. There is also a walk through the vineyards, a picnic and wine tasting, a grape harvest, etc. **Bratanov family winery & vineyards** is among the founding members of the *Bulgarian Association of Independent Wine Growers* ([www.baiw.org](http://www.baiw.org)) – the “New wave” Bulgarian wine producers, who focus on expression of terroir and implementation of the “craft” methods of vinification.

**Information and contact::** + 359/889 00 88 60 - Sales manager;  
[www.bratanovi.com/index.htm#](http://www.bratanovi.com/index.htm#)

## “CHATEAU KOLAROVO” LTD

**Chateau Kolarovo** is located in the village of Kolarovo, in Southern Sakar. Here vineyards of the winery are grown on an extremely suitable terroir. The position of the vineyards is south, southwest and southeast. The proximity of the river valley and the mountainous relief forms the climate in terms of precipitation. The duration of the period without precipitation in the region averages 210-240 days. The climate is continental-Mediterranean. Winters are mild - the absolute temperatures do not fall below 0-5° C. Spring is warm, comes early and is followed by a hot and dry summer. The total sum of degree for the vegetation period is 4000-4200° C. The soils are brown to brown-forest, with low to medium content of the rock. All these factors support the cultivation of high-quality white and red varieties of vines and the harmony of aromas and delicate flavors, with a characteristic and explosive body that brings together the expressive nature of the South.

**Chateau Kolarovo** has its own vineyards in which are selected the varieties: Chardonnay, Viognier, Merlot, Cabernet Sauvignon, Cabernet Franc, Cot, Syrah, Petit Verdot, Mavrud, Grenach, Murvedr. From they are produce white, rosé and red wines with the quality mark *Protected Geographical Indication*.

**Wine tourism:** Chateau Kolarovo is open to visitors, but by appointment at least 3 days prior to visit. There are two options for visitors:

**Option 1** includes: wine tasting, tour of the winery and explain the whole process.;

**Option 2** includes: exported tasting at the vineyards located 14 km away from the winery.

The tasting includes 3 or 5 wines (optional) as well as local delicacies. At the request of customers by appointment provides catering - lunch or dinner.

Information and contact: [www.chkolarovo.com](http://www.chkolarovo.com) ; Facebook/ Chateau Kolarovo; e-mail: [chateaukolarovo@gmail.com](mailto:chateaukolarovo@gmail.com) ; [chkolarovo@gmail.com](mailto:chkolarovo@gmail.com)

## MALKATA ZVEZDA (SMALL STAR)

**Malkata zvezda** was founded in 2005 and is 10 km away from the town of Harmanli to the *Kolarovski vineyard massif*, at the foot of the Sakar Mountains. The name of the winery **Malkata zvezda** “engl.- *Small Star*” is taken from the area where it is located. The star represents an old Roman crossroads, connected with the wine trade in ancient times. Winery **Malkata zvezda** is a continuation of traditions of the past - Thracian mystery of the wine, preserving unique character of the region, fine style and charm of the area. Terroir of *Kolarovski vineyard massif* is characterized by generous sunshine, mild climate and red forest soils, which grow local and introduced varieties, suitable for producing quality wines and limited series. Mr. *Svilen Georgiev*, wine cellar technologist, says that wine production starts from the vineyard with well cared vines, long before reaching the grapes in the cellar. The oenologist performs the grape selection in the vineyard until it reaches optimal maturity. The grapes are picked manually in 12 kg boxes. For white wine the grapes aged between 2 and 4 hours with the skins and then they are pressed. For red wines, the grapes are roasted and crushed, then apply different technologies maceration with the skins, before fermentation alcohol. Red wines undergo an aging process in oak barrels of Bulgarian and French wood between 6 months and 2 years. Once they reach a certain maturity, they are bottled and aged in bottles of three months to two years, before being placed on the market.

The wine series produced by the winery are: *Enigma* (Mavrud, Merlot, Syrah, Traminer and Chardonnay) and *Essens* (Marcellan, Merlot and Chardonnay). The wines of Little Star combine well-ripe grapes from Sakar and modern technology for vinification.

**Wine tourism:** A mix of history, beautiful nature, culture, wine and good cuisine - go hand in hand to offer a truly unique and fulfilling wine experience. The Wine Tour at the **Malkata zvezda** represents the way of wine from the vineyard through fermentation vessels and culminates in tasting in an authentic Bulgarian atmosphere. The **Malkata zvezda** is one of the four wineries of the “4x4 Extreme Wine Tour”, an accompanying event of the *Haramana Festival* organized by Harmanli Municipality. The ambition of Svilen Georgiev, along with his colleagues from other cellars in the area, is to expand the product of wine tourism, offering together more options for visitors.

Slogan: Taste of Sakar!

Information and contact: Office: +359 893 39 25 73

[www.malkatazvezda.com](http://www.malkatazvezda.com)

## Ivaylovgrad Municipality

### YAMANTIEVS WINERY IVAYLOVGRAD

**Yamantievs Winery Ivaylovgrad** is a type of family winery, which the family traditions of making wine are preserves and store wine traditions of the region of origin.

The region of Ivaylovgrad, where the winery is located, is part of the East Rhodope - Strandzha region. Ivaylovgrad municipality is located in the continental-Mediterranean climatic region. The most characteristic features of this type of climate are: warm summers and mild winters, during the coldest months of the year - January, temperatures are above 0 ° C. This mild climate and terrain defines here the terroir, making it extremely favorable for the ripening of white and red varieties. This area is included in one of the 5 terroir for producing quality wines of Haskovo district. The main local grape varieties grown in the vineyards of the Ivaylovgrad region are Dimyat, Pamid, Rubin. From the introduced varieties: Cabernet Sauvignon, Syrah, Pinot Noir, Merlot, Alicante Bushe, Traminer, Viognier, Muscat Ottonel, Chardonnay, Sauvignon Blanc, Pinot Gry. From this wide range of varieties are produced

different types of wines - white dry, white semi-dry, red dry, red semi-dry, sweet wine, wine beverages. The varieties of Merlot, Cabernet Sauvignon, Muscat Ottonel, Dimyat, Pamid are cultivated in the vineyards of **Yamantievs Winery Ivaylovgrad**. This is indicative that the efforts of the management of the winery is to meet every taste and preference for the Dionysus drink. The winery produces a series of quality wines: *Villa Armira, Reserve Yamantievi, Kaba Gaida, New Yamantievi Series, Ivailovgrad, Marble land*.

**Yamantievs Winery Ivaylovgrad** is involved in social and cultural events of the Municipality Ivaylovgrad, as together with the municipality organizes a Wine festival Enyovden (Midsummer).

In the town of Ivaylovgrad, on February 14 - St. Trifon Zarezan, the patron saint of winegrowers and wineries, is celebrated annually. **Yamantievs Winery Ivaylovgrad** also participate in this traditional event.

The winery participates with the Municipality of Ivaylovgrad in all events organized by the municipality - culinary day, games, forums with Greece and Turkey, sports competitions, film festival, etc.

Although there are no other wineries in the area, the ambition of management is to join a common tourist product of wine tourism, such as "*Wine Road*", to make the Ivaylovgrad region more famous and visited.

**Wine Tourism:** The winery is open all year round from Monday to Friday from 09:00 to 17:30. In case of interest for other days and hours - upon prior arrangement.

The winery offers visitors an optional with car drive to the vineyards, a wine cellar tour and wine tasting. For connoisseurs, a tasting of 4 wines, 6 wines, 8 wines and 10 wines is offered.

**Information and contact: Mrs. Elena Jouleva / +359 887417077**

### **“Domain Sakar” wine cellar**

address:

Lyubimets, 2, Shar Planina Str

tel .: +359 3751 4227, fax: 03571 2144

## **Simeonovgrad Municipality**

**INTEGRAL WINERY, Svirkovovo**

## Литература:

## Bibliography:

- Агростанция – Любимец
- Александров, В., 2006. Върху пространственото разпределение на почвеното засушаване в България, София, 42 с.;
- Алексиева, С., 2009. Винарските изби като туристически обекти – три стъпки към превръщането им в продаваем туристически продукт, Винен туризъм – традиция и съвременност, И. Славена, Варна, 53-59;
- Актуализиран общински план за развитие на община Стамболово 2014 – 2020 г., Юли 2017 г.
- Анализ на икономическите и социални характеристики и тенденции на община Ивайловград (Приложение 1);
- Батаклиев, И., 1927. Лозарството в България. Културно исторически преглед и стопанска структура, значение и криза. Сведения по земеделието., год.VIII, кн.8-9, с.3-36;
- Бориславов, Я., 2009. Виното. Българска енциклопедия, ИК „Труд“, С., с. 54-70, 291с.;
- Ванев С. (1963). Върху етиологията на същинското черно гниене (блек рот) и на лъжливото черно гниене (екскориоз) по лозата у нас. Известия на ИЛВ, Том 4, 115-127.
- Ванев С. (1995). Паразитни гъби по лозата (*Vitis vinifera* L.) на Балканския полуостров. Акад. изд. "Проф. М. Дринов", София, 69 – 70.
- Ванев С. (1963). Черното гниене на лозата и неговите причинители в България. Растителна защита № 8, 9-18.
- Гелева-Цветкова, Р., 2016. Културата на виното по българските земи. Практическо приложение на проучването на историята на винарството като информационен ресурс., Виното – история и вдъхновение, Сб. научна конференция с международно участие, Русе.с113-123;
- Генов Н. (2007). Влияние на някои фактори върху развитието и пространственото разпространение на бактериен рак в лозовото насаждение. Сборник “ Научна конференция с международно участие”, Плевен, 124-131.
- Георгиев, Г., 1957. Из живота и културата на първите земеделско-скотовъдни племена в България, Сб. археологически открития в България, С., с.33-48;
- Георгиев, Х., 1898. Лозарството и винарството у нас. Садово, Пловдив, год. I, бр.3, с. 85-90, бр.5, с.173-182;
- Давитая, Ф. Ф., 1959. Климатическите показатели сырьевой базы виноградо-виноделческой промышленности. Труды ВНИИВиВ „Магарач“, т. VI, вып. I, стр. 12 – 32;
- Димитров, В., 2014. Повишаване конкурентното предимство на продукта на винения туризъм чрез диверсификация, Дисертационен труд, С., УНСС, 232с.;
- Димитров, В., Д. Димитрова, 2015. Организиране на локални празници и събития като ресурс за регионално развитие на винен туризъм, Сб. „Туризмът в епохата на трансформация” – 50 г. от създаването на специалност „Туризъм” на Икономически университет Варна.;
- Дунавски винарски дестинации, проект ТГС „Румъния-България” 2007-2013 на сайт: [www.eurointegra.bg](http://www.eurointegra.bg)
- Закон за виното и спиртните напитки, В сила от16.09.2012г., Обн. ДВ. бр. 45 от 15 Юни 2012г., изм. ДВ. бр. 15 от 15 Февруари 2013г., изм. и доп. ДВ. бр. 26 от 21 Март 2014г., изм. ДВ. бр.14 от 20 Февруари 2015г.,изм ДВ. бр. 61от 11 Август 2015г., изм.и доп. ДВ. бр.9 от 26 Януари 2017г., изм. ДВ. бр. 58 от 18 Юли 2017г.,изм. и доп. ДВ.бр.17от 23 Февруари 2018г., доп. ДВ. бр. 77от 18 Септември 2018г.;

Закон за туризма, Обн. ДВ. бр.30 от 26 Март 2013г., изм. ДВ. бр.68 от 2 Август 2013г., изм. и доп. ДВ. бр.109 от 20 Декември 2013г., изм. ДВ. бр.40 от 13 Май 2014г., изм. ДВ. бр.9 от 3 Февруари 2015г., доп. ДВ. бр.14 от 20 Февруари 2015г., изм. ДВ. бр.79 от 13 Октомври 2015г., изм. и доп. ДВ. бр.20 от 15 Март 2016г., изм. ДВ. бр.43 от 7 Юни 2016г., изм. ДВ. бр.59 от 29 Юли 2016г., изм. и доп. ДВ. бр.75 от 27 Септември 2016г., изм. ДВ. бр.58 от 18 Юли 2017г., изм. ДВ. бр.85 от 24 Октомври 2017г., изм. ДВ. бр.96 от 1 Декември 2017г.;

Иванов, А., 2016. Природна география на Европа, Изд. Славина, 336 с.

Карта на виното, Издател БАРС АГЕНЦИЯ, Варна, Четвърто издание, март 2008

Карта на лозаро-винарските райони в България, 2015, И. Славена;

Катеров и др., 1990, Българска Ампелография, Т.1, С., И. БАН, с.12 - 296.;

Китов, Г., П. Павлов, 1973, Музей и паметници на културата, кн.2;

Койнов, В., Г. Гюров, Б. Колчева. 1980. Почвознание. Земиздат, 235-283;

Кръстева, А., Г.Рафаилова, (2009), Винен туризъм в България – настояще и бъдеще, Винен туризъм – традиция и съвременност,И. Славена, Варна,72-86;

*МЗХГ, Отдел „Агροстатистика”, MAFF, Agrostistics Department, Бюлетин №334 – декември 2017. БАНСИК 2017. Окончателни резултати за заетостта и използването на територията на България през 2017 г. Резултати и анализи, [http://www.mzh.government.bg/media/filer\\_public/2018/03/28/ra\\_334\\_publicationbancik2017.pdf](http://www.mzh.government.bg/media/filer_public/2018/03/28/ra_334_publicationbancik2017.pdf)*

*МЗХГ, Отдел „Агροстатистика”, MAFF, Agrostistics Department, Бюлетин №253 – октомври 2013. БАНСИК 2013. Окончателни резултати за заетостта и използването на територията на България през 2013 г. Резултати и анализи, [http://www.mzh.government.bg/media/filer\\_public/2018/02/22/ra253\\_publicationbancik2013.pdf](http://www.mzh.government.bg/media/filer_public/2018/02/22/ra253_publicationbancik2013.pdf)*

Маленин, И., 1996. Болести по лозата и борба с тях. Глобал Агро ЕООД, 148 с.

Маразов, И., 2016, Тракийския пир. Пленарен доклад., Виното - история и вдъхновение, Сб. с международни доклади, Регионална библиотека „Л.Каравелов”, Русе, с.17-21;

Михов, В., 1956, По следите на племената и народите, живели в нашата страна., С., с.4-43;

МТО станция – Свиленград

Метеорологична станция –Хасково

Начев, Т., 1981, Лозарството по българските земи от възникването му до началото на XX век, Дисертационен труд, Плевен, 260 с. 1-260;

National Statistical Institute. 2018. Regions, districts and municipalities in the Republic of Bulgaria 2016, <http://www.nsi.bg> ;

Областна администрация Кърджали – декември 2017. Актуализиран документ за изпълнение на Областна стратегия за развитие на област Кърджали за периода 2014-2020 г., [http://www.kj.government.bg/images/documents/Adi\\_OSr.doc](http://www.kj.government.bg/images/documents/Adi_OSr.doc)

Общински план за развитие на община Кирково за периода 2014 – 2020 г.

Областна стратегия за развитие на област Кърджали 2014 – 2020 г.

Общински план за развитие на община Любимец за периода 2014 – 2020 г.

Общински план за развитие на община Свиленград за периода 2014 – 2020 г.

Общински план за развитие на община Харманли за периода 2014 – 2020 г.

Областна стратегия за развитие на област Хасково 2014 – 2020 г.

Общински план за развитие на община Хасково за периода 2014 – 2020 г.

Пелях, М., 1970, История виноградарство и воноделия Молдовии, Кишинев, с. 3-182;

Програма „1333 малки изби”, проект на РЛВК-Тракия, 2007г.

Ройчев, В. 2012. Ампелография, Академично издателство на Аграрния университет, Пловдив, 576 с

Сапунджиев, Д., З. Митрева. 2016. Почвени ресурси в Южния централен район на планиране в Република България и техните основни характеристики, Почвознание, агрохимия и екология, 50, 3-4, 134-143.

Симеонов, И., 2014. Клонова селекция при лозовите сортове Димят и Мискет врачански, Дисертационен труд, Пловдив, 231 с.;

Сираков, П., 1909, Новото лозарство, Плевен, с.700-709;

Спецификация на вина със защитено географско указание – ЗГУ „Тракийска низина”, [http://www.eavw.com/updocs/2717071501153936\\_PGI\\_Trakiyska%20nizina%20Specifikacia%202017.pdf](http://www.eavw.com/updocs/2717071501153936_PGI_Trakiyska%20nizina%20Specifikacia%202017.pdf)

Спецификация на вината със защитено наименование за произход – ЗНП „Ивайловград”, [http://www.eavw.com/updocs/0614011389016519\\_PDO\\_Ivaylovgrad.pdf](http://www.eavw.com/updocs/0614011389016519_PDO_Ivaylovgrad.pdf)

Спецификация на вината със защитено наименование за произход – ЗНП „Любимец”, [http://www.eavw.com/updocs/0614011389016785\\_PDO\\_Lyubimets.pdf](http://www.eavw.com/updocs/0614011389016785_PDO_Lyubimets.pdf)

Спецификация на вината със защитено наименование за произход – ЗНП „Сакар”, [http://www.eavw.com/updocs/0614011389017214\\_PDO\\_Sakar.pdf](http://www.eavw.com/updocs/0614011389017214_PDO_Sakar.pdf)

Спецификация на вината със защитено наименование за произход – ЗНП „Стамболово”, [http://www.eavw.com/updocs/0614011389017297\\_PDO\\_Stambolovo.pdf](http://www.eavw.com/updocs/0614011389017297_PDO_Stambolovo.pdf)

Спецификация на вината със защитено наименование за произход – ЗНП „Хасково”, [http://www.eavw.com/updocs/0614011389017383\\_PDO\\_Haskovo.pdf](http://www.eavw.com/updocs/0614011389017383_PDO_Haskovo.pdf)

Стефанов, Б., Б. Китанов, 1962, Култигенни растения и култигенна растителност в България, стр.63;

Стоев, К. Д., 1960. Райониране на лозарството в България. Научни трудове, т. III, с. С., Земиздат, 168;

Харизанов А. (1986). Интегрирана борба с основните неприятели по лозата. В: Най-нови пост. при хим., биолог. и интегрираната борба с болестите. София, ЦС на НТС, 29-33.;

Харизанов А., Тодорова М., Харизанова В. (2009). Болести и неприятели по лозата. Издателство Виденов и син, София, 221 с.;

Цаков, Д., (2011), Виното – уникално природно лекарство, И. „Еньовче”, С., с.3-25

Abrasheva P., Kostadinov A. Rozenova L., Todorova M. (1993). Production of certified grapevine planting material in Bulgaria. Vnedreni novosti, № 6, 9-11.

Abrasheva, P., Todorova M, Genov N. (2004). Methods for obtaining and production of basic and certified grapevine material. Plant Science, 41, 123-127.

Avramov, Z., Gillet J., Laginova M. (2008). First Detection of stolbur phytoplasma in grapevines (*Vitis vinifera* cv. Merlot) affected with grapevine yellows in Bulgaria. Journal of Phytopathology, 156: 112–114.

Avramov Z., Ivanova I., Laginova M. (2011). Screening for phytoplasma presence in leafhoppers and planthoppers collected in Bulgarian vineyards. Bulletin of Insectology, 64: 115-116

Bobev, S. G., Jonghe K. De, Maes M. (2013). First Report of ‘*Candidatus* Phytoplasma solani’ on Blackberry (*Rubus fruticosus*) in Bulgaria. Plant Disease 97:2, 282-282.

Bordelon, B. (2011). Vinneard Establishment. <http://viticulture.hort.iastate.edu>.

Borisov, P., T. Radev, 2011. Regional analysis of specialization of vine growing in Bulgaria. *Agricultural economics and management*, 56(2), 31-39 (Bg).;

Bot, A., 2010, Evolution and history of grapevine (*Vitis vinifera*) under domestication: new morphometric perspectives to understand seed domestication syndrome and reveal origins of ancient European cultivars *Mar*; 105(3): 443–455. Published online 2009

Dec23. doi: [10.1093/aob/mcp298](https://doi.org/10.1093/aob/mcp298)

Casati, P., Quaglino F., Bertaccini A., Duduk B. (2012). Phytoplasmas associated with grapevine yellows diseases: an overview. *Phytoplasma and Virus Management in Grapevine Collections for Germplasm Conservation, Mobilization and Evaluation*. Sofia, 8-9 May, 2012.;

Cousens, R., Croft A. (2000). Weed populations and pathogens. *Weed Research*, vol. 40, №1, pp. 17 – 24.

Dimitrova, D., I. Simeonov, 2016. Varietal structure as a source of competitive advantage in the wine sector, In: *Proceedings of the National scientific conference with international participation „Wine – history and inspiration”*, Lyuben Karavelov Regional Library, Ruse, pp.130-141 (Bg).

Dimitrova, D., V. Dimitrov, 2017, Regional aspects of viticulture and wine production development in Bulgaria, *Journal of Mountain Agriculture on the Balkans*, 20 (3), 162-186.

Duduk B., Ivanovic M., Dudik N., Botti S., Bertaccini A. (2003). First report of an elm yellows subgroup 16SrV-C phytoplasma infecting grapevine in Serbia. *Plant Disease* 87: 599

Duduk B., Botti S., Ivanovic M., Krstic B., Dukic N., Bertaccini A. (2004). Identification of phytoplasmas associated with grapevine yellows in Serbia. *J. Phytopathol.* 152: 575-579.

EPPO (2006). First report of stolbur phytoplasma causing “Bois noir” on grapevine in Bulgaria. *Reporting Service*, 8: 167.

European Networks of Wine Cities – RECEVIN on site: <http://www.recevin.eu/>

Genov N. (2012). Studies on the spread of grapevine crown gall *Agrobacterium* spp. in Bulgaria. *Proceedings of the Jubilee Scientific Conference with international participation “Scientific achievements - contribution to effective viticulture and enology”* 4-5 September 2012, Pleven, Bulgaria, 167-174.

Genov N. (2012a). <http://www.ipwgnet.org/cost/PDF%20files/STSM/COST-STSM%20Report%20Nikolay%20Genov.pdf>.

Genov N., Mitrovic J., Genov M., Duduk B. (2014). First Report of Corn Reddening, caused by '*Candidatus* Phytoplasma solani', in Bulgaria. *Plant Disease*, 98:7, 991-991.

Hoffman, L. E., Wilcox, W. F. (2002). Utilizing epidemiological investigations to optimize management of grape black rot. *Phytopathology* 92:676-680.

Hoffman, L. E., Wilcox, W. F. (2003). Factors influencing the efficacy of myclobutanil and azoxystrobin for control of grape black rot. 87:273-281.

IRPCM (2004). '*Candidatus* Phytoplasma', a taxon for the wall-less, non-helical prokaryotes that colonize plant phloem and insects, *International Journal of Systematic and Evolutionary Microbiology*. 54 (04), 4.;

Ivanov, Y., Valchev V. Abrasheva, P., 1972. Systems and methods for maintenance of variety in the viticulture. *Viticulture and Enology*, №4, 4-7.

Ivanov, Y., Valchev V. Abrasheva, P., Malenin I. (1972). Concerning the vegetative variability and the methodology of the individual clonal breeding in grapevine. *Viticulture and Enology*, №5,3-13.

Kamenova I., Tsvetkov I., Atanassov A. (2007 ). Virus testing of certified grapevine planting material in Bulgaria. *Biotechnology & Biotechnol. Eq.* 21, 66-68;

Kanchev, I., J. Doichinova, A. Miteva, Z. Stoyanova, 2012. Sustainable development of grape-wine sector in South-Central region, UNWE, Sofia, 238 pp. (Bg)

Kirechev, D., 2012. Spatial concentration and integration in the wine sector, *Izvestiya, Journal of University of Economics, Varna*, 1, 132-145 (Bg)

Miteva, A., 2015. Opportunities for organising clusters in the Bulgarian grape-wine sector, *Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development*, vol. 15, issue 1, 295-300. (En)

Lange, A., Lider L., Fischer B., Agamalian H. (1970). Herbicide – Variety studies of Young Grapevines. American journal of Enologie and Viticulture, vol. 21, № 2, pp. 85 – 93.

Logothetis, B., 1970. The development of the vine and viticulture in Greece based on Archeological findings in the area Tesaloniki, pp.5-82;

Logothetis, B., 1975. Contribution de la vigne et du vin a la civilisation de la Grece et de la Mediterranee Orientale. Tesaloniki, pp.1-283;

Lyubenova T., Genov N., Balashkov E., Prodanova-Marinova (2016) State of the Integrated Pest Control Systems in The Vineyards in Bulgaria. *Symposium proceedings / 2nd International symposium for agriculture and food, ISAF 2015, 7-9 October 2015, Ohrid, Republic of Macedonia. - Skopje : Faculty of agricultural sciences and food, 2016.*

Magud B, Tosevski I. (2004). *Scaphoideus titanus*: a new pest in Serbia Biljni-Lekar-Plant-Doctor, 32(5): 348-352.;

Marques, H., (2006) Searching for complementarities between agriculture and tourism – the demarcated wine-producing regions of northern Portugal. *Tourism Economics* 12(1):147.155;

Molitor D., Fruehauf C., Baus O., Berkelmann-Loehnertz B. (2012). A cumulative degree-day-based model to calculate the duration of the incubation period of *Guignardia bidwellii*. *Plant Dis.* 96:1054-1059.

Moreira, I. (1994). Entretien du sol et evolution de la flore. *Phytoma. La Defense des vegetaux*, № 462, pp. 28 – 30.

Moulis, I. (1992). Etude de la concurrence herbe –vigne. Consequences ecophysiologiques sur la vigne de l'enherbement de vignoble en region Mediterranee. *Comptes rendues du IV simposium international de physiologie de la vigne*, 11 – 15 mai, Torino, pp. 93 – 97.

Porozhanov, K., V. Kitanov, A. Portalsky, 2017. Viticulture and winemaking traditions of the Thracians from Southeast Europe and Northwest Anatolia, *Journal of Mountain Agriculture on the Balkans*, 2017, 20 (4), 178-185, ISSN 2367-8364 (Online);

Sakaliev, D., Paltrinieri S., Calari A., Bertaccini A. (2007). Molecular identification of “Bois Noir” phytoplasmas in grapevine in Bulgaria. *Bulletin of Insectology*, 60: 153-154.

Smith I, McNamara D., Scott P., Holderness M. (1997). *Quarantine pests for Europe* (2nd edition), 1013-1021.

Steffek R., Reizenzein H., Zeisner N. (2007). Analysis of the pest risk from Grapevine flavescencedoréphytoplasma to Austrian viticulture.-*EPPO/OEPP Bulletin*, 37 (1): 191-203.;

Taylor, R., (2006), *Wine Festivals and Tourism: Developing a Longitudinal Approach to Festival Evaluation*, In: *Global Wine Tourism: Research, Management and Marketing*, CABI, p.175-195, pp.278;

Terziyska, I., G. Georgiev. 2014. Wine Tourism in Bulgaria: Chalanges and Opportunities, *SPA and Wine – International Tourist Forum*, Sandanski (Bulgaria) and Corfu (Grece), 16-20.10.2014, p.30-35,pp.302;

Tomljenović, R., (2006), *Wine Tourism Destination Life-Cycle*, GEOTOUR, Košice 5–7 October, p.228-241;

*Wine&Spirit in Bulgaria‘2010*, рекламна книга, издание на НЛБК, с.34

#### **Internet sites:**

[www.ahrida.org](http://www.ahrida.org)

[www.bgturist.net/bg/treasures/Maska.html](http://www.bgturist.net/bg/treasures/Maska.html)

[www.bulgariatravel.org/bg/object/60/Tatul](http://www.bulgariatravel.org/bg/object/60/Tatul)

[www.dariknews.bg](http://www.dariknews.bg)

[www.brat-bg.com/bg](http://www.brat-bg.com/bg)

[www.vsyakajena.com](http://www.vsyakajena.com)  
[www.perpericon.bg](http://www.perpericon.bg)  
[www.pochivka.bg](http://www.pochivka.bg)  
[www.bulgariatravel.org](http://www.bulgariatravel.org)  
[www.bnr.bg/post/101002285/razrabotenite-12-vineno-kulinarni-destinacii-na-teritoriata-na-balgaria-shte-badat-obaveni-prez-esenta](http://www.bnr.bg/post/101002285/razrabotenite-12-vineno-kulinarni-destinacii-na-teritoriata-na-balgaria-shte-badat-obaveni-prez-esenta)  
[www.acevin.es](http://www.acevin.es)  
[www.focus-news.net/news/2018/07/26/2549730/bugas-v-ekspozitsionen-tsentar-flora-shte-se-provede-festival-na-vinoto.html](http://www.focus-news.net/news/2018/07/26/2549730/bugas-v-ekspozitsionen-tsentar-flora-shte-se-provede-festival-na-vinoto.html)  
[www.dariknews.bg/regioni/bugas/ide-vtorii-a-festival-na-vinoto-v-kameno-2078089](http://www.dariknews.bg/regioni/bugas/ide-vtorii-a-festival-na-vinoto-v-kameno-2078089)  
[www.avgustiada.com/96-avgustiada-2018](http://www.avgustiada.com/96-avgustiada-2018)  
[www.kazanlak.bg/page-5969.html](http://www.kazanlak.bg/page-5969.html)  
[www.ivaylovgrad.bg](http://www.ivaylovgrad.bg)  
[www.opoznai.bg/events/view/festival-na-harmana](http://www.opoznai.bg/events/view/festival-na-harmana)  
[www.stambolovo.bg/?show=news&id=232](http://www.stambolovo.bg/?show=news&id=232)  
[www.lozenfest.com](http://www.lozenfest.com)  
[www.novjivot.info/08/17/4150](http://www.novjivot.info/08/17/4150)  
[www.opoznai.bg/events/view/den-na-vinaria-kardjali](http://www.opoznai.bg/events/view/den-na-vinaria-kardjali)  
[www.kirkovo.bg/index.php?pid=5.46&gallery\\_folder=3](http://www.kirkovo.bg/index.php?pid=5.46&gallery_folder=3)  
[www.sabori.bg/ob-kardzhali/view.html?oid=96546](http://www.sabori.bg/ob-kardzhali/view.html?oid=96546)  
[www.katarzyna.bg](http://www.katarzyna.bg)  
[www.lozewwine.com](http://www.lozewwine.com)  
[www.dwinery.com](http://www.dwinery.com)  
[www.mezek.eu](http://www.mezek.eu)  
[www.villalyubimets.com](http://www.villalyubimets.com)  
[www.telish.bg](http://www.telish.bg)  
[www.terratangra.com](http://www.terratangra.com)  
[www.bassarea.bg](http://www.bassarea.bg)  
[www.bratanovi.com/index.htm#](http://www.bratanovi.com/index.htm#)  
[www.chkolarovo.com](http://www.chkolarovo.com)  
[www.malkatazvezda.com](http://www.malkatazvezda.com)