

## **The current state and prospects for the development of viticulture and winemaking in Greece**

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### **Abstract**

Viticulture in Greece is the oldest, but in recent years there has been a reduction of areas intended for the production of wine products. The article contains data on viticulture in Greece. Over time, the land of Greek vineyards is fluctuating. There is a trend towards a decrease in areas in connection with the quota of products from the EU. The comparative estimation of the areas allocated for grapes in Greece and leading EU states (Spain and France) is given. Despite this development, the wine sector is not facing serious problems compared with other crops because the soil - climatic conditions favor viticulture in Greece and grape production gives high quality products. Greece is one of the countries with a slight increase of 2% in wine production, while the total wine production reached 2.6 million hectoliters, from 2.5 in 2016, that is 2% of total production in the European Union and 1% worldwide. Greece with wine production occupies the 12th place in the world and 4th in the European Union. As far as wine consumption is concerned, Greece remained at the same level as 2.3 million hectoliters for 2017, after falling in recent years. In recent years, the wine-growing trend has presented a serious and urgent problem due to the high competitive environment of importing wine products from Latin America.

**Keywords:** viticulture, varieties of grape, grape products, consumption, wine export.

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## 1 Introduction

The viticulture in Greece is one of the oldest in the world, with a history of over 9 thousand years. For thousands of years in Greece, cultivated grapes are the ones that gave the raw materials for wine production. Vineyards in Greece are located on the islands scattered throughout the country and on the mainland. The territory of Greece with its Mediterranean climate is generally within the climatic and geographic area favorable to viticulture (from 35 ° to 41 ° north latitude). The proximity of the numerous islands and the mainland to the sea, exerts its beneficial effects, greatly affecting the climate of the mainland, especially the coastal lands and, of course, the islands. Vineyards are located on soils with a different texture ranging from sea level up to 1000 m high or more. Most of the vineyards, are located in mountainous and high altitudes. Vineyards are divided into large geographic regions: northern Greece, Central Greece (including Attica vineyards), Peloponnese and the islands of the Ionian Sea, Aegean islands and Crete. Cultivation, processing and trade in grape products are significant in the agricultural sector. The purpose of this work is to analyze the data on the development of viticulture in Greece. For this purpose, data from the country's statistical service and the Ministry of Rural Development and Products of Greece were used.

## 2 Results – Discussion

In this paper we present data on viticulture in Greece. Over the years, the areas of Greek vineyards fluctuate: from 1990 to 2001 the area of the vineyards is decreasing, while in 1997 the total area of the vineyards was 132.000 ha. The decline in wine production is around 10% in recent years. This is mainly due to the measure of subsidized grubblings applied by the European Union in order to reduce high production and accumulated stocks (1, 2, 3, 4, 7, 9). According to the data of the 2015 wine growing survey, based on the vineyard register of the Ministry of Rural Development and Food presented by the Hellenic Statistical Authority, the total area under vineyards is 103.082 ha, of which 101.155 ha are land with vineyards of productive age and 1,927 ha with non-productive vineyards. Of the total vineyard area, 63.326 hectares (68.67%) are cultivated with vines and 39.756 hectares with raisins (Table 1). (7)

Table 1: Areas and Planting Rights of wine Grapes

<b>YEAR</b>	<b>PLANTED AREA</b>	<b>RIGHT PLANTED</b>	<b>TOTAL PLANTED AREA</b>	<b>CHANGE %</b>
	ha	RESERVE	RESERVE	PREVIOUS YEAR
1990/1			817.435	---

1991/2			787.740	-3.63
1992/3			775.376	-1.57
1993/4			769.087	-2.10
1994/5			739.554	-2.57
1995/6			727.372	-1.85
1996/7			707.992	-2.67
1997/8			698.470	-1.34
1998/9			695.721	-0.38
1999/0			697.581	0.27
2000/1			697.581	0.00
2001/2			775.890	11.23
2002/3			707.940	-8.76
2003/4			647.775	-8.50
2004/5	660,816	44,956	711.772	9.80
2005/6	699.075	38.483	737.563	3.62
2006/7	701.115	29.935	731.050	-0.83
2007/8	710.101	20.338	730.439	-0.08
2008/9	700.894	14.561	715.455	-2.05
2009/10	678.541	10.921	689.435	-3.64
2010/11	673.329	6.755	680.084	-1.36
2011/12	664,738	6.635	671.373	-1.28
2012/13	653.303	5.465	658.767	-1.88
2013/14	650.203	7.762	657.965	-0.12
2014/15	640.484	12.163	652.647	-0.81
2015/16	627,734	8.903	636.637	-2.45
2016/17	627.281	-	627.281	-1.47
2017/18	628.045	-	628.045	0.12

Source: Ministry of Rural Development and Food (minagric.gr)

However, the competent department of Vineyard, Wine and Alcoholic Drinks of the Ministry of Agriculture and Food Supply informed the European Commission for the wine year 2017/2018 that in Greece there are 62,804 ha of vineyard with wine grape varieties (minagric.gr). The land increased by 7,604 ha. or 0.12% compared to the period 2016-2017 (6). Comparing the available data on the areas of vineyards in Greece with those of the Member States of the European Union, it is noted that Greece is in the last positions, areas such as Spain (about 120,000 ha) and France (about 910,000 ha) (4). The wine sector does not present serious problems in relation to other crops because of the soil and climate conditions of Greece which contribute to the cultivation and production of high quality grapes. Despite the reduction in areas under vines from 2003 onwards, there is no corresponding reduction in total production, mainly due to the improvement in farm returns. In 2015 most of the land under vines were recorded in the Peloponnese with 25.554 ha, in Crete with 22.559 ha and in Western Greece with

16,445 ha. The more areas under vine are in Peloponnesus 10,132 ha, in western Greece cultivated 8.662 ha and 7.750 ha are Crete. Vineyards for the production of protected designation wines (PDO) is grown on 14,518 ha (22.9% of the total area). For the production of protected geographical indications (PGI) wines, varieties are cultivated on 39,671 ha (62.6% of the total area of the harvest), while for the production of other wines there are 6,884 ha (10.9% of the total area of the wine). Vineyards with double-purpose grapes (wine-making and edible or wine-making and raisins) grow varieties in 2,247 ha (3.5% of the total area of the grapes) (7). In terms of total grape production in 2012, it stood at 75,100,000 tones, and at these levels it is estimated to be moving in recent years. The production of wines from Greek varieties is 89% and only 11% from foreign varieties The main Greek varieties as a percentage of the total cultivated area are: "Savatano" (17%), "Roditis" (13,7%), "Agiorgitiko" (5,5%), "Xinomavro" (3,4%), "Liatiko" (3,4% "Assrtiko" (2.8%).(9). Wine production by vineyard periods from 1984-1985 to 2015-2016 is shown in Table 2 (6). Mushroom production follows the course of vineyards and after 1998 there is a significant decline. According to the data, wine production mainly includes white dry (68%), red and pink colors represent 32% (9).

Table 2: Wine growing seasons 1984-2016.

<b>Times</b>	<b>Red Wine (HL)</b>	<b>White Wine (HL)</b>	<b>Total Must (HL)</b>	<b>Total Wine Production (HL)</b>
1984-1985	1.623.500	3.392.000	9.500	5.025.000
1985-1986	963.052	2.066.434	8.746	4.538.232
1986-1987	1.421.799	2.912.550	7.434	4.341.783
1987-1988	1.458.005	3.009.309	8.002	4.475.316
1988-1989	1.499.101	2.829.184	17.094	4.345.359
1989-1990	1.524.296	2.966.895	40.818	4.532.009
1990-1991	1.037.640	2.448.270	40.090	3.526.300
1991-1992	1.886.136	3.093.903	35.955	4.015.994
1992-1993	1.958.478	3.086.236	5.286	4.050.000
1993-1994	1.774.650	2.603.300	14.500	3.392.450
1994-1995	633.485	2.409.439	8.361	3.051.285
1995-1996	762.233	3.079.446	8.321	3.850.000
1996-1997	880.977	3.224.148	4.075	4.109.200
1997-1998	815.847	3.167.134	4.019	3.987.000
1998-1999	1.126.200	2.696.800	2.800	3.825.800
1999-2000	1.056.000	2.624.000	4.230	3.684.230
2000-2001	1.129.010	2.421.600	7.390	3.558.000
2001-2002	1.115.020	2.359.980	2.000	3.477.000
2002-2003	901.300	2.183.750	12.950	3.098.000
2003-2004	1.718.790	2.080.720	5.520	3.804.000
2004-2005	1.385.000	2.889.720	20.280	4.295.000

2005-2006	1.238.880	2.781.249	6.421	4.026.550
2006-2007	1.238.046	2.671.601	28.377	3.938.024
2007-2008	1.172.250	2.314.300	24.500	3.511.050
2008-2009	1.260.350	2.595.475	13.128	3.868.953
2009-2010	914.950	2.164.750	285.800	3.365.500
2010-2011	921.750	1.878.250	150.000	2.950.000
2011-2012	911.850	1.748.200	90.000	2.750.000
2012-2013	1.200.000	1.850.000	65.300	3.115.300
2013-2014	1.139.700	2.129.200	74.400	3.343.300
2014-2015	876.594	1.872.961	50.445	2.800.000
2015-2016	745.809	1.712.432	42.859	2,501.100

Source: Ministry of Rural Development and Food.

In Greece, there was a slight increase of 2%, while the total wine production reached 2.6 million hectoliters, from 2.5 hectoliters in 2016, that is 1,7% of total production in the European Union and 1% worldwide. Greece with wine production occupies 12th place in the world and 4th in the European Union. Concerning wine consumption, Greece remained at the same level as 2,3 million hectoliters for 2017, after a fall in recent years (10).

According to the data, wine production mainly includes white dry (68%), the red and pink colors represent 32%. In the Table 3 is presented consumption wine in Greece, in period 1995-2011(8).

Table 3: Consumption wine in Greece, 1995-2011 years.

<b>Times</b>	<b>Quantity H L</b>	<b>Per person lt</b>	<b>Per consumer lt</b>
1995-1996	3,105	29.60	41.40
1996-1997	3,300	31.40	44.00
1997-1998	2,900	27.60	38.70
1998-1999	2,958	28.20	39.40
1999-2000	2,752	26.21	36.61
2000-2001	2,747	26.20	36.70
2001-2002	2,942	28.00	39.00
2002-2003	2,466	23.00	32.90
2003-2004	2,978	28,40	39,48
2004-2005	3,207	30,50	42,51
2005-2006	3,242	30,98	42,97
2006-2007	3,218	30,60	42,66
2007-2008	3,188	30,40	42,26
2008-2009	2,926	27,90	38,79
2009-2010	3,248	30,90	43,05
2010-2011	3,158	30,10	41,83

The calculation was made according to the population of the country 10.500.000 and Per consumer 7.500.000.

As can be seen from the latest review of household budgets, the average monthly household expenses for wine-making products (wine and sparkling wines) reached 6.46 euros in 2017, which represents 38% of the total expenses for the purchase of alcoholic beverages. The average monthly volume of wine per household was about 1.45 liters in 2017. Wine consumption in Greece has increased over the past 15 years, with the exception of the 2002/2003 season, when a significant reduction in consumption was about 15%. Between 1995 and 2011, wine consumption per citizen of the country ranged from 23.00 to 31.4 liters per year. (Table 3). The export of Greek wine in 2000 was 44,890 tons and in 2007 it dropped to 29,750 tons, and since 2004 there has been a continuous annual decline in exports to 5% of wine products. In 2014, exports of Greek wines increased in quantity (+ 15,54%), and in value (+ 5,2%) compared to the previous year. Analytically, exports of Greek wine over the past five years in liters are listed in table 4 below (5).

Table 4: Export Greek wine in seasons 2010-2014 years (lt).

<b>FROM</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>
	<b>Liter Wine</b>				
E. Union	33.225.700	29.450.700	29.761.100	19.854.500	23.804.700
Others Country's c	5.341.100	4.498.500	4.660.400	4.506.700	4.341.200
<b>TOTAL</b>	<b>38.566.800</b>	<b>33.949.200</b>	<b>34.421.500</b>	<b>24.361.200</b>	<b>28.145.900</b>

Source: Hellenic Statistical Authority (KEOSE and Koumakis)

The countries of the European Union are the main importers of Greek wine (83.18%). Exports to third countries in 2007 amounted to only 16.82%. As for edible varieties, the total cultivated area is at the level of 39.756 hectares with an upward trend. On the contrary, the production of edible grapes is relatively balanced, despite the variations in the years, due to the increased yields. Concerning the production of dried grapes tends to decrease. New planting of varieties of table varieties can be planted provided that these varieties are registered in the national register or in registers of other European European Union member countries. The table varieties are in Corinthia (44.5%), Heraklion Crete (14.4%) and Kavala (14.4%). Sultanina occupies 62% of the land, which is the biggest weakness of the industry, as competition from other countries offers a

multitude of color or white varieties, many of which are new ones. The production of dried grapes concerns two types of raisins in Greece: two types of raisins: "korinthiaki" (raisin black) and "Sultanina" (light raisin). The cultivation of the "korinthiaki" is found in the areas of the North and West Peloponnese as well as in Zakynthos and the cultivation of the Sultanina is mainly found in Crete and Corinthia (9). According to the Ministry of Rural Development, most of the areas with raisins (76% of the total area of raisins) are recorded in two regions, in the Peloponnese with 15,422 ha and in Crete with 14,804 ha (5; 7). The main directions of viticulture and winemaking are: a) wine varieties and wine production; b) table varieties; c) flavored varieties; d) spirits production. In recent years, the wine industry has grown dynamically and is a dynamic part of Greek agricultural production with more than 700 wineries. This dynamic contributes to the development of viticulture. The table varieties cultivation is also dynamic with a large export direction. Despite this development in the sector, it does not pose serious problems in relation to other sectors of agricultural production because the soil and climate conditions of the country contribute to the cultivation of grapes and the production of high quality products. However, the existing problems in industry are related to high production costs and the accumulation of large stocks. There is a lot of competition from countries outside the European Union, especially from Latin America, which is a serious problem for Greek vineyards and winemakers.

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