

# Evolution of grapevine surfaces in Romania after accession to European Union – period 2007–2016

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**Abstract.** The paper focuses on the evolution of the surfaces planted in Romania with the main wine grape varieties and also attempts to describe the impact of the funds received for the vine and wine sector after the country's accession to European Union in 2007. The evolution of planted surfaces and production is followed for the period 2007–2016, based on the data recorded in the digital database called National Register for Vine Plantations. The study presents the evolution of the surfaces covered with the most widely spread autochthonous and international varieties, for both white and red wines, which are, in decreasing order, Fetească regală, Fetească albă, Merlot, Riesling, Aligote, Sauvignon blanc, Cabernet Sauvignon, Muscat Ottonel, Fetească neagră, Pinot noir and Chardonnay. The largest newly planted surfaces were recorded in 2011 for most of these varieties, but a high impact of the support received from the EU was visible throughout the period 2008–2012. Later on, from 2013–2016, the rate of planting started to decrease.

## 1. Introduction

The vine and wine sector is one of the most developed sectors in Romanian agriculture, which largely benefited from the country accession to European Union in 2007. The National Support Programme of Romania for 2009–2013 reported full absorption of the funds allocated for viticulture, with important investments in new plantations and in some new technologies.

The programme is followed by another similar one, planned for 2014–2018, which is ongoing at present. The funds allocation was made on the basis of the European legislation dealing with the common organisation of agricultural markets – (EC) No 1234/2007 and (EU) No 1308/2013 [1,2] and common organization of the market in wine – (EC) No 1493/1999 and (EC) No 479/2008 [3,4] and the respective implementing regulations [5–7]. For example, in the period 2009–2013 the investments in the vine and wine sector in Romania were included among the measures for the rural development and not under special measures dedicated only to viti-vinicultural sector. For the new period of 2014–2018, however, Romania included such investments under the specific measures for vine and wine sector.

The allocation took into account the priorities of the country, concentrating mostly to the restructuring and conversion of vineyards and planting wine grape varieties meant for the production of quality wines with Controlled Denomination of Origin or at least with Geographical Indication. The present study is an attempt to evaluate from several viewpoints the impact of the European funds

allocated to Romania with regard to the development of the vine and wine sector during the period 2007–2016. The main points of the paper refer to the evolution of the surfaces planted with the main wine grape varieties cultivated in Romania from 2005 to 2016, evolution of vine surfaces in accordance with the destination of production in each wine region and the new plantations established by using existent planting rights or allocated from the national reserve.

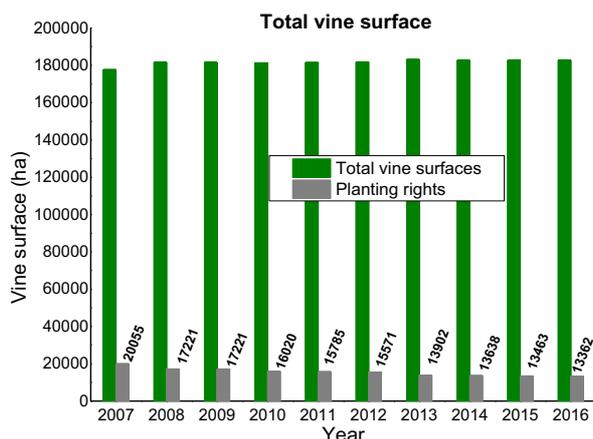
## 2. Materials and methods

Data were obtained from several sources, such as Statistical yearbooks of Romania issued by National Institute of Statistics [8], Ministry of Agriculture and Rural Development of Romania [9], Romanian Payment and Intervention Agency for Agriculture (APIA) [10], but mostly from reports of the Romanian National Office of Vine and Wine Products (ONVPV) [11] and Romanian National Organisation of Vine and Wine (ONVV) [12] submitted to the European Commission or to OIV. An example of such a report, which is not available for public, is “Agriculture and Rural Development ISAMM CM” sent by ONVV to the European Commission in March 2015 regarding the inventory and measurement of the area planted and also the transitional planting rights regime.

Due to the complexity of the field, both European regulations and Romanian legislation for the wine and vine sector [11] were consulted. Some regulations referred only to wine market common organisation, while others referred generally to the common organisation of agricultural markets, thus, the measures for vine and wine were based on specific provisions of either one or the other type of regulation. Basically, in accordance to

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**Figure 1.** Vine surfaces evolution in Romania after accession to EU to present time.

(EC) No 1234/2007, the regulations regarding common organisation of agricultural markets did not cover those parts of the CMOs which were subject to policy reforms, certain elements for wine being part of these reforms. The data regarding grape varieties and planted surfaces were extracted from the Registry of the Vineyard Plantations, a national IT system developed based on an Oracle database, in which the declarations of producers are introduced since 2003. Until 2009 corrections and updates of the registry were allowed, in accordance with the documents from the vineyards owners. A functional registry of the vine plantations was a prerequisite for accession of Romania to EU. At present it is the main evaluation and control tool for the viti-viniculture sector. A new enhanced software application for the Registry was launched this year, comprising the recording of compulsory declarations (harvest, yield, stock) as mentioned in EU legislation [4, 13], along with required information for market research.

Based on the data from the Registry of the Vineyard Plantations the surface evolution of autochthonous and international varieties from 2007 to 2016 was examined in order to evaluate how did the National Support Plan helped Romania achieve its objectives assumed as a Member State, in the field of wine and vine.

The main grape varieties monitored and included in the reports for the European Commission are: Fetească albă, Fetească regală, Merlot, Riesling, Aligote, Sauvignon blanc, Cabernet Sauvignon, Muscat Ottonel, Fetească neagră, Pinot noir, Chardonnay.

### 3. Results and discussion

#### 3.1. The evolution of the Romanian vine and wine sector in the period of 2007–2016

The total vine surface in Romania, as presented in Fig. 1, has not fluctuated much since 2007, only a very slight increase being recorded in recent years due to the new plantings.

The total surface covered with vine in Romania reported in 2015 was 182,849 ha, of which 96,492 ha *Vitis vinifera* vine varieties and 86,357 ha of interspecific hybrids (hybrid vine varieties temporarily accepted in culture).



**Figure 2.** Wine production evolution in Romania from UE accession to present time.

To this surface 13,463 ha are added as planting rights in various stages of usage (planting rights allocated to producers but not yet used – 1,739 ha, replanting rights currently held by the producers – 9,536 ha and planting rights still existing in the reserve – 2,188 ha), leading to a total viticultural potential of 196,312 ha (ISAMM-CM 2015).

The values of 2016 (not yet officially reported at the moment of paper writing) are not very much different from those of 2015, the total vine surface being 182,763 ha to which planting rights are added in surface of 13,362 ha.

The planting rights reserve allocated to Romania upon accession to EU (in amount of 2,830.5 ha) are included in the present national reserve.

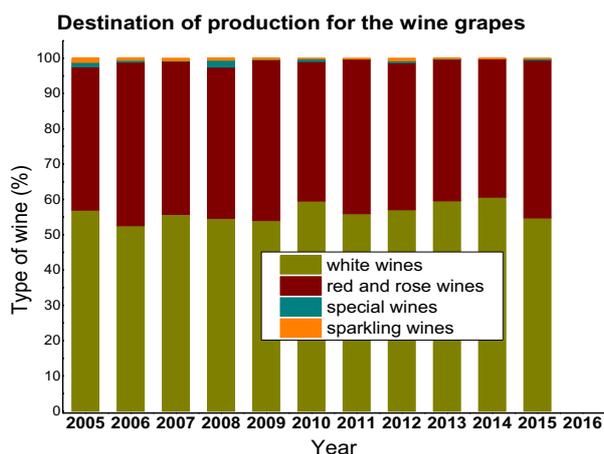
Basically, between 2007 and 2016 the total vine surface remained relatively constant, even though the influx of EU funds made a clear difference in the varieties planted and vine renewal. From 2007 the planting rights from the national reserve decreased slowly, with a more important decrease in 2013, when due to the infusion of the EU funds more vine was planted. In Romania the vine planting is only permitted if a planting right is used, either a new planting right, or a replanting right or a right allocated from the national reserve. This is set in Art. 63 of Regulation (UE) nr. 1308/2013 [2] which repeals previous regulations forbidding the planting of grapevine until December 31<sup>st</sup>, 2015.

The destinations of the vine surfaces for the wine production were in 2015 (ISAMM-CM 2015) as follows:

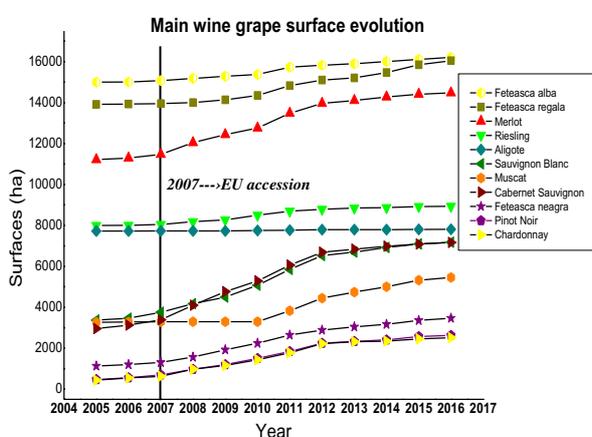
- 31,532 ha (17.25%) - surfaces for wine with protected denomination of origin (DOC)
- 18,600 ha (10.17%) - surfaces for wine with protected geographic indication (IG)
- 132,717 ha (72.58%) - surfaces for wine without protected DOC/IG.

The wine produced and meant for commerce is only based on the *Vitis vinifera* varieties; thus, when considered in view of the total surfaces covered with vine, the Romanian wine production is lower than expected. The evolution of the wine produced and commercialized in Romania from 2007 to 2016 is presented in Fig. 2, with the resulted categories of wines included in Fig. 3.

We can see that in the period 2010–2013 the wine production decreased, but this is explained by the fact that in this period old vineyards were grubbed and new



**Figure 3.** Destination of the wine grape production in Romania from 2005 to 2015.



**Figure 4.** Evolution of surfaces cultivated with the main wine grape varieties in Romania from 2005 to 2016.

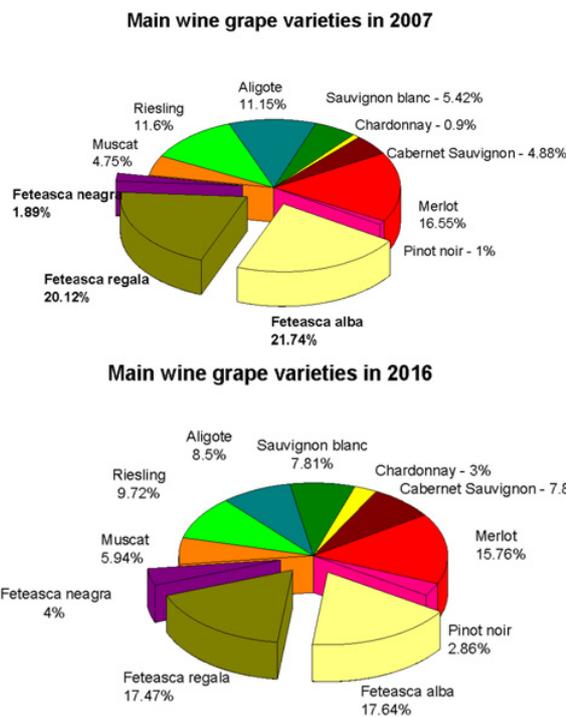
vineyards, which need time to enter production, were planted with European funds.

### 3.2. Evolution of wine grape varieties from 2005 to 2016

More than 140 *Vitis vinifera* and interspecific grape varieties are cultivated in Romania, but not all cover important surfaces. Out of these only about 40 wine grape varieties are found on surfaces larger than 100 ha. The most important varieties cultivated in Romania on significant surfaces are included in Table 1 and their evolution in time is plotted in Fig. 4.

Starting with 2007, the year of Romania’s accession to EU, all these main varieties had their surfaces increased. With the exception of Riesling and Aligote, which registered only slight surface increases during the entire reported period, all the other main varieties recorded clear growth, with a sharp increase between 2008 and 2012, when the European funds were absorbed the most efficiently (Fig. 4).

Due to the infusion of European funds, the relative distribution of the main varieties in 2016 differs compared with 2007 (Fig. 5), with a relative increase of the international varieties Cabernet Sauvignon, Chardonnay, Sauvignon blanc, Pinot noir and Muscat, but also with an increase for the indigenous Feteasca neagra. While



**Figure 5.** Relative distribution of the main wine grape varieties in Romania at the accession to EU (2007) and at present (2016). The percentages are calculated as reported to the total surface of these varieties.

still being the most widespread varieties in Romania, the white autochthonous varieties Feteasca alba and Feteasca regala recorded a relative decrease. Also a reduction was observed for surfaces with Riesling, Aligote and Merlot.

### 3.3. Evolution of vine surfaces in accordance to the wine regions and destination of production

In accordance to the geographic position and some other particularities of climate and soil, in Romania are defined eight wine regions. More information about Romanian wine regions, varieties and wines can be found in our previous publications [14, 15].

As mentioned before, the vine surfaces are distributed in the most favourable regions of the country, the largest wine regions being the 1-Hills of Moldova followed by the 2-Hills of Vallachia and Oltenia (Fig. 6).

The new investments in vineyard took into account the necessary increase in wine quality, thus, the new plantations were mostly destined for the DOC wine production. As a consequence, in all the regions were DOC wines are approved, the DOC surfaces increased in 2016 as compared to 2007, by 1.1 to 5.5 times, in accordance to the wine region (Table 2).

Thus, it can be seen that after EU accession the surfaces meant for DOC wine production significantly increased in all wine regions, with the exception of the region of Danube Terraces, where there is no denomination of origin approved.

However, the overall quantities of red wines obtained did not increase as much as expected (Table 3), the percentage of red wines remaining in the range of 40–45% (Fig. 7), even though the total wine production fluctuated largely in accordance to each year’s climatic conditions.

**Table 1.** Evolution of the main wine grape varieties cultivated in Romania from 2005 to 2016 (from ONVPV).

Grape variety	Vine surface (ha)											
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
<b>Feteasca alba</b>	15004	15007	15075	15180	15287	15375	15733	15828	15901	16005	16111	16210
<b>Feteasca regala</b>	13915	13934	13950	14005	14134	14353	14828	15104	15206	15469	15850	16052
<b>Merlot</b>	11216	11294	11472	12044	12440	12758	13480	13964	14106	14278	14411	14480
<b>Riesling</b>	7997	8001	8045	8180	8271	8497	8698	8787	8848	8872	8922	8936
<b>Aligote</b>	7727	7727	7728	7728	7728	7753	7769	7793	7793	7794	7805	7811
<b>Sauvignon blanc</b>	3375	3465	3757	4170	4499	5078	5851	6528	6696	6919	7096	7176
<b>Cabernet Sauvignon</b>	2956	3125	3387	4100	4768	5287	6060	6692	6837	6985	7087	7170
<b>Muscat</b>	3267	3278	3293	3296	3296	3296	3830	4447	4741	5000	5323	5457
<b>Feteasca neagra</b>	1130	1195	1307	1568	1924	2245	2643	2885	3043	3170	3360	3467
<b>Pinot noir</b>	466	554	695	970	1196	1501	1841	2241	2333	2407	2567	2627
<b>Chardonnay</b>	434	544	626	970	1158	1432	1777	2223	2317	2344	2454	2511

**Table 2.** The surface with vineyards distributed in accordance to the Romanian wine regions in 2007 (time of EU accession) and in 2016 (from ONVPV Communication 2007 and Vine Plantations Registry, ONVPV, 2015–2016).

Wine region	Total surface (ha) in 2007 (EU accession)	DOC surface in 2007 (ha)	Surfaces with IG and without DOC/IG in 2007 (ha)	Total surface (ha) in 2016	DOC surface in 2016 (ha)	IG surface in 2016 (ha)	Surfaces without DOC/IG in 2016 (ha)	DOC surface increase in 2016 as compared to 2007	
								times	%
1. Transylvanian plateau	6604.84	1432.57	5172.27	6953.13	3919.99	80.62	2952.52	2.74	173.63
2. Hills of Moldova	70504.87	7419.38	63085.49	69156.73	8267.69	11901.23	48987.81	1.11	11.43
3. Hills of Vallachia and Oltenia	49492.97	3911.92	45581.05	52829.18	8300.78	1596.43	42931.97	2.12	112.19
4. Hills of Banat	2722.83	838.07	1884.76	2962.43	1774.72	22.94	1164.77	2.12	111.76
5. Hills of Crisana and Maramures	7942.99	356.82	7586.17	9614.48	1957.98	710.55	6945.95	5.49	448.73
6. Hills of Dobrogea	15748.56	6924.77	8823.79	17008.88	8333.3	3239.57	5436.01	1.20	20.340
7. Danube Terraces	11822.0	0	11822.0	11250.6	0	417.57	10833.03	0	0
8. Sands and other Favourable Lands of the south of the country	13261.68	0	13261.68	12941.35	245.82	296.23	12399.3	N/A	N/A
Total:	<b>178100.74</b>	<b>20883.53</b>	<b>157217.21</b>	<b>182716.78</b>	<b>32800.28</b>	<b>18265.14</b>	<b>131651.36</b>	1.57	57.06

**Table 3.** Amounts and types of wine produced in each year.

Type of wine	Wine quantity (1000 hl)										
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
White	1518.7	2860.7	2768.0	289.0	3637.0	1976.3	2276.7	1913.8	2976.1	2275.6	1998.1
Red	1083.5	2521.0	2153.0	2264.8	3066.0	1311.0	1781.5	1396.8		1474.2	1629.5
Special	32.3	28.1	7.3	103.0	0.0	26.06	0.30	17.0	12.1	0.1	14.7
Sparkling	32.0	33.3	36.0	30.1	23.1	5.4	9.9	25.9	4.6	4.9	6.1
Total	2666.5	5443.1	4964.3	2686.9	6726.1	3318.7	4068.4	3353.5	2992.8	3754.9	3648.3

### 3.4. Evolution of investments and new plantations after the EU Accession

The infusion of funds after the EU accession greatly benefited the Romanian vine and wine sector.

In viticulture, most funds were allocated for restructuring and conversion of the vine plantations, as seen in Table 4. A total of 288.7 million Euro were invested in the wine and vine sector between 2007–2014, around 98% going each year into the replacement of old plantations.

The new plantations were approved and financed only with compliance with the grape varieties zoning regulations of Romania (Ministry Order 225 of 2006), as

a prerequisite of quality wine production in each specific wine region.

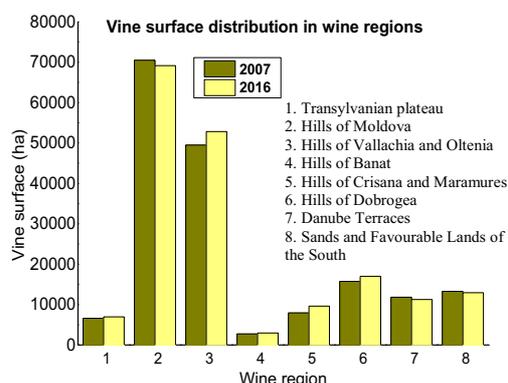
The new surfaces planted with wine grapes are shown in Figs. 8–11, grouped in surfaces covered with the main white and black varieties, autochthonous and international, respectively.

Also, in Fig. 12 the total new vine plantations are reported, from 2005 to 2016.

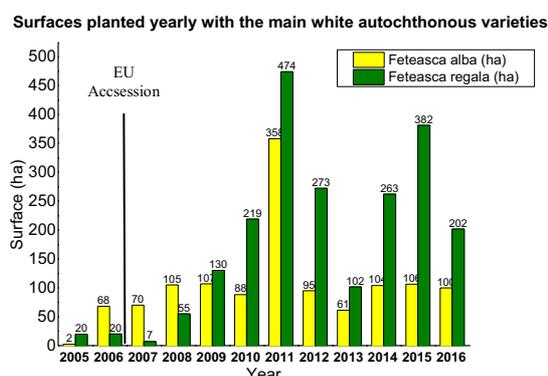
Until 2013 the funds allocated to the wine and vine sector were absorbed entirely. The maximum impact of the European funds allocated to Romania after 2007 was seen in the year 2011 (Fig. 12), when the plantings with the white and black international varieties were given priority,

**Table 4.** Funds allocated in Romanian viticulture between 2007 and 2016 (Romanian Payment and Intervention Agency for Agriculture, 2017).

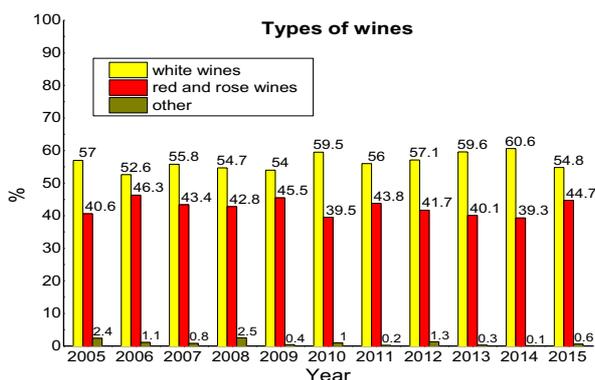
Vintage year	Vineyards restructuring conversion		Harvest insurance must euro	Use of concentrated (rectified) markets euro	Promotion on third euro	Investments from EU euro	Total allocated euro	TOTAL used	
	euro	% of allocation						euro	%
2006 / 2007	6,893,687.59	81.1	—	—	—	—	8,500,000.00	6,893,687.59	81.1
2007 / 2008	35,050,227.75	100.1	—	—	—	—	35,000,000.00	35,050,227.75	100.1
2008 / 2009	41,692,714.49	99.0	323,423.24	29,494.27	54.40	—	42,100,000.00	42,045,686.40	99.9
2009 / 2010	41,548,576.08	98.7	360,658.94	81,283.31	109.48	—	42,100,000.00	41,990,627.81	99.7
2010 / 2011	41,182,059.13	97.8	269,524.10	76,458.11	571.96	—	42,100,000.00	41,528,613.30	98.6
2011 / 2012	40,990,098.37	97.4	306,211.10	56,044.92	747.64	—	42,100,000.00	41,353,102.03	98.2
2012 / 2013	41,183,602.36	97.8	230,808.69	—	663.12	—	42,100,000.00	41,415,074.17	98.4
2013 / 2014	47,084,204.96	98.7	253,321.27	—	362.47	—	47,700,000.00	47,337,888.70	99.2
2014 / 2015	18,995,454.62	39.8	228,617.54	—	699.41	—	47,700,000.00	19,224,771.57	40.3
2015 / 2016	10,940,798.41	22.9	186,734.05	—	479.33	70,473.87	47,700,000.00	11,198,485.66	23.5
<b>TOTAL 2007–2016</b>	<b>325,561,423.76</b>	<b>82.0</b>	<b>2,159,298.93</b>	<b>243,280.61</b>	<b>3,687.81</b>	<b>70,473.87</b>	<b>397,100,000.00</b>	<b>328,038,164.98</b>	<b>82.6</b>
	<b>99.24%</b>		<b>0.66%</b>	<b>0.07%</b>	<b>0.00%</b>	<b>0.02%</b>		<b>100%</b>	



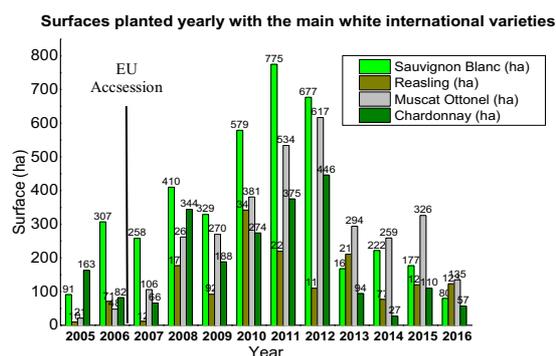
**Figure 6.** The vine surface distribution in wine regions at EU accession (2007) and at present (2016).



**Figure 8.** The surfaces planted yearly with the main white autochthonous varieties - period 2005–2016.



**Figure 7.** The wine assortment in accordance to the main types: white, red/rosé and other.



**Figure 9.** The surfaces planted yearly with the main white international varieties - period 2005–2016.

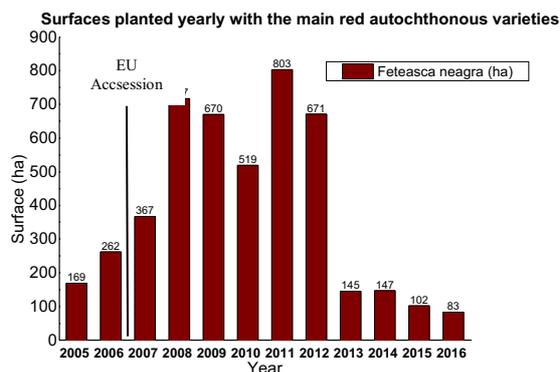
Sauvignon Blanc (Fig. 9), Cabernet Sauvignon and Merlot (Fig. 11) being also at the top of the producers' list.

The black autochthonous variety Fetească Neagră also had a significant evolution, being one of the most preferred varieties for the new plantings (Fig. 10).

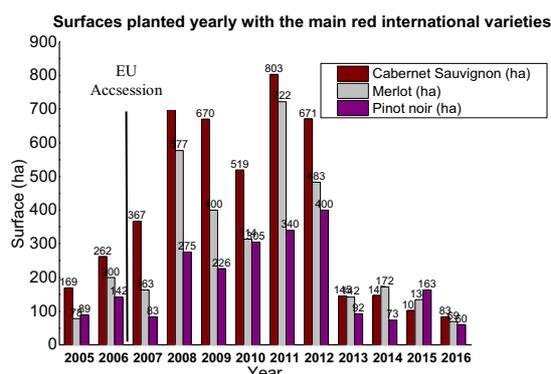
The autochthonous white varieties, Feteasca alba and Feteasca regala were not neglected either (Fig. 8).

Starting with 2013 a sharp decrease is seen in the investments in new vine plantations, due mainly to some legislative measures which led to a temporary blockage. Thus, for the year 2016, out of the available 47.7 million Euro only 12 million were absorbed, the new plantings reaching only 895 ha.

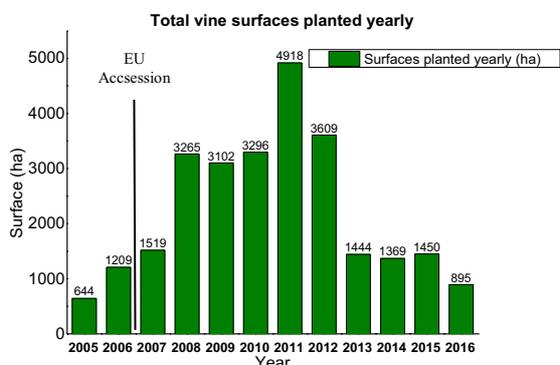
There are reasons to believe that Romania will continue the research in its viticulture domain,



**Figure 10.** The surfaces planted yearly with the main black autochthonous varieties - period 2005–2016.



**Figure 11.** The surfaces planted yearly with the main black international varieties - period 2005–2016.



**Figure 12.** The total vine surfaces planted yearly - period 2005–2016.

with the new National Viticultural Programme 2014–2018, for which 238.5 million Euro are allocated, that is 47.7 million Euro per year.

#### 4. Conclusions

The Romanian vitiviniculture was one of the areas of the economy which greatly benefited from the accession to EU. The most important changes were seen in the renewal of the vine plantations, as almost 90% of the funds allocated through the National Support Plan 2009–2013 for viticulture were spent in restructuring and conversion. During this period the investments in equipment for viticulture and winemaking were actually not covered in the viticulture programme, but in the rural and development programmes for agriculture, thus, only

few such investments were made due to high competition from other agricultural sectors. Even so, the entire funds distributed to Romania were very useful, several years in a row during this first programme the funds allocated in viticulture being totally absorbed. The second programme, for 2014–2018, is ongoing, with some changes regarding the objectives, including the investments in equipment. The absorption slowed down, however, due to some legislation inconsistencies and delays in application. The restructuring and conversion helped renew the existing plantations, which were not anymore adapted to market demand – but also helped with the establishing of new plantations, based on using individual planting rights or from the national reserve, so that the total surface of vineyard existent in the country could be kept at the level negotiated at the time of the accession to EU. Grapevine varieties currently in low demand were replaced with valuable autochthonous varieties or international varieties. An increase was observed for the autochthonous Feteasca Neagră, as well as for the international varieties such as Cabernet Sauvignon, Chardonnay and Sauvignon Blanc.

#### References

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- [2] REGULATION (EU) No 1308/2013 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 17 December 2013, establishing a common organisation of the markets in agricultural products and repealing Council Regulations (EEC) No 922/72, (EEC) No 234/79, (EC) No 1037/2001 and (EC) No 1234/2007. (<http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1491852068735&uri=CELEX:32013R1308>)
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