Ecological Vineyards Governance Activities for Landscape's Strategies

Deliverable T 1.2.1

Structural analysis of selected areas and vineyard mapping

Responsible Partner

VEGAL LP – ExtendaVitis SRL

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FINAL VERSION

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Project Summary

ECOVINEGOALS promotes sustainability and resilience in the winemaking industry by encouraging the transition of intensive viticulture towards agroecological management systems that protect natural habitats and landscapes, while reducing chemical and fossil fuel inputs and harmful emissions. The project aims to enhance stakeholders' skills in participatory local governance, to strengthen transnational cooperation and provide specific transnational instruments to promote, support and manage the agroecological transition.

Expected results

- Sharing between partners in the ADRION countries of fundamental concepts and practices necessary for the transition from intensive viticulture management systems, towards agroecological management methods.
- Improvement of the participatory local governance skills of decision makers and all other viticulture stakeholders, both public and private, to jointly develop and define strategies and plans aiming to protect natural habitats and rural landscapes.
- Transnational communication, cooperation, and exchange between regional authorities and civil society organizations concerning common objectives to protect vulnerable environments, to promote ecosystem services, to prevent or mitigate climate change, and to avoid social conflicts in land use.
- An increase in the number and quality of tools and strategies available to support the planning and management of the agroecological transition of viticulture systems in the region.

Partnership:

PP1- LP	**LAG EASTERN VENICE, VEGAL (IT)**
PP2	Autonomous Province of Trento, PAT (IT)
PP3	Chamber of Agriculture and Forestry of Slovenia, KGZS-Zavod GO (SI)
PP4	Research Centre of the Slovenian Academy of Sciences and Arts, ZRC SAZU (SI)
PP5	Agency for rural development of Istria Ltd. Pazin, AZRRI (HR)
PP6	Association for the promotion of employment, vocational training and education, INFORMO (HR)
PP7	Business Development Center Kragujevac, BDCKG (RS)
PP8	Foundation Business Start-up Center Bar, BSC BAR (ME)
PP9	Municipality of Bar, BAR (ME)
PP10	Mediterranean Agronomic Institute of Chania, CIHEAM MAICh (EL)

Associated Partners (APs):

General Union CISL Cultivators Venice (IT)
Bio district of production and biological community of central-eastern Venice - BIO VENICE (IT)
IAL - Innovation Learning Work S.r.l. - Social enterprise (IT)
AIAB-Italian Organic Agriculture Association (IT)
Agroecologiki SP (EL)
Municipality of Topola (RS)
Šumadija winemakers association (RS)
Ministry of Agriculture and Rural Development (HR)
Agroecology Europe (BL)

Index

1. Geographical framework

The "Biodistrict of organic production and community of central-eastern Venice", from now on BIO VENEZIA, is the pilot area selected for the Northeast of Italy and is located in eastern Veneto Region (Fig. 1).

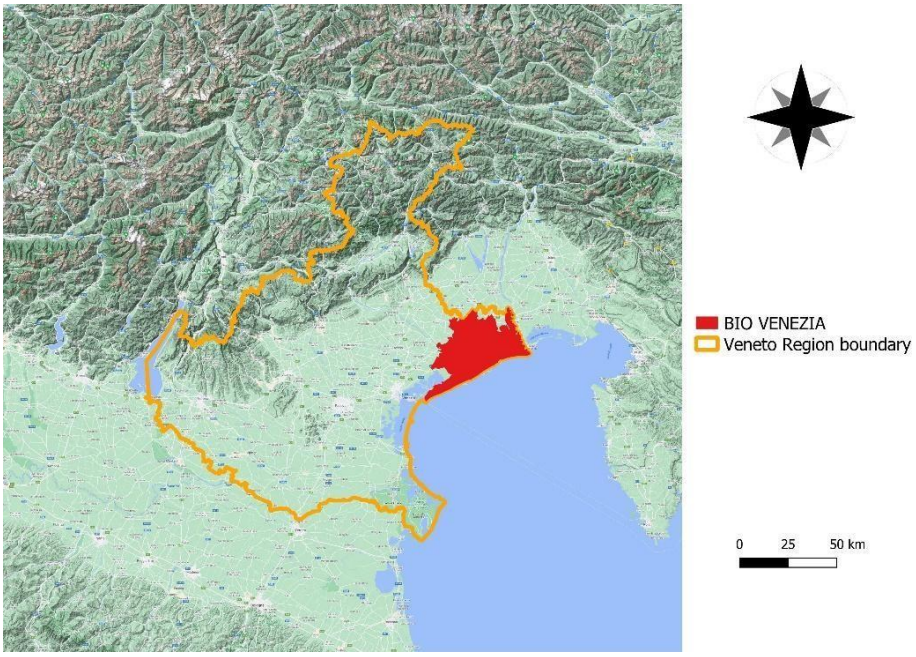

Figure 1 Veneto Region boundary and BIO VENEZIA position (source Extendavitis elaboration on Geoportale Veneto Region).

The geographical area of the district extends from Cavallino-Treporti to San Michele al Tagliamento, from the province of Treviso to the Adriatic Sea. It comprises 17 municipalities (Fig. 2), two of which are part of the province of Treviso and the others of the Metropolitan City of Venice, for a total area of about 1,058 km^2 (Tab. 1). It has an average population density of about 206 inhabitants per square kilometer (2019 data). Considering the extension of the district area, the socio-economic texture is extremely heterogeneous.

Figure 2 BIO VENEZIA municipalities (source Extendavitis elaboration on Geoportale Veneto Region).

Municipality	**Province**	**Area (km²)**	**Inhabitants (2019)**	**Density (inhab./km²)**
San Michele al Tagliamento	VE	113.45	11,872	105
Pramaggiore	VE	24.20	4,649	192
Portogruaro	VE	102.35	24,632	241
Concordia Sagittaria	VE	66.55	10,314	155
Caorle	VE	153.09	11,476	75
San Stino di Livenza	VE	68.07	12,862	189
Annone Veneto	VE	25.78	3,814	148
Ceggia	VE	21.97	6,095	277
Torre di Mosto	VE	38.34	4,800	125
Eraclea	VE	95.23	12,197	128
San Donà di Piave	VE	78.77	42,250	536
Noventa di Piave	VE	18.06	7,010	388
Musile di Piave	VE	44.96	11,388	253
Jesolo	VE	96.37	26,056	270
Cavallino-Treporti	VE	44.94	13,508	301
Cessalto	TV	28.22	3,865	137
Motta di Livenza	TV	37.68	10,814	287
TOTAL		1058.03	217,602	206

Table 1 Source: Geoportale Veneto Region, statistica.regione.veneto.it.

1.1. The origins and mission

BIO VENEZIA was founded in 2016 by nineteen founder members, including producers, associations and consortia, who decided to respond to the growing sensitivity of the community for the health and environment protection. BIO VENEZIA confirms its commitment to the promotion of the organic production method, enhancing local identity and supporting research, training and information involving a large part of the community.

Currently, BIO VENEZIA has about fifty registered organic farms and is an active partner of "TERRITORI BIO" project, which has allowed a collaboration between organic producers in central-eastern Venice and the COLLI EUGANEI biodistrict. The partnership primarily aims at encouraging the sharing of experiences among farmers and technicians, to respond to the demand of innovative solutions and strategies from the organic production sector.

1.2. Soil profile

The morphological and soil profile characteristics of the BIO VENEZIA area are the result of a long period of glaciation and subsequent alluvial deposits. The territory is characterised by the presence of ancient rivers (Fig. 3): Tagliamento, Livenza and Piave, which have transported sediments of gradually lower caliber to the valley, defining overtime the current characteristics of the land along their riverbeds.

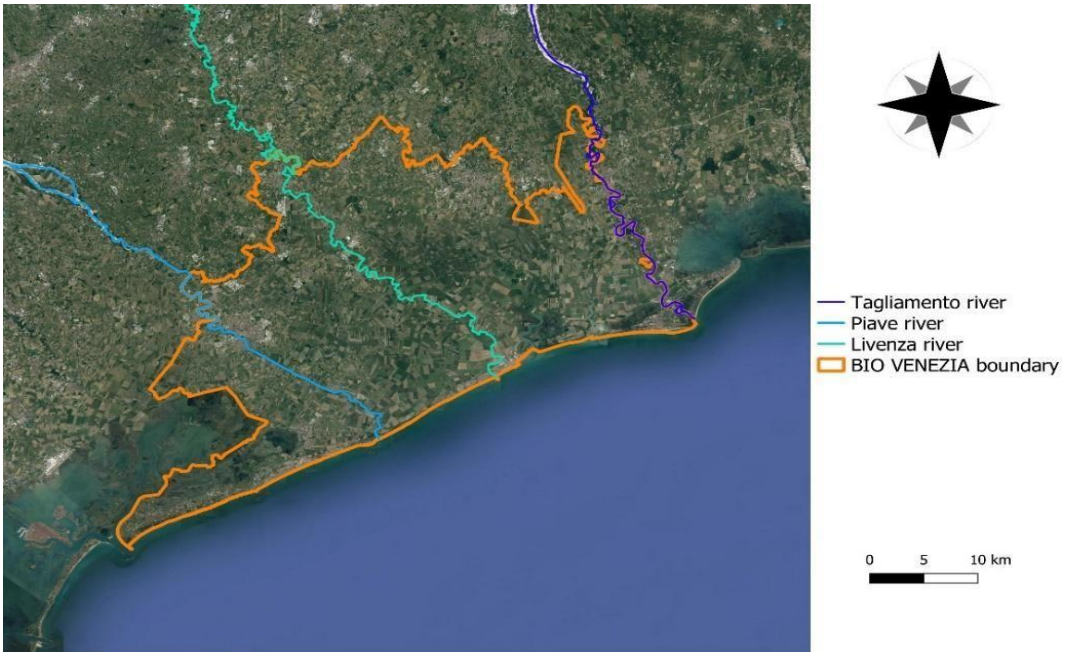

Figure 3 Main BIO VENEZIA rivers (source Extendavitis elaboration on Geoportale Veneto Region).

The area of BIO VENEZIA is characterised by a rich soil profile panorama, including the skeleton-rich soils of the northern flatland near the aforementioned waterways, the clayey and calcareous ones of the central area, and the sandy ones of the lower flatland adjacent to the coast. Therefore, from the hinterland towards the sea, there is an initial prevalence of skeleton soil that progressively decreases to clayey and silty

components. These components are relatively recent in geological terms, because deposited during the Quaternary, the last geological period that has conventionally begun 1 million and 800,000 years ago, and includes the current era.

The variety of soils that characterise the BIO VENEZIA can be roughly divided in two macro-areas, separated by a belt of springs: the upper plain and the lower plain. Gravelly soils, well drained, which force vine roots to penetrate into the deepest layers, characterise the upper plain. These conditions are excellent for the production of fresh, elegant and aromatic white wines with intense notes of flowers and fresh fruit. The lower plain is composed of finer textured soils, mainly clayey and loamy. These well-balanced soils produce grapes from which you get not only structured red wines with important notes of red fruit, but also aromatic white wines with full and solid structure, suitable for aging (Fig 4).

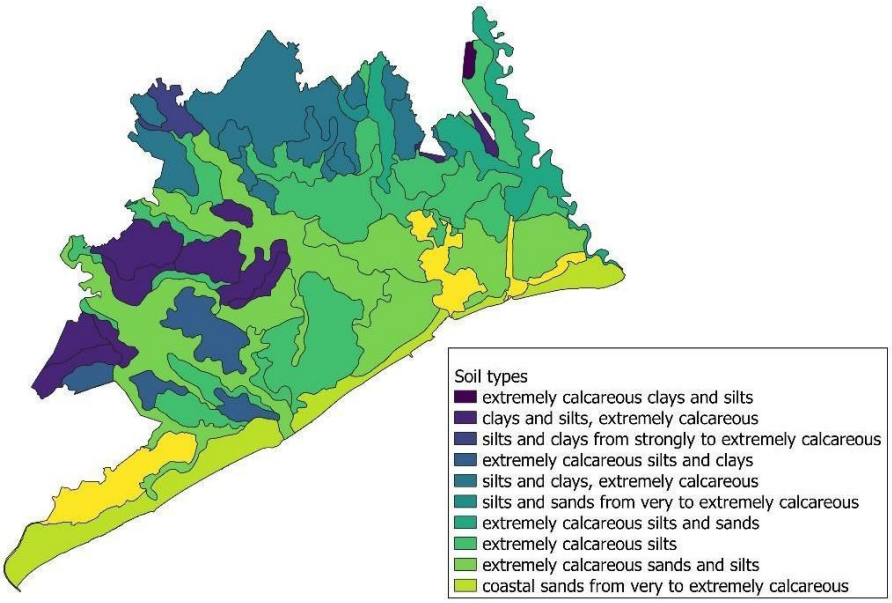

Figure 4 BIO VENEZIA soil types (source Extendavitis elaboration on Geoportale Veneto Region).

1.3. The climate

The climate in the BIO VENEZIA area has continental traits, with relatively cold winters and hot summers. The study of temperatures detected by ARPAV (Veneto Region Agency for Environmental Protection) meteorological station in the municipality of Portogruaro (the station closest to the farms involved in the survey) between 1994 and 2019, shows that the hottest month is July with an average calculated temperature (average of monthly averages) of 23.4°C, while the coldest month is January with 3°C (Fig. 5).

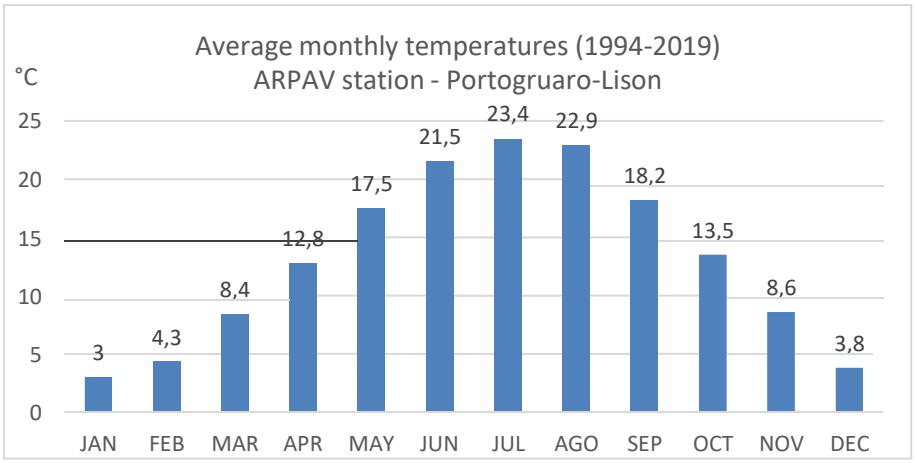

Figure 5 Source: ExtendaVitis elaboration on ARPAV data.

A graphical analysis of the trend of average annual temperatures shows a tendency of slight increase in this parameter, which, averaged over the entire period, corresponding to 0.05°C per year (Fig. 6). By examining the trends of minimum and maximum annual temperatures (averages of monthly averages), a similar phenomenon is revealed, more evident in the line that approximates the minimums (greater slope).

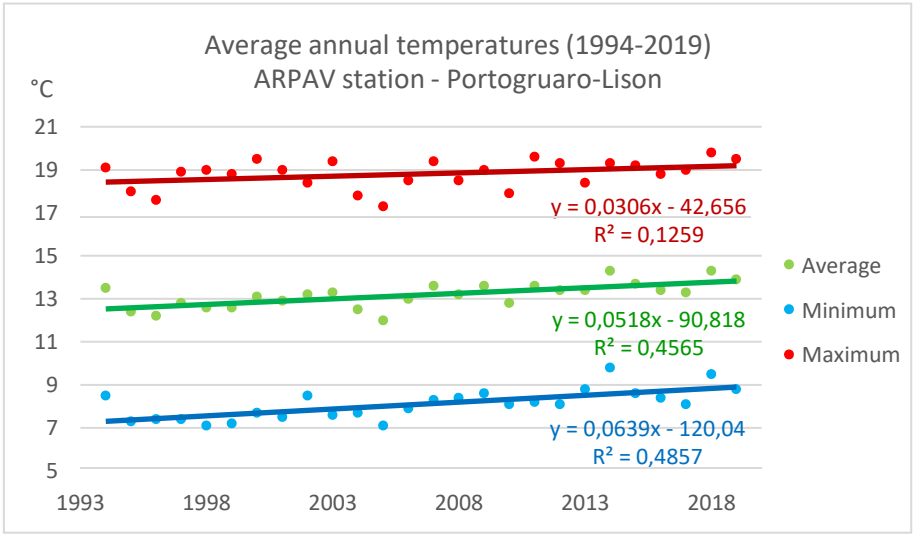

Figure 6 Source: ExtendaVitis elaboration on ARPAV data.

The climate of the BIO VENEZIA district enjoys the mitigating effect of the sea, thanks also to the flat conformation and the consequent exposure to the winds of the territory. It is therefore a fairly regular climate, with limited seasonal temperature variations, one of the most temperate of the entire Veneto Region's plain.

The average annual rainfall, calculated from the data collected in the Portogruaro station in the period 1994-2019 is equal to 1,076 mm on average divided into 89 days of rain per year. Again, as for temperatures, the graphic analysis of the trend of the annual rainfall records shows a growth trend (Fig. 7), contrary to what was found for the number of rainy days, which is almost unchanged.

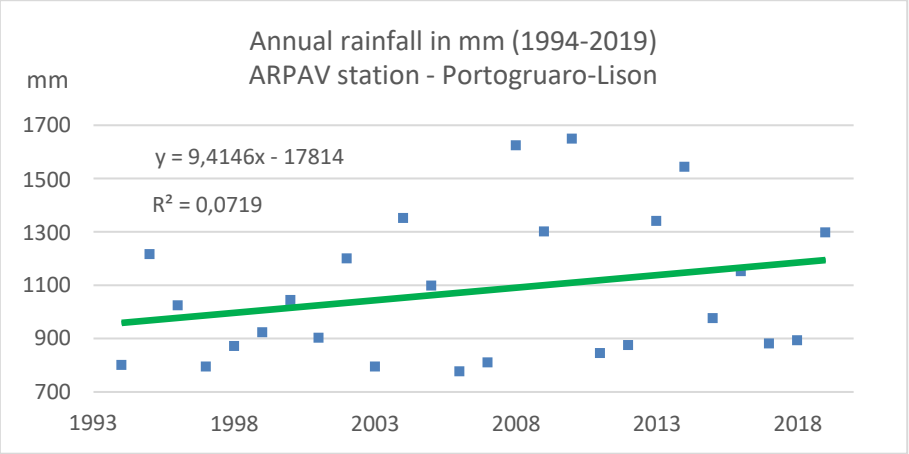

Figure 7 Source: ExtendaVitis elaboration on ARPAV data.

The wettest period coincides with the autumn season, particularly with the month of October (Fig.8). Winter is the driest season, while in the intermediate seasons Atlantic and Mediterranean disturbances prevail with sometimes-important rainy days.

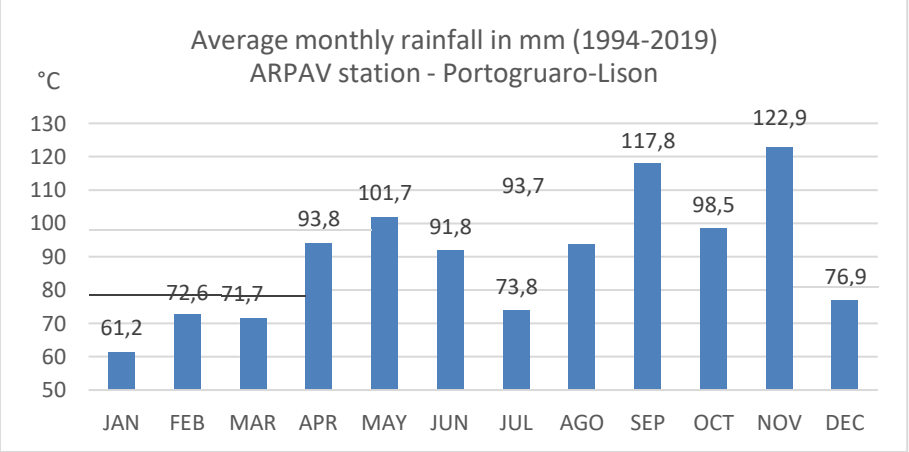

Figure 8 Source: ExtendaVitis elaboration on ARPAV data.

The hinterland is characterised by high relative air humidity and frequent foggy days in autumn and winter. Ventilation is generally rather poor, with the exception near the sea and in correspondence of atmospheric disturbances.

1.4. Land use

The metropolitan city of Venice, of which BIO VENEZIA contains a substantial part, has been the cradle, in the last two decades, of a process of expansion of the agricultural area, which has risen from 115,745 hectares in 2008 (Veneto Agricoltura, 2020) to the current 133,224 hectares (Istat, 2020), with an increase of 15%.
Most arable lands are reserved for annual crops. Historically, corn always excelled in terms of invested area. However, in recent years, industrial crops are risen, especially the soybean, which has now outclassed the cereal considering the cultivated area. In 2020, about 30,500 hectares of corn and 34,600 hectares of soybean were sown (Istat, 2020).
Venetian viticulture, with its 9,300 hectares (Istat, 2020) occupies about 7% of the cultivated agricultural area. Most vineyards are concentrated inland (Fig. 5), where vines have always been an essential element for agriculture. BIO VENEZIA offers some appreciated designations of origin including Lison, Lison-Pramaggiore and Venice, ambassadors of the history and the identity of this territory.

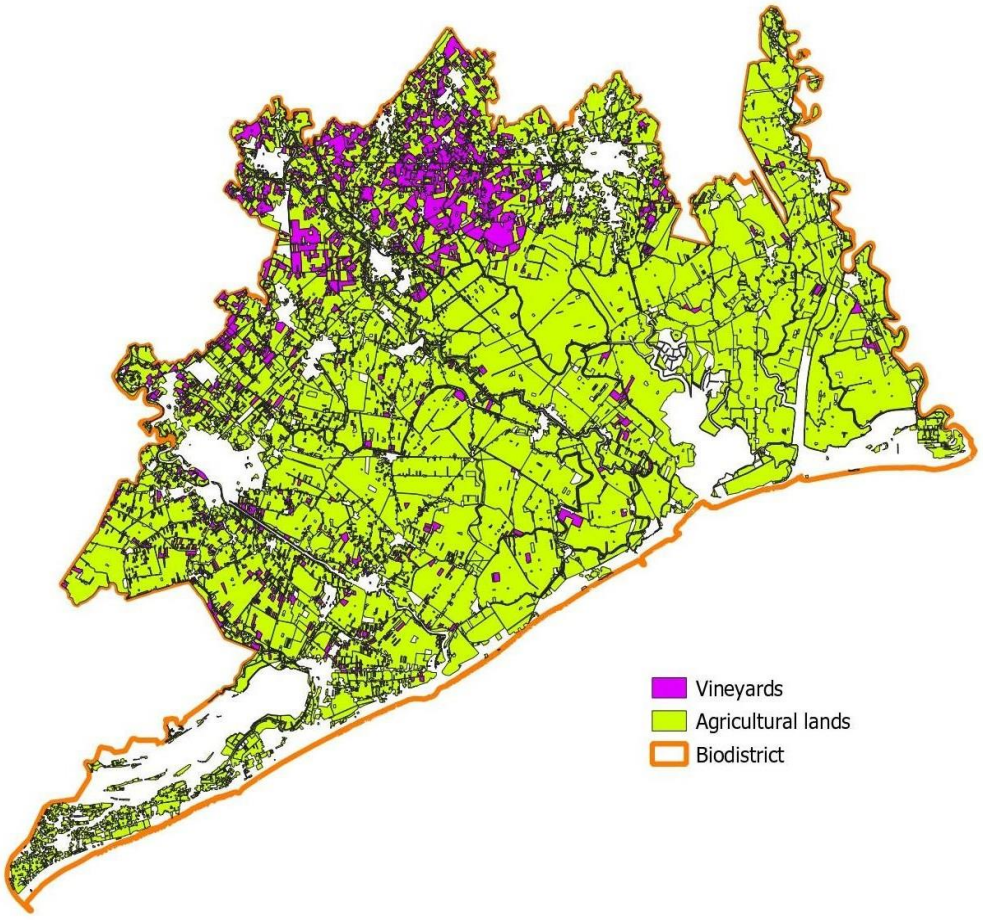

Figure 9 BIO VENEZIA arable lands and vineyards (2018, source Extendavitis elaboration on Geoportale Veneto Region).

Horticultural crops in the Venetian lands cover less than 3% (Veneto Agricoltura, 2018) of the agricultural area and are mainly located in some specialised areas along the coast.
Although no recent and specific data is available related to farms located within the borders of BIO VENEZIA,

it is interesting what emerged from the last national census of agriculture carried out by ISTAT in 2010. Particularly, the farms size has not varied a lot in the last ten years.

In 2010, in the municipalities annexed to BIO VENEZIA district there were 7,108 farms for a total cultivated agricultural area of 59,264 hectares, with a calculated average farm area of 8.3 hectares (Tab. 2).

Vineyards covered about 6,264 hectares, divided among 2,053 farms, with a calculated farm average surface of 3.1 hectares (Tab. 2).

Municipality	Number of farms	Agric. area (ha)	Average farm size (ha/farm)	Number of wine-growers	Vineyard area (ha)	Average vineyard size (ha/farm)	Vine. area/Agric. Area*100
Caorle	186	7,446	40.0	44	212	4.8	2.8
San Michele al Tagliamento	547	6,162	11.3	53	96	1.8	1.6
Eraclea	778	7,158	9.2	212	293	1.4	4.1
Torre di Mosto	328	2,982	9.1	97	307	3.2	10.3
Concordia Sagittaria	498	4,346	8.7	129	70	0.5	1.6
Portogruaro	711	5,974	8.4	29	1,029	35.5	17.2
San Stino di Livenza	518	3,718	7.2	138	193	1.4	5.2
Jesolo	541	3,712	6.9	177	291	1.6	7.8
Motta di Livenza	345	2,306	6.7	167	795	4.8	34.5
Cessalto	223	1,489	6.7	101	399	4.0	26.8
Musile di Piave	462	3,034	6.6	223	344	1.5	11.3
Annone Veneto	245	1,565	6.4	141	689	4.9	44.0
Pramaggiore	235	1,494	6.4	135	659	4.9	44.1
San Donà di Piave	828	5,180	6.3	271	595	2.2	11.5
Ceggia	216	1,264	5.9	62	110	1.8	8.7
Noventa di Piave	162	780	4.8	60	180	3.0	23.1
Cavallino-Treporti	285	654	2.3	14	2.75	0.2	0.4
TOTAL	**7,108**	**59,26**	**8.3**	**2,053**	**6,265**	**3.1**	**10.6**

Table 2 Source: Statistiche.regione.veneto.it elaboration on 2010 ISTAT data.

In the period between the last general statistical survey and today, the resilience of the viticulture sector has permitted to expand the local wine heritage, which has also benefitted from the renewal of some old and less competitive vineyards from a technical and economic point of view.