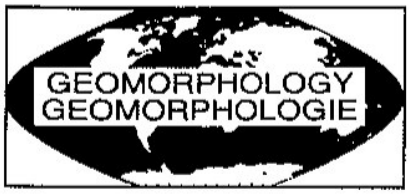

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Spaces, environments and landscapes of terroirs

Espaces, environnements et paysages des terroirs

Spazi, ambienti e paesaggi dei terroir

Edited by:
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Oenology and mountain in the Torino province

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ABSTRACT: The Alps all around Turin are characterised by a small quantity of viticulture (only 4% of Piedmont production) but very interesting for their autochthonous winegrape and the peculiar climate. The Canavese, Susa and Pinerolo Valley are the most interesting wine-producing areas of Piedmont for their viticultural characteristics and in fact all have the Brand Denomination. From 1996 to 2001 much research was carried out with the aim to describe the local winegrapes (Avanà, Becouet, Neretto di Bairo, Bourgnin etc.) and improved winemaking techniques. The obtained results allowed the economic revival of mountain wine-producing areas in Piedmont.

In his foreword to a short book published in 1988 by the Torino Province, the unforgotten master Prof. Italo Eynard wrote: «Despite the presence on the market of wines that are more renowned among the public, the Torino province carries an inheritance of its own, perhaps of secondary relevance under many aspects, but with some precious jewels and a lot of wines that need to be rediscovered, wines where sometimes genuineness becomes roughness, but each of them with a pleasantly familiar taste, one that a more refined oenological technique might purify, but never taking away the characteristics impressed on them by the peculiar environment, since their vines have been granted the most sunny slopes of the Alps enclosing in their circle Piedmont's capital, Torino».

Thanks to his input and the good will of managers and manufacturers, many steps ahead have been made in exploiting and renewing this land's wine production. In addition to the already appraised reality of Caluso's wines (DOC since 1967), other realities that can be more directly connected to Piedmontese territories, like Canavese (DOC since 1996), Pinerolese (DOC since 1996) and Valsusa (DOC since 1997) are currently starting to grow.

«Few grape-growing provinces display as much variety in the vine cultivation systems, as Torino's does» wrote Chiej Gamacchio, director of the itinerant Chair and technical office of agriculture, in 1901. «In this Province, vine is in fact cultivated in many different ways, whose origins are connected firstly to the great spread of this plant, and later to the uneven and variable configuration of its territory and the mutable nature of its climate».

For instance, vertical props for the vine, usually wooden poles, at the mouth of the Aosta Valley are instead small brick pillars with a cylindrical-conical shape, covered by a round stone slab. Near Quincinetto, the fence where the vine rests becomes irregular in order to cover some scattered boulders, so as to rationally exploit available space and benefit from the rocks' reflected heat. In those cases, even more than others, the vineyard actually becomes architecture, in itself a part of a specific landscape, where nature and man's work merge in harmony.

In the Caluso area, the growing system is a rather extended bower. It's a very complex system, justified by the remarkable vigour of the Erbaluce vineyard and its scarce fertility in the buds at the basis of the vine branch.

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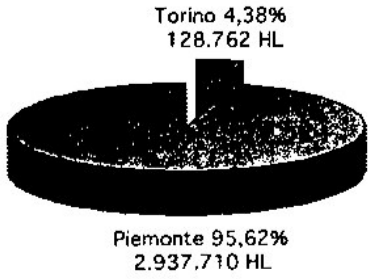
In all the other areas the simple row system is increasingly popular, with a structure made of vertical poles, once kept together by horizontal rods and now by iron wire.

Productive reality of the Piedmontese grape-growing division

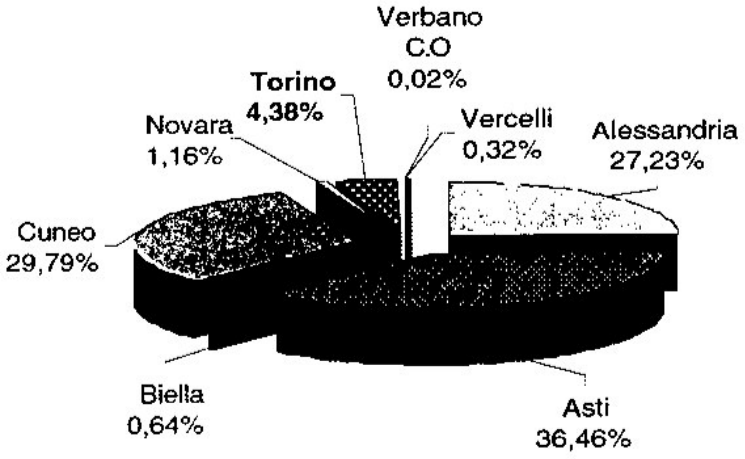
Piedmontese grape-growing surface adds up to more than HA, 1983 of which belong to the Torino province (5° General Agricultural Census – 2000 – preliminary results).

With more than 635 HA of vineyard surface, Mountain Communities represent 32% of Torino's territory occupied by this cultivation. There's 1921 businesses cultivating vines in these areas, 35,5% of Torino's businesses.

As evidenced by the diagram in picture 1, wine production in Piedmont almost reaches 3 millions HL, 4,38% of which concern the area around Torino. The most representative provinces are Asti, Cuneo, and Alessandria, together covering about 93,5% of the entire regional production. (Pic. 2)



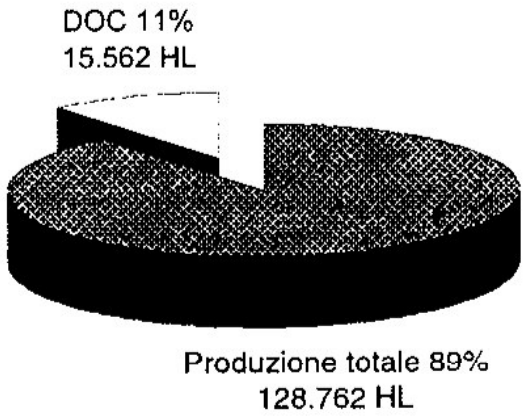
Picture 1 – Percentage of incidence of wine production in the Torino province on the overall Piedmontese production (vintage 2000). Source: ISTAT data elaboration.



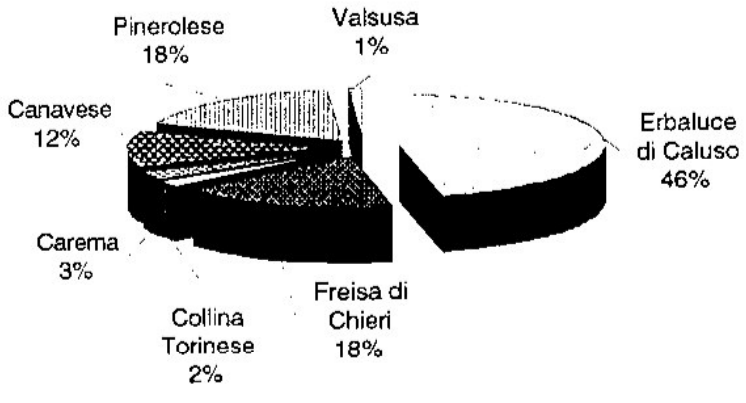
Picture 2 – Distribution of oenological production in Piedmontese provinces (vintage 2000). Source: ISTAT data elaboration.

At the moment in the Torino province there are seven DOC acknowledged by production Disciplines, the majority of which introduced quite recently (second half of the 90's).

The incidence of DOC on total production is pretty low (Pic. 3), even though in recent years re-evaluation of wines such as Chieri's Freisa and Caluso's Erbaluce (Pic. 4) has led to an increase in the percentage of DOC production.



Picture 3 – Percentage of incidence of DOC on Torino's oenological production (vintage 2000). Source: CCIAA, Torino data elaboration.



Picture 4 – Torino's province seven DOC (production 2000). Source: CCIAA, Torino data elaboration.

Many laws dictate the guidelines to be followed in order to use vineyards on the UE territory. Only the varieties listed among those recommended or authorized can be planted, re-planted and grafted according to REG. 3800/81 in specific administrative units of the European Community, hence, in the Torino province at present there are 16 recommended cultivations, while just 3 are authorized (Tab. 1).

Recommended vineyards are those whose cultivation is thought of as important, at least at a local level, in order for a qualitative enhancement of production to occur (Reg. CE n. 2389/89). Authorized are defined those vineyards that produce wines that are acceptable, but are considered of a lower quality than the ones in the former category. Authorized vineyards, as long as they are since before 1974 or they have been allowed to cultivation since at least 5 years in any province, can become recommended should the quality of their production turn out to be superior to the level of their category.

Vitigno	Sinonimi	Prov. TO	Principali zone di coltura in provincia di Torino
Avanà		R	Val di Susa, Pinerolese
Avarengo	Muster	R	Pinerolese, Canavese
Barbera		R	ampiamente diffuso ovunque
Bonarda Piemontese		R	Colline Torinesi, Pinerolese
Brachetto		R	assente
Ciliegiolo		R	Canavese
Dolcetto		R	Pinerolese, Val di Susa, altrove sporadico
Doux d'Henry	Gros d'Henry	R	Pinerolese
Erbaluce		R	Canavese
Freisa	Fresa, Freisa piccola, Monferrina	R	Colline Torinesi, Canavese, Pinerolese
Lambrusca di Alessandria	Moretto, Crova, Neretta d'Al.	A	Val di Susa, Pinerolese, Canavese (sporadica)
Malvasia di Schierano	Malvasia di Castelnuovo Don Bosco	R	Colline Torinesi
Merlot		R	ovunque sporadico
Nebbiolo		R	Canavese, altrove sporadico
Neretta cuneese	Fresa grossa, Freisa di Nizza	A	Pinerolese, ma ovunque presente
Neretto di Bario	Neretto di San Giorgio	R	Canavese
Pelaverga	Cari	A	Colline Torinesi
Plassa	Cuor duro, Scarlattino	R	Pinerolese, Val di Susa
Sangiovese		R	ovunque sporadico

Table 1 – List of authorized (A) or recommended (R) vineyards in the Torino province and their main cultivation areas.

Research and experimentation in the Torino Province

The Piedmont Region, accepting the guidelines contained in the national grape-growing plan, a few years ago, in collaboration with Scientific Institutes on the territory, started several projects for the characterization of Piedmontese grape-growing production. The first important results, both due to the way it was conducted (multi-subject surveys) and to the high quality of its scientific content, allowed to characterize the production territories and the DOCG Barolo and DOC Barbera d'Asti wines, pride and joy of Piedmontese oenology.

However, the financial commitment of the Piedmont Region and the Torino Province, through specifically focused Projects and INTERREG Projects, did not overlook more marginal areas, such as canavese, pinerolese and the Susa valley.

Thanks to the commitment of many Unions for protection and development that operate in the area and are gathered in FEDALPI (Federation among Unions for the Protection of DOC Wines in High Piedmont), to concerned Mountain Communities and to field technicians working on the sites, in the 1996-2001 period there have been led many research experiments focusing on grape-growing in the area at the foot of mountains in the Torino province, set to characterize and develop existing oenological productions, to acknowledge new origin denomination productions, to introduce alternative wine-making techniques, and also to save, protect and evaluate the oenological power of autochthonous or rare wines.

Divided by area of interest are hereby briefly related the main surveys that have been performed and some of the results obtained.

To get more information on the tests performed and the whole results, see the works mentioned in the essential bibliography.

Susa Valley

Favourable pedological and climatic conditions, especially in the middle and low Valley, have fostered the development of a valley agriculture that has in cereal, fruit, and grape cultivations its leading features. Thanks to its East-West exposure and a mediterranean climate with xericity characteristics, the growth of plants such as olive tree, almond tree and helm-oak is possible.

Grape-growing, already existing in the Valley in the roman era, has always represented an income factor for local inhabitants and a landscape characterizing feature, for values reaching and at times surpassing 1100 m asl. Decreased during the last 50 years due to the expensiveness of the cultivations and currently involving about 200 Ha, it has always been found on a wide and peculiar diversification.

An important research program was therefore started in order to study wine-growing characteristics and oenological talents of Susa Valley's autochthonous vineyards, especially Avanà, still the most wide-spread of autochthonous cultivations.

These studies along with a strong political will on the part of local management, made it possible to reach the prominent goal of DOC recognition (DM October, 31st, 1997).

Table 2 shows the analytic composition of bottled wines meant to become Valsusa DOC (vintage 1996), as obtained by pure blendings of wine. From the analysis of the results, good oenological characteristics can be appraised as they are present in all types of this product, especially those obtained from a 40% Avanà, 30% Barbera, 30% Neretta blending, that turned out to be the one tasters appreciated the most.

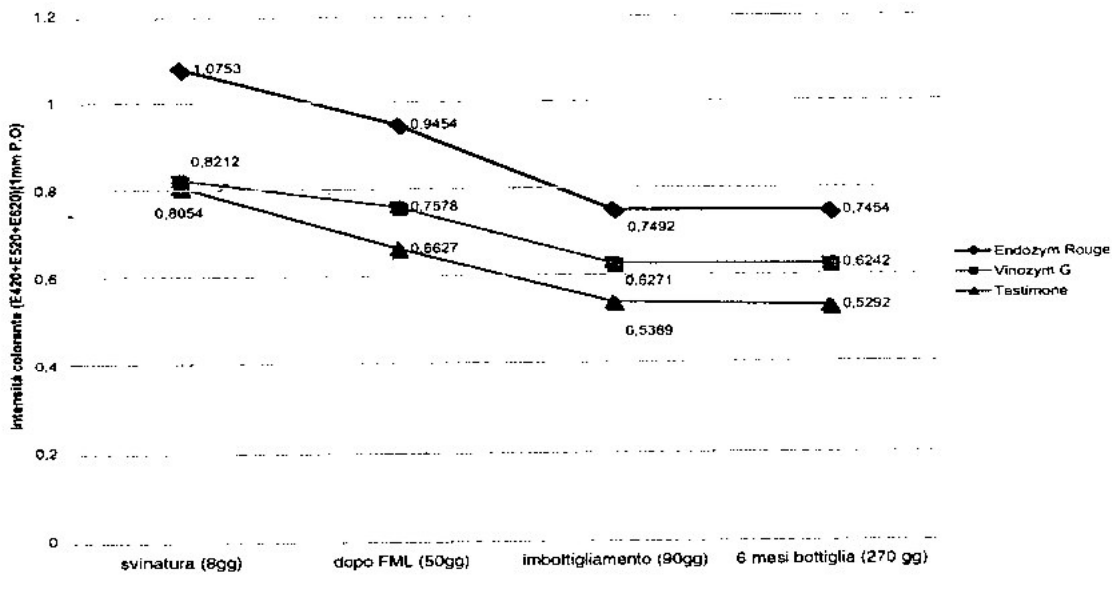
Despite the fact that pure Avanà is currently selling well on the market, its lack of colour, due to a low overall anthocyan content (150-180 mg/L), along with its stability in time, make the production of this wine fairly difficult.

During experimental tests, the use of pectolithic enzymic preparations was suggested in order to increase, during maceration, the extraction from peels and grape-seeds of phenolic substances responsible for wine's chromatic characteristics.

As briefly depicted in picture 5, the use of these preparations made it possible to obtain more coloured wines and wines with a by and large more stable colour.

An accurate enzymic treating can therefore compensate prospective deficiencies of a vineyard or allow to diversify the supply by producing wines that aged for a longer or shorter time.

Picture 5 – The trend of Avanà from racking off to six months of bottled aging (vintage 2000).



	70% Avanà 30% Dolcetto	70% Avanà 30% Barbera	70% Avanà 30% Neretta	50% Avanà 50% Barbera	70% Barbera 30% Neretta	40% Avanà 30% Barbera 30% Neretta
Processed alcohol (% vol.)	11,8	12,0	11,7	12,0	12,2	12,0
pH	3,35	3,37	3,38	3,35	3,36	3,35
Total acidity (g/L tartaric ac.)	5,93	6,60	6,23	7,05	7,35	6,38
Tartaric acid (g/L)	1,92	1,98	1,94	2,03	2,15	2,12
Malic acid (g/L)	Abs.	Abs.	Abs.	Abs.	Abs.	Abs.
Lactic acid	2,65	3,31	2,98	3,60	3,93	3,44
Volatile acidity (g/L acetic ac.)						
Glycerol	7,17	7,29	7,26	7,37	7,57	7,35
Dry total extract	21,9	24,0	22,2	24,8	26,8	25,5
Ashes (g/L)	2,18	2,25	2,21	2,57	2,78	2,51
Index of total polyphenols (mg/L catechina)	1617	1617	1859	1586	2038	1966
Index of total anthocyans (mg/L malvina moglucoside Cl)	188	224	254	298	479	400
Index of total flavonoids (mg/L catechina)	1136	1143	1276	1249	1659	1531
Colour depth (A420+A520)	0,787	0,885	0,952	1,060	1,445	1,287
Colour tone (A420/A520)	0,677	0,662	0,640	0,632	0,550	0,564
Dominant wave length	629	630	632	633	640	637
Light (L)	1,82	1,27	1,21	0,64	0,37	0,66
Saturation (P%)	97,9	98,7	99,2	99,3	99,8	99,8

Table 2 – Main chemical-physical parameters of bottled Valsusa DOC (vintage 1996).

Further studies performed in Susa Valley that are worthy of mention in this work have concerned the development of a Grisa Roussa vineyard through its likely usage as table grape, the employment of tannin preparations in the wine-making of Grisa Nera and experiments performed in collaboration with CNR-Study Center for Genetic Development and Vine Biology of Torino for the documentation concerning the application for registration on the national record for vine qualities and the inclusion in the list of recommended varieties for Torino province of the grape-growing cultivation Becouet.

Canavese

Canavese and High Eporediese are without a doubt the best known grape-growing areas in Torino province. In fact, in a Piedmontese environment featuring mostly the presence of red wines, Canavese sets itself apart because of the prevalent presence of Erbaluce autochthonous vineyard, from which the renowned Erbaluce di Caluso DOC, Caluso Passito DOC and Erbaluce di Caluso Sparkling DOC wines are produced.

The only weak spots, as it were, of Erbaluce vineyard, are its distinct acidity that often leads to producing slightly disharmonic wines that are less liked by the customers (currently focusing on softer products) and a certain lack of primary fragrance.

Given the interesting results obtained through cryo-maceration of grapes from other vineyards, with an increase in the fragrance and a reduction of acidity because of the greater salification of tartaric acid, this technique has been tested experimentally on Erbaluce wine-making as well. During tests performed by the social winery of Cuceglio during vintage 1999 and 2000, satisfactory results have been reached, making it possible to obtain more scented, less acid wines which are also richer in polyphenols, but more deeply coloured.

During the 1998-2000 three-year period, a detailed survey to develop Caluso Passito DOC, one of the jewels of Italian oenology along with Tuscany's Vin Santo, Pantelleria's Passito and Cinque Terre's Schiacchetrà and a badge of honour of Piedmont Region, has been taken.

The first phase of this survey concerned some analysis of production technologies in order to improve the most controversial issues concerning wine-making: low returns and fermentation difficulties.

Through the employment of pectolithic enzymic preparations during pre-fermentation phases, production returns have increased by 5-6% in comparison to traditional techniques, without affecting compositional characteristics of the end product. A selection of autochthonous stocks of yeast and comparative tests on all the stocks currently produced have provided the manufacturers with useful tools to increase the end quality of their product.

Chemical-physical, and most of all sensorial characterization made it possible to define the specific features of this kind of product.

Lastly, a research on the withering phases of grapes in order to investigate the influence of Botrytis cinerea on the final compositional characteristics of the product is currently in progress.

Only of late it was reached the acknowledgment of Canavese origin denomination (GU n. 227, 27/9/1996) that allowed for a development of black berry grape-growing. Multi-variety vineyards are still the norm, and at the same time the limit, of Canavese grape-growing industry.

Red Canavese is in fact the product of a mix of vineyards, as stated by Art.2 of its production Discipline; «The Canavese controlled origin denomination without further specification is limited to red and rosy wines obtained from grapes originally from vineyards with the following wine-growing composition: Nebbiolo, Barbera, Bonarda, Freisa, Neretto (Di Bairo) alone or together minimum 60%. Other non-aromatic vineyards, authorized or recommended by Torino, Biella and Vercelli province, can take part in the production of the aforementioned wines up to a maximum of 40%».

In order to turn manufacturers to the installation or re-installation of vineyards with best performances for the production of Red Canavese, 8 types of possible DOC wines have been produced during vintage 1998 by blendings of wine obtained by wine-making in purity from the main vineyards grown in Canavese: Nebbiolo, Vernassa, Barbera, Freisa, Neretto di Bairo, Uva Rara, Croatina.

The results of chemical analyses and the opinions expressed by tasters in a customer test performed during Vinitaly in Verona, have rewarded Barbera and Freisa-based wines, whenever the destination is that of a quick consumption, while the presence of Nebbiolo and/or Croatina turned out to be necessary for wines meant to be aged longer.

Pinerolese

Pinerolese grape-growing situation is spread on a territory that stretches from low Val Pellice (Bibiana and Luserna S.Giovanni districts) up to Frossasco and Cumiana districts, and is made almost in its entirety of multi-variety vineyards, with more or less meaningful occurrences of many minor autochthonous vineyards (Neiret pinerolese or Bourgnin, Barbera d'Davì, Cardin, Balau) along with authorize vineyards (Barbera, Bonarda, Freisa, Dolcetto, Doux d'Henry).

The recent institution of Pinerolese DOC, providing for a number of sub-denominations, was undoubtedly a prominent and essential stage in this field's development.

The sub-denomination Red is quantitatively prevalent when compared to the ones referring to just one vineyard and, according to the settings provided by the production Discipline, it can be produced with at least 50% of grapes from Barbera, Bonarda, Nebbiolo (however very scarcely present in pinerolese), Neretto (di Bairo, the only one authorized for cultivation) vineyards, while the rest is still preminently made by cuneese, Bourgnin (even though authorization papers are still in progress), Freisa and other authorized and/or recommended vineyards for Torino province.

The survey performed in 2001 and still in progress focused, as mentioned before in regards to Red Canavese, on defining and fostering a Red Pinerolese DOC model, through micro-winemaking of vineyards in purity and the creation of the product by different types of blending.

Sensorial validation through sample desks open to the public will allow to identify the most liked wines.

Zona	Carema		Caluso			Piverone		
Tagli	50% Nebbiolo 50% Vernassa	70% Nebbiolo 30% Vernassa	50% Barbera 25% Freisa 25% Neretto di Bairo	60% Barbera 10% Freisa 30% Neretto di Bairo	70% Barbera 30% Freisa	50% Barbera 25% Freisa 25% Croatina	50% Barbera 15% Neretto di Bairo 15% Uva Rara 20% Croatina	60% Nebbiolo 40% Croatina
Alcol (% vol.)	12,5	12,85	12,1	12,2	12,5	12,3	12,3	12,7
Estratto totale (g/L)	25,9	26,9	26	26	26,6	27,7	26,3	28
Acidità totale (g/L ac. tartarico)	5,73	6	7,5	7,72	7,65	6,48	6,64	6,45
pH	3,56	3,54	3,31	3,27	3,3	3,43	3,38	3,46
Acido tartarico (g/L)	2,3	2,25	2,75	3,00	3,04	3,05	3,1	2,25
Acido lattico (g/L)	3,25	3,5	3,6	3,65	3,61	3,08	2,8	3,42
Polifenoli totali (mg/L (+) catechina)	1806	1976	1768	1606	1920	1896	1625	2217
Antociani totali (mg/L malvina mon. Cl)	144	147	310	349	367	310	308	222
Proantocianidine (mg/L)	2228	2526	1861	1669	1988	2090	1712	2953
Intensità colorante	0,5492	0,6341	1,3009	1,434	1,559	1,2730	1,1919	0,866
Tonalità colorante	0,7434	0,7486	0,5186	0,4872	0,495	0,5226	0,5069	0,6342

Table 3 – Main analytical parameters for Red Canavese DOC bottled wines produced by blending (vintage 1999).

From the survey on the diffusion of vineyards in the Pinerolese area, taking into consideration the production Discipline of the different wines in Pinerolese DOC area, five blendings have been arranged, obviously using only vineyards already authorized to cultivation by the Torino province (Tab. 5). Blending number 2 should be thought of as a proposal since is not provided for in the regulations.

	BARBERA	PLASSA	NEIRET PINEROLESE	BONARDA	CROATINA	NERETTA CUNEESE	AVARENGO
Processed alcohol (% vol.)	13,2	10,8	12,2	12,6	12,4	12,5	12,6
Total extract (g/L)	27,6	18,1	24,0	22,1	23,2	24,5	22,4
Ashes (g/L)	2,18	2,24	2,28	2,38	2,78	2,84	2,7
Ashes alcalinity (meqL)	27,0	23,0	25,0	20,0	32,0	34,0	25,0
Potassium (mg/L)	962	924,0	935	1119	1152	1141	1232
Total acidity (g/L tartaric ac.)	7,9	6,3	7,1	5,3	6,1	6,5	6,7
pH	3,24	3,38	3,28	3,69	3,52	3,59	3,56
Volatile acidity (g/L ac. acetico)	0,61	0,51	0,42	0,44	0,48	0,49	0,52
Citric acid (g/L)	nr	nr	nr	nr	nr	nr	nr
Tartaric acid (g/L)	3,34	2,42	3,34	1,65	2,59	3,11	2,28
Malic acid (g/L)	nr	nr	nr	nr	nr	nr	nr
Lactic acid	2,41	1,85	1,82	1,91	1,75	2,21	2,36
Glycerol	9,2	7,5	8,3	8,6	8,5	8,5	8,2
Index of total polyphenols (mg/L catechina)	1895	993	2081	2327	2907	2057	1963
Index of total flavonoids (mg/L catechina)	2205	955	2250	2611	3512	2490	1906
Index of total anthocyans (mg/L malvina moglucoside Cl)	623	199	527	409	659	769	360
Index monomer anthocyans (mg/L malvina moglucoside Cl)	442	156	354	250	434	472	154
Vanillin-reactive flavans (mg/L (+) catechina)	470	408	1012	1597	1992	999	1079
p-DACA-reactive flavans (mg/L (+) catechina)	392	299	628	704	884	523	620
Proantocyanidins (mg/L)	1476	982	2232	1997	3767	2697	1848
Colour depth (P.O. 1mm)	1,527	0,414	1,478	0,698	1,593	1,588	1,067
Colour tone	0,491	0,365	0,489	0,664	0,527	0,495	0,69

Table 4 – Main analytical parameters for Pinerolese bottled wines produced in purity (vintage 2001).

	1	2	3	4	5
Barbera	50	-	70	25	50
Neretta Cuneese	25	50	-	25	-
Croatina	10	25	-	25	25
Bonarda	15	25	30	25	25

Table 5 – Per cent composition on five arranged Red Pinerolese blendings.

As can be seen by analytical results shown in table 6, the blendings of wines uniformed the composition of products decreasing the number of differences between pure wines. This compositional "standardization" is responsible for the fact that in subsequent discriminating samples it has not been possible for tasters to highlight any sensory difference between the five products.

	1	2	3	4	5
Alcohol (% vol.)	12,8	12,4	13,0	12,5	12,7
Total extract (g/L)	24,2	24,5	25,1	25,1	24,9
Ashes (g/L)	2,14	2,40	2,12	2,20	2,04
Potassium (mg/L)	896	1015	796	924	883
Total acidity (g/L) tartaric ac.)	5,3	6,2	5,7	5,0	5,5
pH	3,42	3,37	3,37	3,51	3,43
Overall polyphenols (mg/L (+) catechina)	2355	2435	2117	2355	2362
Overall flavonoids (mg (+) catechina)	2307	2409	2171	2375	2379
Overall anthocyans (mg/L malvina monoglucoside cloruro)	615	564	524	545	529
Vanillin-reactive flavans (mg/L (+) catechina)	66	142	101	143	111
p-DACA-reactive flavans (mg/L (+) catechina)	509	624	495	602	596
Proantocyanidins (mg/L)	2302	2954	2117	2434	2499
Colour depth (P.O. 1 mm)	1,824	1,679	1,689	1,735	1,769
Colour tone	0,461	0,467	0,466	0,487	0,475

Table 6 – Values of the main compositional parameters determined on Red Pinerolese blendings after tartaric stabilization.

At the moment these blendings are therefore not different from one another on a sensory level, but they might become in the long run due to the different resistance to aging of each wine that was part of the blending.

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