



**PRIMO CONGRESSO
INTERNAZIONALE
SULLA VITICOLTURA
DI MONTAGNA
E IN FORTE PENDENZA**

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Proceedings - Actes - Atti



ISBN 88-902330-0-1



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Valutazione agronomica ed enologica di vitigni alpini in Valle di Susa (Alpi Occidentali) nell'ambito del progetto "Eagle Wines"



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Abstract

Research institutes and private enterprises from four European countries (France, Italy, Spain and Portugal) working in rural mountain areas took part in the project "EAGLE wines" (Sustainable enhancement of wine grapes in mountain areas), with the aim of developing autochthonous grape varieties for the improvement of the local grape farms and wine industries' production. In the Valley of Susa (Western Alps) during 2003 and 2004 the following black grapes were appraised for their agronomical and enological merit: Becuét (known in Savoie as Persan in the past), Chatus (grown in all areas at the feet of both sides of Western Alps), Petit rouge (typical of the Aosta Valley), Mondeuse (from Savoie) and Pinot noir (as reference). Among the white grapes, Baratuciât (original of the Valley of Susa), Bian ver (called Verdesse in France and Switzerland), Petite arvine (from Swiss Valais and Aosta Valley) and Grò blan (from Susa Valley) were also monitored. Becuét and Chatus proved the most promising among the black varieties, giving deep-coloured wines, well-balanced in tannins and pigments composition; Mondeuse was the worse performer, as it never reached a satisfactory ripening stage; yet, its wines always had high levels of anthocyanins and phenols. Baratuciât came to be the revelation among the white grapes, producing wines of intense, original flavour (distinctively scented of green apple): a good quality wine of was also obtained from Petite arvine, whose vines showed, however, a poor balance between vigour and yield.

Résumé

Au projet «Eagle Wines» ont participé des centres de recherche et des exploitations viticoles de régions de montagne de quatre Pays européens (France, Italie, Espagne, Portugal) en vue d'étudier et de mettre en valeur des cépages autochtones, dans un but de rénovation et valorisation de la viticulture de montagne. Dans la vallée de Suse, en Piémont, parmi les cépages à raisin noir on a étudié le 'Bécuet', connu en Savoie sous le nom de 'Persan', le 'Chatus', commun dans les vignobles piémontais près des Alpes ainsi qu'au-delà des Alpes, le 'Petit Rouge', typique de la Vallée d'Aoste, la 'Mondeuse', qui représente la base traditionnelle de plusieurs vins savoyards, et, comme référence, le 'Pinot noir'. Parmi les cépages blancs l'attention a été portée sur le 'Bian ver', connu en France et au Valais (CH) sous le nom de 'Verdesse', la 'Petite Arvine', cultivée soit en Vallée d'Aoste, soit au Valais, le cépage local 'Baratuciât' et le 'Grò blanc', en voie de disparition de la vallée de Suse. Au cours des années 2003 et 2004, très différentes entre elles au point de vue climatique, on a pris en considération les paramètres phénologiques et agronomiques de la plante et ses potentialités œnologiques, étudiées en vinifiant séparément les raisins de chaque cépage. Parmi les cépages à raisin noir, le 'Bécuet' et en moindre mesure le 'Chatus' ont montré une bonne adaptation à être cultivés en milieu alpin, avec la production de vins intéressants au point de vue sensoriel, avec des couleurs intenses et un bon équilibre entre tannins et anthocyanes. La 'Mondeuse' a donné des résultats moins encourageants à cause de son rendement productif trop élevé pour permettre, dans la haute vallée, une maturation des raisins suffisante; pourtant ses vins sont caractérisés par une forte concentration soit de tannins, soit d'anthocyanes. Parmi les cépages à baie blanche le 'Baratuciât' a démontré un intérêt certain à cause de ses vins doués d'une grande originalité (et caractérisés par un nez particulier avec des notes de pomme verte) et par la vigueur exubérante de ses souches. La qualité des vins obtenus de la 'Petite Arvine' ne fait pas de doute, mais l'équilibre entre vigueur végétative et production de raisin laisse à désirer, du moins dans ce jeune vignoble, à cause d'un rendement très variable et des grains vraiment très petits.

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Al progetto "EAGLE wines" (Sustainable enhancement of autochthonous wine grapes in mountain areas) hanno partecipato enti di ricerca ed aziende viticole di aree montane dislocate in 4 Paesi europei (Francia, Italia, Spagna e Portogallo) con l'obiettivo di studiare e valorizzare i vitigni autoctoni, per un rilancio della locale vitivinicoltura. In Valle di Susa (Alpi Occidentali) sono state oggetto di studio le cultivar ad uva nera Becuét (presente un tempo anche in Savoia come Persan), Chatus (diffuso in tutte le zone pedemontane piemontesi oltre che oltralpe), Petit rouge (tipico della Valle d'Aosta), Mondeuse (base tradizionale di molti vini savoirdi), Pinot nero (come riferimento) e tra le bianche il locale Baratuciàt, il Bian ver (denominato Verdesse in Francia e Vallese svizzero), la Petite arvine (anch'essa coltivata in Vallese e in Valle d'Aosta), il Grò blanc (ormai quasi scomparso in Valle di Susa). Dei menzionati vitigni nel corso del 2003 e del 2004 (annate molto diverse dal punto di vista climatico) si sono rilevate le caratteristiche fenologiche, le attitudini colturali e le potenzialità enologiche mediante vinificazione in purezza. Per quanto riguarda le cultivar a bacca nera, il Becuét e in minor misura lo Chatus, hanno dimostrato una buona adattabilità alla coltura in ambiente alpino, dando vini organoletticamente interessanti, con intensi colori ed equilibrio tra le sostanze tanniche ed antocianiche. La Mondeuse ha fornito invece i risultati meno incoraggianti: estremamente produttiva, non ha raggiunto nell'ambiente dell'alta Valle di Susa un sufficiente grado di maturazione; i vini di Mondeuse sono tuttavia caratterizzati da elevate concentrazioni sia di tannini che di antociani. Tra i vitigni a bacca bianca, di particolare interesse è risultato il Baratuciàt, con vini molto originali (ben distinti al profumo da evidenti note di mela verde) e viti dall'esuberante vigore. Prodotto enologico di elevata qualità si è ottenuto anche dalla Petite arvine, caratterizzata però da squilibrio vegeto-produttivo (con produttività discontinua), per lo meno nelle giovani piante in osservazione, e da una dimensione degli acini veramente esigua.



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Table 4 – Main analytical parameters (average 2003-2004) of bottled wines obtained from white (B) and black (N) varieties.

Table 4 – Principaux paramètres œnologiques (moyennes 2003 et 2004) des vins obtenus de cépages blancs (B) et noirs (N).

	Baratuciât (B)	Bian ver (B)	Grò blan (B)	Petite arvine (B)	Becuét (N)	Chatus (N)	Mondeuse (N)	Petit rouge (N)
Ethanol (% vol.)	12,9	12,7	11,3	12,4	12,9	11,9	11,2	13,3
Dry extract (g/L)	22,1	21,5	20,6	23,5	26,4	25,1	22,8	25,1
Ash (g/L)	1,2	1,19	1,54	1,3	1,84	1,79	1,71	1,81
Ash alkalinity (meq/L)	11,5	13	15	12,5	20	17	17	18
Potassium (mg/L)	554	983	594	673	850	886	715	892
Total acidity (g/L tartaric acid)	7,5	9,19	7,5	7,9	6,5	6,7	5,5	6,3
pH	2,90	2,85	3,00	2,9	3,32	3,24	3,32	3,33
Tartaric acid (g/L)	3,6	4,1	3,3	3,9	2,0	2,7	2,6	2,6
Malic acid (g/L)	2,0	2,13	2,51	2,5	nr	nr	nr	nr
Lactic acid (g/L)	0,3	0,25	0,18	0,2	2,35	2,04	1,63	1,45
Glycerol (g/L)	9,2	8,6	7,8	8,5	8,8	8,2	7,6	9,3
Total polyphenols (mg/L (+) catechin)	117	131	149	148	1320	1390	1554	1070
Flavonoids (mg (+) catechin)	-	-	-	-	1325	1422	1636	947
Total antocyanins (mg/L malvidin-mon. cl.)	-	-	-	-	266	358	345	285
Monomeric anthocyanins (mg/L malvidin mon. cl.)	-	-	-	-	167	211	244	231
Proanthocyanidin (mg/L)	-	-	-	-	1233	1622	1965	697
Absorbance 420 nm (P.O. 1mm*10); Colour intensity	1,005	0,872	0,869	1,153	0,709	0,778	0,698	0,697
Colour tonality	-	-	-	-	0,605	0,454	0,523	0,562

Petite arvine: an old wine grape, traditional from Swiss Valais, where plantings are recently increasing (Maigre *et al.*, 2003), spreading from here to the Aosta Valley. Although not originally grown in the Valley of Susa, Petite arvine, which is probably a variety autochthonous of the Western Alps, was tested for its wines' well known personality.

From our trials, vines showed a poor balance in growth and yield, which can vary considerably from year to year. Productivity is usually moderate because of the very small size of the berries. Plant vigour was always very high, so that it affected canopy managing and required frequent interventions of shoot trimming and leaf removal. Petite arvine wine, however, presented a better quality and showed on the analysis of sensory profile (especially in 2004 vintage) all its complexity, with recognisable scents of pineapple, lemon and honey. Acidity and structure were lower, compared to the other white wines.

3.2 Black grape varieties

Becuét (also called Biquét, Berla 'd crava cita or Berla cita in Piedmont, Persan or Becuette in Savoye): an alpine speciality, commonly grown once along the French side of the Alps, now mostly disappearing from

cultivation in those regions. On the Alps Western side, Becuét, endangered to disappear until few years ago, is now considered fit enough to be blended with the local Avanà grapes in order to improve the local red wine.

The experiment results confirm Becuét well-adapted to the alpine environment: late bud break allows the vines to avoid spring frost; a rather high tolerance to water stress has also been noticed; Becuét vines showed a medium vigour, poor growth of lateral shoots, up-right growth habit, and a general benefit on canopy manipulations. Becuét has a constant, moderate productivity, which can be scarce in young vines, before they reach an appropriate balance growth/yield. Basal cane buds are fruitful; they allow therefore the use of spur pruning. Sugar and acidity are constantly high in grape juice, as well as phenols and anthocyanins: all these facts help to obtain from Becuét wines a long aging potential. Wine sensory profile indicates tobacco and walnut scents.

Chatus: this is the French name, but in Italy the variety is called Nebbiolo (di Dronero) in the area of Saluce, Neiret in the surroundings of Pignerol, Brunetta and Scarlatin in the Valley of Susa, Brachèt in the Northern Turin area (Schneider and Bronzat, 1991). It is a very ancient French grape (already mentioned by Olivier de Serres in 1600): in former times it was very widespread from the Alps to Central France, but it is now restricted to Ardèche area, where it is the object of a recent program of exploitation. In Italy Chatus is still grown at the feet of the Alps and in some alpine valleys (always on acidic, siliceous soils) and it is used for blending with other local black grapes. A rather high phenotypic variability has been noticed within this variety for vigour, yield, berry size, bunch compactness, and presence of wax on berry skin.

In the Valley of Susa, Chatus resulted a well performing variety for its agronomical features, well-adapted to the alpine viticulture: late bud break, constant yield, moderate fertility, but fair production level because of the high bunch size. The size and the compactness of bunches, however, do not affect *Botrytis* rot tolerance, to which berry skin thickness contributes. In the experiment conditions vine vigour was under control, while in sites of high potential vigour, low grape quality may occur. Chatus is a late ripening variety. Like Becuét, grapes show very high acidity, which could be partially reduced with appropriate canopy manipulations, such as leaf removal and crop thinning. Wines from Chatus are rich in anthocyanins and tannins, confirming the ability of being a blending component to add colour and body to lighter partners. Acidity is always well pronounced, despite the wines undergo malo-lactic fermentation. Fruit sensory descriptors such as cherry, prune, and blackberry are well recognisable, especially in 2004 vintage.

Mondeuse: an ancient vine traditionally grown in Savoye, where it gives deep coloured, intense, local wines. Although never found in Piedmont, Mondeuse was planted in the experimental vineyard of Chiomonte for its renown on the other side of the Alps.

After the two years of observations in Susa Valley, however, the judgement on Mondeuse still appears contrasting. Mondeuse endures winter and spring colds and shows a very high fruitfulness, especially on the first buds. Vines are vigorous, always well-balanced in growth and yield. For what concerns phenology, bud break, flowering and grape ripening are late. Mondeuse vines showed a high sensitivity to water stress: in 2003 this brought to a reduced berry size and an early leaf fall, but in both years sugar rate increasing was slow, and grapes had at harvesting poor sugar amount. Neither crop thinning, carried out in 2004 in order to reduce grape charge, has been effective on sugar accumulation.

As to wine features, Mondeuse gives extremely deep coloured wines, full-bodied, intensively flavoured, suitable to be blended. Wine aroma resulted complex (with predominant red fruit and pepper scents), but astringency and acidity prevail in flavour.

Petit rouge: the well-known speciality of the Aosta Valley, where it is meant to be grown since long times under the name of Oriou. In the central and higher part of this Valley, Petit rouge is the main ingredient of most of the local red wines.

In the Valley of Susa, Petit rouge behaviour during 2003 and 2004 was quite disappointing: its susceptibility to water stress and even more to sunburn and berry shrivel compromised the accumulation of pigments and tannins in the grapes, giving a wine lacking in colour and body. Leaf removal should always be avoided in Petit rouge. It is an early season variety, almost as early as Pinot noir. For the scarce fruitfulness on the first buds, it requires cane pruning. From our observations bud fertility was moderate (one bunch per shoot on average), while bunch and berry size resulted fairly high.

In spite of the light colour, Petit rouge wines showed an interesting perfume, scented of flowers (violet) and of red and blackberries.

4 Conclusions

The two years of behaviour assessment of the eight wine grape varieties in a mountain area, provided information on their adaptability to the alpine environment, cultural characteristics, enological potential and wine features and quality.

Among the whites, Baratuciat, a speciality from the lower part of Susa Valley, turned to be a valuable surprise, giving wines of intense, original flavour. Superior quality wine was also the one obtained from Petite arvine,

whose vines suffered, however, of a poor balance between vigour and yield. Beçuét and Chatus, original from both sides of Western Alps, showed to be the most promising among the black grape varieties. Mondeuse, the speciality from Savoye, in France, was not able to reach a satisfactory ripening stage; even though, wines had high levels of anthocyanins and phenols.

The research should continue for further years of experimentation in order to obtain complete and reliable results. 2003 was in fact a deviant season for the unusual climate characteristics. Moreover, several varieties, like Mondeuse and Petit rouge, gave unclear or contrasting results; Bian ver (Verdesse) was evaluated for its enological potential only in 2004 and therefore requires further tests.

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