

## Vienna 2019 Abstract Submission

### Title

The heroic viticulture in Aosta Valley among pergolas and guyot rows: a comparison in terms of grape production costs

### I want to submit an abstract for:

Conference Presentation

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### Keywords

vineyards; terraced landscape; Pergola valdostana; production costs

### Research Question

We want to evaluate the subsidy to correspond to the Aosta Valley vine-growers to push them to maintain or adopt traditional vine-growing methods typical of these mountain territories.

### Methods

We estimate the production costs implied by these different methods by calculating the average balance sheets of farms implementing them and by simulating the adoption of the opposite method.

### Results

The subsidy to give farmers adopting the traditional method; the quantification of the manual labor hours required by the different vineyard management phases in a context of "heroic viticulture".

### Abstract

The goal of this paper is evaluating the grape production costs with a traditional vine cultivation frame practiced on terraces of stone walls, the Pergola cultivation method, that has a scenic and landscape value, as compared to more modern cultivation method (Guyot espalier), so to assess the cost of preserving the scenic value, possibly via a public subsidy.

Viticulture in Italian alpine areas is negligible when considering the surfaces involved and the quantity of wine produced. Nevertheless, in these areas vine cultivation represents an important factor for the stability of slopes and

for the local landscape produced, thanks to the presence of terraces supported by dry stone walls built by generations of mountain farmers over the centuries. At the end of November 2018, UNESCO recognized the value of dry stone walling, in environmental terms – it reduces the erosion and the risk of floods and avalanches –, in terms of knowledge and skills involved in their realization – real intangible heritage of local knowledge and traditions, since the methods adopted reflect the conditions and the materials available in the different places – and in terms of landscape value, widespread and differently framed in many areas of the world.

The slope stabilization produced by this “heroic viticulture” in alpine areas represents a positive externality for the people living in the mountains and downstream, and the landscape beauty too is an external benefit both for dwellers and for visitors. These externalities are provided thanks to daily cultivation practices in much more difficult and burdensome conditions for winemakers as compared to the corresponding ones in the hills or the plains, not only because of the slopes but also because of the very small farm size of the vineyards, and in many case their very difficult accessibility.

The Aosta Valley is the smallest Italian region, located in the North-West of Italy, entirely alpine, and bordering with Piedmont, France and Switzerland. Despite its large tourist sector for the presence of renowned ski resorts and some of the highest peaks in Europe – Mont Blanc, Monte Rosa and Cervino –, agriculture and livestock farming are widely practiced throughout the valley. Viticulture is certainly not the most significant crop as regards surfaces, but it is highly visible because it is practiced along the better exposed slopes, so that it can be appreciated along the whole valley length. In this particular local context, in addition to the beauty of the vineyard landscape per se, the presence of very particular cultivation forms must be stressed. They are represented by the high and low Pergola Valdostana still present in the lower valley, on the border with Piedmont, and in the higher valley, at the foot of Mont Blanc, respectively. These two distinct forms of cultivation use vertical and horizontal frames to support the development of shoots (mainly in chestnut wood, but also using other materials as stones). Depending on the type of pergola, the shoots develop at a height from the ground varying between the 110 -120 cm up to over 200 cm, thus determining particular structures and geometries which strongly characterize the wine-growing landscape in Aosta Valley. Old photos and bibliographic sources referring to different historical periods clearly show that it is a historical memory of how the vineyards were cultivated along the valley in the far and more recent past.

Although aware that agricultural landscapes cannot remain unchanged in the Valley over the time, because of the technological evolution and socio-economic changes, the local administrators are strongly interested in keeping the viticulture in the region vital and, as far as possible, to have these historical vestiges of its cultivation continuing, at least where they are still present. There is a high concern that the presence in the Valley of competing economic activities, in particular a service sector strongly oriented towards winter tourism, summer tourism and the spa business, together with the high average age of vine-growers (around 60), bring the viticulture in the Valley to a significant shrinking in the coming decades. Moreover, in the last few decades there has been a strong expansion of the Guyot espalier in the Valley at the expense of the Pergola, as it simplifies and makes easier or mechanized many agronomic operations in the vineyards.

Given the above scenario, this paper aims to evaluate the difference in the grape production costs related to the different vine cultivation frames, comparing the Pergola cultivation method to the Guyot espalier one, typical of other vineyard areas and for a long time widely present in Aosta Valley. The evaluation of the different production costs required by these different methods will be performed by calculating average farm balance sheets for a group of vine-growing farms that exclusively implement one of these different cultivation methods. For each of them, a counter-factual balance sheet will be simulated, the one that would result from using the opposite technique in the specific farm. This will provide an appropriate measure of the cost differential, by controlling for specific farm characteristics, such as, e.g., farm size, slope, irrigation, etc. Given that the Pergola cultivation methods are expected to bear higher production costs than the Guyot espalier, mainly due to the larger needs of manual work hours, identifying the cost differential provides a useful measure of a possible additional premium that should be given to push farmers to install or to continue using the Pergola method. In fact, so far the measures implemented by the Region Rural Development Programme in the framework of the Common Agricultural Policy, in addition to the one for the vineyards replanting, only provide a subsidy for building and/or maintaining dry stone walls, but not for building or maintaining the Pergola frames.

A further result from this work will be represented by the relatively accurate quantification of the hours of manual labor required by all the various phases of vineyard management in a context of heroic viticulture, for which, surprisingly, there is not so much bibliographic evidence. This effort could thus contribute to the awareness, both by winemakers and final consumers, of the greater value that should be attributed to wines originating from the different cultivation methods of heroic viticulture.

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