

## HIGH-ALTITUDE VINEYARDS UNDER EXTREME CONDITIONS IN THE PIWI CONTEXT OF CULTIVATION: ECONOMIC AND MARKETING EVIDENCE FROM AN EXPLORATORY STUDY IN NORTHERN ITALY

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### Abstract:

#### Context and purpose of the study

Viticulture has spread to unexpected locations, such as high-altitude terrain. Among these, high-altitude viticulture has captured considerable attention, not only for the uniqueness of its products and landscapes but also because it offers an effective response to climate changes

The aim of this study is to analyse and compare wineries that used Piwi varieties (acronym for the German *Pilzwidderstandfähig*, i.e., cryptogame-resistant) at high altitudes (between 500 and 920 m a.s.l.) with the traditional non-mountainous viticulture model. In particular, it examines the technical and scientific elements relating to: a) market structure, conduct, and positioning on the markets; b) in comparison to non-mountainous viticulture, the advantages and disadvantages of this type of viticulture are highlighted, as well as the obstacles that penalise mountain entrepreneurs and the strengths that can be leveraged; c) marketing strategies for product promotion and their future prospects; d) finally, the critical role of the sustainability of resistant vines and the strategic factor of the landscape are analysed, particularly in terms of communication.

#### Material and methods

The research is based on six case studies of firms practising extreme viticulture at high altitudes in two Italian Alpine wine regions: Lombardy and Trentino-Alto Adige. Each winery has been interviewed by telephone using a questionnaire designed to explore the features of such firms in the PIWI context of cultivation.

#### Results

Findings showed that 83% of the examined wineries were small wineries working with Piwi-resistant grape varieties at high altitudes, and 66% of them supplied wines made from these types. Three out of five wineries prefer direct sales, while the remaining two base their strategies on wine shops, Ho.Re.Ca., wholesalers, and distributors. As expected, the results stress that high altitude viticulture in extreme conditions is more costly than the traditional viticulture model, despite the reduction in costs due to a smaller number of phytosanitary treatments needed for the vines' protection. Notwithstanding, to broaden the distribution of these wines, one of the most important factors is to highlight the substantial benefits resulting from the reduction of environmental pollution and, consequently, a radical improvement in terms of sustainability. Regarding the market outlook for PIWI wines, in the mid-run, four out of six firms expect moderate growth (less than 5% a year) in the market for wines produced from resistant varieties, whereas one company has no expectation and the other anticipates robust growth (more than 5% a year). However, the most important and critical factors are related to marketing activities, which are primarily limited to domestic shipments for almost all wineries surveyed; in fact, just one firm exports.

It might be that a stronger marketing campaign, supported by public institutions and based on a deeper understanding of landscape values, would help overcome the constraints on the distribution channels for this niche market.

**Keywords:** Extreme and heroic viticulture, High-altitudes vineyards, Northern Italian regions, Economics and sustainable marketing, Firms' development models.