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The Impact of Organic and Biodynamic Farming on Steep Slopes: An Analysis of the Northern Rhône

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MOTIVATION

The Northern Rhône has always fascinated the author, not only for the extraordinary quality of its wines, but equally for its breathtaking landscapes and deep historical significance. Ancient, terraced vineyards clinging to steep vertiginous hillsides, the enduring legacy of Roman viticulture, and the tireless dedication of the vignerons who still farm these slopes all speak to a tradition as demanding as it is inspiring.

A particularly formative experience was the opportunity to harvest in Côte-Rôtie last year, an experience that left a lasting impression and reinforced the desire to better understand the region's vineyards, people, and wines. During the time there, it came to the author's mind as to why the Northern Rhône had fewer biodynamic producers than other wine-producing countries, a question that ultimately inspired the topic of this research paper: a blend of personal experience, admiration, and intellectual curiosity.

RESEARCH QUESTION / OBJECTIVE

This thesis aims to study the implementation of organic and biodynamic viticulture on the steep slopes of the Northern Rhône and to assess its impact on vineyard sustainability, the challenges involved, economic viability, and the sensory expression of the wines produced. The central research question guiding this investigation is: "To what extent do organic and biodynamic farming practices on steep slopes in the Northern Rhône enhance vineyard sustainability and terroir-driven wine quality, compared with conventionally farmed vineyards in the same region?" By addressing this question, the thesis seeks to evaluate whether these environmentally conscious approaches can deliver measurable benefits in soil health, biodiversity, and wine identity, while also acknowledging the considerable logistical, physical, and financial burdens they impose on producers working in some of the most extreme viticultural terrain in the world.

METHOD

To achieve these objectives, the investigation integrates a critical review of existing literature with original research drawn from interviews with Northern Rhône producers. The literature review draws upon academic publications, official appellation documentation from INAO, and specialist wine journalism to establish the agronomic, historical, and regulatory framework of the region. The primary research component consists of e-mail correspondences conducted with several winemakers across the Northern Rhône, including Franck Balthazar of Domaine Balthazar in Cornas, Julien Barge of Domaine Barge in Côte-Rôtie, Jean-Michel Stephan of Maison Stephan in Côte-Rôtie, Lionel Fraisse of Domaine Alain Voge in Cornas, and Pierre Rostaing of Domaine Rostaing in Côte-Rôtie. These interviews provide firsthand perspectives on the practical realities, perceived benefits, and ongoing difficulties of organic and biodynamic farming on steep slopes.

CONTENT

The content of the thesis is organised around several key themes. First, it explores the physical reality of steep-slope viticulture in the Northern Rhône, where gradients, erosion risk, and limited mechanisation make vineyard work highly labour-intensive and costly. Second, it examines the principles of organic and biodynamic farming, including their emphasis on soil health, biodiversity, and low-intervention vineyard management. Third, it situates these practices within the geographical and cultural context of the Northern Rhône appellations, from Côte-Rôtie and Condrieu to Hermitage, Cornas, and Saint-Péray. Fourth, it investigates the historical shift from post-war chemical farming and productivity-focused viticulture toward a renewed interest in terroir expression, sustainability, and low-input farming. Finally, it analyses how these approaches affect market positioning, pricing, and consumer perception, especially in a region where quality and authenticity increasingly shape demand.

CONCLUSION

The findings suggest that organic and biodynamic farming can make a meaningful contribution to vineyard sustainability on steep slopes by preserving soil vitality, supporting biodiversity, and encouraging a more balanced vine ecosystem. They also appear to strengthen the sensory link between vineyard site and finished wine, allowing a clearer expression of terroir. However, these benefits come at a cost: labour demands are high, disease pressure remains constant, and economic viability depends on careful management and strong market positioning. The conclusion is that, in the Northern Rhône, organic and biodynamic viticulture are not simply ideological choices but demanding yet credible responses to an exceptionally difficult landscape. When successfully implemented, they can help preserve historic hillside vineyards while producing wines that are both environmentally resilient and strongly rooted in place.