

## Padua 2017 Abstract Submission

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### Keywords

grape production, competitiveness, typical farm approach, cost of production

### Research Question

A network to provide an international comparison of cost structures and the profitability at farm level for wine grape production systems in the major wine grape producing regions.

### Methods

Using a standardized procedure for data collection and analysis typical farms are established representing the prevailing production systems in a specific region with a defined farm size and structure.

### Results

In our paper, we show the benchmarking of production costs for the 2016 harvest and discuss the results based on specific conditions and challenges in the different producing regions.

### Abstract

The wine sector has undergone a rapid globalization. While global production has remained stable since the 1990ies, international trade has increased continuously. Also, production areas are changing. Traditional wine producing countries e.g. Spain, France and Italy have reduced their vineyard areas, which has been compensated by expansion of production in New World countries e.g. South Africa, Argentina, Chile or Australia. The competitiveness of different countries in an agricultural sub-sector such as wine production depends on a number of factors, including infrastructure for processing, transport and marketing, value chain organization as well as the legal, financial and institutional framework. However, as for other agricultural crops, the production

conditions due to climate, soil and farm structures differ widely between the wine producing countries. Hence, the profitability of different production systems is a particularly important factor for the international competitiveness of wine and wine grape production respectively.

However, the wine market is highly diversified with respect to varieties and qualities. The geographical origin of the wine grapes plays an important role in certain market segments. This has major importance in the design of production systems and the production process. The costs of production at farm level are a basic indicator for comparing the competitiveness and profitability between production regions and countries. Though information on costs of production of wine grapes may be available in different countries, an international comparison is not possible, if cost estimates are based on different methodologies or even different reference years.

This paper presents a joint effort of network partners from Argentina, Chile, Germany, Italy, Spain and South Africa to establish a benchmarking of production costs of wine grapes. The objective of network, which is part of the agri benchmark network, is to provide an international comparison of the cost structure and the profitability at farm level for wine grape production systems in the major wine grape producing regions around the world. Based on the typical farm approach, we conduct a comprehensive economic analysis of wine grape production and the identification of factors determining competitiveness.

The core element of our approach is the common methodology with a standardized procedure for data collection and analysis, based on typical farms. A typical farm represents a vineyard in a specific region with a defined, typical farm size and structure and its prevailing production system. Hence, a farm model is generated, which includes not only economic but also physical and technical parameters. Applying economic engineering, costs of production are calculated along the production process, considering the production technology and operations with their respective utilization of resources, inputs and the corresponding prices. The results show the cost structure, profitability and productivity indicators, which characterize a type of farm where a major share of the output in a specific region is produced.

Data sources include available statistics and the expertise of farm advisors and farmer groups. Wine grape production systems can be extremely heterogeneous even within a defined region, depending on target market and specialized qualities. Therefore, the benchmarking of wine grape production so far focusses on grape production for a defined and comparable bulk wine quality, which has a major share in internationally traded wines.

A typical wine grape farm is modelled as specialized farm, which should be large enough to sustain at least one full-time laborer. If diversified farms with other crops are typical for the production region, only wine grape production is modelled in detail and shared farm resources are considered corresponding to their utilization for wine grapes. The analysis is carried out variety-specific, i.e. each grape variety is considered as separate crop for cost allocation. This allows accounting for variety specific prices for vines, yields, differences in crop management as well as in output prices. Also, different age phases, particularly the establishment phase of the vineyard are taken into account by allocating a share of production area to renewal of vineyards, thus reflecting the regionally typical average age structure of the varieties and their utilization periods. In order to achieve a relevant comparison, data collection and analysis always is carried out for a specific year. Variation in yields e.g. due to weather, and variation in input or output prices is captured by an annual update of yields, prices and the changing quantities of inputs used. The reference year is defined by the year of harvest, thus that the benchmarking of 2016 refers to the harvest in March/April in the Southern Hemisphere countries and the September-November harvest in the Northern Hemisphere countries.

Given that data is collected at a very detailed, crop and age specific level any kind of economic indicator can be computed for the entire farm, per hectare, per tonne or for specific varieties. Common outputs of the analyses are input costs, yield levels, product prices, productivities, revenues, gross margins and profits among others. Any kind of economically relevant key figure may be extracted from this farm level analysis of typical farms.

Typical farms can also be used to model scenarios of changing production conditions, e.g. policy change, technology innovations or changing climatic conditions. Using the typical farm as reference scenario, the impact of such changes can be assessed by focusing on different variables that determine profitability on farm level. In our paper, we show the benchmarking of production costs for the 2016 harvest and discuss the results based on specific conditions and challenges in the different producing regions.

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## **Agri benchmark: an international network approach to the economic analysis of wine grape production systems**

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