

Development and management of winemaking sustainability: an explorative survey in Sicily

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Abstract

Sustainability is reshaping the global wine industry. This paper provides a fact-finding contribution to the knowledge on how the Sicilian winegrowing sector is facing the challenge of the new scenario of sustainable productions. To reach this goal we carried out an explorative analysis of those Sicilian wineries involved in 2 important sustainability programs in the Italian wine sector, Magis and SOStain, aimed at improve the implementation of sustainable viticulture and wine production. The results of our research concerning 5 wineries in Sicily reveal that adopting sustainable productive methods has lead in general to good technical and financial results by improving their business efficiencies and management systems, with positive socio-economic implications at a local level.

Keywords

Wine industry, sustainability, management, perception, Sicily.

Introduction

Sustainability is progressively gaining importance in the agri-food sector (Jones, 2012), although a universally accepted definition and measurement method is still far from being established (OECD, 2002; Zanoli, 2007; Ohmart, 2008; Zucca et al., 2009; Santini et al., 2013; Szolnoki, 2013; Vecchio, 2014). Sustainability is a broad concept, often viewed as a goal. It is not really a destination but a direction. Implementing sustainability implies Environmental soundness (by adopting practices sensitive to the environment), social Equity (practices responsive to the needs and interests of society-at-large) and Economic feasibility (practices economically feasible to implement and maintain). This is often referred as the three "E's" of sustainability or the "Triple-bottom-line" approach (Elkington, 1997). To-date it represents the basis of the development policies of the European Union (EU) and of other international organizations (Capri and Pomarici, 2014). In fact, the capacity of the various

agricultural productions to conform their growth paths to the principles of sustainable development constitutes an opportunity for growth not only in a market sense, but also in relationship to society and the environment (Misso and Borrelli, 2013). Moving towards a sustainable agriculture, organized in its social, environmental and economic dimensions (Ohmart, 2008; Mencarelli and De Propris, 2014) is becoming a priority for firms operating in agriculture, and needs a constant process of adaptation of the strategies of firm development (Zucca et al., 2009; Misso and Borrelli, 2013; Capri and Pomarici, 2014).

Sustainable agriculture addresses many important emerging issues such as water use, air quality, energy use, greenhouse-gas production, wildlife habitat and human resources (Ohmart, 2004). That is why, as stated by OECD (2002), in agriculture there is no single path to sustainability and no unique model of sustainable economic activity that could be applicable to all geographic, economic and social environments. On the contrary, the specificities of the local culture, society and economy can generate a variety of methods to implement and articulate sustainability at a local level (Zanoli, 2007).

Sustainability is gaining growing importance also in the global winegrowing sector (Zucca et al., 2009; Gabzdylova et al., 2009), especially in those countries belonging to the "new world of wine" (Australia, New Zealand, South Africa and Chile, besides California). In these latter countries programs and initiatives have been developed to promote sustainability which include a number of standards and voluntary codes concerning environmental, social and economic sustainability (Gabzdylova et al., 2009; Zucca et al., 2009; Szolnoki, 2013; Corbo et al., 2014a; Mencarelli and De Propris, 2014, Pomarici and Vecchio, 2014). Also in Italy we witness a proliferation of initiatives to develop wine sustainable production (Corbo et al., 2014b). Mencarelli and De Propris (2014) discuss 15 national programs created in the last five years on the wine-sustainability theme that have involved firms, academic and research institutions, and service firms. To such initiatives many other projects promoted by vine-growers associations, by consortiums, and by some regional administrations are to be added. There has been, in other words, a generalized increase in the number of sustainability programs. These often come with logos and labels, useful tools to reduce the information asymmetry that characterizes the market of wines (Corduas et al., 2013), and refer to such concepts as environmental protection, care and protection of landscapes, quality of life for vine-growers and for labor in general, the creation and sharing of value of the territory involving its inhabitants, conservation of cultural traditions (Corbo et al., 2014a and 2014b; Mencarelli and De Propris, 2014). Among the several sustainability programs currently being used in the Italian wine industry, Magis (with third-party verification) and SOSTain (without third-party verification) are programs involving 6 Sicilian wineries (Southern Italy) which decided to adopt a sustainability path and to make all the necessary innovations and managerial changes. By involving a group of universities and accredited Italian scientific research centres, individual researchers, associations and enterprises, these two programs promote a process aiming to achieve high levels of sustainability and to disseminate them through the entire network of wine production. More in detail, Magis aims to promote sustainability in viticulture and minimize environmental impact by using precision viticulture techniques, hence on the field; it is characterized by a third-party verification process and by a label of sustainability to inform consumers and stakeholders about the commitment of the wineries participating in the program. SOSTain aims to promote environmental, social and

economic sustainability along the whole chain (both in the field and the winery) in Sicily and it is characterized by an iterative process through which each winery can assess, monitor and improve its sustainability performances. There is a logo and wineries participating in the program are obliged to edit themselves a sustainability report presenting the main results of the implemented program.

The objective of this paper is to illustrate through a descriptive approach the adaptation of the important Sicilian wine sector¹ (Borsellino et al., 2012; Chinnici et al., 2013; Di Vita et al., 2013; Schimmenti et al., 2013a and 2014; Lanfranchi et al., 2014; Galati et al., 2015) to the new scenario of sustainable agricultural productions. To reach this goal we carried out an explorative analysis of those Sicilian wineries involved in the 2 above mentioned programs, Magis and SOStain, aimed at the improvement of sustainability in wine production. Exploring the perception by the management staff of the benefits of sustainable practices and their environmental benefits, economic costs and benefits should provide useful data for stakeholders and policy makers interested in enhancing the overall sustainability of the wine industry.

Methodology

The present work uses an empirical enquiry to examine in some detail the 6 “sustainable” wineries involved in Magis (2 units) and SOStain (4 units) programs in Sicily in 2015. Of the 6 firms we contacted, 5 have accepted to participate in the survey: in particular, 3 firms are involved in SOStain and 2 in Magis. 4 are private enterprises, one is a vine-growers’ cooperative (among the largest at the national and UE level).

The study of the sample was carried out through direct interviews with each company representative for the sustainability issues, as he/she was in the position to decide and reflect upon the farm’s implementation of sustainability initiatives. We used a questionnaire specifically designed on the basis of other survey tools used in former researches in the wine sector (Schimmenti et al., 2014) and in other agricultural sectors (Schimmenti et al., 2011; Di Vita et al., 2013; Schimmenti et al., 2013b), as well as in wine industry sustainability (Atkin et al., 2012; Szolnoki, 2013; Mencarelli and De Propriis, 2014; Vecchio, 2014; Zanni and Pucci, 2014). The questionnaire has three main sections. At the beginning, general information was asked about the interviewed people (age and position in the firm organization) and the farm (name, entity of the workforce, total firm area and vineyard area, number of vine varieties, quantities produced, etc.). The second section was designed to gain information about sustainability and the way the wineries applied the ‘Triple-bottom-line’ (Elkington, 1997) approach (its perception and importance, sustainable practices

¹ In 2013, winegrowing has interested 112.5 thousand hectares, 1 million tons of grapes for a value of 297 million euro, which equals 6.7% of Sicilian production at base prices; the sector presents a high dynamism, especially evident in the number of quality awards obtained: by September 30, 2014, there were 31 denomination trademarks (23 DOC, 7 IGT, 1 DOCG) (Inea, 2014). The commercial flow of Sicilian wine is significant (in 2013, 98.8 million euro of wine were exported to the international markets, while the import amounted to 0.5 million euro), and with its positive balance significantly influences the agri-food balance of regional trade.

currently employed in the vineyards and in the winery and the year they were started, reasons for their adoption, number of wines produced and of wines with the indication of sustainable techniques, participation to sustainability programs and projects, effects of the sustainable techniques upon the strategy and performance of the firm). The last section concerns the commercial aspects of the firm's wine production (type of marketing, packaging, distribution channels, sale markets, revenue classes and revenue variation in the last three years). The questionnaire allowed the collection of socio-structural, productive and commercial data with reference to the 2014 year. Following previous scholarly approaches, the questionnaire included open-ended questions, closed-ended questions (multiple choice in "check-all-that-apply" form, where in some cases answers had to be ranked from the most important to the less) and 5-point Likert scale questions (from 1, strongly disagree, to 5, strongly agree). The final questionnaire was previously tested with the advice of opinion leaders (agribusiness professionals, local academics, etc.); corrections were made following their suggestions. The questionnaire was sent via email prior to the meeting. The interviews were undertaken in February-April 2015. Follow up questions, clarifying specific issues or uncovered topics, were delivered through telephone or emails subsequently.

Findings

Socio-structural and productive aspects

The vineyards' area of the 5 wine farms covers 6,417 ha (ranging from a minimum surface of 20 ha and a maximum of 5,455 ha in the vine-growers' cooperative) distributed in 15 holdings in various areas of Sicily. In addition to this vineyards' area there are herbaceous crops, and other types of trees, among which olives, as well as woods, grazing land and water areas, enhancing the landscape and safeguarding the biodiversity thanks to the presence of autoctonous species. This goes to show that these firms are multifunctional not only in their capacity to diversify their productive activities, but also in creating and protecting the agricultural landscape while respecting their ancient natural, productive and socio-cultural traditions.

Buildings cover an overall surface of 120,903 m² (ranging from a minimum of 3,000 m² and a maximum of 58,900 m²) including 13 wine-making plants (ranging from 1 plant to 6 plants), together with plants for the bottling, packaging and storage of wines for an overall area of 100,495 m² (ranging from 2,700 m² to 79,650 m²).

The firms are also economically significant in terms of employment. The total workforce is composed of 178 permanent employees (ranging from 15 to 62 workers) and 601 seasonal workers (ranging from 8 to 212 workers), all resident in the municipalities near the firms' 15 estates. This has positive consequences in terms of the areas' economic development, which is a fundamental issue in a region such as Sicily that presents very high unemployment rates. Furthermore, the management made investments in terms of personnel development, training and assistance, to make the staff gain qualifications and higher skill level. The average management staff age is 44 years.

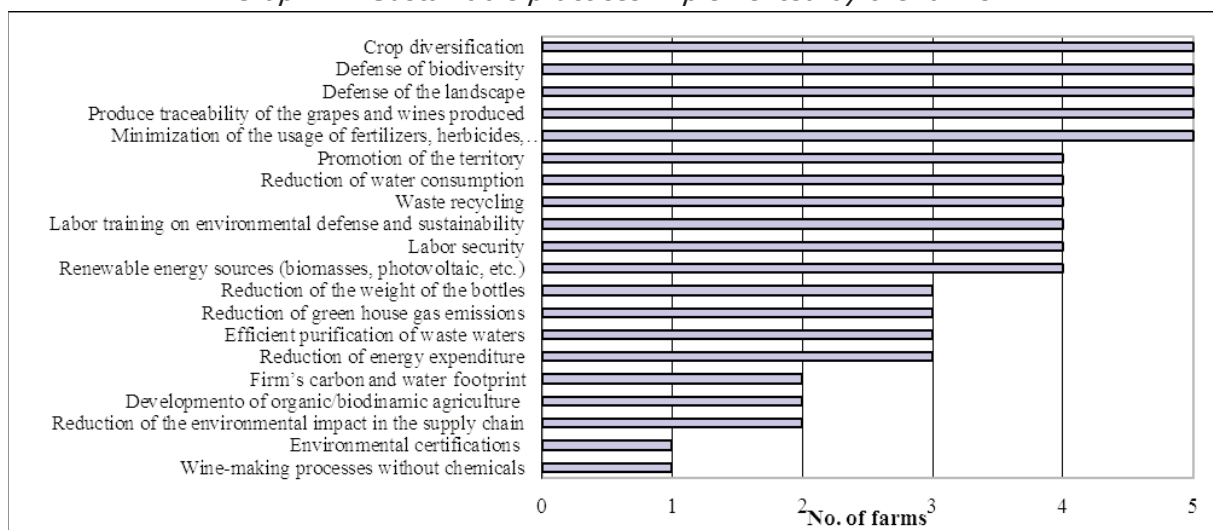
The farms sample grows on average 18 varietal grapes (ranging from 7 to 27 per farm), 8 of which are autochthonous (ranging from 3 to 12), with a total production in 2014 of 518,071 hl and a firm production ranging from 11,250 hl and 430,470 hl of wine; such variability, as well as that one related to other socio-structural and commercial factors, is due to the heterogeneous firm size of the sample.

The whole sample uses an integrated crop management approach including agronomic, physical and chemical tools of conventional vine-growing and the adoption of organic and biodynamic agriculture practices (only two farms obtained the EU organic certification for part of their vineyard area). This mixture is operated with an eye to the efficient utilization of resources and respect for the environment.

Perception and implementation of sustainability

Of the sample firm, 3 have officially undertaken the path to sustainability in the year 2010, the other 2 respectively in 2012 and in 2014, although some good practices go back to the days of their foundation. The farms now use a large number of sustainable techniques, as presented in Graph 1.

Graph 1 – Sustainable practices implemented by the farms



Source: Own elaboration on survey data.

In particular we find that all the farms we examined endeavour to minimize the use of chemicals, to pursue produce traceability of the grapes and of the wines produced, to defend the landscape and biodiversity, and crop diversification. On the contrary, wine-making without additives and the presence of environmental certifications are among the least common activities in the sample firms.

The firms contribute to the enhancement of the image of the areas where they operate, and more in general of the region itself, and also to the strengthening of the tourist vocation of the area by making up events and, in 4 cases, offering hospitality in their facilities.

Among the reasons that have contributed to the decision to produce sustainable wine, the ethical choice has been indicated as the most important in 4 cases; the protection of

biodiversity is the main motivation for a farm, and in the meanwhile the second most important for the whole sample.

Considering the perception and interpretation of the concept of sustainability, the sample's priority is the concern about climate, the environment, and social and economic questions; second we find the idea of meeting the needs of the current generation without compromising the ability of future generations to meet their own needs. Scarce importance is held by more specific definitions limited to particular aspects of the single pillars such as: questions of social responsibility; other environmental questions; preservation of the firm's business. The results show that the firms of the sample have a complete perception and interpretation of the sustainability concept as a complete whole that is interdependent from the three dimensions of sustainability – environmental, social and economic. In the answers to the next question, i.e., assigning a value in order of importance to the three pillars said above in pursuing and implementing the firm's policy of sustainable development, environmental sustainability is considered the most important, followed by social sustainability. Economic sustainability comes third.

Concerning the impact of the sustainable techniques on the firm, we have found out the extreme importance it has for a more efficient use of resources followed by a higher customer loyalty and the strengthening of the firm's reputation as well as the capacity to enter new market outlets. Joining to the sustainability programs allows the sample to obtain consultancies for the training of its personnel and for learning the techniques of self-evaluation of farm sustainability.

On average the self-evaluation of the company performance in the last three years is more than positive for what concerns the comparison to the main direct competitors, satisfactory regard the obtainment of the planned strategic objectives, while a medium satisfaction emerges comparing to the sector's average.

Coming to the filiere networks, the farms state that they operate to make their partners understand and make their own orientation towards sustainability and that they discuss with them about how to improve the sustainability of the activities connected to the commercial activities pursued. Simultaneously, the sample attributes little importance to the synergic project works towards sustainability goals.

To and from knowledge flows are managed by means of training activities and the pro-active participation to sustainability forums.

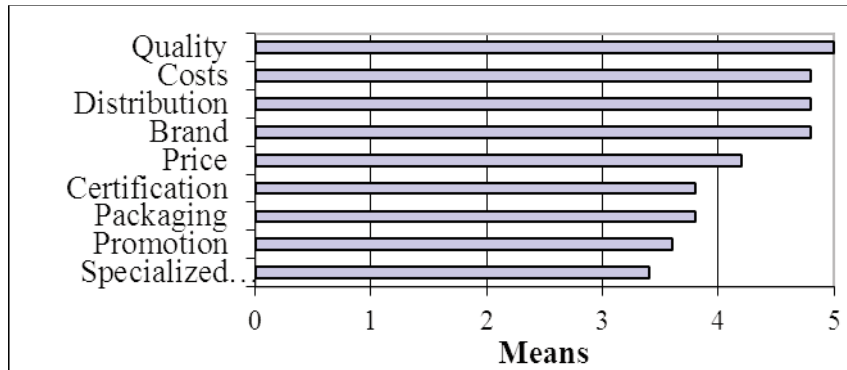
Commercialization

The whole sample at present supplies the market with 312 different types of wine (ranging from 21 to 200 labels within the surveyed sample). Labels reporting information about the sustainability are 52 (ranging from 0, due to a specific entrepreneurial choice, to 25 labels); more in detail 16 carry the SOStain logo, 1 the Magis label, 2 the VIVA logo, 8 the EU organic logo, 2 show the writing "senza solfiti aggiunti" (without sulphites added), while the remaining 23 labels report other information (sensible drinking, vegan, recycled packaging materials, etc.).

The sample adopts the same strategies and utilizes the same destination markets regardless of the type of wine produced, and therefore regardless of the sustainable techniques logo.

The whole sample considers “quality” as a highly influential factor for its own competition strategies (every firm gave 5 in the 5-point Likert scale), followed closely in terms of importance by “brand”, “production costs” and “distribution”. The “price”, “packaging” and “certification” factors are considered slightly less important (Graph 2).

Graph 2 – Influential factors for the competition strategies of the sample



Source: Own elaboration on survey data

The firms have commercialized about 25 million bottles, especially the 0.75 l type (ranging from 1.5 million of pieces to 14.8 million of pieces), 4.1 million of 1 l tetra brik and very little quantities of other packaging types (5 and 10 l bag-in-box and 2 l tetra brik); remaining in the sample, 2 firms have also sold unpackaged wine, and of these 1 has sold concentrated grape must/rectified concentrated grape must.

Wine sales take place above all through importers and own agents with both the sector of the food service industry that consists of establishments which prepare and serve food and beverages (Hotel/Restaurant/Café or HORECA), and the large-scale retail channel as main final destination. 4 firms use the own website exclusively as a commercial “shop window”, while one uses it also for the online sale. The 5 firms also promote their wines by means of fairs, brochure, newspapers and wine tasting in the farm and out of it; in only one case, promotion has been made also by television.

All firms are mainly oriented to the foreign markets, both EU and extra-EU, and lesser to the national market.

Of the sample firms, 2 have a turnover in between 5,000,001€-10,000,000€, 2 belong to the 10,000,001€-25,000,000€ class, one, the wine cooperative, is comprised between 25,000,001€- 100,000,000€. As declared by 4 of the 5 entrepreneurs interviewed, the economic performance of their firm has improved in the last 3 years, both in total value (in three cases there is an increase ranging between 5.0% and 9.9% and in the remain firm between 1.0% and 4.9%) and in that relative to foreign markets.

Conclusions

Today sustainability is an important theme in wine industry. We witness a proliferation of initiatives to develop the sustainable production of wine at the international level since 1992 and only in the last ten years in Italy. Despite such dynamism, we notice the lack of a

common and shared language (techniques, methodologies, indicators, instruments, information, etc.). For example, from the cross-cultural study conducted by Szolnoki (2013), the difficulty in defining the term “sustainability” emerges, because not only each country but also each entrepreneur has a different understanding of its meaning in the wine industry.

In this light, our explorative research has had the goal of verifying the approach to sustainability of the Sicilian firms involved in two programs aimed at the improvement of sustainability in wine production, Magis e SOStain, and of studying some socio-economic, commercial and strategic aspects of the firms in the sample. Basing on what the interviewees declared it is possible to say that the sample we studied has been pushed to undertake a sustainability path by reasons that are prevalently internal to the firm itself, i.e., ethical, personal, and economic opportunism reasons.

The results of our research concerning 5 wineries in Sicily suggest that adopting sustainable productive methods has lead in general to good technical and financial results by improving their business efficiencies and management systems, with positive socio-economic implications at a local level. In particular, the whole sample has understood that the complete interconnection among economy, society and environment is needed for an aware management of company activities able to ensure social and human benefits, together with environmental and economic objectives in the long term thus implementing successfully the “Triple-bottom-line” approach to sustainability.

Finally, it is worth pointing out that the firms show the will to continue in the future their engagement in sustainable production.

The results of our survey confirm the validity of the recent addresses of the CAP in terms of sustainability of agricultural food production.

Further research is likely to involve other “green” Sicilian wine firms involved in other initiatives concerned with developing sustainable production methods (VinNatur, ViniVeri, Tergeo, TripleA, Ecoprowine, etc.) in order to draft an outline as complete as possible of the approach and of the strategies of the sustainable wine firms in Sicily.

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