



ISO 9001 implementation and associated manufacturing and marketing practices in the olive oil industry in southern Spain



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ABSTRACT

This article examines 1) the factors that condition the implementation of Quality Management Systems (QMS) meeting the requirements of ISO 9001 in the olive oil industry of Andalusia, the world-leading olive oil producing region in southern Spain; and 2) whether the implementation of ISO 9001 is associated with the use of better manufacturing and marketing practices by these industries. The study is based on a survey of 101 olive oil enterprises. As conditioning factors, the managerial and supervisory staff of ISO 9001 enterprises tend to be younger and more dynamic, highly educated and more in touch with new, high-quality sources of information, more willing to take risks, less focused on economic profit, and more oriented to selling olive oil further and faster. Good manufacturing practices are, in general, widespread in the Andalusian olive oil industry. Regarding marketing practices, ISO 9001 industries are more reliant on the use of ICTs and on the diversification of the type of olive oil sold. The policy implications of the work carried out are diverse if a wider implementation of ISO 9001 and better practices are the aim: fostering rejuvenation and formal education; training and information programmes based on successful ISO 9001 enterprises; proving the economic viability of ISO 9001; improving access to credit; and developing innovative marketing strategies.

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1. Introduction

The globalisation of the world economy and the expansion of international trade have led to rapid processes of quality internationalization, which have now become a crucial part of enterprises' competitiveness (Ruzevicius, 2008). Since the early 1980s, manufacturing industries worldwide have witnessed a revolution in the way they operate: consumers have become more and more demanding and the key to enterprises' survival is the acknowledgement of the importance of customer satisfaction (Efstratiadis, Karirti, & Arvanitoyannis, 2000). In the agri-food sector, food quality is an increasingly important attribute not just for consumers in developed countries but also for the upper-middle classes in developing countries (Anania & Pupo D'Andrea, 2008; Mili & Rodríguez Zúñiga, 2001; Sanz Cañada & Macías Vázquez, 2005). Enterprises have had to set up proper Quality Management Systems (QMS) in order to control and monitor all stages of

the production process and they have had to provide proof to their potential customers that their product is of a guaranteed – and in some cases certified – quality (Tricker, 2010). If a QMS passes a certification process carried out by a certification body guaranteeing that it meets the requirements of a recognised standard (such as ISO 9001), it can be referred to as a Certified QMS (CQMS). However, a QMS can also operate and be effective without certification.

Spain is the world leader in olive growing, accounting for 38.7% of world production and 24.4% of olive surface area in 2013 (FAO, 2015). Andalusia, a region in southern Spain, is the most important olive-growing area in the country and in the world, representing 75.7% of the olive production and 62.3% of the olive surface area of Spain in 2013 (MAGRAMA, 2014). More than 70% of the olive oil produced in Spain comes mainly from first and second degree cooperative mills which are composed of a wide group of small/medium olive growers who cooperate in order to press the olives (Sanz Cañada & Macías Vázquez, 2005). The distribution of olive oil is dominated by large distribution and major bottling enterprises (Anania & Pupo D'Andrea, 2008; Montegut Salla, Cristóbal Fransí, & Marimon Viadiu, 2007; Sanz Cañada, Rodríguez Zúñiga, & Mili, 1998). Spain is the biggest olive oil exporter in the world (FAO,

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2015). More than 60% of Spanish olive oil is destined for export, including both the final bottled product and bulk olive oil which is subsequently processed and bottled (MARM, 2010b). Olive oil exportation has been increasing sharply at a rate of 14.8% per year over the period 1999–2009 (MARM, 2010a, 2010b). The main destinations for Spanish exports are other EU-27 countries (74.8% of exports) and emerging markets such as USA and Australia (7.3% and 2.7% respectively) (MARM, 2010b). These markets and larger-scale distribution are resulting in increasing demand for the internationally recognised quality standards (Anania & Pupo D'Andrea, 2008; Marbán Flores, 2005; Mili & Rodríguez Zúñiga, 2001). Implementing QMS/CQMS that meet the requirements defined by these standards is crucial to the survival and competitiveness of olive oil enterprises (Marbán Flores, 2005).

This study focuses on the ISO 9001:2008 standard. This is part of the ISO 9000 family on quality management, as defined by the International Organization for Standardization (ISO). The ISO 9000 family provides guidance and tools for enterprises and organizations who want to ensure that their products and services consistently meet customer requirements and that quality is consistently improved (ISO, 2015). The ISO 9001 standard sets out the requirements of a QMS and is the only standard in the family that can be certified by third-party certification bodies. ISO 9001 can be implemented by any organization, large or small, regardless of its field of activity, and it is one of the most widely internationally recognised standards (Psomas & Fotopoulos, 2010; Tricker, 2010). The ISO 9001 standard is being updated, and ISO 9001:2015 is due to be published by the end of September 2015 (ISO, 2015).

The international literature on ISO 9001 in the olive agri-food sector has covered diverse topics such as demand/awareness of the standard by olive oil consumers (Galluzzo, 2007), the viability of ISO 9001 implementation as a market strategy for olive cooperatives (Marbán Flores, 2005; Maza, Sepúlveda, Campo, & Berga, 2009; Montegut Salla, 2006; Montegut Salla et al., 2007) and the influence of ISO 9000 implementation on olive oil quality (Vilar Hernández, 2003; Vilar Hernández, Velasco Gámez, & Puentes Poyatos, 2009). However, the factors conditioning the implementation of ISO 9001 (i.e., the implementation of QMS meeting the requirements of ISO 9001) in the Andalusian olive oil industry, and whether or not the implementation of this ISO standard is related to the use of different, and in any sense better, manufacturing and marketing practices, remain largely unexplored.

With all this in mind, the objectives of this research are: 1) to define the factors conditioning the implementation of ISO 9001 in the Andalusian olive oil industry (whether it is certified or not), i.e. to identify the distinctive characteristics of the ISO 9001 industries and of their managerial and supervisory staff that can explain the implementation of QMS meeting the requirements of ISO 9001; and 2) to examine whether or not the implementation of ISO 9001 by olive oil industries is associated with the use of different (and to any extent better) manufacturing and marketing practices, as compared to non-ISO 9001 industries. Manufacturing and marketing practices, and the goodness of these practices, will be defined in the next section 'Terms and definitions'. The final aim of this study is to generate insights for the design of public and private policies and strategies to foster the implementation of ISO 9001 across Andalusian olive oil industries and to improve the manufacturing and marketing practices used by those that have already implemented the ISO 9001 standard.

2. Terms and definitions

- Manufacturing practices are considered here as those that relate to the elaboration of olive oil in the enterprise, from the reception of the olives to the management of the by-products.

- Marketing practices are those related to the sale of olive oil, including the four main components of the marketing mix (distribution, promotion, price and product).
- The goodness of manufacturing practices is measured by the degree to which the good practices put forward by the Integrated Production (IP) system are implemented. IP is regulated in Andalusia by the Order of 12 June 2013 (BOJA no.117), and it includes manufacturing practices that are recognised as optimal from a technical, economic and/or environmental perspective (Hinojosa-Rodríguez, Parra-López, Carmona-Torres, Sayadi, & Gallardo-Cobos, 2014; Martínez-Torres, 2004; Stroosnijder, Mansinho, & Palese, 2008). IP is a part of broader concepts such as sustainable agriculture and environmentally friendly, responsible management of natural resources.
- The goodness of marketing practices is measured by the degree to which innovative and widely recommended marketing and business strategies are implemented. Good industrial practices are spread between different documents, mainly grey literature and usually in Spanish. Therefore, it is very difficult to refer them to specific documents. In any case, they are good practices according to the mainstream economic theory.

3. Methodology

The empirical work for this study is based on interviews with the managerial and supervisory staff members of 101 olive oil enterprises (one staff member per enterprise) in the main olive-growing provinces of Andalusia, which are Jaen, Cordoba and Granada (IEA, 2012a, 2012b). The survey was carried out by two trained technical assistants, who have possess an in-depth knowledge of and are in close contact with the olive oil sector. First-hand research was conducted from May 2010 to February 2011 via face-to-face interviews based on a structured questionnaire. The questionnaire was previously validated jointly by the authors of this manuscript and the technical assistants. The survey sample was randomly stratified in proportion to the number of olive oil enterprises in five major homogeneous olive-growing zones, which were previously clustered in order to facilitate the implementation of the survey. As 101 of a total of 697 registered olive oil enterprises (AAO, 2010) were interviewed, a sampling error of 6.32% for extreme proportions ($p = 0.9$ and $q = 0.1$) and of 10.54% for intermediate proportions ($p = q = 0.5$) is assumed for dichotomous variables at a 95% confidence level for the whole sample. The distribution between ISO 9001 and non-ISO 9001 interviewees was random. Information on 11 ISO 9001 and 90 non-ISO 9001 olive oil industries was gathered. The 'SPSS Statistics 22' software was used for statistical calculations.

Two analyses were carried out, in line with the two objectives of the research. The data gathered and the methods followed for each analysis are as follows:

1. Analysis 1. Factors conditioning the implementation of ISO 9001:
 - 1.1. Data gathered: (1) Personal characteristics, attitudes and opinions of managerial and supervisory staff of ISO 9001 and non-ISO 9001 enterprises, including age, sex, education level and position in the company, engagement in R&D (Research & Development), the innovation sources they use, their objectives in production and innovation, the difficulties they face with regard to innovation, and R&D priorities; and (2) Structural characteristics of ISO 9001 and non-ISO 9001 enterprises, such as the type of enterprise, legal status, size and turnover, principal activities, and main suppliers and customers.

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