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Hernandez-Sanchez, A.: Fresh Fruit Producers Organizations in France: The Impact of HACCP and ISO 9000 Standards Adoption. In: Hagedorn, K., Nagel, U.J., Odening, M.: Umwelt- und Produktqualität im Agrarbereich. Schriften der Gesellschaft für Wirtschafts- und Sozialwissenschaften des Landbaues e.V., Band 40, Münster-Hiltrup: Landwirtschaftsverlag (2005), S. 155-162.

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## **FRESH FRUIT PRODUCERS ORGANIZATIONS IN FRANCE: THE IMPACT OF HACCP AND ISO 9000 STANDARDS ADOPTION**

*Alberto Hernandez-Sanchez\**

### **1 Introduction**

French fresh fruit producers and shippers face continuously growing demands on quality concerning both product and process attributes. The first ones concern attributes such as color, size, flavor, freshness, homogeneity and other intrinsic characteristics that can be directly observed on the fruits at all different stages of the produce chain, from harvest to consumption. Process attributes cannot be observed after the specific production process is concluded, they include characteristics such as geographical origin, environment protection, hygiene and food safety. In economic literature the first ones are defined as either search or experience attributes and the second ones as credence attributes (CODRON et al., 2000).

Firms in the fresh produce chain have progressively established coordination mechanisms for quality management in order to achieve better adaptation between consumers' demands and producers' capacities. These coordination mechanisms include, among others, codes of conduct, standards and certification procedures. The firms can adopt specific, product-oriented quality approaches (such as brands, product certifications and labels) or more generic, management-oriented approaches (such as ISO 9000 and HACCP).

Given the short-life period of fresh fruit, the high uncertainty of both offer and demand, and the difficulties of enforceable quality assessment along the distribution chain, specific quality approaches have shown limited applicability in the sector. This kind of specific approaches have a long tradition in French agriculture and been largely analyzed in agricultural economics literature (NICOLAS and VALCESCHINI, 1995; RAYNAUD and SAUVÉE, 2000; MAZÉ, 2001).

Generic approaches have emerged as new alternatives to firms in the food sector in general and especially in the fresh fruit industry. They have been recently adopted in French agriculture. These new experiences have been relatively less studied in agricultural economics literature (BOUHSINA et al., 2002; LAZARIC and DENIS, 2001; GROLLEAU, 1999).

This paper concerns the impact of the ISO 9000 and HACCP adoption on fruit producers' organizations (PO) in Southern France. In these organizations different fruit producers own assets in other stages of the production chain. Organizations are based on both collective and private assets, on one side, collective assets include investments, facilities, and activities of post-harvest, handling, picking, conditioning, storage, packing, marketing, delivering and wholesale commerce of fresh fruits; on the other side, private assets are mainly the agricultural exploitations. Individual growers are relatively autonomous concerning the management of their own orchards; however, they are collectively supervised through voluntary application of codes of conduct. Individual growers become suppliers of their own collective organizations and are subject to specific incentive and control mechanisms.

The adoption of generic standards such as ISO 9000 and HACCP by PO concerns first the Quality Management Systems (QMS) at packing station levels. But their implementation has broader impacts on organizational forms, on incentive and control mechanisms and, in a more general sense, on governance structure of the organizations.

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## **2 Methodology**

A general survey of organizations was conducted between April and June 2001. Data have been collected through mailing questionnaires. Selected PO (total = 60) have apples and peaches as a dominant production. All of them are “Producers Organizations”, as defined by EU, and are established in Southern France. The questionnaire was completed by 33 PO, concerning production and commercial characteristics, generic standards adoption, objectives and constraints for such adoption and perceptions of the impacts. The first analysis of these data deals with the market’s determinants of adoption (HERNANDEZ-SANCHEZ, 2001; BOUHSINA et al., 2002). Then organizations were personally visited and direct, one-to-two hours open interviews were performed with quality managers in order to have deeper explanations about generic standards adoption, quality management and related organizational adaptations.

To analyze the problem and gain a better understanding of the research question we applied the Transactions Cost Economics (TCE) and the Dynamic Capabilities approaches. TCE underlines the importance of governance structures as the efficient contractual arrangements chosen by the actors under specific transactions conditions (WILLIAMSON, 1996; MÉNARD, 2000). Concerning producers’ organizations a variety of governance forms (neither market, nor hierarchy) seem to be the proper arrangements for transactions between growers and their organizations. Thus, PO are considered here as hybrid forms, which are based on different collective and private mixed ownership forms. Hybrid forms correspond to transactions that undertake significant interdependence of assets, owned by autonomous units, but not requiring the integration of a unified enterprise (MÉNARD, 1997). They are driven by specific sets of incentive and control mechanisms designed to enhance individual commitment to collective goals (for example, product quality) and to minimize the risk of opportunistic behavior (for example, the free-rider problem).

On the other hand, the Dynamic Capabilities (TEECE et al., 1997) approach allows having a multi-dimensional view of the organizations in a competitive environment, concerning their resources, routines and competences, managerial processes, in the context of changing markets, which is the case when we consider the emergence of generic standards in the fresh fruit sector.

Both theoretical approaches can be complementary to each other, especially in the field of organizational analysis (FOSS, 1996), connecting the questions of competence development on one side and of incentives and control mechanisms design on the other side. This general scheme introduces the importance of knowledge capitalization and transmission devices inside the organizations and their role in governance structure analysis (CHABAUD, 2001). Following this, our basic propositions are (a) the quality management system constitutes a dynamic capability (TEECE et al., 1997) for the producers organizations, (b) the implemented organizational device (the formal QMS) resulting from the adoption of generic standards modifies the nature of the bilateral dependence between individuals and the organization (CHABAUD, 2001), and (c) is a determinant of the governance structure of the organization.

## **3 Quality Generic Standards and Producers Organizations**

### **3.1 Generic standards**

Generic standards are systemic and organization-focused approaches, in economic literature they are also called “management system standards” or “management metasystems” (AUST-STERNS et al., 2001). These standards define adequate management procedures that the organization should implement in order to assure regulatory compliance, client satisfaction and reliability. They ought to be internationally recognized but not consumer-oriented. Their adoption is intended to enhance coordination between firms along the produce chains (supplier-client relationships). In this paper we study two generic standards that can be adopted at packing station level: HACCP and ISO 9000.

The first one is the acronym of “Hazard Analysis Critical Control Points” (MORTIMORE and WALLACE, 1996), and is a food safety-oriented methodology based on general prevention management. In the fresh fruit sector in France HACCP adoption is not obligatory. Enterprises are compelled to adopt “Good Sanitary Practices” following the principles of HACCP, which is the minimum legal requirement. In the contrary, enterprises are not allowed to certify HACCP compliance in order to avoid competition and consumer miscommunication problems. Thus, for the organizations HACCP adoption is firstly a response to their foreign clients demands, mainly British, who consider this as the minimum acceptable sanitary standard for all fresh food products.

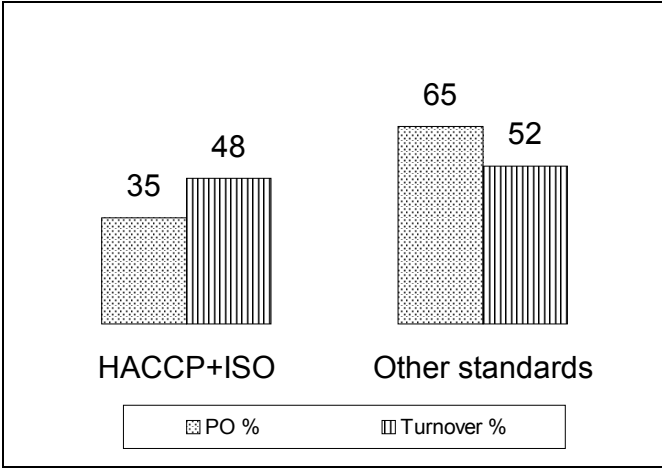
The second generic standard is ISO 9000, a group of norms issued from an international consensus on good management practices with the aim of ensuring that organizations can deliver products or services that meet the client's quality requirements. These good practices are presented into a set of standardized requirements for a quality management system, regardless of the activity, size, or nature of the organization. "Quality management" means what the organization does to ensure that its products conform to the customer's requirements (ISO, 2002). ISO 9000 adoption is voluntary and the certification procedure requires a third party and independent evaluation of the operating system. In the fresh fruit sector in France ISO 9000 adoption normally includes the production processes at the packing stations, from the reception of freshly harvested fruits to the shipping of selected, cleaned and packed fruits. In some cases ISO 9000 certification includes also the commercial and the post-sale services.

**3.2 Producers Organizations**

Selected producers organizations embrace at least the following functions: agricultural production, fruit conditioning, packing, storage, shipping and marketing. Among them, we identified a group of “pioneer” PO which have adopted both ISO 9000 and HACCP as quality management systems at packing station level.

This paper concerns only this group of organizations (total = 11 PO), they represent 35 % of the total of organizations surveyed in the study (BOUHSINA et al., 2002), but nearly one half of the total turnover of the sample (Figure 1). This group of “pioneer” PO represents a large diversity of organizational forms, including different technical characteristics and market approaches.

**Figure 1: Standards adoption by French PO**



Organizations are presented in decreasing order (Table 1) according to their annual turnover. The number of members of the organization is not directly related to its turnover.

**Table 1: Some characteristics of producers' organizations (data from survey, April-June 2001, names of the organizations are omitted because of confidentiality reasons.)**

PO	1	2	3	4	5	6	7	8	9	10	11
Turnover (M €)	72	28	20	16	15	9	8	6	5	5	4
N° of members	300	250	100	5	60	130	100	30	6	20	7
Export ratio (%)	78	45	15	50	30	7	30	15	80	84	50
Products : A, P, M (*)	A	M	M	P	M	M	A	P	P	A	P

(\*) A = apples; P = peaches; M = multi-product

In organizational terms some of the PO are highly integrated organizations (PO 4, 9, 10 and 11), formed by a small number (between 5 and 20) of relatively big growers, sometimes family owned groups, while the majority of the PO are relatively less integrated grower co-operatives with higher number of members (between 30 and 250 each).

In small organizations decision-making processes and operational management are concentrated, the co-ordination function between farm production, packing station and marketing is the responsibility of a small managerial structure directly linked to the hierarchy. In larger organizations the hierarchical decision-making process is more consensual, at the members' assembly level, and presents more autonomous technical, commercial and directive structures, which develop specific management and operational responsibilities.

Further analysis of the organizations' functions allows identifying that, as proposed by BIJMAN and HENDRIKSE (2002), smaller organizations correspond better to the first link of the basic chain organization for producing and distributing fresh produce: grower-wholesaler-retailer. Meanwhile, larger organizations correspond better to the *bargaining* and *marketing* type of producers organizations, their aims are to establish a countervailing power in an oligopolistic market and, in some cases, to build up a reputation asset related to a brand name.

Concerning product specialization there is no clear tendency, there are peach and apple specialized as well as multi-product organizations. The same can be observed concerning the export activity, ranging from 7 to 84 percent of the organization's turnover.

First proposition derived from this diversity of industry framework is that it should be different QMS implemented by PO due to different size effects, either considering the number of members, the turnover of the organization, market orientation or product specialization effects. However, data from the survey showed that the implemented QMS have essentially the same characteristics in all organizations.

## 4 Impact of Generic Standards Adoption

In spite of the basic structural differences of the PO, organizations develop rather homogeneous QMS and report similar effects on governance mechanisms. Basically, it is the matter of a 'homogenization' process across the organizations, which includes the newly implemented QMS (section 4.1), the corresponding information systems (section 4.2), the learning processes related to generic standards adoption (section 4.3), the direct impacts on governance structures (section 4.4) and the evolution of the organizational processes (section 4.5).

### 4.1 The Quality Management System

QMS implementation is the responsibility of a Quality Service, Department or Direction. Organizations allocate one full-time manager or staff person to conduct the implementation of generic standards and the development of the quality management system. This manager generally leads a working team (or task force), concerning the different services of the organization. To perform this task, organizations also invest in laboratories, measurement equipment,

materials, hardware, software and others needed to measure, control, supervise, register, treat and analyze the quality related information.

Along with generic standards adoption, the quality service plays an increasingly important role in the structure and functioning of these organizations, acting as a link between production (both in the fields and in the packing stations) and the commercial services.

The adoption of generic standards leads to more formalized practices of management, on the basis of deeper examination of functioning, controlling and evaluating the organization. Formalization means documentation of regular management practices, record keeping and methodical supervising.

The QMS is intended to assure clients' satisfaction at minimum cost. At this level, organizations consider both, production and transaction costs. Standards are integrated to avoid inefficient isolated control and verification procedures but also to enhance coordination and to facilitate communication between different services and individuals in the organization. The newly established QMS should minimize control and verification costs integrating HACCP and ISO 9000 procedures.

#### **4.2 The Information System**

The QMS is based on the definition of basic control procedures, records and information flows which are necessary to assure traceability, identify, prevent and handle the quality problems both at operational and organizational levels. Newly implemented information systems are more formal, passing from oral to written procedures. In most of the cases, they pass from manual to electronic processing.

Internally, the problem is to define an information system compatible with organization goals and resources. Most of the organizations consider that they already have enough operating control mechanisms and records and that they mainly have to change the treatment strategies, the analysis methodologies and the reporting procedures in order to obtain better and quicker responses.

Externally, the problem is to deal with a continuously growing demand for written proofs of quality procedures engaged by the organization. These information flows can be inefficient in several ways: high management costs, low credibility, confusion, repetition and fuzziness of information, loss of confidence and markets, lower consumption.

#### **4.3 The Learning Processes**

Generic standards adoption compels organizations to develop technical skills (like proper product handling, measurement and reporting procedures, on the job risk prevention, etc.), managerial competences (like team work, control procedures, information treatment, internal auditing, etc.) and organizational devices designed to satisfy required standards for quality management system.

Such processes are accomplished through specially designed learning procedures, on and off the job training programs and human resources development strategies, including sometimes, if necessary, recruiting of qualified professionals for specific responsibilities.

Organizational competences are developed through progressive and continuous formalization of management procedures (transforming tacit into explicit knowledge), systematical record keeping and analysis of organizational experiences and evolution: periodical information meetings, group discussions, team working and systematic evaluation of newly implemented procedures and routines.



#### **4.4 The Governance Structure**

Organizations report a more efficient incentive and control system based on better internal communication, team work and collaboration among different services, better identification of functions and responsibilities, fewer controls and lower non-quality costs.

In the short term generic standards adoption leads to a reorganization of production processes and control procedures, as a result of designed training, learning and communication approaches (strategy of specific human asset development) and team formation.

This reorganization is accompanied by a new definition of organizational politics (goals, mission, responsibilities), a new agreement with organization's members (growers and employees) assuring their participation in the implementation of the whole quality system.

The participation agreement is built on the basis of incentive and control mechanisms designed to enhance individual commitment in collective action and to minimize opportunistic behavior.

The development of management incentives and controls allows organizations to better align the interests of growers, employees and clients and therefore to develop higher potential of production.

On the long term, after a two to four years implementation period the whole organizational device (standards, procedures, human resources and competences) is evaluated and then necessary changes can be done.

#### **4.5 The Evolutionary Process**

The time consuming implementation of generic standards induces a feed-back effect: first, generic standards adoption induces a new quality management system that modifies the governance structure of the organization, and later on, through a programmed evaluation process, the new governance structure is intended to modify the quality management system.

This effect increases organization flexibility. The record keeping and periodic assessment procedures allow organizations to follow the timely transformations and to evaluate their performances during different time periods. In this way, they accumulate experience and support their organizational learning process.

Organization's perception of the whole process of generic standards adoption, implementation and assessment is congruent with the Dynamic Capabilities approach (TEECE et al., 1997), pointing that quality management is a strategic capability for organizational development, given the rapidly changing environment of the fresh fruit industry.

In the long term, and responding to a gross before-and-after comparison, organizations report that generic standards adoption impacts are related to generational changes (father to son, or older to younger growers' transition) and modifications of the interpersonal work relationships, passing from overall hierarchical ones to more horizontal ones.

Another important long term impact is on member selection process, organizations report that generic standards adoption facilitates the identification of the more efficient growers and employees who can be promoted and that of the non-conform actors, who are relatively penalized and progressively abandon the organization.

### **5 Discussion and Conclusions**

To explain these results an alternative proposition is advanced, the relative homogenization of QMS in different organizations is achieved through a process of adaptation of the organizational devices (and the development of some basic dynamic capabilities) to the fundamental principles of the generic standards. This explanation is based both on Transactions Costs and Dynamic Capabilities approaches.

Discussion concerns the role of generic standard QMS in the minimization of both production and transaction costs and in the implementation of the learning processes which are necessary for the development of long term strategic competences at the PO level. Moreover, the development of these QMS has considerable impact in producers' organizations governance structures. It is an efficient way to obtain clients' satisfaction and, at the same time, to enhance internal coordination.

From a Transaction Costs perspective it seems to facilitate the kind of arrangement that minimizes both production and transaction costs. From Dynamic Capabilities perspective it can be explained as strategic organizational decision allowing to embrace new opportunities and to gain competitive advantage in an environment of continuously changing demands.

From a theoretical perspective, conclusions point out the complementary arguments of Transaction Costs and Dynamic Capabilities approaches to better understand the dynamics of organizations in the context of changing environment.

The concluding remarks include the fact that different French fruit producers' organizations have adopted both ISO 9000 and HACCP standards, leading to the establishment of integrated quality management systems. Even if organizations are rather diverse, the implemented QMS show essentially common characteristics. Available information enables us to identify the following common points: human resources involved in QMS, responsibilities and functions definition, information systems, learning procedures, incentive and control organizational mechanisms.

Considering the different standards objectives, food safety for HACCP and commercial quality for ISO 9000, their adoption seems to be complementary and even more, to have a synergic effect if they are simultaneously implemented. Synergy consists in the optimization of different control and verification procedures for both standards. The more experienced organizations can even take advantage of the ISO 9000 certification procedure to implicitly certify HACCP compliance, indirectly avoiding the official ban on this matter.

However, more detailed and relevant information is needed to validate the typology of organizations and to evaluate specific levels of investment and results obtained in order to draw a detailed and valid comparison among them. Furthermore, more relevant criteria should be identified in order to implement a more precise evaluation.

More in-depth analysis of management performances will allow better assessment of more global objectives and expectations of the organizations, concerning different criteria such as organizational capacity to adapt to market uncertainty and to establish sustainable partnership.

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