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The development of private fresh produce safety standards: implications for developing Mediterranean exporting countries

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Abstract

Integration into global markets offers the potential for more rapid growth and poverty reduction for poorer countries. However, market barriers within advanced economies to agricultural imports have made it harder for developing countries to take full advantage of this opportunity. This article examines the impact of increasing demands for food safety and quality by European food retailers, and how the fundamental structure and culture of supplier organisations required by European retail chains are a major entry barrier for developing Mediterranean fresh produce exporting countries, and for developing countries in general. The long-term solution for such countries to sustain an international demand for their products lies in structural, strategic and procedural initiatives that build up the trust and confidence of importers/retailers in the quality and safety assurance mechanisms for their produce.

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Introduction

Market failure to deliver the level of safety to meet public health requirements and consumer demands constitutes economic grounds for public policy intervention (Unnevehr and Jensen, 1999). The lack, or high cost, of information, and the resulting consequences for public health are the fundamental justifications for

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public intervention to improve food safety. However, allocating food chain safety responsibilities from ‘farm to table’ has created a new paradigm for stakeholder relationships characterised by complex interactions between public and private modes of regulation. The increasing globalisation of food production and consumption make it difficult for national governments to exert comprehensive controls over the entire supply chain, and to identify the roots of quality problems in foreign countries, or ‘end-of-pipe-management’ (Spiller, 2002). The resulting shift of responsibility towards the private sector has created a more complex and demanding ‘policy space’ involving public and private sector incentives and controls. The interaction between self-regulation and public regulation could provide a superior outcome, as industry and firms are more knowledgeable regarding product quality, and public regulation can generate reputation-based incentives to monitor quality, in the form of public exposure (Nuñez, 2001).

However, increasing demands for food safety by developed countries have raised concerns about likely food regulatory impacts on international trade, particularly in the case of developing countries (Otsuki et al., 2001; Henson and Loader, 2001; Henson et al., 2000; Unnevehr, 2000). It is recognised that developing countries are likely to have difficulties in meeting requirements associated with the implementation of high level sanitary or phytosanitary measures which come in connection with technical regulations, standards and conformity tests (IMF/World Bank, 2002; Garcia Martínez et al., 2002; Garcia Martínez and Poole, 2004; Wilson and Abiola, 2003). As the commercial and institutional infrastructure develops, there is the risk that new regulatory barriers will be erected. This is of particular concern for developing countries, where existing technical and institutional capacity to control and ensure compliance may not allow for the adjustments needed to meet new requirements.

Most of the current debate has focused on the impact of public national and supranational (e.g. European Union) regulatory demands on market access for developing countries (see for example, Reardon et al., 1999; Busch et al., 2000; Weatherspoon and Reardon, 2003; Unnevehr, 2000). The critical focus now needs to shift from such public regulatory standards, or TBTs (technical barriers to trade), towards the increasing importance of food safety regulations imposed over and above public standards by private sector (commercial) firms, and their potential impact on agricultural and food product exports from developing countries. Opportunities and threats both arise from the growth of such private standards, which can be termed ‘commercial barriers to trade’:

- private standards can undoubtedly impede trade in the same way as ‘public’ regulatory requirements. In practice, compliance with de facto standards is mandatory in virtually the same way as regulatory requirements if an exporter wishes to access a particular market (Henson and Northen, 1998; Henson and Hooker, 2001);
- whilst voluntary consensus standards are not mandatory in the same way, differences in costs of compliance can act to enhance or diminish international trade

competitiveness. A deep compliance gap therefore becomes an insurmountable barrier;

- on the other hand, when the use of a particular private standard becomes widespread it can facilitate trade in the same manner as harmonisation of national regulatory requirements (this is the rationale behind initiatives like EurepGap and the Global Food Safety Initiative (GFSI) which aim to develop a harmonised international scheme as the preferred system for quality and safety control in the fresh produce sector);
- moreover, private standards can be utilised by exporting countries as a means to position or reposition themselves strategically in international markets. Kenyan exports of green beans provide a good example of this (Jaffee, 2003), as well as exemplifying the costs of compliance (Financial Times, 2004).

This article provides a résumé of the results of a number of case studies that shed light on private standards, or so-called ‘commercial barriers to trade’, rather than the public standards discussed hitherto in the literature, and on the impact that Western European food retailers’ private standards are having on suppliers, particularly those in developing countries. The developing country context is one in which food systems generally are not as well organised as in the industrialised world due to the fragmented nature of their supply chains, the lack of technical and human investments, and a weak communications infrastructure. Knowledge of evolving standards is often lacking (Busch et al., 2000), and developing countries often lag in their capacity for effective certification and accreditation of testing facilities (Stephenson, 1997).

Inferences will be drawn concerning the fundamental changes in the structures, technical capacity and entrepreneurial behaviour of fresh produce exporters in developing Mediterranean countries required to establish commercial links with powerful food retail chains.

The article is structured in seven parts. The following section explores the significance of food safety regulations and standards for the fresh produce sector of the food industry. The next section explains the methodology followed in this study. The evolution of and explanatory factors for the development of high-level private food standards in three EU countries – UK, France and Germany are explored in the following section. Cross-country differences are highlighted, as they determine the levels of complexity of the private initiatives developed, of enforcement on fresh produce suppliers, and consequently the impact for those suppliers of non-compliance. The section entitled ‘Towards a harmonised approach to food safety’ analyses emerging initiatives to establish internationally recognised safety schemes as the benchmark standards. The following section focuses on the impact of private requirements in fresh produce exports by considering the asymmetries between the structure and culture of business organisations in Mediterranean countries compared to the requirements for dealing with retail chains. Finally, there are Conclusions and recommendations.

Food safety regulations and standards in the fresh produce industry

Food safety is more likely to be a concern in fresh food produce trade (i.e. fresh meat, seafood, fresh fruit and vegetables) than for other types of agricultural products (Unnevehr, 2000). Since such products are transported and consumed in fresh form, handling throughout the entire supply chain can influence food safety and quality (Zepp et al., 1998). Above all, it is the relatively high perishability of fresh produce and the susceptibility to damage and disease pre- and post-harvest that impose high-level requirements for quality assurance. Secondly, standards in developed countries tend to be significantly higher than those in developing countries; hence compliance with those standards may require greater initial investment in quality control and sanitation in developing countries. Thirdly, fresh commodities are subject to increasing scrutiny and regulation in developed countries where food safety hazards are better understood and more often traced to their sources.

In the case of fresh fruit and vegetables, the focus of this article, the Health and Consumer Protection Directorate General (DG SANCO) of the EU sets the level of food safety standards for imports of fresh produce from non-EU countries. Each EU member state then develops food safety regulations, packaging and labelling requirements and inspection systems for cross-border agricultural chains, following the EU food safety regulations and monitoring systems. Phytosanitary regulations are of particular relevance in this sector and constitute a potential non-tariff barrier to fresh produce imports to the EU. DG SANCO is aiming for a harmonised framework for the authorisation, use, and control of plant protection products, monitoring of pesticide residues, phytosanitary inspection and quality inspection. However, the implementation of a EU MRL (maximum residue level) harmonisation programme has caused serious concern amongst importers and retailers of imported fresh produce in EU countries, and amongst exporters and growers in developing countries (Chan and King, 2000).

Importers and retailers in the UK, for instance, are under particular pressure because the government allows results of the government's pesticide residue monitoring programme to be published, showing each retailer selling products with residues exceeding permitted MRLs.¹ Consumer groups in the UK are calling for the complete removal of pesticide residues from food (Friends of the Earth, 2001). Many private retailers, rather than setting their own MRLs, operate their own lists of pesticides which are prohibited or restricted and are aiming for zero residues in all food, actively seeking alternatives to chemical pesticides (Friends of the Earth, 2002). For instance, Co-op has drawn up a list of 50 pesticides, which are prohibited or restricted, and is aiming for zero residues in all its food. Co-op is also the first supermarket to publish its residues testing results. Waitrose has a lower incidence of residues compared with other retailers, and is working to eliminate the use of several pesticides including lindane. Marks & Spencer has prohibited the use

¹ Latest pesticide residue level results: www.pesticides.gov.uk/committees/PCR/thirdq2003/PRC_2003_Q3_report.pdf

of 60 pesticides by its suppliers, although some of these are banned in the UK already. The M&S prohibition will apply globally, and it is aiming for zero residues in the long term and now publishes the results of its own testing on its website. Sainsbury's has made a commitment to pesticide reduction and to phasing out aldicarb, carbendazim and vinclozolin.

The resulting problems of potential non-compliance with MRLs and rejection of exported goods faced by developing country suppliers have been exacerbated by the fact that communication of the EU legislative position, and of its implications for farming practices, has been poor. Even the largest producers in some of the larger exporting countries remain insufficiently informed to respond effectively to the legislative requirements. Moreover, there still remain many differences between national regulations and monitoring systems among EU member states (Willem and Roth, 2003).

The Codex Alimentarius includes general standards or recommendations on pesticide residues in foods, which member countries accept. There are some instances, however, where the MRLs set by the Codex are greater than EU MRLs, which may cause confusion for those exporting countries adhering to these levels. Additionally, exporting countries setting MRLs in their own legislation may face problems if their MRLs are not in line with the EU MRLs, as is the case with Turkey, one of the countries studied in this paper. As Table 1 shows in the case of tomato imports coming from Turkey into the EU, 67 per cent of active substances which are specified in the EU legislation have no parallel Codex MRLs. For those substances that have MRLs assigned in the Turkish legislation, 19 per cent of them are greater than the EU MRLs. 26 per cent of the EU MRLs are the same or greater than the Turkish MRLs. In the case of citrus imports coming from Turkey

Table 1
Discrepancies between MRLs for tomato and citrus in EU and Turkish Codex regulations

	Tomato		Citrus	
	EU	Turkish Codex	EU	Turkish Codex
Number of substances for which there are MRLs assigned	119	47	122	44
Number of active substances for which there is an EU MRL but no Turkish MRL	80		99	
Number of active substances for which there is a Turkish MRL but no EU MRL		8		21
Number of substances for which the EU MRL is greater than the Turkish MRL	22		12	
Number of substances for which the Turkish MRL is greater than the EU MRL		9		9
Number of substances for which the EU and Turkish Codex MRLs are the same	7		1	

Source: EU: <www.europa.eu.int/comm/food/fs/ph_ps/pest/09-99.pdf> (29 Jan 2002); Turkey: Turkish Food Codex, Appendix 17 – Pesisit Kalinti Limitleri, 16 Nov 1997.

into the EU, 81 per cent of active substances, which are specified in the EU legislation, have no parallel Turkish Codex MRLs. For those substances that have MRLs assigned in the Turkish legislation, 20 per cent of them are greater than the EU MRLs. 11 per cent of the EU MRLs are the same or greater than the Turkish MRLs (only one MRL is actually the same).

Alongside public regulations, there has been the development of private standards by major food retail groups, including production protocols and traceability, which have been adopted by firms in the fresh produce sector in recent years. While the majority of private ‘codes of practice’ initiatives started as voluntary, they are becoming, or already have become, *de facto* mandatory (Henson and Northen, 1998; Henson and Hooker, 2001). Retailers’ bargaining power effectively enables them to impose their product specifications on the entire supply chain (Northen, 2001). Coordinated supply chains require members not only to belong to industry-led assurance schemes but also to meet the additional costs of complying with proprietary specifications, safety and quality requirements. However, evidence shows that the existence of proprietary quality management systems can lead to inefficiencies when different buyers ask for different management systems (Henson and Northen, 1998).

Most initiatives have been country-specific (i.e. the Assured Produce Scheme in the UK; British Retail Consortium Global Standard—Food; UNE in Spain). However, in order to avoid a situation where suppliers of multiple retailers are required to be certified to multiple standards, several large European retailers have agreed to work towards the development of global quality assurance schemes (i.e. EUREPGAP, the GFS Initiative, the Fresh Produce Traceability (FPT) guidelines) as the benchmark standards. The creation and recognition of a ‘harmonised international system’ will become increasingly important given the rapid globalisation of the food industry (Baines et al., 2000), and the diversity of international fresh produce supply chain practices. Moreover, food safety will cease to be used as a marketing tool to promote individual retail chains.

Differential standards in destination markets

This study explores these differential standards and aims to identify the ‘compliance gap’ for specific developing Mediterranean countries—Morocco, Tunisia, Turkey—by considering the asymmetries between firm practices in the fresh produce export sector in these countries and the level of private food safety standards imposed by European food retailers. It is worth noting that the lack of a harmonised approach to food safety and quality among European retailers implies that the ‘compliance gap’ for developing Mediterranean exporting countries will vary depending on the nature of destination markets, and the supply chain chosen to deliver their products. These may be vertically integrated chains, or collaborative chains of firms linked through relational contracting, or transaction-oriented chains. Hence, differences in the level of enforcement and in systems of conformity assessment among European food retailers imply that developing Mediterranean exporters, and developing countries in general, may enjoy temporary marketing

opportunities in less stringent markets, which will disappear eventually as a general agreement towards a common standard is reached among European retail groups.

Central and Eastern European countries have been alternative markets for Mediterranean fresh produce due to lower food safety and quality demands. However, the adoption by countries currently acceding to the EU of food safety standards and regulations as part of the EU *acquis communautaire* illustrates how such opportunities will be squeezed by harmonisation of public standards. Moreover, as consumers become more sensitised to product quality and safety characteristics and disposable income increases in these countries, private sector food safety initiatives will develop alongside more stringent public regulation. Hence, for Mediterranean exporters looking to expand their exports to these countries, the shifting dynamics between public and private sector regulation will determine success or failure in the development of trading relationships.

Poverty (in terms of per capita GDP) and the degree of exporter supply chain coordination are two of a number of factors that are likely to affect the export capacity of developing countries. Generally, the compliance gap is likely to be greater for developing countries poorer than those around the Mediterranean Basin, such as Sub-Saharan Africa and some Asian countries, and so the implications of the study are likely to be more important for the poorest 'would-be' exporting nations (Financial Times, 2004). For example, recent reports of large-scale rejections of Indian food exports (including fresh produce, processed goods, seafood, drinks, spices) by the United States and a number of European countries including France, Germany and the UK, have alerted the public sector authorities and trade organisations in India to the need to educate producers, manufacturers and exporters to the standards prevailing in destination markets (Sharma, 2003).

Methodology

This article derives from research conducted under a EU funded project looking at the impact of international safety and quality standards in the competitiveness of developing Mediterranean country fresh produce exports. The study examines the differential food safety standards developed by food retailers in the UK, France and Germany since they represent the most sophisticated retail environments in northern European markets, and they are key importers of fresh produce from Mediterranean countries. Moreover, these three countries exhibit very distinct retail structures in general, and different fresh produce procurement practices in particular, which provide an insightful comparison of the drivers of private quality assurance schemes and their impact on international trade.

Data for this article come from semi-structured, in-depth executive interviews in 2001/02 with a range of Managing Directors/Category Managers from key retail groups and importing companies² in the UK, France and Germany. The aim of

² Retail companies interviewed for the research: UK: Sainsbury's, Tesco, Safeway and Waitrose; France: Auchan; and Germany: Edeka. In addition, fresh produce importers were also interviewed in each country. Firm level data was complemented with information from professional associations.

these interviews was to gather information on supermarket protocols and documentation on best practice for their suppliers, and to identify the key problems they encounter when dealing with exporters/producers in Mediterranean countries in terms of food safety and quality standards. A qualitative approach was the appropriate methodology given the exploratory nature of the research and as the starting point in theory building. On average, each interview lasted over two hours. The meetings were recorded and transcripts were used to analyse and compare data across countries. In addition, firm visits were undertaken in the three Mediterranean countries (Morocco, Tunisia and Turkey) to examine in detail the current level of supply chain management practices and operational infrastructure available in exporting firms to meet increasing demands for food safety and quality. A multi-case, multi-site approach was used to facilitate generalisation and triangulation of responses (Dey, 1993; Miles and Huberman, 1994; Yin, 1994). For reasons of confidentiality, the identities of case organisations are withheld. Interviews with government agencies involved in the regulation of food safety and quality in all three exporting countries were also undertaken to explore their relationships with exporters.

Determinants in the development of private food standards in France, Germany and the UK

The driving forces for the growth of proprietary quality assurance schemes in Europe differ significantly depending on the European country under study. This account draws on the extant literature as well as key informant interviews referred to above. García Martínez et al. (2002) presented a conceptual framework, which identified three discriminant factors behind the evolution of high level of private food standards in Europe (Table 2):

1. *firm-specific factors*: food safety has been used as a competitive tool by retail chains to differentiate themselves, particularly in the UK;
2. *sector characteristics*: firms operate within a social and economic environment which determines firms' conduct with regard to food safety and whether or not to develop private standards in addition to public national and supranational regulations; and
3. *institutional setting*: where incentives and information flows are imperfect, the market alone may fail to supply the level of food safety demanded by society. Under such circumstances, market characteristics and firm-specific actions can be shaped by public policy interventions aimed to improve the performance of otherwise unregulated markets.

The development of quality assurance schemes in the UK has been driven largely by the retail sector in collaboration with farm industry representatives (but without the direct involvement of the government) in response to a change in the regulatory framework (the 1990 Food Safety Act), and to restore consumer confidence in the

Table 2
Key determinants in the development of private safety food standards in the UK, France and Germany

	UK	France	Germany
<i>Sector characteristics</i>			
• <i>Import propensity</i>	<p><i>Characteristics:</i></p> <ul style="list-style-type: none"> • Strong and historic import propensity • Domestic production has lost share to imports <p><i>Consequences:</i></p> <ul style="list-style-type: none"> • Sophisticated fresh produce importing sector • High level of demands on suppliers (i.e. product specifications, service, etc.). • Closer monitoring of imports leading to closer relationships with suppliers • Tightly coordinated and investment-intensive supply chain 	<p><i>Characteristics:</i></p> <ul style="list-style-type: none"> • High level of self-sufficiency • Importance of regional wholesale markets <p><i>Consequences:</i></p> <ul style="list-style-type: none"> • Fragmented, less developed fresh produce importing sector • Relationships between actors are much looser (transaction-oriented) 	<p><i>Characteristics:</i></p> <ul style="list-style-type: none"> • Main EU importer of fresh produce • Hard discount culture <p><i>Consequences:</i></p> <ul style="list-style-type: none"> • Limited development of the fresh produce sector • Focus on price and narrow range of products
• <i>Final distribution structure</i>	<p><i>Characteristics:</i></p> <ul style="list-style-type: none"> • Supremacy of multiples in a highly competitive market (80% market share) • Residual non-multiple 20% working for the food service sector (less sophisticated quality control systems and more elusive traceability) <p><i>Consequences:</i></p> <ul style="list-style-type: none"> • Retailers' bargaining power to impose specifications very effectively • Continuous search for competitive advantage: own labels, quality assurance schemes, financial services, etc. 	<p><i>Characteristics:</i></p> <ul style="list-style-type: none"> • Importance of wholesale market and independent retailers • Though increasing importance of retailers' buying centres <p><i>Consequences:</i></p> <ul style="list-style-type: none"> • Less bargaining power on suppliers • Regional focus which limits the development of nation-wide strategies • Less coordination 	<p><i>Characteristics:</i></p> <ul style="list-style-type: none"> • Hard discount retail culture (33% market share) • Discounters are the only growing sector and the largest channel within the German grocery trade <p><i>Consequences:</i></p> <ul style="list-style-type: none"> • Focus on price and narrow range of products • Food safety and quality play a lesser role in retail competition where fresh produce are largely bought in open markets and specialist food shops

(continued on next page)

Table 2 (continued)

	UK	France	Germany
<i>Firm-level factors</i>			
• <i>Strategic role of fresh produce in retailers strategic positioning</i>	<p><i>Characteristics:</i></p> <ul style="list-style-type: none"> • Destination category • Determinant of store selection and profitability • Domestic demand characteristics: high (extrinsic) quality culture, less price sensitive <p><i>Consequences:</i></p> <ul style="list-style-type: none"> • Fresh produce has become an important strategic category • Self-space has more than doubled • Allows retailers to differentiate from each other • Significant amount of resources have been directed to this category • High level of coordination between actors 	<p><i>Characteristics:</i></p> <ul style="list-style-type: none"> • Retailers only account for 1/3 of fresh produce sales • Domestic demand characteristics: preference for greengrocers and market stalls. <p><i>Consequences:</i></p> <ul style="list-style-type: none"> • Fresh produce play a lesser role in retailers' strategic positioning • Difficult to develop national initiatives given the regional focus on retailers' decision-making process • Less degree of coordination 	<p><i>Characteristics:</i></p> <ul style="list-style-type: none"> • Sector dominated by hard discount • Retailers have failed to provide a credible alternative shopping concept • Domestic demand characteristics: consumer hybrid behaviour <p><i>Consequences:</i></p> <ul style="list-style-type: none"> • Limited role as a key strategic category • Price is the overriding factor with less emphasis on quality
• <i>Procurement practices</i>	<p><i>Characteristics:</i></p> <ul style="list-style-type: none"> • Centralised procurement system • Rationalisation of the supply base → preferred suppliers • Competition between firms → Competition between supply chains <p><i>Consequences:</i></p> <ul style="list-style-type: none"> • Establishment of partnerships with suppliers ('Partnerships Documents') • Category Management <ul style="list-style-type: none"> ○ joint strategies ○ category 'captains' ○ sole supplier status 	<p><i>Characteristics:</i></p> <ul style="list-style-type: none"> • Strong regional wholesale market structure • Regional focus: difficult to develop national initiatives • Demand-supply still determines transactions <p><i>Consequences:</i></p> <ul style="list-style-type: none"> • Flexible supply chains • Limited partnerships • Little opportunities for accurate and steady traceability 	<p><i>Characteristics:</i></p> <ul style="list-style-type: none"> • Decentralised system • Regional characteristics having a strong influence on store features • Moves towards rationalisation of the supply base <p><i>Consequences:</i></p> <ul style="list-style-type: none"> • Flexible supply chains • Limited partnerships

Institutional setting

<p><i>Characteristics:</i></p> <ul style="list-style-type: none"> • The 1990 Food Safety Act • ‘<i>Due Diligence</i>’ <i>Defence</i> <p><i>Consequences:</i></p> <ul style="list-style-type: none"> • Greater coordination of the fresh produce supply chain • Retailers code of practice covering all aspects of crop management (own labels) • Third party private auditing bodies given the failure of public control 	<p><i>Characteristics:</i></p> <ul style="list-style-type: none"> • Emphasis on regional brands (PDOs) • Strong cooperative movement <p><i>Consequences:</i></p> <ul style="list-style-type: none"> • Exclusive focus on domestically grown produce • Fragmentation of the supply chain regarding safety and quality of imports (left to importers) 	<p><i>Characteristics:</i></p> <ul style="list-style-type: none"> • EU legislation used as the baseline <p><i>Consequences:</i></p> <ul style="list-style-type: none"> • Food safety is not a competitive issue and controls left to importers
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Source: Own elaboration.

wake of recent food scares. This change in the regulatory framework forced retailers to draw up codes of practice, covering all aspects of crop management, issue them to their suppliers and monitor compliance (Hobbs and Kerr, 1992). Third party private auditing bodies and quality assurance schemes have been created to fulfil the role on behalf of the retailers (Henson and Northen, 1998), particularly given the failure of public controls and the lack of credibility of the UK government regarding management of food safety (Northen, 2001). In addition, retailers are able to use their strict certification requirements as a marketing tool to consumers concerned about food safety and worker welfare issues.

In the case of the fresh produce industry, the response was the development of an industry-led generic farm assurance scheme for domestic fruit and vegetables, the *Assured Produce Scheme* (APS) in 1996, comprising 45 production protocols for each of the crops grown in the UK. These specified best practice in integrated pest, disease and crop management systems. All major supermarkets now require all fresh produce to come from suppliers who are members of APS and a genuine and visible quality and safety culture is essential for companies who supply the multiples. For many suppliers this has been difficult to establish, particularly when improvements in safety and quality systems have had to come from greater efficiency and better operating practices. Moreover, for small firms, the challenges have been greater because the cost implications of improved quality control may not be scale-neutral if larger firms have already complied or are in the process of complying (Fearne, 1999; Loader and Hobbs, 1999; MacDonald and Crutchfield, 1996).

In addition to the above industry response, there is a plethora of private quality assurance schemes run by individual retail groups,³ using adherence to APS as only one of the many entry requirements, particularly in the case of imports, which are not covered by APS. These schemes tend also to include standards regarding the physical appearance (i.e. timeliness, freshness and variety, size and shape, colour and maturity, visible injury, etc.) as well as organoleptic characteristics (i.e. flavour, texture, smell, etc.) of the produce.

In response to growing pressure from retailers to establish food chains which are transparent and 'traceable' to the earliest production stage, some importers have also developed specifications which are based on national and EU regulations, customers' requirements and their own guidelines. The agreements between food retailers and their suppliers often shift risk-bearing to the importer, thereby ensuring that failure to supply the quality and safety advertised does not impair the retailer's image in the minds of consumers.

³ Tesco, in addition to the 'Nature's Choice' range, has the '*Tesco Finest*' range which includes fresh fruit and vegetables. Sainsbury's has two programs: 'Integrated Crop Management SYstem' and the 'Taste the Difference' range, which includes fresh produce (this is for exceptionally high quality produce, particularly in the flavour of the product). Safeway has a category called '*The Best*', which is for superior quality fresh produce, identified by the supplier and agreed by the buyer. (Since preparing this article, Safeway has been taken over by Morrison.)

In France, importers are more involved in the development of private specifications than are the retail groups. Hitherto, French retailers required compliance only with national and EU food safety regulations. However, major French retailers have realised the importance of quality assurance and are developing schemes and standards for their own brands (i.e. 'Filière Agriculture Raisonnée' by Auchan, 'Filière Qualité' by Carrefour, 'Terre et Saveur' by Casino). The focus of these schemes is mainly on primary food production, spurring sustainable agricultural practices. These private brands, however, are still limited to French-grown produce. Quality and safety controls on imported produce are still the responsibility of importers who, in turn, devolve responsibility to the exporters. However, in order to maximise consumer safety and trust in products, retailers with a global presence like Carrefour have established farming channels worldwide, which allow fresh produce to be traced back to the original site.

In those instances where French retailers have not chosen to improve their private quality standards, the quality of their produce largely benefits from EU legislation. There is, however, more dynamism at the importer level. Larger importers who have felt the influence of the UK system on the French industry have prepared for the time when French retailers start to impose stricter safety standards. The largest importers have started auditing their suppliers, if not by 'direct primary' means in the field, then by 'indirect secondary' means through questionnaire methods. The focus of such efforts is to assess, in particular, the level of hygiene of sorting, grading, washing in packhouses (assessment based for instance on the '*French Guide des Bonnes Pratiques Hygiénique*', itself based on the EU Directive CE93/43). Some importers have also sought quality-certification of their own businesses (i.e. Qualipom'fel, quality certification system for fruit and vegetables wholesalers, elaborated by Oniflhor, the Inter-professional organisation, and implemented by AFAQ); they guarantee not the quality of the produce but the importer's working standards. Nevertheless, joint visits by importers with retailers to producers are still an exception.

In Germany, the strong influence of food discounters (34% of grocery market share) with a strategic positioning unequivocally focused on price and a narrow range of produce has significantly limited sectoral developments of private quality assurance schemes. For most German retail groups, compliance with EU quality and safety standards is sufficient. The product quality would correspond to the agreed price when sending the order. The implied 'unofficial' specifications are the same for everyone: 'a good price for a good-looking product, tasteful, and still firm for retailers, ripe for caterers'. The main concern for suppliers is to meet deadlines. Since their customers do not establish any specifications, the best way to know what they want is experience. Edeka is the exception, being the leading German retailer for quality control particularly since the introduction of its very successful own brands. Edeka applies its own standards, which are stricter than those proposed by the EU regulations. Producer/exporter audits are carried out by third party certifiers based on Edeka's own specifications.

Towards a harmonised approach to food safety

In order to avoid a situation where suppliers to retailers are required to be certified to multiple standards, a number of initiatives have been developed towards the creation of a harmonised international scheme as the preferred system for quality control in the fresh produce industry. A common standard would imply that food safety would not be used as a marketing tool to promote a retail chain.

An example is the *Euro-Retailer Produce Working Group* (EUREP), a harmonised third-party certification scheme for their suppliers of fresh produce, launched by several large European retailers in 1997. Although EUREP was initially steered by retailers (mostly the principal Dutch and UK chains), any actor of the food industry can apply for associate membership. EUREP has worked with producers and certification groups to establish a standard for Good Agricultural Practices (GAP) for fresh produce, livestock, and combinable crops. It includes integrated crop and pest management best practices as well as worker welfare standards. While individual retailers may still impose requirements above and beyond EUREPGAP, they have agreed to recognise EUREPGAP certification as the baseline. In addition, existing standards (i.e. Assured Produce in the UK or AENOR in Spain) can be compared to EUREPGAP and determined to be equivalent.

The responses to this initiative by private retailers in the three European countries covered by this study have, again, been different. The major UK retailers have been more enthusiastic in adopting the EUREPGAP initiative than their Continental European counterparts. Their objective is to have all their suppliers EUREPGAP-certified by 2005. The UK retailer Tesco, while a EUREPGAP member, still requires its suppliers to comply with its own safety specifications (*Tesco Nature's Choice*). *Nature's Choice* has 180 compliance criteria, compared with EUREP's 150 criteria. The main difference lies in Tesco's emphasis on environmental/social issues, which makes the assessment of small unit farms difficult. Other retailers (e.g. Sainsbury's) have replaced their own specifications by EUREPGAP for safety aspects, simplifying greatly the problems of private safety standards for foreign suppliers working with the UK.

Conversely, French and German retailers have been more sceptical about EUREPGAP, and so far French retail groups are not part of this initiative. EUREPGAP does not fit the current German retail structure (i.e. a discount culture, downwards pressure in gross margins), and thereby there is only one German retailer, Metro, in the EUREPGAP initiative.

In addition to and complementing EUREPGAP, in April 2000 a larger group of international retailers established the *Global Food Safety Initiative* (GFSI) to enhance food safety, to ensure consumer protection, to strengthen consumer confidence, to set requirements for food safety schemes and to improve cost efficiency throughout the food supply chain. The Initiative is facilitated by the CIES—the Food Business Forum, and is based on the principle that food safety is a non-competitive issue, as any potential problem arising may cause repercussions in the whole sector (CIES, 2002). This will reduce the transaction costs of international retailers as they will not have to invest resources assessing foreign producers'

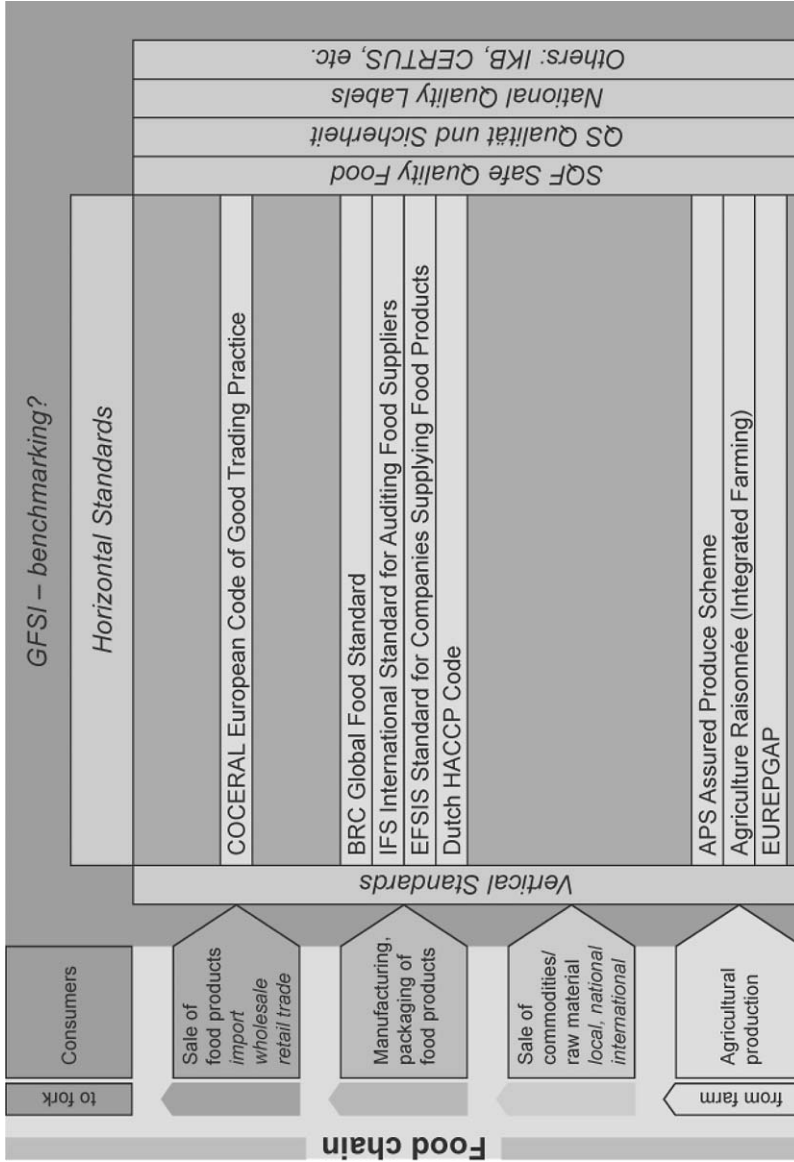


Fig. 1. Scope of selected private and trade standards in the fresh produce sector. Source: Will (2003)

quality assurance systems and/or imposing their own firm-specific criteria (Sterns et al., 2001). GFSI representatives have indicated that EUREPGAP or equivalent standards will be automatically approved under GFSI for production practices up to the farm gate. At the moment, some suppliers deal with retailers that either require British Retail Consortium (BRC) certification (mostly European retailers), and/or HACCP and ISO certification (Dutch retailers), and/or IFS certification (German retailers), and/or SQF 2000 certification (mainly retailers in the US and Australia) (Fig. 1). Hence, global suppliers are demanding the recognition of their certified systems across different international markets (Willems and Roth, 2003).

Due to the globalisation of the fresh produce supply chain and because of the diversity of international produce supply chain practices, in March 2001 the sector agreed upon *Fresh Produce Traceability Guidelines* (FPT guidelines) to provide a common approach to tracking and tracing of fresh produce by means of an internationally accepted numbering and bar coding system—the EAN·UCC system (EAN, 2001). The adoption of the guidelines is voluntary and the degree to which companies will implement them may vary because of differences in commercial operations. However, the use of common identification and communication standards will significantly improve the accuracy and speed of access to information about the production and provenance of fresh produce. Therefore, it is likely that this traceability model will be a requirement for fresh produce exporters in the near future.

The challenges for fresh produce exporters

Having explored the different food safety drivers and initiatives developed by food retailers in the UK, France and Germany, this section aims to highlight the likely impact of these schemes on exports from developing countries. The focus of this work has been on fresh produce from Mediterranean developing countries, but as noted earlier, the inferences drawn are of much wider applicability (Fig. 2). To what extent will the emergence of a ‘quality culture’ among European retail groups, and the required changes in the structure and culture of suppliers wanting to deal with these retail chains, be a major barrier for developing Mediterranean fresh produce exporters to overcome?

The principal challenges for developing countries concern market access and the demands for food chains to be transparent and for products to be ‘traceable’. Market changes need to occur right down to the production level in order that firms be able to deliver demonstrably safe food. Below, we present the key features derived from the industry interviews and from other literature, which characterise current supplier–retailer relationships, and we assess their likely impact on developing Mediterranean countries.

Supply chain competition

Vertical relationships between trading firms have ceased to be purely transactional, and have become more co-operative as both sides have recognised the need

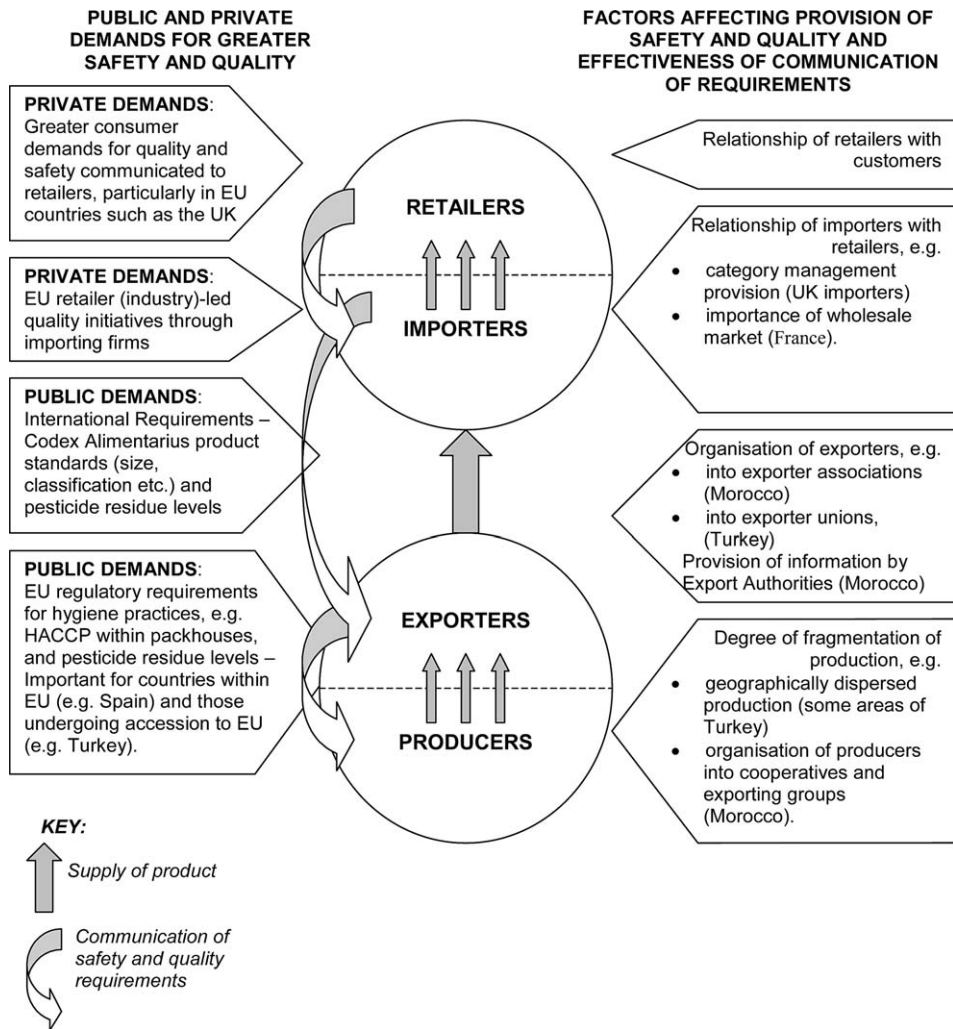


Fig. 2. Safety and quality drivers in developing Mediterranean fresh produce exporting countries.

to make joint investments in their supply chains, or networks, in order to protect their business interests (Fearne and Dedman, 2000). *Competition between firms* is being replaced by *competition between supply chains*. Retailers and suppliers are working, not with the concept of a single relationship, but are managing sets of relationships as portfolios, and sets of products as categories. Integration and sharing of information are extensive with open communication facilitated by multi-level/ multifunctional relationships.

The implications of not being a ‘preferred and exclusive supplier’ (e.g. ASDA’s ‘total category supplier’ status) are enormous. These are the preferred or only

channels to access advanced distribution systems. Some UK retailers have started to formalise the relationship between suppliers and buyers within ‘partnership documents’ in addition to retailers’ written procedures, which specify the nature and standards of supplier products and service quality, food safety and good farming practices (Hingley, 2001). Besides product specifications and sanitary and phytosanitary standards, retailers are demanding audits of overseas suppliers’ corporate social responsibility in respect of ethical trading practices such as worker welfare. Non-compliance means exclusion from the supply chain.

Suppliers and exporters in developing Mediterranean countries operating in a collaborative supply chain will be supported by importers acting as facilitators in the communication and implementation of private standards and guidelines. Chain actors are in constant contact with each other and the information sharing is intensive. For example, export infrastructure and procedures in Morocco show a degree of collaboration and vertical integration, which has facilitated its international success in EU markets. Moroccan citrus export volume to EU markets represents more than 75% of total exports. Nevertheless, about 30% of total production is ‘discarded’ fruits (unsuitable for exports and sold either in the local market or used for processing) due to the requirements of EU markets and the severe certification regulations for exports (Ait-Oubahou and El-Otmani, 2000). Most Moroccan tomatoes are exported to France (80%), but this is only allowed in off-season (October–April) when the European weather conditions do not permit a competitive production. The export system is well organised, though bureaucratic, with an important number of large-scale, well-organised producers marketing organisations that collaborate with the EACCE (*Etablissement Autonome de Contrôle et de Coordination des Exportations*) for services of export inspection and control. Working relationships tend to be more personal as importers/exporters have been working together for a long time, facilitating a step change in the sector from a production-oriented to consumer-led trading culture.

There are also coordination failures. Other Mediterranean fresh produce suppliers exporting their products through a transaction-oriented supply chain are often poorly informed by the intermediaries about food safety and quality demands of buyers. This chain is characteristic of the Turkish fresh produce-exporting sector where exporters are entrepreneurial and opportunistic, tend to be generalists rather than specialising in fresh produce, and so fail to understand well the special demand requirements of this sector. Exporters have a trading mentality and are more interested in high margins than in establishing long-term partnerships. For some Turkish exporters, ‘*oranges and grapefruits are just another commodity they are dealing with*’.

During interviews, Tunisian exporters expressed a willingness to relate more closely to northern European importers but acknowledged that currently there is little accreditation of suppliers to recognised standards such as EUREPGAP. Hence, moving from the notion of an impersonal market chain to a personalised network requires a commercial ‘paradigm shift’ from traditional adversarial trading relationships towards co-operative business partnerships characterised by open-book cost and pricing practices. By and large, this is yet to be embraced by developing

Mediterranean country exporters. Unlike trading relationships, partnerships require social and economic investment and time to mature. Growers and exporters must adopt a strategic approach to market entry, with measurable objectives and goals characterised by a due planning process and not undue, unrealistic short-term expectations. Any tendency to short-term compromise of product and service quality incurs a trade-off against achieving a sustainable competitive advantage.

Integration and coordination of work practices: first mover advantages

To many retailers, particularly in the UK, the fresh produce category is a key determinant in store selection and profitability (White, 2000; Fearné and Dedman, 2000), but it is also a category which is diverse, dynamic and among the most difficult to manage: a poor display adversely affects a store's image and is detrimental to the business. Hence, retailers wanting to expand globally face a particular challenge in ensuring the performance of their fresh produce supply chains across a broad range of markets (Collins, 2003). The most successful suppliers of fresh produce are those able to source regionally, nationally and globally, and find themselves integrated much more closely into the chains to which they belong. Commercially mandated quality management systems alongside legislative requirements will confer access to particular markets (i.e. UK). Fresh produce firms who quickly embrace the opportunity for collaboration enjoy first-mover competitive advantages as preferred suppliers. Conversely, exporters 'who jump on the bandwagon after it has taken off' (Neven and Reardon, 2002) find that their business relationships are as followers supplying the dominant intermediary firms—the preferred suppliers—rather than supplying the retailers themselves.

Scale and concentration imperatives are also driving integration and coordination. Retailers strive for absolute quality, total availability, broad range and a competitive price. Meeting these demands means sourcing from a minimum scale of upstream production. Moreover, quality control can more easily be effected through fewer suppliers. Increasingly, retailers rely on large-scale first-tier suppliers who coordinate supplies from fewer primary producers and who assure compliance with retailer specifications (Duffy et al., 2003).

The emergence of these tightly coordinated and investment-intensive supply chains is having an impact on the developing Mediterranean supplier countries characterised by complex and highly fragmented production systems and dominated by small-scale, unorganised producers with relatively unsophisticated production structures and control systems. As a result, fresh produce imports from developing Mediterranean countries play a secondary (seasonal, or residual) or niche role in high quality Northern European markets where the bulk of supply during the autumn and winter season comes largely from Spain.

For example, Turkey is particularly used for satsuma supply (with some grapefruit and lemons) and Morocco for other soft citrus such as clementines and smaller amounts of main crop oranges such as 'Maroc Late'. Varieties from Turkey and Morocco can make up to 100% of supply at peak times of the year (i.e. over the Christmas and New Year period), but the amount sourced in a particular year

depends to a large extent on the weather conditions in Spain. For instance, when optimum weather conditions for soft citrus continue into December in Spain (i.e. dry weather), less produce is sourced from Turkey.

Displacement to secondary supplier status is, therefore, a threat; but it is also an opportunity for suppliers of niche products in respect of varietal and seasonal specificity. For instance, Turkey could move from being a seasonal supplier to a key supplier of vegetables and salads due to lower production costs compared with established exporters if firms in the sector were willing to change its business culture.

Investment in the partnership assets

The level of investment needed to do business with European retail chains poses an important barrier to Mediterranean fresh produce exporters. Product quality control systems and traceability require investment first in human capital, such as training in business and technical skills, and creation within the workforce of a quality-conscious organisational culture. In-house training programmes and knowledge extension through in-house communications are characteristics of successful intermediary supplier firms. Participation by intermediaries and primary suppliers in grower conferences to develop, agree and monitor strategic category plans is expected by retailers.

Secondly, investment is required in physical capital, including quality control infrastructure and business information/ICT systems, both within the individual firm and together with other firms in the supply chain or network. The lack of financial and technical resources in developing Mediterranean countries constrains the required investments in large-scale export and marketing infrastructure, such as cold storage facilities at ports and other cool-chain logistics infrastructure, that is necessary to ensure timeliness, freshness, cleanliness and quality. This is a characteristic of the Tunisian industry. As a result, smaller exporters in developing Mediterranean countries are forced to export to less demanding, less rewarding northern wholesale markets and Eastern European countries.

There is an urgent need in Turkey to address the 'transportation gap' by improving the quality and efficiency of long-distance transport infrastructure in order to reach EU markets. Road transport to EU markets takes between 5–9 days where products have to be inspected at every customs point, which affects the quality of the end product. Moreover, not all vessels used for fresh produce transport are reefer vessels with appropriate air circulation systems, and thereby the produce is not always pre-cooled properly. In the case of Tunisia, it is acknowledged that physical distance from sites of production to exporters both hinders supply chain coordination and raises the costs of domestic logistics.

Thirdly, supply relationships require investment in interpersonal relationships. Once quality, availability and price demands are satisfied, and all possible value in respect of control procedures and complementary investments has been added, the final differentiating characteristic between alternative suppliers is the quality of relationships between senior managers and complementary staff at other levels in

partner firms. This investment is primarily in terms of quantitative contact time, but is more profitable if qualitative investments are made to bridge language, culture and other social differences.

Product and process controls

The key to greater coordination in the fresh produce supply chain is traceability, enabling product tracking and accountability at each stage. All major operations, from planting to export, must be documented. In exporting countries with more established and organised supply lines, the implementation of traceability systems is possible. In this respect, Morocco has created an advantageous position. The process is much more problematic when there are fragmented supply chains, more indirect multi-producer relationships with exporters, and less vertical integration in the supply chain, as in Turkey and most other developing Mediterranean countries (García Martínez et al., 2003).

Non-adherence to protocols can be catastrophic. Recent incidents involving the Turkish fresh produce sector highlight the need for effective mechanisms of conformity assessment and enforcement in order to build the trust and confidence of importers/retailers in the quality and safety of exporter food safety systems. In April 2002, a truck with 2 tonnes of peppers was detained in Germany. A pesticide used in cotton production but forbidden for fruit and vegetables (methamidophos) was found on a consignment of peppers from Antalya. According to industry sources, producers use this pesticide because it is cheaper than conventional pesticides for fresh produce. As a direct result of the detention, exports of peppers from Turkey declined by 80%.

Increased value addition in the supply chain

It is argued that big gains in the future will come from creating value in the retail store and not from reducing supply chain costs (O’Keeffe and Fearne, 2002). Hence, awareness of the critical importance of high quality produce is a *sine qua non* for participation in the high value markets, which offer opportunities for research-oriented food systems: varietal improvement, the development of prized or exclusive properties, and imaginative use of intellectual property rights including patents and trademarks. High quality in respect of these fundamental and added values must be accompanied by high levels of service, particularly in respect of business transaction efficiency.

Morocco exhibits a good level of cooperation at production level indicating a better market orientation of the fresh produce sector. Producers and exporters of fresh produce are organised in three professional associations (APEFEL, ASPAM, and ASPEM), which play an important role in information dissemination with regard to export standards required by commercial customers. Conversely, the lack of such producers’ awareness or consciousness regarding emerging demands in export markets is the main weakness constraining value-addition in the Turkish fresh produce sector and in Tunisia.

Conclusions and recommendations

The cases presented in this article illustrate the quality culture among Northern European food retailers, which requires fundamental changes in the technical infrastructure and entrepreneurial behaviour of suppliers in developing Mediterranean and other countries. Hitherto, cross-country differences among European food retailers regarding the development and enforcement of private quality schemes have offered (temporary) market opportunities to those fresh produce exporters with less developed quality and safety systems. However, an eventual move by European retailers towards harmonised private food safety standards will reduce these marketing windows. Hence, producers who do not belong to integrated supply chains will find it increasingly difficult to access markets.

Therefore, it must not be assumed that there is an easier commercial option in developing country markets for firms who do not wish to meet the challenges of more sophisticated export markets. Food systems in developing countries are undergoing rapid increases in sophistication, induced both by demand changes in local living standards and by increasing penetration of international firms (Reardon et al., 2003). For example, the expansion of the major global retailers such as Wal-Mart and Tesco exemplify this trend in Asia, and also of Carrefour in the Americas. South African retailers are also expanding into other Sub-Saharan African regions. Recent research results from a number of Latin American countries illustrate how the development of domestic economies and the emergence of concentrated, powerful food retail sectors are both a challenge and an opportunity for local producers and supply chains. *'The local market niches with low standards are disappearing under the pressure of this wave, and the distinction between the global/export market and the local/domestic market is disappearing'* (Reardon and Berdegúé, 2002: 385).

Hence, in the long-term the way for developing Mediterranean countries such as Morocco, Tunisia and Turkey to sustain an international demand for their products lies in building up the trust and confidence of importers and retailers in the quality and safety of their produce. Small-scale suppliers in these countries could enjoy a comparative advantage by supplying new and innovative products. This, however, would require improvements not only at firm and industry level but also at national level by undertaking the necessary regulatory reform to help exporters to meet international food safety and quality standards. Where regulatory responsibility is fragmented across different government entities operating under different laws, the resulting overlaps and gaps are severe commercial disadvantages. Moreover, the typical inflexibility of bureaucratic systems makes it difficult to cope with developments in food science and technology, changing consumer demands, and the evolving requirements of trade and industry. A unitary food standards authority offers many advantages.

Improvement of food safety performance in developing Mediterranean countries will require the collaborative efforts from all stakeholders in the supply chain. Hence, mapping the food chain stakeholders is an important exercise for improving industry-wide standards. Then, the kind of actions necessary to improve indus-

Table 3

Actions to improve fresh produce industry food safety performance in developing Mediterranean countries

Actions	Public Sector			Private Sector	
	International	Central	Regional	Firm	Industry
Greater coordination				✓	✓
Horizontal cooperation		✓		✓	✓
Traceability				✓	✓
Quality control systems		✓		✓	✓
Financial support	✓	✓	✓		
Export operational infrastructure		✓	✓	✓	✓
Consolidation of national food safety systems		✓			
Internationally recognised accreditation bodies		✓			
Efficient systems of conformity assessment and enforcement		✓			

try food safety performance can be tabulated and prioritised alongside the responsibilities of the different stakeholders in the fresh produce export supply chain: public sector (international, central or/and regional) and private sector (firm level and/or industry-wide). Table 3 summarises the actions required to improve the food safety performance of developing Mediterranean countries, and the stakeholder group better placed to undertake them based on the our analysis.

- **Greater coordination:** initiatives should be developed at *firm level* to increase the level of coordination among actors in the supply chain: efficient markets and co-operative trading relationships signal demand changes and enhance the flows of information and incentives. The imperative of increasing the exercise of corporate social responsibility among major firms suggests that private sector firms—including multiple retailers—have an investment role in enhancing the performance of their supplier base.
- **Horizontal cooperation:** initiatives at *government level* should be developed to encourage and support horizontal cooperation among producers. Initiatives on horizontal integration of small-scale producers into second-tier co-operative businesses may require third party support in terms of provision of finance and management skills. The likely welfare impacts of supply chain rationalisation also suggest that the public sector needs to be involved so those that social objectives such as employment and income levels are taken into account. Structural innovations in supply chains will be country- and maybe region-specific, but in most cases public sector support is posited, not only from domestic governments but also from bilateral and multilateral organisations such as the EU.
- **Traceability:** increasing demands by international customers for ‘farm to table’ process controls to manage both quality and safety require *exporters* to adopt

these management practices and to coordinate safety and quality more closely with *importers*. Again the private sector has a role in disseminating ‘best practice’.

- **Quality Control Systems:** the implementation of effective and demonstrable quality control systems (i.e. HACCP-based or alternative food safety risk management systems) is recommended as the most-effective means of reducing food safety hazards.
- **Financial Support:** initiatives should be developed at *government level* aimed to support firm level investments, which are prerequisites to implement effective and demonstrable quality control systems. Preferential financing arrangements or tax-credits for IT- and QC-related investment in physical infrastructure could be one such mechanism. In a wider context, the possibility of developing food safety and quality networks, local benchmarking activities, vocational training and trade fairs involving SMEs will be an important mechanism for building human capital within the industry and to achieve greater social (or small enterprise) inclusion in developing Mediterranean countries.
- **Export Operational Infrastructure:** there is a need to implement *public actions or joint public/private initiatives* to improve export infrastructure. Once again, preferential financing arrangements or tax-credits for firm-level infrastructure-related investment would be one such mechanism. Consideration must be given to innovative ways of financing improvements to ‘public good-type’ infrastructure such as roads and ports, and smaller-scale projects such as cold-storage facilities, that leverage public and private sector resources.
- **Consolidation of national food safety systems:** in order to overcome the diffusion of regulatory responsibility, with the resulting overlaps and gaps, *governments* must move towards a centralised structure for the implementation and administration of standards for the agri-food sector comparable to those emerging in industrialised countries in order to improve the efficiency of resources and the effectiveness of control procedures.
- **Achieving internationally recognised accreditation bodies:** the accreditation of laboratories in developing Mediterranean countries is hindered by the lack of internationally recognised certification and accreditation bodies. Accreditation granted by exclusively national bodies is usually of only limited value to exporters. As a result, laboratories have to be accredited by overseas bodies at great expense.
- **Efficient systems of conformity assessment and/or enforcement** are key to the efficacy of quality and safety standards for evaluating whether products/processes conform to international buyers’ requirements. The wider the gap in systems of conformity assessment, the greater the compliance cost for Mediterranean producers vis-à-vis developed country suppliers to any importing country.

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