Food quality assurance and certification schemes

Stakeholder Hearing 11/12 May 2006

Background Paper

This document has been prepared by Liesbeth Dries, Centre for Agricultural and Food Economics, Faculty of Bioscience Engineering, K.U. Leuven and Maria Cecilia Mancini, Department of Economics, Parma University, and finally compiled by Stephan Hubertus Gay, Monique Libeau-Dulos, Fatma Handan Giray, Penelope Vlandas and Emanuela Elia (DG JRC – IPTS, European Commission).
This report has been peer-reviewed by three independent experts. However the responsibility for its content lies entirely with the authors.

Foreword

While Quality Assurance and Certification Schemes (QAS) for food and agriculture are constantly growing in number, the overall volume of agricultural production covered by schemes regulated at the European level (PDO, PGI, TSG) remains small. Different QAS are applied within the European food supply chain and are backed either by public entities, both national and regional, or by private initiatives. They span the whole chain from primary producers to retailers in final product markets. Very diverse focus and targets are related to a high variety of schemes. However, no systematic analysis of QAS has been performed so far at EU scale.

In 2004, considering the constant increase of QAS in the EU as well as the wish to provide farmers producing to higher standards with tools to retain a fair share of the added value, the European Parliament has requested the European Commission to launch a pilot project on a systematic analysis of QAS at EU scale. This project was entrusted to the Directorate General Agriculture and Rural Development (DG AGRI) who commissioned the Directorate General Joint Research Centre (DG JRC) and more precisely the Institute for Prospective Technological Studies (IPTS) to carry out the research.

In order to ensure that the best available knowledge in the field is backed by the reality of the Food Chain, the European Commission decided to build the analysis on a combination of research and direct input from stakeholders (see documents on the project website: http://foodqualityschemes.jrc.es.

Within this framework, the European Commission (DG JRC in collaboration with DG AGRI) is organising a Stakeholder Hearing on 11/12 May 2006 in Brussels, with the main objective of validating and completing the findings obtained so far. This report is intended to provide a background for the panellists preparing the Stakeholder Hearing.

Table of contents

Executive summary	**7**
1. What is Food Quality?	**11**
2. What are Quality Assurance and Certification Schemes (QAS)?	**15**
2.1. Definition	15
2.2. Historical development	15
2.3. Objectives	17
3. How do QAS operate?	**19**
3.1. Scope	19
3.2. Drivers of change	20
3.2.1. Policy framework	*20*
3.2.2. Economic factors	*22*
3.2.3. Socio-demographic factors and consumer preferences	*24*
3.2.4. Technological changes	*24*
3.3. Impact of QAS on stakeholders	25
3.3.1. Possible confusion on the part of stakeholders	*25*
3.3.2. Certification, accreditation and production costs	*25*
3.3.3. Current unsatisfactory mutual recognition and benchmarking procedures	*27*
3.3.4. Limited participation of small-scale producers in QAS	*27*
3.3.5. Benefits for food supply chain operators	*29*
3.3.6. Benefits for consumers	*30*
3.4. Interaction of QAS with the internal and external market	31
4. Is there a need for action?	**39**
References	**41**
Annex 1: Food supply chain configuration	**43**
Farm sector	43
Processing sector	44
Retail sector	47
Consumers	48
Annex 2: Certification and consortium costs in three PDO/PGI cases	**49**

List of tables

Table 1.1	Food product attributes	12
Table 3.1	Percentage increases in company costs by company size	28
Table 3.2	Importance of indirect costs and benefits deriving from a PDO or PGI tool	29
Table 3.3	Average production costs of EurepGAP oranges versus conventionally grown oranges	30
Table 3.4	Decisions by competition councils in EU countries on PDO products and other collective marks	32
Table 3.5	Example of cross-border issues in EU countries stemming from the use of geographical names	35
Table A.1	Farm structure in EU-25, 2003	43
Table A.2	Main agricultural sub-sectors in EU-25, 2004 (share of total value of agricultural production)	44
Table A.3	Structure of the food processing sector in EU-25, 2003	45
Table A.4	Average labour productivity of the processing sector in EU-25 (in million € per employee), 2003	45
Table A.5	Dairy processing companies per size class (in litres of milk collected) in EU-15, 1994-1997	46
Table A.6.	Concentration ratio (in percent) of the top three firms in each sector	46
Table A.7	Market share of the top-51 retail companies in EU-25	47
Table A.8	Share of food in total household expenditure and GDP per capita in EU-25, 2003	48
Table A.9	The Olio Toscano PGI: direct certification costs and consortium costs	49
Table A.10	Chianina PGI: direct certification costs and consortium costs	49
Table A.11	Pecorino Toscano PDO – certification costs and consortium costs per year	50

List of figures

Figure 1.1	Dynamic representation of the concept of quality	11
Figure 1.2	Stakeholders in quality: relationships and functions	12
Figure 2.1	Historical development of certification systems and QAS	15
Figure 3.1	Stakeholders of the food supply chain and QAS	20
Figure A.1	Food expenditure and income per capita in EU-251, 2003	48

Executive summary

Food quality is a complex concept…

Food quality involves the entire production process, from raw materials, processing and packaging up to consumption of the product. As the idea of quality is continuously evolving, any attempts to classify it are immediately overtaken by events, as new meanings are added to existing ideas without replacing them. It is helpful to simplify the different quality requirements into two categories - "musts" and "wants":

- *musts* have to be present and measurable in order for the product or service to be assessed as acceptable;
- *wants* depend on the wishes or expectations that influence choices.

… and it varies according to consumer perception.

In practice, consumers largely evaluate quality through their perceptions, which are filtered and weighted by a scale of preferences which lead them to make choices. The enlarged European Union is marked by different traditions, wealth and socio-economic systems. This wide range of peoples makes the perception of food quality complex and varied.

Quality Assurance and Certification Schemes (QAS) enable stakeholders of the food chain to state that their products or processes fulfil defined quality requirements.

In this context, stakeholders are farmers/ producers, traders, food processors, retailers, consumers, certification bodies and public authorities; and QAS are defined as schemes implying a voluntary participation and enabling stakeholders involved in the food chain to claim that products or processes fulfil defined quality requirements.

The first QAS was created in Europe in the 1930s …

The first food QAS created in Europe were Italy's *"Consorzio del Grana Tipico"* (1934) for the protection of *"Parmigiano-Reggiano"* cheese and the French "*Appellation d'Origine Contrôlée"* (1935) for the protection of wine and, later, cheese.

…and in the 1990s the European Commission has introduced the European logos, "PDO, PGI and TSG"…

In 1992 the European Union (EU) created the PDO (Protected Designation of Origin), PGI (Protected Geographical Indication) and TSG (Traditional Speciality Guaranteed) schemes to promote and protect specific food products.

…as well as Organic Farming.

Organic farming can be regarded as a specific QAS as it implies voluntary participation and a well defined product and process quality is assured.

QAS are proliferating and are widely applied in the food supply chain.

There is a large number of QAS applied within the food supply chain but most are only applicable for a small differentiated market. The share of the market of QAS aiming at differentiation is rather small and differs largely within the EU. On the other hand there is only a limited number of QAS aiming to secure the management of chain standards but those have a considerable market share. They can, in this

way, be regarded to a certain extend as new standards which go beyond the compulsory legal standards.

These schemes have highly diverse focus and targets...

A large number of QAS are applied in the European food supply chain. They can be classified on the basis of different variables:

- diverse focus (products/processes),
- targets (final consumer/participants along the food supply chain),
- contents (origin, traceability, method of production, etc.),
- promoters (public/private),
- areas of application (local/national/international)
- numbers of stages involved along the food supply chain.

…and they operate at various levels of the food chain.

Various stakeholders may take part in QAS: they may be directly involved in production and distribution of the product or not. QAS promoted by the "downstream" links in the production chain (retailers) tend to reflect the "upstream" segments (farmers and processors). On the contrary, schemes starting with (agricultural or industrial) production, basically aimed at influencing consumers, neither lead to essential outcomes nor require specific adaptation to the following links in the production chain (processing or retail).

They aim to secure the management of chain standard...

One group of QAS tend to standardise and guarantee certain aspects or requirements of the company or production unit. These QAS do not normally target consumers but other participants in the food supply chain. These QAS are set up by ISO or by retailer consortia and are always multinational in scope (they are disseminated over several countries). There are relatively few of them.

…and/or they aim at market differentiation.

A second group of QAS aims at highlighting the differences existing between a product and its closest competition. These schemes, in fact, mostly tend to guarantee the certified product characteristics. They do not refer to a regulation but to a "disciplinary document" (declared quality) often put forward by institutional bodies (national, regional or local bodies) or private bodies (associations and producer consortia). Lastly, they are usually local/national in scope.

Policy environment as well as economic and socio-demographic factors influence the development of QAS.

Four major drivers can be identified:

- *Policy framework*: The policy framework sets the limits within which an enterprise can operate. As the policy environment changes these limits are adjusted and this can prompt firms to change their behaviour, either to stay within the bounds of the law, to stay economically viable, or to seize new opportunities.
- *Economic factors*: Competition is the main driving force behind any competitive market place, as it forces operators in the supply chain to react to changes in behaviour by their peers. One of the most important recent developments in the food supply chain has been the shift of power away from producers and processors to retailers.
- *Socio-demographic factors and consumer preferences*: The past two decades have been marked by a series of socio-demographic trends that have had a significant impact on the structure of the food supply chain. European consumers have tended recently

to favour healthier and more flavoursome food of higher nutritional value, produced by more environmentally friendly methods.

- *Technological changes*: Technological changes have been at the heart of the restructuring of the farm and food sectors.

The current plethora of quality schemes may be seen as generating problems…

The proliferation of schemes has drawbacks: it creates potential confusion for consumers who are presented with a large number of similar products on which they might have little or no information. Control procedures might overlap and are duplicated, which increases the related costs and administrative burdens. Another risk is that certain schemes do not offer equal access to all producers (e.g. due to language problems and unclear criteria). And, finally, the added value of the schemes might be unequally distributed along the food chain.

…nevertheless, QAS also offer opportunities.

Participation in QAS can generate specific positive effects on all stakeholders in the food supply chain. For example, producers can obtain price premiums for value-added products and can improve the cost efficiency of production. Furthermore, consumers benefit from a choice between a wide range of quality products.

QAS operate within the internal market…

From cases where competition authorities have intervened in Member States, a number of risks of anti-competitive practices can be identified: monopolistic cartels, obstacles to new market entrants, as well as over-administration or over-regulation.

…but they have to be considered also at worldwide level.

The agreements of the World Trade Organization (WTO) have also considerable impact on the application of QAS in the EU. On the one hand, there has been a ruling related to the Council Regulations for PDO, PGI and TSG. On the other hand, Geographical Identifications are protected by agreements in the WTO context.

Is there a need for action?

The stakeholder consultation process undertaken in 2005 has generated a number of policy options:

- No intervention at EU level,
- Regulation of mutual recognition and benchmarking,
- Standardisation of existing quality assurance schemes/general rules for implementation,
- European registry of quality assurance logos,
- European logo confirming compliance with EU regulations,
- Further development of existing EU schemes.

1. What is Food Quality?

Food quality is a complex concept…

In the marketing and consumer economics literature, two main approaches are taken to define food quality (Grunert, 2005). The holistic approach includes within the concept of food quality "all the desirable characteristics a product is perceived to have". By contrast, the excellence approach views food quality as referring only to characteristics that pertain to a higher, more restrictive or "superior" specification of the product. The holistic approach has been adopted in this report to cover the whole range of quality assurance schemes currently existing.

The holistic approach leaves wide scope for interpretation: quality can mean conforming to standards (including standards pertaining to the environment, local specialities, organic production, ethics, and even taste and smell) and it can refer to subjectively perceived quality attributes.

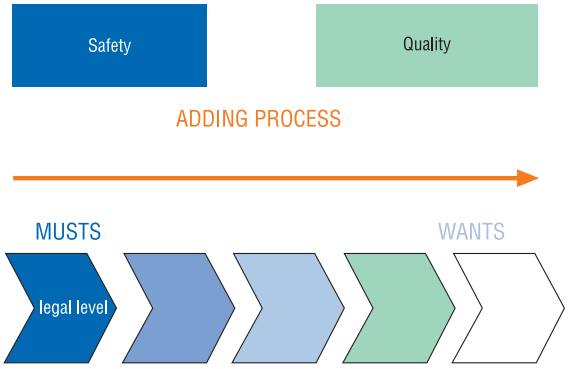
Quality is also a factor that involves the entire production process, from raw materials, processing and packaging up to consumption of the product. As the idea of quality is continuously evolving, any attempts to classify it are immediately overtaken by events, as new meanings are added to existing ideas without replacing them. It is helpful to simplify the different quality requirements into two categories - "musts" and "wants":

(1) *musts* have to be present in order for the product or service to be assessed as acceptable;

(2) *wants* depend on the wishes or expectations that influence choices.

In the past quality was mainly a question of "musts", whereas nowadays it also includes a large proportion of "wants" (Figure 1.1).

Figure 1.1 Dynamic representation of the concept of quality



Source: INDICOD (2005).

Food product attributes can be grouped into search attributes, experience attributes and credence attributes (Table 1.1):

- "Search attributes" are characteristics that can be identified and recognised from the outside before choosing the product (look, price, variety, etc.).
- "Experience attributes" are characteristics which are not directly perceivable when the product is chosen, but become so when it is consumed (tasty, solid, easy/quick to prepare, etc.) and prompt users to decide whether or not they will consume that product again.
- "Credence attributes" are characteristics which are not perceivable when the product is purchased or consumed, and which users cannot personally and directly assess. For this group of attributes the trust required of users becomes fundamental, as does the role of information to bridge this sort of "knowledge gap" on the part of consumers. The credence attributes category includes all the characteristics related to places and methods of production, use of certain substances and, in a broad sense, the level of safety associated with the product.

Table 1.1 Food product attributes

When purchasing the product (search attributes)	Characteristics that can be identified from the outside (look, colour, shape, smell, hardness, brand, packaging, price, product certificates, etc.)
After consumption (experience attributes)	Attributes that can be experienced (tasty, savoury, tender, sweet, easy to prepare, etc.)
Neither before nor after consumption (credence attributes)	Attributes related to trust (health, nutritional value, environmentally friendly production, production respecting animal welfare, ethical aspects of production process, presence/use of GMOs, social responsibility, etc.)

Source: DEIAgra, University of Bologna (2005).

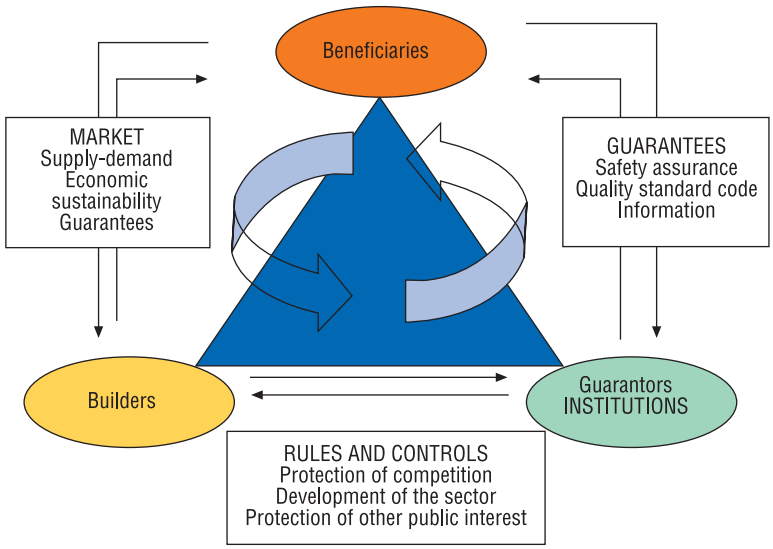
The objectively analysable characteristics of a product need to be compared alongside the non-objective assessments, which play a large part in consumer preferences. In practice, consumers largely evaluate quality through their perceptions, which are filtered and weighted by a scale of preferences which lead them to make choices. Some of the most important factors leading consumers to choose are credence attributes, mainly involving the production process.

Credence attributes are communicated via labelling as, by definition, they cannot be detected in the product itself. Therefore, rules on labelling are important and relevant. The problem is how far credence attributes can be controlled and inspected. To do this three parties have to be identified - the beneficiary, the builder and the inspection/guarantor of food quality, or, in other words, consumers, companies and institutions (Figure 1.2).

The consumer is the beneficiary of food products and as such the final link in the food chain. In the past she/he was a "passive user" of quality from a third party. Nowadays the consumer is increasingly pro-active.

Alongside this trend, new lifestyles and the development of coherent patterns of consumption mean that consumers are no longer satisfied with standard food supply. Consumers look for different types of quality, such as brands, specialty and local origin, quality systems, environment-friendly and organic as well as ethical products, etc. Depending on tastes and preferences, consumers assign different values to different types of quality and are willing to pay for them proportionally.

Figure 1.2 Stakeholders in quality: relationships and functions



Source: INDICOD (2005).

The requirement for safety guarantees and recognisable quality standards has on the one hand led public institutions to legislate on consumer affairs and, on the other, has influenced the market and companies through consumer purchasing behaviour.

Institutions play a decisive role in regulating production and sale of food products, in providing guarantees for businesses and in protecting end-consumers. In the past, only state legislation covered this field, but now there are various levels, from regional regulations up to national, EU and international legislation. Nowadays, international organisations (Codex Alimentarius Committee, ISO, etc.), NGOs (Animal welfare groups, Fair Trade, etc.) also play an increasingly important role in setting standards and in defining requirements meeting the needs of society.

The third point of the quality triangle is made of the producers and sellers of food products. They tend to operate according to market principles of profit-making, embedded in a legal framework that determines the rules. Safety, or harmlessness, is a *sine qua non* for the production process and sales. But the various other aspects of quality that go beyond the legal requirements are a strategic choice for a company, just one of the levers to use for competitive advantage on the market.

From the companies' point of view there is "commercial quality", which can be defined as the set of tangible and intangible properties and characteristics of a product, including services incorporated in or added to the product, which meet needs, wants and tastes of the beneficiary, the end or intermediate customer, and which the beneficiary pays for. This explains the competitive position of the product, and of the company producing it, on a specific market. The product can be the result of sales and marketing policies on price, image, promotion, special advertising channels, etc. emphasising different commercial qualities with the aim of reaching different bands of consumers as effectively as possible. Consumers consequently satisfy their requirements through simple "musts" and more complex "wants". But the multiple aspects of quality and the intangible nature of credence attributes mean that there has to be adequate protection and that the terms and rules for communicating differentiation need to be transparent.

…and it varies according to consumer perception.

The European Union is marked by different traditions, wealth and socio-economic systems. This wide range of peoples makes the perception of food quality complex and varied.

Eurobarometer conducted a survey[1] (European Commission, 2006) in the 25 Member States of the European Union to collect information on "food quality perception" by EU citizens. The survey was conducted in the form of face-to-face interviews in people's homes in their national language between 2 September and 6 October 2005. Here the most interesting results of this survey are presented, some of which point to differences in perception between Member States.

Consumers seem spontaneously to associate food with taste (31%), pleasure (29%) and vital necessity, i.e. hunger (27%), and to be less concerned about health (19%). Concern about risks associated with food appears to be only in the 2-3% range, with consumers mentioning diseases such as obesity alongside concerns regarding the possible presence of chemicals.

Taste is the first thing which comes to the minds of citizens in eight of the countries surveyed: Slovakia (62%), Ireland (54%), Czech Republic (51%), Belgium (40%), Lithuania (37%), Hungary (31%), Italy (30%) and Latvia (29%). Pleasure comes first amongst Greeks (40%) ahead of any other word associated with food. Hunger is mentioned more often than any other word in Austria (60%), Cyprus (55%), Slovenia (46%),

1 http://europa.eu.int/comm/public_opinion/archives/ebs/ebs_238_en.pdf.

Poland (35%) and Spain (28%). Health is the word that most often comes to mind when Maltese think of food. In Portugal necessity springs to the minds of more respondents than anything else. In the Netherlands conviviality is associated with food more than any other idea, on 46%.

An analysis of the national results shows that concerns about nutritional factors are most widespread in the Mediterranean countries: for instance, Maltese, Cypriots, Italians, and, to a lesser extent, Greeks are most worried about putting on weight.

With regard to socio-demographic characteristics, some differences emerge between genders. Men (33%) are slightly more likely to put taste first than women (28%). On the contrary women are more inclined to associate food with health and a balanced diet than men, even though, on average, nutritional factors do not appear to be a prevalent concern. Although obesity is spontaneously mentioned as one of the possible risks associated with food, the majority of Europeans do not appear to be worried about putting on weight themselves.

There is also some variation depending on occupational status with house-persons tending to worry more, although white-collar workers seem to display a similar level of concern about putting on weight.

The young and/or students tend to mention hunger more often than older respondents. Managers and the self-employed stand out for the relatively higher proportions associating food with pleasure.

European citizens clearly care about the welfare of farm animals. The results show that the welfare of farm animals is a concern for the vast majority of Europeans: 19% are “very worried” about the welfare of farm animals and 41% are “fairly worried”.

In conclusion, quality attributes valued by consumers are varied and will change over time. It is therefore not possible to come up with a definition of quality that suits all people, everywhere, at all times. It is, however, possible to offer choices and to ensure that consumers can identify the desired quality characteristics in the product that they are buying. Guaranteeing the stated quality characteristics is the main role of Quality Assurance and Certification Schemes (QAS).

2. What are Quality Assurance and Certification Schemes (QAS)?

2.1. Definition

Quality Assurance and Certification Schemes (QAS) enable stakeholders of the food chain to guarantee that their products or processes fulfil defined quality requirements.

QAS can generally be defined as any code of practice, standard or set of requisites, which enables stakeholders of the food supply chain to guarantee compliance with what is declared and to signal this to the end or next user, underlying this statement there is some independent verification process that adds authority to the stakeholders' statement.

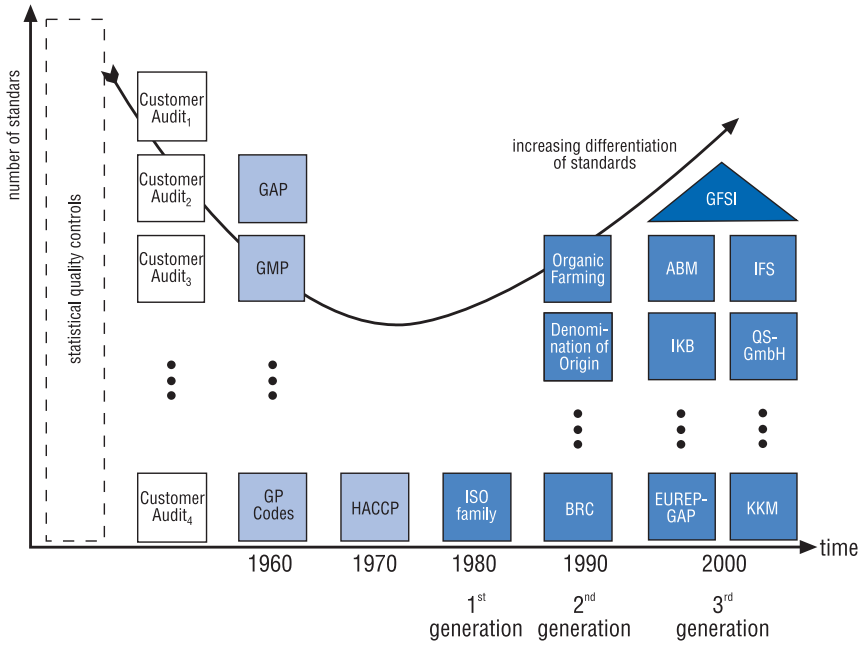
For the purpose of this report, QAS are schemes implying a voluntary participation and enabling stakeholders[2] involved in the food chain to claim that products or processes fulfil defined quality requirements. This definition of QAS includes two categories of schemes. The first is a category of schemes known as "quality management systems" or "within-chain standards", of which the consumer may hardly be aware at the point of final food purchase. The second category of schemes covers those food QAS that explicitly aim to segment the final product market by differentiating the product(s) covered under the scheme, using labelling or branding to signal specific quality attributes to consumers.

2.2. Historical development

The first QAS was created in Europe in the 1930s…

The first food QAS created in Europe were Italy's *"Consorzio del Grana Tipico"* (1934) for the protection of *"Parmigiano-Reggiano"* cheese

Figure 2.1 Historical development of certification systems and QAS



Source: Jahn et al. (2004).

2 For the purpose of this report as stakeholders are seen: farmers/producers, traders, food processors, retailers, consumers, certification bodies, and public authorities.

and the French "*Appellation d'Origine Contrôlée*" (1935) for the protection of wine and, later, cheese.

During the 1990s, the ISO 9000 (third party audit) was introduced with the objective of establishing one general standard for all industrial sectors. However, as Figure 2.1 illustrates, the ISO 9000 certification did not meet the requirements of all industries and the diffusion of sector-specific certification and audit schemes started again. Further complicating the picture, public authorities and other stakeholders have begun to use QAS to serve their own interests. As a consequence of several food crises many countries have chosen to develop national QAS.

Starting from a single relatively general certification scheme (ISO 9000), a wide variety of different systems has been developed. Driving forces behind the increasing number of QAS in recent years are: (Jahn et al., 2004)

- The notion of quality has changed. "Quality" is no longer defined as a uni-dimensional attribute, but has undergone a differentiation process itself.
- The use of a QAS depends on the respective target group, i.e. whether it is used in Business-to-Consumer (B2C) or Business-to-Business (B2B) Marketing. The particular aims are laid down by the respective standard owner, which ranges from international standardisation organisations to stakeholder schemes.
- Similar QAS are built up in different countries and regions to protect local producers. In the meat industry, for instance, the Dutch IKB ("Integrale Keten Beheersing"), the British ABM ("Assured British Meat"), the Belgian Certus or the German QS ("Qualität und Sicherheit") are basically certifying the same standards.

… and in the 1990s the European Commission introduced the European logos "PDO, PGI and TSG"…

In 1992 the European Union (EU) created the PDO (Protected Designation of Origin), PGI (Protected Geographical Indication) and TSG (Traditional Speciality Guaranteed) schemes to promote and protect specific food products:

Council Regulation (EC) No 510/2006 of 20 March 2006 on the protection of geographical indications and designations of origin for agricultural products and foodstuffs. The Regulation applies to agricultural products intended for human consumption listed in Annex 1 to the Treaty establishing the European Community, to foodstuffs listed in Annex I to the Regulation and to the agricultural products listed in Annex II to the Regulation (wines and spirit drinks are excluded). This Regulation repealed the **Council Regulation (EEC) No 2081/92 of 14 July 1992.**

Council Regulation (EC) No 509/2006 of 20 March 2006 on agricultural products and foodstuffs as traditional specialities guaranteed. This Regulation repealed the **Council Regulation (EEC) No 2082/92 of 14 July 1992.**

PDO is the term used to describe agricultural products or foodstuffs which are produced, processed and prepared in a given geographical area, and which owe their quality or characteristics essentially or exclusively to a particular geographical environment with its inherent natural and human factors.

In the case of PGI, the geographical link must be ensured in at least one of the stages of production, processing or preparation. Furthermore, the product can benefit from a good reputation.

TSG does not refer to the origin but highlights traditional characteristics, either in the composition or in the means of production.

Generally, these schemes suit the demand for many food supply chain initiatives throughout the EU but some concerns were voiced during the stakeholder consultation about the information which PDO, PGI and TSG provide; information, which should be founded on verifiable criteria and should not mislead consumers about the real characteristics of the product. Currently around 700 products are registered as PDO or PGI and

many more are pending registration. In terms of regional distribution, they are concentrated within a few Member States (e.g. Italy (155 protected names), France (148), Spain (97), Portugal (93) and Greece (84)). TSGs are used much less commonly with only 15 registered products in the whole EU.

…as well as Organic Farming.

Council Regulation (EEC) No 2092/91 of 24 June 1991 is the first European regulation on organic farming. In 1999 rules on production, labelling and inspection of the most relevant animal species (i.e. cattle, sheep, goats, horses and poultry) were also agreed in **Council Regulation (EC) No 1804/1999 of 19 July 1999** supplementing Regulation (EEC) No 2092/91 on organic production of agricultural products and indications referring thereto on agricultural products and foodstuffs to include livestock. This Regulation covers issues such as foodstuffs, disease prevention and veterinary treatment, animal welfare, husbandry practices and manure management.

Since the 1980s, the area of land and number of farms that have converted to organic production in the EU-25 has risen dramatically, with annual average increases of over 50% recorded in the early 1990s. Despite this rapid growth, organic production is still a relatively small agricultural sector accounting for only 1.7% of total farms and 3.5% of total utilisable agricultural area in the EU-25 in 2003. The annual rate of increase in the area of organic production and the number of organic farms has been decreasing since its peak in the early 1990s (Lampkin, 2004).

Organic farming can be regarded as a specific QAS as it is based on voluntary participation and a well defined production protocol is assured.

The schemes that are already implemented by the EU (PDO/PGI, TSG, organic) were not analysed in detail in the context of this project. They do, however, offer examples of what types of initiatives are possible at European level.

2.3. Objectives

The following two main objectives of QAS can be singled out:

(1) QAS aiming to standardise and guarantee certain aspects or requirements of the company or production unit (QAS belonging to the family of ISO, BRC, IFS, etc.);

(2) QAS aiming to differentiate and guarantee the product according to some peculiar characteristics of the product, production process or production factors used (e.g., Label Rouge, Calidad Certificada, Heart Label, etc.).

QAS aim to secure the management of chain standards...

QAS belonging to the first group are set up by ISO or by retailer consortia and are always multinational in scope (they are disseminated over several countries). They are relatively few but present in all EU Member States to different degrees.

These schemes always have a reference regulation (regulated quality), and almost always refer to requirements dealing with the organisation of the company, production unit or production process (quality management system, environmental management system, occupational health and safety management system) and not with the product's intrinsic characteristics.

Finally, they tend to certify compliance to legal requirements (rarely) or requirements that go beyond the law (more often) and are almost exclusively adopted in B2B (i.e. not used in communication campaigns for the user[3]).

3 There are a few exceptions. QS – Qualität und Sicherheit in Germany, for instance, belongs to the first group. Nevertheless, it is put forward by the whole food supply chain (feed producers, farmers, processors, retailers). Furthermore, it uses a logo which is communicated to consumers.

…and/or they aim at market differentiation.

The second group of QAS aims at highlighting the differences existing between a product and its competitor. These schemes, in fact, mostly tend to guarantee claimed product characteristics (GMO-free, chemical composition, production techniques used, e.g. those typical of integrated agriculture, origin of raw materials, traceability, animal welfare, etc.). They are usually local/national in scope.

The QAS in this group do not refer to a regulation but have a "disciplinary document" (declared quality) often put forward by institutional bodies (national, regional or local bodies) or private bodies (associations and producer consortia); they tend to guarantee aspects that are not covered by law, and they are adopted along both approaches B2B and B2C (they are used in communication campaigns for the user).

Generally, it can be said that these QAS tend to differentiate and guarantee products in relation to:

- their biochemical composition;
- their origin and the origin of the raw material used to produce them;
- the production techniques used (in particular their environmental impact, or the use of "traditional" techniques);
- residues of pesticides – whether or not they are traceable – in products;
- the breeding and living conditions of animals;
- ethical aspects of production (workforce conditions).

The modern retail chains' private labels share the same aims as the QAS belonging to this group (product and sign differentiation). Nevertheless, they can also include some of the requirements typical for the QAS of the first group (such as quality management system).

3. How do QAS operate?

3.1. Scope

QAS are proliferating and are widely applied in the food supply chain.

There is a large number of QAS applied within the food supply chain but most are only applicable for a small differentiated market. The share of the market of QAS aiming at differentiation is rather small and differs largely within the EU; generally it increases from East to West and from North to South. It appears that the market share of products under such QAS (including PDO, PGI, TSG and organic farming) is the highest in Italy.

On the other hand there is only a limited number of QAS aiming to secure the management of chain standards but these have a considerable market share. They can to some extent be regarded as new private standards which go beyond the compulsory legal standards.

These schemes have highly diverse focus and targets...

QAS do not take a uniform approach as they aim at different quality aspects and are proposed by different stakeholders. QAS can be classified on the basis of many different variables. Some of the variables are listed below:

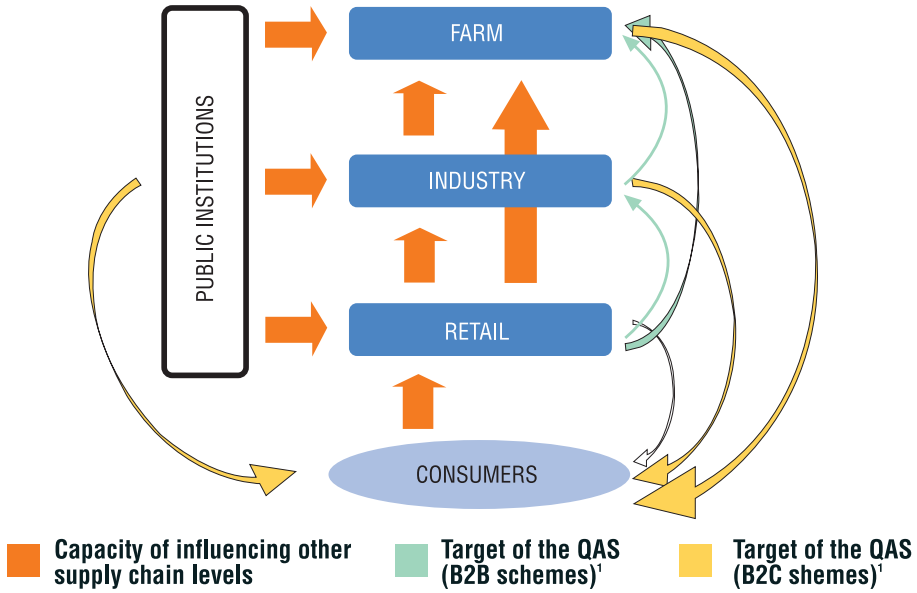
- focus,
- targets,
- content (origin, traceability, method of production, etc.),
- "promoters/owners",
- areas of application (local/national/international)
- number of stages involved along the food supply chain.

The focus of the QAS influences the contents of the requirements and is often centred on the product and/or production process characteristics (origin of raw materials or production, finished-product characteristics, etc.). In this area, the requirements of "differentiating" the product or production process refer to some main typologies, including: product organoleptic characteristics, origin of raw material/s and/or production process site, environment and biodiversity protection, animal welfare protection, and ethical aspects of production.

Some of the schemes are targeting consumers and the other operators of the food supply chain. These schemes targeting consumers are generally identifiable by a logo to inform consumers about the product and/or process quality. For the other schemes, the communication of process and (to a limited extent) product quality among operators in the food supply chain is of importance. Mostly these schemes are not identifiable for consumers. The aim is to secure that other operators obey to specified rules of conduct.

One important point to note is that the ownership of schemes has a fundamental influence on their focus and aims. Whereas public systems are mainly focussed on consumer protection through product labelling, most private schemes concentrate on B2B marketing. However, certification systems, which cover the whole supply chain like the Dutch IKB, and standards developed by external stakeholders, like the Marine Stewardship Council, begin to integrate consumer marketing objectives. NGOs are generally only concerned about a small number of very specific aspects (e.g. animal welfare or fair trade). Public authorities regularly also include regional/national origin amongst the aims of schemes. EU quality schemes aim specifically at protecting the regional and traditional aspects of registered products. Organic farming is regulated by the EU but several other stakeholders are also implementing schemes within this framework.

Figure 3.1 Stakeholders of the food supply chain and QAS



[1] *Business-to-Consumer (B2C); Business-to-Business (B2B).*
Source: DEIAgra, University of Bologna (2005).

…and they operate at various levels of the food chain.

The general configuration of food supply chain is illustrated in Figure 3.1.

Four main levels can be identified in the food chain: the primary production (farm), processing (industry), retail and consumer levels. Stakeholders involved in QAS are highly diverse: they may be directly involved in production and distribution of the product (within the supply chain) or not, they may be individual or collective, and if they are collective they may be public institutions (local administrations) or intermediate institutions (firms, organisations, etc.). Some of them are from outside the area of production: for example, non-local stakeholders in the chain (such as processors and distributors), public institutions and consumer associations. The diversity of stakeholders leads to diversity in the objectives pursued locally through promotion of the product.

3.2. Drivers of change

Policy environment as well as economic, socio-demographic and technological factors influence the development of QAS.

Four major drivers can be identified:

- policy framework;
- economic factors;
- socio-demographic factors and consumer preferences;
- technological changes.

3.2.1. Policy framework

The policy framework sets the limits within which an enterprise can operate. As the policy environment changes, these limits are adjusted and this can prompt firms to change their behaviour, either to stay within the bounds of the law, to stay economically viable, or to seize new

opportunities. The two most important policy areas for QAS are general food law and the Common Agricultural Policy (CAP).

General food law

Following a series of food scares since the late 1990s and the consequent dramatic fall in consumer confidence, there has been a strong drive towards policies that ensure healthy and safe food. The European Commission's guiding principle is to apply an integrated approach from "farm to fork" covering all sectors of the food chain, including feed production, primary production, food processing, storage, transport and retail sale. **Regulation (EC) 178/2002** lays down the general principles and requirements of food law, establishes the European Food Safety Authority and lays down procedures in matters of food safety. The general principles of food law entered into force on 21 February 2002. The general aim is to provide a framework to ensure a coherent approach to the development of food legislation. The Regulation lays down definitions, principles and obligations covering all stages of food/feed production and distribution.

The specific objectives of EU food law are (1) to adapt existing food law principles and procedures by 1 January 2007 in order to comply with the general framework established by the Regulation and (2) to ensure a high level of protection of human life and health, taking into account the protection of animal health and welfare, plant health and the environment within an integrated "farm to fork" approach. The general principles on which the food law is based are: risk analysis, transparency, the precautionary principle, traceability, and operator's responsibility.

Although policies that concern food production and distribution have changed significantly over the past few years and the regulatory framework has become increasingly stringent for operators in the food chain, there is a widely held view that responsibility for food quality control has shifted away from government and public health authorities towards industry (mostly major retailers). For example, in the UK the 1990 Food Safety Act effectively gave corporate retailers "political legitimacy for regulatory control" within the food chain (Marsden and Wrigley, 1996). The 2002 EU food law reinforced this by making the food operator responsible for ensuring compliance. In essence, these regulatory changes show a shift from public- to private-interest regulation, which has resulted in the regulatory domain becoming more closely aligned with the consumption end of the food chain, rather than with the production end (Marsden and Wrigley, 1996). The development of some QAS, mainly at the B2B-level, can at least to a certain extent be attributed to this shift in responsibility – food chain stakeholders are trying to transfer liability further up the chain by requiring suppliers to participate in QAS.

The case studies in the SUS-CHAIN (2005) project[4] showed that in some countries the food safety and hygiene regulations affect the development of some food supply chains. These concerns apply particularly to fields of activity such as farm shops, farm butcheries, on-farm processing, etc. These activities can be seriously conditioned by demanding hygiene and food safety regulations and, in the case of organic food, by packaging requirements.

4 Marketing sustainable agriculture: an analysis of the potential role of new food supply chains in sustainable rural development (SUS-CHAIN). SUS-CHAIN is a research project co-financed by the European Commission (QLK5-CT-2002-01349), from the beginning of 2003 to the end of 2005. The purpose of SUS-CHAIN is to assess the potential role of food supply chains in the enhancement of sustainable food production and rural development by identifying critical points in food supply chains which currently constrain the further dissemination of sustainable production and recommend actions that are likely to enhance the prospects for sustainable food markets. Specific attention is given to factors related to the organisational structure of food supply chains and interactions between stages of the chain.

CAP (Common Agricultural Policy)

Apart from general food law, the regulatory framework for operators in the food supply chain (specifically farm operators) is also influenced by the CAP. The latest reform of the CAP – prompted both by pressures from the WTO and by budgetary constraints due to the eastward expansion of the EU – could create important incentives for restructuring the food supply chain. At the same time, the CAP aims to stimulate high-quality production through a series of instruments:

- a specific chapter on food quality was added to the Rural Development Regulation in 2003, which includes financial incentives for farmers to get involved in EU or national schemes improving product quality and production processes or certifing product quality for consumers;
- a range of ways of making farming more environmentally friendly;
- a support to organic farming;
- the EU-regulated quality assurance schemes PDO, PGI and TSG.

Since the MacSharry reforms in 1992 the CAP has been gradually reoriented, away from price support towards direct income support. The 2003 reform of the CAP introduced direct income payments fully decoupled from production levels. It is often argued that this policy change will lead farmers to reduce production (especially in more marginal areas). On the other hand, while production-oriented support has been diminishing, the level of support for rural development has been increasing and the rules on agri-environmental programmes are being reinforced.

The 2003 CAP reform serves **environmental integration**, with measures to promote protection of the farmed environment. Concerning market and income policy, cross-compliance is the core instrument. Since 2005 all farmers receiving direct payments are subject to compulsory cross-compliance (with food safety, environmental and animal welfare standards). Another basic principle embodied in the EU strategy for the integration of environmental considerations into the CAP is that, wherever society wants farmers to deliver an environmental service beyond the baseline level, this service should be purchased through agri-environmental measures. A biodiversity action plan for agriculture was also adopted by the European Commission in 2001 and was reinforced by measures included in the 2003 CAP reform.

Concerning the development of **agricultural practices preserving the environment**, the Directive on integrated pollution prevention and control requires industry and intensive livestock farms to prevent emissions of pollutants to the air, water and land, to avoid waste production and dispose of waste in a safe way, and to restore disused industrial sites to a satisfactory state.

Animal welfare rules have been established at EU level to regulate the conditions of animals of all species in intensive production systems (in particular for animals kept for food production or for other farming purposes). Requirements applicable during transport and at the time of slaughter have also been laid down.

Whenever the EU (through the CAP or through other related regulations such as in the areas of food safety, animal welfare, human health, competition) introduces legally binding requirements, these form the baseline on which QAS will have to be built. When this baseline shifts, QAS will have to adapt. In this sense, the policy environment is a major driver of change for QAS.

3.2.2. Economic factors

Competition is the main driving force behind any competitive market place, as it forces operators in the supply chain to react to changes in behaviour by their peers. One of the most important developments in the food supply chain in the past decades has been the shift of power away from producers and processors to retailers. The position of the agriculture and food sector in the EU has been modified, among other things, by the successive reforms of the CAP, which have

reduced protection of the sector and left it more vulnerable not only to competition from other producers but also to the power of downstream operators in the supply chain. As a result, the number of farms has fallen steadily over time, and farms and processors are under substantial price pressure. As Annex 1: Food Supply Chain Configuration shows, concentration is high on almost all EU-25 food retail markets. This high level of concentration in the EU retail sector is accompanied by fierce competition and retailers are constantly forced to implement practices that lower costs and increase efficiency. These practices have several consequences for the development and potential success of QAS.

First, retailers are making increasing use of standardisation procedures and forcing their suppliers to comply with them if they want access to retail channels (often under a "preferred supplier" scheme). This standardisation process raises concerns about loss of product diversity and the exclusion of smaller supply chains, which might not be able to comply with the retailers' requirements due to insufficient volumes, inadequate production or distribution processes, lack of flexibility, etc. On the other hand, this standardisation and the substantial market size of individual players in the retail sector can provide a great marketing opportunity for certain QAS desired or preferred by supermarket chains.

Second, concentration and rationalisation of the general supply chain forces upstream producers to seek added-value options, for example by processing and marketing through alternative supply chains. However, the SUS-CHAIN case studies highlight that the relative size of these alternative marketing channels differs widely among EU Member States. For example, in the Netherlands and Belgium this sector probably covers less than 2% of the total food market. In Italy the alternative food sector is estimated to account for approximately 10% of total food sales.

Finally, concentration of bargaining power in the retail sector may also force upstream suppliers to produce and sell differentiated products. In this way, producers and retailers can use QAS to distinguish their products from others. Many smaller market participants have tried to create value added and competitive advantage by capitalising on consumer demand trends through quality production and labelling, as well as labels of origin. Labelling enables these producers to publicise the quality of their products throughout the supply chain. With respect to differentiation of products from the standard or norm set by retailers, in the UK for example growth has been seen in QAS initiated by the private sector and NGOs which seek to differentiate positively from the norm. However, despite being "independently" established, many QAS eventually end up being linked with, and in some cases even dominated by, the large retailers which sometimes insist on sourcing through a particular QAS.

At first sight, approaches covering the whole food chain seem to be preferable (Jahn et al., 2004). They simplify the creation of standardised data interfaces and exchange within the supply chain. Control gaps between the stages can be closed more easily. Additionally, entire food chain concepts support consumer marketing strategies based on traceability and quality assurance. One decisive factor influencing differentiation, however, is the way how retailers and brand manufacturers interpret certification. They are often the main drivers of schemes and tend to show a limited interest in becoming certified themselves. Further on, firms on different levels of the value chain have specific economic interests and emphasise different factors regarding the quality requirements of a certification scheme. Thus, it seems easier to achieve a consensus on only one level of the supply chain, as the interests tend to be more homogeneous. That is why only few approaches include all stages. Finally, it is not easy to harmonise approaches without a dominant company in the value chain to enforce decisions on standards. In industries without a dominant marketing leadership, standardization is a difficult and time consuming bargaining process (Jahn et al., 2004).

3.2.3. Socio-demographic factors and consumer preferences

The past two decades have been marked by a series of socio-demographic trends that have had a significant impact on the structure of the food supply chain. First, more people are living in smaller households where more adults work. This leaves less time to prepare meals and creates a preference for convenient food and shopping facilities. Second, increasingly affluent consumers are spending a much greater proportion of total food expenditure outside the home. Third, an increasing number of NGOs are operating, from international down to local level, and are stimulating the development of alternative food models.

One significant effect of the search for convenience foods and one-stop shopping options is the growing importance of large-scale retail outlets. Reardon et al. (2003) present a model of the spread of supermarkets in developing economies as a system of demand (for supermarket services by consumers) and supply (of these services). Demand is driven by incentives and consumers' capacities. Demand-side incentives include (1) urbanisation and the increase in the opportunity cost of women's time (as more women join the workforce) and (2) reduction of effective food prices for consumers because of supermarket chains' mass procurement and efficient merchandising. Demand-side capacity variables include (1) per capita income growth increasing the demand for processed foods and (2) growing access to refrigerators, cars and bus transport. Although, on average, EU-25 can hardly be seen as a developing economy, some of the factors described above are relevant as determinants of supermarket development in certain poorer regions in the EU.

In recent years, as a consequence of food crises and contamination incidents, European consumers have become increasingly interested in health and food safety, demanding specific guarantees to combat uncertainty in this field. The rising demand for information can therefore be considered a strong driver within the food supply chain.

Provided food safety is guaranteed, consumers' choices are often determined by prices. Despite this, total spending on food still shows a rise, with an increasing focus on what are perceived as high-quality food products. For some years now, European consumers' choices have tended to favour healthier and more flavoursome food of higher nutritional value, produced by more environmentally friendly methods.

Consumer preferences and habits can change rapidly. Important trends identified by SUS-CHAIN (2005) based on research on seven countries are an increase in welfare which means that basic food needs are met and socio-demographic changes that transform consumption patterns and increase consumer awareness and concern. One consequence of the fulfilment of basic needs is the low willingness to pay for food products and the complex nature of food consumption. Furthermore, the tendency towards greater individualisation is in many cases also a consequence of the fact that basic needs are satisfied. Trends like the increasing demand for convenience food, along with the type of food consumption and distribution, can all be linked to changing socio-demographic factors (double-income households, growing presence of women in the workforce, ageing population, etc.).

3.2.4. Technological changes

Technological changes have been at the heart of the restructuring of the farm and food sectors for decades. The rapid adoption of labour-saving technologies in farm production has triggered a shift towards consolidation of the supply base to reap the benefits of increasing economies of scale on the one hand and towards increasing diversification of the farm business and, more generally, farm household income on the other. This increases the possibilities for farmers to enter short supply chains, possibly including on-farm processing activities, and related QAS.

Another example of how technological change has stimulated restructuring of the supply chain and increased demand for labelling,

regulation and QAS is the case of GMOs. New technologies that take time to gain acceptance on the part of the general public, or technologies that can destabilise consumer trust in the food supply chain, are an important driving force towards more elaborate QAS.

3.3. Impact of QAS on stakeholders

The current plethora of quality schemes may be seen as generating problems…

Confusion over the different quality attributes addressed by different schemes arises not only among consumers but also among producers. For consumers, the abundance of logos may create an oversupply of information which may increase the search costs for desired quality attributes and for producers, possible duplication of procedures among schemes may create extra costs. Mutual recognition of standards and certification methods are often seen as important means to reduce certification and accreditation costs. Initiatives are currently starting in these fields but they cannot be assessed yet since they are still at a very early stage. Small-scale producers may be affected differently by QAS than large-scale producers.

3.3.1. Possible confusion on the part of stakeholders

The main risk identified through the stakeholder consultation[5] is the possible confusion that could arise from QAS. The number of QAS has increased significantly over the last few years. Although some of these schemes can be clearly identified and obey strict rules, others remain somewhat unclear for consumers and producers alike.

Consumers might be confused by the overabundance of logos and two separate but interlinked problems have been identified. The first is related to the proliferation of logos claiming quality attributes and, consequently, to the number of QAS targeting consumers. The more logos there are on the market, the more difficult it is for consumers to differentiate these products and to make a choice. The second issue relates to labels. In practice, the information provided on the label is often high in quantity and low in quality. Consumers then find it difficult to locate relevant information amongst the mass of information provided on the packaging. Another concern likely to generate confusion on the part of consumers is the absence of a clear definition of food quality as well as unclear distinction between safety and quality, with the consequence that claims made on the product may give rise to wrong expectations Communication of and information on quality attributes therefore become very important for consumers' choices.

It is not easy to link the information provided for most QAS to quality attributes. Consumers and producers alike should be provided with transparent information, while producers and other players in the food chain should be able to communicate more effectively about the quality of products. The information should ideally be user-friendly, unambiguous and clear and should refer to only a single or very small number of identifiable quality attribute(s).

3.3.2. Certification, accreditation and production costs

In the European Union, harmonisation of certification and assurance systems is mainly limited to general rules on certification produced by ISO and CEN. Public authorities are involved in the certification and assurance process in some countries. They can contribute directly by carrying out their own certification and assurance procedures or indirectly if control procedures are entrusted to private operators. In some cases, they are not involved at all. In most European countries, national authorities are represented in accreditation bodies. Certification bodies are accredited either

5 A series of workshops carried out in 2005 ensured that the analysis is based not only on the best existing knowledge in the field, but also on the experience and knowledge of the different stakeholders.

directly by the national authorities or by private companies accredited by a national accreditation body. International organisations may also accredit certification bodies.

In many cases, private and public quality certification schemes overlap, which may lead to duplication of controls, audits and inspections and increases in certification costs. Schemes such as EurepGAP or BRC Global Standard are good illustrations of this problem since they are based on food safety and other issues (worker health, safety and welfare, environmental and animal issues) which overlap with legislation. Specific safety-related criteria are therefore checked several times, both by public authorities and by private operators. Different private schemes can also overlap because they apply similar criteria that, in the absence of mutual recognition, have to be checked separately within each scheme.

Furthermore, stakeholders along the food chain are generally diversifying the numbers of their suppliers and clients in order to avoid the risk of depending on a single partner and to diversify their outlets. Stakeholders from the upstream end of the chain, i.e. farmers and traders, are thus often doing business with several partners in the food supply chain, each requiring its own scheme, which may multiply the administrative burden and costs.

In addition, farmers might not have sufficient financial resources, human resources and/or time to invest in QAS. With these limited resources it is difficult even after joining a QAS to secure a sufficient return on investment. Information on accreditation and certification costs is given in Annex 2: Certification and consortium costs in three PDO/PGI cases. In the cases analysed, the certification costs borne by firms to sell their productions as PDO or PGI are an important variable in any firm's assessment of whether to use this tool to add value. In some cases, direct certification costs are vertically spread along the supply chain, while in other cases they are borne by the stakeholders in one or two levels of the chain. Direct certification costs can also be split into costs proportional to the certified volume produced or sold and non-variable costs (i.e. annual payment to the product certification body). This division directly influences the horizontal distribution of direct certification costs among small and large producers or processors or retailers and in this sense, influences small-scale stakeholders' involvement in the PDO or PGI project.

As costs rise, the advantage of differentiation (obtained if the strategy is effective) allows firms to charge a higher price. Product differentiation, if it satisfies market requirements and creates value for consumers/customers, means that they are willing to pay more. A survey carried out in 2003 on Italian firms studies these problems (INDICOD, 2005). Organic production and the exclusive use of Italian raw materials prove to be the most expensive policies, showing increases of 21.3% and about 12.7% in production costs, respectively. The next most costly are protected speciality status (8.9%), GMO free (7.8%), traceability (6.6%), adherence to retailer quality disciplinary guidelines (6.5%) and own brand retailer labels (5.6%). The cost of ISO certification is lower (4.2%) as is association with collective brands (3.6%).

Considering two broad groups of quality aspects:

(1) product aspects: organic, protected denomination, GMO free and exclusive use of Italian ingredients;

(2) organisation and/or sales aspects: traceability, quality and environment certificates,

it appears that aspects concerning the product itself tend to be more costly than aspects of organisation and production.

Means of reducing certification and accreditation costs were discussed with stakeholders during the workshops. Although no quantitative data were provided, the following suggestions were made to improve the current situation:

– mutual recognition of standards,

– combination of audits on the same farm (combination of different inspections into a single inspection at the farm), and

– collective certificates (the first stage being an internal control and the second carried out by a third party).

Initiatives are currently starting in these fields but they cannot be assessed yet since they are still at a very early stage. Future developments should be closely observed. Stakeholders generally agree that harmonisation of QAS through adequate benchmarking and mutual recognition could be an efficient way to reduce or avoid duplication.

3.3.3. Current unsatisfactory mutual recognition and benchmarking procedures

In spite of the advantages of mutual recognition and benchmarking in reducing certification and accreditation costs, the way they are currently implemented creates problems and could turn into obstacles to developing QAS.

The Global Food Safety Initiative (GFSI), covering over 70% of food retail revenue worldwide, was set up *"to strengthen consumer confidence in the food they buy in retail outlets"* and has therefore started implementing and maintaining an initiative to benchmark food safety standards (for private label products) and farm assurance standards in order to facilitate mutual recognition between standard owners and ensure worldwide quality integrity and accreditation of food safety auditors. In January 2004 five standards for food manufacturing (BRC Global Standard – Food, Dutch HACCP Code, EFSIS Standard (private UK auditing company), International Food Standard (IFS) and SQF 2000 Code) were benchmarked against the GFSI procedure and found to be in compliance with the criteria in the GFSI Guidance Document. After the GFSI Guidance Document was revised in 2004, all standard owners had to resubmit their standards for re-benchmarking. EFSIS withdrew its standard from this procedure, and therefore it is no longer listed by GFSI.

EurepGAP (retailers) has also launched a benchmarking initiative with the objective of approving schemes that have been recognised as equivalent to EurepGAP standards. Fewer than ten schemes have been approved so far, and some of them have to be re-benchmarked because EurepGAP standards have been updated since they were approved.

Other mutual recognition initiatives that are going on at the moment are those between QS (Qualität und Sicherheit) and IKB (Integrale Ketenbewaking); and between QS and GMP (Good Manufacturing Practice).

Although benchmarking should mean that schemes, albeit different, adhere to similar standards thus making it easier for producers to implement them, many stakeholders consider the benchmarking procedures long, difficult and costly, all the more as they are a never-ending process repeated each time the prevailing standard is updated. Moreover, many private initiatives are dominated by retailers, casting doubt on who has and should have responsibility for benchmarking.

Neither mutual recognition nor benchmarking as currently implemented are seen as reducing the administrative and financial burdens faced by stakeholders who join QAS.

3.3.4. Limited participation of small-scale producers in QAS

When discussing obstacles and risks in developing QAS, small-scale producers can also be studied as a specific stakeholder category as they face particular difficulties due to their size.

Small-scale producers are involved in primary production and in the processing sector. They have limited bargaining power compared to other stakeholders in the food chain and are therefore interested in joining QAS to improve production value and competitiveness. But they also face certain problems when doing so. Some of these difficulties are specific issues related to their size, while others are the result of amplification of the hurdles faced by producers in general.

In practice, the involvement of small-scale producers in the certification process is even more limited than for producers in general, and

the level of coordination and cooperation among them is particularly low. According to them, only limited investments are possible and the return on investment in implementing QAS is insufficient. Education of farmers is another weak point in the current situation as public authorities have reduced their involvement/support in this field.

Moreover, small-scale producers face the specific problem of fixed certification costs leading to a higher average cost per unit of production. Public support is insufficient to enable them to participate in QAS. Supplementary subsidies or specifically-designed QAS could therefore help them.

Several measures could be taken to improve conditions for small-scale producers. First, action can be taken at farmers' level in the form of clustering. In practice, clustering can increase farmers' bargaining power within the food chain but can be unstable. As a matter of fact, taxes are in some cases proportionally higher for groups or cooperatives than for individual farmers (e.g. in Poland), which could create instability in the group and make it collapse. Better harnessing of the social and environmental value associated with small-scale producers and increased public support in order to foster management capacity could be considered. As an example, clustering takes place in the German QS system. Due to their small size, farmers do not directly participate in the system but are bundled by slaughterhouses, cooperatives and so on.

Moreover, small-scale producers in the new Member States are already having difficulties in meeting EU safety requirements (EU food law standards) and have generally limited resources. They appear to have even less chance of access to QAS and welcome any action that would improve the situation.

The INDICOD (2005)[6] showed that medium-sized and large companies have a smaller average rise in costs than small companies (see Table 3.1). There even appears to be a correlation between company size and quality costs in favour of large ones, probably as they are better able to obtain economies of scale and make management and organisational changes. This capacity varies for the different aspects of quality; for organic production

Table 3.1 Percentage increases in company costs by company size

CODIFIED QUALITY POLICIES	Percentage cost increase by company size (No of employees)			
	Small (3-50)	Medium (51-250)	Large (more than 250)	Total
Quality defined in standards/ regulations				
ISO 9001	4,4	3,6	1,9	4,2
Denomination of origin	9,1	8,4	5,1	8,9
Organic	21,0	22,7	20,9	21,3
Quality declared				
Traceability	6,9	5,8	3,3	6,6
Exclusively Italian raw materials	12,9	11,9	10,2	12,7
GM free	8,2	7,5	4,4	7,8
Private label	6,0	4,4	3,4	5,6
Codes of practice defined by retailers	7,0	4,9	2,6	6,5
Codes of practice of collective brands	3,8	2,6	2,2	3,6

Source: INDICOD (2005).

6 INDICOD (2005) –The survey was carried out among 900 companies (both processing firms and retailers) to analyse the role of quality as a competitive strategy in the Italian market.

for example, differentials are very small and show a slight advantage for smaller companies. But for aspects of the distribution chain such as protected denomination and traceability the differentials are much bigger. It is likely that the difference is partly due to the different composition of output of companies in different size bands as well as the size of the companies themselves.

Table 3.1 shows increases in company costs for participating in a QAS but other research show especially for schemes focussing to secure the management of chain standards that production costs may be reduced (e.g. Moll and Igual, 2005). This is seen as an important positive aspect attached to those types of schemes.

...nevertheless, QAS also offer opportunities.

3.3.5. Benefits for food supply chain operators

Food supply chain operators can benefit from QAS in several ways, for example: (1) as a way to achieve market differentiation; (2) as a tool to improve the cost efficiency of production.

(1) Market differentiation

The degree of market differentiation is a key factor in commercial performance and in the distribution of value added along food supply chains. It varies according to the type of market in which the QAS operates. One can distinguish between: (1) the highly competitive market for mass products (no differentiation); (2) the medium competitive market segmented by branding (medium differentiation); and (3) the low competitive market protected by certification like PDO/PGI (high differentiation).

By setting their own production standards (like the "Green Label" for Dutch pigmeat production) or through cooperative production and sale (e.g. the Belgian "Westhoek" farmers, the "Uplaender" dairy farmers, the Swiss suckling cow farmers or the Dutch dairy farmers) producers have achieved a certain level of product differentiation in the market.

One of the main objectives of market differentiation is to obtain a price premium.

The survey for INDICOD (2005) assessed the cost of quality policies for companies. To find out how sustainable these quality policies are, the study compared the costs with consumer willingness to pay for different attributes. Company competitiveness is measured by the difference between the higher costs and the higher added value which can be earned on the market.

76% of consumers said that they would pay 10% more, 53% consumers said that they

Table 3.2 Importance of indirect costs and benefits deriving from a PDO or PGI tool

	Chianina PGI	Pecorino Toscano PDO	Olio Toscano PGI
Indirect costs			
Investments in structural adjustment	+	+	+
Raw materials of higher quality	+++	+	+
Reorganisation of production process	++	+	+
Bureaucratic and psychological costs	+++	+	++
Benefits			
Premium price: increase in sales	+++	++	+
Premium price: increase in price	++	++	++
Access to new commercial channels	+++	++	+++
EU incentives (quality certification)	+++	+	+

Source: Belletti et al. (2005).

would pay 20% more and 24% said that they would pay up to 50% more than for a traditional product. The figures show that all quality policies can count on a potential market of at least half of Italian consumers, and for many policies the proportion rises to three quarters. But consumer willingness to pay is linked to the perception of quality. In order to meet consumer requirements, the company has to combine different policies in a suitable and original way. It is only then that food chain operators will be able to command a higher price and obtain a higher market share.

Belletti et al. (2005) have studied the costs and benefits of three Italian PDO/PGI products. Table 3.2 shows the results of their study. A higher price and access to new marketing channels are the main factors that determine the benefits from these QAS.

(2) Improve cost efficiency in production and within the chain

The following example is provided by a case study of cooperative citrus production in Spain under EurepGAP conditions, compared with conventional citrus production. The results are given in Table 3.3. The most important difference found between both production systems relates to variable costs, which are 45% lower on average in the integrated production system compared with the conventional system. Although many of the differences in production costs can be attributed to the management system set up by the cooperative that obtained the EurepGAP certification, it is important to note that some of the cost savings are directly linked to the implementation of the EurepGAP system. For example, the costs of fertilisers, pesticides and herbicides are lower in the integrated system as the coop's technicians have adjusted the input doses to as close to the minimum values as possible in order to comply with EurepGAP standard specifications.

3.3.6. Benefits for consumers

It can be assumed that the consumer is more concerned by the inherent (intrinsic) attributes of food (related directly or indirectly to the

Table 3.3 Average production costs of EurepGAP oranges versus conventionally grown oranges

	EurepGAP 2003 (€/ha)	%	Comparison 2003 (€/ha)	%
Variable costs				
Irrigation water	259.91	10.88	685.19	17.48
Fertilisers	319.50	13.38	449.71	11.47
Pesticides, herbicides, …	220.95	9.25	464.60	11.85
Other inputs	0.00	0.00	62.37	1.59
Equipment operating costs	93.67	3.92	60.21	1.54
Labour costs	734.12	30.74	1217.36	31.05
Total variable costs	**1628.15**	**68.18**	**2939.44**	**74.97**
Fixed costs				
Equipment ownership costs	336.74	14.10	269.51	6.87
Crop depreciation	360.79	15.11	355.08	9.06
Holding maintenance	0.00	0.00	58.28	1.49
Taxes & insurance	62.50	2.62	298.44	7.61
Total fixed costs	**760.03**	**31.82**	**981.31**	**25.03**
EurepGAP certification and analysis costs (€/ha)	**205.4**			
Total costs (€/ha)	**2593.58**		**3920.76**	
Average production (kg/ha)	**23000.00**		**30000.00**	
Average costs €/kg)	**0.11**		**0.13**	

Source: Moll and Igual (2005).

production process, to safety, to origin, etc.); and by some ethical attributes (e.g. environment conservation, animal welfare, child labour, etc.) which are mostly non-experience attributes (that is to say, credence and search attributes), and linked to the reliability of the certification system. At the same time, it is assumed that consumers are less concerned by quality attributes which are of great interest to other stakeholders in the supply chain (quality management system; HACCP; plant requirements; and occupational, health and safety management system).

Many QAS, especially those aimed at market differentiation, are supposed to benefit the customer, especially the final consumer. One of the main potential benefits for the consumer is the communication of credence attributes of the final product. By definition, these attributes cannot be detected upon purchase or even consumption of the product itself. Typical examples are organic production, or animal welfare attributes. Credence attributes can be communicated to consumers through labelling.

3.4. Interaction of QAS with the internal and external market

QAS operate within the internal market[7]...

For agro-food products with a specified geographical name, particularly designations of origin, (but also agro-food products under other collective quality marks, for instance, Label Rouge in France), some degree of coordination is required between the stakeholders involved. This may entail coordination, both horizontally and vertically, in one of a number of forms. Producers and processors, while they may be independent firms, are linked in that they make a particular PDO product whose chief characteristics are set out in specifications. Research has shown the importance of coordination for traditional quality products, bringing out the various motivating factors (Boccaletti, 1992; Canali, 1997; Barjolle/ Chappuis, 1999). The most frequent reason is the need, at the end of the processing stage, to arrive at a product with specific characteristics; this entails monitoring all along the chain. So a collective strategy is needed. Research based on transaction cost theory points out that, for products requiring a collective strategy, savings on transaction costs are more important than savings on production costs, which are often limited on account of the differentiation strategy and the firms' location (Barjolle and Chappuis, 2000). This is especially the case when different links in the food supply chain are dependent on the specific quality of a product from an upstream stakeholder. Barjolle and Chappuis (2000) illustrated this with the case of cheese ripening, producing and dairy operations in Switzerland. QAS can in this case reduce the transaction costs between the stakeholders by the establishment of framework contracts which incorporate a mechanism to provide the sufficient product quality for the downstream food chain.

In any analysis from the viewpoint of competition policy, it is important to remember that designations of origin are not linked to the size of the market for the product. A number of countries have applied designations of origin to products of all kinds, with widely varying production structures. That means that reference markets are very different, and so are production volumes.

From the analysis of a number of cases where competition authorities have intervened in member countries, a number of risks of anti-competitive practices can be identified: (1) monopolistic cartels, (2) obstacles to new market entrants, and (3) over-administration or over-regulation.

(1) The risk of monopolistic cartels

In several cases adjudicated in EU Member States, the authorities found that groups had taken measures to control total supply. In most cases the total annual supply programme was

7 This section draws on an OECD (2000) publication.

accompanied by a detailed breakdown of output, through quotas allocated to producers. To ensure that producers kept to their quotas, penalty arrangements were in place. Direct price control measures were occasionally found, either in setting price ceilings for purchasing raw materials (above those ceilings, the consortium reduced the quantity purchased)[8] and or in imposing minimum resale prices on distributors[9]. Such behaviour may be an attempt to exert monopsony or monopoly power. Even when direct price control practices were not found, the final production price was consistently supported due to the overall restrictions on output.

In most cases the groups or consortia put forward three main lines of defence (Table 3.4). They claimed a legal foundation for their power to control production. They also argued that supply controls were essential for quality control. Finally, they pointed to the exceptions which some competition regulations allow to the general ban on understandings to restrict competition.

(2) The risk of obstacles to market entry

The risk of obstacles to new operators entering the market seems significant. The competition authorities observed practices restricting access

Table 3.4 Decisions by competition councils in EU countries on PDO products and other collective marks

Country date decision	Italy, Competition Council Decision No. 4352 of 24 October 1996 (Bollettino No. 43, 11 November 1996)
Sector/products	Parmigiano Reggiano and Grana Padano cheese.
Complainant	Firms belonging to the Grana Padano Consortium reported it for anti-competitive practices. The Industry Minister referred the matter to the Competition Council, asking it to examine the measures introduced by both consortia.
Contested practices	Approval of an output plan placing limits on total annual supply. Arrangement for allocating production among member firms. Market allocation agreement between the two consortia.
Content of decision	The practices were found analogous to agreements which restrict market competition (contrary to Article 2/1 of Italian Law 287/90 on competition and market supervision).
Country date decision	France, Competition Council Decision No. 94-D-41 of 5 July 1994
Decision	Decision concerning poultry production practices reported under the label-scheme
Sector/product	Label-scheme poultry sector
Complainant	French Ministry for Economic Affairs (1991)
Contested practices	Structural measures designed to reduce output. Procedures for admitting poultry breeders inasmuch as they are discriminatory. Price collusion, in particular prices paid by slaughterhouses to breeders. The attempt by slaughterhouses to set a minimum resale price for distributors. Contractual clauses between a quality group and member slaughterhouses, to allocate slaughter markets covered by the label.
Content of decision	While poultry production under the label scheme may be regarded as an economic advance, it was found that this advance was not dependent on the practices in question. The Council found a number of anti-competitive practices, but ruled that Article 7 of the Ordinance of 1 December 1986 had not been infringed (Ordinance No. 86-1243 of 1 December 1986 on free pricing and competition)..
Country date decision	Italy, Competition Council Decision No. 6549 of 12 November 1998 (Bollettino No. 46, 30 November 1998)
Sector/products	Gorgonzola cheese
Complainant	A firm which had temporarily left the consortium reported anti-competitive practices.
Contested practices	Introduction of supply quotas. Approval of an overall output plan, and an arrangement to allocate production.
Content of decision	The practices were found to be contrary to Article 2/1 of Law 287/90.

Source: OECD (2000).

8 As in the measures which the Parma ham consortium applied to pig breeders, and which slaughterhouses applied to their suppliers in the French "Label Rouge" scheme.

9 As with the slaughterhouses which attempted to set a minimum resale price for distributors, in the French "Label Rouge" scheme.

for new producers. In the case of the output plan adopted by the San Daniele Consortium, it was found that a firm which wanted to start producing ham using that name could apply to the consortium for a production quota. In no event could the quota exceed 3 % of the total output of consortium members. Similarly, in the French red label scheme, discriminatory measures were detected for the admission of poultry-breeders (OECD, 2000).

With designations of origin as defined and regulated within the European Union, the right is a collective one belonging to all those living in a geographical area, and cannot be transferred. The use of these concept may, in practice, lead to a risk of obstacles to market entry. In the case of designations of origin, the conditions of entry to producer groups with a geographical name are often set out in the group's own statutes; this leaves it free to set conditions that may not be consistent with the free play of competition. It is quite difficult to make a general evaluation on the possible risk of obstacles to market entry linked to the use of a designation of origin or of a certification mark. A case-by-case approach seems to be the most appropriate one.

(3) The risk of over-administration or over-regulation

It should be noted that excessive bureaucracy surrounding designations of origin can only be harmful for producers and consumers alike. It could greatly slow the registration process. Similarly, any administrative arrangements for products with designations of origin might provide producers and processors with insufficient stimulus. They might eventually associate the success of their product with the right to use the designation. As the designation itself becomes a hallmark of quality, there is a danger that the producer might not respond to market signals. The whole process might discourage innovation.

While coordination in a food chain under designation of origin is recognised to be important, there is still a risk that coordinating channels, and the agreements that result, will impede proper market operation. There is a danger that producers will push market prices up by cutting the volume of total supply. Placing ceilings on supply, and allocating quotas to producers, seems rather to be a way of overcoming structural failures in control systems. Groups of producers (consortia) state that production standards can be maintained only via ceilings on supply, rather than by other methods of quality control. It is noteworthy that most of the output plans criticised by EU competition authorities are based on historical or territorial criteria. Starting from a given reference year, total supply is allocated among producers on the basis of that year's quotas. Unless production quotas are allocated on grounds of relative efficiency, consumers are likely to pay more because supply is held down and at the same time forgo the benefits that enhanced productivity would bring. Producers, compelled to stay within their quotas, lack the incentive to operate more efficiently. There may as well be an impact on the quality of the end product.

The large amount of regulations and documentation requirements become a source of "bad bureaucracy", especially for small and medium sized enterprises (Theuvsen, 2004). These problems significantly reduce the willingness to implement the necessary programs and thus reduce intrinsic quality motivation. Bureaucratic features can be identified in all QAS in the food supply chain, e.g. IKB, Label Rouge and the BRC Standard. One recent example is the Quality and Safety (QS) system which has been introduced into the German meat sector since 2001 and is now spreading out to other subsectors (vegetables and fruits, potatoes). It views itself as an alliance in the food supply chain for active consumer protection. Similar to other QAS, QS relies on the definition of standards, regular third-party audits and certifications. Bureaucratic features of QS include (www.q-s.info; Theuvsen and Peupert, 2003):

– Goal-orientation: QS officially aims at recovering and strengthening consumers' trust in the correct and quality-conscious

production of food, securing food quality and guaranteeing animal-friendly and environmentally safe production processes.

- Written rules: The standards of the QS system are laid down in detail in the QS System Manual, which specifies production and handling requirements for each part of the food chain – feed producers, farmers, slaughterhouses, meat processors, butcheries and retailers.
- Specialisation / hierarchy of authority: QS clearly defines the responsibility of each system participant for the correct and complete documentation of production processes, the deployment of self-assessment procedures and the observance of rules laid down in the QS System Manual. These personal responsibilities are symbolically strengthened by the obligation to prefer written contracts (for example, between farmers and veterinary surgeons) and to personally sign important documents (such as delivery notes).
- Written communication and documentation: According to the QS System Manual, participants are obliged to document their production processes and identify, describe and document critical control points.
- Impersonal rules: Infringements of the QS System Manual are punished by a neutral sanction committee. The auditors are strictly obliged to neutrally audit the participants in the QS system.
- Specialized qualifications: In the QS system, auditors, veterinary surgeons and salmonella laboratories have to prove they have certain qualifications and work experience. Furthermore, several human resource development activities are compulsory.

Moll and Igual (2005) concluded, after analysing the EurepGAP requirements, some of the extra costs that EurepGAP certified farmers have to assume, unlike a conventional farmer, include: qualified technical assessment to implement integrated pest or integrated crop management techniques, record keeping of all the agricultural practices done on each farm, EurepGAP registration fee (based on the number of farms registered), and last but not least, external audit and EurepGAP certification fees. The EurepGAP certification is valid for one year. After that period, the farmer group must be audited and certified again. Apart from the record keeping of all the farming operations, the farmer group must have implemented a quality and traceability system and a EurepGAP procedure manual. Furthermore, three different inspections are needed to comply with all the protocol points: farmer internal self-inspection, farmer group internal audit and external verification. In addition, record keepings must be maintained for at least two years. Therefore being a member of a cooperative may help farmers to face the requirements needed to produce high quality fruit and vegetables, not only for the technical assistance or the coordination of the tasks needed to fulfil the certification process, but also for the externalisation of costs that an organisation could offer to their members.

Cross-border issues

Numerous disputes involving the use of geographical denominations have impeded or may impede trade. The difficulty of reaching an agreement on the protection and use of such names may prevent trade agreements from being concluded. The first international agreements relating to the subject date back to the end of the 19th century. Since then, the situation has moved on and new international measures have become necessary. International protection for geographical indications has improved with the signature of the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS).

The use of geographical names has for a long time given rise to disputes, which national courts in the European Union have been called upon to resolve (see Table 3.5). In some cases a country which protected geographical names (as

Table 3.5 Example of cross-border issues in EU countries stemming from the use of geographical names

Complainant	Consorzio del Gorgonzola v. the German company Kaserei Champignon
Contested practices	The use of the *Cambozola* mark by this company for a marbled cheese. Consorzio del Gorgonzola was against the use of this mark, since Gorgonzola marbled cheese was registered as a designation of origin at European level
Content of decision	The EU Court of Justice decided that *Cambozola* is evocative of the Gorgonzola protected designation of origin for two reasons. First, there is a phonetic similarity; secondly, both names refer to the same kind of product, a marbled cheese. Article 13 of EU Reg. 2081/92 states that registered names shall be protected against any misuse, imitation or evocation even if the true origin of the name is indicated (…). But Art. 14 of EU Reg. 2081/92 stipulates that the use of a trademark referring to a geographical name may continue notwithstanding the registration of a designation of origin or geographical indication if it was registered in *good faith* before the date in which application for registration of a designation of origin or geographical indication was lodged. The *Cambozola* mark had been registered as a trademark before the recognition of Gorgonzola as a designation of origin at European level; the role of verifying the presence of *good faith* on the basis of existing national and international legislation falls to the national courts. These courts must also verify whether the mark might mislead consumers regarding the nature, quality and origin of the product. The German Court of Justice refused Consortio del Gorgonzola's petition. Consorzio del Gorgonzola decided to appeal, but the appeal was refused. Eventually, the German Constitutional Court refused the last appeal and use of the name *Cambozola* in Germany was definitively authorised.
Complainant	Consorzio di Parma v. ASDA Stores Ltd, a British supermarket chain
Contested practices	To prevent the supermarket chain from selling Parma ham unless it had been sliced and packaged in Italy. It was argued that Parma ham could only be described as Parma ham if it complied with Italian law and that slicing and pre-packaging affected the quality of the ham (based on EU regulations).
Content of decision	The action failed at first. The British judge concluded that "the EU regulations make Parma ham a protected designation of origin, but do not incorporate the Italian rules on slicing and packaging. Although the Italian rules prohibit the sale of Parma ham which has been presliced and packaged in Britain as Parma ham, they do not have direct effect in Britain"; nevertheless, in 2003, the EU Court of Justice prohibited the sale of Parma ham presliced and packaged outside the area of production (Proceeding n° C-108/01, Sentence dated 20.05.2003)

Source: OECD (2000).

designations of origin or geographical indications) would criticise another for lack of protection or refusal to afford protection. In others there has been an attempt to enter a foreign market by giving a product a name expressly protected in the importing country. Occasionally, the protected geographical name of an agricultural product has been used for a good produced by another industry.

Similar QAS are built up in different countries and regions to protect local producers. In some cases QAS may be deemed to be trade barriers supported by local or national authorities (Jahn et al, 2004). This issue is difficult to support with official documents but during the stakeholder consultation process the following has been mentioned: One issue of QAS in relation to the internal market is that some of them may require the producer/processor to be of a certain nationality or based in a certain country. Without further justification as to the specific quality of the production/processing area or the skills required to make the product, this represents an obstacle to the free movement of goods in the internal market.

…but they have to be considered also at worldwide level.

When considering options in the EU, the international legal environment must be taken into account.

Regarding QAS, the most relevant legal framework is currently set by the World Trade Organization (WTO). During the Uruguay Round, concluded in 1994, agriculture was included as a significant component in trade talks for the first time. In particular, the Uruguay Round led to two binding agreements relevant to food regulations: the Agreement on the Application of Sanitary and

Phytosanitary Measures (SPS Agreement) and the Agreement on Technical Barriers to Trade (TBT Agreement). The SPS and TBT Agreements set important parameters governing the adoption and implementation of food quality and safety measures. They are designed to minimise the discriminatory and adverse effects of food regulations on trade and at the same time allow establishment of the necessary safety measures. These issues are also being discussed during the current Doha Development Round.

The SPS deals with the application of food safety and animal and plant health regulations to international trade in animals, plants and their products. The negotiation of the SPS Agreement was principally motivated by concerns that, unless clear rules were made regarding the use of SPS measures, the gains achieved in the negotiations on agricultural trade could be eroded by the imposition of new or additional restrictions in the form of SPS measures. The SPS Agreement established a Committee on Sanitary and Phytosanitary Measures (the "SPS Committee") to provide a forum for information exchange and discussions on SPS issues affecting trade, on issues relating to Members' compliance with the Agreement and to ensure an orderly implementation of the Agreement. Representatives of several international intergovernmental organisations are invited as observers at the SPS Committee meetings, including the Codex Alimentarius Commission, the Food and Agriculture Organization of the United Nations (FAO) and the World Health Organization (WHO).

The objective of the TBT Agreement is to prevent the unjustified use of national or regional technical requirements, or standards in general, as technical barriers to trade. The TBT covers all types of standards, including those related to food, such as standards on quality, nutritional requirements, labelling and methods of analysis. In connection with the TBT Agreement and quality assurance, the issue of the impact of private-sector standards on international trade was raised by St Vincent and the Grenadines in the TBT Committee in June 2005[10], which referred specifically to "EurepGAP" as an additional barrier to outside suppliers wishing to enter the EU market.

While conducting official inspections in third countries, the Food and Veterinary Office of the European Commission was on several occasions presented with EurepGAP certification by national competent authorities as part of their official control systems. EurepGAP views itself as complementary to official controls. Nonetheless, NGOs point out that there is confusion over the legal status of EurepGAP in developing countries (Findings of the Informal Seminar of 7 December 2005 on private food standards and their implications for developing countries (DG SANCO and DG TRADE)).

The Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) also applies, in particular to measures aimed at safeguarding geographical indications. Geographical indications are intellectual property, under Article 23 of the TRIPS Agreement and, like trademarks and commercial names, they are used to identify products. They do not protect products or production methods but rather confer to all producers from a given geographical area the exclusive right to use a distinctive sign to identify their products. They can become a particularly worthwhile marketing tool, as they enable the producers to convey a considerable quantity of information to the consumers.

However, geographical indications are not undisputed. Several examples of the international debate are available. The EU claims, for instance, that the present level of protection under Article 22 of the TRIPS does not prevent the usurpation and illegitimate use of geographical indications, e.g. "Canadian Parma Ham"; it is sufficient to

10 http://www.wto.org/english/news_e/news05_e/sps_june05_e.htm.

simply indicate a product's true origin in small print or on the back only, in order for such illegitimate use of a geographical indication not to be misleading and therefore to be permissible. By contrast, the label "Chilean Tequila" or "Napa Valley-type Red Wine, produced in Argentina" is – as consequence of Article 23 of the TRIPS – unlawful. In order to guarantee a more effective level of protection to the geographical indications of all products, an extension of the protection of Article 23 of the TRIPS to products other than wines and spirits is under discussion in the WTO Doha Round.

Geographical indications for agro-food products are a major asset of the European model of agriculture, acting not only as a tool to protect consumers' interests and reinforce confidence in high-quality and typical products, but also as a legal and commercial basis for the development of rural areas, the preservation of cultural heritage and the promotion of SMEs.

Two cases were recently brought against the EU by the United States and Australia before the WTO Dispute Settlement Body. These cases[11], decided in April 2005, concerned the compatibility with WTO rules (under TRIPS and TBT, *inter alia*) of Council Regulation (EEC) No 2081/92 of 14 July 1992 on the protection of geographical indications and designations of origin for agricultural products and foodstuffs. In reaction to this Panel ruling, Council Regulation (EC) No 510/2006 of 20 March 2006 and Council Regulation (EC) No 509/2006 of 20 March replaced the old Regulations.

On 1 September 2005 the International Organization for Standardization (ISO) published a new standard: ISO 22000 for safe food supply chains. It provides a framework of internationally harmonised requirements for the global approach that is needed. It was developed in close cooperation with the Codex Alimentarius Commission. ISO 22000 is designed to allow all types of organisation within the food supply chain to implement food safety management systems. It is too early to judge whether or not this will establish an internationally accepted standard for safe food supply chains.

11 http://www.wto.org/english/tratop_e/dispu_e/cases_e/ds174_e.htm; http://www.wto.org/english/tratop_e/dispu_e/cases_e/ds290_e.htm).

4. Is there a need for action?

The currently existing schemes have a number of strong points, including, in particular:

- the variety and richness of the high number of schemes, which are themselves a strength;
- the "de facto" regulatory ability of some (perhaps many) of them, which shows the effectiveness of some QAS;
- the level of quality reached, which should be preserved and developed;
- the positive management arrangements in existing QAS.

Some inefficiencies in the system might need to be eliminated or mitigated, in particular:

- the risk of confusion for users/consumers;
- the risks of duplication and overlapping between similar schemes resulting in increased costs for the producers involved;
- the risk of excessive costs or complicated management for producers, in particular those that are potentially effective but structurally weak;
- the risk of exploitable use on the part of stronger production chain operators;
- the stress caused by a lack of socio-economic or ethical objectives (depending on the desirable attributes and possibly beyond), which could become relevant to the production system and future users.

The stakeholder consultation process undertaken in 2005 has generated a number of policy options. While some of them are mutually exclusive, they show the whole range of possible approaches that could be pursued in the coming years:

(1) No intervention at the EU level: No policy intervention is necessary at EU level; the market is regarded as working without major market failures. Quality assurance should remain voluntary and based on private or national/regional public initiatives.

(2) Regulation of mutual recognition and benchmarking: Regulation of mutual recognition and benchmarking to help supply chain operators reduce costs and save time related to the overlapping requirements of different QAS. Nevertheless, such an initiative should not take away the possibility of market differentiation through specific QAS systems.

(3) Standardisation of existing quality assurance schemes/general rules for implementation: Creation of a "meta-standard" that would define the minimum requirements for QAS. This could be limited to general rules on implementation and notification or could go into greater detail.

(4) European registry of quality assurance logos: A regularly updated European registry of the current quality schemes applied in the different EU countries could be created, listing the main features of these schemes. Such an instrument would enable the European Commission to continuously monitor the development of QAS with greater transparency.

(5) European logo confirming compliance with EU regulations.

(6) Further development of existing EU schemes: Further development of existing EU schemes PDO, PGI, TSG and "organic farming"; The question remains whether additional quality aspects could be covered by similar concepts.

References

- Barjolle D., Chappuis J.M. (1999). «Produits typiques dans des zones défavorisées et coordination des acteurs dans les filières: une approche par la théorie des coûts de transaction», Signes officiels de qualité et développement agricole. SFER 14-15 April, Colloquium.
- Barjolle D., Chappuis J.-M. (2000). "Transaction Costs and Artisanal Food Products." Paper presented at the Annual Meeting of the International Society for New Institutional Economics (ISNIE), 22-24 September 22-24, Tübingen. [online available at http://www.isnie.org/ISNIE00/Papers/Barjolle-Chappuis.pdf].
- Belletti G., Burgassi, T., Marescotti, A. and S. Scaramuzzi (2005). "The effect of certification costs on the success of PDO/PGI", paper presented at the 92nd EAAE seminar, 2-4 March, Göttingen.
- Boccaletti S. (1992). "Il ruolo delle produzioni tipiche e delle denominazioni d'origine nella salvaguardia della competitività della produzione agro-alimentare italiana", Atti de XXIX convegno di studi della SIDEA, 17-19 September, Perugia.
- Canali G. (1997). "The Evolution of Food Distribution Systems and its Implications on the Marketing of Typical Products", Typical and traditional productions: Rural Effects and Agro-industrial Problems, 52nd EAAE Seminar, 19-21 June, Parma.
- Casadesus, M. and G. Gimenez (2000). "The benefits of the implementation of the ISO 9000 standard: Empirical research in 288 Spanish companies", The TQM Magazine, 12(6), pp. 432-441.
- DEIAgra, University of Bologna (2005). Food chain dynamics and quality certification. Research study
- Dries, L., Reardon, T. and J.F.M. Swinnen (2004). "The Rapid Rise of Supermarkets in Central and Eastern Europe: Implications for the Agrifood Sector and Rural Development, Development Policy Review, 22(5), pp. 525-556.
- Engel, E. (1895). Die Lebenskosten belgischer Arbeiterfamilien früher und jetzt. Ermittelt aus Familienhaushaltsrechnungen und vergleichend zusammengestellt. Bulletin of the International Institute of Statistics, 9, pp. 57 et seq.
- European Commission (2006). Risk Issues. Special Eurobarometer 238 / Wave 64.1 – TNS Opinion & Social. [available online at http://europa.eu.int/comm/public_opinion/archives/ebs/ebs_238_en.pdf]
- Food For Thought (FFT) (2005). Information database. [online available at http://www.fft.com]
- Grievink J.W. (2003). The changing face of the global food industry. Presentation at the OECD Conference, The Hague, 6 February 2003; and Food For Thought (FFT) (2005).
- Grunert, K.G. (2005). Food quality and safety: consumer perception and demand. European Review of Agricultural Economics 32(3), 369-391.
- IGD, (2004). Central Europe and Russia. Assessing the opportunities, IGD, Watford; LZ (Lebensmittelzeitung) (2005). [online available at http://www.lz.net]
- INDICOD (2005). La qualità a supporto della competitività della filiera agroalimentare italiana. Study prepared by Nomisma – Società di studi economici S.P.A. [ondine available at http://www.indicod-ecr.it/studiricerche/agro_studiricerche/qualita.php]

- Jahn, G., Schramm, M. and Spiller, A. (2004). Trust in Certification Procedures: An Institutional Economics Approach Investigating the Quality of Audits within Food Chains. Paper presented at 14th Annual World Food and Agribusiness Forum, Symposium and Case Conference, Montreux, Switzerland, June 2004.
- Lampkin, N. (2004). Europe: The development of organic farming between 1985 and 2003. European statistics on organic land area and number of farms collected by the Organic Farming Unit at the Institute of Rural Sciences, University of Wales, Aberystwyth.
- Marsden T. and N. Wrigley (1996). "Retailing in the food system and the regulatory state", in Wrigley, N. and M. Lowe (eds.) Retailing, Consumption and Capital: Towards a New Retail Geography, Longman, Harlow, pp. 33-47.
- Moll, E.M.P. and J.F.J. Igual (2005). "Production costs of citrus growing in the Comunidad Valenciana (Spain): EurepGAP protocol versus standard production", paper presented at the 92nd EAAE seminar, 2-4 March, Göttingen.
- OECD (2000). Appellations of origin and geographical indications in OECD member countries: economic and legal implications, COM/AGR/APM/TD/WP(2000)15/FINAL.
- OECD (2005). Agricultural Policies in OECD Countries. Monitoring and Evaluation, OECD Publications, Paris.
- PMR (2005). Retailing in Russia and CEE 2004/2005 [online available at http://www.ceeretail.com]
- Reardon, T., C.P. Timmer, C.B. Barrett and J. Berdegué, (2003). "The Rise of Supermarkets in Africa, Asia, and Latin America," American Journal of Agricultural Economics, 85 (5), December: 1140-1146.
- SUS-CHAIN (2005). Marketing sustainable agriculture: an analysis of the potential role of new food supply chains in sustainable rural development. [Results available online at http://www.sus-chain.org/results/index.htm]
- Theuvsen, L. and Peupert, M. (2003). "Aus der Krise geboren: Ein Siegel für Qualität und Sicherheit im Agribusiness." Qualität und Zuverlässigkeit 48: 416-418.
- Theuvsen, L. (2004). "On good and bad bureaucracies. Designing effective quality management systems in the agrofood sector." Paper presented at the 84th EAAE Seminar: Food Safety in a Dynamic World, Zeist.

Annex 1: Food supply chain configuration

This annex discusses the structure of the food supply chain levels in the different EU Member States.

Farm sector

Table A.1 presents data on farm structure in the European Union. The first characteristic of agriculture in EU-25 is that farm structures differ widely across different Member States. Four major groups[12] of Member States can be (arbitrarily) identified on the basis of the distribution of farms by size class. The Southern European Member States and the new Member States from Central and Eastern Europe have a high share (> 67%) of small-scale farms (< 10 ha). This size distribution is confirmed by the small average farm size (in terms of utilised agricultural area) in South and Central/Eastern Europe. The average utilised area of farms lies below the EU-25 average of 16 ha in all Southern and Central/Eastern European Member States with the exception of the Czech Republic, Estonia, Slovakia and Spain. These exceptions support the idea of a dual farm structure in these countries with a large number of very small farms co-existing with a small number of very large farms. Member States in Northern Europe (including Luxembourg and Ireland) have the lowest share of small-scale farms (< 34%). Western European farm structures (including

Table A.1 Farm structure in EU-25, 2003

	UAA per farm	Δ farms[1] 1993 – 2003	Share of farms per size class (%)			
	(ha)	(%)	0 – 2 ha	2 – 10 ha	10 – 50 ha	> 50 ha
Belgium	25	-28	15	26	44	15
Czech Republic	79	-	41	27	18	14
Denmark	55	-34	2	18	44	35
Germany	41	-	7	31	42	20
Estonia	22	-	21	50	24	6
Greece	5	+1	48	41	10	1
Spain	22	-18	31	39	21	9
France	45	-23	15	21	30	33
Ireland	32	-15	2	18	62	18
Italy	7	-21	55	32	11	2
Cyprus	4	-	72	22	5	1
Latvia	12	-	25	49	23	3
Lithuania	9	-	13	70	15	2
Luxembourg	52	-28	11	18	26	46
Hungary	6	-	81	13	5	1
Malta	1	-	87	13	0	0
Netherlands	24	-29	15	29	44	12
Austria	19	-22	12	40	43	6
Poland	7	-	44	40	16	1
Portugal	10	-27	49	38	10	3
Slovenia	6	-	22	62	15	0
Slovakia	30	-	81	13	3	3
Finland	30	-26	3	20	61	17
Sweden	46	-24	2	23	46	28
United Kingdom	57	+15	25	21	27	27

[1] For Sweden, Finland and Austria: change between 1995-2003. The increase in number of farms for the UK contradicts with other sources (e.g. DEFRA).
Source: Eurostat.

12 Although the authors recognise that Member States, and often also regions within Member States, have specific unique characteristics that are lost when broad generalisations are made, this grouping of Member States can be useful for identifying the major drivers of change in the next section.

Table A.2 Main agricultural sub-sectors in EU-25, 2004 (share of total value of agricultural production)

	Milk	Cattle	Pigs	Fresh veg.	Fresh fruit	Wine	Wheat	Maize	Olive oil
Belgium	12	15	21						
Czech Rep.	18		12				15		
Denmark	28		17						
Germany	19		13						
Estonia	34		13						
Greece				11	17				13
Spain				14	13				
France	12	13				13			
Ireland	24	32							
Italy				12	11	11			
Cyprus	16			12	17				
Latvia	22								
Lithuania	22		11				12		
Luxembourg	32	23							
Hungary			11					14	
Malta	15		14	23					
Netherlands	17		10						
Austria	16	14	12						
Poland	14		16						
Portugal	10			14	12	10			
Slovenia	14	14				10			
Slovakia	13		12						
Finland	27	10							
Sweden	24	11							
UK	17	16					10		
EU-25	13								

Austria) lie in between these two extremes. In terms of dynamics in the sector, the number of farms decreased significantly in most EU-15 Member States over the period 1993–2003.

Not only farm structure but also the importance of different sub-sectors of agriculture differs between Member States. Table A.2 shows the main agricultural products per Member State (defined as products accounting for at least 10% of total agricultural production for that specific Member State). The Southern Member States are ahead of the other Member States in terms of the importance of fresh fruits and vegetables, olive oil and wine. Furthermore, in countries like Luxembourg and Ireland, more than half of total agricultural production is accounted for by cattle and milk farming. Overall, milk is the main sector of production in European agriculture (13% of the total value of agricultural production in EU-25).

Processing sector

Table A.3 shows that the structure of the processing sector also varies highly between different EU Member States. In terms of turnover per firm, the largest processing companies are located in Denmark, Ireland, the Netherlands and the United Kingdom. In terms of employment per firm, relatively large firms are found in some Central Eastern European countries, e.g. Estonia, Latvia and Slovakia. However, these high employment levels are reflected in lower average labour productivity (Table A.4). The food processing sectors in the new Member States especially display lower average labour productivity.

Looking at the changing structure of the food processing sector (Table A.3) growth can be observed in average turnover per firm throughout EU-25 (with the exception of

Table A.3 Structure of the food processing sector in EU-25, 2003

	Avg. number of employees			Avg. turnover (million €)		
	2003[1]	Δ since '99	Δ since '95	2003[1]	Δ since '99	Δ since '95
Belgium	12.5	+1.4	-	3.74	+0.93	-
Czech Rep.	-	-	-	1.68	-	-
Denmark	46.1	+2.6	+8.1	10.74	+2.51	+3.63
Germany	24.4	+4.8	-	4.14	+0.85	-
Estonia	41.2	-1	-	1.99	+0.75	-
Greece	-	-	-	-	-	-
Spain	12.5	+1.5	-1.1	2.55	+0.74	+0.54
France	9.5	+0.5	-	2.08	+0.20	-
Ireland	73.7	+4.7	+7	32.61	+8.16	+13.31
Italy	6.3	0.0	-0.4	1.36	+0.08	+0.23
Cyprus	11.2	-	-	1.00	-	-
Latvia	40.9	-	-	-	-	-
Lithuania	34.7	-	-	0.77	-	-
Luxembourg	-	-	-	-	-	-
Hungary	19.1	-36.5	-	1.35	-1.35	-
Malta	-	-	-	-	-	-
Netherlands	27.4	-0.4	+3.1	10.01	-	+2.95
Austria	18.3	-	-	2.89	-	-
Poland	24.0	-	-	1.11	-	-
Portugal	12.3	-1.0	-2.3	1.30	+0.07	+0.12
Slovenia	-	-	-	1.63	-	-
Slovakia	61.6	-	-	3.44	-2.17	-
Finland	21.0	-0.2	-2	4.72	+0.79	+0.58
Sweden	-	-	-	-	-	-
U.K.	66.6	+3.4	+7.5	13.81	+2.24	+3.59

[1] *Or the most recent year for which data are available.*
Source: Eurostat.

Hungary and Slovakia). In terms of changes in average employment, the picture is somewhat mixed. Countries such as Denmark, Ireland and the United Kingdom display strong growth in average employment (indicating consolidation of the sector and concentration of employment in fewer but larger firms). Other countries like Estonia, Portugal and Finland have recorded negative growth in average employment. This does not necessarily mean that the food sector has deconcentrated over time and that more, but smaller firms have entered the market. It is more likely that the lower average employment rate is the result of internal restructuring within processors, where rationalisation (perhaps mechanisation) has led to redundancies.

Table A.4 Average labour productivity of the processing sector in EU-25 (in million € per employee), 2003

	Turnover/employee		Turnover/employee
Belgium	0.3	Luxembourg	-
Czech Republic	-	Hungary	0.07
Denmark	0.2	Malta	-
Germany	0.2	Netherlands	0.4
Estonia	0.05	Austria	0.2
Greece	-	Poland	0.05
Spain	0.2	Portugal	0.09
France	0.2	Slovenia	-
Ireland	0.4	Slovakia	0.03
Italy	0.2	Finland	0.2
Cyprus	0.09	Sweden	-
Latvia	-	United Kingdom	0.2
Lithuania	0.02		

Source: Eurostat.

Table A.5 Dairy processing companies per size class (in litres of milk collected) in EU-15, 1994-1997

Litres	1994		1997		Δ '94 – '97
	Number	(%)	Number	(%)	(%)
< 5 000	4 246 000	75	4 327 000	77	+2
5 001-20 000	681 000	12	642 000	12	-6
20 001-50 000	315 000	6	266 000	5	-16
50 001-100 000	192 000	3	142 000	3	-26
100 001-300 000	210 000	4	160 000	3	-24
> 300 000	21 000	0	61 000	1	+190
TOTAL	5 665 000	100	5 598 000	100	-1

Source: Eurostat.

Looking at the specific case of the dairy processing sector in EU-25 (remembering that Table A.2 showed that milk is the main sub-sector of agriculture within the EU), Table A.5 shows the number of dairy companies in EU-25 in different size classes (in terms of litres of milk collected by the dairy). By far the majority of EU dairies are in the smallest size category (5 000 litres of milk collected) and their share of the total is growing (75% in 1994, 77% in 1997). However, at the same time the share of the largest dairy processors is growing as well and their number tripled over the period 1994–1997, from 21 000 to 61 000. While both the smallest and the largest dairies are growing in number, medium-sized dairies are declining. This points to an interesting evolution in the EU dairy market towards a bimodal processing structure.

The study of seven EU countries performed by the University of Bologna (DEIAgra, 2005) points to the conclusion that, in general, food industry sub-sectors are more concentrated in smaller countries (see Table A.6). Concentration is particularly high in the Northern countries, but more modest in France, Spain and Poland, with the Czech Republic in between. The dairy sub-sector in France and the olive oil sub-sector in Spain are two significant exceptions. In the Northern countries and the Czech Republic, brands dominate the market, especially in the grain and dairy sub-sectors. In France and Spain brands take high market shares for dairy products, wine and olive oil, while in Poland this is the case for dairy products only. Unbranded goods dominate the fruit and vegetable market in France, Spain and Poland. The meat market is dominated by unbranded goods in the Czech Republic and Poland, while in the other countries this market is more or less equally split between producer brands and unbranded goods.

Table A.6. Concentration ratio (in percent) of the top three firms in each sector

Food industry subsectors	CZ	DK	FIN	FR	PL	SP	SW
Grain	41.3	49.7	55.1	21.5	22.3	15.3	54.7
Fruit and vegetables				23,0	29.2	16.4	
Olive oil						40.3	
Wine				22.4		24.7	
Dairy	25.7	76.8		40.2	18.7	26.7	
Meat	30.9	62.2	53.3	20.8	25.4	20.3	57.7
Fish		48.2	35.3	13.9		11.5	57.0

Source: Grievink J.W. (2003); and Food For Thought (FFT) (2005).

Retail sector

One of the main characteristics of the food retail sector in Europe is its high (and growing) degree of concentration. Table A.7 shows a particularly high degree of concentration in the food distribution sector in Northern and Western Europe, where large retail chains dominate at the expense of traditional small retailers. In Southern and Central/Eastern Europe, concentration in the food retail sector is generally lower. Especially in Poland the consolidation process is lagging behind. This was confirmed in a recent study by the OECD (2005) which found that after EU accession consumer prices had gone up only on the Central/Eastern European markets where competition in the processing and retail sector was still low. According to the same study, retail prices had gone up in Poland, while they actually fell after accession in countries like the Czech Republic, Hungary and Slovakia where competition between retailers is much stronger.

Apart from growing consolidation in the retail sector, Dries et al. (2004) have identified several other factors in the dynamics of the transformation of the retail sector in the Central/Eastern European Member States: (1) rapid increase in the market share of the modern retail sector; (2) move of the modern retail sector from capital cities to secondary cities and rural areas; (3) multinationalisation of the retail sector. For example, looking at foreign direct investment in the retail sector in individual Central/Eastern European Member States, the strong position held by international retail companies is immediately noticeable. The number of foreign companies in the top-ten retailers in 2004 was 10 in the Czech Republic (approximately 62% market share); 9 in Poland (30%) and 6 in Slovakia (38%) (IGD, 2004; LZ, 2005) Interestingly, these international retail companies are mainly Western European investors. In 2003 the five companies that generated the highest aggregate sales revenue in Central/Eastern Europe were Metro, Tesco, Rewe, Tengelmann and Auchan (PMR, 2005).

Table A.7 Market share of the top-5[1] retail companies in EU-25

Belgium	80
Czech Republic	33
Denmark	78
Germany	64
Estonia	-
Greece	-
Spain	44
France	64
Ireland	-
Italy	39
Cyprus	-
Latvia	46
Lithuania	-
Luxembourg	-
Hungary	40
Malta	-
Netherlands	68
Austria	-
Poland	18
Portugal	-
Slovenia	-
Slovakia	25
Finland	80
Sweden	95
United Kingdom	56

[1] Top-3 for Denmark, Spain, France, Spain, Finland and Sweden.
Source: DEIAgra, University of Bologna (2005); SUS-CHAIN project (2005); IGD (2004).

In general, further concentration is expected in the retail sector in Member States where large-scale retail is already predominant, i.e. the Northern and Western European Member States, plus further expansion of the large-scale retail chains, together with increased concentration and the entry of foreign (often multinational) operators where traditional small retailers still hold a significant share of the market, i.e. in the Southern and Central/Eastern European Member States.

Table A.8 Share of food in total household expenditure and GDP per capita in EU-25, 2003

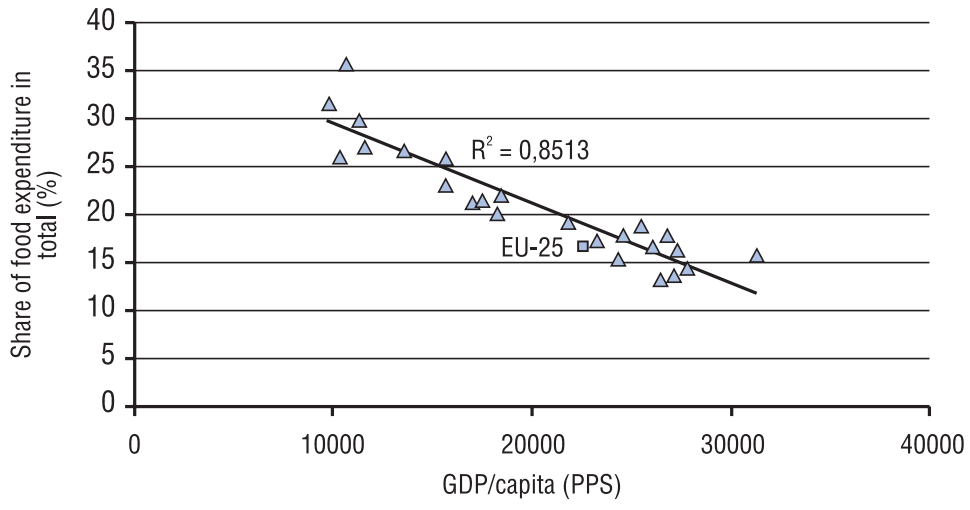
	Food (%)	GDP/cap (PPS)		Food (%)	GDP/cap (PPS)
Belgium	17.7	26 800	Luxembourg [1]	21	49 500
Czech Republic	25.8	15 700	Hungary	26.5	13 600
Denmark	16.2	27 300	Malta	22.9	15 700
Germany	15.3	24 300	Netherlands	14.2	27 800
Estonia	29.7	11 300	Austria	13.6	27 200
Greece	20	18 300	Poland	26	10 400
Spain	19.2	21 800	Portugal	21.1	17 000
France	17.7	24 600	Slovenia	21.3	17 500
Ireland	15.7	31 300	Slovakia	27	11 600
Italy	17.1	23 300	Finland	18.6	25 500
Cyprus	22	18 400	Sweden	16.5	26 100
Latvia	31.7	9 600	United Kingdom	13.1	26 400
Lithuania	35.4	10 700	EU-25	16.6	22 600

[1] Figure for Luxembourg appears questionable as it would imply total food expenditures to be more than double as those of for example Belgium, Germany, Netherlands, France.
Source: Eurostat.

Consumers

According to Engel's law (Engel, 1895), as consumer income increases, the share spent on food falls. Table A.8 and Figure A.1 highlight the differences between consumers from different EU Member States in terms of purchasing power and the share of food expenditure within total household consumption expenditure. Again two groups of Member States predominate: the Northern and Western Member States, where purchasing power is above and the share of food expenditure is below or around the EU average, and the Southern and Central/Eastern Member States, where purchasing power is below (except for Italy) and the share of food expenditure is above the EU average.

Figure A.1 Food expenditure and income per capita in EU-25[1], 2003



[1] Data for Luxembourg not included, as the figure appears to be questionable.
Source: Eurostat.

Annex 2: Certification and consortium costs in three PDO/PGI cases[13]

The Olio Toscano PGI

The firms using the PGI ask for the services of the Consortium[14] (Consorzio di tutela dell'Olio di Oliva toscano) which supports the process of documentation and traceability of the product and puts the results of this activity at the disposal of the certification body, thus limiting the direct involvement of the Certification body and hence the associated costs. The structure of Tuscana Olive Oil direct certification costs (see Table A.9) is strongly influenced also by the nature of controls, and in particular by the costs of organoleptic and physical-chemical analyses, that are fixed for each bottling lot of oil. These costs have to be borne only by the firms that bottle the oil (olive growers, olive mills, or specialised professional bottlers), which have to pay a minimum fee of €309.87 (+ VAT) per lot: this amount includes all the analyses, control and bureaucratic costs, and the net quota due to the certification body. For lots exceeding 800 kg the bottling firms pay an amount per bottle (variable on the basis of the bottle capacity, i.e. €0.34 for 1 l and €0.26 for 0.75 l).

The "Vitellone Bianco dell'Appennino Centrale – Chianina" PGI

Vitellone Bianco dell'Appennino Centrale – Chianina PGI beef is a typical product made of a

Table A.9 The Olio Toscano PGI: direct certification costs and consortium costs.

	PGI certification costs	Consortium costs
Agricultural phase		
Proportional share	-	-
Fixed share (per capita)	€15.00/year	€15.00/year (+ €11.00 in the 1st year)
Milling phase		
Proportional share	-	-
Fixed share (per capita)	€15.00/year	€15.00/year (+ €11.00 in the 1st year)
Bottling phase	**Lots <800 kg**	**Lots >=800 kg**
Proportional share	-	0.26 €/kg
Fixed share (per capita)	€ 309.87	-

Source: Belletti et al. (2005).

Table A.10 Chianina PGI: direct certification costs and consortium costs.

	PGI certification costs	Consortium costs
Breeding phase		
Proportional share	€1.30/head	€19.36/carcase
Fixed share	-	€25.00/year (+€25.00 for inscription)
Sectioning phase		
Proportional share	€19.36/carcase	€1.30/carcase
Fixed share	-	-
Marketing phase		
Proportional share	-	-
Fixed share	-	€256.00 for advertising materials PGI logo, only once

Source: Belletti et al. (2005).

13 Based on Belletti et al. (2005)

14 The consortium is a particular kind of association that is very often officially recognised as representative of the whole category of producers (or processors) in the Italian PDO/PGI supply chains.

local breed reared mainly in Tuscany and Umbria in the Chiana Valley (Valdichiana). It is important to note that the PGI certification costs of Chianina beef are borne by those who request PGI marking of the carcases from the product certification body, so those breeders who directly sell Chianina PGI beef from their animals have to bear all the certification costs of the supply chain: controlling their animals alive and marking the carcasses when they section them for selling. Table A.10 presents the certification and consortium costs of this QAS.

The Pecorino Toscano PDO

Pecorino Toscano is a typical sheep's cheese produced in a wide geographical area which includes the whole of Tuscany, part of Umbria and Lazio. In the case of the Pecorino Toscano PDO the identification of direct certification costs has been more difficult as only some actors (sheep breeders) pay a fee for certification and a fee for the consortium's services (Table A.11), while other actors (dairy processors and seasoners) pay the consortium a single fee that includes direct certification costs and consortium services.

Table A.11 Pecorino Toscano PDO – certification costs and consortium costs per year

	PDO certification costs	Consortium costs
Milk production phase		
Proportional share	-	€0.001/lt.
Fixed share	€21.00	€100.00
Milk collection phase		
Proportional share	-	-
Fixed share	€620.00	-
Dairy activity phase	**(only if not associated)**	**(incl. certification costs)**
Proportional share	€0.0085/form	€0.10/kg
Fixed share	€300.00	€2000.00
Seasoning phase	**(only if not associated)**	**(incl. certification costs)**
Proportional share	€0.0085/form	€0.10/kg
Fixed share	€300.00	€2000.00

Source: Belletti et al. (2005).