

2 Glossary of relevant terms

Quality is the totality of characteristics of an entity that bears on its ability to satisfy stated and implied needs.

Food Safety means the assurance that food will not cause adverse health effects to the final consumer.



2 Glossary of relevant terms

The following glossary and explanations illustrate the underlying concept of food quality and safety, standards and other relevant terms as understood within the context of the present study.

Food Quality

Definition	<p>“Quality is the totality of characteristics of an entity (product, service, process, activity, system, organisation, person) that bear on its ability to satisfy stated and implied needs.” Source: ISO 9000:2000 Quality Management Systems. Fundamentals and Vocabulary.</p>
Scope	<p>Quality today embraces in addition to product quality also</p> <ul style="list-style-type: none"> • the service, organisational, management and in particular process quality • the compliance with third-party specifications • the adequacy of its usage • the perception of its excellence at a competitive price <p>Quality is associated with all the activities related to</p> <ul style="list-style-type: none"> • standardisation • quality management/assurance as a strategic discipline in company management • quality control, certification and accreditation • quality marks and labels <p>etc.</p>
Notion	<p>Quality is not a single, recognisable characteristic; it is a dynamic concept. Producers, or researchers are mostly product-oriented, where quality is described by specific measurable attributes of the food (such as size, texture, flavour, acidity). Consumers, marketers and economists, however, describe quality as an amalgamation of consumer wishes and needs including product characteristics, shelf life, regular supply, food safety and ethical aspects.</p> <p>Quality has changed its notion</p> <ul style="list-style-type: none"> • from product quality that needed to be inspected • through process quality that needed to be controlled • to quality assurance systems as a behaviour or mode of thinking being an essential element of the company strategy <p>Quality is thus integrated in the management strategy of an organisation/company based on the overall commitment of the whole management staff and labour force to continuously improve value for their customers, for the organisation/company itself, and the society as a whole.</p>

Food Safety

Definition	Freedom from environmental and other contaminants and sources of toxicity (physical, chemical and/or biological) injurious to health.
Definition (EU)	“Food shall be deemed to be unsafe if it is considered to be (a) injurious to health; (b) unfit for human consumption.” Regulation (EC) 178/2002, Article 14 gives a further detailed definition of food safety requirements ⁹⁾ .
Scope (EU)	“Food safety is a result of several factors including the respect of mandatory requirements, the implementation of food safety programmes established and operated by food business operators and the implementation of the HACCP system.” ¹⁰⁾

⁹⁾ Source: Regulation (EC) 178/2002 http://europa.eu.int/eur-lex/pri/en/oj/dat/2002/l_031/l_03120020201en00010024.pdf

¹⁰⁾ Source: Commission of the European Communities (2003) http://www.foodlaw.rdg.ac.uk/pdf/com2003_0033.pdf

Food Quality and Safety in the context of this study

Background While consumers normally do not differentiate between quality and safety, scientists do. For the Food and Agriculture Organisation of the United Nations (FAO), the World Health Organization (WHO) and the World Trade Organization (WTO), food safety aspects are rather distinct from food quality parameters.

Definition in the context of this study Food quality and safety is the totality of characteristics of food products that bear on their ability to satisfy all legal, customer and consumer requirements. Food quality and safety as understood in this study thus encompass:

- food quality in its narrow definition (mainly product characteristics) and
- food safety as a growing concern of consumers, legislators and the sales chain

Standards

Definitions Standards are documents, established by consensus and approved by a recognised body, that provide, for common and repeated use, rules, guidelines or characteristics for products or related processes and production methods.

Standards are normative documents, which are broadly used in industry and trade, as self-regulatory mechanism and as a description of the state-of-the-art.

Purpose

- to minimise health and environmental risks through: facilitation of public administration procedures
- to simplify legislation through: availing reference to approved and recognised standards
- to reduce risks of liability through: prevention of deceptive practices
- to facilitate economic cooperation through: reduction of transaction costs in business by providing common reference points for notions of quality, safety, authenticity, good practice and sustainability
- to improve quality of products through: facilitation of research/promotion of innovation and technological development

But:

Standard setting might be misused for strategic enhancing of the competitive position of countries or individual firms through disguised protectionism.

Classification and Relevance **Mandatory standards** are set by governments in the form of regulations including: technical requirements such as testing, certification, labelling etc.; enforced by liability rules in case of non-compliance.

Voluntary standards

- are set through formal coordinated approaches of key stakeholders in the supply chain (e.g. business associations, NGO initiatives such as eco- or fair-trade-labelling) or
- are developed and monitored by individual companies.

Although voluntary standards are not mandatory by rule, some of them (e.g. ISO 9000 standards on quality management) have become de facto standards, since they are required when producers want to compete in international markets. Observance of voluntary standards increasingly becomes a precondition for establishing long term supplier-customer relationships.

Types

- **product standards** describe product characteristics such as performance, quality, safety, design, labelling, etc.
- **production and process methods (PPM) standards** describe “how” goods should be produced
- **generic management standards** describe what organisations do to meet customer’s quality requirements and to achieve continual improvement of performance regardless of the size or type of the organisation, the sector of activity and/or its product (e.g. ISO 9000:2000 family, ISO 14000:2000 family)
- **ethical standards** refer to environmental impact, working conditions and the like (e.g. SA8000, ISO 14000)

Standard setting organisations	<p>Multilateral organisations e.g. Codex Alimentarius Commission (CAC), International Organization for Standardisation (ISO), United Nations Economic Commission for Europe (UN/ECE)</p> <p>Supranational organisations e.g. trading blocs such as the EU</p> <p>National organisations e.g. EU Member States</p> <p>Private Industry and Trade organisations BRC (British Retail Consortium), IFS (International Food Standards), EUREPGAP, etc.</p>
Food standards	<p>Food quality and safety standards are usually related to the following issues:</p> <ul style="list-style-type: none"> • consumer protection against hazards and fraud • quality assurance • food hygiene • additives and aromas • contaminants • labelling • irradiation • ecological foodstuffs • genetically modified products • novel food

Quality Management Systems

Definition	<p>“‘Management system’ refers to the organisations structure for managing its processes – or activities – that transform inputs of resources into a product or service, which meet the organisation’s objectives, such as satisfying the customer’s quality requirements, complying to regulations, or meeting environmental objectives.”¹¹⁾</p>
Scope	<p>Food quality can only be maintained if all activities/processes related to food production are subject to a systematic approach, i.e. integrated into a management system. Since the beginning of the 1990s, QM Systems have proved good as systematic approach for steering companies.</p> <p>In the beginning, prescribed basic structures of QM Systems were implemented into the companies. Many failed since the companies/staff did not ‘live’ their QM System. Nowadays QM Systems are process-oriented, are characterised by individual structures and specifications and focus – instead of functional structures – on value-added effects.</p>
Integration of Food Safety and Hygiene & Traceability Systems	<p>Whereas the introduction of QM Systems is voluntary, product (food) safety constitutes a legal requirement. Thus, the EU law formulates vast requirements regarding hygiene in the food industry. Furthermore, it stipulates the need to establish traceability systems.</p> <p>An internal QM System offers an ideal frame for the implementation of hygiene and traceability requirements. A comprehensive and systematic HACCP-System can as well constitute the nucleus for a future QM System.</p>

Quality Assurance Systems

Definitions	<p>Quality Assurance Systems are part of the Quality Management. They define the organisational structure, the processes and procedures necessary to providing confidence that quality requirements will be fulfilled.</p> <p>Quality Assurance (QA) Systems enable the application and verification of measures intended to assure the quality and safety of food. They are required at each step in the food production chain to ensure safe food and to show compliance with regulatory and customer requirements.</p>
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¹¹ Source: ISO 9000 and ISO 14000 – in brief
<http://www.iso.org/iso/en/iso9000-14000/understand/inbrief.html>

Purpose	<ul style="list-style-type: none">• to observe mandatory requirements (laws and regulations)• to control processes with regard to obligations arising from product liability¹²⁾• to improve competitiveness through application of standards• to guarantee greater assurance of food quality than through end product testing only• to avoid losses due to faulty production <p>QA systems are generally not mandatory but increasingly adopted in the production and processing of food products. Governments support the adoption of QA systems</p> <ul style="list-style-type: none">• to enhance self-regulatory mechanisms of industry and trade• to reduce the need for inspection by government authorities
Contents	<p>A food Quality Assurance (QA) system should have a defined structure with documented procedures for activities that can affect the quality of the final product. These activities may include pre-harvest, harvest, processing, storage, transport and distribution. It should include processes for monitoring the system's performance against stated aims. These processes should include detailed record-keeping as well as internal and, where appropriate, external auditing.</p> <p>Selection and application of a QA system can vary according to the stage within the food chain, the size and capacities of the company, type of product etc. QA systems may include:</p> <ul style="list-style-type: none">• Good Agricultural Practices (GAP)¹²⁾• Good Manufacturing Practices (GMP)¹²⁾• Good Hygiene Practices (GHP)¹²⁾• Good Distribution Practices (GDP)¹²⁾• Hazard Analysis and Critical Control Point (HACCP) systems¹²⁾

Process Management

Definition	<p>Process Management is a way, in which an individual, a group, a project, or an organisation thinks about, and manages, its work activities. It is based on the following process management premise: The quality of the product is governed primarily by the quality of the process adopted.</p>
Benefits	<p>Process Management systems guarantee clear responsibilities for the processes, target-orientation and continuous improvement of the processes. Process management can thus create better cost-benefit relations by (among others):</p> <ul style="list-style-type: none">• reducing cycle times• reducing capital and engineering costs• reducing inventory, operations and maintenance costs• enhancing safety and environmental compliance
Basic principles	<p>Many organisations today do not manage the process, but instead manage their products. Based on the process management premise, however, process management can be said to be fundamentally different from product management in the following key fields:</p> <ul style="list-style-type: none">• customer orientation (customer satisfaction – a precondition for economic success)• management (company objectives and strategy, work environment)• human factor (integration leads to better use of existing capacities)• process-oriented approach (for an efficient combination of resources and activities)• system-oriented management approach (for an efficient management of processes)• continuous improvement• factual approach towards decision making (based on analysis of data)• supplier relations for mutual benefit
Process Management and Quality Management	<p>Elements like quality, environmental, work safety or process cost management systems can easily be integrated into Process Management Systems. In food processing, hygiene management as bases for food safety can as well be integrated into the process-oriented approach. The role of hygiene gains an ever increasing importance in certification.</p> <p>Specific hygiene audits have proven to be successful instruments to create awareness among management staff and to improve the hygiene status in companies.</p>

¹²⁾ see definitions below

Good Practices

Good Agricultural Practices (GAP)	<p>GAP focus on the best practices to be used for producing agricultural products to ensure the quality and safety of the final product. GAP are guidelines, which ensure that all agricultural practices, in particular pest and disease control, are in accordance with Integrated Crop Management (ICM) and Integrated Pest Management (IPM) practices. GAP aim at ensuring sustainable agriculture by minimising hazards for the workforce, other actors along the food chain, consumers and the environment while ensuring economically viable production.</p> <p>With the increasing need for food quality and safety throughout the chain, the trend goes towards integrating HACCP and traceability concepts into GAP systems (see below).</p> <p>FAO is currently developing a framework of GAP principles, indicators and practices with a view to provide a reference point as guidance for debates on national policies and actions. The set of ten component groups of generic indicators and practices of GAP include aspects related to:</p> <ul style="list-style-type: none"> • soil and water management • crop and fodder production • crop protection • animal production and health • harvesting and on-farm processing and storage • on-farm energy and waste management • human welfare • health and safety • wildlife and landscape
Good Distribution Practices (GDP)	<p>GDP guidelines aim at adjusting handling, transport and distribution procedures to the requirements of food safety.</p> <p>For example: COCERAL (Comité du Commerce des céréales, aliments du bétail, oléagineux, huile d'olive, huiles et graisses et agrofournitures) launched the first common European Code of Good Trading Practice (GTP). The main principles of the European GTP code are its voluntary nature, verification and certification by independent third parties and quality management in accordance with the HACCP principles (see chapter 4.3.4.9).</p>
Good Hygiene Practices (GHP)	<p>Guidelines for GHP aim at establishing processing, handling, transport and distribution procedures that are apt to prevent perishing due to micro-organisms, growth of pathogens on foodstuff, contamination with chemical residues or contaminants (e.g. mycotoxins).</p> <p>Basic rules are set out in the 'Codex General Principles of Food Hygiene'. They include requirements for the design of facilities, control of operations (including temperature, raw materials, water supply, documentation, and recall procedures), maintenance and sanitation, personal hygiene and training of personnel. Hygienic practices form an integral part of all food safety management systems, as for example within the HACCP system.</p>
Good Laboratory Practices (GLP)	<p>For sovereign duties (e.g. analysis, registration of pesticides), the OECD principles for GLP form the bases for quality management in laboratory control. GLP in themselves are voluntary, but have in some cases been adopted into national law and thus become mandatory in the respective countries. Otherwise, laboratories apply quality management systems according to ISO 17025.</p>
Good Manufacturing Practices (GMP)	<p>There are many reactions occurring during processing and manufacturing of raw materials that cause changes in composition, nutritional value, physical structure and sensory properties. The objectives of GMP are to control these changes so as to develop the desired qualities in the product, to ensure food safety and to stop or slow down any deterioration in the food. Good manufacturing practice means understanding, analysing and controlling the manufacturing process.</p>

Hazard Analysis and Critical Control Point (HACCP)

Definition	<p>HACCP is a systematic approach to establishing, implementing and improving quality assurance of food products through a system of identification, evaluation, and control of hazards, which is significant for food safety. HACCP is a widely accepted food safety QA system. The HACCP system is a QA system consisting of the following seven principles:</p> <ul style="list-style-type: none">• conduct a hazard analysis• determine the Critical Control Points (CCPs)• establish critical limits• establish a system to monitor control of the CCPs• establish corrective action• establish procedures for verification• establish documentation
EU regulations	<p>In April 2004, the European Parliament and the Council adopted new hygiene rules, which entered into force on 1 January 2006. The new hygiene rules take particular account of the general implementation of procedures based on the HACCP principles. Imported foods have to be of at least the same hygienic standard as food produced in the Community or of an equivalent standard.</p> <p>(The HACCP system is also mandatory in the US.)</p>

Glossary of further relevant terms

Accreditation	<p>Accreditation is the procedure by which an authoritative body gives formal recognition that a body or person is competent to carry out specific functions or tasks. Accreditation can be granted to a certification body for recognition of its competency in the operation of any of the following fields:</p> <ul style="list-style-type: none">• product certification (ISO/IEC Guide 65:1996)• quality management system certification (ISO 9000 family)• environmental management system certification (ISO 14000 family)• food safety management system (ISO 22000:2005)• inspection certification (ISO/IEC Guide 17020:1998)• laboratories certification (ISO/IEC Guide 17025:2005)• personnel and training registration (ISO/IEC 17024:2003)• mutual recognition agreements – MRA (ISO/IEC Guide 68:2002) <p>Accreditation is not mandatory but is increasingly required by the private sector.</p>
Additives	<p>Agents that are added deliberately in order to produce technological effects such as preservation, coloration, thickening, etc. The 'prohibition principle with reservation of permission' is valid, i. e. additives are only admitted if expressly licensed.</p>
Aromas	<p>Aromas are substances giving rise to a specific taste or smell. Aromas are natural, nature-identical, artificial, or extracts, resulting from reactions or smoking.</p>
Benchmarking	<p>Benchmarking is a tool used to measure and compare an institution's or firm's performance and work processes with those in other institutions/firms. The goal of benchmarking is to increase performance by adopting the best practices of benchmarking partners.</p>
Brand	<p>A brand is a mixture of attributes, tangible and intangible, symbolised by a trademark, which, if managed properly, creates value and influence. Brands offer customers a means to choose and enable recognition within cluttered markets. It is the promise and delivery of an experience. From the business perspective it is the 'security of future earnings'; from the legal perspective, it is 'a separable piece of intellectual property'.</p>
Certification	<p>Certification is a procedure by which a third party gives written assurance that a product, process or service conforms to specified requirements.</p> <p>Certification is an asset and an advantage, both for the producer and for the customer, distributor and consumer since it</p> <ul style="list-style-type: none">• gives an incontestable added value to the product or service bearing its label• valorises the goods or services and thus opens up markets and simplifies business• reassures the user since the product or production process meets defined characteristics

Clearing house	With a view of harmonising the vast number of standards emerging from all different kinds of sources in the global market, benchmarking systems have been elaborated under <ul style="list-style-type: none"> • the World Trade Organization (WTO) among many other products also for agro-industrial produce (see chapter 4.1.1) • the Global Food Safety Initiative (GFSI) for private label food products (see chapter 4.3.3.1)
Codes of Practice	Unlike standards, which are formally accepted, codes of practice (or guidelines) provide advice and recommendations for implementation (e. g. food hygiene and traceability practices, production practices, sampling and analysis methods).
Competent Authority	The Competent Authority is the official government agency possessing jurisdiction. It is the authority, which the EU Member States designate (or accept in third countries) as responsible for performing the duties arising from food control requirements.
Conformity Assessment	The existence of laws, regulatory or administrative procedures and standards does not guarantee that products offered to customers/consumers comply with these provisions. Product testing, plant inspections, and other procedures are necessary to examine conformity. Assessments of conformity are conducted by a third party accredited to certify compliance with laws, regulatory or administrative procedures or standards.
Consumer Protection	Actions taken (in the form of laws or other provisions) to protect consumers from defective goods and services as well as fraud, delusion, etc.
Contaminants	Substances that – in contrast to the intentional use of phytosanitary products or veterinary drugs – can unintentionally enter food during production, processing or marketing. These can include aflatoxins, nitrate and heavy metals or environmental pollutants, such as dioxins.
Critical Control Point (CCP)	A step within the production/processing system at which control can be applied and is essential to prevent or eliminate a food safety hazard or reduce it to an acceptable level.
Due Diligence	Care (due care) exercised by an ordinarily prudent or reasonable party or entity to avoid harm to another party or their property. Failure to make this effort is considered negligence.
Environmental standards	Environmental standards focus on the management and conservation of the natural resource base (soil, water, air, plant and animal genetic resources, etc.), in a sustainable manner as to ensure the attainment and continued satisfaction of human needs for present and future generations.
Equivalence	Barriers to international trade could be eliminated if members of the World Trade Organization (WTO) accept that regulations different from their national provisions fulfil the same policy objectives, albeit by different means. For example, recognition of equivalence of sanitary or phytosanitary measures does not require sameness of measures, but the acceptance of alternative measures that meet an importing member's appropriate level of sanitary or phytosanitary protection.
Food Control	Any action and activity, both at the company and public levels, that can be used to prevent or eliminate a food safety hazard or reduce it to an acceptable level.
Food Hygiene	All measures and conditions necessary to control hazards and to ensure fitness for human consumption of a foodstuff, taking into account its intended use.
Functional Food	The EU law has not yet given a legally binding definition of functional food. According to common understanding, functional food comprises categories of foodstuffs having a special additional health benefit (better fitness and immunity, preventive effects against cancer and other illnesses). Functional food is believed to become the most important trend in nutrition in the years to come. It is already achieving the highest growth rates of foodstuffs worldwide.
Generic management system standards	Recent years have seen the development and application of so called 'generic management system standards'. In this context, 'generic' means that the requirements formulated in the standard can be applied to any organisation, regardless of the product or service it produces or offers, regardless of the size and type of organisation, whether it is a business enterprise, a public administration or a government department.

Genetically Modified Organism (GMO)	Genetic modification is a type of biotechnology which allows genes that carry instructions for a particular feature to be isolated and moved from one organism to another, resulting in a genetically modified organism. Genetic modification has been used in a variety of ways to assist food manufacture and to improve factors such as storage/shelf life and/or nutritional value of food.
Hazard	Agents in, or conditions of, food with the potential to cause an adverse health effect: <ul style="list-style-type: none">• physical agents (splinters, ground glass, metal fragments and other objects)• chemical agents (contaminants, residues, additives, toxins)• biological agents (viruses, bacteria, fungi, other micro-organisms)• non-conventional transmissible agents (e. g. BSE – bovine spongiform encephalitis)
Horizontal standards	Provision of rules across the food chain encompassing all aspects ranging from farm to fork, which are common to all foodstuffs (such as food hygiene, labelling, food and feed control, contaminants, etc.).
Like products	According to the Most Favoured Nation Requirement (Art. I GATT see chapter 4.1.1), each member country has to grant equal market access to all other member countries. According to the National Treatment Requirement (art. III GATT), a country may require that imported products comply with the same product regulations as domestic products. Discrimination of imported 'like products' offends against GATT principle. As the GATT itself does not define the term 'like product', decisions on which products are alike in the sense of Article III GATT are being taken case by case.
Maximum Residue Levels (MRL)	Maximum Residue Levels (MRLs) are the maximum level of named active ingredients (veterinary drugs, pesticide residues) in foods that can be legally sold for human consumption.
Mutual Recognition Agreement (MRA)	To facilitate trade, exporting and importing countries may enter into Mutual Recognition Agreements (MRA), thus formally recognising that the inspection and certification system of one country is equivalent to that of the partner country. Recognising that the certification system provides the same level of protection, controls in the importing country can be reduced.
Novel Food	Following the Novel Food Regulation (NFR) of the EU ¹³ , a food or a food additive is 'novel', if not yet used for human nutrition in significant quantities in EU Member countries before 15 May 1997, and if it belongs to one of the following categories of food: <ul style="list-style-type: none">• genetically modified organism (GMO)• products made of chemicals or raw material not yet used for nutrition• exotic fruit or animal products• ingredients from plants/parts of plants that are unknown in Europe• new food or ingredients made out of algae or micro-organisms• food processed with new processing methods
Private label	Private labels are generated by retailers with a view of distinguishing their offer from the offer of other retailers. Private labels bear the name of the retailer. In Europe private labels have become a dominant issue against supplier brands: on average 45% of products are sold via private label.
Product liability	Product liability is a generic term describing the responsibility of a producer (or others) for personal injury, property damage, or other harm caused by a product and the possibility to hold him responsible for restitution.
Residues	Residues are substances that can occur in foodstuffs as a side effect of using veterinary medicines or phytosanitary products. They are unwanted traces of medicines, plant protection products or derivatives thereof which remain in the final product.

¹³ The Regulation (EC) No 258/97 on novel food and novel food ingredients is currently under revision with a view, among others, to reflect that genetically modified (GM) food no longer falls under its scope (see further details in [chapter 4.2.3.4, page 88](#)).

Risk	<p>The probability and severity of an adverse effect/event occurring to humans or the environment following exposure, under defined conditions, to a risk source.</p> <p>A function of the probability of an adverse health effect and the severity of that effect, consequential to (a) hazard(s) in food.</p>
Risk Analysis	<p>A process consisting of three components: Risk Assessment, Risk Management and Risk Communication.</p>
Risk Assessment	<p>Scientific evaluation of known or potential adverse health effects resulting from human exposure to food-borne hazards. The risk assessment process provides an estimate of the probability and severity of illnesses attributable to a particular hazard related to food. Steps:</p> <ul style="list-style-type: none"> • hazard identification • hazard characterisation • exposure assessment • risk characterisation
Risk Communication	<p>The interactive exchange of information and science based opinions concerning risk among risk assessors, risk managers, consumers and other actual or potential stakeholders.</p>
Risk Management	<p>The process of weighing policy alternatives to accept, minimise or reduce assessed risks and to select and implement appropriate options.</p>
Traceability/ Tracing and Tracking	<p>Traceability means the ability to trace and track a food, feed, food-producing animal or substance through all stages of production and distribution (including import, from and including the primary production of food, up to and including sale or supply to the final consumer and, where relevant to food safety, the production, manufacture and distribution of feed).</p> <p>Article 18 of the EU Food Law, Regulation (EC) No 178/2002 applicable from 1 January 2006, contains general provisions for traceability. Unless otherwise specified, the requirement for traceability is limited to ensuring that businesses are at least able to identify the immediate supplier of the product in question and the immediate subsequent recipient (one step back-one step forth). Deliveries from retailers to final consumers are excluded.</p>
Trademark	<p>Any graphically represented sign which is capable of distinguishing goods or services of one undertaking from those of other undertakings.</p>
Vertical standards	<p>Provisions applicable to specified products or product groups (such as fresh fruit and vegetables, frozen fruit and vegetables, fruit juices, wine, honey, edible oil, chocolate, meat, fish, etc.).</p>