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Food certification and its organisation

The agro-food industry faces two obligations: contributing to the safety and to the good quality of food. On the one hand, public regulations impose on firms specific conditions under which food must be produced and marketed. On the other hand, private standards of quality are strategically used by agro-food companies for differentiation. Norms and quality standards respond to growing consumer concerns for different issues such as the environment, Fair Trade[1], animal welfare or simply the search of tasty food. Independent third-party entities often contribute to controlling the set of food quality standards and norms. This paper lists the range of existing certification schemes, showing evidence that the dominant system is based on third-party certifiers under public accreditation.

Food safety and quality are nowadays amongst consumers' highest concerns. In response to these concerns, norms, standards as well as labels contribute to the information and the safety of consumers. Public regulations are adopted to control domestic food safety, especially in industrialised countries, to prevent human, animal and plant health problems.

In addition to the sanitary rules that are mandatory, other standards, either optional or voluntary, have been set by governments, non-profit organisations, firms or groups of firms to differentiate product quality and allow consumers to purchase food in accordance to their needs, beliefs and expectations.

In the late 80s, a formalised scheme[2] called the food *"quality four-leaf clover"* has summarised the concerns at that time. It characterised all foodstuffs into four types of quality: *quality of safety* (or food safety), *nutritional quality, quality of service* (including simplicity of use, packaging and preservation) and *social quality* (especially regarding religious beliefs, environmental concerns and food

used as an indicator of social status). Food safety and nutritional quality imply health; they are non-perceivable by consumers and therefore have been historically warranted by the State.

Certification is a way to substantiate publicly the validity of a quality claim and compliance with quality specifications. In addition, certifiers can be accredited by public bodies. In fact, newer social beliefs and claims require more trust (economists speak of *credence*) in the operators of the supply chain (producers, manufacturers, retailers). Operators adjust to this necessity for consumers by letting third-party entities certify their quality standards. However, quality standards can impair trade, from local to global markets, as technical barriers. These standards also impact the structure of the food supply chain and the liabilities and coordination of its stakeholders because they trigger internal organisational changes for operators as well as market changes.

This paper begins with the definitions of the terms of quality and certification. In a second part the paper describes the

dominant certification scheme by category of food quality standards: food safety, nutritional quality, environmental quality, intrinsic quality labels, and socially-oriented quality.

1 - Some definitions

The quality of a product in its broadest sense represents the characteristics of a final agrifood product regarding the conditions of production, processing and retailing, and its origin.

1. The term *"Fair Trade"* written in two words is currently the most used in the international community, including by the European Commission. Readers should be aware that the term *"FairTrade"* written in one word is a private trademark registered by FLO. FAO prefers to use *"fair-trade"* to designate the generic movement and to distinguish it from the FLO trademark.
2. Official opinion, December 1989, on the report by Mr Creyssel entitled *La certification d'assurance qualité dans le secteur agro-alimentaire, Bulletin officiel de la concurrence et de la consommation*, no. 89/27, p. 330-331, and Official opinion, March 1990, on the report by Mr Mainguy entitled *La qualité dans le domaine agro-alimentaire, Bulletin officiel de la concurrence et de la consommation*, no. 90/11, p. 180-182.

Quality is highly prone to subjectivity. Food quality can indeed be decomposed as the following product attributes[3]:

- intrinsic attributes that cannot be changed without modifying the product's aspect (colour, size or shape);
- extrinsic attributes that influence the consumers' choice and are indirectly related to the product (price, brand, place of production or manufacturing, packaging).

Quality can also be defined by considering the consumers' search for information on the product:

- search attributes[4] are the readily observable characteristics of the product;
- experience attributes[3] are ones that can only be checked after use or consumption of the product;
- credence attributes[5] can never be verified, either because it is difficult or very costly, even after use (therefore, these attributes relate to claims, labels and traceability).

At the international level, food safety, animal health and plant health are major issues, regulated by international treaties that are validated in the *Codex Alimentarius* or in organisations such as WTO and OIE[6]. The European Union (EU) directives and regulations are other rules applied to Members States and non-Member States that import products into the EU. Lastly, all countries incorporate the international rules and agreements into their national law for export purposes; they sometimes go further depending on the domestic demand for food safety. Implementation is operated either by State official entities or by international private certifiers that are duly authorised. Thus, food quality is a matter of collective choices and institutions.

The inspection services (involving veterinarians, chemists, biologists, etc.) are in charge of the controls for food safety in industrialised countries. In developing countries and newly industrialised countries, the capacities or general will of the public services to implement this control can be lacking. In some cases, these defects can offer room to unscrupulous operators who put fraudulent food, even unfit for human consumption, on the market. In all countries, the creation of a public-private partnership or the privatisation of control services can help to provide higher sanitary levels for human food, animal health and plant health. In addition to regulations, private codes of best practices have been developed among the stakeholders of the supply chain[7]. Some international norms or voluntary schemes are voluntarily adopted by operators but they have also been approved by public authorities, which is the case for ISO (International Standard Organisation) norms. All private standards base their legitimacy on certification, which is increasingly operated by independent entities from suppliers, manufacturers and retailers.

Certification is the process guaranteeing that an operator or a product respects a given standard. It aims at conveying reliable information on a food product or on conditions of production, in the form of a norm, contract conditions, or technical specifications. First-party certification occurs when suppliers implement the audit of their own practices, which is different from second-party certification when customers pay a technician to do the monitoring of their suppliers' practices in accordance to a standard. Third-party certification is made by independent entities, therefore other actors of the agrifood supply chain, who can be private or public. Before offering their services to food chain operators, third-party certifiers must be accredited by the organisation that implements the standard.

2 - Differentiation of standards but convergence on certification

Despite the multiplication of labels and logos signalling product quality, independent certification is becoming the generic practice for guaranteeing that operators respect the conditions of a contract in the food supply chain.

Food safety
Product recalls and food poisonings due to contaminations occur with uneven frequencies, depending on the country. In the supply chain, each operator is responsible for the food safety of its products, and must keep records of the monitoring and traceability tools it uses. However, should a food safety incident occur, the problem could easily extend from a local area to the global market, causing potential negative impacts on brand reputation or firm liability. Thus, concerns about potential loss of reputation and the need to minimise liability have motivated the development of private standards for best practices imposed by retailers on suppliers. In addition, the promotion of these best practices help the retailers differentiate their products on a different criterion than price.

The three private standards GLOBAL-GAP, BRC and IFS are now essential for food suppliers to ensure access to the retail end of the supply chain in Europe and North America, as the main retail companies impose at least one of these standards and third-party certification. The rise in private standards has precipitated a cost shift from the retailers to the suppliers, which can be a burden for small suppliers. To address this cost shift, GLOBALGAP is setting up collective certification tools to take into account local constraints of developing countries in cooperation with governments and farmers' organisations.

Consequently, countries, especially those exporting food commodities (Kenya, Thailand, Colombia, etc.), accompany the development of these standards to preserve their global market shares. In Asia, governments have set up some best practices as public norms to signal a high level of food safety: JGAP in Japan, SALM in Malaysia, Q-GAP in Thailand. Certification is undertaken by public agencies at subsidised prices or by private organisations at market prices, but in any case, consumers tend to put more confidence in private third-party certifiers.

Lastly, international organisations have also addressed the impact of standards on trade. Voluntary standards are in conformity with WTO agreements. Nevertheless, some standards are considered as non-tariff barriers. Standards constitute a *de facto* barrier to trade given that the retail industry which requires them is so concentrated in many countries.

3. FAO, Batt P. J., 2007, "Expanding the quality concept to satisfy consumer demand". *Proceedings of the international symposium on fresh produce supply chain management*, Bangkok. http://www.fao.org/docrep/010/ah996e/ah996e00.htm.
4. Nelson P., 1970, "Information and consumer behavior", *Journal of Political Economy*, 78: 311-329.
5. Darby M. et Karni E., 1973, "Free competition and the optimal amount of fraud", *Journal of Law and Economics*, 16: 67-88.
6. World Organisation for Animal Health, www.oie.int.
7. Hammoudi A., Hoffmann R. et Surry Y., 2009, "Food safety standards and agri-food supply chains: an introductory overview", *European Review of Agricultural Economics*, 36(4): 469-478.

Nutritional quality

Nutritional information labelling on food is regulated by public and private standards. Nutritional claims or nutritional mandatory labels inform consumers about food content (ingredients, nutrition facts on calories and nutrients, daily recommended values) and health attributes (health benefits, child development and health).

Food labelling is mandatory in accordance with consumer rights to prevent fraud and false or confusing claims. Other food labels respond to major public health concerns, especially obesity and overweight, the prevalence of which has increased at an accelerating pace since the 80s[8]. In addition, changes in consumption patterns indicate an increasing awareness of the relationship between food quality and health in many countries. Finally, some nutritional claims and labels address specific diets either because of a pathology (diabetes, food allergies or intolerances which affect growing numbers of people worldwide) or personal beliefs (vegetarian, vegan).

Ingredients, net weight, best-before date, nutrition facts, daily value (DV) and food allergen labelling are regulated by different laws such as the *Nutrition Labeling and Education Act* (NLEA) in the USA or the Regulation no. 1924/2006 on nutrition and health claims made on food in the EU. Health claims like *"reduces the risk of developing heart disease"* are approved after submission of evidence and the authoritative statement of a scientific body in Europe and the USA, therefore on a case-by-case basis. On the contrary, nutritional labelling requirements in Asia vary from public regulations on specific food products to private schemes.

Furthermore, genetically modified (GM) and non-GM labelling are limited to Europe, where the Regulations no. 1829/2003 and 1830/2003 set thresholds of GM content that define GM food, its traceability and labelling. The threshold levels are still being debated. Some retailers have nevertheless launched their private certification scheme for some non-GM foodstuffs (meat and poultry for instance).

As far as vegetarian and vegan diets are concerned, standards and certification are private apart from India, which appears to be the only country with a public norm and a public certification scheme (since the Law of 4 April 2010 on non-vegetarian food labelling[9]).

Environment-friendly labels

Good environmental practices that limit the negative impacts on water, soil and biodiversity are attested by environmental standards. Private environmental standards tend to include social aspects and labels on product packaging can combine two or more standards.

Organic food is one example. The EU label certifies the adherence to a specific code of agricultural practices (seed use, tillage, fertilisation, pest control). In France, organic food labelling and certification has been implemented and has become a public standard in 1981[10], following a request by *biodynamic* farmers. The organic label of the European Community is certified by private entities that are publicly accredited. The European organic label coexists with the French national label (AB), also under private third-party certification, and both validate now the same production specifications. Private organic standards (Déméter for instance) also complete the collection of organic labels in France. The certification of organic food in the USA and in Asia relies on private and public certification as well.

Given the growing concern amongst consumers as to the environmental sustainability of the food they purchase (with respect to primary forests, water resources, climate change) and given the businesses' concerns with their reputation, normalisation organisms and NGOs have been helping set up numerous international environmental standards. The ISO 14000 standard is one of them. The Rainforest Alliance label is also aimed at validating environment-friendly practices in the tropics, whereas Utz Certified[11] certifies environmental attributes of cash crops. In addition, new and comprehensive approaches on the product *"footprint"* have emerged from methodological research on life cycle analysis (LCA) and on production-consumption process assessment, extending the concepts of carbon footprint (as the *The Carbon Trust* brand) or *"food miles"*. As a result and in line with the French first Grenelle Act, an environmental labelling scheme (*affichage environnemental* in French) is being experimented on food, even if the monitoring of the scheme is still under discussion. Another environmental standard has been created recently to signal the farms operating with a *"high value for the environment"* (HVE): these farms are recognised as implementing environmentally efficient practices, and this indirectly certifies the environmental friendliness of the agricultural commodities they produce[12].

Other labels for remarkable food quality

Among the standards addressing either food taste quality or quality of origin, the French *"Red Label"* (*Label Rouge* in French) has been created in 1960. It certifies the conditions of production guaranteeing the high quality (of taste for instance) of some food products and non-food raw farm products. As early as 1965 it succeeded in helping the French poultry production out of its declining path. As of today more than 500 products have the *"Red Label"* in France and poultry products represent one-third (103 million birds produced under this label in 2009[13]). The turnover of the total *"Red Label"* production was close to €1.4 billion in 2007. The *"Red Label"* technical specifications are certified by private organisations, both accredited by the COFRAC[14] and approved by the INAO[15].

Labels of origin are generally certified by national public entities. This is the case for the country of origin: beef, poultry and some nuts in the USA; fruits, vegetables, wine and olive oil within the EU. In France, public authorities have also approved the use of certain enhancing wordings related to the origin of the product (*"from the farm"*, *"regional product"* or *"mountain product"*) and within a public-private certification scheme.

8. OECD, 2010, *Obesity and the Economics of Prevention: Fit not Fat*, http://www.oecd.org/document/31/0,3746,en_2649_33929_45999775_1_1_1_1,00.html
9. Since a majority of Indians is vegetarian, signalling food products suitable for the meat-eating minority seems an efficient labelling scheme.
10. By the Law dated 4 July 1980 and the implementing Decree of 10 March 1981.
11. Formerly Utz Kapeh.
12. French Implementing Decree no. 2011-694 of 20 June 2011 on farm environmental certification.
13. According to the website www.volaillelabelrouge.com.
14. The French Committee for Public Accreditation.
15. The French National Institute of Origin and Quality.

In addition, a **geographical indication** (GI) may be the most refined form of intrinsic quality standard. It was first implemented in France, Italy and Spain to address the relationship between food quality, *terroir*[16], product specificities and recognised local know-how, under the form of a registered designation of origin. In 1992 the EU generalised the implementation of this system of indication in relation to specific geographical areas or traditions: the Protected Designation of Origin (PDO), the Protected Geographical Indication (PGI) and the Traditional Speciality Guaranteed (TSG)[17].

GI is a concept being implemented worldwide[18]. It is a public-private tool for the promotion and the protection of specialty foodstuffs. Public authorities design the rules and procedures of registration and protection. Operators are in charge of designing the quality attributes of foodstuffs as well as the link with the geographical area and the recognised know-how, writing the technical specifications and implementing control, promotion and commercial agreements of the sector. FAO highly recommends to reinforce the GI internal control by independent certification. On the other hand, the quality origin label approach is based on private certification in the USA (the Vidalia Onion is an example of such a brand). All in all, the TRIPS (trade-related aspects of intellectual property rights) agreement at the WTO aims at fostering the development of GIs for agricultural products.

Consumer associations have created a **Fair Trade** movement in the early 60s, in response to globalisation. Fair Trade is now an established niche market in many countries. This system of standards and certification is based on a long-term commercial relationship between importers and production cooperatives, with an agreed *"fair"* minimum price, the general objective being to improve social well-being and capacity building of the local communities of producers. Fair Trade products are mainly tropical cash crops: coffee, cocoa, tea, cane sugar, banana, but also cotton. At the international level, the main operator of the Fair Trade certification system is known under the acronym FLO and the trademark *FairTrade international* (or *Max Havelaar* in some countries). This trademark is carried by a large part of Fair

Trade foodstuffs traded and the subsidiary organisation FLO-Cert is accredited to certify against the standard. Nevertheless, Fair Trade is a rather diversified segment with many other standards and certifiers such as ECOCERT in France, retailers in the UK, urban communities in the USA or social associations, exercising a variety of monitoring systems.

In many countries, concerns about the **ethical conditions of food production and manufacturing** still exist. The SA8000 standard certifies good working conditions and has been implemented by the NGO Social Accountability International (SAI) to sustain corporate social responsibility. SAI-accredited private and independent certifiers control good working conditions of employees, the respect of the right of association, working times, remuneration levels and child labour.

Farm animal welfare is a much more recent concern. It is now regulated by a European regulation; this concern is also addressed in the UK by the RSPCA's (Royal Society for the Prevention of Cruelty to Animals) Freedom Food standard which insures the certification and control of farms, transportation operators and slaughterhouses that apply to the standard.

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This overview on food quality standards worldwide, although limited in scope, validates observable trends in France: the multiplication of standards in the agrifood supply chain has overtaken public regulation on food safety. Two main forces seem to drive this situation.

Private standards help meet consumers' expectations on food quality, which are becoming more and more specific. On the other hand, agrifood operators also use quality standards as a tool for product differentiation. Yet, compliance costs (normalisation of the production system to the new code of practice, internal monitoring, certification) to the ever-growing number of different food quality standards are mainly borne by farmers or small agribusinesses, thus impacting their competitiveness.

On the consumer side, the blossoming of norms and standards may become a puzzling jungle of claims, logos, and protected designations. Deciphering food credence attributes tends to be burdensome. Meanwhile independent third-party certification is developing for both public and private norms, and that should increase consumer confidence. The role of third-party certifiers in the agrifood industry will probably grow in the future[19]. For this coming challenge, the well-known quality labels and the efficient accreditation and certification systems in Europe and France are real opportunities.

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16. FAO defines *terroir* as *"a delimited geographic area where a human community has developed, over the course of history, a collective production method and know-how. A terroir is based on a system of interactions between physical and biological milieu and a set of human factors involved to convey an originality, confer typicity and engender a reputation for a product."* FAO, 2010, *Linking people, places and products. A guide for promoting quality linked to geographical origin and sustainable Geographical Indications,* http://www.fao.org/docrep/013/i1760e/i1760e00.htm
17. http://ec.europa.eu/agriculture/quality/
18. FAO, 2010, Op. cit.
19. According to Ray Goldberg, Agribusiness Professor emeritus at Harvard Business School, in a public speech at the International Food and Agribusiness Management Association (IFAMA) Forum in June 2010.