

16. Food quality, food safety and certification

VELTHUIS A., VERBEKE W. and MARETTE S.
(OSKAM A., MEESTERS G. and SILVIS H., 2010, 285-295)

Excerpt by Lukas WENINGER¹
Vienna, April 2011

Abstract – This chapter introduces concepts of food quality, food safety, certification strategies, and challenges facing the implementation of these concepts. The issues are introduced from multiple perspectives, including those shared by governments and by policy decision-makers, producers, food industries, retailers, and food consumers.¹

16.1 INTRODUCTION

Consumers have become very critical about food quality and safety. EU and national governments aim at improving public health protection. But how do the EU policies influence food quality and safety? How do these policies influence consumers and how do consumers influence EU policies? And what is the relation between these policies and private standards? This chapter tries to tackle these issues by presenting some recent insights from literature.

16.2 FOOD QUALITY AND FOOD SAFETY

Quality can be defined as “fitness for use” or “fitness for consumption”. This leads to what the International Organisation for Standardisation (ISO) call consumer or customer satisfaction. Thus, quality can be described as the requirements necessary to satisfy needs and expectations of end users. Food quality is subjective, multidimensional, and assessed from a varied bundle of attributes. Attributes are product or process characteristics that can be classified in different ways. Search attributes are available for product evaluation before purchase. Typical examples are price, appearance, brand and packaging. Experience attributes can only be evaluated upon or after purchase and/or product use. Examples are taste and texture. Credence attributes are attributes that consumers cannot evaluate or verify themselves. Safety as a product attribute is largely of the credence type.

16.3 CERTIFICATION AND CERTIFICATION SCHEMES

Certification is the (voluntary) assessment and approval by a sometimes accredited and usually third party on a standard that can be accredited (MEUWISSEN et al., 2003). The purpose of certification is to reach a defined performance of the product and process and to make this perceptible clear to others.

Certification of food safety and traceability systems gives food companies a tangible approval of good practice and a tool for due diligence defence in case of product safety incidents (BUZBY and FRENZEN, 1999; HENSON and HOLT, 2000).

“Approval of good practice” distinguishes certification from the activities by national surveillance and control services. Independent third-party certification is increasingly used. Hence, in some cases certification is “quasi-voluntary”. The “due diligence defence” in law is a defence for the person charged to prove that he took all reasonable precautions to avoid harm to another party.

The role of retail organisations in certification schemes is large, and leads to different standards such as Safe Quality Food (SQF) standards, GLOBALGAP, or a standard for Good Agricultural Practices Worldwide. Other standards have been initiated by food producers, such as the Dutch HACCP.

16.4 FOOD SAFETY STANDARDS

Food safety is the guarantee that food has no harmful consequences for the health of the end-user. But, what is a justified/acceptable level of food safety? For some substances, a “zero tolerance” applies, whereas for others this is unrealistic. To protect health, much research is conducted to justify the use or banning of different substances in food production. Based on this research, criteria for different substances are set and controlled.

The amount of toxic substances or food-borne pathogens that a human body can manage before health risks arise, differs by substance or pathogen and by person. In determining and setting a limit, the impact of the substance on vulnerable persons is taken into account to ensure that food products are in principle safe for everyone.

Different types of safety limits exist. Microbiological testing of food products is insufficient to guarantee the safety of a foodstuff due to reasons related to the sampling method, the test methodology, and the uneven distribution of micro-organisms. Owing to these difficulties, the (microbial) safety of food is ensured by a more preventative approach, such as product and process design and the application of Good Hygiene and Manufacturing Practices (GHP, GMP) and the Hazard Analysis Critical Control Point (HACCP) principles, in combination with microbiolog-

¹ Lukas WENINGER is Student at the University of Natural Resources and Applied Life Sciences Vienna, Master programme Agricultural and Food Economy (l.weninger@students.boku.ac.at).

ical risk assessment as defined by the Codex Alimentarius.

Different toxicological limits also exist. The acceptable daily intake (ADI) is a measure of the amount of a specific substance which is deliberately used in the production process that can be ingested over a lifetime without appreciable health risk. The provisional tolerable daily intake (PTDI or TDI) is the maximum daily exposure level to toxic substances which occur naturally in food and drinking water. These substances will deteriorate over time or will be excreted by the body. For other toxic substances that cumulate in the body, such as heavy metals or dioxins, the provisional tolerable weekly intake (PTWI) is used. It is the maximal quantity of a substance which can be ingested during a week without having an adverse health effect in the long term.

The maximal residue levels (MRL) is a legal limit which is based on ADIs, PTDis and PTWIs including an extra safety margin so that even persons who eat excessively of a specific product will not reach the ADI, PTDI or PTWI.

Next to these limits, there is a need for long-term objectives for food safety. For this reason, the Codex Alimentarius has introduced the term Food Safety Objectives (FSOs). A FSO has provisionally been defined as the maximum frequency and/or concentration of a (microbial) hazard in food at the point of consumption that ensures the Appropriate Level of Protection (ALOP).

At global level, many countries are working together on further harmonisation. Within the EU, where limits for food safety are fully harmonised, the European Commission takes decisions on new standards, while the FAO/WHO Codex Alimentarius Commission deals with such issues on a global level and serves as the global reference for food standards, guidelines and codes of practice.

Within the EU, the specific task of the European Food Safety Authority (EFSA) is to assess and communicate on all risks associated with the food chain. The EFSA has an advisory role to inform policy decisions related to food safety issues.

16.5 ORGANISATION AND LEGISLATION

Guaranteeing safety and quality to consumers is challenging for food industries. Organisation and legislation are closely related, since any regulatory decision for improving food safety impacts both firms and consumers.

An interesting trend in recent years has been for public regulation to follow the standards laid down by private regulation. A prime example is the requirement for HACCP control systems which is becoming a common feature of public food safety regulations. An important characteristic of this approach is its inherent flexibility.

When good practices by farmers or the market itself cannot lead to an acceptable level of safety for society, the regulator needs to turn to mandatory tools such as minimum safety standards, labelling (including certification) and liability. While the economics literature generally agrees that firms do not make socially optimal safety choices, there is controversy about the optimal combination of these tools.

16.6 IMPLICATIONS FOR PRODUCERS, CHAINS AND CONSUMERS

Food quality and safety regulations, controls and certification entail a number of opportunities as well as challenges for different stakeholders involved in contemporary food chains.

From a consumer perspective, food safety is typically a non-negotiable attribute. Informed consumers would never knowingly consume unsafe food, although individual reactions of consumers may vary considerably.

Also from the agriculture and food producer perspective, food quality and food safety have quite a distinct meaning. Whereas food quality is a possible means for product differentiation, food safety is an absolute prerequisite for market access, and thus not a voluntary choice for an economic actor involved in the agro-food chain.

Current food quality and food safety regulations face a number of problems among producers. Investing in food safety does usually not pay off immediately. Rewards are mostly indirect.

16.7 CONCLUSIONS

Four key challenges for the future development of food quality, food safety and certification in the EU are identified.

The first challenge pertains to determining the optimal level of mandatory food safety standards and control, and to finding the optimal balance between mandatory regulation, private or self-regulation, and voluntary certification initiatives.

The second challenge relates to food safety standards, where further harmonisation, further fine-tuning of long-term objectives and advancements with respect to food safety modelling exercises is needed.

Third, a better understanding and in-depth analysis of the macro- and micro-economic implications of food quality, food safety and certification strategies in terms of international trade, the structural organisation and competitiveness of EU agro-food business is recommended.

Last but not least, implications for both EU consumers who vote for products with their limited family budget hoping that these products will meet expectations, as well as for EU citizens, who have the right to access to safe food and honest information, need to be adequately monitored.

LITERATURE

OSKAM, A., MEESTERS G. and SILVIS H. (2010): *EU Policy for Agriculture, Food and Rural Areas, 285-295: Wageningen Academic Publishers.*

MEUWISSEN, M., VELTHUIS, A., HOGVEEN, H. and HUIRNE, R. (2003): *Traceability and certification in meat supply chains.* Agribusiness 21: 167-181.

BUZBY, J. and FRENZEN, P. (1999): *Food safety and product liability.* Food Policy 24: 637-651.

HENSON, S. and HOLT, G. (2000): *Exploring incentives for the adoption of food safety controls: HACCP implementation in the UK dairy sector.* Review of Agricultural Economics 22: 407-420.