

# Future role of quality assurance schemes in the EU agri-business sector

**Xavier Gellynck,**

**Bianka Kühne**

*Ghent University, Department  
Agriculture Economics, Division  
Agro-Food Marketing, Coupure  
Links 653, 9000 Ghent, Belgium  
E-mail: Xavier.Gellynck@UGent.be*

This paper addresses the future role of food quality assurance schemes (QAS) in the European agri-food business. In the European Union, the food industry and the retail sector have developed a lot of different QAS in response to the several food safety crises of the last years. The increasing number of QAS led to consumer confusion, increased costs for food producers, and non-tariff trade barriers for exporting developing countries. Therefore, a benchmarking and harmonization process has started in the EU, with the aim of reducing the number of schemes, overlapping and duplicate audits, and costs for food producers. In the future, QAS will be more frequently used as a tool for integrated chain management in the European agri-food industry, assuring food safety and quality on all stages of the food supply chain. Special emphasis will be put on the integration of farmers in the management of food quality and safety at all stages of the food supply chain.

**Key words:** agri-food industry, EU, food safety, harmonization, quality assurance schemes

## INTRODUCTION

Quality consists of two dimensions: objective and subjective. The objective quality includes the physical and chemical characteristics integrated in the product and is naturally in the concern of engineers and food technologists. Subjective quality is based on the consumer's perception. Food producers will achieve competitiveness when they are able to successfully link the two approaches through translation of the consumers' quality requirements (subjective quality) into physical product characteristics (objective quality), and when consumers can derive the required quality from the properties of the final products. Therefore, successful linking is a principal item of the economic importance of quality (Grunert, 2005).

Quality assurance schemes (QAS) provide systems for assuring and certifying desired product attributes (Bredahl..., 2001). The final aim of origin and quality assurance systems is to create a common vision of quality and a coordinating scheme to deliver value added products, which are better accepted by consumers (Ordóñez..., 2004). The basic quality standards, HACCP and ISO 9000/ISO 22000, have an important role in improving the process transparency, providing assistance in detecting and avoiding failures systematically and in organizing traceability (Roosen, 2003).

Within a supply chain, consumers have a crucial position as stimulators of a consumer-driven or market-oriented chain organization (Gellynck..., 2004). In recent years, the consumer's knowledge and concerns about food-borne illnesses and food safety has increased. Food safety crises of recent years, such as BSE, dioxin and MPA, also led consumers to rethink their attitudes to and behavior towards food consumption in general

and meat consumption in particular (Burton..., 1996; Henson..., 2000; Latouche..., 1998; Verbeke..., 1999; 2000; Buzby, 2001). Additionally, knowledge about the impact of food-borne illnesses increases. Shogren (Shogren, 2004) mentions 300,000 hospitalizations and 5,000 deaths in the USA annually, with associated costs estimated to be between 3 and 7 billion US\$. Experts claim that the risks posed by food-borne diseases will increase because of changes in elements such as climate, microbiological systems, water supplies, urbanization, population graying and food trade intensity (Kaferstein..., 1999). Policymakers have responded to these concerns by creating new policies for safer food with the ultimate goal of increasing consumer health. The emerging issues and related problems pertain to different production stages within the food supply chain. In response, the food industry developed many different quality and safety assurance systems (Bredahl..., 2001).

Consequently, consumer demand is an important driving force for the introduction of a variety of information systems, such as QAS, traceability and quality labels (Gellynck..., 2001; Leat..., 1998). However, the rapid increase in the number of QAS also generates complaints at several levels in the food chain:

- food producers have to respond to a wide variety of schemes, which lead to increasing costs;
- consumers are confused because of unclear labeling and communications;
- developing countries consider these QAS as non-tariff trade barriers.

The European Commission and other national and international initiatives work on the harmonization and benchmarking of the many different developed QAS. The idea is to come to an overall reduction in the number of schemes, reduced overlap-

ping and duplicate audits and reduced costs for both producers and manufacturers.

The objective of this paper is to draw a picture of the future role of QAS in the EU agribusiness sector. The recent process in the European Union (EU) points to a future where food quality and safety will be of high importance along with reduced agricultural subsidies and a reorientation to a more business-oriented policy.

## QUALITY ASSURANCE SCHEMES IN THE EU

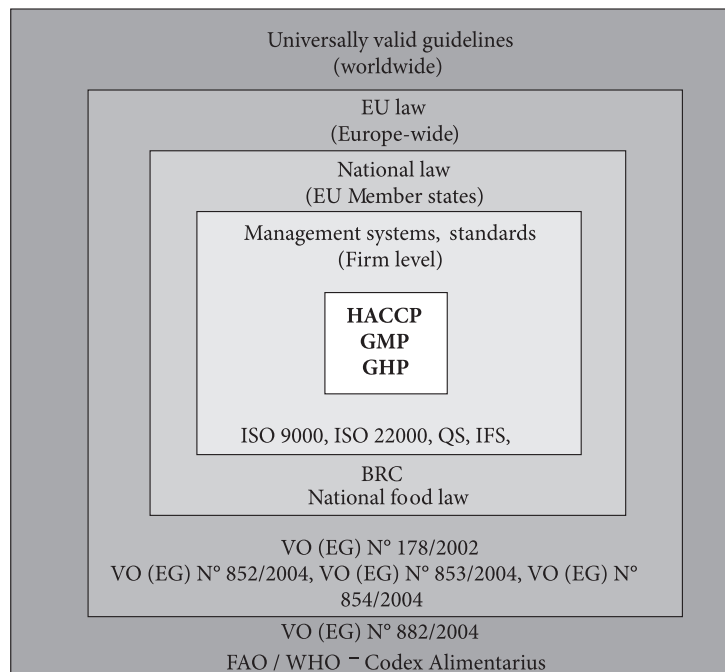
Most QAS are based on the quality management principles of ISO 9000/ISO 22000 and the HACCP concept. In addition, some are following the Good Agricultural Practice (GAP) (Roosen, 2003; Henson, 2003). These basic quality standards provide improvement of process transparency, assistance to detect and avoid failures systematically, and a better chance for traceability. The implementation of such concepts to the whole chain is motivated by internal and external factors, like improvement of production efficiency and market access (Roosen, 2003). Figure 1 gives an overview of the different application levels of QAS.

As presented in Fig. 1, the Codex Alimentarius (CA) is enclosing all quality systems and standards. The CA is a joint program of the Food and Agricultural Organization (FAO) and the World Health Organization (WHO) establishing food safety standards related to the international trade in food products. The main aims of the CA commission are the protection of consumer's health and ensuring a fair trade in the food sector. Therefore, the CA commission is supporting the coordination of all processes and analyses from international governmental and non-governmental institutions related to food safety standards.

The different nations have implemented a lot of their own regulations and laws to eliminate or at least minimize the danger for the health of man, animals or plants from imported food products. The CA commission aims at the harmonization of all national food laws in order to reduce trade barriers and improvement of the free and fair trade among all nations (FAO and WHO, 1999).

On the European and national level, the work of the CA commission is supported by the European Commission. Recently, the ISO 22000 standard has been developed, providing a framework of internationally harmonized requirements in the food sector. This standard was developed through a close collaboration between the International Organization for Standardization (ISO) and the Codex Alimentarius Commission and implemented in September 2005. ISO 22000 is an advancement of the ISO 9000 standard and, furthermore, it is combining the ISO 9000 standard and the HACCP concept into one standard. However, the main difference between ISO 22000 and ISO 9000 concerns the scope. The first one is aiming at food safety, whereas the latter one is aiming at food quality. The ISO 22000 standard is meant to be sector-independent and applicable to all types of organizations within the food supply chain. It can be implemented independently or of integrated in other management systems.

On firm level, both horizontally and vertically oriented quality systems are applied. Horizontally oriented quality systems are developed through retailer initiatives such as International Food Standard (IFS), British Retail Consortium (BRC), Euro Retailer Produce working group Good Agricultural Practice (EUREPGAP) and Global Food Safety Initiative (GFSI). For horizontally oriented quality systems, the main focus is on process quality, though assurance of product quality and product liability is also important. Product liability is the area of law in which



**Figure.** Overview of the different application levels of quality assurance schemes

Source: Schmidt A. (2006). Vergleichende Darstellung unterschiedlicher Qualitätsmanagementsysteme in der Fleischwirtschaft unter besonderer Berücksichtigung der Effizienz und Praktikabilität. Institut für Hygiene und Technologie der Lebensmittel tierischen Ursprungs der Tierärztlichen Fakultät Ludwig-Maximilians-Universität München. PhD thesis, Adv: Prof. Dr. A. Stolle, Feb. 10, 2006.

manufacturers, distributors, suppliers, retailers, and others who make products available to the public are held responsible for the injuries those products cause. It allows an injured party to gain financial compensation from the manufacturer or seller of a product. Cross-compliance is an important part of the farmers' EurepGAP system. Cross-compliance includes adherence to different EU quality standards. Farmers, but also food producers, must comply with requirements regarding public, environment, animal and plant health, animal welfare, and the maintenance of all agricultural land in good agricultural and environmental conditions.

In comparison to vertically oriented quality systems, retail initiatives do not involve the supply chain but function as a quality filter for deliveries from suppliers (Schiefer, 2003). It is assumed that the benefit of improving the efficiency of procurement management is one of the main reasons why retailers support QAS so strongly (Gellynck..., 2006).

Vertically oriented quality systems evolved due to the rising focus on traceability. The organization of these quality systems can be divided into open (e.g., Agri-Confiance (France), Q & S (Germany)), semi-closed (e.g., Lable Rouge (France), Little Red Tractor (UK)) and closed (e.g., IKB (Netherlands)) supply chains and networks<sup>1</sup> (Schiefer, 2003). However, the intensity of cooperation at different stages of the supply chain, as well as the traceability intensity can be different. Other reasons for implementation of vertically oriented quality systems are the benefits of product liability and cross-compliance. Vertically oriented quality systems are only little accepted by the retail sector, since process quality is not in the focus of vertically oriented quality systems. Though, process quality is in the main focus for horizontally oriented quality systems of the retail sector.

The HACCP concept and Good Manufacturing Practice (GMP) and Good Hygienic Practice (GHP) form the center of the quality assurance schemes (Figure), since the majority of the QAS incorporate these concepts and practices in their regulations.

The HACCP concept was adopted by the agri-food sector mainly because of food safety concerns in the eighties of the 20<sup>th</sup> century. Thereby the main focus was on product quality in order to reduce food-borne illness (Krieger..., 2005). HACCP is applied for the food industry and aims to establish good production, sanitation and manufacturing practices to produce safe foods and to be pro-active and preventive rather than reactive. The HACCP concept can be applied to all stages of the food system. The implementation of HACCP and GMP to the whole chain is motivated by internal and external factors, like improvement of productive efficiency as the internal and market access as the external factor (Roosen, 2003).

## HARMONIZATION AND BENCHMARKING PROGRESS

The implementation of a combination of QAS may contribute to improved food safety and traceability along the chain due to an

<sup>1</sup> **Open:** open supply networks; **Semi-closed supply networks:** based on groups of enterprises distinguished by region or product category but with flexible trade links within the group, and **Closed supply chains:** based on groups of enterprises with clearly defined trade links among participating enterprises.

interaction among different QAS over all stages of the agri-food supply chain. For instance, the combination of EurepGAP for farmers and IFS for the supplier or retailers within one supply chain leads to a higher tracking and tracing between the stages of the agri-food industry. Traceability systems are developed to assure food safety by increasing transparency, liability, recall efficiency and the control of livestock epidemics (Meuwissen..., 2003). Since January 1, 2005, based on the General Food Law, it is obligatory for each food company in the EU to install a traceability system. Traceability means that companies must be able to identify the suppliers of raw materials and the customer of its end products on a transaction basis. It includes both tracking and tracing. Tracking refers to the determination of the ongoing location of items during their way through the supply chain. Tracing relates to defining the role, composition, and treatments of a food product in the different stages of production life cycle.

However, there are high administrative costs and burdens as well as overlapping audits. The latter is further increasing the costs. At the EU level, there are joint activities to decrease the high administrative costs and burdens through benchmarking and harmonization (EC, 2005; EU, 2007). Benchmarking of basic requirement schemes led to an overall reduction in the number of schemes and reduced overlapping and duplicate audits. Harmonization of QAS requirement is stimulated at the retailer's and certifier's levels, with the aim to further reduce the overlap and duplicate audits. Farmers and first-stage processors are stimulated to participate in the development and operation of certification schemes and even to take the initiative regarding the ownership of a QAS (Gellynck, 2007; Kordik, 2007). The benchmarking and harmonization process is not completed and will be continued in the future.

## FUTURE ROLE OF QAS

The recent development in the EU common agricultural policy (CAP) is responding to the increasing criticism regarding agricultural subsidies and protectionism on the one hand and budget constraints on the other. The market organization within the CAP highly protects domestic production through import levies and stimulates exports through restitutions. Lowering the EU import barriers has a clear effect on the EU competitive position.

QAS can play an important role in improving the global competitiveness affected by reduced agricultural subsidies and protections. There are several initiatives exploring the impact of and potential for QAS and other certification schemes both in Europe and at the world market level. A recent example is the Conference on Food Quality Certification Schemes organized in Brussels, Belgium on February 5 and 6, 2007 (EU, 2007). Conclusions drawn at this 'quality-conference' stipulate that QAS will act as differentiation tools for improving farming efficiency, promoting good agricultural practice (GAP) and including the possibility to obtain stable business relations. Only the best performing exporting farmers are able to be certified, which may lead to a sound market, since the weakest farmers may be excluded (Fulponi, 2007).

In the coming years, the role of farmers will change from simple farmers to managers of their own small or medium-sized

enterprise (SME). Nevertheless, competing in the world market will not be straightforward. European farmers face problems of differentiation due to their production commodities. The circumstances in the global market are not the same as in the EU. The requirements in the EU are more severe than in most other parts of the world. This relates to animal welfare, animal and plant health, public health and safety, the environment, and the maintenance of all agricultural land in good agricultural and environmental conditions. These additional efforts are hardly visible and not tangible in the final products, despite the cost increased due to these more severe regulations. Consequently, farmers are not easily remunerated for these costs, since they face difficulties to valorize them. Therefore, farmers have to look for the ways to differentiate their products, for instance, in terms of tradition, origin, culture and culinary heritage. The implementation of a QAS covering such topics is one solution for achieving differentiation.

Small and medium-sized food processors and producers compete with large multinationals and face similar problems as farmers. Most of small food producers do not succeed in differentiating their products and maintaining a competitive advantage. The implementation of QAS and a good communication among retailers and consumers can improve the product differentiation. Large food processors are not willing to buy raw materials and other products exclusively from European farmers. The same is valid for retailers preferring to compose their product assortment from global resources rather than from small and medium-sized European farmers and producers. Both prefer to maintain their freedom of choice in purchasing raw materials and food products, from everywhere in the world. They valorize their products through a strong branding. Retailers succeeded in differentiation and in developing and establishing their own QAS.

Nevertheless, the main challenge for QAS is the recognition and valorization by the consumer. The low consumer's willingness to pay (WTP) is not matching with their high expectations and preferences concerning quality and safety (Gellynck, 2007). This is mainly due to miscommunication, since consumers are affected rather by emotional than rational information.

However, achieving and maintaining competitiveness in the global market, small and medium-sized farmers and food processors will not be as successful as large enterprises are, since they do not benefit from economies of scale and a large product assortment. Through a QAS jointly applied by farmers and producers the improvement and maintenance of competitive advantage is easier achievable than when they try separately (Orihuel, 2007). Thus, to achieve sustainable competitiveness it is important to act in a chain. However, it is not obvious for small and medium-sized farmers and food producers that they should integrate themselves in a chain. The main challenges for farmers are the difficulties to form alliances along the chain and to find partners for necessary investments. The most powerful partners for farmers are retailers, because of the increasing concentration in the retailer sector. Farmers, who implement QAS according to the quality and safety requirements of the retailers, will be selling their food products easier to the retailers than farmers who don't.

QAS are a very useful tool to integrate all supply chain members, and are supporting the installation of a successful supply chain management. Integrated supply chains allow an easier

control of food safety and quality on all stages of the food chain and reduce market failures in the system (Roosen, 2003). A successful integrated supply chain is managed by a so-called chain director. It could be some firms of the supply chain who push for higher safety and quality efforts.

The integration of food safety and quality assurance schemes in all stages of the food supply chain has until now been accompanied with difficulties. Especially the integration of farmers is difficult, as they fear too much control on their business besides the above mentioned barriers. For instance, breeders fear too much control in their meat chain, when the slaughterhouse is in the position of a leader (EC, 2005). Public authorities should act as initiators for the implementation of integrated QAS assuring food quality and safety over the whole supply chain.

## CONCLUSIONS

The recent developments in the area of quality assurance systems, as well as the concentration in the retail sector will lead to a reorganization of the European agri-food industry. Food supply chains will undergo an increasing integration and globalization led by mainly supermarket retailers (Wales..., 2006). The implementation of QAS with the purpose of an integrated chain quality and safety control leads to advantages for all chain members and increased competitiveness for the whole chain [30]. Particularly, the integration of farmers in QAS will be of main importance. Retailers have an important function in that process because of their strong position in the food supply chain. Farmers who implement QAS matching at least the minimum requirements of the retailers will increase their efficiency and competitiveness in the long run. But also the implementation of QAS assuring quality in terms of tradition, origin, culture and culinary heritage will lead to a increased differentiation and competitive advantage for farmers and small and medium-sized food producers.

In the future, food supply chains will change to integrated supply chains where food safety and quality can be guaranteed on all stages of the supply chain, from the farmer to the consumer. Quality assurance systems provide an effective tool to manage and control the whole food supply chain.

It is the responsibility of stakeholders and the private sector to continue the work on benchmarking and harmonizing the QAS in Europe and the creation of integrated supply chains supported by the European Union and Commission.

## References

1. Bredahl M. E., Northen J. R., Boecker A. et al. Consumer demand sparks the growth of quality assurance schemes in the European food sector // Regmi A. (ed.). *Changing Structure of the Global Food Consumption and Trade*. Market and Trade Economics Division, Economic Research Service, US Department of Agriculture, Agriculture and Trade Report. WRS-01-1, May, 2001. P. 90–102.
2. Burton M., Young T. The impact of BSE on the demand for beef and other meats in Great Britain // *Applied Economics*. 1996. Vol. 28. P. 687–693.

3. Buzby J. C. Effects of Food Safety Perceptions on Food Demand and Global Trade // Regmi A. (ed.). *Changing Structure of the Global Food Consumption and Trade*. Market and Trade Economics Division, Economic Research Service, US Department of Agriculture, Agriculture and Trade Report. WRS-01-1, May, 2001. P. 55–66.
4. EC (2005). Food Quality Schemes Project. Retrieved 13.03.2007. <http://foodqualityschemes.jrc.es/en/index.html>
5. EU. Conference on food quality certification schemes – Adding Value to Farm Produce. Brussels, Belgium, Feb 5th and 6th, 2007. [http://ec.europa.eu/agriculture/events/qualityconference/index\\_en.htm](http://ec.europa.eu/agriculture/events/qualityconference/index_en.htm)
6. FAO and WHO Understanding the Codex Alimentarius. Rome: Food and Agriculture Organization of the United Nations (FAO) and World Health Organization (WHO). 1999. P. 34.
7. Fulponi L. Presentation of results of workshop 3 – Food Quality Schemes in the international context // Conference on food quality certification schemes – Adding Value to Farm Produce, Brussels, Belgium, Feb 5th and 6th, 2007.
8. Gellynck X., Verbeke W., Viaene J. Quality Management in the Food Supply chain: How does the food industry interact with consumers, retailers and public authorities? G. Schiefer and U. Rickert (eds.) // *Quality Assurance, Risk Management and Environmental Control in Agriculture and Food Supply Networks*. Germany: ILB Press, 2004. P. 443–452.
9. Gellynck X., Verbeke W. Consumer perception of traceability in the meat chain // *Agrarwirtschaft*. 2001. Vol. 50. P. 368–374.
10. Gellynck X., Kühne B. Food Safety, Animal Diseases and Supply Chain Management in the European Meat Business // National Public Policy Education Conference – “Consequences of the 21st Century Food Systems”, Fayetteville, Arkansas, Sep 17–20, 2006.
11. Gellynck X. Presentation of results of workshop 1 “The economics of Food Quality Schemes”. Conference on food quality certification schemes – Adding Value to Farm Produce. Brussels, Belgium, Feb 5th and 6th, 2007.
12. Grunert K. G. Food quality and safety: consumer perception and demand // *European Review of Agricultural Economics*. 2005. Vol. 32(3). P. 369–391.
13. Henson S. J., Northen J. R. Consumer assessment of the safety of beef at the point of purchase: A pan-European study // *Journal of Agricultural Economics*. 2000. Vol. 51. P. 90–105.
14. Henson S. Food Safety Issues in International Trade // Unnevehr L. (ed.). *Food Safety in Food Security and Food Trade*. International Food Policy Research Institute, 2003.
15. Kaferstein F., Abdussalam M. Food Safety in the 21st century // *Bulletin of the World Health Organization*. 1999. Vol. 77(4). P. 318–338.
16. Kordik H. Presentation of results of workshop 2 – “Food Quality Schemes in the EU” // Conference on food quality certification schemes – Adding Value to Farm Produce. Brussels, Belgium, Feb 5th and 6th, 2007.
17. Krieger S., Schiefer G. Decision support model for the optimization of quality systems in the agri-food industry // 11th EAAE-Congress ‘The Future of Rural Europe in the Global Agri-Food System’. Copenhagen, Denmark, August 24–27, 2005.
18. Latouche K., Rainelli P., Vermersch D. Food safety issues and the BSE scare: Some lessons from the French case // *Food Policy*. 1998. Vol. 23. P. 347–356.
19. Leat P., Marr P., Ritchie C. Quality assurance and traceability – the Scottish agri-food industry’s quest for competitive advantage // *Supply Chain Management*. 1998. Vol. 3. P. 115–117.
20. Meuwissen M. P. M., Velthuis A. G. J., Hogeveen H. et al. Traceability and Certification in Meat Supply Chains // *Journal of Agribusiness*. 2003. Vol. 21(2). P. 167–181.
21. Ordóñez H., Basso L., Palau H. et al. Beef and Pork Agribusiness in Argentina. Design and Implementation of Origin and Quality Assurance Systems. Comparative Discrete Structural Analysis // IAMA’s 14th Annual Conference: “Sustainable Value Creation in the Food Chain”. Switzerland, June 12–15, 2004.
22. Orihuel B. Presentation of results of workshop 4 – “Food Quality Schemes in close-up” // Conference on food quality certification schemes – Adding Value to Farm Produce. Brussels, Belgium, Feb 5 and 6, 2007.
23. Roosen J. Marketing of Safe Food Through Labeling // *Journal of Food Distribution Research*. 2003. Vol. 34(3). P. 77–82.
24. C. A. // <http://codexalimentarius.net>. (06.03.2007)
25. Schiefer G. From Enterprise Activity Quality Management to Sector Initiative Quality Assurance: Development, Situation and Perspectives. International Agricultural Trade and Policy Center. Florida: University of Florida – Institute of Food and Agricultural Sciences, 2003.
26. Shogren J. F. Food-safety economics: Consumer health and welfare // Velthuis A. G. J., Unnevehr L., Hogeveen H. et al. (eds.). *New approaches to food-safety economics*. Kluwer Academic Publishers. 2004. P. 19–28.
27. Verbeke W., Viaene J. Beliefs, attitude and behaviour towards fresh meat consumption in Belgium: Empirical evidence from a consumer survey // *Food Quality and Preference*. 1999. Vol. 10. P. 437–445.
28. Verbeke W., Ward R. W., Viaene J. Probit analysis of fresh meat consumption in Belgium: Exploring BSE and television communication impact // *Agribusiness*, 2000. Vol. 16. P. 215–234.
29. Wales C., Harvey M., Warde A. Recuperating from BSE: The shifting UK institutional basis for trust in food // *Appetite*. 2006. Vol. 47(2). P. 187–195.
30. Weindlmaier H., Dustmann H. Comprehensive quality management systems as a part of an efficient supply chain management in the food sector // 82nd Seminar of EAAE – “Quality Assurance, Risk Management and Environmental Control in Agriculture and Food Supply Networks”. Bonn, Germany, May 14–16, 2003.

Xavier Gellynck, Bianka Kühne

## MAISTO KOKYBĖS UŽTIKRINIMO SCHEMŲ ATEITIES VAIDMUO ES AGROPRAMONINIAME SEKTORIJE

### *S a n t r a u k a*

Straipsnyje apžvelgiamas maisto kokybės užtikrinimo schemų (KUS) ateities vaidmuo Europos žemės ir maisto ūkio sektoriuje. Dėl pastarųjų metų maisto saugumo krizių Europos Sąjungos (ES) maisto pramonėje ir mažmeninės prekybos sektoriuje išplėtota daug įvairių KUS. Didėjantis KUS skaičius glumina vartotojus, didina maisto gamintojų išlaidas ir naujus netarifinius prekybos apribojimus eksportuojančioms besivystančioms šalims. Siekiant sumažinti schemų skaičių, persidengiančius ir besidubliuojančius auditus bei išlaidas gamintojams, ES pradėta lyginamoji analizė ir harmonizavimas. Ateityje KUS dažniau bus taikomos kaip priemonė integruotos Europos žemės ir maisto ūkio sektoriaus grandinės valdymui, užtikrinant maisto saugumą ir kokybę visose maisto tiekimo grandinės stadijose. Ypač daug dėmesio bus skiriama ūkininkų integracijai į maisto kokybės ir saugumo valdymą visose maisto tiekimo grandinės stadijose.

**Raktažodžiai:** ES, harmonizavimas, kokybės užtikrinimo schemos, maisto saugumas, žemės ir maisto ūkio pramonė

Гавер Геллинк, Бианка Кюне

## БУДУЩАЯ РОЛЬ СХЕМ ОБЕСПЕЧЕНИЯ КАЧЕСТВА ПРОДОВОЛЬСТВИЯ В АГРОПРОМЫШЛЕННОМ СЕКТОРЕ ЕС

### *Р е з ю м е*

В статье рассмотрены перспективы схем обеспечения качества (СОК) пищи в сельскохозяйственном и продовольственном секторах Европы. В результате кризисов безопасности продовольствия последних лет в пищевой промышленности и розничной торговле ЕС развитие получили различные СОК. Рост их численности смущает потребителей, увеличивает расходы производителей пищевых продуктов, новые нетарифные торговые ограничения экспорта развивающихся стран. В целях сокращения численности схем, дублирующих аудиты, расходы производителей, в ЕС начаты сравнительный анализ СОК и их гармонизация. В будущем СОК будут использоваться как мера управления интегрированной цепи Европейского сельскохозяйственного и продовольственного секторов в целях обеспечения безопасности и качества пищи на всех стадиях цепи продовольственного снабжения. Особое внимание будет уделено интеграции крестьян в управление качеством и безопасностью пищи на всех стадиях цепи продовольственного снабжения.

**Ключевые слова:** безопасность пищи, ЕС, гармонизация, сельскохозяйственная и продовольственная промышленность, схемы по обеспечению качества