IMPLEMENTATION OF CERTIFICATION SCHEMES IN SERBIAN AND NEIGHBORING COUNTRIES AGRIFOOD INDUSTRY

Dejan ĐORĐEVIĆ[1], Dragan ĆOĆKALO[1], Srđan BOGETIĆ[2], Cariša BEŠIĆ[3], Edit TEREK[1]

[1]*University of Novi Sad, Technical faculty "Mihajlo Pupin" in Zrenjanin, Republic of Serbia*
[2]*Belgrade Business School, Belgrade, Republic of Serbia*
[3]*University of Kragujevac, Faculty of technical Science, Čačak, Republic of Serbia*
E-mail: djole@rocketmail.com

Summary: Market requirements in the field of agro-food industry which have become as a result of intensified competition, have contributed to the change in business philosophy of food companies. Questions of food safety, standardization and quality of food, provide challenges for each food company. Companies need to respond to these challenges if they want to survive in the market. The purpose of this paper is to analyze the current situation in the implementation of certification schemes in the agro-food industry, where ISO 22000 and GLOBALG.AP are recognized as promising ones. Special attention is addressed in two ways: (1) Comparison of the application of food safety certification schemes, and (2) Overview and opportunities for Serbia and neighboring countries, in relation to its EU food safety schemes certificaion harmonization efforts.

Keywords: agro-food industry, certification schemes, competitiveness, Serbia

1. Introduction

In recent years in developed countries a trend related to production of healthy food has been developed. European Union (EU) pays a great attention to safe food which can be illustrated by EU Council and Parliament Directions. In Introduction part it is written that [1, p.12] free flux of safe and healthy food is a crucial element of interior market (EU) which significantly contributes to health and welfare of the citizens as well as to social and economic interests.
Food production, distribution and consumption have a significant influence on the environment (e.g. great energy and material demand, emission of CO_2, increased needs for agricultural areas), but they also have a serious social, economic and medical consequences (e.g. health risks, increased obesity, hunger). From the aspect of sustainability, there have been many changes in behavior of people in developed countries which results in increased energy consumption, agricultural areas and other resources. Therefore, the trend is being developed in those countries in relation to food consumption which can be observed through two elements: its influence on the environment and health.
However, beside consumers, food industry as well has begun changing its relationship towards food production. The reasons for such relations can be found in the following trends:

- Changes on food markets which are more and more oriented towards safe and healthy food;
- Greater role of primary food production in the process of safe food production;
- Increased care of the society related to environmental protection through reduction of pollution, energy efficiency increase and usage of alternative energy sources;
- Technological changes in food production which enable better food processing, as well as more secure and safer delivery through logistic chain;

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- New legal regulations demanding production of safe and healthy food without using chemical supplements;
- Enlarging wholesale chains which results in increased competitiveness.

In Rural Development Programme from 2014 to 2020 European Union obliged all countries members to finance directly farmers with 30% of incestive funds which would be invested in implementation of sustainable agricultural methods (ecologically acceptable). It means that if you deal with environmentally friendly farming you will not have to change the way of work in order to adjust your methods to environmentally friendly ones. There is also a new support programme for the current farmers who want to move on to ecological farming (within Common Agricultural Policy - CAP). All countries members can offer incentives to environmentally friendly farmers via various types of flexible financial options which will support, for example, cooperation in food production chain for the sake of supporting innovations, development of plans related to quality of agricultural products, making groups or producers'organizations, etc.

2. Implementation of certification schemes and competitiveness of agrifood sector

Thanks to globalization and market changes that are consequences of this process, production, processing and trade of agricultural products have undergone certain changes mostly in the sense of enlargement. Thus, for instance, almost the whole market of agricultural products in the USA is controlled by 6 big purchase chains (Wal-Mart, Kroger, Costco etc.), while in EU 15 biggest supermarkets made EUREP group. Five retail chains (known as the "C5") have the key role on the markets of EU countries members [2], although the food retail market varies significantly between countries:
- Germany and the UK are the most concentrated markets with over 70% of the market controlled by the C5.
- The French market is also comparatively concentrated, with a C5 of around 60%.
- In Italy, Spain and the Czech Republic, the C5 is between 30% and 45%.
- It has come to significant increase of concentration on the markets of Great Britain, Czech Republic, Romania and Spain during the last tree years.

Repurchase chain needs of agricultural products are not easy to satisfy neither according to quality nor to dynamics of distribution. As an answer to enlargement of repurchase market a great number of production and processing systems is appearing as well as numerous associations of consumers. They are working on modernization of cultivation technology in order to satisfy numerous market requirements with the aim of realization of production for the known buyer. Only this type of production is secure and cost effective.

Parallel to enlargement of repurchase market of agricultural products goes the process of standardization of production, processing and distribution. EUREP group has its EUREPG.A.P. (Good Agricultural Practice) programme. GLOBAL G.A.P. standard was created on the basis of this programme. In the USA there are even 35 G.A.P. programmes. Three market trends have conditioned an initiative for adoption of this standard: increasing complexity of retailer supply chains, increasing the influence of business surroundings and general complexity and enlargement of market requirements, in other words, consumers and NGOs, [3]. The requirements are mainly related to the following elements: food safety (it must be verifiable), environmental protection, standardized production procedures and quality standards, secured good and safe work condition, etc.

Standards are often narrow and inflexible, they are specific for one group or a group of retailers, they often include a certain level of IT usage, repeated investments, on one side, while on the other side, business of primary producers of food products in conditions of reduced repurchased prices becomes a reality. Making profit in these conditions can only be

compensated through increase in yield,in other words, reduction of production costs per unit. All these facts are directing a production towards enlargement, increase in planting and producition units, modernization of production as well as maximum possible reduction of risks from bad weather (frost, hail, drought, etc.) or illnesses and parasites, etc.

The main possible competition concerns would be related to potential foreclosure of competing buyers (i.e. such schemes would be capable of preventing access of competing/alternative retailers to agricultural supplies). A particular certification scheme applied by one or more companies with remarkable market power may limit the access of competing retailers to certain categories of products and/or limit those retailers possibility to differentiate their product range and procurement policies, and, in this way, lose competitive advantage of their more powerful rivals.

3. Main characteristics of food safety certification schemes implementation

There are numerous private food standards and regulations which differ from one another according to the extent of complacency: some of them are voluntary while the others are compulsory. Another difference is in terms of their geographic area.There are also individual standards such as Nature's Choice (Tesco), Filières Qualité, Field-to-Fork and collective national and international standards, Assured Food Standards, Qualitat Sicherheit and Farm Assured British Beef and Lamb as the examples for former and International Food Standard, Marine Stewardship Council, Forest Stewardship Council and GLOBALG.A. as the examples of the latter.

A variety of quality assurance systems have been adopted to manage particular product attributes. While each firm is unique, industries have established, over time, a similar pattern of quality assurance systems adoption and implementation - several different quality assurance systems are adopted and pieced together to obtain a satisfactory level of control for each of desirable attributes of the product.

The BRC Global Standard, which includes quality management system audits in food processing companies, grew out of the initiative of The British Retail Consortium - the leading trading organization in the UK. It is an international scheme with about 14.469 certificates issued in Europe and about 7.500 in the rest of the world.

Protected Designation of Origin (PDO), Protected Geographical Indication (PGI) and Traditional Specialities Guaranteed (TSG) systems started in 1992. with the support of the European Union. The main objective was to differentiate food products by guaranteeing their region-of-origin or traditional production methods. Consumers are informed by product labels - the focus here is on product quality. All in all (published, registered and applied), there are 1,437 PDOs, PGIs and TSGs in the European Union. [4]

Demeter standard, one of the first standards which started dealing with organic food,is becoming more and more important in the countries in this region, in which Slovenia and Croatia have a significant number of certified operations. Demeter has about 9,900 members in total.

ISO organization adopted the standard ISO 22000 in 2005. This standard can be implemented independently from other standardized ISO management systems. ISO 22000 integrates the principles of the Hazard Analysis and Critical Control Point (HACCP) system and application steps developed by the Codex Alimentarius Commission. By means of auditable requirements, it combines the HACCP plan with prerequisite programmes. Hazard analysis is the key to an effective food safety management system, since conducting a hazard analysis assists in organizing the knowledge required to establish an effective combination of control measures. Complementarity with HACCP is one out of ten reasons for implementation of ISO 22000, while the other reasons are the following [5]: improve product quality and safety,

improve the firm's image in the market and customer confidence, strengthen the firm's future competitive advantage, and improve internal processes and procedures and their monitoring. ISO 22000 is an industrial-specific risk management system for any type of food processing and marketing, which can be closely incorporated with the quality management system of ISO 9001. Combined with ISO 14001, this standard represents an equal partner in creation of integrated management system based on a risk. Although the "youngest" among a series of private standards related to food chain there is the biggest rate of growth in implementation of ISO 22000 - according to the data from 2013, this standard is implemented in 142 countries worldwide, with totally 26.847 certificate.

Positioning of food safety certification schemes is illustrated in the Table 1. 3rd party certifcation (TPC) has emerged as a signifcant regulatory mechanism in the global agro-food system - TPC reflects the growing power of supermarkets to regulate the global agro-food system, [6].

Table 1: Comparison of quality assurance systems[7]

Quality Assurance System	Attribute managed	Implementation	Advantages	Disadvantages
ISO 9001	Quality	Non-mandatory	Good fondation for a quality management system	Guarantee system quality only (not output quality). Experiance to implement. To generic.
ISO 22000	Food safety	Mandatory minimum for all suppliers	Good foundation for food safety management system. Based on HACCP	Dificult to implement. Comprehension of the system. Experiance to implement.
GLOBAL G.A.P.	Environment Food safety Social	Mandatory minimum for all suppliers	Objectivity (3rd party audits). Reduces monitoring and auditing costs. Specifies production practices.	Not flexible. High investment and running costs.
BRC	Food safety Value Organoleptic	Mandatory minimum for all suppliers	Reduces auditing costs Objectivity (3rd party audits) Includes food safety component (HACCP)	Not as flexible as form-specific quality assurance system.

GLOBAL G.A.P. nowadays represents one of the most common certified schemes worldwide in the field of food industry. Initially started as EUREPG.A.P. it was turned into GLOBAL G.A.P. in 2007 as more and more producers and retailers around the globe got connected over time. Primarily a pre-farm-gate process standard, for worldwide food safety affairs GLOBAL G.A.P. has increasingly been considered as a main reference for Good Agricultural Practice (G.A.P.). In countries including Austria, Chile, Denmark, France, Germany, Japan, Kenya, Mexico, New Zealand, Spain, and the UK, the GLOBAL G.A.P. has been incorporated into their domestic G.A.P. standards, usually in the form of public-private joint ventures.

GLOBAL G.A.P.was spreading very fast from 2005 when about 35,000 firms were included in certification process until 2012 with almost four times more firms, and finally in 2015 when over 140,000 firms are being certified (Figure 1). GLOBAL G.A.P. scheme has a network of 1.400 trained inspectors and audits who work for 142 accredited certified bodies whose aim is to certify 409 agricultural products in 112 countries, [8]. The countries, such as

Chile, Italy, Kenia, Peru, South Africa, are much more covered by this standardization scheme.
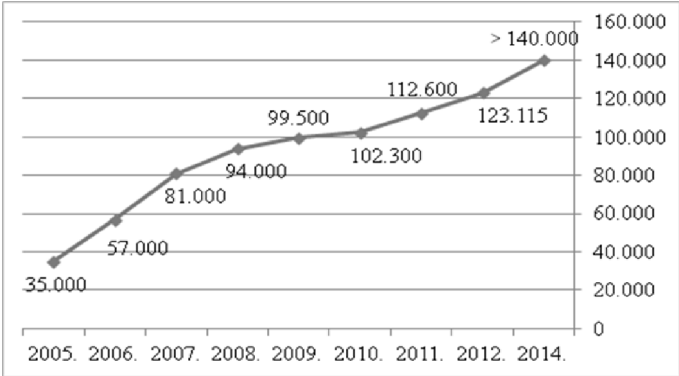

Figure1: Share of certified producers [8]

If we look at the list of the first five countries according to the number of certified producers we'll see that these countries are, among the others, well-known for food production. It's no surprise that these countries initiated the implementation of GLOBAL G.A.P. in order to improve their competitiveness. An interesting fact is that these five countries have been on the top of the list for several years. Figure 3 shows a comparison of the leading countries related to GLOBAL G.A.P. certificates for two years successively – a significant number of certified companies in Netherlands is obvious.
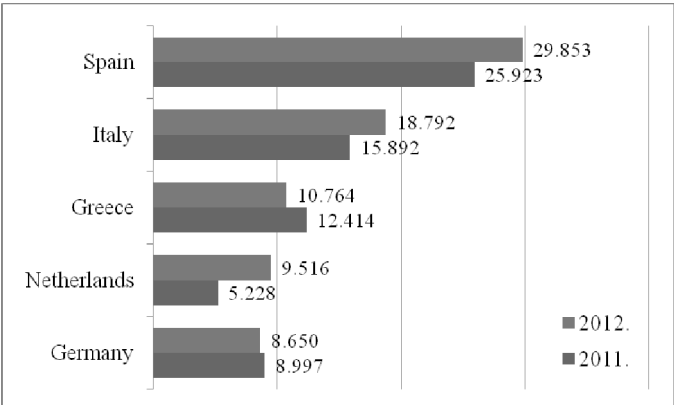

Figure 3: First five countries according to the number of certified producers [8]

4. Implementation of agro-food industry standards in serbia and neighboring countries

The implementation of agricultural standards in Serbia still isn't adequate to the potentials of this field. Ministry of Agriculture, Forestry and Waterpower Engineering of the Republic of Serbia by its Regulation on using incestive funds for introduction and certification of safety system in the period from 2005 to 2008 influenced the increase of certified companies. By organizing the promotional action "Think in time" they wanted to raise consciousness on consumers' rights to this kind of protection and the importance of having a documented quality system for food consumers. In November, 2009 Governments of Switzerland and Serbia signed the agreement on realization of the project "Aid in the field of GLOBAL G.A.P. standard".

According to the data of Ministry of Agriculture, Forestry and Waterpower Engineering of the Republic of Serbia,from 2005 until the end of 2008, there were 781 certified users. In the same time, 112 of them suspended and terminated certification procedure. The greatest number of certifications but suspensions as well was in 2006 – 359 certifications and 61 suspensions. The number of certified companies is significant considering the fact that in

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2004, 85% of the companies from this industry never heard of HACCP. Connectivity of standards ISO 14001 and HACCP is highly significant for food companies. In other words, a company which implements the standard ISO 14001 affects the protection of global environment (water, air, ground, natural resources, flora and fauna, people and their relations) and development of environmental quality. The standard ISO 14001 has a significant activity in environmental protection, particularly in risk management. Risk management includes a decision – making in relation to the way of environmental protection activity procedure which relies on the result of risk estimation. The standard HACCP represents a management system in which safety of food products is considered through the analysis and control of biological, chemical and physical risks in complete production chain. That is the reason why HACCP represents a logical continuation of ISO 14001 in companies business.

Table 2 presents a comparative example of standards implementation in agro-food industry and their use in Serbia and neighboring countries. Regarding West Balkan countries (WBC), Serbia is a leader in relation to implementation of all schemes of standards. However, as regards to other neighboring countries Serbia lags behind significantly. Apart from GLOBAL G.A.P. implementation of other standards in Serbia is low. Comparing to Hungary, for example, Serbia lags behind considerably in implementation of GLOBAL G.A.P. scheme. This additionaly contributes to uncompetitiveness of Serbian companies. It is obvious from the Table 4 that some neighborin countries, such as Romania and Bulgaria, are more oriented towards ISO certification schemes (generally) than towards GLOBAL G.A.P. scheme, while for Serbia (strictly for food safety) the opposite is true.

There are several reasons for insufficient use of the standards in Serbian agro-food industry and they can be found in the following fact – a company which implements GLOBAL G.A.P. standard has an obligation to perform re-certification every year, which represents a significant financial effort for the company. Moreover, Ministry of Agricuture, Forestry and Water Engineering of the Republic of Serbia terminated co-financing during implementation process of international standards.

Table 2: Implementation of srtandards in Serbia and neighboring countries [4, 9, 10, 11, 12]

	ISO 9001	ISO 14001	ISO 22000	GLOBAL G.A.P.	BRC	PDO/ PGI/TSG	Demeter
Albania	167	34	7	0	1	0	0
Bosnia and Hercegovina	794	141	17	269	2	0	0
Croatia	2,636	828	97	141	14	13	1
Macedonia	399	131	25	14	1	0	0
Montenegro	118	24	7	0	0	0	0
Serbia	*2,366*	*762*	*193*	*281*	*37*	*0*	*0*
Slovenia	1,993	468	19	22	9	25	27
WBC Total	**8,473**	**2,388**	**365**	**727**	**64**	**38**	**28**
Bulgaria	5,378	1,373	244	17	29	7	2
Hungary	7,186	1,955	137	957	121	15	19
Romania	18,450	8,744	1,014	46	51	4	1

Source: own calculation based on sources

In some Western Balkans countries (e.g. Serbia, Bosnia and Herzegovina and Macedonia) implementation of different quality and food safety assurance schemes is either required by law or large multinationals (both producers and retailers) which establish their own schemes and requirements (such as HACCP). However, other private and food quality standards are applied periodically although their implementation and certification is promoted by the governments of these countries. Except HACCP, food safety standard ISO 22000 and ISO

9001 are most commonly implemented in West Balkan countries. It should be mentioned that food producers in these countries received financial support from different governmental and nongovernmental organizations (USAid, SIEPA and EU funds). Besides HACCP, the most common certifications in the Western Balkan food industry cover food safety (ISO 22000) and quality management systems (ISO 9001).

Implementation of GLOBAL G.A.P. and other quality assurance standards which are used by Serbian agro-food producers implies a support of the Government which has to create a stimulative ambience for procuders. The Government has already stimulated and supported the implementation of HACCP which is nowadays compulsory but it is also necessary to do the same with other standards in this field. At this pont it should be emphasized that food safety system in Serbia needs certain improvements related to food safety control, inspection, knowledge and expertize. In other words, there is room for improving professionals, such as inspectors, governmental officials, consultants and auditors. In addition, a lot of work and efforts should be invested in improving transparency and communication between legal authorities, on one side and customers, consumers and food business operators on other side. Moreover, it is necessary to re-establish supporting mechanisms to Serbian agro-food producers through the support in the following fields: finances, education, applying practical experiences, information on other standards close to this field, information on new trends in agricultural industry, taking part in competitions such as G.A.P. Awards.

5. Conclusion

The implementation of certification schemes in agro-food industry is of great importance both for the company which has implemented it and for other factors on the market, for example, consumers of its products, the environment in which it operates, business partners who must have the same standards as a precondition for cooperation. This is how a chain of good practice is made which motivates other companies to start the implementation of certification schemes in order to assure consumers in safety of agricultural products which they buy in retail shops.

The role of retail shops is crucial in encouraging the implementation of certification schemes familiar with this field. The reason lies in the fact that retailers are the first who can notice consumers' attitudes towards food. Today, consumers are well-informed about healthy food as well as about new trends in this field (e.g. less fats, sugar, etc.), along with the support of international organizations (FAO) which additionally influences flexibility of producers and retailer chains.

Unfortunately, food companies in Serbia are not sufficiently supported by the state to implement certification schemes in agro-food industry. We have noticed only the examples for GLOBAL G.A.P. standard of individual support by international organizations (USAid, SIEPA, EU funds, SECO) and NGO sector so far, which is not enough if we want to make a step forward in this field.

Very implementation of certification schemes has considerable advantages of which the following are identified: easier access to customers on international markets, higher market price of products (perhaps, not in the beginning but in the future it is expected), etc. However, whether standards like GLOBAL G.A.P. will be implemented depends only on agro-food producers and manufacturers, on their estimation and plans in relation to their company in the future.

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