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BOTTLENECKS AND SUCCESS FACTORS FOR THE INTRODUCTION OF QUALITY ASSURANCE SCHEMES IN THE AGRI-FOOD SECTOR

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**„What was expected, what we observed,
the lessons learned."**

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1 INTRODUCTION

In recent years, the consumer's knowledge and concerns about food-born illnesses and food safety increased. This forced both the food industry and public authorities to develop quality and safety assurance systems (BREDAHL ET AL., 2001). Also the high costs associated with food-born diseases motivated the development of quality and safety assurance systems.

Experts predict the risks by food-born diseases to increase, due to changes for instance in climate, microbiological systems, water supplies urbanization, population graying and food trade intensity (KAFFERSTEIN AND ABDUSSALAM, 1999). Policy makers reacted to these concerns by developing and implementing new policies for safer food and increasing consumer health. The emerging issues and related problems affect different production stages within the food supply chain.

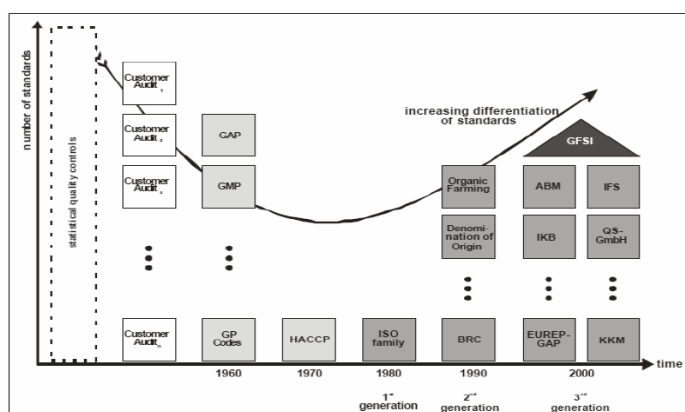
The introduction of new regulations is challenging and often the competitiveness of individual companies, sectors, and even member states or the EU as whole are affected (GELLYNCK ET AL., 2004). Competition problems are linked with the differences in the food firms' capacity to meet the new requirements and standards and with the way of controlling and penalizing food processors, both at the national and international level.

A major challenge for the food industry is related to controlling costs associated with new food safety regulations. The increased complexity both at consumer level (risk aversion and sensitivity) and processor level (risk management and communication) requires adaptation of strategies and of institutional organization in the food supply chains. Another challenge for the food industry is the increasing globalization and the concentration process in the retail sector, which will lead to a reorganization of the food industry. Food supply chains will undergo an increasing domination, integration and globalization led by mainly supermarket retailers (WALES ET AL., 2006).

As a reaction to the above mentioned evolutions and especially the globalization process, regions including small food firms try to differentiate by stressing the value of attributes such as tradition, origin, culture and culinary heritage. These evolutions explain the rise in the introduction of quality assurance schemes (QAS) in the EU (**Hiba! A hivatkozási forrás nem található.**). In the scientific literature, several definitions of QAS are presented:

- QAS provide systems for assuring and certifying desired product attributes (BREDAHL ET AL., 2001)
- The final goal of origin and quality assurance systems is to create a common vision and a coordinating scheme to deliver value added products, which are better accepted by consumers (ORDÓÑEZ ET AL., 2004)
- HACCP and ISO 9000/ISO 22000 are basic quality standards, which provide improvement of process transparency, assistance to detect and avoid failures systematically and a better chance for traceability (ROOSEN, 2003)

Figure 1: Increased introduction of certification systems



(Source: JAHN ET AL., 2004)

This paper aims to present an overview over different European QAS and about the costs involved. On top of that, some key success factors are identified for introducing QAS in the new member states.

The paper is structured as follow: Section 2 gives an overview about QAS, which is followed by a short description of benefits and barriers for QAS (section 3). In the fourth section results from a survey about costs of QAS are presented. Section 5 deals with the impact of high food safety standards on the national and international trade. The sixth section presents some examples of the successful introduction of QAS in new member states. In the final section conclusions are drawn.

2 QUALITY ASSURANCE SCHEMES – AN OVERVIEW

Quality consists of two dimensions: an objective and a subjective dimension (GRUNERT, 2005). The objective quality includes the physical and chemical characteristics integrated in the product and is naturally in the response of engineers and food technologists. Subjective quality is based on the consumer's perception, mainly focusing on process attributes, like healthiness, taste, price, organic production and animal welfare (GELLYNCK ET AL., 2006; GRUNERT, 2005; JAHN ET AL., 2004). Food producers will be competitive when being able to successfully link the two dimensions and to translate consumers' quality requirements (subjective quality) into physical product characteristics (objective quality).

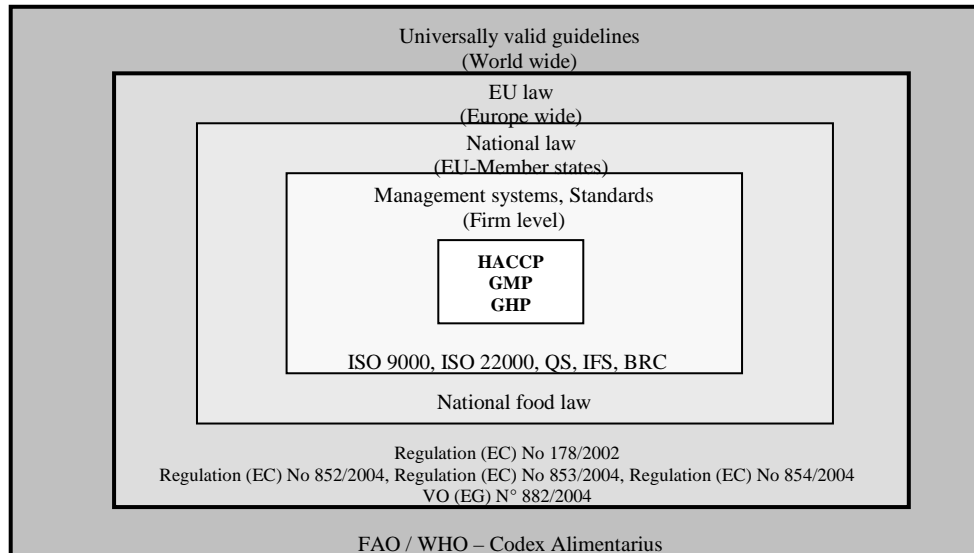
Quality assurance schemes (QAS) provide systems for assuring and certifying desired product attributes (BREDAHL ET AL., 2001). Most QAS are based on the quality management principles of ISO 9000/ISO 22000 and the HACCP-concept. In addition, some are following the Good Agricultural Practice (GAP) (ROOSEN, 2003). Figure 2 gives an overview over the different application levels of QAS.

2.1 Worldwide QAS

As presented in Figure 2 the Codex Alimentarius (CA) is enclosing all quality systems and standards. The CA is a joint program of Food and Agricultural Organization (FAO) and World Health Organization (WHO) establishing food safety standards related to the international trade in food products. The CA-commission was founded in 1963 by FAO and WHO. The main aims of the commission are the protection of consumer's health and ensuring a fair trade in the food sector. Therefore the commission is supporting the coordination of all processes and analyses from international governmental and non-governmental institutions related to food safety standards (C.A., 2007).

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

Figure 2: Overview of the different application levels of quality assurance schemes



(Source: Schmidt, 2006)

2.2 European QAS

The International Organization for Standardization (ISO) and the Codex Alimentarius Commission developed in close collaboration the ISO 22000 standard, which was implemented in September 2005. This quality management system provides a framework of internationally harmonized requirements in the food sector. ISO 22000 is an advancement of the ISO 9000 standard and furthermore, it is incorporating the ISO 9000 standard and the HACCP concept in one standard. However the main difference between ISO 22000 and ISO 9000 is 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 applied at all types of organizations within the food supply chain, independently or 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 Retail 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, product liability and cross compliance is also important (see Table 2). Product liability is the area of law in which 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 important for the standards for farmers, such as the EurepGAP system, and includes adherence of different EU quality standards. Farmers and 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 condition. 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 advantage of improving the efficiency of procurement management is one of the main reason why retailers support QAS so strongly (GELLYNCK AND KÜHNE, 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* (Schiefer, 2003). However, the intensity of cooperation at the different stages of the supply chain can be different, as well as the traceability intensity. In addition, vertically oriented quality systems focus on product liability and cross compliance (see Table 2). 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.

2.3 HACCP & GMP

The HACCP-concept and Good Manufacturing Practice (GMP) and Good Hygienic Practice (GHP) form the center of the quality assurance schemes (Figure 2), 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 20th century. Thereby the main focus was on product quality in order to reduce food borne illness (KRIEGER AND SCHIEFER, 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 in 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 internal and market access as external factor (ROOSEN, 2003).

2.4 Traceability

The implementation of a combination of QAS can contribute to improved traceability, since an interaction between different QAS over the stages of the agri-food supply chain would raise traceability. For instance, the combination of EurepGAP for farmers and of IFS for the supplier or retailers could increase 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 control of livestock epidemics (MEUWISSEN ET AL., 2003). Since January 1st, 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 its 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, the composition, and the treatments of a food product in the different stages of the production life cycle.

Initially, traceability systems were concerned with animal health, disease and food safety control. However, they are gradually extending into proactive management and marketing tools, either through the feedback of information upstream or the introduction of labeling schemes with the traceability system as backbone. The principles applied of the traceability initiatives are all similar, since they define standards and procedures which must be observed by the members and which are monitored to ensure the compliance. In the case of livestock and meat schemes, the traceability standards and procedures cover all stages of the supply

* **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 between participating enterprises.

chain, from the farm, including feeding, livestock handling and transportation, slaughtering, and meat processing, to distribution (LEAT ET AL., 1998). Thereby the key elements are the identification and registration of animals, herds, meat processors, exporters, data capture, communication and data management and verification. Even though these key issues of traceability are clear-cut, the implementation is difficult, primarily due to the number of levels within the chain and to the numbers of producers supplying the chain (TIMON AND O'REILLY, 1998). The implementation is further hampered by the low degree of vertical integration in certain livestock and meat chains in specific countries or regions (PORIN AND MAINSANT, 1998).

2.5 Comparison of QAS

In Table 1 different QAS are listed and compared with each other. The QAS are divided into technical safety standards, business to consumer (B2C) and business to business (B2B) quality schemes. It is presented that GMP and HACCP are included in most of the standards. The ISO 9000 standard is much less implemented in quality systems. Traceability is an issue of both B2C and B2B quality standards. Within the B2B standards contracting is preferred. The information flow can be horizontal, vertical or along the whole supply chain. B2C standards intend mainly to cover the whole supply chain. Only three of the mentioned QAS use an integrated chain quality control system, namely the German Q&S, the Danish QSG-standard and the Dutch Chain quality of milk (KKM) standard.

3 BENEFITS AND BARRIERS FOR QAS

The main aim of a QAS is the assurance of the quality of the food product through improved process and product quality, which lead to reduced costs because of optimizing the process organization and lesser recalls. In Table 2 other benefits of implementing QAS are presented, such as easier access to new markets (market entry), traceability over the whole chain, trust in the product properties (liability), easier fulfillment of EU-regulations because of intersection of these regulations with demands of quality assurance systems (cross compliance), and (KRIEGER AND SCHIEFER, 2005).

B2B quality schemes, focusing on objective quality, will mainly have advantages of higher food safety and trust along the chain. B2C quality schemes are able to serve additional quality requirements of the consumers (subjective quality) concerning for instance the production method, sensory attributes or the image of a product (GELLYNCK, 2006B).

Especially for farmers and producers the implementation of a QAS can function as a 'license to produce', which is increasing their possibilities of market access. Through this kind of differentiation farmers and producers will directly achieve a higher quality/price ratio (GELLYNCK, 2006B). A higher quality/price ratio is also achieved indirectly through feedback along the supply chain and through generic promotion. QAS are providing feedback through the implicit information exchange between the different stages of the supply chain, and indirectly access to market information through the structural communication of all chain partners. Generic promotion for the implemented QAS will lead to reduced cost, increased efficiency and increased market share.

Table 1: Comparison between technical standards, B2C- and B2B-concepts in the European Union

Quality System	GMP ¹	HACCP ¹	ISO 9000:2000 ¹	Traceability (in a SC) ¹	Logo for consumers ²	Target ²	Information flow ^{1&3}	Integrated chain quality control systems ⁴
Technical Safety Standards								
ISO 1561	+	+	+	-	-	-	-	-
ISO 22000	+	+	+	-	No	Food Comp	V	-
ISO 9000:2000	-	-	+	-	-	-	-	-
GMP	+	-	-	-	-	-	-	-
HACCP	+	+	-	-	No	Cons	-	-
B2C								
Label Rouge (France)	+	+	-	+	Yes	Cons	H, V, SC	-
Q&S (Germany)	+	+	-	+	Yes	Prod	V, SC	Yes
Danish-QSG	+	+	+	C	-	-	V, SC	Yes
IFS	-	+	-	-	-	-	H	-
B2B								
Agri confiance (France)	+	+	+	+	Yes	Prod	-	-
BRC	+	+	+	-	Yes	Ret	V, H	-
EurepGAP	+	+	-	+	No	Prod	V	-
GMP+ (Netherlands)	+	+	+	C	-	-	-	-
IKB (Belgium)	+	+	+	C	-	-	V, SC	Yes
KKM (NL)	+	+	+	C	-	-	-	-
Little Red Tractor (GB)	+	+		+	-	-	-	-
PVE-IKB (NL)	+	+	+	C	-	-	-	-
SQF 1000	+	+	+	-	-	-	-	-
SQF 2000	+	+	+	-	-	-	-	-

Legend: + characteristic feature of the quality system, - no characteristic feature or no available information,

C = commitment of contract between stages, H = Horizontal, V = Vertical, SC = over whole supply chain

(Sources: *Krieger and Schiefer, 2003; EC, 2006; Schmidt, 2006; Weindlmaier and Dustmann, 2003)

The implementation of a QAS will afford a better communication between chain partners and will also help them to take advantages of economies of scale, when jointly meeting legal requirements, such as the obliged sector guides required by the General Food Law, including the internal self-control (auto-control), the notification duty and the assurance of traceability.

Through meeting consumer requirements a competitive product is able to gain market share in a highly competitive market (GELLYNCK, 2006B).

Disadvantages or barriers for implementing even basic quality standards are high administrative efforts, the costs of continually obligatory external certification and no refunding of these costs through higher prices (WEINDLMAIER AND DUSTMANN, 2003). Especially on farm level, these barriers play an important role. However, it is necessary to include farmers into an integrated chain quality control system to improve the safety and quality of food products.

In addition, Table 2 presents the degree of benefits for the different QAS mentioned in the former chapter. Market entry and traceability are important benefits of all QAS. The main focus of the HACCP concept is on product quality and safety, whereas the main focus of the ISO standards is indirectly on process quality. The same difference can be found between horizontally oriented QAS and vertically oriented QAS. The latter one is moreover focusing on improving and maintaining product liability and cross compliance.

Table 2: Overview of benefits of quality assurance schemes

	Market Entry	Traceability	Product Liability	Cross Compliance	Process quality	Product quality
HACCP	++	++	+	-	+	+++
ISO 9000/ ISO 22000	++	++	+	(+)	(+++)	(++)
Horizontal	++	++	++	+	+++	++
Vertical	++	+++	+++	+++	+	+++

Legend: - no application, + low application, ++ medium application, +++ high application

(Source: KRIEGER AND SCHIEFER, 2005)

The main similarity of the explored QAS is the improving of traceability of the products and through this the improvement of product and process performance. The main differences between HACCP, ISO, horizontally and vertically oriented quality systems are the scope and the focus. HACCP focus mainly on product quality and safety which is also true for most of the vertically oriented quality systems (see Table 2). However, the latter ones have a broader scope, since they additionally focus on product liability and cross compliance. The ISO 9000 and ISO 22000 focus mainly on improvement of the process quality and safety. This is comparable to the horizontally oriented quality systems, which, in addition, pay attention to product liability.

4 COSTS OF QUALITY ASSURANCE SCHEMES

QAS are implemented by the firms to manage food and process quality. Though, the implementation does not provide not in every case the expected result. Firms are required to search the best combination of quality systems for their specific situation and to compare costs and benefits in order to make the right decision.

4.1 Costs of investments in quality assurance

For the investigation of quality costs at food company level a qualitative and exploratory research was conducted (GELLYNCK ET AL., 2005). Based on a topic list, 17 food companies in Belgium were interviewed about their investments and costs related to food quality management. Food quality managers were asked for the reasons for realising the investments and costs, focusing on competitive, consumer, retailer or regulatory pressures. The data related to costs and investments were collected from the internal cost price calculations. It means that during most interviews both the quality and financial manager participated in the discussion. The results of this survey are presented in Table 3. Hereby a distinction is made between small (less than 20 employees), medium (between 20 and 100 employees) and large (over 100 employees) food companies. The total costs and investments for food safety vary between €1.555 and €26.165. It is remarkable that the greatest variety exists for small food companies.

Table 3: Food safety investments and costs, 2002 in EUR per full time equivalent

Type		GMP/GHP	HACCP	Audit	Investments	TOTAL
Large	Min	665	240	42	334	1.555
	Max	4.694	1.980	1.109	3.100	8.755
Medium	Min	2.029	260	37	423	2.748
	Max	3.856	1.894	578	2.393	7.514
Small	Min	3.189	611	159	0	4.997
	Max	9.452	2.408	1.248	14.527	26.165
TOTAL	Min	665	240	37	0	1.555
	Max	9.452	2.408	1.248	14.527	26.165

(Source: GELLYNCK ET AL., 2005)

The capacity of meeting new legislative requirements differs with firm size. These differences are based on several aspects:

- When a ‘quality philosophy’, like a way of life, is present in the company, the focus on quality in general and food safety in particular is much more at the centre stage than in the opposite case. It is often linked with the type of customers food companies work for. When working with retail chains, such ‘quality philosophy’ is much more present than it is in the case of the catering sector or smaller, traditional shops.
- The efforts made for food safety are more important in sectors characterised by higher food safety risks (microbiological contamination) such as the dairy, meat or fish sector than in other food sectors such as the chocolate or sugar confectionery.
- The efforts made for food safety are relatively more important in small enterprises than in the larger ones. This is linked with the fact that larger enterprises benefit more from scale economies.

Further results show that some companies without complying regulations to food safety (e.g. presence of HACCP plan) remain on the domestic markets. Without doing the necessary investments for food safety regulations, they can subsequently work with other cost structures and compete on the same market. The interviewed companies claim that on the international markets trade barriers appear due to national differences of controls and penalty of food companies. The competitive position of food companies from member states where food authorities control and penalise more severely than in competing member states is weakened and not compensated by additional access to market as often claimed by advocates of rigid control.

4.2 Costs of traceability

For the measurement of traceability costs a survey, conducted in 2002 among 50 Belgian companies, observed the differences between companies in traceability operating costs and investments (DESCHOLMEESTER AND LOOTENS, 2002). The main part of all interviewed companies reported investment costs above 250.000 Euro. The operating costs remain in the interval €25.000 – 250.000, only few companies have operating costs higher than €250.000 (Table 4). The most important drivers for installing traceability are food safety and meeting sector standards while the barriers are lack of financial means and problematic integration in the current business processes.

Table 4: Traceability investments and operating costs, in % of respondents

Type	Investments in €1.000				Operating costs in €1.00			
	None	<100	100-250	>250	None	<25	25-250	>250
Large	-	-	11	89	-	11	67	22
Medium	8	31	39	23	8	31	58	4
Small	6	31	31	32	7	47	34	13
TOTAL	6	25	31	37	6	32	52	10

(SOURCE: GELLYNCK ET AL., 2005)

4.3 Costs of maintaining quality assurance

In Figure 3 an overview of the operating costs of QAS is given, derived from a survey with food companies in Germany in 2003 (BEYER AND KRIEGER, 2004). This survey investigates the costs and benefits of QAS in the food industry. More than 80% of the responding firms followed the HACCP-standard and more than 60% applied the ISO9000ff standards. In addition, the importance of sector-specific QAS and environmental management systems is increasing. The survey explores the costs regarding those areas important for maintaining QAS. The most cost intensive aspects of maintaining a QAS in a firm are documentation of the quality management, process analysis of quality assurance requirements and inspections of e.g. raw materials (entry checking).

5 IMPACT ON TRADE

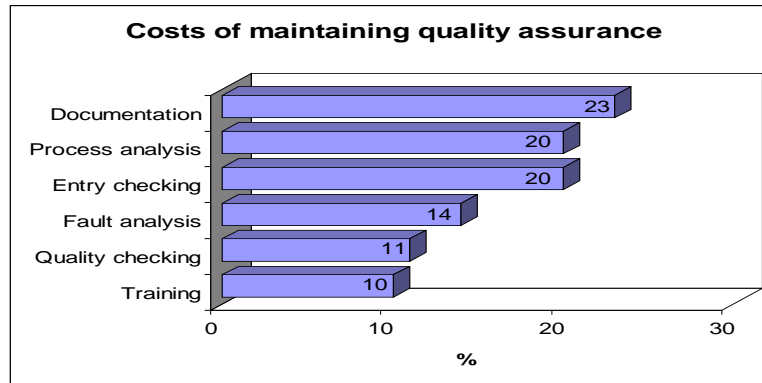
The standards of international QAS have increased constantly and reached a high level of regularization. This is due to the many different international organizations and agreements emerged over time, like the Codex Alimentarius commission, the Sanitary and Phytosanitary Agreement (SPS) or the Technical Barrier of Trade agreement (TBT) of the WTO. The EU is maintaining and increasing the international QAS through active participation in the SPS-committee, the Codex Alimentarius commission and other WTP-commissions and committees (EC, 2000). However, new initiatives are taken as well by the EU to investigate the impact of QAS and certification schemes in the EU. On April 7th, 2005 the European Parliament has called the European Commission to launch a pilot study on food quality assurance and certification schemes (EC, 2005). This action resulted in an overview of food supply chain dynamics and quality certification in the different European countries and an European-wide framework for the development of QAS and certification schemes managed with in integrated supply chains (EC, 2006). Recent, on February 5th and 6th, 2007, the conference on food quality certification schemes ('quality-conference') took place in Brussels (EU, 2007A). The aim of this conference was to explore the impact and potential for QAS and certification schemes in Europe and for the world market.

5.1 Impact on exporting countries

The choice of the right QAS can be important for entering international markets. The high standards for food safety have an important impact on countries exporting to the EU, but also on the new member states of the EU. Exporting countries, especially developing countries, often lack technical and financial facilities to accomplish the high food safety standards present in the EU. Furthermore, in the different EU member states, still standards exist which are more severe than the international standards and act as a non-tariff trade barrier (HENSON, 2003; TAYLOR ET AL., 2003). In addition, through the high food safety standards within the EU more problems are caused in exporting countries, than solved in EU countries. Especially in developing countries the unemployment is increasing, domestic food producers are squeezed out of the market and, through the increasing unequal distribution of income the access to foods becomes unequal as well (TULLAO, 2002). 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. Also the stakeholders in the developing countries should play a larger role in the development of QAS. Technical assistance for capacity building should be provided by aid programs without creating new dependencies (FULPONI, 2007).

Figure 3: Operating costs of a quality system



(Adapted from: KRIEGER AND SCHIEFER, 2005).

5.2 Impact on new EU member states

The new EU member states face the problem to implement the whole European food law into their national law, but lacking adequate facilities for sufficient controls in compliance with the European food law at the borders of the EU. Another barrier for the new EU member states are the high administrative costs and burdens of some QAS. However, there are joint activities to decrease the high administrative costs and burdens. Benchmarking of the basic requirements schemes led to an overall reduction in the number of schemes and reduced overlapping and duplicate audits. Furthermore, certifiers and retailers are stimulated to work together on the harmonization of QAS requirements, with the aim to further reduce overlap and duplicate audits. Farmers and first-stage processors are stimulated to participate in the development and operation of certification ship and even to take the initiative to take over the ownership of a QAS (GELLYNCK, 2007; KORDIK, 2007).

During the 'quality-conference' a discussion was started to develop an EU quality label which indicates compliance with EU norms or with a superior standard. Such a label could help in differentiating production according to higher standards from production to the basic quality standards (GELLYNCK, 2007; KORDIK, 2007).

6 QAS IN NEW EU MEMBER STATES

This chapter describes examples of implemented QAS in new EU member states. Established quality systems in new EU member states and their difficulties are presented for Bulgaria, Czech Republic, Estonia and Latvia. All five countries are now members of the EU. Bulgaria has recently joined the EU (01.01.2007), the other four countries on May 1st, 2004 (EU, 2007B).

6.1 Bulgaria

In Bulgaria, the main focus is on improving the food quality and food safety system through origin labeling. Therefore, the protection of Bulgarian names of traditional foods and drinks is regulated and the awareness of Bulgarian producers is raised regarding the benefits of protected designations by the European labels Protected Designation of Origin (PDO), Protected Geographical Indication (PGI) and Traditional Speciality Guaranteed (TSG). A second pillar is the support of organic farming. The conditions of soil, climatic characteristics and other conditions in Bulgaria encourage that decision, as approximately 20% of the

agricultural land in Bulgaria is not treated with fertilizers or pesticides for about 7-8 years. The rules for organic plant and livestock are laid down in national law.

Due to arisen market failures the responsibility for food safety and quality is moving from a solely private enterprise responsibility to a combination of state and private enterprise responsibility. In 2003, the Minister of Agriculture and Forestry (MAF) approved the SGS Bulgaria LTD Co. as inspection body for controls and assignment of a logo, developed by the MAF to designate the certified products. The third pillar is the establishment of the National Vine and Wine Chamber (NVWC) in 1999, which is an inter-professional organization of producers, processors and traders of grapes, wine and products made of grapes and wine. The main function of the NVWC is to support and protect the common interest of its members, to protect and control the origin, quality and authenticity of the produced and traded products and to promote a viticulture development (PROF. MISHEV, 2004).

6.2 Czech Republic

In Czech Republic high quality and safety of food products are indicated by a national produce quality label (KLASA mark, see Figure 4). The KLASA mark is awarded to high-quality food and agricultural products since 2003 (SAIF, 2007). Since 2004, the State Agricultural Intervention Fund (SAIF) is responsible for the awarding and distribution of the label. The main objective of the KLASA quality label is to increase and maintain the consumer and customer awareness and trust of/in the high quality of the KLASA labeled products. The label is granted for three years, after which the ownership may be extended, but also withdrawn, if the product quality has declined. The regular monitoring and evaluation of the required quality and composition of the products is performed by the Czech Agriculture and Food Inspection Authority. One principal requirement for achieving the right to use the KLASA label is the certification of ISO or HACCP. Furthermore, the producers have to follow the rules for good manufacturing, hygiene and agricultural practice (MEJSTŘÍKOVÁ AND PLÁŠIL, 2004). In the meantime three beer products have received the PGI-label of the EU: Budějovické pivo, Budějovický měšťanský var, and Českobudějovické pivo (EU, 2007c).

Figure 4: Logo of KLASA mark of Czech Republic



6.3 Estonia

The Estonian government, respectively the Estonian Chamber of Agriculture and Commerce, established a first Approved Estonian Taste quality label in 1997 – the shamrock leaf label (see Figure 5). The shamrock label is given to food produced in Estonia, which successfully passed laboratory and sensory evaluation. The origin of the raw material is not considered for the awarding of the shamrock label. In 2000, a second Approved Estonian Taste label was introduced, denoting the Estonian origin and high quality (see Figure 5). This label is granted to products which are made of raw material of 100% Estonian origin and which has passed the laboratory and sensory evaluation. The producers fulfilling the requirements of the labels are allowed to use the label for two years, during which random after-control is conducted. After two years the firms can renew the contract of use of the labels.

According to the Community Guidelines 252/2001 of the EU the politics of issuing and financing of the quality labels were adapted. The shamrock label was redesigned for universal use, so that it is not solely for Estonian producers and the financing of the barn swallow label has been redirected entirely to the producers themselves.

6.4 Latvia

In Latvia quality and food safety systems are established through origin trademarks of Latvian food. The coordination is in the hand of the non-governmental organization (NGO) Marketing Council (MC). The MC is a union of Latvian producers of agricultural and food products and related NGOs. Only one governmental institution is participating in the MC– the Ministry of Agriculture. The MC has introduced the quality trademark “Quality Latvian Product”, which is also called “Green Spoon” by the consumers (see Figure 6). Products who are allowed to be branded with that label need inter alia to contain 75% of regional or national raw material, assured traceability of origin of raw materials, food production, processing and labeling, assurance of food quality in accordance with EU requirements or with producer standards. Food safety is mandatory. Since this label can be also applied for products which are produced abroad, consumers face difficulties to differentiate products made in Latvia and those produced abroad.

Figure 5: Logos of Approved Estonian Taste: shamrock leaf and barn swallow labels



In 2003 the label “Growing Green in Latvia” was developed by the Ministry of Agriculture with the aim to raise the competitiveness and sales of Latvian agricultural and food products on the domestic and export markets and to increase the market share of locally produced agricultural and food products in Latvia (MELECE, 2004).

Figure 6: Quality label in Latvia: 1) “Latvia’s Quality Product”-“Green Spoon”, 2) “Growing Green in Latvia”



Exemplary for the development of quality systems in Central and Eastern Europe Bulgaria, Czech Republic, Estonia and Latvia show that food safety and quality is mainly achieved through origin labeling and through labeling of organic products. Furthermore, the approach is followed that the governments initiate the introduction of quality assurance schemes and that the private sector and its stakeholders takes over the responsibility.

7 DISCUSSION AND CONCLUSIONS

For the introduction of QAS in the new EU member states several essential elements should be considered for a successful implementation. The private sector and its stakeholders, such as farmers, producers, retailers and consumers, should take over the leading role and responsibility for implementing and supporting the QAS. The government should act as a facilitator in the process. It means that it can act as an initiator bringing experts and stakeholders around the table, but as soon as possible the leading work should be taken over by the private sector. The government can provide some financial incentives to attract participants but should avoid that the incentives become the objective as such in the eyes of the stakeholders.

To obtain reliability and trustworthiness the introduction of QAS in the agricultural sector should be done following a logic set of phases. It refers to the fact that aiming at including the whole agribusiness sector from the beginning on is too ambitious. By following the latter approach, the risk in generating a lot of criticism from different types of stakeholders is too high. It will result in opposite effects in terms of reliability and trustworthiness. By starting with one or two sub-sectors within the agri-business sector as a kind of pilot phase, learning effects can be generated and transformed to subsequent sectors.

An important factor for the successful introduction of QAS is finding the balance between appropriation for public announcing the introduction of the QAS and the degree of perfection is one of the main challenges for the new member states. By waiting too long, the motivation of stakeholders included in the preparation phase risks to decline on the one hand. By introducing the sector too early, support from the different stakeholders risks to lack and consequently criticism to be strong on the other hand.

Another important factor for successful introduction is the consideration of the structure of the supply chain. The supply chain structure is determining the size of costs and benefits. The implementation of QAS in an integrated supply chain is much easier and less costly than in an inconsistent and dispersed supply chain. An integrated supply chain is an association of customers and suppliers who are using management techniques for working together on the optimization of their collective performance in making, distribution and support of an end product. Besides the easier and less costly implementation of a QAS in an integrated supply chain there are other benefits of an integrated supply chain, such as inventory reduction throughout the chain, reductions in supplier redundancy, reduced transaction costs, frictions and barriers, increased functional and procedural synergies between chain members, faster response to changing market demands, lower operating and investment costs across the chain, and shorter product realization cycles and lower product development costs. The government and the stakeholders should stimulate the formation of integrated supply chains.

Once the first step is made and a basic QAS is implemented, the costs and benefits of implementing another QAS are becoming considerably lower. For instance, the implementation of a HACCP system next to an existing sector hygiene code can lead to lower costs, but is also leading to lower benefits. The costs are lower because the firm has already invested in adaptations for food safety and hygiene requirements. The benefits are lower because the risk of overlapping and duplicate audits is higher. Only the optimal combination of QAS leads to best cost-benefit balance.

The main benefits of introducing QAS are the improvement of process and product quality and safety as well as a decrease in product failure and customers dissatisfaction. Moreover, product liability and cross compliance play an important rule particularly for B2C approaches. Main barriers are the high administrative costs and burdens of implementing and maintaining QAS. In addition, the structure of the supply chain has an important impact on the success, costs and benefits of a QAS. The core barrier for a successful implementation of a QAS in a non-integrated supply chain is the information gap between the chain members. It is the responsibility of all stakeholders to continue the work on benchmarking and harmonizing the QAS.

The new EU member states adapted relatively fast to the high EU-standards. Food safety and quality is primarily attained through labeling of the geographical indication and organic production methods. However, the new EU member states mainly follow a protective approach rather than using QAS as a pro-active or a chain management tool. One has to keep in mind that a high performing QAS is only obtained when its different stakeholders mutually support it and truly believe in it being an instrument to reach a common goal.

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