FOOD SAFETY AND FOOD QUALITY IN THE SUPPLY CHAIN

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Abstract

Maintaining food security has become unconditional when it comes to food trade and customer demand. The food put on the market has to be of good quality and safe for consumption, as well as not be a source of disease and infection. For this reason, securing food safety and quality is a matter of international significance and a responsibility of food producers and governments. During the process of distribution food products go through all stages of supply chain, i.e. all processes which describe how food travels from a farm to the consumers’ tables. The aim of this strategy, called “from the field to the table”, is to achieve full supervision of food safety in the modern world, because the journey leading from food production to the consumer is very time- and space consuming. Along this journey, there are many dangers of food contamination, be it in the very production, during the transport, food storage, or food preparation. In order to enable food quality and sanitary safety of food products, companies have to follow legislations, standards and norms at every stage of supply chain. The aim of this paper is to show how food safety and quality is legally regulated during the distribution in the supply chain, and the ways in which companies ensure a certain high level of hygiene and temperature levels that different kinds of food products require.

Key words: supply chain, food safety; food quality; transport; HACCP

1. INTRODUCTION

The thesis of this paper is to describe the way processes flow in the supply chain with the aim of preserving food safety and quality. Keeping in mind that food products are among most delicate products on the market, they require special conditions during distribution. Therefore, various details, like temperature, air quality, humidity etc., have to be considered. The aim of this paper is to show how food safety and quality is legally regulated during the distribution in the supply chain, and the ways in which companies ensure a certain high level of hygiene and temperature levels that different kinds of food products require.

The paper is structured in seven chapters. After the introduction, it will be analysed types and importance of supply chain. The aim of third chapter is to present key standards and norms for safety and preservation of food quality. As policy of a food safety in last decades become
highly important, fourth chapter will analyse it. Quality and monitoring systems in the food
industry and food safety control systems are analysed before the conclusion.

2 TYPES AND IMPORTANCE OF SUPPLY CHAIN

Defining supply chain is not unambiguous. Different authors have different approaches to
defining supply chain, so they have to be critically assessed. The term is often connected with
the term logistics, where logistics is narrower in scope than supply chain and vice versa, or
the terms are seen as interchangeable.

Supply chain management is a broader concept than logistics, which is defined as a process of
strategic management of supply, movement and storage of materials, partially or completely
finished goods and information, through the organization and its marketing channels
(Christopher, 2011: 4), while Ferišak (2006: 25) defines supply chain as an organizational and
informational integration of individual processes of supply of business functions in a
company, which makes the internal part of supply chain, and their connection to the processes
from outside directly involved in creating value, which makes the external part of supply
chain, and all this with the aim to optimize the whole process of the flow of goods (materials,
intermediate and finished products) and to increase possibilities of creating value. The system
for supply chain management comprises a broader spectre of activities in relation to those
comprised by logistics, for it includes time periods for resource allotment and various other
activities dealing with the establishment of long-term relations with suppliers and customers.

According to Cooper (1997: 2), logistics deals with the flows of materials, supplies and
information inside the supply chain, while supply chain management integrates all business
processes between all companies involved. Despite different definitions of the supply chain, it
is clear that the purpose of managing the supply chain as an integration function is to develop
a competitive business model through connecting key business functions and processes inside
and among economic subjects.

Therefore, five elements crucial for achieving the supply chain results can be determined:
production, supplies, location, transport and information. The coordination of these elements
is needed in order to achieve the best combination of efficiency and profitability for the
targeted market (Hugos, 2003: 10). The coordination of the flow of goods, information and
finance between the involved companies along the journey from the raw material to the final
consumer is in fact managing the supply chain. The term of supply chain relates to monitoring
the process of supply from all the participants in the distribution channel, with the aim of
assessing how consumers’ demand influences the movement of product supply through a
number of mediators.

The members of supply chain are producers, manufacturers, distributors, wholesalers, dealers
who cooperate in the process of supply, delivery, production and sales, all with the aim to
meet the demand. When assessing the efficiency of supply chain, special attention needs to be
given to the research of business relations between participants, because it defines the supply chain performance. A successful supply chain gives competitive advantage to all its members.

2.1. Supply chain types

There are three types of supply chains, considering the number of members: direct, extended and final supply chain (Noémi, 2013: 132).

The direct supply chain is the simplest form, because only a supplier, a central company and a buyer are included. The extended supply chain includes the supplier, the company, the buyer, as well as the supplier’s supplier, where the final chain includes all the members in all the flows of goods, services, information and capital, starting from the first supplier to the final consumer. Similar to the traditional supply chain, the final supply chain consists of the supplier, the central company and the consumer, and of the final supplier and the final buyer.

An important role in the final supply chain play the logistics, financial services providers and market researches. Logistics is a participant in the supply chain, which is in contact with the buyer and the central company, and its task is to deliver, distribute and plan all related logistics tasks. Payments and credit services between the central company and the supplier are performed by financial service provider, while market researchers collect the demand information and feedback on the consumers’ demand.

A supply chain can be longer or shorter. It is longer if more members are included and shorter if the producer sells a product or a service directly. The supply chains efficiency is assessed by measuring the performances of individual companies involved in the chain. During the measuring, economic indicators, flow of information, relations between the participants etc. are taken into consideration. Therefore, this assessment gives us the possibility of insight into the whole picture of where the chain functions well, and where there could be setbacks.

2.2. Importance of food products supply chain

Food products are most delicate goods on the market, for they are exposed to the risks like inadequate storage, wrong temperature levels, poor air quality, humidity, light and other factors influencing the quality and safety. The examples corroborating this are: with no optimal temperature, bacteria grow uncontrollably, and the light directly influences the quality of a fresh product (Smith, 2006: 57). Likewise, without proper storage, goods become perishable. Therefore, every storage room has to be equipped with control units which report temperature levels at any time.

Farmers, suppliers, wholesalers, retailers and transporters are participants in the food supply chain, and therefore obligated to enable proper conditions certain food products require. The flow of information among the participants is also important, as well as the product management, in order to maintain the food quality in the supply chain.
The food products supply chain relates to all the processes (production, manufacturing, distribution, sales and consumption), which describe the flow of foods from the farm (field) to the consumers’ tables. Every activity in the supply chain requires man or natural resources, and if a part of the chain is endangered, this affects the entire chain. To avoid the chain to fall apart, i.e. the products to perish, it is crucial that participants value certain characteristics of a product, its origin, legal requirements and the temperature sensibility set by the producer’s declaration. Important roles here play the distributors who are obliged to ensure traceability of a product at any time, which is ensured by special informational technology for temperature monitoring etc.

Bearing in mind that the food placed on the market needs to be of a certain quality, a high level of security is needed, because the very supply chain is set in a complicated, dynamic and time-critical environment. Therefore, an important role in the evolution and development of modern food supply chains hold six key factors: quality, technology, logistics, informational technology, regulatory framework and the buyer.

Food products play an important role in economy. For example, in Croatia, food and drinks production is the largest part of the GDP and employment when compared to other processing industries. In 2012, the portion of food and drinks industries in the Croatian GDP was 4.1% (food processing was 3.2%, drink processing 0.9%), while, at same time, the part of food and drinks processing in the GDP was 28%. Food processing contribution was 21.8% and drinks processing contribution was 6.4% (EIZ, 2015: 3).

The negative trends in the Croatian food and drinks industry in the last few years are a result of an economic crisis, as well as the loss of the privileged export status on the CEFTA markets, due to the Croatian accession to the EU. In the first trimester of this year, the food and drinks production sector contributed 19% on average in the total processing industry employment, thereof 16.8% was food processing, 2.2% drinks industry. After negative inter year growth rate in the food industry two years in a row (1.9% inter year drop between 2012 and 2013), last year there was a slight growth. During the entire 2014, food production records inter year growth rate of 2%. Deseasoned data, according to which the production activity of the food industry was increased by 2.1% in the period from December 2014 to February 2015 in relation to the former trimester, also indicate the recovery of this industry.

3. KEY STANDARDS AND NORMS FOR SAFETY AND PRESERVATION OF FOOD QUALITY

The European Union has defined food safety as one of the key priorities, for it has become one of the unconditional requirements when it comes to food trade, consumers’ demands, as well as Croatian and European legislation. This issue can be regarded from two aspects. The first safety is security of food source (food security), important in the underdeveloped countries, while the second safety is the one related to the sanitary correctness (food safety). Food safety aims at protecting the health and interests of the consumers and securing free flow of foods on the market (Schmidt i Rodrick, 2005: 3). The strategy “from the farm to the
fork” (tal. from the field to the table), with which a complete management of food safety wants to be achieved, bears great significance in the modern world, for the journey from the point of food production to the consumer can be time- and space consuming, and various dangers can arise along the way - in the very production, during the transport, storage and food preparation. Therefore, it is important to establish and maintain an effective communication between all the subjects involved in processing the food, legislation and regulatory administrations and consumers, in order to preserve the quality and safety of food along the entire production chain.

Four main elements of the food safety strategy in the European Union are food safety for humans and animals regulations, independent and public health judgement, concrete actions in the regulation enforcement and process control, knowing the consumers’ rights to choice based on complete information on where the food comes from and its content (European Commision, 2004). One of the elements of the food safety relates to the legislation enforcement and food control, and is performed by the system of rapid information on food for humans and animals RASFF (Rapid Alert System for Food and Feed) which enables rapid flow of information about new risks.

Quality standards for most food categories in the Republic of Croatia are set in special legislations, with the aim of informing the consumers and protecting their rights. The legislations encompass:

- authorized technological methods applied in the food production and processing,
- defined chemical, physical, physical-chemical and sensory properties, food content (types and quantity of ingredients),
- classification, categorization and name of the food,
- methods needed to be applied before the food is put on the market,
- additional requirements for food labelling,
- methods set by the European Union for the control of prescribed standards of food quality.

Companies dealing with food have two parallel systems for food quality preservation and safety. The system enabled by the state is based on legislations which define ways of ensuring quality and set mandatory and voluntary standards, and which are controlled by state inspections. The other system for food preservation is based on standards which are voluntary and led by market laws, which are defined and set by, for example, international associations (Knežević, 2013: 193).

Introducing standards leads to the improvement of company performance. Food companies achieve marketing competitive advantage, as well as increase market share by applying recognized standards. They also achieve multiple advantages like easier accomplishing the goals and quality policies related to food safety set by the administration, alignment with international standards and global market requirements, which, in the end, can influence the increase in productivity.
On the global market, there is a growing issue of food safety, so the participants in the food production chain have the need to internationally align the norms which would enable a complete system for food safety management and producing and market placement of completely safe and quality food. The norms are established by a consensus, and they set different requirements for safety, quality, traceability of product, as well as protection of safety and health of people, environmental protection etc. Certain norms have to be administered by Croatian producers and distributors. However, which voluntary norm and when it will be applied by a food company depends on the decisions of management and the company director. Considering the ever growing global market and changeable market laws, companies are forced to constantly adapt to these changes, and one way is to accept and implement internationally recognized standards. In the Republic of Croatia Croatian Standard Institute (HZN) was established, with the aim of increasing the level of product safety, environment protection, preservation of health, improvement of production efficiency, promoting product and service quality, and eliminating technical barriers in the international trade. Likewise, it contributes to the quality and competitiveness of the Croatian economy, facilitates export of Croatian products onto the international market and fulfils all the obligations of Croatia as a member of the European Union. Because of a great number of national norms, the need arose for adjusting the norms to the international level, and that is how ISO 22000 was created, which is a set of norms representing industry’s tendency to create international norm acceptable and recognizable in all countries. ISO 22000 is a Food Safety Management System that can be applied to any organization in the food chain, farm to fork. Becoming certified to ISO 22000 allows a company to show their customers that they have a food safety management system in place. Normative documents of 22000 are international norms which enable safe food in the supply chain (MINPO 2013).

4. POLICY AND LEGISLATION IN THE FIELD OF FOOD SAFETY

Because of its importance, the policy of food safety has become a special area of interests and regulations for European institutions and members of the European Union. In part, it belongs to other European policies, as well as health and consumer and environment protection and agricultural policy.

At the beginning of 2000s new diseases emerged connected to food consumption and more often incidents connected to food occurred, which decreased consumers’ and public confidence across Europe, and encouraged the European Union to completely change food safety approach (UDD, 2014). Namely, due to different procedures in the assessment of health risk, unevenness of legislations in certain countries on the common market and undefined responsibility along the long supply chain, food processing and distribution, the European Union decided to establish a unique legislation for all the member states regarding food safety. This body of legislation is qualified for a scientific assessment of risk with strict procedures which are valid in all the member states.

The subjects which participate in the food business in all phases of production, processing and distribution, which are under their control, have to ensure that human and animal food meets
the requirements of food regulations, which is also the basic principle implemented in the regulations, laws and legislations. They are also responsible for the assurance of traceability, in order to prove the origin of plants, animals, meat and other ingredients which are to be found in human and animal food. The subjects involved in the business with food have to ensure that all food for humans and animals and all its ingredients can be traced through all phases of production, processing and distribution (NN, 30/15). The subjects should be able to identify every legal and natural person which has supplied them with food for humans and animals, animals used for the food production or any other substance intended to be used or expected to be used in the food for humans or animals. All of this has to be accompanied with documentation in line with the regulations (MRRR, 2011: 6).

One of the most important accomplishments of the consumers and food safety protection policy is labelling foods with declarations and in retail stores. Food labelling is very important in order to protect the rights of consumers, which want to know contents of food they buy on the market, its origins and how to preserve it and prepare it properly, as well as its shelf-life (Ministry of Agriculture, 2013).

The legislation regarding the food safety in the European Union has changed a lot during the last couple of years. The new legislation encompasses the entire chain, from the producers, distributors, through retailers and consumers, which means that high standards are set before all the producers and all the participants in the food product supply chain, important for food safety and quality preservation. As a member of the European Union, the Republic of Croatia had the obligation to adjust the legislation to the European Union legal aquis (MPRRR, 2011). The whole legislation is based on scientific risk assessment, because the very risk analysis is one of the most important elements of food safety. The European Food Safety Agency (EFSA) plays the central role in the process of risk analysis. Since 2003, the Republic of Croatia has to monitor all the amendments of European legislation in the area of food safety. Food Law (NN br. 46/07, 155/08), adopted in the Republic of Croatia in 2007, gave the framework for adjusting to the European Union legal aquis in the area of food safety, which relates to official control organization, hygiene rules and food safety. New law on food has been applicable since March 18, 2015 (NN 81/13, 14/14, 30/15) and it provides general guidelines on food regulations, sets the official controls systems, laboratory procedures, prescribes conditions for food and animal food safety and obligations for subjects dealing with food and animal food, crisis management, rapid alert system, food and animal food hygiene, general conditions of quality and labelling of food and animal food, and general conditions for food which contains genetically modified organisms.

4.1. Bodies and institutions in charge with the implementation of food safety

Ministry of Health and Ministry of Agriculture are the bodies in charge of the establishment and implementation of specific areas of food safety policy, according to the jurisdiction in the article 4, paragraph 3 and 4 of Food Law (NN, 30/15). The body in charge of the establishment and implementation of food safety policy in the area of sanitary correctness of the items and materials which come in the immediate touch with food and registration of non-
animal origin food facilities and other facilities under the jurisdiction of sanitary inspection is the Ministry of Health. It is in charge of GMO food, drinks and drinking water.

Ministry of Agriculture is the body in charge of the establishment and implementation of food safety policy in various areas, like general principles of food and animal food regulations, general rules of food and animal food hygiene. It represents a starting point towards the European Commission and it is the body in charge of coordination of official controls, health policy and animal protection, and phytosanitary policy.

Institutions in charge of the implementation of food safety in the Republic of Croatia are: Croatian Food Agency (HAH9, Croatian Standards institute (HZN), Croatian Accreditation Agency and Ministry of Economy.

Croatian Food Agency is a legal person which deals with scientific and expert procedures in the area of food and animal food safety, and whose activities, organization and work principles are set by Food Law (NN 81/13), Croatian Food Agency Statute and other general acts of Croatian Food Agency, and it is a point of reference for risk assessment in the field of food and animal food safety.

Croatian Norms Law is an independent and unprofitable public institution which works as an informative centre on technical regulations in line with the 98/34/EZ Directive of the European Parliament and Council and for the Agreement on technical barriers in the trade by World Trade Organization, business contact reference points for the Codex Alimentarius Commission and for products in line with the 764/2008/EZ Regulation of the European Parliament and Council. It was established as a national normed body of the Republic of Croatia, with the aim of achieving and increasing the product and process safety level, environment protection, health and life preservation and promotion of products, process and service quality, all with the aim of eliminating technical barriers in the international trade.

Croatian Accrediting Agency was established for the implementation of Croatian technical legislation which is in line with the legal aquis of the European Union, and it deals with activities of national services for accreditation in the Republic of Croatia. Technical regulations regulate food safety, citizens’ health protection, consumers’ protection and other fields of public interests.

4.2. Responsibility of subjects in the food safety preservation

Subjects dealing with food are responsible for food preservation they put on the market according to prescribed regulations during all the phases of production, processing and distribution. They are primarily responsible for complying with the hygiene conditions, ensuring traceability in all the phases of food production, processing and distribution, animal food, animals used for food production etc. (MINPO, 2013).

They are also responsible for construction of facilities according to Food Hygiene Act, in the way that they ensure the construction under special conditions, their location, necessary
contents needed for certain hygiene levels and the size of facilities where food is processed (HaH; n/a).

Means of transport or containers for food transportation have to be construed in a way to ensure adequate cleaning and disinfection and must not be used for transport of anything else besides food (HaH, n/a). All equipment and materials used have to be regularly maintained and installed as to enable easier cleaning and disinfection, as well as appropriate control devices for measuring temperature, pressure etc.

Every subject that comes in touch with food has to comply with the high level of personal hygiene regulations and go through an adequate training in line with special regulations for certain food sector. If subjects have infected injuries, they must not handle food nor enter the area where food is handled, and have to wear proper protective clothing.

5. QUALITY MONITORING SYSTEMS IN THE FOOD INDUSTRY

Quality monitoring systems (QMS) are key to every food industry sector in order to ensure safe and quality food for consumers (Orris i Whitehead, 2000: 347). The most important quality monitoring systems in the food industry are: Global Food Safety Initiative (GSFI), International Food Standard (IFS), International Organization for Standardization (ISO), Safe Quality Food (SQF) and British Retail Consoratium (BRC).

Global Food Safety Initiative is an unprofitable organization which promotes improvement of food safety system in order to ensure consumers’ trust in the delivery of safe food. There are three main goals: ensuring protection of consumers, ensuring international knowledge and information exchange, and reducing costs in the food supply chain. International Food Standard is an unprofitable organization which sets the basic criteria for those norms that food industries have to respect. The aim of these norms is to help the retailers to ensure safety of their products and food quality monitoring. International Organization for Standardization (ISO 22000) is an internationally accepted norm which sets the conditions for establishing and maintaining an efficient system for food safety management. Safe Quality Food is an American organization with the aim of ensuring quality and safe food by means of SQF Certification Scheme. British Retail Consortium is an organization representing all larger British retailers, which, until now, has developed five food industry norms in order to help retailers to completely follow legislation concerning customer protection, in the way that they provide a common basis for testing all companies that supply products to retailers (Baert, 2005: 878).

6. FOOD SAFETY CONTROL SYSTEM

HACCP is the acronym of Hazard Analysis Critical Control Point which represents an integrated system of food safety control in all the phases of its production and distribution. It was developed in the USA in the early 1960s as a help in food preparation for astronauts, and is also one of the first systems for food safety control widely accepted in food processing and
delivery (Kilibarda, 2009). It bears great importance for food producers from the point of consumers’ protection, because it ensures production and circulation of sanitary safe foods. There are two main components to HACCP: Hazard Analysis (HA) i Critical Control Points (CCP). Hazard Analysis (HA) is a risk analysis with which dangers at every stage of production and delivery are identified and it evaluates the levels of those dangers and how they affect human health. Critical Control Points (CCP) in the food chain are those points which enable complete prevention or elimination of risks or at least reduction of risks onto an acceptable level, as well as their control to ensure food safety. HACCP is an assessment analysis system of dangers which directly influences the sanitary correctness of food products, and it establishes measures for their control. Its implementation is widely prevalent in the developed world, and in the European Union it is legally binding. Its final goal is to ensure the safest production and procedures possible.

Five branches of food industry demanding the implementation of the HACCP System are: Storage, transport and distribution; Organic food industry; Retail and Hospitality; Production, processing and packaging; Food preparation and distribution (hotels, restaurants etc.). During transportation, food can be contaminated due to influence of physical, chemical and biological factors. Therefore, it is important that food transportation is in line with the HACCP norms in order to prevent the very food contamination.

General conditions according to the HACCP Guide for Good Sanitary Practice in Transportation are (HGK, HOK, 2011):

- Means of transport have to be constructed in a way to enable efficient cleaning and disinfection, and have to be kept in a clean and good condition in order to protect the food from contamination.
- Food that is transported by any of the means of transportation or in containers has to be secured and arranged as to prevent any form of contamination.
- Food in various forms (liquid, bulk, powder, granules or granular food) needs to be transported in canisters, containers, or tanks intended for food transportation, which must be vividly and clearly labelled with non-erasable labels in the language used in the international food transport, so their use could be clearly seen; they also have to be clearly labelled “for food transportation only”.
- When means of transport and containers are used for the transport of other products or for the transport of different kinds of foods, it is necessary that they be thoroughly cleaned in order to prevent any contamination.
- When means of transport and containers are used for the transport of various kinds of food and other products at the same time, they must be physically separated in order to prevent contamination.
- Means of transport and containers used for the transportation of foods which needs to be at a specific temperature level, have to ensure proper temperature control.
- Means of transport and containers used for transportation of deep-frozen foods have to enable supervision and the list of the reached temperatures in line with regulations.
Vehicles used for food transportation have to be constructed for this purpose, clean, dust and exhaustion fumes cannot enter the vehicle, they have to be weather resistant and enable specific temperature conditions. Depending on the food being transported, we can also differentiate conditions for food handling during the transportation. For example, frozen foods have to be transported in the appropriately chilled (-18 °C) or isolated conditions. If the food temperature would rise up to -15 °C during the transport, it is necessary to bring it back to -18 °C after it was received at a wholesale or a retail store as soon as possible, as it is set out in the HACCP Guide for Good Sanitary Practices. Likewise, food that requires special temperature levels needs to be stored at the appropriate temperature immediately after the delivery as to avoid the possibility of microorganisms to grow.

There are a few types of vehicles used in the transportation of temperature-sensitive products: vehicle with cooling devices (cooler truck), vehicle with the isothermal equipment and vehicle with heating equipment. All these vehicles are equipped with special temperature gauges with the possibility of setting the appropriate temperature. In case of food being repacked from the original packaging into specific containers or canisters, it is of great importance to save the original declaration and place it where it will be clearly visible.

The system dictates certain conditions to be met when food is being received, and those are: commercial delivery vehicle, temperature measuring, visual control, declarations control, and keeping the written records of the received food.

The delivered food has to be appropriately stored. The facilities where food is stored have to meet sanitary technical and hygienic conditions as to prevent its spoilage and contamination. Depending on the food type and storage demands, food can be stored in cooling devices or coolers and at the ambient temperature. As a rule, required temperature has to be maintained and cannot fluctuate. It is of great importance to monitor and keep record of the temperature in the cooling devices and coolers, but the temperatures are often not appropriate after constant opening of the devices or automatic defrosting, for instance. Therefore, the measuring time needs to be adjusted to the given activities in order to measure correctly. The system requires that all subjects assume obligation to have a way of checking the results of temperature monitoring at any given moment (temperature probe, infrared probe etc.). It is imperative that temperature probe be cleaned and disinfected before or after their use.

The HACCP System demands that subjects dealing with food keep records on specific forms, like, for example, of the received goods. The form for delivery and receival of goods has to be used by logistics firms, and they have to deliver following data: upon the loading of goods: date, time and place, type of goods, quantity, temperature of the goods, signature provided by the driver who received the goods, and the producer’s signature and seal; upon the delivery, data that have to be recorded are: date, time and place, goods damage notice (if there is any), type of goods, quantity, temperature of the goods, and signatures provided by the driver and the storekeeper who received the goods. Before the loading, it is also necessary to write down the registration of the vehicle and the proper methods of cleaning and maintaining the vehicle before the loading.
7. CONCLUSION

The main goal of a company involved in the modern ways of conducting business is to deliver food products as quickly as possible, ensure a certain level of safety and quality, so as to satisfy the growing needs of consumers. Food products go through every stage of the supply chain (production, storage and sales), and for this reason, it is crucial to ensure its quality and safety along the way from the farm to the buyer, i.e., “from the field to the table”. It is therefore relevant to accentuate the importance of every link in the supply chain, because if one link of the supply chain is endangered or missing, it affects the entire chain. The participants in every phase of the chain are obliged to ensure the quality, sanitary safety and traceability of food in line with all legislations, standards and norms, like, for example, Food Law, HACCP and ISO 22000.

Bearing in mind that during the transportation food contamination can happen due to the harmful effect of chemical, physical and biological factors, it is important to respect general conditions of the HACCP Guide for Good Sanitary Practices for transportation of goods.

Because new diseases connected to food consummation have been arising ever more frequently, at the beginning of 2000s, the European Union decided to change its former approach on food safety by establishing unique regulations for all member states. As follows, Croatian Standards Institute (HZN) was established in the Republic of Croatia, with the aim of increasing the products safety level, protecting the environment, human health preservation, promoting products and services quality, eliminating technical barriers in the international trade. It also contributes to the quality and Croatian economy competitiveness.

8. LITERATURE

8. HGK, HOK, (2011), Vodič dobre higijenske prakse za trgovinu u poslovanju s hranom. HACCP vodič, 1. izdanje, Zagreb.