

IMPLEMENTATION OF HACCP SYSTEM IN THE REGION OF EASTERN MACEDONIA

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Abstract

Food production is a complex process that incorporates many factors whose main goal is getting health safety, quality and hygienic wholesome food products. Guaranteed food security, proven through the implementation of European standards, is a crucial requirement for the placement of products in European markets. Considering the fact that Macedonia is directed towards EU membership, and is now a member of the WTO (World Trade Organization) as a developing country, it is very important to have a position in the establishment of standards about production of safe food. The part of the production of safe food known as "Risk Analysis and Critical Control Points" or HACCP is rapidly introduced as a legal regulation in all developing countries and Macedonia has introduced such a law in 2002.

The aim of this study was to investigate whether the licensing and inspection procedures are in accordance with the standard plans for assessment of implementation of HACCP in Eastern Macedonia.

The analysis is made on the basis of the given answers to the questionnaire of 40 food business operators, and based on general observations and suggestions by the Agency for Food and Veterinary in Probistip.

The results of this survey indicate a lack of implementation of HACCP system in the region of Eastern Macedonia as a result of insufficient knowledge and financial resources as well as of insufficient indication of the inspection services to the advantages and proper implementation of the system. In conclusion, this paper proposes actions to be taken for better implementation of the HACCP system by food manufacturers in the Republic of Macedonia, which will influence positively for better health of the consumers.

Key words: CCP, Food safety, Operator, Consumer

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Sažetak

Proizvodnja hrane je složen proces koji uključuje mnoge faktore čiji je glavni cilj dobivanje zdravstveno ispravnih, kvalitetnih i higijenski zdravih prehrambenih proizvoda. Zajamčena sigurnost hrane, dokazano kroz provedbu europskih standarda, je ključni uvjet za plasman proizvoda na europskim tržištima. S obzirom na činjenicu da je Makedonija usmjerena ka članstvu u EU, a sada je članica WTO (Svjetske trgovinske organizacije), kao zemlja u razvoju, vrlo je važno imati poziciju u uspostavljanju standarda o proizvodnji sigurne hrane. Dio proizvodnje sigurne hrane poznate kao "Analiza rizika i kritičnih kontrolnih točaka" ili HACCP brzo je uvedena u vidu pravnog propisa u svim zemljama u razvoju, a u Makedoniji je takav zakon uveden u 2002. godini.

Cilj ovog istraživanja bio je ispitati jesu li licenciranja i inspeksijske procedure su u skladu sa standardnim planovima za procjenu provedbe HACCP u istočnoj Makedoniji.

Analiza je vršena na temelju danih odgovora na upitnik od strane 40 djelatnika hranom, a temelji se na općim zapažanjima i prijedlozima Agencija za hranu i veterinarstvo u Probistipu.

Rezultati ovog istraživanja ukazuju na nedostatak implementacije HACCP sistema u regiji istočne Makedonije i je rezultat nedovoljnog poznavanja, financijskih resursa, kao i nedovoljnog informiranja od strane inspeksijskih službi o prednostima i pravilnoj provedbi HACCP sistema. U zaključku, ovaj rad predlaže mjere koje treba poduzeti za bolju provedbu HACCP sistema od strane proizvođača hrane u Republici Makedoniji, što će pozitivno utjecati na bolje zdravlje kupaca.

1. Introduction

Managing food in a way which is appropriate and safe for human use is an imperative for each country and its food industry. Namely, access to adequate quantities of safe food provides a healthy population, and trade liberalization and globalization of world economies; food as the subject of trade significantly contributes to the development of the country.

The basic requirements for food safety in the Republic of Macedonia are regulated by the Food Safety, Products and Materials in Contact with Food (Food Safety and Products and Materials in Contact with Food, 2002, 2007) as the basic law in the area and the Law on Veterinary Public Health (Law on Veterinary Public Health, 2007).

In order to achieve these objectives successfully in terms of food safety a legal requirement for food operators is introduced in food production, and producers are obliged to implement and maintain a permanent procedure or procedures based on Hazard Analysis and Critical Control Point system or Hazard Analysis and Critical Control Point (Hazard Analysis Critical Control Points - HACCP).

By definition HACCP system identifies, evaluates and controls hazards which are significant for food safety (Codex alimentarius, 1997). The successful application of HACCP requires full commitment and involvement of management and labour.

At every step and every process all people in charge know:

- How to control the process?
- When to stop the process?
- Who can decide to stop the process?
- How to manipulate the suspect product?

After this situation the management has all relevant information so they can decide what to do next.

- What should be done so that the same situation does not appear again?
- Are all responsible people reacting as prescribed?
- What is the final cost?

HACCP is not an independent program, but it is a part of a larger control system which includes the implementation of universal procedures used to control the general conditions and environment (environment) production and contribute to the production safety. Programs that need to be adopted, implemented and documented:

- GMP - Good Manufacturing Practice;
- DCP - Good hygienic practices;
- SOP - Standard operating procedures;
- SSOP - Sanitation standard operating procedures.

The application of HACCP is compatible with the application of the quality management system such as standards of series ISO 9000. HACCP does not apply to product quality, but solely on its health security (Knaflewska and Pospiech, 2007).

1.1. Principles of HACCP system

The principles of HACCP system represent requirements for the application of HACCP system. The HACCP system consists of the following (Codex alimentarius, 1997):

- Conducting a hazard analysis.
- Determination of CCP - Critical Control Points.
- Establishing critical limits.
- Establishing a system for controlling the CCP.
- Defining corrective measures that should be taken when a loss of control over a particular CCP is determined while monitoring.
- Establishing procedures for verification of the functioning of the HACCP system.
- Establishing a documentation of all procedures and records arising from these principles and their application.

1.2. Procedures for implementation of HACCP system

The application of HACCP principles is implemented through the fulfilment of tasks in the given sequence (Srbinovska and Kendrovski 2006):

Task 1 – Forming of a HACCP team.

Task 2 - Description of the product and process.

Task 3 – Identification of the purpose and the manner of using the product.

Task 4 – Construction of a diagram in the course of production.

Task 5 – Verification of the flow diagram on site.

Task 6 - List of all possible hazards, analysis of the hazards and the establishment of control measures / Principle 1

Task 7 – Identification of critical control points / Principle 2

Task 8 - Establishing critical limits for each CCP / Principle 3

Task 9 - Establishing a monitoring system for the control of the CCP / Principle 4

Task 10 – Establishing of corrective measures for potential deviations / Principle 5

Task 11 – Establishing of procedures for verification / Principle 6

Task 12 – Establishing of documentation and records / Principle 7

1.3. Certification

Certification is a process where a third party gives written confirmation that the product or process is in accordance with the relevant standard. The certificate is conclusive evidence for the buyer that the bidder meets certain standards. It confirms that the system for producing safe food is well attached and positioned (ISO/IEC 17000, 2004).

2. Objectives

To ensure healthy and safe food and thus protect the health and lives of citizens in the Republic of Macedonia the latest standards and regulations, including HACCP system, and the rules of Good Hygienic Practice and Good Manufacturing Practice are adopted, with whose application risks and hazards in food are minimized reducing the risks of diseases and food poisoning.

1st January 2009 was the deadline for the application of HACCP system by all food producers in the domestic industry, traders and caterers. Reputation and accuracy control system of food depends to a large extent on their accuracy and knowledge of the food inspectors.

The aim of this study was to investigate whether the introduction of HACCP system in Eastern Macedonia is on a satisfactory level. Therefore the conditions within the business operators are examined and analysed from the point of view of implementation of HACCP system.

3. Materials and methods

The data on the conditions created by the introduction of the HACCP system for producers in the municipality Probistip were collected in order to obtain reliable information on the extent of meeting the legal requirements for food safety and obstacles facing the food business in the implementation of the system.

The analysis is made on the basis of the given answers to the questionnaire of 40 food business operators, and based on general observations and suggestions by the Agency for Food and Veterinary, Probistip. In this paper the descriptive - analytical method is applied.

The total number of food operators surveyed was 40, and the total number of companies also 40. The reason for the equality of these two figures is due to the fact that each of the companies participated with one representative. The questions were answered mainly by company managers with equal representation in terms of gender.

A questionnaire was delivered to each of the companies. It gives data on the level of awareness and knowledge of food producers in the area of standards, assistance in implementation of standards, the need for them, awareness, motives for their application, the relationships between food producers and inspectors, etc.

3.1. Questionnaire conducted during the data collection

Company Name (trade name) _____

Home address _____

Contact person _____ Position _____

Number of employees _____

Type of activity _____

2. Focus on markets:

Domestic market Foreign Market

3. Do you have knowledge of national standards and regulations for food safety?

Yes No Partially

4. Where are informed about the existence of these standards and regulations?

Ministries On line Consultants Associations Other

5. Do you have implemented some of the standards for food safety??

Ye No

(Please specify which: _____)

6. Who helped in the implementation of the standard?

Own people Consultants Food Agency Other

7. List the reasons for implementing the standard:

Improving consumer demand Improving
 Browsing inspections Export Other

8. List the major problems faced in implementation of the

standard _____

9. Are you satisfied with the work of regulatory bodies responsible for control of food safety?

Yes No

Is answer is No, specify the reasons _____

10. List the benefits of implementing standard _____

4. Results and discussion

Till 1st June 2011, all 179 registered facilities under the jurisdiction of the Agency for Food and Veterinary Probistip are categorized into the following types of activities:

- Industrial production – 6
- Craft production – 11
- Catering and production – 51
- Wholesale – 2
- Retail sale – 109

DCP, GMP and HACCP system, in accordance with data obtained from inspections by the Agency for Food and Veterinary, Probistip are implemented in:

- Industrial production - 3.35%
- Craft production - 6.14%
- Catering and production - 28.49%
- Wholesale - 1.11%
- Retail sale- 60.89%

The main targeted market for companies is the domestic market. Only one of the companies included in the survey questionnaire is oriented towards foreign markets, mainly neighbouring countries, primarily Kosovo. Diverting from domestic to foreign markets brings great challenges, primarily a lack of financial resources and insufficient knowledge of EU regulations.

Analysis shows that 90% of companies are oriented to their own municipality, which clearly shows that these companies are the central pillar of the local economy. Of these, 2.5% are regionally oriented, 7.5% of the companies sell their products in the country. Almost 60% of the companies say they have full and 25% have partial information on domestic standards and regulations and 15% of them have no knowledge. The main reason for the lack of these standards and regulations is the lack of new principles for food safety and the low level of interest by the food business operators. The consultants (42.5%) and ministries (22.5%) are the

primary source of information on national standards and regulations. According to data obtained from the survey, all food operators have fully established adequate systems for food safety - DCP, GMP (95%) and the principles of HACCP (5%).

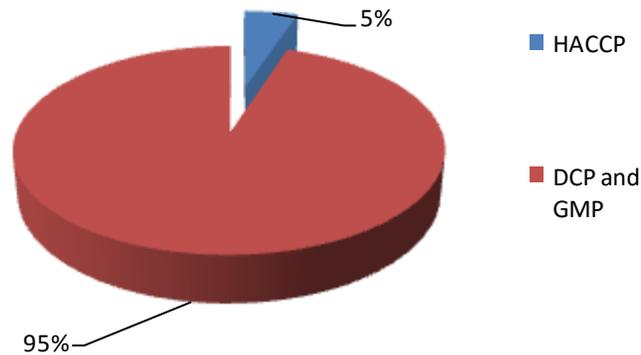


Figure1. Percentage of implementation of DCP standards, GMP and HACCP

During the implementation of systems for food safety, companies have used different sources. Agency for Food and Veterinary, and PHO, Stip and regional unit Probistip (57.5%) are the main resources of information for the implementation of these systems for the companies. Much of the aid in the implementation comes from domestic consultants (17.5%), where companies expressed a great need for qualified and trusted consultants for the implementation and development of these systems. Also, 17.5% of the companies expressed great confidence in their employees, educated and capable people in the establishment of standards and technical regulations.

The main reason for implementing systems for food safety for most companies (60%) is implementing the requirements externally imposed. Generally, in many small and medium enterprises the main reason for the implementation of HACCP is to fulfil the legal obligation and not the growing awareness of the importance of producing safe food.

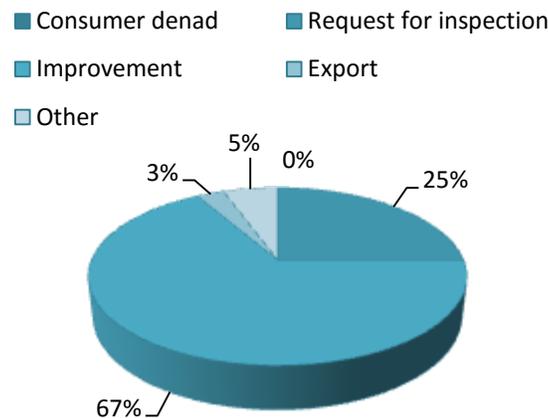


Figure2. Incentives for companies to implement the standard (%)

Almost 22% of the companies have provided better organization and hygiene at work with the introduction of systems for food security, while 10% of companies have introduced HACCP at the request of consumers who have the right to require from the manufacturers health safe food regardless of the fact whether they buy it in small, medium or large enterprises.

From the survey of business operators' food in the municipality of Probistip four major key issues are detected as a barrier to the implementation of HACCP system:

- Owners of businesses see HACCP more as a financial expense, rather than accept the fact that the risk of unsafe food exists despite the global escalation of diseases transmitted through food (70.0%);
- Insufficient education of staff for in the application of systems for food security (17.5%);
- Problems with infrastructure and equipment of buildings (7.5%);
- Basic sanitation problems such as lack of water for drinking and inability to safely remove the waste (5.0%).

The advantages of implementing the HACCP system in the food business detected by the companies was as follow:

Better organization of work and hygiene (50.0):

- Increased consumer confidence in the safety of food products and systems for food production (25.0%);
- Strengthening the economic power of the food business operators (7.5%);
- Increased competitiveness of food products manufactured in the Republic of Macedonia on domestic and international markets (7.5%)

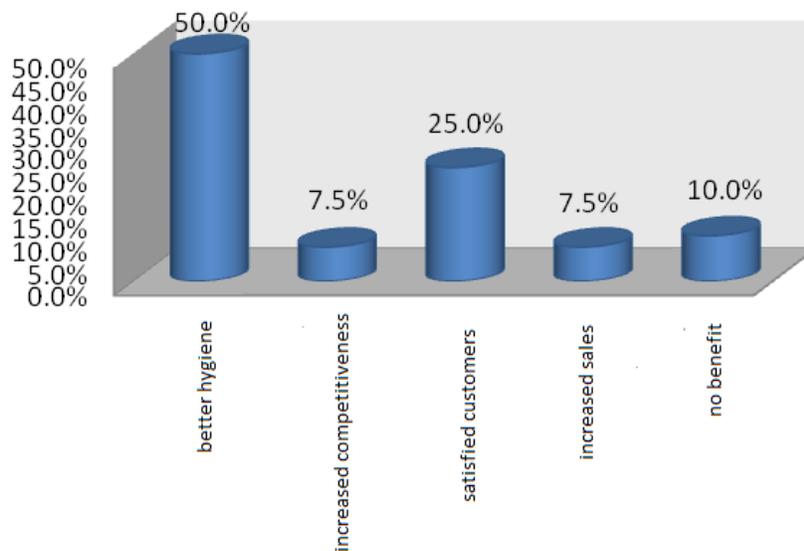


Figure3. Opinion of the representatives of the investigated companies about the benefits of implementing HACCP system (%)

5. Conclusions

Manufacture of food products has great importance for the economy of each country. The total value of international trade in food worldwide is estimated at 5.5 billion Euros. EU food industry has an annual turnover of over 500 billion euros and exported food worth 44.5 billion euros. Macedonia participates in the Food Industry GDP by 16% and exports by 20% and employs a quarter of the population, or approximately 24% of the workforce. Although HACCP is a dynamic system of production of safe food, it is based and contains a standard dimension. First, this system means the mandatory demonstration of critical control points and their measurability. Second, the identification of these points risks in food production can be prevented, eliminated or reduced to acceptable levels before they occur and thirdly, this system gives enough freedom of each company to design and implement according to their capacities and thus production, which means is effective in reducing the cost of production.

An effective national system to control food safety should be crucial to the health and safety of consumers and it should ensure safety and quality of food products intended for domestic and foreign market.

The results indicate that the implementation of HACCP is not sufficient. According to data obtained, all food operators have been established systems for food safety. 95% of the operators investigated have been established the principles of DCP and GMP and only 5% have been established the HACCP system.

From the point of view of situation in Macedonia, an integrated approach to food quality control and the assurance of full protection of consumers and animals should be in the centre of the responsibilities of one institution, the Agency for Food and Veterinary. So, it will be impossible to avoid responsibility by transferring responsibilities from one institution to another. By improving the implementation of HACCP system within the companies the responsibilities of the Agency will be minimized and the companies will take their own responsibility for the

implementation. The result would be safer food for the consumers, primarily achieved through enhanced and integrated control at all stages of production.

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