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FEEDING THE ARMY IN GLOBAL FOOD SECURITY

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Abstract: The Army does not operate independently of the society in which it exists, and is forced to introduce international standards and quality systems, including in the field of nutrition, to safeguard the security of its members in terms of food consumption. Feeding area of the Army may consider the qualitative and quantitative aspects. Qualitative aspect consists in the application of highly effective nutrition programs that provide health-safe and balanced diet of consumers. In this paper, the qualitative aspect of the diet of the Army will be analyzed primarily from the perspective of food safety. Quality management system is the basis of food security during the military reform. Promotion of global food security and the integration of the Republic of Serbia to the WTO will contribute to the aggravation of the degree of implementation of food safety standards in the future. This paper will analyze the achieved level of ISO 9001, ISO 22000 and HACCP in the Army in the past.

Keywords: nutrition, members of the Army, the global food security.

INTRODUCTION

The World Trade Organization (hereinafter WTO) has 151 member country, comprising 97% of world trade. For membership is currently negotiating some thirty countries, including the Republic of Serbia (hereinafter referred to as RS). WTO membership is the possibility of entering the world market and is a necessary precondition for joining the European Union. The effects of the membership in the long term significantly increases the efficiency of the economy through increased competitiveness. RS filed 2004th The application for membership in the WTO, but during the 2011th signed a protocol on trade liberalization with the EU.

The basic principles of the WTO necessitate the implementation of food safety standards in the areas of trade in goods and services. Army of Serbia (hereinafter referred to as AS) does not function independently of the society in which it exists, and is forced to introduce international standards and quality systems, including in the field of nutrition, to safeguard the security of its members. Nutrition AS we consider the qualitative aspects. In the following part of the paper presents the requirements of ISO 9000, HACCP and ISO 22000, as well as achieved level of implementation of these standards in the Army.

1. HACCP SYSTEM AND SAFETY IN SERBIAN ARMY

Many problems related to human health imposed food safety to the forefront of world activity. The main objective of these activities is to raise the level of food safety by defining methods of testing food products (hereinafter FP). Hazard Analysis and Critical Control Points (hereinafter CCP) is a method that forms the basis for ensuring food safety. Nutrition AS consists of a series of processes in which it can undermine the security of its members.

The HACCP system consists of five preliminary steps and seven principles. For consideration of the current situation in the Army, as to the implementation of HACCP, the ten respondent warden military restaurant (hereinafter MR).

Starting a need for the application of HACCP is to train staff, which until now has largely been realized. Method of food production and its distribution to the end user is described in the operating instructions which exist in each of the surveyed restaurants. Degree of documenting the existing Directives is not at the required level. Description of the purpose of the product and the end user identification is made, but the necessary processing existing documents.

In terms of the implementation of HACCP in the AS state the following:

- Risk Analysis - 40% of the specific risk contaminating food, and 80% are in or are partially prescribed procedures to predict the possibilities of physical, chemical and biological contamination. Procedures unintentional mishandling of food in 60% of restaurants are not required. The survey may reveal features of the security of food caused by various risks: lack of insect net; failure of the ventilation system, etc.
- Identification of the CCP - the MR there are a number of possible CCP that managers recognize the majority percentage (90%), but were not included in the existing regulations. The existing technique is functionally working condition indicating the fact that is not kept under control.

- Determine the control limits is provided in the documentation. Monitoring of CCP in the process of food preparation is achieved by using a pressure gauge and thermostat. The accuracy gauge regularly subject to review in 70% of the restaurant, while the temperature control by thermostat implemented in all restaurants. In 30% of restaurants are governed by existing documents critical limits in the process of preparing food which points to a small number of buildings in which the principle applies considered.
- Establish a monitoring system does not apply in MR mode as required by HACCP, because the existing documents governing the MR not require the formation of the HACCP team. On the other hand, the AS is regulated obligations of professional services related to the monitoring of prescribed sanitary and safety measures in the process of preparing and distributing food. Lack there of in the absence of the HACCP plan in 90% of restaurants and train staff to monitor the process.
- Definition of corrective action exists only in 3%, and preventive measures only in 20% of analyzed restaurants.
- The sixth and seventh principles are applied only at the Military Medical Academy (hereinafter referred to as MMA). The absence of documents that are necessary to document the HACCP system, such as the Rules of HACCP procedures, instructions and records can be seen reviewing the content of the Practice.

The results of the survey indicate that they have made a number of changes in order to successfully implement the HACCP system in AS.

2. APPLICATION OF ISO 9001:2008 IN SERBIAN ARMY WORK FOR FOOD SECURITY

The international standard, ISO 9001:2008, is the result of the technical committee ISO/TC 176, Quality management and quality assurance. For consideration of this standard in the Army, was analyzed Guidelines on the organization of work in MR in the "Prince Michael" in Nis and operation of the building in nutrition. In this building partially identified key processes - the process of receiving and issuing FP and preparation and distribution of food. This MR evident as many of the critical points that are not controlled and may undermine food security, such as the crossing of clean and dirty roads movement FP, lack of storage space for housing; frequent failures dilapidated kitchen machines and equipment, and the like. Increased risk to the safety of food caused by: a defective ventilation system, the lack of a sufficient number of staff to work irregular and conducting training.

They identified key processes, nor the availability of resources provided for monitoring of the processes themselves. For this reason it does not perform monitoring, measurement and analysis of process activities. Document and records management is done properly, ensuring traceability of food. Management responsibility is covered stipulating duties: MR manager, duty officer and professional and support staff. Existing User the MR does not contain the required quality policy. Management performs a review of a number of ways: in the form of surveys of end-user services and assumed control of the professional bodies. According to the results, and take measures to eliminate shortcomings.

Resource management is to influence managers MR implementation of proper food preparation hiring skilled staff. Training of personnel, is held at the required level. Conditions of working environment, it is rarely subjected to their perception of the actual situation, and often appears excessive noise and brightness MR is not maintained at the required level.

Product realization is based on documents that were included in the Guidelines, such as diet plans, monthly and daily menus, budgets and other foods. Measurement, analysis and improvement of the MR application activities take place, such as quarterly analysis of energy-biological value meal, periodic surveys, and others.

The situation in the composition of the Practice and MR mode, there is in other restaurants. From the above, it can be seen that the objects currently in the diet in the Army does not apply the ISO 9001 standard, and it is necessary to make a number of adjustments in order to enable its successful implementation.

3. APPLICATION OF ISO 22000 IN SERBIAN ARMY

ISO 22000 is the international standard of food safety management system (hereafter SFMS). Application of standards enables an organization to identify and control the risks to food safety. The results of the survey on the possibility of application of ISO 22000 in food establishments in the SC are characterized by the following features:

- General requirements SFMS - identifying and controlling risks to food security, are presented in 40% of facilities. Asked about documenting SFMS 20% of respondents answered positively, while defining the CCP and preventive measures are present in 30% of MR.
- 80% of respondents believe that the current regulation allows operation of the restaurant. Managing an existing document covers all MR regularly updated.

- This responsibility is partly covered by the documents as part of the Practice. Food Safety Rules prescribed only in MMA, and professional staff in all the restaurants are aware of the responsibilities and powers. External communication with suppliers is maintained at a low level (30% of respondents). Internal communication has been established in all restaurants. Food Safety Team was formed only on MMA.
- Resource management by the management, which specifically in the Army authorities are professional services - quartermaster, and others, are provided with adequate resources that can facilitate the establishment of SFMS. Implementation of the training takes place in 40% of food facilities. Resource management includes prior and previous operational programs and HACCP plans.
- Hygiene of staff and facilities at each of the restaurants neglected. Staff referred to sanitary inspections, the use of protective clothing is working in accordance with the rules prescribed in 90% of restaurants, medical control of personnel and place under the existing regulations, and the early morning parades to check the personal hygiene and health personnel. Disinfection of equipment and utensils are properly done. Among the shortcomings in terms of hygiene is lacking dezobarijera in 70% of restaurants, use towels to wipe hands (40%), lack of recreation facilities personnel (60%), and improper disposal of waste (40%).
- Each of the restaurants in terms of construction meets the requirements for establishing standards. Restaurants have sufficient storage capacity for storing FP in 60% of cases, the supply of energy is good in 80% of the restaurant, and the layout of them prevents the mixing of clean and dirty roads.
- Equipped with technical devices is good, but some problems arise: the need to improve service coolers (20%), failure of the ventilation system (20%), lack of technical facilities in a number of restaurants (30%), low accuracy heater (40% defective).
- the work environment half the respondents believe appropriate. Planning and realization of safe products in MR is not realized in the form of making the last and previous operational programs and HACCP plans. However, the process of food preparation takes place in accordance with the prescribed requirements, which apply standards of food safety. For this statement indicates the characteristics of the process: the proper operation of the canned and frozen FP in all restaurants, implementation of necessary measures in the last stages of processing FP (90%), the correct procedures in the event of damage to the packaging (70%), proper storage of high-risk as FP as eggs, meat, milk (90%).

- Planning verification MR is based on plans control of professional services, implementation of a regular quarterly analysis of energy-biological value of the daily meals and storing food samples within 48 hours of its preparation. Traceability is present, as can be inferred from the existence of records: maintenance techniques, disinfecting utensils and crockery and receiving FP. Answers that are a lower percentage were referred to the confirmation of the existence of records about cleaning toilets (20%) and lubrication kitchen machine (40%).
- Management of the inaccuracies present in food establishments, practical actions that are applied to them, but the procedure is prescribed in the form of procedures, 70% of restaurants.
- Validation, verification and improvement of the SFMS in MR is based on internal audits of the process of preparing food by governing bodies.

The only organization in the defense system, which has implemented the ISO 22000 is MMA. Preparations for introducing started 2007. year. Team meetings were held for the safety of food. Plan of implementation of ISO 22000, in which the specified key tasks and responsible persons and deadlines for the implementation of tasks. The team has developed quality policy, in which the integrated food security in a single business system. Made the Rules of Food Safety, which include the required 168 procedures, four of which are important for the maintenance of food security: the receipt of raw materials for food processing, preparation and distribution of diet food, development and implementation of HACCP and good hygiene practices. Within the system, among others, has shown support for a process in which the acquisition is classified as PP for the preparation of diet food for consumers MMA. The procedures to regulate in detail the processes that are essential for food production, from procurement and receipt of PP over their preparation, distribution to the final consumer. The procedures are made claims for defects. The first control was carried out 2008th and at that time were observed shortcomings: the intersection of clean and dirty roads, lack dezobarijere; were no connecting doors to physically separate the thermal block of sanitary bandpass; class dining washing dishes was not physically separated from the thermal block; were no doors for the reception and issuance of containers to transport food. He then made defects, and in the 2009th The MMA has become certified.

During the four-year period of implementation of standards achieved are the following advantages: less injury to staff on a kitchen technique; better results because there is no overlapping of responsibilities; improved ventilation; increased the level of hygiene of staff. Successful experiences of introducing food safety standards in the MMA should be an incentive for the introduction of this standard in AS.

4. APPLICATION OF FOOD SAFETY IN SERBIAN ARMY

Traffic in FP RS is regulated according to the general and specific food hygiene requirements at any stage of production, processing and transport, which requires that all FP placed on the market must be microbiologically safe. The adoption of the Law on Food Safety, contributes to increased food safety in traffic and the necessity of using HACCP, resulted in increased hygiene and quality of food. In order to maintain the safety of food in the Army apply the appropriate regulations and activities: control of hygiene, sanitary - hygienic measures in the preparation, distribution and sharing of food and medical and hygienic control of the staff working with food.

For activities that are undertaken in the Army in terms of food security, and data point shown in the analysis of 50 Bureau of preventive medical care for a period in 1997. the 2011th year. Sanitary and hygienic conditions in food establishments, according to the findings of the control features: poor maintenance of cleanliness of work surfaces, equipment and supplies; lack of disinfectants; transportation of food in unrestricted vehicles; neuslovnošću food storage and so on. These facts indicate a high risk of the potential threat to food safety.

Have reviewed show that the fourteen-year period analyzed (Table 1) decreased the number of objects over which the Department conducts sanitary control of 25,8%. The highest decrease in the number of controlled structures, at least in relation to the initial period of the analysis is recorded in MR (to 66,6%), and followed by a decline in independent facilities (55,5%), barracks (6,2%) and restaurants (3,6%).

Number of MR with confirmed satisfactory condition, at least in relation to the initial period of the analysis, decreased by 33,3%, while the percentage of restaurants in precarious balance declined by as much as 87,5% and MR unfavorable situation has remained virtually unchanged. For isolated objects, at least in relation to the initial period of the analysis, the number of them with affordable state has declined by 31,2%, however unfavorable rating sanitary situation was fluctuating.

Number of samples FP, in all four periods of analysis, it's been taken as a percentage of the purchase. During the fourteen-year period of analysis of samples of controlled FP from the market declined by 83,8% and the number of controlled samples of FP from the warehouse is almost uncontrollable. The percentage of unsatisfactory samples during the fourteen-year period of analysis

is reduced by 3%. Regarding the FP group, the majority of samples are milk and dairy products – 33,8%. FP samples by groups who are often deviate from the bacteriological quality of the samples consisted of semi-frozen pasta dishes (pies and pasta with cheese). Microbiological analysis showed that the FP of high microbiological quality, and the percentage of defective only 9,63%, which gives the highest mark in countries with very high health production control FP.

Table 1. Sanitary Supervision 50. Bureau of preventive medical care during the period of in 1997. the 2011th the

Year			1997.		2003.		2008.		2011.	
			The nominal value	%	The nominal value	%	The nominal value	%	The nominal value	%
Number of sanitary inspection			178	-	104	-	131	-	132	-
	Type of building	Barracks	48	30,0	35	33,6	37	28,2	45	34,1
		Catering	55	30,9	26	25,0	64	48,8	57	43,1
		Featured	45	25,3	9	8,6	15	11,4	20	15,2
		MR	30	13,8	34	32,7	15	11,4	10	7,6
Found condition	In MR	Favorably	12	40,0	20	58,8	11	73,3	8	80,0
		Insecure	16	53,3	12	35,3	3	20,2	2	20,0
		Adverse	2	6,7	2	5,9	1	6,7	-	-
		Critically	-	-	-	-	-	-	-	-
	On separate objects	Favorably	16	36,5	4	45,5	10	66,7	11	55,0
		Insecure	23	52,2	3	33,3	4	26,7	9	45,0
		Adverse	5	11,3	2	22,2	1	6,6	-	-
		Critically	-	-	-	-	-	-	-	-
Chemical analyzes	Number of samples FP	With the market	4.959	99,0	4.934	99,3	1.288	99,9	799	100,0
		From storage	51	1,0	34	0,7	2	0,1	-	-
	Number of invalid samples FP	With the market	555	11,2	396	8,0	114	8,8	88	11,0
		From storage	3	5,8	1	3,0	-	-	-	-
	Number of water samples		2.472	-	2.510	1.963	-	-	1254	-
	Number of times water samples		592	23,9	553	22,0	399	20,5	155	12,4

Source: Analysis of 50 Bureau of preventive medical care, in 1997., 2003., 2008th and 2011th year

The fact that points to increase food security of AS, certainly represent the data to reduce the number of selected objects during the fourteen-year period of analysis in which it was found unfavorable sanitary and hygienic condition by 80% and unsafe sanitary-hygienic state by 60,8%, while the number of selected objekata which stated favorable sanitary-hygienic state decreased by 31,2%. Lower drop percentage number of selected objects for which it was stated positive balance in relation to the number of such buildings in which it was stated negatively and unsafe sanitary and hygienic conditions, and the fact the lack of these facilities during the fourteen-year period of analysis with critical condition, according to Food Safety in the Army maintained at a high level and in terms of the objects that are used for daily distribution of food from the place of its preparation to the end of the division and in terms of the increased capabilities of the security of food.

On the other hand, the number of controlled water samples during četrtinaestogodišnjeg analysis period was reduced by 49,2%, while the number of contaminated water samples during the analysis period decreased by 73,8%. Reform AS stipulated the criteria for stricter sanitary inspection facilities of food, and thereby reducing the number of defective FP, hygienic conditions in such facilities were built to a higher level, increasing food security.

In order to maintain the safety of food in the Army, much importance is given to the use of the Ordinance on the quality FP. As regulations do not provide detailed and stringent specifications for FP, AS for your needs is developed standards of National Defense (hereafter SNC), which further regulate the requirements in terms of food production technology. Without these standards VS draft technical specifications. AS currently uses 40 of the Rules of the quality FP and 42 SNC in the field of nutrition.

As an illustrative example of the work we will present Regulation on the quality and other requirements for meat and SNC for a can of liver pate. This Regulation lays down the quality of meat products, their labeling and basic ingredients, defines meat by groups that are in the way marketing are categorized into minced meat, ..., tin and grease. Ordinance provides for the packaging material, method of packing, transportation and storage.

Cans Ordinance defined as "products obtained from different types of meat, fat and connective tissue and intestines, and they may be added to water, salt ... that after processing and full and hermetically sealed in a container, "According to the type of raw material, cans are placed on the market: canned meat in pieces; ...; sausages, canned food and canned. Regulations further defines "sausages, canned products are obtained and marketed under the name of canned sausages, liver pate and other kinds of canned pâté ..."

SNC 5884/98 defines liver pate in a can as "durable tin which, according to general regulations on the quality of the meat, belongs to the group: cooked sausages. Filled into the cans that can hold 150 g net contents. "Standard stipulates technological process, down to the smallest detail," pork head meat deboning pork gets a head ... "

During the guidance necessary packaging this standard refers to the SNC for cans. Then, in standard cans are packed in cardboard boxes, which are placed in the control sheet with a large mark of the person who has packed. The procedure allows the traceability of the product. The standard prescribes the procedure for the control of production is structured in several types and stages: veterinary-sanitary and technological conditions of production, quality of raw materials, additives, spices and packaging, production control sample; technological processes, the quality of the finished products, packing and storage of cans; implementation prescribed safety measures and self-protection and use the prescribed requirements of this standard.

The quality of the finished dishes, by default, determines reviewing: sensory quality, chemical composition and hygienic products. Standard eventually regulate the process of qualitative receipt of the product, which consists of determining the approximate amount of canned prepared for delivery; determine the quality of transport packaging, net weight cans, cans sensory properties, chemical composition cans, hygiene cans, safety labeling and packaging methods ; spending patterns and identifying and deciding on quality acceptance cans.

CONCLUSION

The list of countries negotiating to join the WTO and is the AS, which has observer status. The basic principles of the WTO necessitate the implementation of food safety standards. Food safety of SAF is based on the obligation of implementing international standards of food safety.

HACCP is a method that forms the basis for ensuring food safety. In order to analyze the degree of implementation of HACCP in the survey administrator MR AS obtained data indicate that non-application of the preliminary steps for the implementation of HACCP, and apply the principles in a manner not in accordance with the requirements of the HACCP system, which provides food security.

For consideration of the application of ISO 9001 in the Army, was analyzed Guidelines on the organization of work in MR in the "Prince Michael" in Nis and the specified object feeding. Key processes in the operation of the MR subjected to the action of a number of CCP. Currently in eating establishments in AS neprimenjuje the ISO 9001 standard, and it is necessary to make a number of adjustments in order to enable its successful implementation.

Results of the possibility of application of ISO 22000 in the AS show that is necessary to make a number of changes to existing documents. General requirements SFMS are not applied, and the responsibility of the partially covered crafted documents. Food Safety Team was formed only on MMA. Resource management provides adequate resources that can facilitate the establishment of SFMS. Application of the preliminary steps are still not fully.

The achieved level of implementation of food safety standards in AS is low. The survey results show that the problem of deployment options considered standard systemic character and the need to make a decision at the highest level if VS wants to apply these standards. If the answer to this question is yes results show that the need to make a number of existing documents and create new ones, and that the practical implementation of food safety standards necessary to invest significant financial resources.

Adoption of a set of new laws and regulations in the Republic of Serbia, but also in the Army, contributed to the increase in food safety. On the other hand, reducing the number of controls by the competent military authorities of preventive medical care increase the likelihood of breaches of food safety of SAF. The growth of the MR 30% of which was found favorable situation in terms of food security during the fourteen-year period of analysis, and conducted microbiological analyzes which confirmed the high quality of FP microbiological confirmation of the attention being paid to food security in AS. The application of the quality FP, SNC and technical specifications further contributes to the food security of SAF.

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