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SAFETY OF COFFEE PRODUCTION AS THE MAIN COMPETITIVE ADVANTAGE OF THE COMPANY IN THE MARKET

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Abstract. The relevance of implementing the principles of product safety management caused by the necessity to implement this standard by the Ukrainian enterprises while forming the image of a safe food producer, thereby expressing a serious attitude to the opinion and health of consumers. An equally important effect of the implementation of this standard is the investment attractiveness of the company and the ability to enter the foreign market. Thus, Ukrainian products will be in demand by consumers in the foreign market due to decent quality and affordable prices. Analysis of the prospects for the implementation of the HACCP standard will allow the company to interest the consumer in the purchase of coffee products, reduce the cost of its production, expand its product portfolio and increase distribution channels. The article **aims to** study the benefits for the company from the application of HACCP, to characterize the process of its implementation and to provide a typical example of real deviations in the designed enterprise models. **Methodology:** during the study, a qualitative analysis of the existing DSTU ISO 22000: 2007 standard was carried out, as well as the analysis of the existing deviations of coffee production. **The scientific significance** of the study lies in the fact that, based on the conducted research results, it is possible to develop typical processes for the accelerated implementation of HACCP standards, which in turn will accelerate the intensity of its high-quality implementation. **The value of the research** is that, based on the implementation of standards for the management of safe coffee products, the consumer receives a quality product, while the state obtains a certified manufacturer and potential exporter.

Keywords: HACCP, KKT, verification, critical limits, technological process.
JEL Classification: L15, K13, J28.

INTRODUCTION

In the modern business environment, food poisoning, as well as the appearance of extraneous elements inside the finished goods, became a normal phenomenon, which adversely affected the reputation of enterprises and trust from foreign consumers. Therefore, the state prepared a number of amendments to the law on food safety management for enterprises. Naturally, most of the innovations are pushing market operators to increase their export volumes and increase product

quality, as Ukraine is an exporter of products and services to 190 countries. On September 20, 2017, the norms entered into force in Ukraine, providing the introduction of a hazard analysis and critical point control (HACCP) system for facilities that operate with food products in accordance with part two of subparagraph 1 of paragraph 1 of the final and transitional provisions of the Law of Ukraine "On Introduction amendments to some legislative acts regarding food products" dated July 22, 2016 No. 1602-VII.

Thereby, the legislation warned production facilities and public catering about the beginning of the implementation of food safety control standards and provided a postponement of 3 years before the audit for the physical and documentary implementation of ISO 22000: 2007 (HACCP).

However, most enterprises ignored this requirement, as a result of which the legislative authorities re-warned about the responsibility of the enterprise, which would not pass the food safety audit until January 1, 2020. They will receive warnings from inspection bodies and a fine in the amount of 15 to 30 minimum wages, depending on the severity of the product mismatch and up to the complete withdrawal of products from the Ukrainian market.

On this bases, the issue of implementing the HACCP principles became an acute issue for companies, however, the difficulty of implementation is not only in the physical elimination of production areas where cross-contamination occurs, but also in the documented facts of their presence, as well as in the application of corrective actions with their further monitoring.

Suchwise, the food industry faced the challenge of developing practical steps and instructions for implementing the HACCP principles.

This task is particularly relevant due to the need of enterprises to maintain its throughput, but also to increase its competitiveness. The lack of HACCP implementation restrains the possibility of entering the world market, thereby slowing down the increase of the country's GDP and economic indicators of a particular region.

Consider an example of the implementation of the principles of HACCP on the example of an enterprise producing coffee products.

LITERATURE REVIEW

Today, the following experts have been studying the implementation of the principles of HACCP: O. A Shutova and A. F. Manukyan (2015) studied the problems of implementation of the principles of HACCP in the food industry, O. A. Golubenko, V. Yu. Slavogorodsky and V.A. Ivanov (2017) considered issues of certification of the HACCP system and the food safety management system and their main differences, V. M. Novikov, I. M. Romanenko and S. V. Fomina (2013) conducted an analysis of existing regulatory documents on the procedures for certification of the SSMS (HACCP) in Ukraine and the search for ways to improve them.

PAPER OBJECTIVE

Development of practical steps and recommendations for the implementation of food safety management standards DSTU ISO 22000: 2007 (HACCP) at all stages of the production of finished products, on the example of the enterprises of coffee products that plan or implement the principles of HACCP and face a number of difficulties.

RESULT AND DISCUSSION

In the modern realities of domestic business, not enough attention is paid to the issue of producing a quality product, namely the creation of a safe product that will not cause irreparable harm to the health of the consumer. To comply with this requirement, the quality of the products must correspond to the properties that the manufacturer declared on his packaging, aimed at

attracting and meeting existing needs. However, there are factors that can reduce the properties of a product and make it unsafe.

To eliminate these factors and reduce the threats of their occurrence, the principles of product safety management at all critical points of its production are applied DSTU ISO 22000: 2007 (HACCP) (Molins and Pineiro, 2010; Food safety management system. DSTU ISO 22000: 2007, 2007).

DSTU ISO 22000: 2007 (HACCP), is a risk analysis and critical control point system developed for enterprises that produce food products or enterprises which products and services are used in the food industry and affect food safety. The system does not control the final result, but the entire food production chain, starting from the acceptance of raw materials and ending with the consumption of the finished product.

At all stages of production, in each technological operation, it is necessary to identify hazardous factors which can threaten product safety and ensure process control that eliminates the influence of these factors. To implement the system certain amount of knowledge is required: knowledge of your product, raw materials and processes and understanding of factors that can cause a risk that threatens the health of consumers (Molins and Pineiro, 2010).

Having a number of internal and external benefits from the implementation of the HACCP standard, (Table 1), the organization has all chances to provide safe products to the client, thereby gaining even more trust, as well as entering international markets

Table 1

Internal and external benefits of HACCP

№	Internal benefit	External benefit
1	Reduction of the defective products in the total amount of production	Increasing consumer confidence in products
		Reduced complaints due to consistent quality
2	Documentary confirmation of safety of the produced goods	Opportunity to enter international markets and expand existing markets
		Improving the competitiveness of products and creating a reputation as a manufacturer of quality and safe products.
3	Integration with other quality management systems	Additional benefits participating in important tenders and increasing investment attractiveness

Source: Developed by the authors based on the materials (Food safety management system. DSTU ISO 22000: 2007, 2007; International standard ISO 22000: 2018, 2018)

We are going to conduct a survey of the readiness of enterprises in Ukraine that carry out activities in agribusiness, food production, delivery services and the provision of catering services based on expert opinions of 25 specialists who carry out certification DSTU ISO 22000: 2007 (HACCP) and prepare enterprises for state audits for the availability of physical and documented principles of HACCP: Ukrainian Food Safety Inspection (Inspection portal, 2019), Ukrstandart (Ukr standard. Certification agency ISO 22000, 2019), Ukrekspertiza (Ukr expertize. Certification agency ISO 22000, 2019).

The thoroughness of the received expert assessments should provide for their consistency among themselves. For this issue, it is necessary that the deviation in the expert estimates should correspond to the normal distribution (L. Dovhan', L. Veduta and H. Mokhon'ko, 2019).

Let's make a transcript of the factors by which the assessment will be made and the data obtained from the results of a survey of experts (Table 2).

Table 2

Results of poll of experts of readiness of the enterprises for the state audit

Experts	Factors of readiness of the enterprises for the state audit					
	GP-1	GP-2	GP-3	GP-4	GP-5	GP-6
1	4	3	5	7	3	6
2	3	4	6	6	2	5
3	3	5	6	6	3	5
4	3	5	6	7	3	4
5	3	5	6	6	3	5
6	3	4	6	6	3	5
7	4	4	6	7	2	5
8	4	4	6	6	3	6
9	3	4	6	7	3	5
10	3	4	5	6	3	4
11	3	4	6	7	3	4
12	3	4	6	6	3	4
13	3	4	8	7	3	5
14	5	4	6	7	3	5
15	3	4	6	7	4	5
16	3	4	6	6	3	5
17	3	5	5	7	4	5
18	3	5	5	7	3	5
19	3	5	6	7	3	4
20	3	5	6	7	4	5
21	4	4	5	7	3	5
22	5	4	5	7	3	5
23	4	2	5	6	3	5
24	4	2	6	6	3	5
25	4	5	6	5	3	5
In total ranks	86	103	145	163	77	122

Source Developed by the author based on the materials (L. Dovhan', L. Veduta and H. Mokhon'ko, 2019).

Decryption the factors of readiness of enterprises for state audit:

1) GP-1 - "Sanitation", 2) GP-2 - "Control of KCP", 3) GP-3 - "Cross-contamination", 4) GP-4 - "Violation of the rules for transportation of raw materials and finished products", 5) GP-5 - "State of the external production zone", 6) GP-6 - "State of the internal production zone", "Factor of enterprise readiness for state audit" (L. Dovhan', L. Veduta and H. Mokhon'ko, 2019).

Let's carry out calculation of a mean square deviation according to a number of distribution of expert estimates of factors on basic discrepancies.

The average deviation is calculated by a formula:

$$G = \sqrt{\frac{\sum(x - \bar{x})^2 n}{\sum v}}, \quad (1)$$

The difference between the greatest and smallest value of sign characterizes scope of a variation and is determined by a formula

$$R = xmax - xmin. \quad (2)$$

If the range of variation in the estimates obtained as a result of a survey of experts does not exceed 6 quadratic deviations (the law of normal distribution), then it is considered that the statistical characteristics are interconnected and correspond to the normal distribution (L. Dovhan', L. Veduta and H. Mokhon'ko, 2019).

Let us calculate the standard deviation according to a number of distribution of expert estimates. (Table 3).

First, you need to determine how many experts rated the willingness of enterprises the same way and enter the necessary data in the table. The next step is to multiply the options by the corresponding frequencies. The deviation of the options from the average score is found as the difference between each individual work and the average score in conditional points.

Table 3

The calculation of the mean square deviation according to a number of distribution of expert estimates for factors of readiness of the enterprise for state audit

Expert score in points, x	Number of people, N	Producing options on frequency xn	$\sum(x - \bar{x})^2 n$	Average assessment in conditional points	Deviation of options from an average	Square deviation
1	2	3	4	5	6	7
GPA-1 "Factor of readiness of enterprises for state audit" (Sanitation)						
3	16	48	32	-	1	1
4	7	28	14	-	0	0
5	2	10	4	-	1	1
In total	25	86	50	4	-	-
G = 1, G6 = 6, R=2						
GPA-2 "Factor of readiness of enterprises for state audit" (Control of KKT)						
4	14	56	42	-	0,5	0,25
5	8	40	24	-	1,5	2,25
3	1	3	3	-	0,5	0,25
2	2	4	6	-	1,5	2,25
In total	25	103	75	3,5	-	-
G – 1.118, G6 – 6,7, R=3						
GPA-3 "Factor of readiness of enterprises for state audit" (Cross contamination)						
6	17	102	51	-	0,33	0,11
5	7	35	21	-	1,33	1,77
8	1	8	3	-	1,66	2,77
In total	25	145	75	6,3	-	-
G – 1,247, G6 - 7,48, R=3						
GPA-4 "Factor of readiness of enterprises for state audit" (Violation of the rules for the transportation of raw materials and finished products)						
7	14	98	28	-	1	1
6	10	60	20	-	0	0
5	1	5	2	-	1	1
In total	25	163	50	6	-	-
G – 0.816, G6 – 4,896, R=2						

Table 3 continuation on the next page

Table 3 continuation

1	2	3	4	5	6	7
GPA-5 "Factor of readiness of enterprises for state audit" (Condition of an external production zone)						
3	19	57	38	-	0	0
4	4	16	8	-	1	1
2	1	2	2	-	1	1
In total	25	75	50	3	-	-
G – 0.816, G6 – 4,896, R=2						
GPA-6 "Factor of readiness of enterprises for state audit" (Condition of an internal production zone)						
5	18	90	36	-	0	0
4	5	20	10	-	1	1
6	2	12	4	-	1	1
In total	25	122	50	5	-	-
G – 0.816, G6 – 4,896, R=2						

Source: Developed by the author based on the materials (L. Dovhan', L. Veduta and H. Mokhon'ko, 2019).

A summary analysis of the scope of expert assessments for the totality of factors of the enterprise's readiness for state audit is given in (Table 3).

Based on the data table 4, the range of expert estimates does not go beyond the normal distribution (R-6G), therefore, expert estimates can be considered mutually consistent.

Table 4

Results of calculations of a mean square deviation, 6 mean square deviations, the range of variations for the factors of readiness of the enterprise for state audit

Readiness factor	Mean square deviation		Range of variation
	G	6G	R
GPA-1	1	6	2
GPA-2	1,118	6,7	3
GPA-3	1,247	7,48	3
GPA-4	0,816	4,896	2
GPA-5	0,816	4,896	2
GPA-6	0,816	4,896	2

Source: Developed by the author based on the materials (L. Dovhan', L. Veduta and H. Mokhon'ko, 2019).

As a result of the expert assessment of the readiness of enterprises for state audit, they scored a certain number of points. Based on this, each readiness factor can be assigned an appropriate rank. According to the theory of rank correlation, the factor that scored the most points is important (L. Dovhan', L. Veduta and H. Mokhon'ko, 2019).

This factor gets the first rank. Factors that score the same number of points should be assigned a standardized rank, the value of which is the average sum of places that shared these factors. After you assign the readiness factor to the appropriate rank, you must determine the sum of the ranks. The sum of the ranks intended by experts of the enterprise readiness factor is determined by the formula (3):

$$S = \sum_{i=1}^{n} i\varphi^{R}, \quad (3)$$

where R_{ij} – rank of the assessment given by the I expert to the j object

The average value of the sum of the grades of estimates for all factors of enterprise readiness is determined by the formula (4):

$$\bar{S} = \sum_{j=1}^{m} \frac{S_j}{m} \quad (4)$$

Distribution of factors of enterprise readiness for state audit according to the ranks is presented in (Table 5).

Table 5

Distribution of factors of enterprise readiness for state audit according to the ranks

Unavailability factor	Number of experts	Ri rank	Sum of ranks, S (2*3)	Average rank (S)	Deviations from the average amount of ranks	Quadratic deviation
GPA-1	25	1, 52	38	-	- 38.5	1482.25
GPA-2	25	1,96	49	-	- 14.5	210.25
GPA-3	25	2,92	73	-	38	1444
GPA-4	25	3,88	97	-	55	3025
GPA-5	25	5,02	125,5	-	- 49.5	2450.25
GPA-6	25	5,7	142,5	-	9.5	90.25
-	-	-	525	-	-	8702
S=8702						
W = 0.85						

Source: Developed by the author based on the materials (L. Dovhan', L. Veduta and H. Mokhon'ko, 2019).

According to the results of the distribution of factors of readiness of enterprises for state audit by rank presented by rank, the concordance coefficient (W) is 0.85, which indicates a high degree of consistency of expert assessments. Such results are characterized by a narrow professional orientation of the respondents.

Based on assessments of expert consistency, enterprises are not ready for the current audit for the availability of DSTU ISO 22000: 2005, nor documentary, nor physically. However, the complexity of implementation lies more in the documentary than in the physical nature, because physical deviations are easier to eliminate than to describe each stage of the movement of products from acceptance of raw materials to transportation to the consumer with a reinforced block of procedures and corrective actions. Transferring the results of the assessed factors into a percentage ratio, we compose the levels of unpreparedness of enterprises for state audit: 1) GP-1 = 15, 2%; 2) GP-3 = 19.6%; 3) GP-3 = 29, 2%; 4) GP-4 = 38.8%; 5) GP-5 = 50, 3%; 6) GP-6 = 57%.

Considering the physical condition, divided into subcategories of the audit checklist verification, we note the following:

1. Practical and documented management of the sanitary condition at the enterprise was implemented only in 15, 2%.

2. Practical and documented management of KKT in the production of products was implemented in only 19.6%.

3. The practically eliminated and documented presence of cross-contamination points was realized only in 29.2% of enterprises.

4. Practical and documented safety management of transportation of raw materials and finished products was implemented only in 38.8% of enterprises.

5. The practical elimination and documentation of unsafe factors of the external production zone, 50.2% were implemented

6. Practical elimination and documentation of unsafe factors of the internal production zone, implemented only in 57% of enterprises

Thereby, the business sectors that deal with the processing, production, transportation of raw materials and products will receive a warning from the inspection authorities in the presence of documentary and physical deviations and a period for their elimination within two months.

Upon the expiration of this period and the presence of the same deviations, the company will be guaranteed to be fined from 15 to 30 minimum wages and will risk getting a ban on the production of finished products and will be forced to withdraw the product from the market until the identified violations are eliminated.

The HACCP system is based on the principles of consistent implementation and tools for successful management of product quality and safety in the enterprise.

An important factor is the management of sanitation at control points, with sufficient fulfillment of the conditions of the product safety management standard in accordance with DSTU ISO 22000: 2007 (HACCP).

A key step in implementing HACCP is the creation of a HACCP team, to successfully complete the remaining steps. Definitely, the future team will face many difficulties going through the steps of describing the product and the requirements for its production.

One of the most difficult tasks is hazard analysis and the construction of critical control points. Having built critical control points, it is necessary to understand whether there is a possibility with the possibility of their control or whether it is necessary to carry out the correction of an uncontrolled critical control point. It is also necessary to monthly carry out the verification process of control critical points, on the fact of confirming the controllability of the control critical point.

Having verified the critical control points, it is necessary to conduct a validation process and document the established procedures for the fact of system control of the CCP.

Adaptation of the implementation process using the PDCA principle, is formed taking into account the conditions for practical and theoretical audit of enterprises for the presence of HACCP criteria is shown in Fig. 1 (L. Dovhan', L. Veduta and H. Mokhon'ko, 2019).

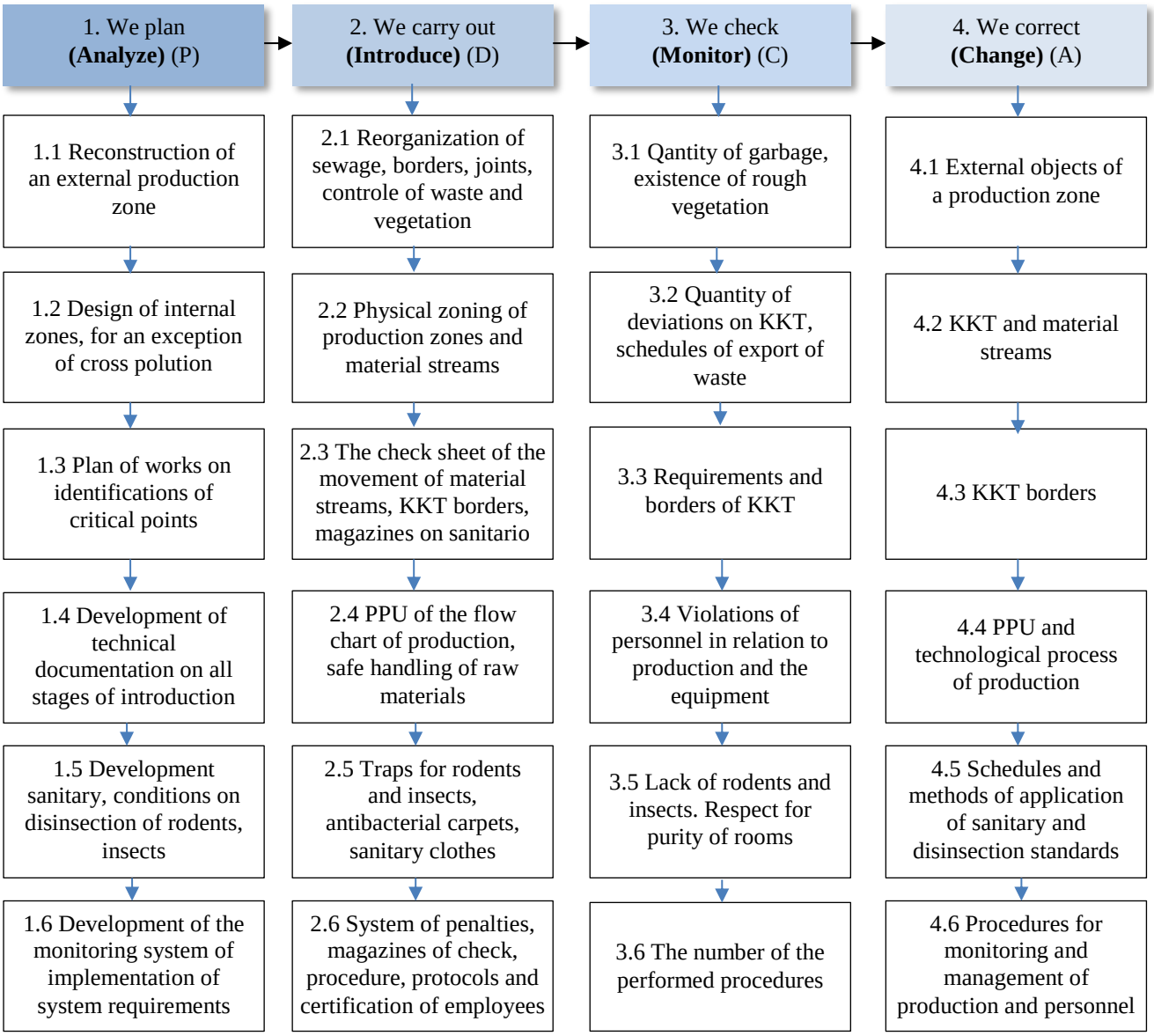

Fig. 1. Adaptation of Stages of Introduction by means of the principle of PDCA

Source: Developed by the authors based on the materials (Akash, Rajendra, 2017; N. Hurzhii and K. Vorobjov, 2018)

Ultimately, based on adapted steps using the principles of PDCA, fig. 1, we have the opportunity to build a movement profile of the raw materials of the control critical points of the coffee production enterprise, which in theory understands the importance of implementation and is aimed at making a profit, but has not implemented the principles, and has a small share of manufacturing defects and a high level of product complaints.

However, to build a profile, it is necessary to draw up a risk assessment scale for assessing the occurrence and danger of identified risks (Table 6) and a scale for assessing the severity of harm to human health (Table 7).

Table 6

Scale for assessing the occurrence and danger of identified risks

Risk scale	Indicator of danger of risk		
Probability of occurrence of risks	Low (1)	Average (2)	High (3)
High (3)	3 (Average)	6 (Average)	9 (High)
Average (2)	2 (Low)	4 (Average)	6 (Average)
Low (1)	1 (Low)	2 (Low)	3 (Average)

Source: Developed by the author based on the materials (Akash, Rajendra, 2017; N. Hurzhii and K. Vorobjov, 2018)

To determine the hazardous areas of the coffee production enterprise, we will use the scale for assessing the occurrence and danger of identified risks (Table 6). The appearance of hazardous areas is associated with the occurrence of hazardous factors that increase the severity level inflicted on the human body based on its properties. Hazardous factors are divided into: 1) biological factors appear as a result of infection of the raw materials with insects, larvae and other elements of the vital activity of insects, fungi, microorganisms, which ultimately cause poisoning; 2) physical factors are manifested as a result of contamination of raw materials with garbage, dust, metal elements, stones and, of course, cause damage to raw materials and damage to internal organs of a person; 3) chemical factors are manifested as a result of excess of the chemical solution during harvesting and in the event of a transfusion into a chemical solution on raw materials, which ultimately will cause poisoning or death.

We adapt the scale for assessing the occurrence and danger of identified risks. Tab. 6, to build a scale for assessing the severity of harm to the human body based on the identified hazardous factors in (Table 7):

Table 7

Scales of assessment of weight of the done harm to a human body

Factor type	Harm to health		
Probability of emergence of a factor	Insignificant (1)	Dangerous (2)	Lethal (3)
High (3)	3 (Average)	6 (Average)	9 (High)
Average (2)	2 (Low)	4 (Average)	6 (Average)
Low (1)	1 (Low)	2 (Low)	3 (Average)

Source: Developed by the author based on the materials (Akash, Rajendra, 2017; N. Hurzhii and K. Vorobjov, 2018)

Based on the obtained scales for assessing the occurrence and danger of identified risks (Table 6) and assessing the severity of harm to the human body (Table 7), we construct a profile of the movement of raw materials at critical control points at which the product loses its ability to satisfy consumer requirements and is harmful to human health (N. Hurzhii and K. Vorobjov, 2018).

Table 8

The profile of movement of raw materials at control critical points

Title	Probability of occurrence	Threat indicator	Health hazard	Factor
1	2	3	4	5
1. Zone of reception and shipment of finished products	2	2	4	Physical
2. Raw materials storage	1	3	3	Biological

Table 8 continuation on the next page

Table 8 continuation

1	2	3	4	5
3. Green Coffee Sorting Area	2	3	6	Biological, Physical
4. Green Coffee Roasting Area	1	2	2	Physical
5. Roast Coffee Degassing Area	1	1	1	Physical
6. Packing area	3	2	6	Physical, the increased initial pollution
7. Filling and packaging area for roasted coffee	3	2	6	Physical, the increased initial pollution
8. Finished goods storage	1	3	3	Physical
9. Finished product palletizing area	1	2	2	Physical

Source: Developed by the author based on the materials (N. Hurzhii and K. Vorobjov, 2018)

Analyzing the profile of the movement of raw materials on the KKT in Table 8 hazardous areas are the roasting and packaging areas for roasted coffee and the packaging area due to physical waste entering the green grain sorting area. No less safe zones are: sorting, since this zone is a spreader of dust and other elements that are part of biological and physical hazards. The reception and shipment zone of the finished product due to the possibility of the formation of fungi, which are biological hazards due to the excess moisture content in the raw materials stored in the storage.

Let's compose Table. 9 with identified conflict zones in the coffee industry based on the movement profile at control critical points in Table. 4. based on the severity parameters for health and the identified factors that, in the first place, affect the safety of products by the entry of waste elements into raw materials and finished products (N. Hurzhii and K. Vorobjov, 2018). This fact occurs due to the close location of the sorting equipment with the reception and dispatch areas of raw materials, the parking of packaging materials, which in turn initially affects the inconsistency of the manufactured products to contamination even before roasting green coffee beans.

Table 9

Identified conflict areas and recommendations for correction

Title	Enterprise model "Typical"	Factor
1. Zone of reception and shipment of finished products	The conflict of zone 1 with zone 3, 9, the constant risk of contamination of raw materials during transportation to the warehouse. Reconstruction of the pockets of the movement of raw materials and finished products is required.	Physical
2. Raw materials storage	Conflict with zone 9, on the way to send raw materials to the sorting zone. Change the location of zone 9.	Biological
3. Green Coffee Sorting Area	There is no conflict if zone 3 is transferred from zone 4, at least 6 meters.	Biological, Physical
4. Green Coffee Roasting Area	Conflict with zone 3, dust entering the fried grain. There is no conflict if the roasting zone is transferred at least 6 meters	Physical
5. Roast Coffee Degassing Area	No cross contamination	Physical
6. Packing area	No cross-contamination if transfer on 12 meters	Physical, increased initial contamination
7. Filling and packaging area for roasted coffee	No cross-contamination if transfer on 12 meters	Physical, increased initial contamination
8. Finished goods storage	No cross-contamination, when transferring zone 3 to 12 meters from zone 8	Physical
9. Finished product palletizing area	Conflict with zone 3, materials for packaging of finished products are contaminated. Installation of wall ceilings between zone 9 and 3.	Physical

Source: Developed by the author based on the materials (Warehouse Safety Tips How-To: HACCP Cross Contamination Prevention, 2019)

When identifying conflict zones by the example of a coffee enterprise Tab. 5, despite the absence of cross-contamination at the manufacturing plant in zones 5 through 7, the product produced has already come under the influence of polluting physical factors. Regarding zones 1, 2, 3, 8, 9, they do not fully comply with the declared requirements of the standard DSTU ISO 22000: 2007 (HACCP), due to the contaminated product. Therefore, recommendations were given for eliminating pollution zones of finished products by moving current equipment, wall ceilings and building new pockets of material flow.

CONCLUSION

Today, the food industry is one of the most significant sectors in the global economy. However, in Ukraine there are number of problems that hinder the implementation of food safety management standards. The main problems that need to be managed are: the reluctance of company owners to implement quality management standards and product safety management, ineffective warnings and penalties from the state, staff who do not want to adhere to the rules and standards. Therefore, we have developed a step-by-step practical adaptation of the implementation of HACCP, based on the PDCA principle, which, in turn, is a recommendation on the initial elimination of identified conflict zones. A survey was conducted among 25 experts, in which the factors of readiness of enterprises for state audit were classified based on the value of consensus of 0.85. As well as systems for assessing hazardous factors that can cause irreparable harm to the human body with further recommendations for local and low-cost elimination are developed, and a profile of the occurrence of critical situations on the KKT is constructed.

The recommendations provided for the implementation of XACCP will allow the future Ukrainian coffee producer to enter the foreign market and increase the export volume of finished products. Thus, all regional production chains should strive to implement the HACCP food safety control system (DSTU ISO 22000: 2007), as the companies that implement this system will have great advantages over competitors in the market.

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УПРАВЛІННЯ БЕЗПЕКОЮ КАВОВИХ ТОВАРІВ ЯК ГОЛОВНА КОНКУРЕНТНА ПЕРЕВАГА КОМПАНІЇ НА РИНКУ

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Актуальність впровадження принципів управління безпекою продукції обумовлено тим, що, впроваджуючи даний стандарт, українські підприємства сформують імідж безпечного харчового виробника, висловлюючи тим самим серйозне ставлення до думки та здоров'ю споживача. Не менш важливим ефектом від впровадження є інвестиційна привабливість компанії і можливість виходу на зовнішній ринок. Таким чином, українська продукція стане цікава споживачу на зовнішньому ринку за рахунок гідної якості і доступної ціни. Аналіз перспектив впровадження стандарту HACCP дозволить компанії зацікавити споживача в покупці кавової продукції, знизити собівартість її виробництва, розширити товарний портфель і збільшувати канали розподілу. Мета дослідження: вивчити вигоди для компанії від застосування HACCP, вказати прості кроки його впровадження і надати типовий приклад реальних відхилень в спроектованих моделях підприємства. Методологія: в ході дослідження було проведено якісний аналіз існуючого стандарту ДСТУ ISO 22000: 2007, а

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також аналіз за існуючими відхилень кавових виробництв. Наукова значимість роботи: полягає в тому, що на підставі проведеного дослідження готовності підприємств харчової промисловості до впровадження стандартів НАССР, можна розробити типові програми щодо прискорення цих процесів, що в свою чергу, прискорить інтенсивність і якість їх впровадження. Цінність дослідження в тому, що на підставі впровадження стандартів управління безпечною кавової продукції, споживач отримує якісний продукт, а держава сертифікованого виробника і можливого експортера.

Ключові слова: НАССР, ККТ, верифікація, критичні межі, технологічний процес.

УПРАВЛЕНИЕ БЕЗОПАСНОСТЬЮ КОФЕЙНОЙ ПРОДУКЦИИ КАК ОСНОВНОЕ КОНКУРЕНТНОЕ ПРЕИМУЩЕСТВО КОМПАНИИ НА РЫНКЕ

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Актуальность реализации принципов управления безопасностью продукции обусловлена необходимостью внедрения данного стандарта, украинских предприятий при формировании имиджа безопасного пищевого производителя, выражая тем самым серьезное отношение к мнению и здоровью потребителя. Не менее важным эффектом внедрения данного стандарта является инвестиционная привлекательность компании и возможность выхода на внешний рынок. Таким образом, украинская продукция будет востребована потребителем на внешнем рынке за счет достойного качества и доступной цены. Анализ перспектив внедрения стандарта НАССР позволит компании заинтересовать потребителя в покупке кофейной продукции, снизить себестоимость ее производства, расширить товарный портфель и увеличивать каналы распределения. Цель исследования: изучить выгоды для компании от применения НАССР, охарактеризовать процесс его внедрения и предоставить типичный пример реальных отклонений в спроектированных моделях предприятия. Методология: в ходе исследования был проведен качественный анализ существующего стандарта ДСТУ ISO 22000:2007, а также анализ по существующим отклонениям кофейных производств. Научная значимость работы заключается в том, что на основании проведенного исследования готовности предприятий пищевой промышленности к внедрению стандартов НАССР, можно разработать типичные программы по ускорению этих процессов, что в свою очередь, ускорит интенсивность и качество их внедрения. Ценность исследования состоит в том, что на основании внедрения стандартов управления безопасной кофейной продукции, потребитель получает качественный продукт, а государство сертифицированного производителя и возможного экспортера.

Ключевые слова: НАССР, ККТ, верификация, критические пределы, технологический процесс.