

PREVENTION OF THREATS FROM THE AREA OF FOOD DEFENCE AND FOOD FRAUD ON THE EXAMPLE OF THE SUSHI&FOOD FACTOR COMPANY

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Purpose: The main purpose of this article was to present the actions taken by the company in the field of its food defence and food fraud.

Design/methodology/approach: The article presents the approach used in the analyzed company to supervise the food defence and food fraud area. As part of the analysis, the applicable documents in the scope of the conducted risk analyzes were presented. The adopted methodology for the evaluation of raw materials and their suppliers in the food fraud area is based on the IFS guidelines, as well as an approach developed by the authors of this study, who participated in the implementation of this methodology in the company.

Findings: The presented approach to supervision in the area of food defence and food fraud in the analyzed company ensures its continuous development depending on the changing environment and risk factors. The Sushi&Food Factor company is characterized by a high culture of safety and quality of the produced food. Actions are still being taken to support its development in various areas, such as communication, employee involvement, risk awareness. The activities used by the company related to the verification of the effectiveness of supervision over the areas of food defence and food fraud, such as the simulation of unauthorized access or the review and assessment of incidents that have currently occurred on the market, allow for the necessary preventive measures to be taken.

Originality/value: The article presents a practical approach to the implementation of the requirements of standards in the area of food defence and food fraud. The article may be an element influencing the improvement of activities in the discussed areas in other enterprises, which may contribute to the development of their food safety and quality culture.

Keywords: Food defence, food fraud, food safety.

Category of the paper: Case study.

Introduction

Ensuring food safety comes down to supervising the threats introduced unintentionally and those threats that may arise as a result of planned (intentional) activities. Hazards introduced unintentionally are supervised under the obligatory HACCP system (Hazard Analysis and Critical Control Point), including microbiological, chemical and physical hazards. The basic requirements to prevent the occurrence of this type of risk are set out in Annex I of the Regulation of the European Parliament and of the Council (EC) No. 853/2004 of April 29, 2004 on the hygiene of foodstuffs (Regulation 853/2004). The threats introduced intentionally include threats related to an attack on food motivated, for example, ideologically - this area is supported by the TACCP (Threat Assessment Critical Control Point) tool. The food defence area has not been regulated by the EU legal requirements. Enterprises operating in the food chain, in order to ensure food safety as part of the food defence area, support the requirements specified in the standards of quality management and food safety. Table 1 presents the requirements of selected food defence standards. On the other hand, when the motivation for an attack on food is the desire to obtain economic benefits, and the result of these actions is fraud (e.g. food/raw material forgery), then the VACCP (Vulnerability Assessment and Critical Control Points) tool can be used to ensure food safety (Górna, 2020). Food safety should be considered in several layers in terms of many factors affecting it, such as (Górna, Kaźmierczak, Zapata, 2021):

- physical, chemical and microbiological hazards,
- food fraud,
- deliberate attacks on food (food defence),
- supply chain security,
- identification and traceability of raw materials, finished products, processes,
- management systems,
- the culture of the organization.

Table 1.

Requirements of selected food quality and safety management standards in the field of food defence

Standards	Requirements of food defence
GlobalG.A.P. point AF 10 Food defence	“Potential intentional threats to food safety in all phases of the operation shall be identified, assessed, and prioritized. Food defence risk identification shall assure that all input is from safe and secured sources. Information of all employees and subcontractors shall be available. Procedures for corrective action shall be in place in case intentional threat”.

Cont. table 1.

ISO/TS 22002-1 point 18. Food defence, biovigilance and bioterrorism	A company that wants to meet the requirements of ISO 22000 must also meet the requirements of the technical standard ISO / TS 22002-1, which regulates the area of food defence: „Each establishment shall assess the hazard to products posed by potential acts of sabotage, vandalism or terrorism and shall put in place proportional protective measures. Potentially sensitive areas within the establishment shall be identified, mapped, and subjected to access control. Where feasible, access should be physically restricted by use of locks, electronic card key or alternative systems”.
BRC point 4.2 Site security and food defence	“The company shall undertake a documented risk assessment (threat assessment) of the potential risks to products from any deliberate attempt to inflict contamination or damage. This threat assessment shall include both internal and external threats. The output from this assessment shall be a documented threat assessment plan. This plan shall be kept under review to reflect changing circumstances and market intelligence. It shall be formally reviewed at least annually and whenever a new risk emerges (e.g. a new threat is publicized or identified), an incident occurs, where product security or food defence is implicated. Where raw materials or products are identified as being at particular risk, the threat assessment plan shall include controls to mitigate these risks. Where prevention is not sufficient or possible, systems shall be in place to identify any tampering. These controls shall be monitored, the results documented, and the controls reviewed at least annually. Areas where a significant risk is identified shall be defined, monitored and controlled. These shall include external storage and intake points for products and raw materials (including packaging). Policies and systems shall be in place to ensure that only authorized personnel have access to production and storage areas, and that access to the site by employees, contractors and visitors is controlled. A visitor recording system shall be in place. Staff shall be trained in site security procedures and food defence. Where required by legislation, the site shall maintain appropriate registrations with the relevant authorities”.
IFS Food point 6 Food defence plan	“The responsibilities for the food defence plan shall be clearly defined. Those responsible shall have the appropriate specific knowledge and training, and have full commitment from the senior management. A food defence plan and procedure shall be developed based on probability and be implemented in relation to assessed threats. This shall include: legal requirements, identification of critical areas and/or practices and policy of access by employees, visitors and contractors, any other appropriate control measure. The food defence plan shall be reviewed at least annually, and updated when appropriate. The test on the effectiveness of the food defence plan and the related control measures shall be included in the internal audit and the inspection plan. A documented procedure shall exist for managing external inspections and regulatory visits. Relevant personnel shall be trained to execute the procedure”.

Source: (GlobalGAP, ISO/TS 22002-1, BRC, IFS).

When analyzing the presented requirements of selected standards, it should be stated that the necessary action in the field of food defence is to conduct a risk assessment in a given enterprise and, on this basis, to adjust the methods of operation. This article presents the procedure to be followed in this regard in the analyzed enterprise.

Deliberate contamination of food can be initiated by various groups, both direct entities, e.g. an angry employee, or indirect entities, i.e. suppliers and subcontractors. Before starting the implementation of the TACCP system and implementing an effective control system,

it is first necessary to understand the potential offenders, who can be divided into four categories according to their relationship with the company (Adams, Marsh, 2014):

- insiders (internal) - these may be current employees (including temporary employees). This is the most important category of potential perpetrators due to their possible high level of access to the production area and products. This access may cause direct contamination of the product or raw materials. These people often have an emotional connection with the company.
- suppliers and contractors - these can be contractors such as security, cleaning, catering, maintenance companies, which may also have legal access to some of the processes. The lack of effective on-site controls could allow these units to easily access sensitive areas and launch an attack.
- supply chain personnel - may have access to raw materials as well as the finished product. Controlling these areas can be a big challenge for companies due to their remoteness.
- a person from the outside - these are the most distant units for the company. Outsiders may have little chance of access, but may be highly motivated. They may try to increase their access through insiders (bribery, threats).

The perpetrator of the attack is guided by a specific motivation, it may have a financial or ideological basis. A successful finance-driven attack results in property benefits for the perpetrator, loss or costs for the enterprise, and depending on the nature of the threat, the attack may or may not result in harm to the consumer. While an ideologically motivated attack (e.g. terrorist contamination of food stocks with toxic agents) is more likely to result in harm to the consumer and at the same time loss and cost for the enterprise. Revenge of a disgruntled employee may also be enough motivation to attack.

In response to the needs of the agri-food sector, among others, the BSI organization has developed the publicly available PAS 96 specification, which is intended to help prevent deliberate terrorist attacks. The goal of PAS 96 is to improve the resistance of all parts of the production and supply chain to attack. PAS 96 covers the types of attackers and identifies a number of specific threats, including: Extortion; Malignant contamination; Cyber Crime; Espionage; Economically motivated adulteration; Counterfeiting (Wysokińska-Senkus, Górna, Kaźmierczak, Mielcarek, Senkus, 2022; PAS 96:2017).

The practice of adulterating foods is as old as the art of buying and selling food for cash or commodities. In ancient Rome and Athens, laws were enacted regarding the adulteration of wines with flavors and colors. However, it was not until the thirteenth century that Europe saw the beginnings of legislation prohibiting food adulteration when France and Germany passed food control statutes and King John in England issued a proclamation regarding penalties for the adulteration of bread. More extensive legislation regarding adulteration of human food was passed by Henry III (Sumar, Imail, 1995). Food counterfeiting and fraud have long ago forced specific actions to limit this practice. The first Food Adulteration Act was passed in 1860 in

Great Britain (Shears, 2010). In the context of food scandals – the horse meat scandal or methanol scandal, the European Commission launched the Administrative Assistance and Cooperation (AAC) System. This IT platform enables cross-border administrative cooperation among national authorities to swiftly obtain information on deceptive and fraudulent activities in the food sector (Montanari et al., 2016; Kubova et al., 2018).

The case study presented below can undoubtedly be a guide for other companies in improving the culture of quality and food safety. Actions taken as part of the food fraud and food defence area undoubtedly testify to the level of quality culture and food safety in the company. In addition, due to the new legal requirements regarding the obligation to plan and develop a food safety culture, this case study is all the more important, especially since the presented approach was verified in the examined enterprise during numerous external and internal audits.

2. The functioning of the food defence area at Sushi&Food Factor

The Sushi&Food Factor company was established in 2015 and specializes in the production of ready meals and sushi sets for the needs of Polish and foreign retail chains. In order to guarantee customers and consumers that the company carries out the production and distribution process with the greatest care for the quality and safety of products, a management system has been implemented and maintained in accordance with such standards as GlobalGAP, MSC, ASC, IFS, BRC. In Sushi&Food Factor, a HACCP team has been appointed, whose responsibilities also include the Food Defence and Food Fraud areas. The HACCP team consists of employees representing the following departments: Quality Department, Maintenance Department, Production Department, Technology Department, Purchasing Department, Logistics and Warehouse Department. The HACCP team leader is the Quality Manager.

The HACCP team is responsible for carrying out a risk analysis related to the functioning food defence system, facility and organization. The risk analysis is verified annually or after changes affecting the integrity of the food.

Team members have the right to access all plant documents and obtain all information necessary to develop a food defence system, facility and organization. All employees are required to provide the members of the team with the necessary information and to cooperate in the implementation of the food defence system, facility and organization.

The food, facility and organization defence system includes:

- raw materials and finished products,
- infrastructure,
- personnel,
- third parties (guests and other persons entering the territory of the organization, including service companies),
- clients,
- national security.

The task of the team is:

- identification of people or groups that may have the intention to harm the food, facility or organization,
- assessment of the likelihood of product contamination,
- identification of the most vulnerable points at risk of attack,
- identification, recording and implementation of preventive actions adequate to threats,
- developing a risk analysis,
- periodic review and verification of findings.

The methodology for estimating the significance of threats is presented in Table 2, while in Table 3 an example of a hazard analysis and risk assessment is presented.

Table 2.

Methodology for estimating the significance of threats

PZ	The probability of an event
IZ	The significance of the event on the quality and safety of products
R	Risk (ratio $PZ \cdot IZ$) (score: 1-3 low risk; 4-6 medium risk; 7-9 high risk)

The source of the identified threats can be both internal and external factors, e.g.:

- external threats - organized terrorist groups or groups of activists, drivers of rented means of transport, suppliers of raw materials and packaging, visiting persons,
- internal threats - employees, cleaning crew, repair services.

Table 3.
Hazard analysis and risk assessment in the area of food defence

Area / Factor of the Hazard	Place / stage of the hazard occurrence	Description of the hazard	The type of threat (Y - possible occurrences; N - no possibility)			Monitoring measures	Risk assessment of the occurring threat		
			Microbiological	Chemical	Radiological		Physical	PZ	IZ
The area around the facility		Fence height - possibility of unauthorized access to the area around the Plant	N	N	N	Y	1	2	2
		Fence tightness: - Open barrier, - Bad technical condition of the fence	N	N	N	Y	2	3	6
		Possibility of unauthorized access	N	N	N	Y	2	3	6
		Lighting: - Lack / insufficient lighting - Limited identification of people and incidents after dark and during difficult weather conditions	N	N	N	Y	2	3	6
	Square in front of the Plant	Lack of supervision by a security officer, Insufficient lighting of the square, Monitoring dead spots	N	N	N	Y	2	3	6

An analysis such as that presented in Table 3 was also carried out in the following areas:

- media (water, air, gases, electricity energy, fire protection installation),
- sewage (septic tank, treatment plant),
- external waste storage site,
- supply chain (warehouse – collection of raw materials and packaging; warehouse – pick up of chemicals; courier deliveries; external warehouses),
- office building (office premises; human resources department; the entrance to the office building; windows),
- manufacturing plant (entrance to the plant; canteen; emergency exit – hall I, II; emergency exit – packing; expedition – loading ramps; communication corridor),
- distribution of the finished product.

No high risk was found in any of the analyzed areas, only in the analyzed area "the area around the facility" the risk was found to be medium.

Therefore, activities have been planned in which the Quality Manager and/or a person designated by him will go around the plant at least once a month, checking the effectiveness of the product defence and the plant's condition. The celebration is carried out in the company of representatives of departments such as the Maintenance Department and the Production Department. The records of the round are made on the document "Inspection card – product defence" (Table 4).

Table 4.

Inspection card – product defence

No	CONTROL AREA	RATING 😊/😞	Description of irregularities/ comments, suggestions for improvement	Action taken Signature of the inspector/ responsible person
1	Inputs / outputs - secured.	😊 😞		
2	Tight windows / protected against opening from the outside.	😊 😞		
3	Doors / gates tight / closed / protected against opening from the outside.	😊 😞		
4	Plant fencing without cavities / unsealing, protected gates and entrances.	😊 😞		
5	Water network - direct connections / main intakes, no external access, effectively secured.	😊 😞		
6	Ventilation is effectively secured / no possibility of interfering with the cleanliness of the air and getting through the inlet and outlet channels.	😊 😞		
7	Video monitoring system / operational efficiency and recording / tracking area control.	😊 😞		
8	Control of entries in the register of visitors to internal zones / verification with the actual state.	😊 😞		

Cont. table 4.

9	Service Provider Access Verification Control.	☺ ☹		
10	Do drivers have access to internal zones / interview result.	☺ ☹		
11	Test result - simulation of unauthorized penetration to the internal zones of the plant / simulation of product or raw material contamination.	☺ ☹		
12	Has the following been reported in the last month: - presence of people unauthorized in external or internal zones of the plant? - unusual behavior of plant staff? - what were the reasons and what actions were taken based on them?			
☺ – positively, ☹ – negatively (the need for corrective and corrective actions, notification of the top management of the plant)				
The person responsible for carrying out the inspection is a representative of the Quality Department / Production Department / Maintenance Department				
Date		Controlling persons / signatures		

In the case of non-conformity related to product safety, on the basis of the card presented above (Table 4) corrective/corrective or preventive actions and deadlines for their implementation are specified, as well as the persons responsible for supervising their implementation.

3. The functioning of the food fraud area at Sushi&Food Factor

The HACCP team, in order to minimize and/or eliminate the risk, conducts a susceptibility assessment to reduce the possibility of food adulteration. In case of a problem, the Quality Manager may involve people who are not members of the HACCP team, e.g. external experts. The team is supported by the Management Board and the Operation Director. The analysis of the team's activities is periodically subject to an internal audit. The team uses various data sources that it collects and analyzes (media, trade literature, industry associations, industry portals, RASFF - Food and Feed Safety Alerts, EFSA - European Food Safety Authority, AAC - Administrative Assistance and Cooperation System, External supervision authorities). On this basis, it makes a vulnerability assessment. Records from the review of information on adulteration in the market are recorded, the significance of the incident on the manufactured product is assessed and, if necessary, additional information is obtained from suppliers on raw materials that may have a significant impact on the stability of the finished product. Table 6 shows an example of records that have been recorded for incidents with raw materials used in Sushi&Food Factor.

Table 5.
Review of incidents of adulteration - selected examples

Classification, group/ Assortment name	Product description	Date	Reporting country	A kind of adulteration	Significance of an incident for our product	Comments
Fats and oils/ Cooking oil	As a result of an inspection carried out by the Food Safety and Standards Authority of India (FSSAI) found numerous discrepancies in the parameters of the cooking oil. Among of the samples taken, 2.42% of the 4,461 tested, were non-conform safety features that included the presence of aflatoxins, pesticide residues and heavy metals at levels higher than those specified in the norms and norms Food Safety Regulation (FSSR). Also 24.2% of the tested samples it did not meet the quality criteria indicating possible adulteration of the oils groceries in the market. Other non-conformities observed with respect to quality were not meeting the durability standards (acid number, moisture content, rancidity, peroxide number, etc.) and prescribed standards for additives. In addition, 12.8% of samples were found to be non-conformity with the labeling rules.	29.12. 2021	India	Dilution	Yes	Letter to the supplier; no oil supplies from India
Sugar and sweeteners/ Sugar	EU reports: The Philippines, in the port of Subic, the authorities seized smuggled sugar worth 300,000 euros.	4.02. 2022	Philippines	Gray area - illegal trade	No	Letter to the supplier: The sugar used in the production does not come from the Philippines
Sugar and sweeteners/ Sugar	EU reports: Argentina, authorities seized 14 tons of smuggled sugar.	7.02. 2022	Argentina	Gray area - illegal trade	No	No sugar supplies from the raw material from Argentina
Fishes and seafood/ Salmon	Belgium. The company is recalling skinless salmon fillets due to the lack of an 'use by' date on the label, which is 19/04/2022.	20.04. 2022	Belgium	Incorrect labeling	No	Salmon delivered to Sushi&Food Factor, not under contract with suppliers from Belgium; Fishing for salmon: Norway
Sugar and sweeteners/ Sugar	Peru. The authorities seized 2 tonnes of smuggled sugar.	12.05. 2022	Peru	Gray area - illegal trade	No	None of the sugar suppliers for Sushi&Food Factor source raw materials from Peru.

The team carries out a product fraud vulnerability assessment for each raw material and packaging. In order to document the product fraud susceptibility assessment process, a product fraud reduction plan was designed¹. The vulnerability risk assessment is carried out in the following manner:

- a. Product susceptibility risk assessment:
 - assessment of the likelihood of a case occurring,
 - assessment of the likelihood of rapid detection.
- b. Supplier vulnerability risk assessment.
- c. Assessment of current control measures.

The following risk factors were taken into account when assessing the risk of product vulnerability: historical data on product fraud, economic factors, ease of fraud, supply chain structure, current fraud detection control measures (IFS, 2018; Górna, 2020). Based on the matrix from the IFS guide, the probability of occurrence and detection of the above-mentioned risk factors, and the results were recorded in a developed product fraud reduction plan. An overall risk assessment of the product was then obtained.

Then, the supplier's vulnerability risk was assessed, taking into account the following risk factors (IFS, 2018; Górna, 2020):

- economic stability of the supplier,
- were any suppliers affected by layoffs or pay problems?,
- historical data on business contacts with the supplier (complaints, withdrawals),
- results of qualification and periodic assessment of suppliers,
- supplier's openness to audit/inspection,
- supplier management systems used,
- work ethics in the supplier's region/country (the worse the ethical working conditions at the supplier, the greater the risk),
- level of legal control in the supplier's region/country (the higher the level, the lower the risk).

Based on the above risk factors, the level of trust in a given supplier was assessed. The overall score was then calculated - multiplying the overall product risk score with the supplier's vulnerability risk score. Based on an arbitrarily set criterion for the interpretation of scores, adequate actions are determined (Table 6) depending on the assessment of the applied control measures (Table 7).

¹ The product fraud mitigation plan sheet and procedure in this company were designed by the authors of this publication based on the guidelines of the IFS guide. The IFS guidelines have been developed by the authors for the needs of this company.

Table 6.

Interpretation of the overall score obtained as a result of the assessment of susceptibility to adulteration of the raw material and the supplier

Total scoring	Assessment result
up to 64 points	acceptable
65 - 80 points	acceptable for medium to high control measures
81-100 points	requiring action to be taken in the event of low level control measures
above 100 points	requiring action to be taken irrespective of the control measures applied so far

In the next step was assessing the company's current controls in terms of preventing product fraud, including: analytical testing of raw materials, additives, packaging, laboratory analysis certificates, mass balance testing, supplier assessment, suppliers questionnaires, control and inspection 3rd site, frequency of checks. Evaluation of control measures used can be high, medium or low. For the analyzed enterprise, the criteria taken into account for the assessment of the control measures applied were specified (Table 7) (Górna, 2020).

Table 7.

The criteria adopted for assessing control measures in the company

Assessment of control measures	Assessment criteria
High	Amount of control measures ≥ 5 , including mandatory: <ul style="list-style-type: none"> analytical testing of raw materials, additives, packaging, supplier certification towards compliance with the BRC, IFS, FSSC 22000 standard or the supplier audit.
Medium	Amount of control measures from 3 to 4, including mandatory: <ul style="list-style-type: none"> the supplier is subject to audits or approval based on a questionnaire.
Low	Amount of control measures from 1 to 2, including control measures implemented in the plant, do not include analytical testing of raw materials, additives and packaging, and the supplier is subject to approval only on the basis of a questionnaire.

Source: (Górna, 2020).

As a result of the assessment, the team takes a decision regarding the need for other actions, these may include (IFS, 2018): breaking of or limiting use of raw material, additive, packaging; ceasing to use the given supplier(s); reducing the purchase of the amount of raw material, additive, packaging from a specific supplier (suppliers); change of current control measures depending on the product and control measures, e.g. increased analytical supervision, use of accredited laboratories and methods, increased consumption control, independent pre-shipment control, etc.; maintaining the current level of control.

The product fraud reduction plan (Table 8) in the Sushi&Food Factor company is subject to reviews and possible correction by the team at least once a year or when changes take place.

Table 8.
The product fraud mitigation plan

Lp.	Raw material / packaging	Origin	Supplier's code	Product vulnerability risk scoring						Supplier vulnerability risk scoring	Total scoring (column 8 x column 9)	Current control measures High/Medium/Low	Decision of the Product Fraud Evaluation Team	Control measures			
				Probability of occurrence: 1 - not very likely 2 - possible 3 - quite possible 4 - probable 5 - very likely		Rapid detection probability: 1 - very likely 2 - likely 3 - quite possible 4 - possible 5 - not very likely		Highest point value assigned							Overall product risk score (column 5 x column 7) - matrix		
		History of product fraud cases		Economic factors		Ease of cheating		Supply chain complexity		Control measures currently in place to detect fraud		Highest point value assigned					
1	Smoked salmon ASC	Norway/Poland	123	1	1	1	1	1	1	2	2	2	1	2	Medium	Keeping the supplier	Incoming raw material inspection, Certificate of Conformity (CoC), GFSI recognized certificates, supplier audits
2	Raw salmon ASC	Norway/Poland	456	1	1	1	1	1	1	2	2	2	1	2	Medium	Keeping the supplier	Incoming raw material inspection, Certificate of Conformity (CoC), GFSI recognized certificates, supplier audits
3	Shrimp ASC	Vietnam/Poland	789	2	1	1	1	2	1	2	2	2	1	4	Medium	Keeping the supplier	Incoming raw material inspection, Certificate of Conformity (CoC), GFSI recognized certificates, supplier audits

During provide the vulnerability assessment, the HACCP team also takes into account raw materials and suppliers who put goods on the market with the MSC (Marine Stewardship Council)/ASC (Aquaculture Stewardship Council) logo. This means an increase in the susceptibility to adulteration both in the case of the raw material and the producer that supplies it, due to the need to meet the requirements of standards for the sustainable harvesting of wild fish and seafood and responsible aquaculture. In this case, a large responsibility rests with the Purchasing Department Director and/or Global Sourcing Director order for certified raw materials to a certified supplier in accordance with the current register of certified MSC/ASC suppliers available in the company (each time the supplier's status on the MSC/ASC is checked website). In addition, to enable identification/traceability, MSC/ASC raw materials have individual indexes (e.g. 121718 ASC Shrimp) in the computer system, under which only orders and deliveries of certified raw materials are recorded. In case certified suppliers after expanding the index, select the appropriate one (the name of the supplier and MSC/ASC certificate number will appear). As result the implemented and certified quality and safety management system for compliance with the requirements of the BRC, IFS, MSC/ASC standards and a high culture of food safety and quality, the Sushi&Food Factor company applies medium and high level controls, which ensure protection against adulteration.

4. Conclusions

The presented approach to supervision of food defence and food fraud area in the analyzed company ensures its continuous development depending on the environment changes and risk factors. The Sushi&Food Factor company is characterized by a high culture safety and quality of the produced food. Actions are still taken to support its development in various areas, such as communication, employee involvement, risk awareness. This is achieved thanks to periodically organized training sessions devoted to specific topic. Noteworthy is the simulation of unauthorized access to the internal area of the company. That action allows to verify the effectiveness of the applied solutions in food defence area. With regard to the functioning of the plan to reduce product fraud, the actions taken to review incidents in the area of adulteration that occurred on the market deserve attention. This approach allows you to review the validity of the current product fraud mitigation plan and, if necessary, immediately take additional preventive measures to reduce the impact of a given incident on the processes carried out in the company. It should be noted that the company used classic Microsoft Office applications to implement the adopted methodology of conduct in the field of food fraud and food defence analysis. Thanks to this, any company that wants to improve its activities in this area will not encounter technical barriers. The presented solutions have been functioning at Sushi&Food Factor for several years and are periodically assessed by retail chain auditors, certification

bodies and food safety supervisory authorities, as well as food safety and quality experts. Each company, based on the current situational analysis of the supplied raw materials or emerging crisis situations on the market, still has to keep its finger on the pulse to be ready to implement preventive actions and improve the adopted approach to supervising food fraud and food defence areas.

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