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## RATING THE RELEVANCE OF SPECIFIC AREAS OF ALLERGEN CONTROL PROCEDURES IN POLISH AND BRITISH POULTRY MEAT PROCESSING PLANTS

**Abstract.** This paper illustrates the importance of allergen monitoring and control in ten identified areas that should be addressed by allergen management. The paper deals with legal and standardization requirements. The study was conducted with poultry meat processing companies. In order to know how to approach companies' to allergen monitoring, BRC certified companies operating in Poland and UK were selected for the study. As a result of the study, Polish and British enterprises were found to differ significantly in several areas of allergen control. They also differed in their perception of the significance of identified areas of allergen control. British companies believe the significance of the "consumer information label" area to be moderately important while some of them do not take it into account in their allergen management system at all.

**Keywords:** allergen monitoring and supervision, relevance assessment

### INTRODUCTION

Food allergens and allergies become more and more important to the consumer. Therefore, allergen management at the food production and storage stage becomes increasingly important for the producers. The consumption of certain raw materials or compounds may cause an allergic reaction inducing unwanted gastrointestinal symptoms or, sometimes, a serious illness and even a life-threatening condition (Mortimore and Wallace, 2013). While there are pharmacological methods and ways of alleviating allergy symptoms, allergy sufferers usually need to prevent the symptoms of

allergies by completely eliminating the sensitizer from their diet (Zimny et al., 2016). Therefore, in order to enable consumers to make an informed choice of products safe for their health, it is necessary to label the products appropriately.

This issue is governed by the requirements of food law. Substances and products causing allergies or intolerances are specified in Annex II to Regulation (EU) No. 1169/2011 of the European Parliament and of the Council of October 21, 2011 on the provision of food information to consumers. The list contains 14 products/substances and their derivatives. Under the regulation, there is an obligation to designate substances that cause

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allergies or intolerances in food labels. This is achieved by using distinct typefaces to highlight the items concerned and distinguish them from other ingredients listed. For instance, a different font type, style and color, or a distinctive background color may be used. Usually, this information is written in bold characters. It is important to declare the allergens which are naturally occurring constituents of the product as well as those which may appear unintentionally, e.g. due to cross-contamination (Crevel and Cochrane, 2014).

When selling bulk food manufactured with the use of substances listed in Annex II, the information on allergens and intolerances must be delivered at the place of sale (Bogusz-Kaliś, 2013). Such information must be readily available in order for the consumer to be aware that bulk food is not free from the allergen problem. Therefore, it is an unacceptable practice to provide information on allergens and intolerances only if requested by the consumer. Because the European Union law does not define the “trace level” of allergenic substances, it is allowed to include “may contain...,” “possible presence of...” or similar wording. Producers may not abuse such expressions with respect to products which have not been exposed to allergenic substances (Inspectorate of Commercial Quality of Agri-Food Products).

The current legal framework does not prescribe any procedures for preventing the cross-contamination during the production of allergen-containing food. The companies who follow the GMP (Good Manufacturing Practices) and GHP (Good Hygiene Practices) must develop the safest production practice (Stein, 2015; Rita et al., 2016; Górna and Sikora, 2016). Over the last decade, a number of guidebooks have been published in the UK and Poland, accompanied by many seminars and courses that help the companies in monitoring and controlling allergens. The manufacturers of retail branded products are also required to introduce comprehensive systems for the monitoring and control of allergenic substances. The effectiveness of these operations shall be verified during unannounced inspections by specially trained auditors mandated by the commercial network. However, despite enormous expenditure on investigation of allergens, the incidence of allergic reactions and the withdrawal of products from the market as a result of allergens being present keeps increasing, and the above-mentioned projects still do not result in identifying allergen-containing products (Górna and Sikora, 2016).

The standards for Food Safety Management Systems such as HACCP, BRC, IFS, FSSC 22000 and SQF regulate the implementation of effective allergen management systems in BRC-compliant manufacturing processes (Dzwolak, 2015; Junchao and Xiao-Hui, 2014; Orris and Whitehead, 2000). BRC is a certified standard implemented voluntarily by food industry companies to meet customer requirements, reduce the number of customer audits and maintain an appropriate GMP/GHP level. An entire chapter of the standard is dedicated to allergen control, considered to be a basic requirement; this means that a company who fails to comply with the relevant guidelines is declared incompatible with the standard’s critical provisions. According to requirements set out in Section 5.3 “Management of allergens,” the manufacturing plant must use an allergen control management system to minimize the risk of contamination of allergen products and must ensure compliance with labeling requirements in the country of sale. This section consists of eight clauses which include specific requirements for the activities that the company must take:

- Assessment of raw materials to establish the presence and likelihood of contamination by allergens,
- Identification of allergen-containing materials handled on site; this shall include raw materials, processing aids, intermediate and finished products, and any new product development,
- Risk assessment carried out to identify routes of contamination,
- Establishment of procedures to ensure the effective management of allergenic materials to prevent cross-contamination into products not containing the allergen,
- Where a claim is made regarding the suitability of a good for allergy or food sensitivity sufferers, the site shall ensure that the production process is fully validated to meet the stated claim and the effectiveness of the process is routinely verified,
- The cleaning methods shall be validated; cleaning equipment used to clean allergenic materials shall be clearly labeled and intended for the BRC Global Standard for Food Safety 2015.

Companies are still struggling with that problem, and many of them are unable to effectively monitor and supervise allergens despite many dedicated guidelines such as:

- Food Standard Agency, 2004, Guidance on Allergen Management and Consumer Information – Best Practice Guidance on Managing Food Allergens with Particular Reference to Avoiding Cross-Contamination and Using Appropriate Advisory Labeling,
- University of Nebraska’s Food Allergy Research and Resource Program – Components of an Effective Allergen Control Plan – A framework for food processors,
- Guidance on Food Allergen Management for Food Manufacturers, 2013, FoodDrinkEurope,
- Food Allergen Handbook, 2014, Neogen Europe Ltd. in cooperation with the University of Nebraska.

Therefore, the purpose of this study was to identify the relevant areas of allergen monitoring and control in the meat manufacturing process.

## MATERIALS AND METHODS

The survey was carried out in the meat industry and covered poultry producers. For the purposes of this study, ten Polish and British companies were selected, all of them BRC certified. The selection of the sample resulted from the approach to allergen surveillance adopted in the companies surveyed, in order to decide whether this issue needs to be studied in more detail. As of April 4, 2018, in Poland and in the UK, there were (respectively) 97 and 6 establishments compliant with the BRC Global Standard For Food Safety Version 7. According to the BRC Global Standard For Food Safety Issue 7, the companies identified are covered by the following audit categories: 02-Raw Poultry and 03-Raw prepared products (meat and vegetarian). However, their certification may extend to other categories.

The Polish companies covered by the investigation were located in the following voivodeships:

- Podkarpackie (20%),
- Warmińsko-Mazurskie (20%),
- Opolskie (20%),
- Podlaskie (20%),
- Wielkopolskie (20%).

In turn, the distribution of British regions was as follows:

- Norfolk/Suffolk (20%),
- Suffolk (40%),
- Norfolk (20%),
- Northern Ireland (20%).

## RESULTS AND DISCUSSION

The study identified the types of allergens used by the companies (Fig. 1). All the Polish companies covered by this study use allergens such as cereals containing gluten, milk and derived products. However, all British companies indicated the presence of sulfur dioxide and sulfites. The presence of other allergens varied from one country to another; i.e. soybeans and products thereof were indicated by 80% of Polish establishments and by 40% of British establishments (Fig. 1).

Based on the preliminary study, in-depth interviews (IDI) were conducted with 10 experts.

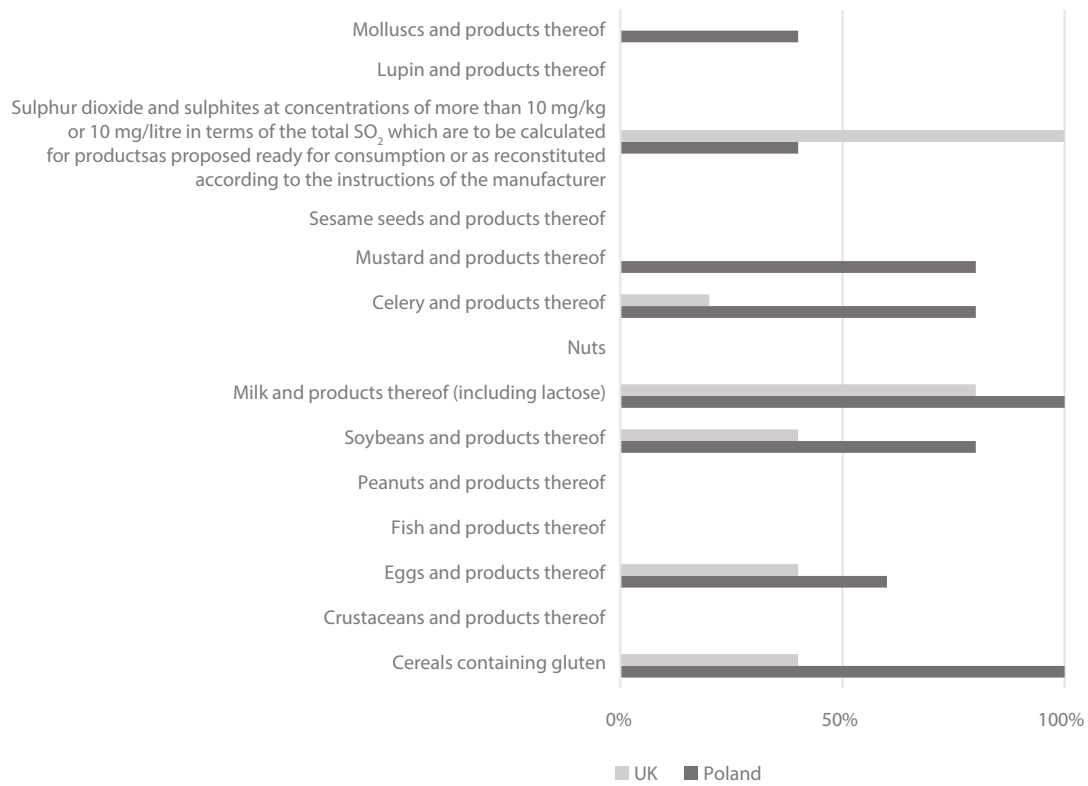
In the establishments covered by this study, allergen control extends to the following areas:

- Supervision of raw material suppliers,
- Supervision of raw materials and auxiliary production materials,
- Supervision of machinery and additional equipment,
- Production supervision,
- Consumer information provided on the product label,
- New product designing,
- Changes to existing products,
- Personnel,
- Documentation,
- Hygiene process.

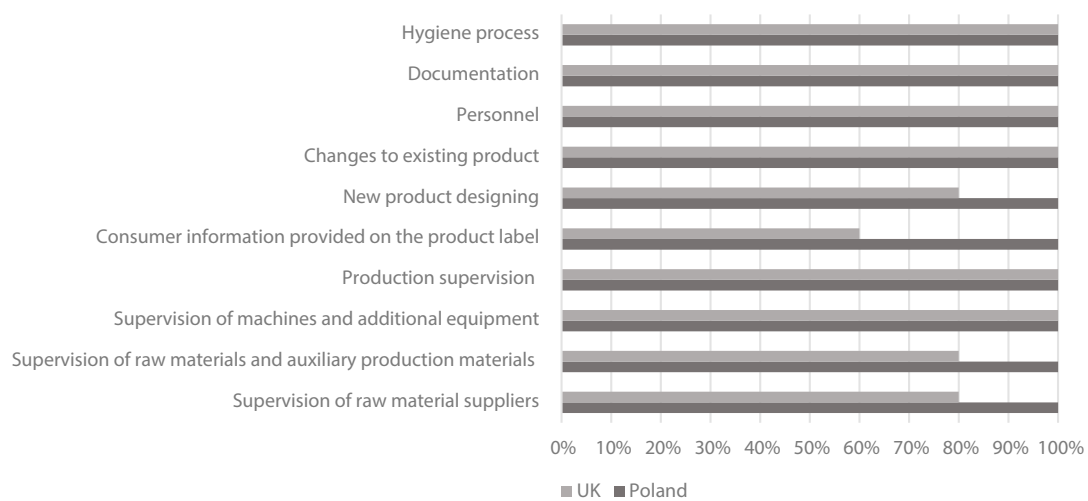
It was then verified which of these areas were addressed by the allergen control process implemented in the companies surveyed (Fig. 2).

All areas of allergen control listed above are taken into consideration in all of the Polish plants. In contrast, UK-based manufactures address such areas as “supervision of raw material suppliers,” “supervision of raw materials...” and “new product designing,” as indicated by 80% of the companies surveyed. Only 40% take into account the “consumer information provided on the product label” in their allergen verification and control routine. Strangely, although all guides, standards and scientific and research literature emphasize the role of the abovementioned areas in the allergen control process, some of the manufacturing plant fail to address them in their allergen management system.

Later in this survey, the respondents were asked to assess the significance of different areas of the allergen control process on a scale of one to five, with: 5 – definitely significant, 4 – rather significant, 3 – medium



**Fig. 1.** Types of allergens found in companies surveyed  
Source: own elaboration.



**Fig. 2.** Areas addressed by the allergen control process implemented in the companies surveyed  
Source: own elaboration.

**Table 1.** Assessing the significance of different areas of the allergen control process

Allergen control areas		Significance of the area in the allergen monitoring process				
		1	2	3	4	5
Supervision of raw material suppliers	Poland					100%
	UK				80%	
Supervision of raw materials and auxiliary production materials	Poland					100%
	UK				80%	
Supervision of machinery and additional equipment	Poland					100%
	UK					100%
Production supervision	Poland					100%
	UK					100%
Consumer information provided on the product label	Poland					100%
	UK			60%		
New product designing	Poland					100%
	UK				80%	
Changes to the existing product	Poland					100%
	UK					100%
Personnel	Poland					100%
	UK					100%
Documentation	Poland					100%
	UK					100%
Hygiene process	Poland					100%
	UK					100%

Source: own elaboration.

significant, 2 – rather insignificant, 1 – definitely insignificant (Table 1).

All the Polish companies surveyed found the identified areas to be highly relevant for the allergen control process (a score of 5). However, some differences can be seen between the UK-based companies; in this part of the sample, allergen control areas such as “supervision of raw material suppliers,” “supervision of raw materials and auxiliary production materials” and “new product designing” were found to be rather relevant by 80% of companies surveyed (a score of 4). On the other hand, 60% of British companies considered the “consumer information provided on the product label” to be an area of medium significance (a score of 3). Other areas of allergen control were assessed as significant by the British companies (a score of 5).

## CONCLUSIONS

Properly implemented and maintained allergen control systems, backed up by operational procedures and processes, must be designed so as to help effectively eliminate the risk of cross-contamination by allergens present inside the plant. During the analysis of allergen management systems (within BRC) in the Polish and British poultry meat processing enterprises, a wide variation in approach to this issue was noticeable. UK-based companies have a considerably different approach to consumer information provided on the product label. Because they found such labels to be insignificant, only 40% of manufacturing companies take this matter into account when planning their allergen control procedures. Regardless of the location of the sites, the correct

identification of allergens in raw materials and finished products, preventing cross-contamination or designing separate processing lines for allergen-free food is crucial. However, it is ultimately the consumer who decides to purchase a given product and can effectively protect his/her health only based on the manufacturer's information and declarations.

If errors on the part of the manufacturer are encountered in this area, nothing will protect the consumer from the dangers of food consumption with undeclared allergens. On the basis of the exploratory tests, it appears appropriate to conduct in-depth studies in companies located in Poland and the United Kingdom in order to discover the mechanisms of allergen monitoring and control.

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## OCENA ISTOTNOŚCI WYBRANYCH OBSZARÓW NADZOROWANIA ALERGENÓW W ZAKŁADACH PRZETWÓRSTWA MIĘSA DROBIEGO ZLOKALIZOWANYCH W POLSCE I WIELKIEJ BRYTANII

**Abstrakt.** W niniejszym artykule przedstawiono znaczenie monitorowania i nadzorowania alergenów w zidentyfikowanych dziesięciu obszarach, które powinny być brane pod uwagę w zarządzaniu alergenami. Odniesiono się do wymagań prawnych oraz normalizacyjnych. Badanie przeprowadzono wśród przedsiębiorstw przetwórstwa mięsa drobiowego. Aby zbadać podejście firm do nadzorowania alergenów, do badania wytypowano przedsiębiorstwa z certyfikatem BRC działające w Polsce i Wielkiej Brytanii. W wyniku przeprowadzonego badania w kilku obszarach nadzorowania alergenów stwierdzono istotne różnice między krajami. Dotyczyły one również postrzegania istotności zidentyfikowanych obszarów nadzorowania alergenów. Przedsiębiorstwa z Wielkiej Brytanii oceniły m.in. istotność obszaru „Informacje podawane konsumentowi na etykiecie produktu” jako średnio istotny obszar, a część z tych przedsiębiorstw w ogóle nie bierze go pod uwagę w swoim systemie zarządzania alergenami.

**Słowa kluczowe:** monitorowanie i nadzorowanie alergenów, ocena istotności