



Evaluating the Framework of Food Safety Policies, Legislation, and Guidelines in South Africa

Ntombizethu S Mkhwanazi^{1*}, Camilla Adelle² and Lise Korsten³

¹Department of Political Sciences, University of Pretoria, South Africa

²Department of Political Sciences, University of Pretoria, South Africa

³Department of Plant and Soil Sciences, University of Pretoria, South Africa

*Corresponding Author: Ntombizethu S Mkhwanazi, Department of Political Sciences, University of Pretoria, South Africa.

Received: January 29, 2025

Published: February 12, 2025

© All rights are reserved by

Ntombizethu S Mkhwanazi, *et al.*

Abstract

Ensuring food safety is crucial for public health and sustainable development, especially in South Africa, which boasts a diverse agricultural sector and complex food systems. This paper provides a detailed examination of South Africa's current food safety policies, legislation, and guidelines, aiming to map the existing framework and identify areas for improvement. Despite a solid legislative foundation-including key acts such as the Foodstuffs, Cosmetics, and Disinfectants Act (Act 54 of 1972) and others-challenges persist, including inconsistent enforcement, inadequate resources, and a lack of a comprehensive national food safety policy. The study, conducted in three phases from January 2021 to November 2022, involved a desk-based review, semi-structured interviews, and focus group discussions with key stakeholders. Findings reveal significant gaps, such as the fragmented approach to managing food safety incidents and the reactive nature of existing guidelines. To enhance food safety governance, the paper recommends establishing a dedicated national food safety policy, increasing resources for regulatory enforcement, creating a centralized food safety body, and adopting a proactive approach to managing risks, particularly in high-risk areas like large events and informal markets. These steps aim to address current shortcomings and strengthen the overall effectiveness of food safety governance in South Africa.

Keywords: Food Safety; Policy; Legislation; Guidelines; South Africa

Abbreviations

BFAP: Bureau for Food and Agricultural Policy; DALRRD: Department of Agriculture, Land Reform and Rural Development; DOH: Department of Health; DSD: Department of Social Development; DSI-NRF: Department of Science and Innovation and National Research Foundation; DTIC: Department of Trade Industry and Competition; FAO: Food and Agriculture Organization of the United Nations; HACCP: Hazard Analysis and Critical Control Point; WHO: World Health Organization

Introduction

Ensuring food safety is a critical global public health concern, integral to promoting sustainable development and safeguarding public health [19]. In South Africa, a country known for its diverse

agricultural sector and complex food systems, the regulation and governance of food safety are paramount [13]. This paper undertakes a comprehensive examination of the existing policies, legislation, and guidelines governing food safety in South Africa, aiming to map out the current landscape and identify areas for improvement and harmonization.

The significance of food safety cannot be overstated, particularly in a country like South Africa where agricultural exports contribute significantly to the economy [2]. Ensuring the safety of food from farm to fork is essential not only for public health but also for maintaining consumer confidence, facilitating international trade, and complying with global standards such as those set by the Codex Alimentarius Commission [10].

South Africa has a robust framework for food safety regulation, encompassing various legislative measures, guidelines, and regulatory authorities. The primary legislation governing food safety includes the Foodstuffs, Cosmetics, and Disinfectants Act (Act 54 of 1972) and its subsequent amendments [6]. These laws establish the regulatory framework under which food production, processing, labelling, and distribution are governed, with enforcement carried out by the National Department of Health and other relevant agencies [6].

Despite these legislative efforts, challenges persist in effectively implementing and enforcing food safety standards across the country. Issues such as inadequate infrastructure, limited resources, and varying levels of compliance among food producers and processors pose significant challenges [7]. Moreover, the complexity of South Africa's food systems, which range from large-scale commercial farming to informal markets, adds to the complexity of ensuring consistent adherence to safety standards [11].

The aim of this paper is to provide a detailed analysis of the existing food safety policies, legislation, and guidelines in South Africa. By mapping out the current regulatory framework, the paper seeks to assess the effectiveness of these measures in ensuring food safety, identify gaps and challenges, and propose recommendations for enhancing food safety governance. This analysis is intended to contribute to a more comprehensive understanding of food safety regulation in South Africa and inform future policy development and implementation strategies.

Material and Methods

The study on food safety governance in South Africa was conducted in three phases between January 2021 and November 2022, each designed to systematically explore the landscape of food safety policy and practice.

Phase 1 involved a comprehensive desk-based review of policies, strategies, and legislation, which provided a foundational understanding of the food safety governance landscape. This phase was crucial for mapping key stakeholders, laying the groundwork for subsequent, more detailed investigations. Phase 2 consisted of semi-structured interviews with key informants and a case study.

The semi-structured interviews allowed for an in-depth exploration of the perspectives of individuals who play significant roles in food safety decision-making. The case study provided a detailed, context-specific understanding of food safety governance, complementing the broader insights gained from the interviews. Phase 3 utilized a focus group discussion to triangulate and validate the information gathered in the earlier phases. This phase aimed to bridge any gaps identified between the document review and the interviews, ensuring a robust and well-rounded understanding of the topic.

The study employed a purposive sampling approach, selecting participants with specific knowledge and experience in food safety governance. Stakeholders from government departments, research institutions, food safety regulators, and industry groups were carefully recruited to provide a comprehensive view of the governance landscape. Data were collected from both primary and secondary sources. Primary data included interviews with food safety officials and related documents, while secondary data were drawn from academic reports, industry articles, and press releases. The qualitative methods used for data collection—semi-structured interviews, focus groups, and documentary analysis—allowed for an in-depth exploration of the social phenomena associated with food safety governance.

The documentary analysis offered insights into the historical and current challenges of food safety governance in South Africa, focusing on key documents such as government reports, strategies, and policies. Focus groups, conducted online on the 8th of November 2022 due to COVID-19 restrictions and logistical constraints, involved a diverse group of 29 stakeholders and included activities like stakeholder mapping and power mapping to visualize the network and influence of various stakeholders. Semi-structured interviews, both in-person and online, were guided by tailored interview guides focused on different stages of the policy cycle. These interviews were recorded and transcribed for detailed analysis, providing rich and nuanced insights into food safety governance.

Thematic analysis, supported by ATLAS.ti software, was used to analyse the collected data. This approach allowed the researchers to identify key themes and patterns, which were then organized

into thematic categories. The study's rigorous methodology, combining multiple qualitative methods and robust data analysis techniques, ensured a comprehensive exploration of food safety governance in South Africa, yielding valuable insights into the roles, challenges, and dynamics within this complex policy area.

Results and Discussion

This section discusses the basic policies, legislation, and guidelines as measures for food safety governance in South Africa. In South Africa, the sale of food and other consumable items is controlled by legislation passed by the parliament and stakeholders mentioned in section 1 above [3]. In South Africa, various food safety legislations have been enacted to protect public health. These food safety legislations go a long way to ensure that food producers and processors maintain high safety standards to promote health. This section will discuss food safety-related policies, legislation, standards, programmes as well as guidelines. [15] defines policy "as a statement by the government on what it intends to do, such as law, regulation, ruling, decision, order, or a combination of these." Standards in food safety are the minimum requirements stipulated by food safety agencies to ensure that food is safe at all points along the food chain in both international trade and within nations [17,18]. In terms of legislation and Acts, the two are often used interchangeably, but they are different. Legislation refers to the entire body of laws that are enacted by a government and regulate various aspects of society. It covers all the laws and regulations that are passed by a legislative body, including acts, regulations, and other legal instruments. Acts on the other hand, in the context of food safety, refer to the pieces of statutory legislation that are enacted by the government to regulate the production, processing, distribution, and sale of food products [8]. A guideline is a set of recommendations for practices. The guidelines are based on scientific and technical knowledge and are designed to prevent foodborne illnesses and protect public health [19]. They can cover various aspects of food safety, including recalls and food control for special events, etc. Lastly, programmes refer to temporary, organised efforts with a specific objective, aimed at improving or implementing measures to ensure the achievement of a certain goal and in this case to ensure [1] the safety of food products.

Policies

South Africa does not have a specific food safety policy, only related broader policies such as the National Food and Nutrition Security Policy (DSD and DALRRD, 2013). The National Food and Nutrition Security Policy is driven by the constitutional mandate which is The Bill of Rights that states that "the right to have access to . . . sufficient food and water" and that ". . . the State must take reasonable legislative and other measures, within its available resources, to achieve the progressive realisation of each of these rights" (Constitution, 1996). However, the above-mentioned policy does not address all necessary food safety issues such as outbreaks or foodborne illnesses, etc. Rather, the National Food and Nutrition Security Policy suggested there is a "... creation of a body that will amalgamate the different entities responsible for implementing food safety regulations" [3]. The mandate of this body will be to "... develop a food safety policy for South Africa to regulate domestic and international food safety standards obligations, to develop and/or review the current legislation regulating food safety, integrate the enforcement of regulations industry, and harmonise the domestic food safety standards with international standards" [3]. However, this body was never implemented until the present and the reason is not clear.

[14] notes that the development and implementation of the National Food Safety Policy can help reduce the burden of foodborne diseases and other related problems in the country and provide a basis for the establishment of objectives, requirements, and guidance for application to specific sectors of the food chain. The question that readily comes to mind is why it has taken South Africa so long a time to develop and implement a national food safety policy.

Legislation

This includes Acts governing food and drugs, standards, health, and safety of animal and plant products. Thus, the legislation relevant to food safety includes but not limited to Agricultural Products Act 119 of 1990 (Republic of South Africa, 1990); Animal Diseases Act 35 of 1984 (Republic of South Africa, 1984); Health Act 61 of 2003 (Republic of South Africa, 2004); Meat Safety Act 40 of 2000 (Republic of South Africa, 2000); Standards Act 8 of 2008 (Republic of South Africa, 2008); National Regulator for Compul-

sory Specifications Act 5 of 2008 (Republic of South Africa, 2008); Consumer Protection Act 68 of 2008 (Republic of South Africa, 2009); Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act 36 of 1947 (Republic of South Africa, 1947) as well as The Foodstuff, Cosmetics, and Disinfectants Act 54 of 1972 (Republic of South Africa, 1972). These legislations are in place to protect the health and safety of the South African public through the regulation of food, drugs, hygiene, sanitation, household chem-

ical substances, and cosmetics. The legislations are articulated below (Table 1-3) and are categorised according to their directorate.

The Department of Health is entrusted with the normative duties of enforcing legislation pertaining to food products, following the guidance provided by the Recommended International Code of Practice set forth by the Codex. This includes developing and publicising regulations for food safety, food labelling, and related matters as shown in table 1 below.

Act	Year promulgated	Purpose/Power they have	Relation to food safety	Food safety aspect	Where in the food chain?
The Foodstuff, cosmetics, and Disinfectants Act	Act 54 of 1972	This act governs the manufacture, sale, and importation of all foodstuffs from a public health point of view; and provides for incidental matters	Includes food safety issues related to the labelling of food and food products; as well as the use of food additives, preservatives, and antioxidants.	Training of inspectors Products and premises audit and inspections Laboratory services Food export health certification Registration of products and premises. Food safety control	Throughout the food chain
The Health Act	Act 63 of 1977	To provide for measures for the promotion of the health of the inhabitants of the Republic; to that end to provide for the rendering of health services; to define the duties, powers, and responsibilities of certain authorities which render health services in the Republic; the primary objectives are to ensure the effective coordination of healthcare services, revoke the Public Health Act of 1919, and address any ancillary matters that may arise.	Deals hygienic food handling, and inspection of food handlers, food premises, and the packaging of food	Food inspection Food hygiene control and preparation of food establishment sanitation ordinances	Entire food chain
The International Health Regulations Act	1974	This act applies to the International Health, Regulations, adopted by the World Health Assembly, In the Republic, and to provide for Incidental matters.	The act provides for the approval by the Department of Health of the source of food for consumption at ports, airports, on vessels, and aircraft, as well as for the inspection of such premises and the sampling of food by local authorities	-Inspection of premises and sampling -Food safety control	Entire food chain except for primary production

Table 1: Food safety-related legislation under the Department of Health.

Source: Author’s compilation.

Department of Agriculture, Land Reform, and Rural Development’s normative responsibilities are monitoring and enforcement concerning food safety, various aspects are encompassed, includ-

ing animal health, plant health, veterinary public health, quality assurance for food safety, and agricultural products inspection services. through the Act of Parliament [16] as shown in table 2 below.

Act	Year promulgated	Purpose/Power they have	Relation to food safety	Food safety aspect	Where in the food chain?
Agricultural Product Standard Act	Act No. 119 of 1990	To provide for control over the sale and export of certain agricultural products and other related products; and for matters connected therewith.	Deals with hygiene and food safety of regulated agricultural food products of plant origin for export.	Phytosanitary issues, plant health, and plant protection Pesticide registration Export certification	Primary production and processed products for export
Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act	Act No. 36 of 1984	To provide for the appointment of a Registrar of Fertilizers, Farm Feeds, and Agricultural Remedies; for the registration of fertilizers, farm feeds, agricultural remedies, stock remedies, sterilizing plants, and pest control operators; to regulate or prohibit the importation, sale, acquisition, disposal or use of fertilizers, farm feeds, agricultural remedies, and stock remedies;	Permits the usage of tested and registered chemical remedies, fertilizer, and pesticides that will bring no harm to consumers of the crop produced.	Laboratory services Products registration	Primary production
Animal Diseases Act	Act No. 35 of 1984	To provide for the control of animal diseases and parasites, for measures to promote animal health, and for matters connected therewith.	Ensure safe meat and animal products for both human and animal consumption by reasons of diseases	Animal Health Veterinary drug control Animal traceability	Primary livestock production and animal produce
Meat Safety Act	Act No. 40 of 2000	To provide for measures to promote meat safety and the safety of animal products; to establish and maintain essential national standards in respect of abattoirs; to regulate the importation and exportation of meat; to establish meat safety schemes; and to provide for matters connected therewith.	Concerns with the safe handling of meat and animal products in abattoirs as well as abattoir inspections	Meat hygiene Abattoir inspections Food safety and quality	All meat except processed meat and processed meat products

Table 2: Food safety-related legislation under the Department of Agriculture, Land Reform, and Rural Development.

Source: Author’s compilation.

Department of Trade, Industry, and Competition normative responsibilities are shared amongst the food safety agencies under the authority of the DTIC. Each agency has its own unique set of responsibilities. The responsibilities include consumer protection, maintenance of legal metrology, eliminating counterfeit goods, promoting, and developing standards as well as amending laws related to sugar and liquor. Table 3 shows the legislation under the constitutional mandate of the DTIC and the appointed agencies.

Standards

Food safety standards are technical regulations for various food factors that affect consumers’ health. Food safety standard describes the principles of control needed to ensure the supply of safe food to the consumer. In terms of classification, food safety standards include national food safety standards and local food safety standards (developed by local government) [12]. Standards are classified into two, quality standards and compulsory food hygiene or food safety standards. The DoH has developed food hygiene stan-

dards that prioritize the protection of consumers’ health. Additionally, after implementing the Codex, food safety standards have been introduced. These standards serve the purpose of safeguarding consumers’ well-being. On the other hand, another category of standards concentrates on aspects such as food quality, grades, and specifications, which are oriented toward producers [12]. South Africa’s food safety standards are consistent and aligned with international standards systems, they cover standards such as generic, products, regulatory, inspection, and testing as shown

in Table 4. However, Food additive standards are not independent but are developed and governed by the Foodstuffs, Cosmetics, and Disinfectants Act no 54 of 1972 [16]. Interpretation and enforcement of standards can lead to inconsistencies. In South Africa, regulatory authorities are faced with a challenge in monitoring and enforcing standards across a wide range of food businesses, including farms, processing facilities, restaurants, and retail outlets. Limited resources pose challenges to effective enforcement.

Standards	Description	Products
Generic standards		Pesticides, food-related products, labelling
Product standards	Food ingredients and product standards	Includes various aspects including, grain, nuts and seeds, spices and condiments, fish and fish products, meat and meat products, beverages, liquor, honey, eggs, and egg products as well as milk and milk products.
	Food additives quality specification	Food additive quality specifications are in place: Sweeteners in foodstuffs, Preservatives and antioxidants, food colorants, miscellaneous additives in foodstuffs, and Codex general standard on food additives.
	Food-related standards	Food-related standards are in place: Food testing, certification, labelling, grading, classification, packaging and container, fortification, trade, procedural notices, and manufacturing
Regulatory standards		Divided into general and specific standards such as the enforcement of food regulations, registration measures, HACCP system, and prohibitions regulations.
Inspection and testing standards		Microbiological Pressure equipment

Table 4: South Africa’s national food safety standards.

Source: Author’s compilation.

Guidelines

The South Africa Policy Guidelines on National Food Safety Alerts and Official Product Recalls was developed in 2004 under the directorate food control of the DoH [4]. A national food safety alert refers “to steps taken by the national health authority aimed at informing consumers of a potential or real health risk deriving from a specific foodstuff, which could still be available at food outlets or in the homes of consumers. It is further intended to raise awareness with the relevant health authorities responsible for the control of the foodstuff concerned” [4].

The guidelines were developed after the incident that claimed the lives of two children from the Gauteng Province in February

2002, individuals tragically lost their lives due to botulism poisoning after consuming the contents of canned pilchards in tomato. As a consequence of the incident, a countrywide food safety alert was issued, urging the removal of all pilchard cans from retailers [4].

Unfortunately, the country does not have legislation that refers to official food product recalls, government relies on the industry to self-regulate [9]. Food safety authorities are facing difficulties in monitoring and keeping track of any food product recalls that may need to be conducted in the country [4].

Hence, the objective of these policy guidelines is thus “to guide the roles and responsibilities of industry, but particularly, food con-

trol authorities, regarding national food safety alerts and official food product recalls, and how these should be conducted to ensure public safety” [4]. The policy guidelines also specify that DoH can develop a database and keep records of official and the country carried out voluntary recalls of food products [4].

The guidelines for environmental health practitioners on food safety control at extraordinary events. A few years ago, during the *All-Africa Games* held in Johannesburg, Gauteng Province in 1999, a major food poisoning incident occurred when over 600 school-children participating in the event became ill after consuming food provided at the games [5]. The incident had a profound impact on the event and received widespread media coverage, causing embarrassment for both the organizers and the nation. Although local health authorities responsible for food safety were partially involved in organizing the event, the incident revealed significant shortcomings in this regard [5]. The organizers, among others, were unaware of the importance of implementing proper measures for controlling food handling during the event. The lack of clear guidelines on the handling and storage of food during big events resulted in the food poisoning incident [5].

As a result of these deficiencies, there was a need for the establishment of guidelines to effectively introduce food safety controls at such events, referred to as “special events” in this document. These guidelines aim to serve as a reference for the food control (health) authorities in the country responsible for ensuring that food served at extraordinary events is safe for consumption. Additionally, they emphasize the responsibility of special event organizers to fully cooperate with the relevant health authorities, especially those in charge of food supply and handling during the event [5].

According to the guidelines [5], extraordinary events are referred to as “situations which are of a limited time duration, and which took place at venues which are not operating continuously and are therefore considered as an ad hoc situation. It includes international, national, and local events such as sport, cultural, governmental, trade, etc., and examples are the recent world summit on sustainable development, the cricket world cup tournament, agricultural shows, music festivals, open-air church services, etc” [5].

Discussion

The analysis of South Africa’s food safety governance reveals both strengths and notable gaps in the existing framework. The country has a substantial legislative foundation, including various acts and regulations aimed at safeguarding food safety. These laws cover diverse aspects such as food production, processing, distribution, and labelling, with enforcement mechanisms in place. Key legislation includes the Foodstuffs, Cosmetics, and Disinfectants Act (Act 54 of 1972), the Agricultural Products Act, and the Consumer Protection Act, among others [6]. These acts collectively form a comprehensive regulatory environment designed to protect public health by ensuring food safety standards are met across the food supply chain.

However, the effectiveness of these legislative measures is hindered by several factors. A significant issue identified is the inconsistency in the implementation and enforcement of food safety standards. This inconsistency is partly due to the limited resources available for regulatory authorities and the varying levels of compliance among food producers and processors. The wide spectrum of food systems in South Africa—from large commercial farms to informal markets—complicates the enforcement of uniform standards. Regulatory authorities face challenges in monitoring and ensuring compliance across such a diverse range of food businesses [13].

Another critical gap is the absence of a specific national food safety policy. While broader policies such as the National Food and Nutrition Security Policy exist, they do not comprehensively address food safety issues, including foodborne illnesses and outbreaks. The lack of a dedicated national food safety policy has led to fragmented and sometimes inadequate responses to food safety incidents [11]. For example, although the country has guidelines for managing food safety alerts and recalls, there is no specific legislation mandating official food product recalls, leaving much of the responsibility on the industry to self-regulate. This reliance on self-regulation can lead to delays in addressing food safety issues and gaps in the tracking and management of food recalls [11].

The guidelines developed for managing food safety at extraordinary events and for food safety alerts are important [4,5] but highlight a reactive rather than proactive approach. The incidents

that prompted these guidelines-such as food poisoning outbreaks during events-reveal the need for more preventive measures and a structured approach to managing food safety risks.

Conclusion

South Africa's food safety governance framework, while underpinned by a robust legislative foundation, faces several critical challenges that affect its overall effectiveness. Although the existing legislative measures provide a solid base, issues such as inconsistent enforcement, limited resources, and the absence of a comprehensive national food safety policy hinder the system's effectiveness. To address these challenges and enhance food safety governance, several steps are recommended. Establishing a dedicated national food safety policy would offer a cohesive and comprehensive approach to managing food safety issues, including outbreak management, prevention of foodborne illnesses, and alignment with international standards. Additionally, increasing resources and capacity for regulatory authorities is crucial to improve enforcement mechanisms, which involves investing in infrastructure, training, and monitoring systems to ensure consistent compliance across all food businesses. Creating a centralized body responsible for food safety governance could streamline efforts and enhance coordination among various stakeholders, integrating existing regulations and harmonizing them with international guidelines. Engaging with the food industry and the public to raise awareness about food safety standards and practices is also essential, as is encouraging industry self-regulation through incentives and support. Finally, adopting a proactive approach by developing preventive strategies and guidelines for high-risk areas, such as large events and informal markets, can help mitigate potential risks before they escalate into crises.

Acknowledgements

The authors would like to acknowledge the DSI-NRF: Centre of Excellence in Food Security, the University of Pretoria, and Bayer who sponsored this project.

Conflict of Interest

The authors wish to confirm that there is no conflict of interest to declare.

Bibliography

1. APMG International. "Programme". *APMG International* (2022).
2. BFAP. "BFAP Baseline: An agriculture outlook for the period 2024-2033" (2024).
3. Department of Agriculture, Forestry and Fisheries, Department of Health, and Department of Trade and Industry (DAFF, DoH, and DTI). Report from the Department of Health, Department of Agriculture, Forestry and Fisheries, and Department of Trade and Industry. Republic of South Africa. Department of Agriculture Forestry and Fisheries (2013).
4. Department of Health. Guidelines for Environmental Health Practitioners on Food Safety Control at Special Events. Pretoria, Gauteng, South Africa, Department of Health (2004a).
5. Department of Health. Policy Guidelines: National food safety alerts and recalls in South Africa. Pretoria, Gauteng, South Africa, Department of Health (2004b).
6. Department of Health. Foodstuffs, Cosmetics, and Disinfectants Act (Act 54 of 1972)". Pretoria, Gauteng, South Africa, Department of Health (2020).
7. Duan, Keru, et al. "Pioneering food safety: Blockchain's integration in supply chain surveillance". *Journal of Agriculture and Food Research* 18 (2024): 101281.
8. FAO. "FAO's Strategy for a Food Chain Approach to Food Safety and Quality: A Framework Document for the Development of Future Strategic Direction". (2003).
9. Food Imbizo. "Food Safety Governance Stakeholder Mapping". Cape Town, Western Cape, South Africa, Food Imbizo (2022).
10. Gardner, Sherwin. "Consumers and food safety: A food industry perspective". Food and Agricultural Organization of the United Nations. FAO website (1993).
11. Kushitor Sandra Boatemaa., et al. "The complex challenge of governing food systems: The case of South African food policy". *Food security* 14.4 (2022): 883-896.

12. Lepeintre Jerome and Juanjuan Sun. "Building food safety governance in China". Luxembourg: Publications Office of the European Union (2018).
13. May Julian and Bruno Losch. "Food systems profile-South Africa. Catalysing the sustainable and inclusive transformation of food systems" (2022).
14. Ministry of Health. *National Food Safety Policy*. Ministry of Health, Republic of Ghana (2022).
15. Parsons Wayne. "Public Policy". *Public Policy and Administration* 17.3 (2002): 43.
16. Sikuka Wellington. "Food and agricultural import regulation and standards-Narrative FAIRS Country Report: South Africa. *GAIN (Global Agriculture and Information Network) report*". *United States Department of Agriculture (USDA) Foreign Agricultural Service* (2015).
17. Unnevehr Laurian. "Food safety in food security and food trade". Washington, DC: *International Food Policy Research Institute* 10 (2003).
18. Unnevehr Laurian J. "Addressing food safety challenges in rapidly developing food systems". *Agricultural Economics* 53.4 (2022): 529-539.
19. World Health Organization. *Food Safety* (2020).