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ABSTRACT

ENSURING FOOD QUALITY AND SAFETY – PREMISES FOR A SUSTAINABLE FOOD SYSTEM AND HEALTHY EATING BEHAVIOR

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ABSTRACT

Research on food products and quality assurance is specifically required by a range of economic sectors, within a global context marked by major challenges such as population growth, climate change, accelerated urbanization, and various hazards throughout the food chain. Therefore, food safety and quality have become strategic objectives for public health and food security. Consumers are increasingly concerned about the origin, composition, and impact of food on health and the environment, which necessitates a rethinking of how food is produced, processed, and distributed. At the same time, the frequency of food crises, contamination risks, and the need for traceability highlight the importance of implementing rigorous systems for food quality and safety control. The topic is therefore highly relevant, as it reflects an essential dimension of sustainability—ensuring access to safe, nutritious, and high-quality food for all population categories, while also protecting natural resources and respecting ethical and social values.

This work explores the importance of ensuring food quality and safety as essential elements in building a sustainable food system. In this context, the decisive role of these factors in shaping healthy and responsible eating behavior among consumers is emphasized. The advantages of implementing and complying with the main food safety management standards and systems are analyzed, highlighting their contribution to risk reduction and increased trust in the food chain. The paper also addresses the responsibility of all involved actors—from producers and processors to distributors and consumers—in guaranteeing safe and high-quality food consumption. Technological innovation, traceability, process digitalization, and adaptation to local requirements are identified as strategic directions for supporting the sustainability of the food system. In conclusion, ensuring food quality and safety is not merely a technical condition but a fundamental prerequisite for public health, social equity, and sustainable development.

This habilitation thesis, entitled *Ensuring Food Quality and Safety – Premises for a Sustainable Food System and Healthy Eating Behavior*, presents the main results of research concerning the identification of business strategies oriented toward sustainability, also highlighting how scientific and technological progress has influenced consumer behavior in the context of socio-economic, political, and environmental pressures that call for the adoption of sustainable practices. Given the increasing complexity of food choices in a global context

marked by abundance, cultural diversity, commercial influences, and public health challenges, research into eating behavior becomes essential in order to understand not only the biological and social mechanisms involved but also how cognitive factors—such as perception, experience, emotions—consciously shape food preferences and habits, thus providing a solid scientific basis for educational interventions and effective nutritional policies.

The structure of the thesis includes, in addition to the abstract and the list of tables and figures used, the main scientific achievements in the field of the chosen topic, which attest to meeting the minimum standards required for habilitation, the academic career development plan, as well as the bibliography consulted to support the author's own research.

The thematic content of **Section I**, which highlights the author's **scientific achievements**, is structured into two distinct domains, aligned with the main research directions and areas of interest developed throughout her academic career.

In the first domain, *The Quality of Food Products and the Role of Labeling in the Reorientation of Food Consumption*, a wide array of issues related to *the quality and nutritional value of food products* is presented.

In recent decades, ensuring an adequate diet—both in quantitative and qualitative terms—has become a global concern, reflecting the direct link between health and access to sufficient and varied food. The doctoral thesis entitled *Merceological Issues of Nutritional Design of Food Products*, carried out under the supervision of Professor Dumitru Dima, represented a landmark in addressing these issues, offering an integrated vision of the ecological, social, and cultural factors involved in nutrition. The topic, relevant at the time the research began, remains pertinent today, as the continuing relevance of the subject confirms the validity of the scientific endeavor. This research addressed the main stages in the evolution of human nutrition, the current structure of the unconventional and non-traditional food supply, the premises of nutritional food design, and the nutritional modeling of modern foods.

One of the fundamental studies is the research regarding a new approach to food consumption analysis in Romania in the context of social and economic transformations: **Bobe, M. and Popescu, D., 2008. A new approach concerning to food consumption research in Romania in the context of social and economic mutations. *Amfiteatru Economic*, 10(Special No.2), pp.109-114.** The main objective of this work is to identify new directions in the study of food consumption and Romanian consumer behavior, within the context of profound social and economic changes. The study reveals that social and economic dynamics have led to a significant diversification in the range of food products, causing substantial changes in consumption structure, which in turn affects the food balance and the fulfillment of

the population's nutritional requirements. The food product is conceptualized not merely as an economic good, but as a complex element destined for the "metabolic market" of the human body, bearing energy, information, and nutritional value. The research emphasizes consumer segmentation based on age, social, and cultural level, and the analysis of determining factors—production and commercialization capacities, consumption capacity, external factors, and social and cultural models—enables the identification of dominant patterns in food consumption and their evolution over time. In the context of globalization, the diversification of food products has led to profound transformations in dietary behavior, reflected internationally through the proposal of new food pyramid models promoting balanced consumption of healthy foods. This research enhances the understanding of food consumption as a complex process influenced by multiple interrelated factors and underscores the need for policies and practices that ensure food quality and safety, aiming to achieve an optimal balance between the body's metabolic needs and the socio-economic context.

Another scientific article that continued research in this field addressed the psycho-sensorial value of food products as a key factor in purchasing decisions: **Bobe, M. and Procopie, R., 2011. The psycho-sensorial value of the food products – a provocative component in purchase decision. *Amfiteatru Economic*, 13(5 special), pp.780–788.** The authors highlight that the modern nutritional value of food—comprising four interrelated dimensions: psycho-sensorial, energetic, biological, and hygienic value—significantly influences quality perception and product success on the market.

The psycho-sensorial value, which defines a product's appeal, is often the first to be perceived and prioritizes sensory satisfaction, sometimes at the expense of food safety or nutritional considerations. The study stresses the need to educate consumers to balance gustatory pleasure with public health.

Moreover, the article emphasizes the role of nutritional education, supported by mass media and social marketing, in guiding food choices toward healthier options without compromising the pleasure of consumption. In this context, the authors recommend transparent, fair, and tailored nutritional communication for different consumer segments to enhance awareness and prevent health risks. They emphasize the importance of psychosensory value as a decisive factor in purchasing behavior, advocating for an integrated approach that combines sensory quality with nutritional and hygienic value, supported by effective nutritional education and responsible promotion.

Another research direction focused on the valorization of the traditional component in the restructuring of the modern food offer in Romania and was materialized in the article: **Bobé,**

M., Procopie, R. and Toma, M.A., 2016. The Exploitation of the Traditional Component in Restructuring Modern Food Offer in Romania. *Amfiteatru Economic*, vol.18, Special No. 10.

This paper analyzes how traditional elements can be capitalized upon to restructure the modern food offer in Romania. The study adopts an integrated perspective, combining a literature review with exploratory research in the Romanian traditional food sector. Using both qualitative and quantitative methods—such as interviews with producers and surveys conducted among consumers—the research explores the defining characteristics of the traditional food sector.

The paper highlights the socio-cultural and economic role of traditional foods, emphasizing the influence of psycho-sensorial, cultural, religious, and economic factors on contemporary eating behavior. The authors present two main approaches to integrating traditional foods into the modern market: a conservative approach focused on faithfully preserving tradition and production methods, and an innovative approach aimed at technological and commercial adaptation to meet new consumer demands.

The article demonstrates that innovation can strengthen the traditional character by maintaining authenticity while ensuring high quality and competitiveness on the European market. The study underscores the necessity of balancing food heritage preservation with the integration of innovation, in order to ensure the long-term economic sustainability and identity of traditional products in the context of socio-economic and technological changes.

The profound transformations of the contemporary food system, driven by factors such as globalization, climate change, and evolving consumer preferences, require in-depth research to support the development of adaptive policies and strategies.

In this context, another research effort examined the impact of Generation Z's eating habits on shaping the food system for 2030, through a case study focused on Romania's youth: **Bumbac, R., Bobe, M., Procopie, R., Pamfilie, R., Vişan, S. and Enache, C., 2020. How zoomers' eating habits should be considered in shaping the food system for 2030 – A case study on the young generation from Romania. *Sustainability*, 12(18), pp.1–14.** The article explores how the eating habits of Generation Z (Zoomers) can serve as a key vector for the sustainable reformulation of the food system by 2030. Conducted through quantitative research on a sample of Romanian students, the study reveals a significant shift in this generation's eating behavior, marked by a strong preference for local, organic, and healthy foods, along with openness to the internationalization of the food offer.

The findings suggest that Zoomers' preferences influence the need for sustainable food production and for local, resilient, and responsible supply chains. Furthermore, women in this generation appear more likely to adopt dietary changes, and consumption decisions are no longer guided solely by price, but also by the perceived quality of products. The article is grounded in a theoretical framework that views food consumption as a vector for reconfiguring the food system, integrating the concepts of sustainability, equity, and public health. It argues that food systems must become more flexible and adaptable to the dynamic preferences of young consumers. Additionally, the article highlights the accelerated impact of the COVID-19 pandemic on distribution channels and the adoption of digital technologies, such as online shopping and digital nutritional labeling, as factors that can facilitate the transition to a modern and transparent food system.

Thus, the study provides significant insight into how Generation Z's food habits can guide the necessary transformations of the global food system, supporting the creation of a resilient, sustainable model aligned with the values of the new generation and prepared to meet future climatic, global, and technological challenges.

Another area of research concerns *the labeling of food products and its influence on consumers*, a subject that is gaining increasing relevance in the current context, characterized by the accelerated diversification of food offerings and growing consumer concern for health, food safety, and sustainability.

Food labeling is an essential component of the modern food sector, with significant socio-economic implications. Its evolution is shaped by the diversification of raw materials, the use of additives, technological advancements in processing and packaging, as well as the increasing level of consumer awareness. Today, food labels are no longer merely informative tools; they serve as strategic communication instruments between producers, retailers, and consumers.

Nutritional labeling, mandated by international and European regulations (such as those of the Codex Alimentarius Commission and EU legislation), plays both an educational and economic role, influencing purchasing decisions, consumer trust, and market competitiveness. Through transparency and accuracy, labeling contributes to public health protection and supports marketing strategies focused on sustainability and healthy products.

Labeling management is a complex process, with the label representing the "identity profile" of the product, reflecting its quality, origin, and the responsibility of the producer. Ethical aspects regarding the truthfulness of the information are crucial, as consumers cannot

independently verify the data and are entitled to complete information and education in order to make informed choices.

From this perspective, an article was developed to address ethical considerations in food labeling: **Bobbe, M., 2008. Ethical Consideration Regarding the Food Labeling. *Amfiteatru Economic*, 10(23), pp.55-60.** The paper analyzes the ethical responsibility of producers in ensuring the accuracy of label information and protecting consumer rights. Furthermore, it examines the graphical and functional evolution of labels, their impact on marketing and education, and the legal frameworks governing their content and design. The study emphasizes the need for clear communication, avoidance of information overload, and data accessibility, in order to support informed consumer decisions, particularly regarding special or novel products such as organic or irradiated foods. Ethics in labeling is grounded in four key principles: fairness (equal access to accurate information), participation (of consumers and experts), probity (communication transparency), and rationality (scientific evidence-based content). Ultimately, food labeling is viewed as an integral element of social communication, which must be supported by educational programs to fully achieve its purpose of consumer protection and information.

The evolution of labeling in general—and nutritional labeling in particular—is evident. Accordingly, another research initiative focused on its adaptation for a digitally native era in nutrition, culminating in the development of m-format labeling, as explored in the article: **Bobbe, M., Procopie, R., Pamfilie, R., Bumbac, R., Giușcă, S., Mihai, M. and Jurconi, A., 2024. Towards a digital native era in nutrition: introducing the m-format labeling. *Journal of Business Economics and Management*, 25(2), pp.246-267.** This article explores the necessary transformations in nutritional labeling to meet the needs of a digitized society and digitally native consumers. The authors argue that traditional nutritional labels, designed for physical media, no longer meet current demands for speed, accessibility, and interactivity, as imposed by mobile commerce and digital consumer behavior. The study introduces the concept of the "m-format," a digital format optimized for mobile devices, offering a visual and intuitive presentation of nutritional information to facilitate informed dietary decisions and promote a healthy lifestyle. The m-format is characterized by a user-friendly design, clear typography, and interactive elements (expandable sections, pop-up windows) that reduce cognitive load and allow quick access to additional information. Based on a survey conducted among 364 students, the research shows that clear and well-structured digital labels increase consumer trust in food products and positively influence purchasing decisions, particularly for new or unfamiliar products. Moreover, it highlights significant differences in perceptions of

nutritional labeling depending on socio-economic variables, such as education level and attention to diet. The study also underscores the need to adapt public policies and nutritional labeling standards to the new digital realities to ensure transparency, accessibility, and trust in the online environment. By integrating m-format nutritional labeling into e-commerce, the study proposes an innovative solution that addresses both the expectations of digitally native consumers and the challenges faced by the food industry and public health policies.

The author's second area of interest is represented by *food security and food safety—key conditions for the sustainability and resilience of the food system*. The complex issue of food security and its importance at both national and global levels are discussed in relation to the balance between available resources and consumption needs. The sustainability of the agri-food chain is presented as a major challenge for both producers and consumers, with direct implications for public health.

Food security and producers' responsibility regarding food safety represent a central point of interest in the author's research.

The studies highlight the need for close collaboration between governments, research institutions, producers, and consumers to improve food security, system sustainability, product safety, and to promote sustainable agriculture. In this context, another scientific article addresses the topic of producer responsibility in ensuring and declaring the quality of foods with an “organic image,” using the example of a Romanian organization: **Bobe, M., Procopie, R., Pamfilie, R. and Toma, M.A., 2014. Producer's responsibility concerning the assurance and statement of quality for foods with “organic image” based on the model of a Romanian company. *Amfiteatru Economic*, 16(35), pp.196–208.** This article explores producers' responsibility in ensuring the quality of organic food products and in correctly informing consumers. The study is based on the premise that organizational responsibility toward consumers has become essential in the context of competition and adherence to ethical principles. It analyzes the quality of a product with an “organic image”—Topoloveni natural plum jam—through physico-chemical and microbiological determinations performed at the National Institute of Research and Development for Food Bioresources in Bucharest. The results were compared with the internal standards of the producing company to verify the compliance and truthfulness of the nutritional information declared on the label. The article underscores the essential role of certification and labeling in ensuring consumer transparency and trust, highlighting national and European regulations, as well as the use of distinctive logos that guarantee the compliance of organic products. It emphasizes that products with an “organic image” occupy an intermediate space between certified organic and conventional products,

serving as a useful concept for those in transition toward organic certification. The case study reveals the practical challenges faced during the organic certification process, including financial and organizational barriers for local suppliers, as well as the minimum conversion period for crops, while also highlighting the positive prospects of organic food certification: assuming responsibility for product quality and safety, contributing to sustainable development, environmental protection, and consumer health. In conclusion, the article promotes the idea that proper certification and labeling of organic products are fundamental for strengthening consumer trust and fostering the sustainable development of the agri-food sector, providing a relevant model for other organizations in Romania and beyond.

A scientific debate on genetically modified organisms (GMOs) in the food chain, as well as ethical and legal reflections on their use throughout the food supply chain, are the focus of the works: **Bobbe, M. and Procopie, R., 2015. Scientific Debate on Genetically Modified Organisms in the Food Chain, *International Journal of Economic Practices and Theories*, 5(3) and Procopie, R., Bobbe, M. and Vişan, S., 2012. Ethical and legal reflections on the use of genetically modified organisms along the food chain. 18th IGWT Symposium: *Technology and Innovation for a Sustainable Future*, Rome, Italy.** These studies are essential reference points in the multidimensional analysis of GMOs in the food chain. They explore both the potential benefits of GMOs and the ethical, legal, and environmental challenges arising from their integration into food production and distribution. Key arguments in favor of GMOs highlighted in the studies include increased agricultural productivity through improved crop resistance to biotic and abiotic stresses, reduced dependence on pesticides and herbicides, and enhanced nutritional value of food products—exemplified by “golden rice.” These benefits are considered crucial for strengthening global food security, especially in the context of climate change and population growth. On the other hand, the articles emphasize multiple concerns regarding the impact of GMOs on biodiversity, uncertain long-term health risks, and the concentration of economic power in the hands of a few large corporations, which can lead to monopolies and increased vulnerability of farmers. The authors recommend strict regulation, traceability, and transparent labeling to protect consumers—measures that are partially implemented at the European level but show significant variation globally. Recent literature confirms the need for an integrated approach to food quality and safety management, involving close collaboration between authorities, producers, and consumers. Organizational culture and user-centered methods are identified as key factors in promoting responsible and sustainable practices throughout the entire agri-food chain. In conclusion, the integration of GMOs into the food chain represents a major potential solution for food security but must be

addressed through responsible policies, rigorous scientific research, and effective consumer protection mechanisms in order to balance technological innovation with public safety and ecological sustainability.

Exploring the role of individual food security in assessing population food security represents another scientific article published in 2019: **Bobé, M., Procopie, R. and Bucur, M., 2019. Exploring the Role of Individual Food Security in the Assessment of Population's Food Safety. *Amfiteatru Economic*, 21(51), pp.347-360.** The article shifts the paradigm of food security from a global approach to one focused on individual food security. It highlights the conceptual transition from ensuring the physical and economic availability of food to guaranteeing social access to diverse, safe, and nutritious foods necessary to maintain population health. The paper proposes an evaluation of individual food security by analyzing nutritional, anthropometric, and dietary behavior indicators within a representative sample, thus providing a basis for the formulation of effective nutritional policies. It emphasizes the importance of nutritional education in promoting balanced and sustainable consumption, which is essential for correcting nutritional imbalances and maintaining public health. The article reiterates the defining evolution of food security, identifying the determining factors and constraints of food security, including imbalances in international trade, climate change, economic disparities, and insufficient nutritional education. In the Romanian context, vulnerabilities such as insufficient domestic production, agricultural market instability, and socio-economic imbalances affecting food access are underscored. The dual issue of undernutrition and overnutrition is also highlighted, with major implications for public health. The presented studies confirm the importance of individual food security and demonstrate that limited access to adequate food negatively influences educational outcomes and health. In conclusion, the article argues that improving individual food security is essential for social and economic stability and requires integrated measures: sustainable agricultural and trade policies, nutritional education programs, socio-economic interventions to reduce inequalities, and the development of a fair and sustainable food system.

Another research theme focuses on *developing innovative models for food quality and the sustainability of the food system*.

In this regard, a study was conducted in collaboration with Procopie, R., addressing the topic of information flow logistics in managing food product quality: **Procopie, R. and Bobé, M., 2008. The logistics of information flow in managing the quality of food products. *Amfiteatru Economic*, 10(24), pp.70-84.** The article is a key reference in analyzing the role of informational feedback in ensuring the quality and safety of food products

throughout the logistics chain. The research highlights the importance of a continuous and efficient information flow between all links of the agri-food chain — producers, distributors, retailers, and consumers — as a decisive factor in monitoring and optimizing logistics processes, thereby contributing to increased competitiveness and sustainability of the food system. The authors emphasize that the absence of an effective feedback system can generate major dysfunctions, including product deterioration and supply disruptions, affecting both economic actors and consumers. The article proposes a rethinking of the food quality concept, which should encompass not only commercial and technological aspects but also the impact on the natural and social environment. Thus, food product quality is approached as a complex construct, integrated across all stages of the product life cycle — from production to post-consumption — and reflects the multiple interests of involved stakeholders, from farmers to regulatory authorities and consumers. The integrative model proposed in the paper structures contractual relationships and market dynamics, facilitating the management of quality standards throughout the entire agri-food chain. The importance of cooperation between economic operators, intermediaries, and regulatory bodies is also emphasized to ensure a transparent and responsible food chain. Finally, the article advocates for the adoption of a "quality culture" that incorporates high-performance systems for food safety and traceability management, essential for food sustainability. This culture enables the alignment of economic objectives with consumer safety requirements, facilitating the sustainable development of the agri-food industry and stimulating global trade in high-quality food products (FAO, 2019).

In the search for innovative models of food quality, design can be seen as a response from contemporary businesses to the demands of sustainable development, a topic explored in the article: **Pamfilie, R., Procopie, R., Bobe, M., Vişan, S. and Bumbac, R., 2013. Design: the answer of contemporary businesses to the requirements of sustainable development. *Amfiteatru Economic*, 15(Special Issue 7), pp.573-582.** The article addresses the essential role of design in reconfiguring contemporary businesses to meet sustainable development demands. Starting from the premise that in the context of accelerated economic, social, and environmental transformations, design is no longer merely an aesthetic element but a strategic factor integrated into innovation processes, the authors propose a conceptual model that places the consumer, the company, resources, and sustainable design at its core. The conceptual model illustrates how consumer needs and values, corporate strategies and objectives, efficient resource management (human, material, financial, natural), and the application of modern design methodologies (ecodesign, universal design, democratic design) can converge to create

innovative, socially and environmentally responsible products and services. The study, conducted on a sample of 147 young professionals specializing in business and design, supports the hypothesis that design decisively influences consumer preferences, stimulates innovation, and optimizes internal company processes. Moreover, the article highlights major barriers to the adoption of sustainable design in Romania, such as lack of funding, qualified personnel, and rigid corporate mindsets, suggesting the need for policies and investments in education and modern technologies. The authors emphasize that integrating design into business strategy is vital for sustainable development, generating competitive advantages, environmental protection, and a higher quality of life. Thus, the article provides a solid theoretical and practical framework, demonstrating that design is a key instrument in building sustainable businesses capable of successfully responding to the economic, social, and ecological challenges of the contemporary era.

Research on innovative models for food quality – at the confluence of the modern consumer and sustainable business represents the theme of another key article: **Pamfilie, R., Bobe, M., Cristescu, L. and Toma, M.A., 2016. Innovative Food Quality Models – Developed as an Interface for Modern Consumers and Sustainable Business. *Amfiteatru Economic*, 18(43), pp.663-674.** The article analyzes the complex transformations of quality management in the food industry, driven by the evolution of global markets and the increasingly sophisticated demands of the modern consumer. The paper argues that the traditional paradigm of the commercial process “production – sale – purchase” is insufficient in the current context, necessitating the development of innovative quality models that simultaneously integrate consumer requirements and business sustainability objectives. The authors propose a consumer-centered conceptual model, developed within the context of research conducted in collaboration with Mondelēz International UK. The model emphasizes the essential role of food quality and safety management systems and the integration of product design as a key element for satisfying consumer preferences as well as meeting sustainability requirements. The article highlights that success in the global market depends on balancing the technical requirements of producers with consumers’ aesthetic and functional perceptions, including through the optimization of packaging and sensory product characteristics. The case study conducted in the chocolate industry demonstrates the importance of critical product attributes for consumer satisfaction. The paper proposes a transversal quality management model that transforms consumer feedback into technical specifications, facilitating a continuous process of improvement and innovation, essential for developing a sustainable business. By integrating consumer preferences into product design and adapting to

international standards, companies can gain competitive advantages, increase customer loyalty, and improve market positioning. Thus, the article makes a significant contribution to the specialized literature by proposing a conceptual framework that unites food quality and safety management, product design, and sustainability, offering a practical model applicable in multinational companies to optimize food quality in line with the expectations of modern consumers.

Section II of the thesis is devoted to the candidate's academic career development plan and presents essential elements regarding professional evolution, scientific contributions, academic recognition, as well as future development directions. Relevant aspects of the professional activity are highlighted, including the studies completed and the uninterrupted teaching career spanning over two decades within the faculty and department. The main scientific contributions are detailed, reflected in published works, scientific communications, and participation in research projects. Professional prestige is supported by membership in specialized organizations and associations, as well as distinctions received for teaching and scientific activity. The section concludes with the presentation of strategic directions for developing the academic career, in accordance with the assumed academic and research objectives.

Section III of the thesis includes a extensive selection of bibliographic sources, reflecting the candidate's concern for the timeliness and relevance of the research topics addressed. These include Romanian and international works, in print and digital formats, used both for documentation in teaching activities (preparation of courses, seminars and development of research topics), as well as for the theoretical foundation of the candidate's publications and scientific communications. The presence of numerous recent sources, especially from foreign literature, confirms the candidate's commitment to scientific novelty and academic rigor.