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In the context of the current economy, agriculture faces significant imbalances both in terms of diversity policies about regarding the fulfillment of requirements of the food and mainly with aspects of quality assurance in the food resources, against the backdrop of a predictable food crisis.

Globalization and integration of increasingly sharp agro-food markets raise an issue on the need for increasingly high insurance amount of food for the population that is in continuous growth.

Agro-food stood at a large confrontation of two big currents which were contradictory and of different intensities. In this context, a first current aims to increase the capacities of production of agro-food by promoting new technologies and techniques of genetic modification and creation of MGO, much more resistant to weather phenomena and, thus increasing productivity. At the opposite pole are the promoters for organic farming and environmental friendly production systems, which emphasize the need to promote more sustainable agriculture, despite relatively low levels of productivity.

If the first current greets more criticism in terms of achieving the environmental requirements and their inadequate of classical production models, the second current is seen forced to find solutions to the increasing production level and lack of suitability for the needs of the increasing growth of food consumption.

Agriculture defines itself through a global system of production based on exploitation and responsible management of natural resources available or attracted, and imposes strict limits on specific methods in the use and promotion of methods, techniques or drugs and chemicals that may taint the classical pattern of agro-food production. At the same time some aspects such as the use of mineral fertilizers or prohibition, as appropriate, to promote the production of genetically modified organisms define topics of wide debate in academia.

Agriculture and agricultural production model takes into account aspects related to both of the physical environment in which it takes place and the social factors associated with rural communities and of the system of production used. In this context stands a new form of production which requires a more comprehensive vision about the issues regarding the food production, science, and engineering, which takes into account the size of the socioeconomic, political and socio-cultural agricultural systems in their entirety.

The implementation of quality standards for organic production, demanding specific researches on food science production and engineering, or as appropriate, establishment of strict rules of production with a higher degree of severity which can protect consumers of production practices that harm the environment or can alter and can infuse an increased confidence which can justify conventional level of prices of agricultural products. However, there must be omitted the fact that recent developments in

the field of food science, production and engineering put to trial the very existence of the classic model of agricultural production.

The current status of the world economy evolution has proved that in the near future the food science, production, and engineering have to be redesigned and developed in order to answer a great challenge that the world confronts – the lack of food systems sustainability and the food crisis. In order to achieve competitive results the subject has to be addressed in a proper manner. Therefore, it is important to understand how the area research on food science, production, and engineering can be enhanced at various levels in contemporary economies. In the fields of food production systems, food economics and sustainable development exists a need for an edited collection of articles in this area.

Issues regarding the food science, production, and engineering are increasingly caused by mutations occurring in the European agro-food model, confronted with a large change of the paradigm.

Agriculture, especially aspects relating to the need to ensure a sustainable production of food, is most often linked to the concept of sustainable development, which is increasingly relying on generation of economic growth whilst still protecting the environment and assuring food safety and security. For defining some secure methods of promotion of food science, production and engineering are advertised the providing of resources beyond classical level, and from this perspective, it takes the need of intervention of some green entrepreneurs who angels to use classic resources which are available in terms of agricultural competitive advantage in highly competitive markets.

Such research on food science, production and engineering are driven not only by agricultural entrepreneurs and food multinational companies who are utilizing agricultural factors as their competitive advantage in the open competitive markets. They not only consider the lack of researches on food science, production and engineering, as the main factors in the consideration of production and supply model with food resources, but also as opportunities in modeling consumer behavior and its orientation towards such products.

From this perspective the optimal combination in food science, agricultural production and engineering involves a process of both insurance of a sustainable consumption, especially to ensure the promotion of an innovative insurance and diversification of agro-food production methods and to shape a sustainable economic model in the changing world.

The international market of agricultural products is booming and the demand for high agricultural products and is highly dependent on the country availability for production. Over the last decades it developed into a popular alternative of consumption of harmful products, containing quantities of pesticides or being the results of the food cloning. Moreover, awareness of green agricultural production and interest of consumption of green products are growing internationally and for this reason the need for developing sustainable technologies regarding the research on food science, production, and engineering is more actual than ever and impose both administrative and policy measures. In this context the research on food science, production and engineering developments and investments on competitive markets are the most valuable research fields and the need for finding proper solutions and for reaching to pertinent conclusions is more than necessary. However, research on food science, production and engineering to date has been upon agricultural policy aspects, neglecting wider economic and social contexts within which they operate as necessity for developing green technologies, sustainable agricultural policy and investments and the examples could go further.

Handbook of research on food science, production and engineering is intend to be a continuity of my past research projects and books published at IGI - Sustainable Technologies, Policies and Constraints in the Green Economy, and the current one - Green Economic Structures in Modern Business and

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Society, which presents some of the most controversial aspects regarding the green economics model of agriculture and agricultural policies and investments. By its manner, Handbook of research on food science, production and engineering tries to provide some holistic approaches regarding the agricultural models and production practices, as a specific organizational model in highly competitive economy in its path of adapting to the new developing paradigms on food policy and agricultural production. As a short definition of the subject area, the research subject addresses to a very actual and full aspect debate of research on food science, production and engineering and the modern paradigms as actually is perceived in modern economies.

This book aim is to provide relevant theoretical frameworks and the latest empirical research findings in the area of research on food science, production and engineering. It was written for professionals who want to share from their expertise, improve the findings and disseminate relevant information and also in the field of food science, economics, production and engineering in the context of the new research framework.

The book addresses these wider networks of support and answers to such concerning subjects such as how to ensure qualitative research on food science, production and engineering, attract agricultural investments, succeed on high-competitive agricultural markets and consider climate changes and restrictions, sustainable consumption, rural communities and environmental constrains for more environmentally friendly agricultural products and services.

From this perspective the main objectives of the Handbook of research on food science, production and engineering were:

- To create a reference for practitioners, students, professors in field of research on food science, production and engineering;
- To present the newest findings in the field of food science and agricultural production;
- To provide a platform for research on food science, production and engineering;
- To create a working paradigm regarding the food production systems;
- To create a reference for students, practitioners and academia ;
- To provide a theoretical framework;
- Designing empirical research findings on research on food science, production and engineering.

The target audience of this book is composed of professionals and researchers working in the field of Food science, economics, production, and engineering. Moreover, the book will provide insights and support from practitioners and academia in order to highlight the most debateful aspects in the field.

In this context the book chapters analyze specific aspects and suggest solutions regarding the research on food science, production and engineering in contemporary economy. The main topics of book include aspects as:

- Best practices in refrigeration
- Business investments strategies
- Consumption models
- Customer perceptions of dark-dining
- Ecological products
- European agricultural economy and common agricultural policy
- Food consumption patterns

- Food cultural values
- Green supply chain management
- Health determinants
- Management of production structures
- Meal experience
- Organic food associations
- Patterns of food and health consumer expenditure
- Practical guidelines on food manufacturing
- Rural communities
- Sustainable investments

The theme of research on food science, production and engineering has a definite impact on the field of research, since the major part is related to sustainable development of agricultural production through a range of activities, including production systems. The publication intends to become a continuation of my research of green economic structures in modern business and society by expressing a new dimension- research on food science, production and integrate systems.

Handbook of research on food science, production and engineering brings together a wide range of studies in the said field, being written by researchers and academics specialized in the field, hence from this perspective the degree of addressability of the work is very varied and meets in high specific demands in this field.

The contributors are successful in addressing the wide variety of theoretical aspects and revile opportunities for a researcher to go green. The publication describes different aspects on research on food science and agricultural production including technologies and systems, addresses where farmers and investors can find ideas around which to build a functional idea and how develop sustainable agricultural strategies, emphasizes aspects unique to the food consumption patterns and offers practical guidelines on food manufacturing or details about ecological products.

However, equipping food producers or farmers with the tools and knowledge to fully appreciate the challenges of developing agricultural business, it does not contain deep theoretical approaches to long-term sustainable development of green agricultural policy and system and agricultural economy in general, which may be applicable to the wider international society of researches, policy makers and funders of research on food science, production and engineering programs.

The book includes studies on food science, agricultural production and policies and how they differ from other countries. Case studies are also featured; these give examples of both successful and unsuccessful food policy production strategies and connected aspects. Contributors explain the idea of “food science research and agricultural production”, how the system works and what lessons can be learnt from the countries and research experiences.

The advantage of the Handbook of research on food science, production and engineering is its international dimension. With contributions from researchers on different countries this book examines the food and agricultural research play in the adoption of sustainable practices. The idea was to utilize such an international approach and see how the research practices differ in various countries, how green agricultural markets operate, and what opportunities of sustainable agricultural policies and investments exist in those competitive markets.

Handbook of research on food science, production and engineering is structured in 17 main chapters with representative titles, as following:

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Chapter 1 called “Trends and transformations in European agricultural economy, rural communities and food sustainability in context of new Common Agricultural Policy” is written by me and Ms. Alexandra Alecu (Petroleum-Gas University of Ploiesti, Romania) and consists from an integrative analysis regarding the transformations of European agricultural economy, rural communities and food sustainability in context of Common Agricultural Policy (CAP) reforms which it represents an important research topic in the context of EU-28 policy diversification from the larger context of Romanian approach

Chapter 2 concerns about a sustainable management approach from “Working with People” model and it is written by a group of contributors from Spain (Ignacio De Los Ríos Carmenado, María Rivera Mendez and Carmen García Ferrer from Universidad Politécnica de Madrid) and Mexico (Hilario Becerril Hernandez, Colegio de Postgraduados de México) The authors argue that to assure the sustained success of an agrarian organization from an integrative perspective a senior manager is required, managing interrelationships in a balanced way between the dimensions afore mentioned: ethical-social, political-contextual, and technical-entrepreneurial. All these aspects needs a major aspect of planning and the development of skills must be promoted for project management.

In the third chapter, PhD Adrian Stancu from Petroleum-Gas University of Ploiesti, Romania develops an analysis regarding the correlations and patterns of food and health consumer expenditure. The goal of the chapter assumed by the contributor was is to underscore the correlation between food consumer expenditure and health goods and services consumer expenditure for 71 countries from North America, South America, Europe, Africa, Asia and Australia. The contribution represents an original contribution in the field being among the first in the field by dimensions and instruments employed.

In Chapter 4 is highlighted the role of irrigation in the development of agriculture, by presenting a study case related to the Srem District in Serbia. The authors (PhD Vesna Popović, PhD Jonel Subić, PhD Nataša Kljajić) are researchers from Institute of Agricultural Economics, Serbia with large experience in the research field. They authors of the chapter analyses the structure of agricultural production in the Srem district in Serbia and its market potentials as well as the economic effects of irrigation in light of the planned integral irrigation system construction in the Srem district in order to reflect economic benefits of irrigation and its role in the development of agriculture.

Chapter 5 presents a suitable approach to multiculturalism and interculturality from the perspective of food cultural values and it is written by PhD Gafu Cristina and PhD Cristina Iridon, from Petroleum-Gas University of Ploiesti, Romania. The authors provides an interesting experiment originated from the necessity of improving the classic way of teaching Romanian culture and civilization from the perspective of food cultural values.

In Chapter 6 it is analyzed the evolution of Romania’s Agricultural Resources in the Context of Sustainable Development and it is written by prof. PhD Lazar Cornel and PhD Assoc.prof Lazar Mirela, from Petroleum-Gas University of Ploiesti, Romania. In the chapter the contributors has analysed the evolution of Romanian agriculture in the context of sustainable development’s objectives, through the resources available in this activity: land, technical means, human resources and financial resources. In doing so, we considered an analysis of the agricultural real estate, labour force, investments and loans used in agriculture on the period 2008 – 2014.

Chapter 7 concerns of some aspects on developing Students’ English Language Skills and Cultural Awareness by Means of Food Topics. The authors (PhD Mihaela Badea and PhD Diana Presada - Petroleum-Gas University of Ploiesti, Romania), pointed out the fact that food topics can provide a suitable framework in order to develop complex aspects of English language acquisition at different levels. By

emphasizing the relationship between theory and practice, it focuses on major instructional goals such as skill-development, vocabulary enrichment and cultural awareness.

Chapter 8 contains a contribution regarding the perception of Romanian consumers on ecological products. The authors (PhD Violeta Sima and PhD Gheorghe Ileana from Petroleum-Gas University of Ploiesti, Romania) points an investigation on perceptions and attitudes of Romanian consumers about organic products, in order to study the connection between knowledge and attitudes of consumers and their place in purchase decision-making system to understand their behavior toward organic food. The authors identified a number of 17 relevant studies performed in Romania in order to help them substantiate their work.

In Chapter 9 is written by PhD Stuart Lawton from Angell Akademie, Freiburg in Germany and it deals with an actual research subject as the exploring the meal experience: Customer Perceptions of Dark-Dining. He argues that conclusively, despite the effects of the meal experience in a light restaurant, customers re-discover their senses in a dark restaurant. In conclusion, it remains questionable whether repeat business will occur due to post-experienced, preserved and prolonged perceptions.

Chapter 10 consists from an analysis regarding the food consumption expenditure and standard of living in Romania. The authors (PhD Marian Zaharia, Petroleum-Gas University of Ploiesti, Romania and PhD Rodica-Manuela Gogonea, Academy of Economic Studies, Bucharest, Romania). In this chapter the trend assessment in time (2001-2014) and space (on both residence areas and at macro regional level) of the average monthly expenditure for the 13 food products mentioned in the analysis, led to the conclusion that the costs needed for purchasing food products are the result of a strong link between living standards and economic growth.

Chapter 11 presents the characteristics for the development of agriculture and agricultural policy southeast European countries. The authors (Zoran Simonovic and Predrag Vukovic, from the Institute of Agricultural Economics, Belgrade, Serbia) emphasize that the further development of CAP in many ways depended on negotiations with the countries of Southeast Europe. Some of these countries are already in the EU`28 and some candidate countries which are at different levels of negotiation with the EU`28. Southeast European countries are basically agricultural country with low productivity and low prices of agricultural products to be completely restructured.

Chapter 12 offers practical guidelines regarding the sensory evaluation in food manufacturing. Mr. Bogdan Florin Caliman (Unilever South Central Europe, Romania) and PhD Corina Ene,(Petroleum-Gas University of Ploiesti, Romania) aims to share some practical guidelines on how to manage when dealing with a bigger kitchen, as in food manufacturing there is always the need of having a systematized sensory evaluation.

Chapter 13 analyzes a complementary connected subject as the youth employability in WB countries. The authors ask whether those countries can look up to youth in developed countries. The authors (PhD Jovan Zubovic and PhD Dejana Pavlovic) are experienced researches form Institute of Economic Science, Serbia and it presents a very actual research subject as employment is for the contemporary economies.

In Chapter 14, contributors (PhD Kijpokin Kasemsap from Suan Sunandha Rajabhat University in Thailand) present the multifaceted applications of green supply chain management. He argues that the multifaceted applications of GSCM have the potential to enhance organizational performance and gain sustainable competitive advantage in global supply chain.

Chapter 15 has as main aim the modality of showing how Serbia and EFTA contributes to trade of agro industrial products. The authors (PhD Boris Kuzman, Institute of Agricultural Economics, Serbia and Mr.Milan Stegić, University of Novi Sad) argue that considering that analysis on trade relations

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between Serbia and the EFTA have not been published, the importance of this study arises from the need to identify the effects of application of the FTA. Analysis focuses on agro-food products, for the period 2004-2013.

In Chapter 16, PhD Zaharia Marian, Petroleum-Gas University of Ploiesti, Romania and PhD Aniela Balacescu, “Constantin Brâncuși” University of Târgu Jiu, Romania) develops a framework regarding food consumption patterns in Romanian economy. The authors shows that emerges from analysis of the evolution of annual average consumption per capita, recorded in the period 1990 - 2013, at main food categories, is that of the five product categories analyzed the consumption of meat and meat products and the consumption of milk and dairy products per capita in equivalent were much more influenced by the evolutions of the level of living standards than other categories of food products.

The final chapter of the book deals with the health determinants from the perspective of nutrition related facts. PhD Mihaela Cristina Drăgoi from Bucharest University of Economic Studies, Romania aimed in this last chapter to emphasize the impact of nutrition on individual and societal health using a varied range of indicators regarding food consumption habits among various populations of the EU Member States within the wider context of economic development (GDP/capita, Actual Individual Consumption, access to basic utilities – drinkable water and sewage systems, standards of living).

During the reading of chapters mentioned above, readers can discover approaches complex theoretical issues of agro-food production from the perspective of more extensive agricultural policies, consumer behaviour, technologies and ancillary systems security used in the field that shows the need for a more integrative approach to these issues.

Handbook of research on food science, production and engineering tries to be set up in a work of reference for this area with wide-ranging implications both theoretical and practical, outlining more and more the need for adoption and application of integrative policies in this field.

The editor is highly confident that Handbook of research on food science, production and engineering will stir a scientific interest for understanding the complex issues of food production and agricultural policy and systems through the book pages and it will represent a turning point for future researches in the field.

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