

Article

Analysis of new trends in the food sector, with a focus on food of animal-origin

Lika ARBOLISHVILI¹ (Georgia)
Viktoria VIDA¹ (Hungary)

Abstract: The paper focuses on the increasing number of new trends in the food sector, specifically animal-origin food and their alternatives, driven by different factors, such as, health considerations, environmental sustainability, evolving taste preferences, etc. The objective of the study is to examine the impact of changes in dietary preferences and motivations on the consumption of new trends in food, animal-origin food, and their alternatives. Our aims are to evaluate the impact of the health considerations in shifting trends of new foods like plant-based diets and alternative protein sources and to investigate the environmental sustainability of these new food trends, potential to reduce the carbon footprint of the food industry. Additionally, the study's aims to investigate how technological advancements affect the production and distribution of animal-origin food alternatives and their acceptance by consumers. This examination considers both the benefits and potential challenges associated with these developments. The study includes the quantitative research structured into multiple-choice questions to gather insights and perceptions among the group of respondents regarding current trends in food, animal-origin food, and animal-origin food alternatives. The online survey questionnaire consist of 110 members and the data analysed with the SPSS software. A substantial quantity of data was utilized when researching, comparing, and creating this study. Among these was a questionnaire study of the new trends in food, focusing on animal-origin food alternatives around the world.

Citation: Arbolishvili L., Vida V. (2023). Analysis of new trends in the food sector, with a focus on food of animal-origin. *Cross-Cultural Management Journal*, XXV, Issue (2/2023), 113-124.

Received: 28 September 2023

Revised: 07 December 2023

Published: 08 December 2023



Copyright: © 2023 by the authors. Published by SEA Open Research.

This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

Keywords: food sector; food trends; animal-origin food; animal-origin food alternatives;

Classification-JEL: Q13, L66

¹ University of Debrecen, Faculty of Economics and Business
The country of origin of each author is specified in parentheses

INTRODUCTION

Food is available to many people around the world on a daily basis, the consumers in developed countries benefiting from the widest possible choice of quality food (Bartha et al., 2009). However, food is not available to all, as not all countries have sufficient quantities and quality of food, leaving some populations hungry and causing socio-economic problems in other parts of the world (Vida, 2013).

Nowadays, advancements in technology, emerging trends, and shifting preferences have affected everything around us, including the food sector. The practices that generations decades ago had are very different from the current ones. The circumstances have exceedingly adjusted as a result of the notable developments in civilization, manufacturing, scientific progress, mechanization, economic growth, and advancements in human welfare. The footprint of these changes is reflected in every aspect of the food sector. From how we manufacture and gather crops to the way we raise and supervise livestock, and from the technologies that enable systematic distribution and transportation to the choices we make as consumers.

These transformations go beyond the aspects of production and consumption; they also influence our relationship with food. Our perception of food, its origins, and its significance in our lives has undergone a transformation. Food nowadays is more than just nourishment; it reflects our values, signifies our identity, and showcases our dedication to environmental progress and sustainability (Monterrosa et al., 2020).

Currently, our planet faces challenges very familiar to our generation: climate change and deforestation. These challenges have resulted in a growing demand for food production methods that cause minimal harm to the environment and local communities. The adoption of more sustainable diets could lead to an 80% reduction in greenhouse gas emissions (Hobert - Negra, 2020).

Profound changes in food production, consumption, and values have given rise to new trends in the food industry. When entering the supermarket, customers often encounter dedicated sections for 'bio' or 'green' products, illustrating the integration of these trends into everyday consumer experiences. As more and more people nowadays decide to change their dietary preferences in order to live healthier and longer lives, the demand has led to the creation of new products consumed by millions of people nowadays, as customers seek to try something different, something better, and something healthier.

In recent years, meat consumption has increased throughout the world, and customers now have access to a variety of meat products (Predanócyová et al., 2023). For example, over the last 50 years, meat consumption has risen worldwide. Research conducted by Chitra, (2021) predicted that the demand, for animal products, will rise by 2050, mainly, because of the to several factors: economic development, urbanization, and an expanding middle class in many countries.

The supply of meat and the size of the livestock population are strongly related concepts with intense implications for the environment, economy, and food security. This indivisible relationship forms a demanding connection in the food supply chain, where every change reverberates through various sectors. Besides, meat production is a component that crucially contributes to food security, improved nutrition, poverty depletion, and economic development.

Another pressing issue that has profound implications for our world is climate change - the greatest challenge of our century (WHO, 2018). Many factors are involved in causing climate change, but some scientists think that animal husbandry also plays a significant role in biodiversity loss and deforestation, because ruminant animals (sheep and cows) have four stomachs and digest fibrous, tough food, like grass, which emits methane, a greenhouse gas that is 30 times more powerful than carbon dioxide (CO₂).

In general, the agricultural sector has become increasingly energy consuming, mainly because of the mechanization process (Dogan et al., 2016). Such increased energy consumption in agriculture has resulted in a shortage of arable land. Furthermore, resource depletion is a growing concern, and farmers nowadays are striving to adopt more sustainable practices and renewable energy sources, which can be recognized as a current trend in the animal farming sector. The shifting process to more sustainable approaches is primarily motivated by making a positive impact on the environment, lowering gas emissions, soil health, etc. (Muhie, 2022).

It is extremely important for governments to aid farmers and support them in transitioning towards sustainable animal farming practices in the event of financial difficulties. Subsidies for adopting eco-friendly methods are one of the solutions because they will ease the financial burdens related to the initial investment. Passing certain laws would also lessen the financial burdens related to the initial investment.

Another current trend in animal husbandry is precision livestock farming and technology

integration, which means using advanced sensor and analysis techniques to increase agricultural yields and support management decisions (Monteiro et al., 2021). Precision livestock farming is applied in animal farming nowadays. Its main purpose is to provide farmers with progressive, modern tools for controlling livestock by utilizing real-time and automated systems. This involves the supervision of animal productivity, environmental impacts, and the health and welfare of the animals, all discreetly and seamlessly (Berckmans, 2014). Besides, PLF (Precision Livestock Farming) systems have the capacity to expand farmers' revenue while simultaneously enhancing animal performance (i.e., the quality and quantity of the final output), soil health, pasture utilization, and management (Tzanidakis et al., 2023).

Balogh et al., 2021 conducted an economic and social research study that focused on finding economic and social barriers to precision farming in Hungary. The research included semi-structured interviews with farmers. A group of respondents considered that the main barrier to precision farming adoption is that farmers and entrepreneurs still do not know the benefits of precision technologies. Farmers with smaller farms are convinced that cooperation and farmers' collaboration would accelerate the spread of precision farming. Price is also a significant obstacle, particularly for farmers with smaller land holdings who are interested in precision technology. These farmers often choose to rent equipment because they believe that the size of their farms would considerably prolong the time it takes to realize a return on investment. Moreover, while precision farming and technology integration are revolutionizing animal farming practices, it is crucial to acknowledge the broader context of our food choices and consumption habits.

Indeed, consuming meat has been a desired way to enjoy a delicious and nourishing meal in the majority of cultures (Ederer et al., 2023). The culture, the religious affiliation/ identity is basically determined by the food and consumer habits, too. Religious groups have independent beliefs, attitudes, and rules. Some religious restrictions have a significant impact on food consumption (Vida and Szűcs, 2020).

The utilization of meat holds substantial importance nowadays (Nungesser et al., 2021). Recent tendencies toward environmental worries and veganism about animal-based products have led to a significant market expansion for plant-based goods such as bean-based burgers, patties, fried balls, and milk substitutes.

Alternative protein foods, veganism, and vegetarianism are strongly connected concepts.

Vegetarianism involves avoiding animal-derived foods, particularly animal flesh, while veganism takes this further by bypassing all animal-origin foods, including meat, dairy, eggs, and honey (Robinson, 2023). Veganism has grown significantly and has gained more attention recently. Vegans often replace traditional animal-based protein sources with alternatives like plant-based proteins and meat substitutes. Vegans mostly tend to replace traditional animal-based protein sources in their diet with alternative protein meals, including plant-based proteins and meat alternatives.

There are some current trends in this lifestyle, for example, vegan cheese and dairy food alternatives. There has been a growing demand for products that also contribute animal well-being, which has raised interest in some vegan alternatives, within the industry (Domínguez-Narváez et al., 2020).

Fehér et al., 2020 in their review mention that in the context of plant-based diets, including vegetarianism, the primary obstacle to adopting a vegetarian diet for some individuals is the pleasure derived from consuming meat and the challenge of relinquishing that enjoyment. Following closely as the second most common hindrance are health-related considerations, with nutrient deficiencies, such as the absence of essential vitamins, being the most frequently cited concern. The article presents the example of a small group of Hungarian consumers who are showing a growing interest in plant-based diets, in line with global trends (the research is not representative).

Indeed, plant-based alternatives to meat has been under consideration in previous years, but they have more recently garnered significant attention in both research and development within the food industry (Imran & Liyan, 2023), meaning there is currently an increasing trend in the consumption of meat alternatives. It is an advantageous solution for the environment because it offers the ability to minimize land use, water use, and greenhouse gas emissions. The texture and savory flavors of meat are imitated in these products by combining a vast number of plant-based ingredients with meticulous processing and mixing, including soy, wheat, peas, mushrooms, and legumes.

There are many dishes (pasta, salads, sandwiches, burgers etc.) that are already found to be plant-based substituted and are available on the food market. There is practically every form of meat imaginable already substituted by plant-based meat products.

Eating organic food has become 'trendy', especially among younger generations, as part of their lifestyle that focuses on health and wellness/wellbeing (Kiss et al., 2015). Both our present and our future are shaped by health and environmentally conscious

consumer groups, which the literature calls LOHAS (Lifestyle of Health and Sustainability) groups (Kiss et al., 2018).

The ethical concerns associated with environmentally conscious consumer behaviour do not affect the consumption of poultry meat (especially chicken meat), which is one of the meat types with the lowest emissions, making it a favourable alternative for conscious consumers and flexitarians (Vida and Szakály, 2023).

One of the solutions for sustainable food production and consumption could be shortening the supply chain, as the shorter the product's journey, the less waste is generated (Vida et al., 2022) and we could reduce the environmental burden and the amount of pollutant materials too.

MATERIAL AND METHODS

The survey questionnaire employed in this study was designed to gather insights and perceptions regarding current trends in food, animal-origin food, and animal-origin food alternatives. The questionnaire was structured into multiple-choice questions as well as it includes Likert scale items to measure agreement levels. The study is quantitative. Numerical data is the essential part of the research, which aims to uncover patterns, trends, and relationships among participants and their dietary preferences. The survey also includes various attitudinal, demographic, and behavioral questions. We aimed to capture participants' preferences, behaviors, and motivations regarding new trends in animal-origin food alternatives. For legal consent, ethical considerations, and data privacy only people over 18 could participate.

The survey consists of 110 members, 68 women, 42 men. The survey members were also asked their age, in the 18-24 age group were 59 people. The next age group (25-34 years) included 11 people. In the 35-44 years age group were 13 people, 17 people in the 45-54 years age group, and in 55+ years group were 10 participants. People were participating from all over the world.

The survey was online and shared through social media channels in order to involve as many individuals as possible. In order to encourage participants to provide honest and straightforward responses without fearing any tension – the questionnaire was anonymous.

After a substantial volume of data had been gathered, it was transformed into Microsoft Excel and then imported into IBM's SPSS (2017) for extensive analysis. These software tools are widely recommended and frequently used among statistical

experts and professionals as the preferred means of analysis; they are decent and valid.

RESULTS AND DISCUSSION

The frequency of conventional animal food consumption among the surveyed participants is summarized in Table 1, providing valuable insights into their dietary habits. Table 1 shows that the 43.6% of the respondents consume animal food in a daily basis, and 29.1% several times a week. So, we can conclude that 72.7% of the respondents consume food with animal origin daily/weekly basis. 3.6% of the participants never consume any food with animal origin. The other answer was several times a month (11.8%) and rarely (7.3%). It can be because the different dietary culture of the nations.

The next question was about the level of familiarity within the participants with current trends in animal-origin food alternatives, providing insights into their awareness of evolving dietary choices. The respondents are mainly familiar with the new trends (73.6%), while a smaller portion (26.4%) indicated that they are not familiar with them.

The cross-tabulation in Table 2 presents region of residence of participants' and their familiarity with new trends in food, specifically focusing on animal-origin food alternatives.

We asked from the respondents that are they aware of new animal-origin food alternatives. Altogether 11 respondents do not hear about this topic, but the others mentioned mostly (it was also possible to indicate several possible answers to this question):

1. Dairy-free milk alternatives (indicated by 69 respondents)
2. Plant-based meat substitutes (indicated by 65 respondents)
3. Organic & grass-fed products (indicated by 42 respondents)
4. Insect-based protein (indicated by 27 respondents)

The information from the questionnaire presents an overview of whether the participants are aware of new animal-origin food alternatives, providing insights into their knowledge of evolving dietary choices.

Then we asked of whether participants had experimented with new animal food alternatives with the next question. The answer was divided, 55.5% of the respondents answered yes, and the rest do not experiment with new foods of animal origin.

With the next question, we summarize the motivations behind the consideration of new animal-origin food alternatives among the surveyed participants, providing insights into their reasons for exploring these dietary options (it was also possible

to indicate several possible answers to this question). The answer options and the answers were the following:

1. Health and nutrition (indicated by 52 respondents)
2. Ethical reasons (indicated by 47 respondents)
3. Curiosity and experimentations (indicated by 39 respondents)
4. Environmental sustainability (indicated by 31 respondents)
5. Religion (indicated by 1 respondent)
6. Price (indicated by 1 respondent)

We can conclude from the answers that the respondents are mostly interested in new foods of animal origin for reasons of healthy nutrition, ethical considerations, curiosity, or environmental concern. After that, we also asked what the reason for the rejection was. During the questionnaire, it was also possible to indicate several possible answers to this question. The answer was the following:

1. Lack of availability (indicated by 32 respondents)
2. Lack of information about the nutritional benefits (indicated by 27 respondents)
3. Uncertainty about safety and health impacts (indicated by 24 respondents)
4. Taste preferences (indicated by 20 respondents)

Based on the answers, we can conclude that the respondents do not consume these new animal origin foods mostly due to health and food safety concerns. In the questionnaire, we asked the participants willingness to switch to animal-origin alternatives if they were widely available and competitively priced compared to conventional animal-origin food (Table 3).

In the Table 3 gives an insight into the readiness of the participants to switch to animal-origin alternatives when these options are widely available and competitively priced compared to conventional animal-origin foods. The results shows that half of the participants are neutral with this question, so open to the idea, a considerable number remain undecided, and a smaller group appears less inclined to make the dietary shift (Likely: 30.0%, Neutral/Undecided: 50.0%, Unlikely: 20.0%)

In the questionnaire, we have a statement ('promoting plant-based or alternative protein sources significantly contributes to environmental sustainability') and the respondents could express their agreement or disagreement with the given statement. 43.6% of respondents are neutral or undecided on whether to promote plant-based foods for environmental sustainability. 41.8% of respondents agree with promoting plant-based foods for environmental sustainability. The results are in Table 4.

A Chi-Squared Test for Independence was conducted to investigate the potential influence of

gender on dietary choices. This test helped the author to determine if there is a significant association between gender and the frequency of consuming conventional animal-origin food products.

Cross tabulation allowed to analyse and visualize associations or patterns between two categorical variables (Table 5.).

The following Table 5 represents a look into a chi-squared test for independence between gender and frequency of consuming conventional animal-origin food products.

The p-values for both the Pearson Chi-Square and Likelihood Ratio Chi-Square tests are greater than the significance level 0.05. It means that there is no adequate proof to reject the null hypothesis, therefore it can be assumed that there is no statistically significant connection found between gender and the frequency of consuming conventional animal-origin food products in this database. To put forward, based on the data and the study conducted, gender does not appear to influence how frequently individuals consume conventional animal-origin food products in the studied population.

Table 6 is a Chi-squared test for Independence between age and familiarity with new trends in animal-origin food.

The Chi-Squared Test for Independence, investigating the potential relationship between age groups and familiarity with emerging trends in animal-origin food. Based on the data and the analysis performed, age does not appear to influence the level of familiarity with new trends in animal-origin food alternatives in the studied population.

The Table 7 presents a cross-tabulation that explores the relationship between participants' level of awareness regarding specific new alternatives in the realm of animal-origin foods and whether they have ever tried them.

Table 8 offers a cross-tabulation that investigates the relationship between participants' level of awareness regarding new alternatives in the domain of animal-origin foods and their intention to switch to these alternatives.

Table 9, presented here offers a cross-tabulation of two key factors: whether participants are familiar with any new trend in animal-origin food and their willingness to encourage family and friends to consume it. Those who are familiar with new trends in animal-origin food alternatives tend to consume conventional animal-origin food products less frequently compared to those who are not familiar. Among those who are familiar with new trends ("yes"), the majority (37 out of 81) are willing to

encourage their friends and family to consume animal-origin food alternatives.

In order to gain an extensive understanding of diverse dietary choices, we decided to explore and compare author's survey results with research findings from certain studies. We chose one of the essential ones: motivations that define our dietary shifts. I decided to compare a qualitative examination titled "A qualitative examination of the motivations behind vegan, vegetarian, and omnivore diets in an Australian population" in Table 10 by North et al., (2021).

As there were no participants from Australia in the survey, we found it even more noteworthy for me to compare their motivations with this article's findings. We can conclude, both studies recognize the diversity of motivations that can drive dietary choices. In the comprehensive analysis of dietary motivations from two datasets (our findings and the research provided), once again, it becomes clear that certain motivations go beyond demographic boundaries and persevere as common driving forces behind dietary choices. Notably, environmental sustainability emerges as a compatible motivator in both datasets, with 43% of participants in the suggested research and almost 30% in our findings recognizing it as a crucial factor in their dietary choices. Similarly, ethical considerations concerning the depletion of animal exploitation are widespread in both studies highlighting a shared ethical attitude disregarding their dietary preferences. Moreover, the significance of health and nutrition as motivators for dietary choices reverberates strongly between both datasets, which recognizes the health benefits associated with certain dietary decisions. This comparison between the two findings, underscores, once again, the significance of ethical, environmental, and health-related factors in shaping dietary choices, representing a substantial percentage of participants, and highlights the need for a holistic approach to understanding the multifaceted nature of dietary motivations.

The largest number of participants are from the age group of 18–24 years. This age group shows a remarkable consumption of conventional products because a majority reported that they consume animal-origin food daily. Therefore, young adults in this survey sample, tend to have diets that include a higher proportion of animal products. Given the prevalence of daily consumption of animal-origin food products among young adults, especially in the 18-24 age group, it is recommended that educational campaigns and interventions be designed to promote healthier dietary habits within this demographic

(Balogh, 2010). These initiatives should emphasize the benefits of a more balanced and sustainable diet. Another noteworthy finding is that a higher proportion of females have reported trying new trends in food and animal origin alternatives compared to males, which means that, among the surveyed population, a more significant percentage of males have not yet experimented with these alternatives. Indeed, both genders showed a willingness to explore new trends in food, including animal-origin food and their options, with 61 respondents declaring that they have tried such products. This finding suggests an overall openness to dietary experimentation within the surveyed population. To bridge the gap in the adoption of new food trends between genders, it is advisable to create inclusive strategies and campaigns that target both males and females, encouraging them to explore and experiment with alternative food products.

The research findings also highlight certain regional differences in dietary habits. Europeans reveal a higher propensity toward daily consumption of conventional products, while other regions dismantle more various consumption patterns.

Respondents who are familiar with new trends are more likely to express a readiness to switch to new diets if they are widely accessible and competitively priced. Among those participants that are familiar, a larger part indicates that their position regarding switching to new diets is neutral or that they have no clear considerations yet whereas, a smaller part of participants is unlikely to do so. Policymakers, food industry stakeholders, and retailers should work together to increase the availability of sustainable food options in various markets and ensure that they are affordable for a broad range of consumers. Reducing price barriers can significantly impact the willingness to try new diets.

Among those who are "likely" to switch to new animal-origin food alternatives (33 respondents), ethical reasons and health and nutrition are the most significant motivations, followed by environmental sustainability. This suggests that a substantial portion of those open to switching are primarily motivated by ethical concerns and health benefits. The largest segment is the "neutral/ undecided" group (55 respondents), where the distribution seems to be more balanced, and health and nutrition are the most common. Given that ethical reasons and health and nutrition are strong motivators, it is advisable to emphasize these benefits in marketing and educational campaigns.

Familiarity with trends positively affects individuals' willingness to promote them in their social circles because, as my research shows, those

who are familiar are more likely to act as advisers of these products, indicating that awareness about alternatives plays a highly important role in motivation. Therefore, individuals should encourage their loved ones to make sustainable dietary decisions.

Among those who are familiar with new trends (81 respondents), there is a more extensive list of alternatives mentioned. The most common ones include plant-based meat substitutes (17 respondents), dairy-free milk alternatives (13 respondents), and organic and grass-fed products (11 respondents). This group is increasingly aware of the various food alternatives of animal origin. Among those not familiar with new trends (29 respondents), some have still heard of specific alternatives, such as dairy-free milk alternatives and organic and grass-fed animal products. Given that respondents who are familiar with new trends are aware of a wider range of alternatives, it is essential to expand the availability of these products in the market. It is also important to focus on ensuring that alternative products not only align with ethical and environmental principles but also meet high taste and quality standards.

Based on the data of the survey, the most common deterrents to not consuming new animal-origin food alternatives seem to be: lack of availability, uncertainty about safety and health impacts, lack of information about nutritional benefits, and taste preferences.

The cross-tabulation between region and respondents' level of agreement with the statement "Promoting plant-based or alternative protein sources significantly contributes to environmental sustainability" ensures perceptions of regional inconstancy in viewpoints towards the environmental advantages of plant-based and alternative protein sources among the surveyed population.

Respondents who consume conventional animal-origin food products daily normally express a noteworthy willingness to switch to new animal-origin food alternatives if they are commonly available and competitively priced. A remarkable portion of daily consumers fall into the "likely" category, indicating a willingness to make the switch. The readiness to switch to new diets differs across groups, recommending that individual dietary habits are involved in forming attitudes toward alternative food options. This finding underscores that there is substantial market potential for new animal-origin food alternatives among people who consume conventional animal products on a daily basis. The analysis reveals an effective and positive link between awareness of new trends in animal-

origin food alternatives and the willingness to advocate for these alternatives to friends and family. Those who are familiar with these trends are more likely to play a role in encouraging sustainable dietary choices.

Respondents who agree with the statement that promoting plant-based or alternative protein sources significantly contributes to environmental sustainability are more likely to express a willingness to switch to new animal-origin food alternatives. Those who disagree with the statement are divided between being neutral/undecided and unlikely to switch, with a significant portion falling into the neutral category. This indicates uncertainty or mixed opinions about the relationship between environmental sustainability and food alternatives among this group that could be solved by partnering with environmental organizations and experts to provide credible information on the environmental impact of dietary choices.

Ensuring safe sourcing, processing, and environmental conditions is very important because a lot of people harm their health by not having valid information about how to consume plant-based food. Governments and regulatory bodies should introduce stricter regulations and standards for the sourcing, processing, and labelling of plant-based foods. This will aim to guarantee product safety, prevent contamination, and ensure accurate nutritional information.

CONCLUSION AND RECOMMENDATION

One of the key objectives of the research is to find out individuals' motivations of shifting to new diets. The examination made it clear that concerns for animal well-being, including ethical considerations, awareness of environmental sustainability, health concerns, ethical and moral values, and taste, are the main motivations among people for changing dietary preferences and looking for alternative substitutes for animal-origin products. Besides, product-related factors such as price and quality influence the consumption of meat-origin food alternatives, but still, while the desire to try out new trends in food is rising, price remains a significant barrier, especially for consumers who are price-sensitive.

More and more people nowadays, for the above-mentioned reasons, switch their dietary preferences and become vegans or vegetarians. This shift has resulted in increased awareness about plant-based food. While it is important to understand certain potential nutrient deficiencies that this lifestyle may bring, it is also vital to acknowledge personal health

benefits like weight management, lower blood pressure, and cholesterol, or a reduced risk that they may bring. Research into the characteristics of individuals following vegetarian or vegan diets acknowledges a diverse demographic pattern.

The study underlines that these trends are not detached factors but rather fundamental parts of a rapidly evolving food system. The involvement of balancing sustainability, economic vital capacity, nutrition, and ethical considerations demands a unified approach. Policymakers, industry associates, and even consumers have to collaborate in order to shape a strong and responsible food system capable of dealing with current global challenges.

Based on findings, it can be assumed that as the current food trends are mostly related to health considerations and environmental sustainability these trends will continue to gain admiration among customers and shape the food industry. Plant-based diets, driven by concerns for animal welfare, sustainability, and health, will continue to grow, leading to a wider range of alternative protein products. Local and sustainable sourcing, eco-friendly packaging, and demographic diversity in veganism and vegetarianism will all persist. A balanced approach, involving collaboration between policymakers, industry players, and consumers, will remain essential for a responsible and resilient food system capable of addressing global challenges. These predictions are based on the trends and insights discussed, providing a clear vision of the industry's future.

REFERENCE LIST

- [1] Balogh V. (2010): Sertéshús fogyasztással kapcsolatos fogyasztói preferenciák, attitűdök elemzése az észak-alföldi régióban I. *Élelmiszer Táplálkozás és Marketing* 7(1) 27-31.
- [2] Balogh, P., Bai, A., Czibere, I., Kovách, I., Fodor, L., Bujdos, Á., Sulyok, D., Gabnai, Z., & Birkner, Z. (2021). Economic and Social Barriers of Precision Farming in Hungary. *Agronomy*, 11(6), 1112.
- [3] Bartha A., Balogh V., Nábrádi A. (2009): The current situation of Eu's food chain. A resilient European food industry and food chain in a challenging world. Book of Abstracts – European Association of Agricultural Economists in its series 113th Seminar, September 3-6, 2009, Chania, Crete, Greece.
- [4] Berckmans, D. (2014). Precision livestock farming technologies for welfare management in intensive livestock systems. *Rev. Sci. Tech*, 33(1), 189-196.
- [5] Chitra, P. (2021). Impact of Climate Change on Livestock Farming. *Epashupalan*, 2(7), 34-37
- [6] Dogan, E., Sebri, M., & Turkecul, B. (2016). Exploring the relationship between agricultural electricity consumption and output: New evidence from Turkish regional data. *Energy Policy*, 95, 370-377.
- [7] Domínguez-Narváez, V., Radice, M., Pérez, A., Bonilla-Pérez, A., & García Cáceres, M. (2020). Vegan cheese from *Lupinus mutabilis*: A preliminary study. *MOL2NET*, 6.
- [8] Ederer, P., & Leroy, F. (2023). The societal role of meat-what the science says. *Animal Frontiers*, 13(2), 3-8.
- [9] Fehér, A., Gazdecki, M., Véha, M., Szakály, M., & Szakály, Z. (2020). A Comprehensive Review of the Benefits of and the Barriers to the Switch to a Plant-Based Diet. *Sustainability*, 12(10).
- [10] Hobert, R., and Negra, C. (2020, September 1). Climate Change and the Future of Food. United Nations Found. <https://unfoundation.org/blog/post/climate-change-and-the-future-of-food/>
- [11] Imran, M., & Liyan, Z. (2023). Production of plant-based meat: functionality, limitations, and future prospects. *European Food Research and Technology*, 249(9).
- [12] Kiss, M., Kontor, E., and Kun, A. I. (2015). The Effect of 'Organic' Labels on Consumer Perception of Chocolates. *Annals of the University of Oradea Economic Science*, 24, 448-457.
- [13] Kiss, V. Á., Kiss, M., Popovics, P., & Szakály, Z. (2018). Examination of Lifestyle of Health and Sustainability market groups with particular focus on Hungary. In: Relationships on Food Markets – Consumers' Perspectives. Eds.: Gazdecki, M. and Goryńska-Goldmann, E., Poznań University of Life Sciences, Poznań, 76–86. ISBN: 9788371609220.
- [14] Monteiro, A., Santos, S., & Gonçalves, P. (2021). Precision Agriculture for Crop and Livestock Farming—Brief Review. *Animals*, 11(8), 2345.
- [15] Monterrosa, E. C., Frongillo, E. A., Drewnowski, A., de Pee, S., & Vandevijvere, S. (2020). Sociocultural influences on food choices and implications for sustainable healthy diets. *Food and Nutrition Bulletin*, 41(2_suppl), 59S-73S.
- [16] Muhie, S. H. (2022). Novel approaches and practices to sustainable agriculture. *Journal of Agriculture and Food Research*, 10, 100446
- [17] North, M., Klas, A., Ling, M., & Kothe, E. (2021). A qualitative examination of the

- motivations behind vegan, vegetarian, and omnivore diets in an Australian population. *Appetite*, 167, 105614
- [18] Nungesser, F., & Winter, M. (2021). Meat and social change: Sociological perspectives on the consumption and production of animals. *Österreichische Zeitschrift für Soziologie*, 46, 109–124.
- [19] Predanócyová, K., Kubicová, L., Pindesova, D. (2023). Understanding Gender Differences in Meat Consumption with an Emphasis on the Perception of the Quality and Health Aspect of Meat. *Journal of Microbiology, Biotechnology, and Food Sciences*, 12(6), e9886.
- [20] Robinson, E. (2023). Veganism and body weight: An N of 1 self-experiment. *Physiology & Behavior*, 114301. Volume 270
- [21] Tzanidakis, C., Tzamaloukas, O., Simitzis, P., & Panagakis, P. (2023). Precision Livestock Farming Applications (PLF) for Grazing Animals. *Agriculture*, 13(2), 288.
- [22] Vida, V. (2013). Consumer attitudes and preferences about the pork meat in Hungary (based on a cluster analysis). *Applied Studies in Agribusiness and Commerce*, 7(4-5), 151–158.
- [23] Vida, V., & Szűcs, I. (2020). Pork production and consumption issues from the perspective of the religion and the World's growing population. *Applied Studies in Agribusiness and Commerce*, 14(1-2), 121-128.
- [24] Vida, V., Kovács, T. Z., Nagy, A. S., Madai, H., & Bittner, B. (2022). Food waste in EU countries. *Applied Studies in Agribusiness and Commerce*, 16(2).
- [25] Vida, V., & Szakály, Z. (2023). Analysis of consumer behaviour in the European poultry meat market. *Applied Studies in Agribusiness and Commerce*, 17(1).
- [26] World Health Organization. (2018, December 5). Health and Climate Change. Retrieved from. Available online at <https://www.who.int/news-room/facts-in-pictures/detail/health-and-climate-change>

LIST OF TABLES

Table 1.
Frequency of conventional animal food consumption among participants (n=110)

		<i>Frequency</i>	<i>Percent</i>	<i>Valid percent</i>	<i>Cumulative percent</i>
<i>Valid</i>	Daily	48	43.6	43.6	43.6
	Never (I follow a vegetarian/vegan diet)	4	3.6	3.6	47.3
	Once a week	5	4.5	4.5	51.8
	Rarely (once a month or less)	8	7.3	7.3	59.1
	Several times a month	13	11.8	11.8	70.9
	Several times a week	32	29.1	29.1	100.0
	Total	110	100.0	100.0	

Source: Own / author's calculations from SPSS based on respondents' answers when conducting the survey study, 2023

Table 2.
Cross-tabulation of the region of residence and familiarity with new trends in food and animal-origin food alternatives (n=110)

Are you familiar with any new trends in animal-origin food alternatives?

		No	Yes	Total
<i>Region</i>	Africa	1	5	6
	Asia	6	15	21
	Europe	18	46	64
	Middle East	2	7	9
	North America	0	5	5
	South America	2	3	5
<i>Total</i>		29	81	110

Source: Own / author's calculations from SPSS based on respondents' answers when conducting the survey study, 2023

Table 3.
Participants willingness to switch to animal-origin alternatives if they were widely available and competitively priced compared to conventional animal-origin food (n=110)

		<i>Frequency</i>	<i>Percent</i>	<i>Valid percent</i>	<i>Cumulative percent</i>
<i>Valid</i>	Likely	33	30.0	30.0	30.0
	Neutral/Undecided	55	50.0	50.0	80.0
	Unlikely	22	20.0	20.0	100.0
	Total	110	100.0	100.0	

Source: Own / author's calculations from SPSS based on respondents' answers when conducting the survey study, 2023

Table 4.

'Promoting plant-based or alternative protein sources significantly contributes to environmental sustainability' (1 - Disagree, 2 - Neutral, 3 - Agree) (n=110)

		Frequency	Percent	Valid percent	Cumulative percent
Valid	1	16	14.5	14.5	14.5
	2	48	43.6	43.6	58.2
	3	46	41.8	41.8	100.0
	Total	110	100.0	100.0	

Source: Own / author's calculations from SPSS based on respondents' answers when conducting the survey study, 2023

Table 5.

The Chi-Squared Test for Independence, examining the relationship between gender and the frequency of consuming conventional animal-origin food products (n=110)

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	5.619 ^a	5	.345
Likelihood Ratio	5.651	5	.342
N of Valid Cases	110		

a. 7 cells (58.3%) have expected count less than 5. The minimum expected is 1.53.

Source: Own / author's calculations from SPSS based on respondents' answers when conducting the survey study, 2023

Table 6.

Chi-Squared Test for Independence between age and familiarity with new trends in animal-origin food (n=110)

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	1.334 ^a	4	.856
Likelihood Ratio	1.264	4	.867
N of Valid Cases	110		

a. 4 cells (40.0%) have expected count less than 5. The minimum expected is 2.64.

Source: Own / author's calculations from SPSS based on respondents' answers when conducting the survey study, 2023

Table 7.

Cross-tabulation of level of awareness regarding specific new alternatives, with whether participants have tried new animal-origin food alternatives (n=110)

Have you ever tried any new animal-origin food alternatives?

		No	Yes	Total
Are you familiar with any new trends in animal-origin food alternatives?	No	18	11	29
	Yes	31	50	81
	Total	49	61	110

Source: Own / author's calculations from SPSS based on respondents' answers when conducting the survey study, 2023

Table 8.

Cross-tabulation of level of awareness regarding new alternatives, with whether participants would switch to new animal-origin food alternatives (n=110)

How likely are you to switch to new animal-origin food alternatives if they were widely available and competitively priced compared to conventional animal-origin food?

		Likely	Neutral/Undecided	Unlikely	Total
<i>Are you familiar with any new trends in animal-origin food alternatives?</i>	No	2	20	7	29
	Yes	31	35	15	81
<i>Total</i>		33	55	22	110

Source: Own / author's calculations from SPSS based on respondents' answers when conducting the survey study, 2023

Table 9.

Cross-tabulation of whether participants are familiar with any new trend in animal-origin food and whether they would encourage family and friends to consume it (n=110)

Would you encourage your friends and family to consume animal-origin food alternatives?

		Neutral /Undecided	No	Yes	Total
<i>Are you familiar with any new trends in animal-origin food alternatives?</i>	No	20	5	4	29
	Yes	34	10	37	81
<i>Total</i>		54	15	41	110

Source: Own / author's calculations from SPSS based on respondents' answers when conducting the survey study, 2023

Table 10.

Frequency and example quotes of vegetarian participants (n=99)

Motivation	N (%)	Example Quote
Animal welfare/Rights	43 (43.43)	"I am ethically opposed to the suffering of animals, and believe that is hypocritical to eat farm animals when we would never (and it is illegal to) harm our own domestic animals." (Female, 26)
Environmental issues	43 (43.43)	"I do not like the thought of eating flesh. Environmental concerns are an important factor in my choice." (Female, 34)
Health/Diet	40 (40.40)	"Improved carb intake for endurance sports, lower risk of disease, cancers. Cleaner cooking and storage, lower waste disposal, more comparable waste." (Male, 37)
Ethics and/or morals	33 (33.33)	"Ethical/moral reasons – not wanting to contribute to unnecessary suffering of animals" (Female, 25)
Taste and enjoyment	18 (18.18)	"While I think is healthy for humans to eat meat, I personally don't like the idea and have been vegetarian for 20 years now." (Female, 31)

Source: North et al., 2021