CONSUMER IN THE ORGANIC FOOD MARKET

EXAMPLE OF THE VISEGRAD COUNTRIES

JULIA WOJCIECHOWSKA-SOLIS, JOANNA SMOLUK-SIKORSKA, MAGDALENA ŚMIGLAK-KRAJEWSKA, MARIUSZ MALINOWSKI, PAULÍNA KRNÁČOVÁ, MALGORZATA JAROSSOVÁ, GYÖNGYI GYÖRÉNÉ KIS, MARTINA ZÁMKOVÁ, STANISLAV ROJÍK

CeDeWu

Visegrad Fund

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Project coordination: University of Life Sciences in Lublin.

Project partners: Poznan University of Life Sciences, University of Economics in Bratislava, The Hungarian Research Institute of Organic Agriculture ÖMKi, College of Polytechnics Jihlava, Czech University of Life Sciences in Prague.

Photo (Graphics) courtesy of: Hasag – Freepik.com, Assorted fresh vegetables and meat in a wooden box top view

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Introduction

The present-day food market may be further subdivided into four submarkets: the market of functional food, the market of conventional products, the market of convenience foods and the market of organic food, respectively (Łuczka, 2019, p. 267). The world organic food market is estimated at 135 billion euro. Approximately 2% global cropped area are covered by organic certification. In 2022 global organic cropland area increased by over 20 million hectares, reaching 96 million hectares. The number of organic producers grew as well, exceeding 4.5 million. Organic food sales in 2022 amounted to almost 135 billion euro, compared to merely 15.1 billion euro in 2020. Mean annual global organic food expenditure per capita is 17 euro (Willer et al., 2024, p. 29). The primary challenges faced by the world organic food market include inflation-driven growth in food prices, geopolitical factors disturbing supply chains, the impact of Russia's invasion of Ukraine on the global economy, and concerns over excess of supply as a consequence of overproduction.

Consumer demand for organic food varies and results from health, ethical and environmental considerations. However, competition from such products as plant-based alternatives, vegan products or GMO-free products makes it more difficult for BIO or organic food products to be easily distinguishable on the market. Participants in the EU organic agriculture sector claim that the European Commission needs to more effectively encourage consumers to purchase organic products (FiBL, 2024).

Consumption of organic food is a form of consumption supporting environmental protection efforts, important both for the present and future generations. It is a concept, within which consumers are assigned responsibility or co-responsibility in solving environmental problems by assuming environmentally friendly approaches and behaviours. Issues related to degradation of the natural environment (e.g. climate change, generation of waste, air pollution, natural disasters, etc.) are increasingly changing

consumer behaviour, with buyers choosing organic products as an alternative to more conventional products (Zaremohzzabieh et al. 2021, p. 732).

Food production using organic farming methods is crucial for the concept of sustainable development, currently being a highly topical issue. This strategy should facilitate attaining social, economic and environmental aims. It comprises actions, which are to satisfy basic human needs, improve the quality of life and provide an adequate quantity of goods and services, while combining then with efforts to preserve the natural environment and protect its resources (Domagalska, Buczkowska, 2015, p. 374). Organic production means innovation, progress and a very high standard of specialist knowledge. In order to obtain satisfactory yields in organic agriculture it is essential to have a deep understanding of nature, agriculture and processes related to cultivation of each crop. Organic agriculture is the art and skill to manage these processes and mechanisms so as to obtain superior quality products (Rzytki, 2015, p. 22).

The market of organic products exhibits specific characteristics, determined by unique behaviours and environmental awareness of consumers, the degree of economic development and wealth, implemented agricultural policy, as well as natural conditions found in individual countries, both in Europe and worldwide.

Consumer habits have been changing dramatically in recent decades: at present consumers are less willing to make purchase decisions based on brand loyalty or price, instead choosing products, which are consistent with their system of values, manifesting preferences towards more environmentally, ethically and socially sustainable products. The growing prosperity of individual populations, enhanced consumer awareness concerning food quality and safety, as well as the effect of organic food on human health promote increased purchases of organic food. Demand for organic food is mainly driven by trends in consumer behaviours, resulting from increased consumer awareness and focus on quality. Quality of organic food is the primary element of its competitive advantage over conventional food. Additionally, it needs to be stressed that according to the recent Nielsen report the Covid pandemic did not impede demand for organic products in the European countries; instead, consumers have proven to be more willing to purchase products labelled with the organic logo. Maintenance of an appropriate diet and lifestyle during the COVID-19 pandemic became even more important, since in order to combat viral infections and ensure mental health and well-being it is necessary to provide sufficient levels of nutrients supporting the immune system. During the

pandemic customers decided to purchase certified products, frequently from local suppliers. The value of this market during the pandemic year increased by 20%. Unfortunately, organic products still account for as little as 0.5% of the entire shopping basket of an average consumer.

The primary aim of this monograph is to provide a diagnosis of consumer behaviours for inhabitants of the Visegrad Group (V4) countries in the market of organic food products. Investigations were conducted within the framework of a project financed by the International Visegrad Fund in the period from December 2023 to February 2024 among inhabitants of the V4 countries (600 consumers from each country). The following research centres participated in this study: the University of Life Sciences in Lublin, the Poznań University of Life Sciences, the College of Polytechnics Jihlava, the Czech University of Life Sciences Prague, the University of Economics in Bratislava and the Research Institute of Organic Agriculture. The Visegrad Group (also called the Visegrad Four or V4) was established on 15 February 1991 as a form of regional cooperation between four Central European countries, i.e. the Czech Republic, Hungary, Poland and Slovakia. These countries share not only geographical vicinity and similar geopolitical conditions, but also common history, culture and traditions (Czyż, 2018, p. 71). The V4 countries were selected for this study, because within the European common organic food market to date the Central and Eastern European countries (CEECs) have played the role of a niche market. Since 2004 the character of this market to a considerable extent has been affected by regulations binding in the European Union, since the V4 countries accessed the EU at the same time.

In order to realise the project objectives, resulting in the preparation of this monograph, studies were conducted based on primary and secondary sources to determine the condition of organic agriculture and the market of its products, as well as consumer behaviour in the organic food market in the Visegrad Group member countries. The authors posed the following research questions during the implementation of the project's objectives, the answers to which are presented in this monograph. "What are the most important determinants of the purchase of organic food?", "How is organic food recognized and selected among other types of food?", "What product groups are mostly purchased by organic food consumers?", "What is the organic food purchase frequency?", "What are the most common places for organic food purchases?".

Based on the recorded results the authors presented the development of organic agriculture in individual V4 countries. An in-depth analysis concerned consumer behaviour in the organic food market and within the

framework of the undertaken objective it also covered the ecoconsumer profile in the V4 countries.

This publication comprises the introduction, four chapters and the conclusions. The first three chapters are review studies and they were prepared based on analyses of secondary sources: monographs, research papers, as well as documents of national and international organisations. The final chapter is based on empirical studies conducted by the authors and it presents results along with conclusions concerning consumer behaviour related to organic products.

In the first chapter the authors focused on the presentation of the investigated market participant, i.e. the consumer. In this sense the consumer is a key agent, making purchase decisions. To a certain degree consumers through their decisions affect the structure of production, its quality and quantity. Identification of consumer behaviour patterns is particularly important to facilitate development of both production and marketing strategies, which is evident not only in the organic food market, but practically in all other markets.

The second chapter is devoted to organic agriculture and the market of organic products within the European single market. The common agricultural policy (CAP) was investigated in more detail, as it defines the directions for development not only in the case of organic agriculture, but European agriculture as a whole. Changes taking place in organic agriculture were presented in reference both to the countries specifically investigated in this study and the entire European Union. The subchapter presenting findings reported in earlier studies on organic food consumers is of particular interest as well.

The next chapter concerns the development of organic agriculture in individual V4 countries. Each subchapter refers to a single country: the Czech Republic, Slovakia, Hungary and Poland. This chapter also presents changes in the total area under organic farming in the V4 countries and elsewhere.

Chapter 4 is based on the results of empirical studies, particularly when discussing the analysis of consumer behaviour in the organic food markets of the V4 member countries. This chapter starts from a detailed presentation of the investigated consumer profile, subsequently moving to the discussion of the structure and character of the analysed respondent population sample. The results discussed in this chapter show the distribution of the sample not only in terms of the respondents' sex, but also place of residence, income

level, number of people in the household, as well as whether they purchase organic food. Purchase intentions concerning organic products declared by respondents from the V4 countries were discussed along with the logos/labelling, based on which consumers identify organic food. An interesting contribution is provided by the analysis of the way, in which consumers combine consumption of organic food with other types of products (regional, ethnic, non-GMO products, etc.). This chapter also presents the frequency of purchases for individual organic products. A particularly important aspect of the presented analysis is related to the discussion of barriers for the development of this market in the opinion of the respondents. Using the adopted research tool the authors asked the respondents to assess selected elements, which in their opinion may minimise the effects of the existing barriers. The analysis presents barriers most commonly indicated by the respondents in these four, relatively different countries; nevertheless, opinions on the main barriers to purchase are consistently similar, as it is the high price and limited availability of organic products.

The final part sums up the presented studies discussed in this monograph, indicating areas requiring further investigations. The authors also propose specific solutions, which may be implemented by institutions supporting organic agriculture and market participants in order to promote this agricultural production method and to strengthen the organic food market.

Chapter I

Consumer in the organic food market. Example of the Visegrad countires

1.1. The concept and essence of consumption behaviour

According to Čarnogurský (2023, p. 30), various forms of consumer buying behaviour have been observed since time immemorial. Practically, since the beginning of trade people have taken the role of buyers when faced with a choice between alternatives. Nowadays people are subjects involved in the consumption process and are defined as a consumers. Consumers are customers who buy goods and services for their personal consumption as individuals, as well as purchasing them for consumption within a family or joint household. In turn, Solomon (2017, p. 5) defines consumer behaviour as the purchasing behaviour of the consumer as a final customer. Additionally, Čarnogurský (2023, p. 36) in relation to consumer purchasing behaviour stated that consumer behaviour is defined as the activities that characterise a consumer in the course of purchasing behaviour and use of those products or services.

Shiffman et al. (2012, p. 3) termed consumer buying behaviour as 'shopping behaviour' and defined it as consumers' acts of searching for and evaluating alternatives, including the buying process, using and disposing of products and services, all in relation to the expected satisfaction of their needs.

Mazdík et al. (2021, p. 346) added that consumer purchasing behaviour must also be seen in the context of the mental and social processes that precede or follow purchasing behaviour. At the same time, consumer decision-making needs to be perceived in the context of willingness to spend money and other

personal resources available to them, such as time, the effort they have to expend to purchase products or services, while observing what consumers buy, the reasons for buying, when the buying behaviour occurs, the location of the purchase, the frequency of purchase and the loyalty and frequency of use of the products or services purchased. They thus confirmed the conclusions presented by Schiffman et al. (2012, p. 3), who stated that examining consumer behaviour helps to understand and enable more accurate predictions of what consumers buy, why they buy, and where, when, how often, and how consumers buy. In turn, Mazdík et al. (2021, p. 346) pointed out the difficulty of measuring and predicting purchasing behaviour due to its complexity. Thus, the main effort of marketers is not only to identify and measure this consumer purchasing behaviour, but also direct it in the desired direction to meet marketing objectives of the companies that sell these goods or services. In the context of the difficulty of predicting consumer behaviour, this confirms conclusions presented by Smith (2000, p. 10), who nevertheless argued that predicting the behaviour of groups of customers is easier than predicting the consumption behaviour of individuals.

Solomon (2017, p. 8) identified the main elements that relate to consumer buying behaviour as cognition and understanding of consumer thinking, their feelings, the process of evaluating and selecting alternatives, the influence of the environment, behaviour during decision making and buying, the ability and limitations of knowledge and skills to work with information and make decisions, motivational factors and differentiation, and the processes of purchase decision making according to the preference and importance of the product to the consumer. Moreover, consumers do not primarily perceive products and services in terms of the core product and actual utility in their purchasing behaviour. The most important factor in purchasing behaviour appears to be the actual product, which is determined by e.g. brand and perceived quality. Consumers are also increasingly making decisions based on 'enhanced products', which are primarily intangible factors providing additional attractiveness or benefit to the product or service for the customer, such as longer warranty periods, better credit terms, service, etc.

This is confirmed by observations by Trommsdorff and Steinhoff (2009), who indicated that a current line of inquiry into consumer buying behaviour is that consumers often buy products and services not because of their main function, but primarily because of their perceived quality or value to the consumer. Obviously, the core product and the function of the product or service are important; however, other product dimensions, such as the actual

and enhanced product, are currently the main considerations in consumer purchasing decisions.

In the context of the defined elements of consumer purchasing behaviour, Čarnogurský (2023, p. 32) also highlighted the need to access relevant data on consumers, consumer purchasing habits and preferred media types in order to develop an appropriate communication message and media plan to reach consumers. In turn, McCarthy (2016, p. 8) argued that understanding consumer buying behaviour is very challenging, since the whole process is very demanding, complex, and dynamic, because consumers are faced with a number of complex decisions in the process of buying behaviour and are influenced by several situational factors.

For example, Trommsdorff and Steinhoff (2009, p. 30) stated that for marketers the main aspect in understanding consumer buying behaviour is not consumption itself and its influences, but rather characteristics of the customer. Therefore, they argued that the concept of the target customer should be referred to, rather than just the consumer or consumer behaviour, since the target customer implies multiple roles for the subject: decision-maker, buyer, and consumer. Therefore, Vysekalová (2011, p. 15) pointed out that consumer purchasing behaviour must be viewed comprehensively, rather than without reference to general human behaviour and in isolation from societal influences. Turčínková et al. (2007, p. 4) also stated that consumer buying behaviour is a multidisciplinary topic.

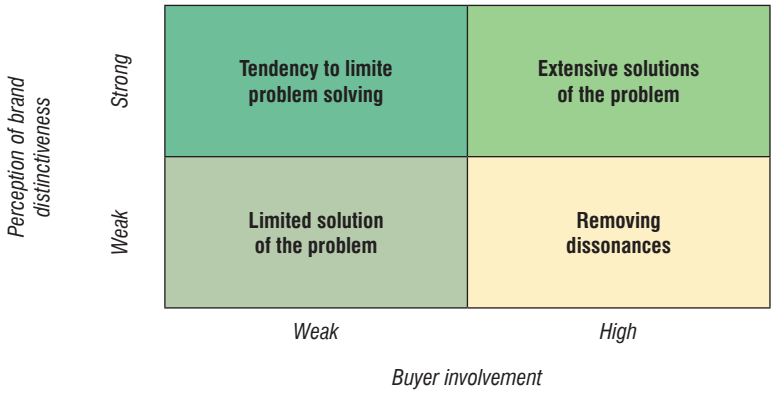
Čarnogurský (2023) summarised consumer buying behaviour into five sequential steps. Similarly, Vysekalová (2011, p. 48) and Rojík et al. (2016, p. 15) defined consumer buying behaviour as a process based on five stages:

1. "Problem recognition – Awareness of the need we want to satisfy by the purchase. Whether the needs are tangible or intangible, or in terms of time, current and future, we usually try to satisfy the needs that we feel are urgent first. The hierarchy of needs is illustrated by a number of models, the most famous being Maslow's pyramid;
2. Information seeking – We need a certain amount of information to make a decision, because a lack of information increases the feeling of risk, and an excess of information can lead to disorientation. The form, in which information reaches us is important, both from personal and media sources;
3. Evaluation of alternatives – Comparison of information and selection of the most appropriate solution, involvement of emotional processes;

4. Purchase decision – After selecting products, deciding when to make the purchase, except for impulse purchases;
5. Purchase evaluation – Customer satisfaction with the purchase, the retailer should be interested in "post-purchase" behaviour to attract regular customers and, on their recommendation, possibly new customers."

For example, Ingram et al. (2024, p. 59) added feedback to these stages, which is provided within the above-mentioned five basic stages/phases of buying behaviour and is based on the purchase evaluation phase. It is the monitoring and working with feedback that is important in removing dissonance. This type of buying behaviour can be identified in highly competitive environments, where consumers have a high level of interest in buying, but perceive little difference between competing brands. In such situations the consumer does not have a strong belief in the benefits of the brand and buys mainly on the basis of other cues, which may be the opinion of family, friends or the salesperson. Thus, the consumer may be hesitant to make a purchase (de Chernatony, 2010, p. 152). For example, Rojík et al. (2016, p. 15) saw a high risk of this behaviour in the case of regional foods. As the food market is highly competitive, consumers prefer regional food, among other things simply because of its perceived higher quality. Where such a dissonance occurs, consumers may turn away from the brand permanently.

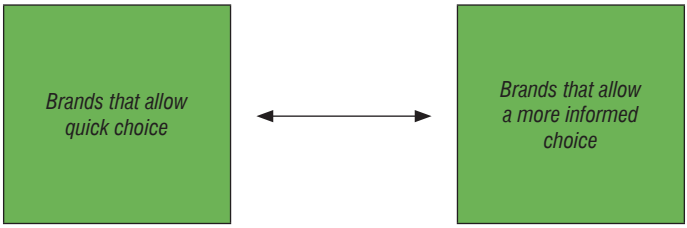
Figure 1.1. Typology of consumer purchasing processes



Source: Assael (1987) in de Chernatony (2010).

De Chernatony (2010, p. 112) further pointed out an important consideration in consumer purchasing behaviour to be the role that the brand plays for the consumer and the possible paradoxes that arise from the ever-decreasing amount of time consumers have to make decisions at the ever-increasing number of options, from which to choose. Another paradox is the situation when the consumer has plenty of money, but the key element is value. The third paradox is explicitly at the communication level – consumers prefer products that satisfy their needs, but at the same time they do not want to be bothered with direct offers. According to de Chernatony, these paradoxes may present opportunities for the brand. Two types of opportunities are presented in Figure 1.2.

Figure 1.2. Brand opportunity in a time-poor society



Source: de Chernatony (2010, p. 197).

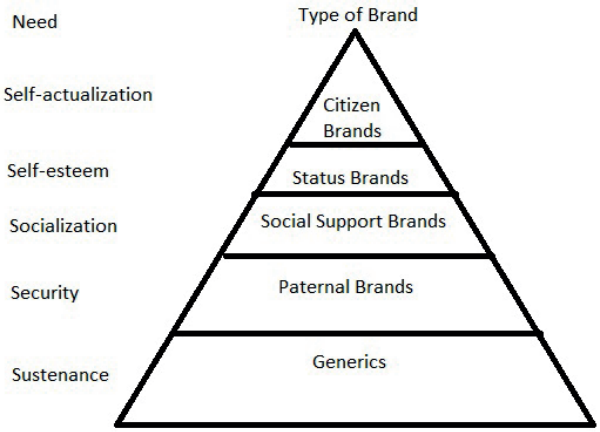
Along with the approach to consumption as a tool for satisfying needs, Solomon (2017) presented four types of consumption, defined as:

1. experience (aesthetic or emotional response to the consumption of a product or service),
2. a means of integration (the consumption of a product or service and its use integrates it into the society),
3. classification (the consumer is perceived and classified by the society according to the products or services chosen),
4. play (consumption is play or entertainment).

Research on consumer purchasing behaviour in relation to branded products or services (including organic products) was conducted e.g. by de Chernatony (2010, p. 200), who stated that consumers prefer branded products or services depending on how they most closely match their needs; as a consequence, he related these needs to Maslow's pyramid of needs. Consumer buying behaviour

in relation to brands was also referred to Maslow's theory by Tikkanen (2007, p. 721), who applied this analogy directly to the food sector. Furthermore, this issue in relation to Maslow's pyramid of needs was addressed e.g. in a study by Swiss Re (de Chernatony, 2010, p. 206), with specific needs listed in analogy with the brand type (see Figure 1.3).

Figure 1.3. Brands match which type of consumer needs



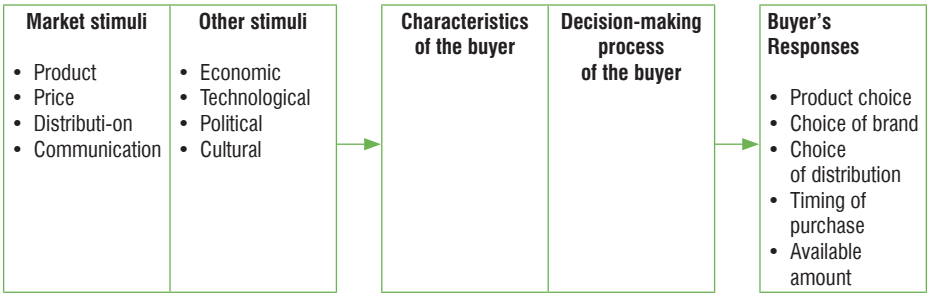
Source: Rojík et al. (2016, p. 206) following Swiss Re.

According to such authors as Kardes, Cronley, and Cline (2011, p. 8), consumer buying behaviour is influenced by political, economic, technological, social, cultural, personal and psychological factors. In turn, these factors influence consumer buying behaviour itself. Literature on the subject presents a number of different theoretical approaches to defining consumer buying behaviour and the impact of factors that influence it as well as outcomes of consumer behaviour itself, or categories thereof. In this respect one of the main theoretical approaches is that followed e.g. by Vysekalová (2011, p. 38), termed as the customer behaviour black box model.

For example, Kotler (2015, p. 310) referred to this model as "stimulus-black box-response", where stimuli entering this black box (Self Concept & Lifestyle) can be identified and recorded in the form of subsequent customer responses. In the case of product brands, these are defined as the choice of a specific product, the choice of a specific product brand, the choice of a specific retailer, the time and timing of the purchase, and the amount the buyers are willing

to pay. A model of consumer purchasing behaviour is given in Figure 1.4. As can be seen, marketing and other stimuli enter the black box, which then passes through phases in the two-part black box depending on the buyer's characteristics and then enter the consumer's decision-making process. The buyer's reactions then emerge from the black box, which, as mentioned above, are observable. Kotler (2015, p. 184) further pointed out that cultural, social, personal, and psychological factors are overwhelmingly beyond the control of marketers; nevertheless, they must be addressed.

Figure 1.4. Model of buying behaviour



Source: Rojík et al. (2016) after Kotler (2015, p. 202).

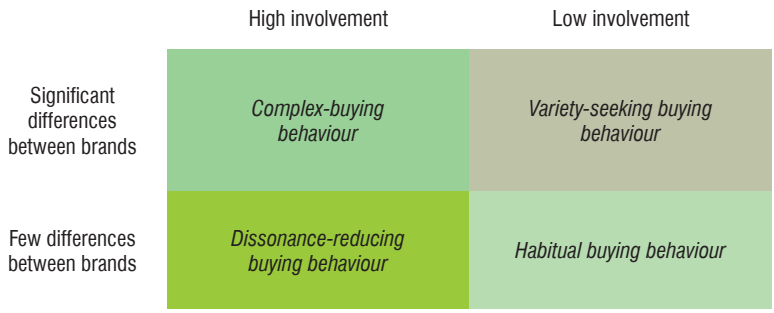
1.2. Types of consumption behaviour

Consumer behaviour refers to final consumers – individuals and households purchasing goods and services for personal use. Consumers in the world market differ from one another in terms of their age, income, education, etc. (Kotler, Armstrong, 2004). Additionally, consumer behaviour varies depending on the nature of the product being purchased (Gburová, 2019). Consumers behave differently when buying daily use items and when buying a car or house.

There are many reasons to investigate consumer behaviour or consumption. Apart from the question "Who?" it is important for every company to ask the following questions: "What?, Where? When? How? Why?". For a company's success in the market it is essential to know what consumers buy, where they buy, in what way and how much they buy, when and why they buy (Žák et al., 2021). The answers to these questions reflect aspects of consumer behaviour. There are several theories and models that address consumer behaviour.

Experts (e.g. Kotler, Armstrong, 2004; Sadman, 2023) agree on four main types of consumer behaviour (see Figure 1.5), that were originally described by Assael (1987): complex-buying behaviour, dissonance-reducing buying behaviour, habitual buying behaviour, and variety-seeking buying behaviour. They reflect different levels of consumer involvement and differences between brands and/or risks associated with their purchases.

Figure 1.5. Main types of consumer behaviour



Source: Sadman, 2023.

Complex buying behaviour occurs when consumers are highly involved in the whole purchasing process and perceive significant differences between brands. They spend substantial time and effort in gathering information. They are very careful, deliberate and make buying decisions after gaining a thorough understanding of the product. This behaviour type is relate to high-value and occasional purchases such as houses, cars, or high-tech electronic devices (Schiffman, Kanuk, 2014).

Dissonance-reducing buying behaviour occurs when consumers are highly involved in the whole purchasing process, but perceive only a few differences between brands. This behaviour is typical in the case of infrequently bought and expensive products. Consumers find it difficult to distinguish between products, even though they spend a lot of time and financial resources on purchases. Consumers focus on post-purchase cognitive dissonance and feel regret about the choice they made. Therefore, they start to look for additional information to reduce the dissonance.

Habitual buying behaviour occurs when consumers are not very involved in the buying decision-making and perceive minimal differences between brands. This type of behaviour is common when purchasing daily use products.

Variety-seeking buying behaviour occurs when consumers are not very involved in the buying decision-making process and perceive significant differences between brands. This behaviour is often driven by a desire for novelty and change, which is common in such product categories as snacks and beverages (Schiffman, Kanuk, 2014).

Following Assael´s typology of consumer behaviour, Koudelka (1997) described 4 types of consumer behaviour very similarly:

1. *Complex consumer behaviour* – with complex behaviour this is a rare purchase, when the customer goes through a more complex decision-making process. Because this is a rare purchase of an unknown product, customers search for the necessary information themselves. They are interested in competing products, their advantages and disadvantages. When buying such a product, trained sales staff is more useful to the customer than a printed advertisement.
2. *Mismatch-reducing consumer behaviour* – this behaviour represents a situation where on the market there are several similar products with the same characteristics. The purchase is therefore usually made relatively quickly and is influenced e.g. by the price and quality advantage. The customer compares the real advantages and disadvantages of specific products only after some time, based on experience.
3. *Variety-seeking consumer behaviour* represents a consumer's situation, in which they decide between different products, but the reason for changing the purchased goods is not related to dissatisfaction. The purchase is carried out emotionally, it is unplanned.
4. *Stereotyped consumer behaviour* – consumers become passive recipients of information concerning the product, they do not take a long time to decide when buying – the choice is a matter of the moment or affection for a specific brand. Advertising for these products is often repeated and aimed at improving awareness of the product.

Eisenberg et al. (2006) discussed four types of customers, who differ fundamentally in the speed of their decision-making and the factors that influence them during the buying process as follows:

1. *Comparison customers* (represented by 5 to 10%) – Well-informed consumers can create an image of a given product or service,within

a very short time based on the available information. If they decide to buy the offered product, it must reflect the values they profess and correspond with their personalities. They want their social status to be reflected by exclusive goods that secondarily emphasize their superiority. They want the best product on the market at the lowest price. Their big egos play a very important role during the decision process. When making their decision, the discussion forums provide them with enough information, which is shared by existing customers. They strictly follow rational decisions based on logic. They are willing to spend money only when having the best ratio of price to added value. They are not affected by discounts; however, they only respond to true information that tells them what the product/service is the best at. They can make quick decisions. They want to know that the product is the best and that by buying it, they will become the best.

To attract comparison customers, it is recommended to use such words as the highest, best, and premium quality to highlight benefits of the product, to back up each claim with real facts and convince them that buying a given product is a smart decision.

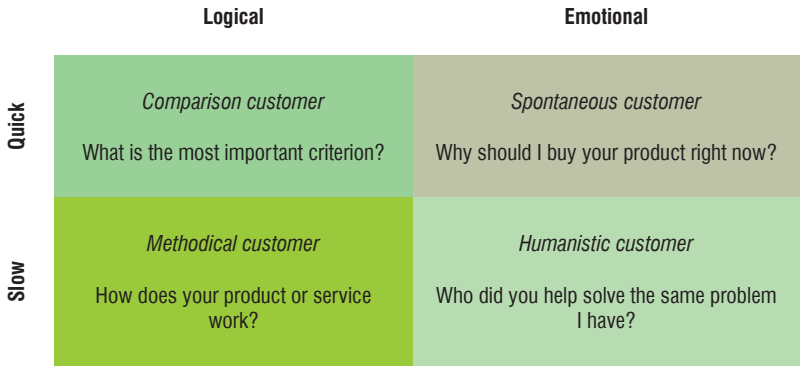
2. *Spontaneous customers* (represented by 25 to 35%) – Spontaneous customers decide very quickly, but it is not easy to impress them. It is necessary to be creative and find a way to show the offer in a way that touches their feelings. If a company succeeds, it will win a large part of the customers. A spontaneous customer acts impulsively, prefers creative modern rendering and stylish things. However, even a spontaneous customer does not have to buy a product on the web as soon as he/she likes it; it is appropriate to attract him/her back to the product through remarketing. This customer responds very well to discounts and limited offers. He/she wants to know all benefits, what to do with the product, what the added value is; on the other hand, such a customer does not compare and analyse competitive products. Spontaneous customers want to make quick and simple purchases. They do not think rationally or economically. They just want a product that interests them without prior any evaluation or consideration.

   To attract a spontaneous customer, it is necessary for the company to show them how fun the given product is, what the benefits of using the product are, to convince him/her that many people use the same

product, to give him/her a limited time offer that should be new, unconventional, trendy and exclusive.

3. *Methodical customers* (represented by 45%) do not make a buying decision immediately, but they take time to think over the offer, as they are motivated by quality, honesty and rational arguments. As they are not very emotional and look for details, they require facts, specifications, reviews, and recommendations, as well as verify every claim and statement. They compare competing products.
   For marketers, it is recommended to focus on presenting product features and benefits that are proven by facts, certificates, and recommendations.
4. *Humanistic customers* (represented by 10 to 15%) – their behaviour reflects personal values that they profess. They care about the environment and require real proof of advertising claims. Their decision-making is a long-term process. They are empathetic with their surroundings and do not need to follow trends. They do not want to compromise their code of ethics. They try to achieve their goals and satisfy needs in a humane way. Their socially responsible behaviour is often associated with sympathies for organisations that defend human rights and the environment.
   To attract a humanistic customer, it is recommended to use real stories of people satisfied with the product to pinpoint environmentally friendly aspects of the product or the corporate social responsibility policy.

Figure 1.6. Types of customers based on their consumer behaviour



Source: Eisenberg et al., 2006.

In addition to the above-mentioned main types of consumer behaviour (Figure 1.6), experts on consumer behaviour also defined other types:

1. *Impulsive consumer behaviour* is characterised by spontaneous, sudden, unplanned purchases driven by emotions rather than rational decision-making. This behaviour is common, especially for such products as fashion items, gadgets, and accessories (Verplanken, Orbell, 2003). Retailers can stimulate impulsive buying through strategic store layouts, attractive displays, and point-of-sale promotions. Limited-time offers and visually appealing packaging can also enhance impulsive purchases; placing small products near checkout counters can encourage last-minute purchases (Solomon et al., 2016).
2. *Loyalty-based behaviour* occurs when consumers consistently buy products of the same brand due to a strong preference and satisfaction with its products. This behaviour is crucial for brand success, ensuring repeat purchases and positive word-of-mouth marketing (Kotler, Keller, 2016). Marketers should focus on building and maintaining customer loyalty through loyalty programs, personalised marketing, and high-quality customer service. Brands should also engage with loyal customers through social media and exclusive offers (Schiffman & Kanuk, 2014).
3. *Experimental buying behaviour* involves consumers who desire to try new and innovative products to gain new experiences. This behaviour is prevalent in such industries as technology, fashion, and entertainment, where consumers are drawn to the latest trends and products (Thøgersen, 2010). Marketers should emphasize innovation and uniqueness in their products. Launch events, influencer marketing, and early adopter programs can attract experimental buyers. Continuous innovation and frequent product updates are essential to keep this consumer segment engaged (Hawkins et al., 2013).
4. *Compulsive buying behaviour* is characterised by an inability to resist purchase, often leading to excessive and unnecessary purchases, consequently resulting in financial problems and emotional distress (Wood et al., 2005). Marketers should promote responsible consumption, provide support resources for compulsive buyers, and address the negative impacts of this type of behaviour (Kotler, Keller, 2016).
5. *Ethical consumption behaviour* is driven by consumers' values and beliefs regarding social and environmental responsibility. They prefer socially and environmentally responsible products.

This type of behaviour is increasingly common, as consumers become more aware of sustainability, environmental protection and/or fair trade (Solomon et al., 2016). Marketers should emphasize their brand's ethical practices and sustainability efforts. Transparent communication about sourcing, production processes, and corporate social responsibility initiatives can attract ethical consumers (Schiffman, Kanuk, 2014).

6. *Sustainable consumption behaviour* involves making purchasing decisions that minimize the environmental impact and promote long-term sustainability. This behaviour is becoming more widespread with the growing awareness of environmental issues (Thøgersen, 2010). Marketers should adopt sustainable practices and highlight these efforts in their marketing. Offering eco-friendly products, reducing packaging waste, and supporting environmental causes can appeal to sustainability-conscious consumers (Hawkins et al., 2013).

Over the past years (especially the COVID-19 pandemic) retail trends have been characterised by a transition of shopping from conventional stores to an online environment. Consumer expectations are completely different than a few years ago; consequently; trends and consumption behaviour has changed. Florian (2023) described *online consumer behaviour* that reflects how consumers make decisions to purchase products in e-commerce. Expectations such as product availability, convenient pricing and delivery influence how consumers make purchasing decisions. According to a study by Linnworks (2024), convenience is a key priority when selecting a retailer. Nine in ten consumers prioritise using a retail site that offers a seamless experience. Online consumers look for a frictionless, cross-device e-commerce experience. They seek a transfer between devices throughout a buying journey – they expect to start the buying process on a notebook at work, continue on a smartphone on the way back home, or finish it in the evening. Social media and marketplaces play important roles in the consumer journey. More than nine in ten consumers start their product search in a marketplace, while 76% have made impulse purchases via social channels due to the ease of purchase. Nearly nine in ten consumers prefer seamless and flexible payment options that speed up their decision-making and prompt them to spend more. In turn, 95% of consumers consider convenient delivery options as a major factor in online shopping.

Even though we can generally divide consumers into groups based on their behaviour, it is not easy to clearly classify consumer behaviour that is influenced by the situation, in which people find themselves, their mood and individuality. Depending on the situation, consumers can face several different factors. The product itself also plays a significant role in the decision.

1.3. Determinants of consumption behaviour

To date literature on the subject has not provided a single dominant approach to classification methods concerning conditions determining consumer behaviours. Consumer behaviour in the market is affected by numerous factors, differing in their mode of action and intensity. These factors may be related directly to the consumer, while they may also be associated with the environment, in which a given person operates (Samuk, Sidorowicz, 2021, p. 75). *"These factors in the literature on the subject are classified in terms of several criteria. The criteria include e.g. the scale of impact (microeconomic, mesoeconomic and macroeconomic factors), the relationship with the economic sphere (economic and non-economic factors, including biological,, demographic, social, cultural and psychological factors), the criterion associated with a given person (internal and external factors)"* (Gardocka-Jałowiec, 2015, p. 122-124).

Factors influencing consumer behaviour may be divided into two groups, i.e. consumer-dependent and those independent of the consumer, generated by the environment. "*The former refer to the genetic variation among humans, which determines their individual consumption requirements. In turn, the latter are related to the diversity in environmental conditions, under which the consumer is functioning"*. As a consequence of the impact of both these factor groups consumer behaviours are characterised by a multitude of needs, preferences, attitudes and responses, which definitely influence the decision-making process related to purchase situations (Gajewski, 1997, pp. 23-24).

In turn, Rudnicki (2012, p. 32) distinguishes two types of consumer behaviour in the market, i.e. intentional and unintentional. Intentional behaviours are always conscious, purposeful and sensible actions, reflecting the convictions of the consumer and his/her needs. In contrast, unintentional actions are typically undertaken by consumers on the spur of the moment. Intentional and unintentional behaviours may be divided into voluntary, i.e. resulting from the consumer's independent decision and needs, and forced,

resulting from a necessity. Voluntary behaviours are those, which are not limited by anything and are initiated by the willingness to have certain specific goods. Forced behaviour is characterised by the fact that it is undertaken under certain pressure, or results from the influence of others on the consumer. Voluntary and forced behaviours are divided into rational and irrational (Surel, 2018, p. 11). In their study Kamerschen et al. (1991) presented rational behaviour as such an internally cohesive behaviour, which makes it possible for a person to maximise satisfaction. According to Kieżel (2003, p. 31), *"rational behaviour is such a behaviour, which is justified both economically and socially, psychologically, physiologically and organisationally. It needs to be stressed that rational decisions are based on available knowledge, acquired by the consumer. In every case it is determined by specific external and internal conditions (limited resources and means, such characteristics as the ability to plan, calculate, perceive the need for effective actions, active acquisition of information, etc.)"*.

Another division was provided by Wójcik (2017, p. 27-28), who indicated needs and motivations of individual people as factors influencing consumer behaviour. This division distinguishes social needs, which affect the consumer's perception of himself/herself and the relations he/she has with others. Another group comprises individual needs, defined as physiological or psychological, while the last group includes consumption needs, composed of individual and social needs.

In her study Karczewska (2010, pp. 478-481) stressed that purchasing behaviours of consumers are determined by demographic, economic, socio-cultural and psychological factors. Thus, demographic determinants include age, sex, education, economic status, and the stage of the family life cycle. Economic factors comprise income, price, products, point of sale and advertising, while socio-cultural determinants of purchasing behaviours are composed of family, leaders of opinion and reference groups. In turn, psychological factors influencing purchasing behaviours of consumers include motivations, needs, convictions and beliefs, as well as attitudes.

In turn, Solomon (2006, p. 45) stated that consumer behaviour is affected by factors determining diversification between individual people, among which he listed individual needs, perception, learning and memory, observed values, motivations, personality, lifestyle and gender roles.

The primary conditions affecting consumer behaviour are related with economic factors, which are the basis for economic and management processes (Kirchler, Hoelzl, 2015, p. 195; Chou et al., 2020, p. 2). Economic factors

determining consumer behaviour may be divided into internal (consumer-dependent), including income, savings and loans, household equipment (durable goods/appliances) along with the current level and structure of consumption, as well as external (independent of the consumer), such as supply, price, sales policy and the institutional information system (Grzega, 2010, p. 104). Income is one of the most important determinants affecting consumption, since it influences the potential to satisfy consumption needs (Smyczek et al., 2017, p. 71). Income levels reflect the economic situation of consumers. Income sources and its level result from adaptive behaviours of individual people to market conditions. Income is a factor determining consumption, forcing consumers to choose the most important of the perceived needs (Włodarczyk-Śpiewak, 2001, p. 159). The level of income has a direct effect on the total volume of consumption expenditure and indicates general proportions, in which income is divided into consumption and savings. Responses of consumers to an increased level of income vary. An increase in income for poor consumers leads to growing expenditure to purchase goods satisfying basic needs (food, clothing). In contrast, a growth in income in the case of rich consumers leads first of all to an increase in spending to purchase durable goods, as well as expenses related to culture and entertainment, holidays abroad and education of children. The proportion of income allocated to savings is also increased. A growth in income results in a shift of consumers' preferences from inferior goods to superior goods. Such a shift results in a changed demand structure, consisting in an increased share in net household's outgoings to purchase superior goods and a reduction of such outgoings to buy inferior goods (Rudnicki 2004, pp. 140-141). Moreover, income level also determines price elasticity of demand for food. In the case of low and medium income levels it is high. This means that even a slight change in prices may considerably influence the quantity and quality of purchased food products. With increasing income levels the price elasticity of food demand will be gradually reduced and at high income levels it will approach 0, which means that the quantity of purchased food is no longer determined by its prices. In practice consumers with high incomes hardly ever pay attention to the level of prices for the food products they purchase (Bywalec, 2010, p. 117). According to Cyran (2014, p. 367), a significant effect on consumer behaviour is also exerted by past income, i.e. savings, as well as future income, such as loans. Savings instil a permanent character in certain consumption habits, thus contributing to a transfer of the unconsumed part to a future period, either in the form of money or as accumulated durable goods.

A significant economic factor affecting consumer behaviour is connected with leisure time out of work, which the consumer has after performing their chores, fulfilling family obligations and meeting their physiological needs (Milewski, Kwiatkowski, 2005, pp. 96-100). This is the time, which a person may use as he/she pleases, following their individual preferences (Cushman et al., 2008, pp. 11-12).

External economic variables influencing consumer behaviour may include supply of goods and services, price levels and relations, retail and service infrastructure, information system, as well as the overall economic situation in a given country, including the stage of the business cycle and economic equilibrium on the market, the legal and financial system, the level of private affluence, as well as principles governing public life. An important role is also played by the state, equipped with a set of instruments, through which it may influence consumer behaviour (Światowy, 2006, p. 135). Price is another significant factor affecting decisions made by consumers during purchase activities. As it was observed by Kieżel (2004, p. 48), price modifies the level of consumption. It determines the level of demand for specific goods and is a factor influencing the choice of a given product by the consumer. It is generally considered to be a determinant of value, as it should reflect differences in benefits resulting from purchase and use of a specific product compared to competitive products. *Consumers' responses to price changes depend on many factors, e.g. the number of available substitutes, the character of these goods, the hierarchy of satisfied needs, and the level of income at the disposal of the buyer* (Falkowski, Tyszka, 2009, p. 223).

Cultural and social factors determining consumer behaviour comprise the group of non-economic factors. In the model of factors affecting consumer behaviour they are treated as those, which are of primary importance and exerting the greatest effect on consumer behaviour (Kotler, 2004, pp. 161-162). Culture as the entire body of tangible and intangible heritage of humanity, passed on from generation to generation, comprises such important components as subcultures, traditions, customs, habits, rituals, beliefs, worldview, symbols, etc. (Adamczyk 2014, p. 9; Małysa-Kaleta, 2010, p. 118). In the opinion of Bywalec and Rudnicki (2002, pp. 184-187), culture may affect diversification of tastes, preferences, opinions, purchasing habits, as well as the frequency and place of shopping activity. The impact of cultural elements on various aspects of behaviour may be both direct and indirect in character. Within the indirect effect individual people are exposed to culture through mass media, which very often present specific values, attitudes and

behaviours. Other elements in the process, in which culture is passed on, are related to various institutions, e.g. the state, school, and the family, which either through mass media or directly modify specific behaviours of individual people (Bartosik-Purgat, 2011, pp. 102-103). A crucial characteristic of culture is its adaptability, i.e. variability and adaptation to living conditions. It is because culture is constantly changing depending on the stage in social development, economic changes or the emergence of new phenomena and problems (Jachnis, 2007, p. 341).

Consumers frequently make purchases under the influence of opinions, ideas or behaviours of other people. The reference group is a model to be followed in relation to the attitudes, evaluations and aspirations of the consumer, while it is also treated as a source of information and it serves as a point of reference or benchmark to compare the individual consumer's social position (Brzozowska-Woś, 2010, p. 44). Reference groups suggest purchasing a specific type of goods and choosing a specific brand. These choices may concern simultaneously both the type of product and the brand, or either of them separately. In this way they influence purchase decisions concerning consumer goods. Reference groups play a significant role in the purchases of luxury goods, whereas their role is slight when buying basic necessities (Światowy, 2006, p. 175). Sometimes consumer behaviour is affected by the so-called leader of opinion, most frequently being outside the group of consumers, which he/she influences. It is through these leaders of opinion that it is easier for companies to reach hardly accessible consumers and thus win new market segments (Światowy, pp. 110-112).

Demographic factors are also important determinants for consumption behaviours. First of all, demographic conditions differentiate needs of consumers, constituting incentives or barriers for specific market behaviours and determining the conditions, under which these behaviours occur (Kieżel 2010, p. 128). The age of the consumer is of paramount importance among variables determining consumer behaviour (Tomić et al., 2017, p. 757; Kautish et al., 2022, p. 267; Helm, Landschulze, 2013, pp. 32-33). Needs and the volume of consumption change with age, while the manner, in which market choices are made, is also transformed. Depending on age the structure of consumption varies. For example, for young people goods and services related to physical fitness and entertainment rank high. In contrast, for older people an important position in the structure of consumption is given to services connected with maintenance of health and body condition (Bylok, 2013, p. 124).

Next to age, an important factor characterising consumers is their sex. It is because sex differentiates expectations of consumers in relation to specific consumer goods and thus the use of some products is ascribed only to women or men. In men the decision-making process is linear in character, while in women it is "a spiral path" (Berletta, 2006, p. 58). Based on studies conducted to date it was found that women generally invest more time in shopping and they like to take time to consider what to buy (Ramprabha, 2017, p. 57; Mihić et al., 2018, p. 101). They are interested first of all in the benefits provided by the functions of the product or characteristics of services. Women rather than men value the opinion of their acquaintances or experts. Men show a different attitude to information coming from their environment – they less often consider the opinion of others (Nowak, 2009, pp. 132-141). For them the most significant aspect is the specific information concerning the product, they purchase a product based on the most important expectations. For men details are not equally important, because men tend to be more superficial (Małysa-Kaleta, 2015, p. 281).

An important factor influencing consumer behaviour is also connected with the level of education and job/profession (Gajjar, 2013, p. 12; Durmaz, Gündüz, 2021, p. 254). They affect the degree, to which needs of individual people and their type are manifested. People with university education have higher requirements not only in relation to themselves, but also to their environment. Thus, higher order needs are more evidently manifested than it is in people with lower education (Śleszyńska-Świderska, p. 37). With an increase in the level of education the scope of the potential to make consumption choices is expanded (Rudnicki, p. 102). These factors also influence sensitivity to information from various sources, choice of the point of purchase and brand, as well as leisure time activity (Sowa, 2010, p. 134).

Another demographic determinant is connected with the number of people in the household. With an increase in the size of the household the average monthly consumption of food products per person in the household decreases (Sowa, 2010, p. 132).

The course of the shopping process, as well as decisions concerning consumption of specific products or services may also be dependent on the stage of the family life cycle. Depending on each of these stages the volume and structure of expenditures on consumer goods and services vary considerably (Rader et al., 2014, p. 611). In the family life cycle changes in the level and structure of consumption expenditure are influenced particularly by such moments in the life of every person as e.g. getting married, starting a family, death, retirement, or divorce (Solomon, 2006, p. 433; Sowa, 2010, p. 128).

It was shown that the family life cycle influences both the structure and value of household expenditure (Żelazna et al., 2002 after Bywalec, 2007).

In consumer research increasing attention is paid to psychological aspects of consumer behaviour in the market. The importance of emotions, feelings, needs, individual preferences and inclinations is particularly stressed (Drabik 201; Hanus, 2017, p. 71; Kautish, Sharma, 2020, p. 116). As it was stated by Foxall and Goldsmith (1998, p. 62), *"psychological factors due to their subjective character influence the final decision of the consumer"*. In the opinion of Katon (1964, p. 13), "*a positive attitude leads to the purchase of specific goods even when the need to buy them is not experienced strongly. In turn, a negative attitude does not lead to the purchase of the goods even in a situation of strongly experienced necessity to satisfy the need and it is feasible to satisfy it*". This leads us to an observation that consumers do not always behave rationally and their typical behaviour – due to the propensity for impulsive behaviour – it not always connected with conscious choice (Śleszyńska-Świderska, 2017, p. 21). Consumers are influenced by emotions they are feeling and their actions are frequently intuitive or subconscious (Wawrzyniak, 2017, p. 176).

Perception is a significant category connected with psychological conditions determining consumer behaviour, being the foundation for all human decisions, including market decisions. Thanks to perception buyers become aware of the existence of specific products, see differences between brands and points of sale; thus, it may be concluded that it is a pre-condition and introduction to any purchase behaviour (Kieżel 2010, p. 135). Perception is influenced by many factors (Jachnis, Trelak, 2002, p. 92), e.g. the specific character of stimuli (the appearance of the product, the way it is advertised), circumstances, at which the factor appeared and its internal context (e.g. the consumer's knowledge on the product), as well as the external context (e.g. advertising), along with the potential and psycho-physical characteristics of the consumer, his/her personality and motivation.

In view of the diversity of factors influencing consumer behaviour it is difficult to fully predict the actual behaviour of a consumer in a specific situation. Factors affecting these behaviours operate jointly and simultaneously (Smoluk-Sikorska et al., 2024, p. 24). Moreover, consumers differ in terms of their perception, which results from their subjective experiences and current personal situation. Two people may be exposed to the same stimuli, but the manner, in which each of them recognises, selects, organises and interprets these stimuli is an individual process based on their own needs, values and expectations (Schiffman, Wisenbli, 2019, p. 114).

1.4. Sustainable food consumption

Sustainable food consumption as part of Sustainable Development and the Farm to Fork Strategy

Goal 12 of the 2030 Agenda for Sustainable Development aims to ensure sustainable consumption and production patterns. Paragraph 28 of the 2030 Agenda reads: "We (Countries) commit to making fundamental changes in the way that our societies produce and consume goods and services. Governments, international organizations, the business sector, and other non-state actors and individuals must contribute to changing unsustainable consumption and production patterns, including through the mobilization, from all sources, of financial and technical assistance to strengthen developing countries' scientific, technological, and innovative capacities to move towards more sustainable patterns of consumption and production. We encourage the implementation of the 10-Year Framework of Programmes on Sustainable Consumption and Production. All countries take action, with developed countries taking the lead, taking into account the development and capabilities of developing countries" (United Nations, 2024a).

Achieving a healthy and sustainable food future is a critical global priority that depends on each nation's commitment to sustainability. Implementing practices that both meet societal needs and protect the environment is essential (Harvard T.H. Chan, 2024). The inclusion of food consumption issues in political agendas worldwide underlines their importance. In his keynote address at the UN Food Systems Summit, UN Secretary-General António Guterres stated: "More than 100 countries have submitted voluntary progress reports on transforming food systems. Countries are making decisive efforts to integrate this priority into national and regional laws, policies and programs" (United Nations, 2024).

As policy programs aim to promote healthy eating habits, there is a growing need to predict their effectiveness. Understanding the factors that influence food choice requires examining not only dietary habits, but also cultural, social, psychological and biological contexts. Categorising food choice factors solely by socio-demographic variables is insufficient (Benda Prokeinova, 2021). It is essential also to consider personality traits, lifestyle, and behaviour.

The EU implements many activities to ensure sustainable food consumption and facilitate the transition to a healthy and sustainable diet. One example is The Farm to Fork Strategy, one of the important strategies of the European

Green Deal, aiming to make food systems fair, healthy, and environmentally-friendly. The Farm to Fork Strategy seeks to improve the availability and price of sustainable food and promote consumers' adoption of healthy and sustainable diets. Key elements include improving consumer information, strengthening sustainable food procurement, and encouraging the adoption of fiscal measures that support sustainable food consumption. The strategy sets out both regulatory and non-regulatory initiatives, with the common agricultural and fisheries policies as critical tools to support a just transition (European Commission, n.d. a). Four specific objectives of The Farm to Fork Strategy are shown in Figure 1.7.

Figure 1.7. Four specific objectives of The Farm to Fork Strategy

Source: https://food.ec.europa.eu/horizontal-topics/farm-fork-strategy_en.

The strategy sets out the following actions (European Commission, n.d. a):

1. Proposal for a harmonised mandatory front-of-pack nutrition labelling to enable consumers to make health-conscious food choices.
2. Proposal to require origin indication for certain products.
3. Determine the best modalities for setting minimum mandatory criteria for sustainable food procurement to promote healthy and sustainable diets, including organic products, in schools and public institutions.

4. Proposal for a sustainable food labelling framework to empower consumers to make sustainable food choices.
5. Review of the EU promotion programme for agricultural and food products to enhance its contribution to sustainable production and consumption.
6. Review of the EU school scheme legal framework with a view to refocus the scheme on healthy and sustainable food.

As part of the Farm-to-Fork Strategy, the European Commission announced revision of EU rules on the information provided to consumers. The aim of revising Regulation (EU) No. 1169/2011 (on the provision of food information to consumers to ensure better labelling information) is to help consumers make healthier and more sustainable food choices and tackle food waste, by proposing to (European Commission, n.d. b):

- introduce harmonised **mandatory front-of-pack nutrition labelling** and set **nutrient profiling criteria** to restrict claims made on foods,
- extend **mandatory origin** or provenance information for certain products,
- revise the rules on **date marking** ('use by' and 'best before' dates).

As part of the Farm to Fork Strategy, the Commission has proposed a framework for **sustainability labelling** to enable consumers to make informed and **sustainable food choices.** This proposal aims to regulate the information provided to consumers on the **sustainability of food products**. Complementing other labelling initiatives such as **front-of-pack nutrition labelling, animal welfare labelling and green claims**, this framework will cover consumer information on food products' nutritional, climate, environmental and social aspects (European Commission, n.d. b).

Nowadays, consumers have problems with labels claiming the environmental performance of products and companies (Figure 1.8). Many environmental claims lack credibility, leading to extremely low consumer confidence levels. This situation can lead to consumers being misled and companies presenting a deceptive picture of their environmental impact, a practice known as greenwashing. To combat this, the EU has proposed **a new law on green claims to combat greenwashing and protect both consumers and the environment**. By ensuring that environmental labels and claims are

credible and trustworthy, consumers will be able to make more informed purchasing decisions (European Commission, n.d. c).

Figure 1.8. Brief information concerning current green claims

Source: https://environment.ec.europa.eu/topics/circular-economy/green-claims_en.

The proposal on **green claims** aims to (European Commission, n.d. c):

- make green claims reliable, comparable and verifiable across the EU,
- protect consumers from greenwashing,
- contribute to creating a circular and green EU economy by enabling consumers to make informed purchasing decisions,
- help establish a level playing field regarding the environmental performance of products.

To ensure consumers receive reliable, comparable and verifiable environmental information on products, the proposal includes (European Commission, n.d. c):

- clear criteria on how companies should prove their environmental claims and labels,
- requirements for these claims and labels to be checked by an independent and accredited verifier, and
- new rules on governance of environmental labelling schemes to ensure they are solid, transparent and reliable.

The proposal **targets explicit claims** made voluntarily by businesses towards consumers, cover the environmental impacts, aspects or performance of a product or the trader itself, are not currently covered by other EU rules. Some examples of green claims are shown in Figure 1.9.

Figure 1.9. Some examples of green claims

Source: https://environment.ec.europa.eu/topics/circular-economy/green-claims_en.

Consumer sustainable consumption and consumer sustainable food consumption

Consumers have a significant impact not only on the global economy, but also on the environment through their purchasing decisions. Consequently, towards the end of the 20th century discussions expanded beyond sustainable development to focus on consumers and sustainable consumption. In 1994, at a symposium in Oslo, a definition of **sustainable consumption emerged**: it involves the use of services and products that improve the quality of life while minimising the depletion of natural resources, the presence of toxic materials, and the emission of waste and pollutants throughout the life cycle of a service or product. The aim is to ensure that the needs of future generations are not compromised. **Sustainable consumption** refers to lifestyle, purchasing habits, and how consumers use and dispose of products. Higher environmental awareness of consumers is manifested mainly in economically developed countries, where consumers are more aware of the impact of environmental changes on their health and safety (Žák et al., 2022).

Sustainable consumption is at the core of the definition of **sustainable development** (Kramer, 2011, p. 7), which is described in the United Nations documents (2019) as development that meets the basic needs of all people and preserves, protects and restores the health and integrity of the Earth's ecosystem, without exceeding the long-term limits of the planet's ecosystem capacity. The definition is based on two concepts (Maciejewski, 2020):

- the concept of needs,
- the concept of restrictions imposed by the ability of the natural environment to meet current and future needs.

Using these definitions, it is possible to identify a set of consumer behaviours that can be described as sustainable. They can be observed both in the market and in the household. According to Zrałek (2018, p. 64), sustainable market behaviours consist of buying organic products, buying ethical (socially responsible) products, and avoiding waste. Sustainable household behaviours also combine deconsumption, collaborative (shared) consumption and post-consumer waste disposal. Sustainable consumption as a goal and condition for eco-development is and should be supplemented with knowledge concerning its various aspects (Gustavsen, Hegnes, 2020). Still, from a scientific point of view the definition and the components of this concept do not seem to be fully recognised and complete.

Verain et al. (2015) described **factors promoting sustainable food consumption,** including "health motives, environmental motives, naturalness, and taste". Studies in the literature reveal that consumers lack/have low awareness of healthy eating and sustainable consumption (de Koning et al., 2015; Gao et al., 2020; Mancini et al., 2017).

When investigating consumer awareness of organic foods, Lee and Hwang (2016) found that "consumers who believe that organic foods are safe and eco-friendly may also believe that overall quality of organic foods is high, which increases value perceptions".

Food consumption, particularly meat and meat products, is one of the main drivers of environmental impacts. Although meat is vital to meet the basic human needs for nutrition, it poses a critical threat to the environment (Bielik et al., 2021). Among meat types, production systems for beef (and meat of other ruminants) "convert resources less efficiently" than it is for pork and poultry: "Three times more feed is needed to produce 1 kg of beef compared to pork and, consequently, more cropland is used" (Lazzarini et al., 2016). However, consumers are not aware of this problem (Lazzarini et al., 2016). The concept of eating insects as a meat substitute is mainly theoretical; in reality, consumers who support this idea may not be willing to purchase and consume insects themselves (Modlinska, 2021).

Food attributes such as freshness, price, quality, taste, familiarity, convenience, safety, healthiness, naturalness, and environmentally friendly production affect consumers' food choices (Hoek et al., 2017). Environmental and social attributes are considered secondary (Annunziata and Scarpato, 2014). "Organic" is also a credence attribute (Lee and Hwang, 2016) because consumers cannot evaluate the claimed quality of organic products on their

own. Because consumers cannot observe the credence attributes of sustainable food products, eco-labels play a major role in promoting these types of foods on the market (Daugbjerg et al., 2014; Lazzarini et al., 2016). For such reasons, food product labelling systems in developed countries are expanding quickly.

Annunziata and Mariani (2018) showed that consumers' attitudes toward organic products are influenced by such attributes as resource-saving, low-energy inputs, the absence of chemicals; animal welfare, better working conditions for farm workers, public health concerns, fair prices for producers, and support for small farms and rural communities. The study by Annunziata and Scarpato (2014) found that consumers who do not trust labels or sustainability claims for food products will not tend to translate their positive, sustainable attitudes into a behavioural intention.

Barriers toward sustainable food consumption can be classified into three groups (Thi Xuan Dieu Phan, 2024):

- **product-related barriers** (e.g., high price of sustainable products (organic products), unacceptable/unsatisfactory taste of sustainable products),
- **consumer-related barriers** (e.g., eating habit is one of the main barriers to sustainable food consumption). Consumers want to eat in the same way following their habits, or see no benefit from eating more sustainable food and they lack motivation to consume sustainable food, do not trust sustainable labels and certifications, some consumers said that they lack cooking skills for plant-based products, therefore, they experience difficulties when moving to this eating pattern),
- **food-market-related barriers** (e.g., poor supply – difficulty in finding these products when shopping is the most popular barrier).

The literature review shows that "sustainable food consumption" is not a new topic and has been investigated in many studies, but investigations concerning sustainable food consumption are still quite fragmented, and most of them focus on single aspects of sustainable food consumption only (Annunziata, Mariani, 2018).

Chapter II

Organic agriculture and organic food market in the European Union

2.1. The concept and objectives of organic agriculture

Organic farming has been defined slightly differently by several countries and a variety of organisations, but all these definitions converge on the idea that it is an agricultural system that relies on ecosystem management rather than external agricultural inputs (FAO, 1999). The International Federation of Organic Agriculture Movement (IFOAM), a non-governmental organisation that networks and promotes organic agriculture internationally, was founded in 1972. IFOAM has defined organic farming as follows: "Organic agriculture is a production system that sustains the health of soils, ecosystems and people. It relies on ecological processes, biodiversity and cycles adapted to local conditions, rather than the use of inputs with adverse effects. Organic agriculture combines tradition, innovation and science to benefit the shared environment and promote fair relationships and a good quality of life for all involved" (IFOAM, 2008). There are many different terms for this environmentally friendly, sustainable way of farming, but they all mean the same thing. The term for the production method is legally protected in most countries. Both in the European Union's predecessor, the EEC (European Economic Community), and subsequently in the EU the term has been protected since 1992: in English it is 'organic', in French, Italian, Portuguese and Dutch it is 'biological', and in Danish, German and Spanish it is 'ecological' (FAO, 1998). In recent years both agroecology and regenerative agriculture have been strengthening worldwide, and there is a lively debate on whether these trends

are mutually reinforcing or competing, although the parties involved mostly agree that the principles of the two trends stem from the same source.

IFOAM's principles aim to address all aspects of sustainability (ecology, economy, society, and health). While the IFOAM principles provide the basis for the production of organic food (IFOAM-Organics International, 2020), they extend beyond the strict definition of agricultural production. They provide guidance on the management of natural resources, plants and animals, landscape management, cooperation and trade, and the production of healthy food and other products. Overall, they indicate sustainable ways of living for future generations. According to the IFOAM, organic farming is based on 4 principles: health, ecology, fairness, and care.

1. **Principle of health:** "Organic Agriculture should sustain and enhance the health of soil, plant, animal, human and planet as one and indivisible. This principle points out that the health of individuals and communities cannot be separated from the health of ecosystems – healthy soils produce healthy crops that foster the health of animals and people. Health is the wholeness and integrity of living systems. It is not simply the absence of illness, but the maintenance of physical, mental, social and ecological well-being. Immunity, resilience and regeneration are key characteristics of health. The role of organic agriculture, whether in farming, processing, distribution, or consumption, is to sustain and enhance the health of ecosystems and organisms from the smallest in the soil to human beings. In particular, organic agriculture is intended to produce high-quality, nutritious food that contributes to preventive health care and well-being. In view of this it should avoid the use of fertilizers, pesticides, animal drugs and food additives that may have adverse health effects." (IFOAM, 2020).
2. **Principle of ecology:** "Organic Agriculture should be based on living ecological systems and cycles, work with them, emulate them and help sustain them. This principle roots organic agriculture within living ecological systems. It states that production is to be based on ecological processes, and recycling. Nourishment and well-being are achieved through the ecology of the specific production environment. For example, in the case of crops this is the living soil; for animals it is the farm ecosystem; for fish and marine organisms, the aquatic environment. Organic farming, pastoral and wild harvest systems should fit the cycles and ecological balances in

nature. These cycles are universal but their operation is site-specific. Organic management must be adapted to local conditions, ecology, culture and scale. Inputs should be reduced by reuse, recycling and efficient management of materials and energy in order to maintain and improve environmental quality and conserve resources. Organic agriculture should attain ecological balance through the design of farming systems, establishment of habitats and maintenance of genetic and agricultural diversity. Those who produce, process, trade, or consume organic products should protect and benefit the common environment including landscapes, climate, habitats, biodiversity, air and water." (IFOAM, 2020).

3. **Principle of fairness:** "Organic Agriculture should build on relationships that ensure fairness with regard to the common environment and life opportunities. Fairness is characterized by equity, respect, justice and stewardship of the shared world, both among people and in their relations to other living beings. This principle emphasizes that those involved in organic agriculture should conduct human relationships in a manner that ensures fairness at all levels and to all parties – farmers, workers, processors, distributors, traders and consumers. Organic agriculture should provide everyone involved with a good quality of life, and contribute to food sovereignty and reduction of poverty. It aims to produce a sufficient supply of good quality food and other products. This principle insists that animals should be provided with the conditions and opportunities of life that accord with their physiology, natural behavior and well-being. Natural and environmental resources that are used for production and consumption should be managed in a way that is socially and ecologically just and should be held in trust for future generations. Fairness requires systems of production, distribution and trade that are open and equitable and account for real environmental and social costs." (IFOAM, 2020)
4. **Principle of care:** "Organic Agriculture should be managed in a precautionary and responsible manner to protect the health and well-being of current and future generations and the environment. Organic agriculture is a living and dynamic system that responds to internal and external demands and conditions. Practitioners of organic agriculture can enhance efficiency and increase productivity, but this should not be at the risk of jeopardizing health and well-

being. Consequently, new technologies need to be assessed and existing methods reviewed. Given the incomplete understanding of ecosystems and agriculture, care must be taken. This principle states that precaution and responsibility are the key concerns in management, development and technology choices in organic agriculture. Science is necessary to ensure that organic agriculture is healthy, safe and ecologically sound. However, scientific knowledge alone is not sufficient. Practical experience, accumulated wisdom and traditional and indigenous knowledge offer valid solutions, tested by time. Organic agriculture should prevent significant risks by adopting appropriate technologies and rejecting unpredictable ones, such as genetic engineering. Decisions should reflect the values and needs of all who might be affected, through transparent and participatory processes." (IFOAM, 2020)

The general objectives of organic production, based on Regulation (EU) 2018/848 of the European Parliament and of the Council and the IFOAM principles, are:

- producing a wide variety of **high-quality food** and other agricultural and aquaculture products that respond to consumers' demand for goods that are produced by the use of processes that do not harm the environment, human health, plant health, or animal health and welfare;
- contributing to the protection of the **environment** and the **climate**;
- using **renewable resources** as much as possible; working in a **closed system** as far as possible with regard to organic matter and nutrient elements;
- stimulating and enhancing **biological cycles** in the agricultural system – involving micro-organisms, soil flora and fauna, plants and animals;
- maintaining and increasing the long-term productivity of **soils**;
- making a substantial contribution to achieving a **non-toxic environment** by avoiding all forms of pollution from agricultural techniques;
- contributing to high **animal welfare** standards and, in particular, to meeting the species-specific behavioural needs of animals;
- encouraging **short distribution channels** and **local** production in the various areas of the European Union;

- encouraging the **preservation** of **rare and native breeds** in danger of extinction;
- contributing to the development of a supply of **plant genetic material** adapted to the specific needs and objectives of organic farming;
- contributing to a high level of **biodiversity**, in particular through the use of diverse plant genetic material, such as organic heterogeneous material and organic varieties suitable for organic production;
- fostering the development of **organic plant breeding** activities in order to contribute to the favourable economic prospects of the organic sector;
- ensuring that farmers have **adequate yields** and satisfaction from their work, including safe drinking water (Council of the European Union, 2018; IFOAM, 2020).

One of the main characteristics of organic farming practices is that it focuses on the production processes and not on the product itself (El-Hage Scialabba, 2003; Council of the European Union, 2018). Organic food is the product of sustainable, controlled farming and food production systems that prohibit or limit the use of substances and technologies that are potentially hazardous to health and the environment, such as synthetic pesticides, fertilisers, soil improvers, genetically modified organisms, and their derivatives in crop production; artificial veterinary drugs and yield enhancers in animal production; and a range of artificial additives and processing agents and ionising radiation in processing. Organic production applies high animal welfare standards and promotes the protection of the natural environment and sustainability. The operator applies organic farming principles and legislative requirements with increased control from production through processing to retailing (Council of the European Union, 2018; FAO, 2020).

Organic farming uses natural methods to control pathogens, pests, and diseases, so since natural biological methods of control are used, no harmful residues accumulate in the plants from the substances used in production. The emphasis is on prevention. The yields of products produced in organic ways are generally lower, and because of the methods used, they are usually more costly to produce (e.g., due to the need for more manual labour) than products from chemical (conventional) farming. Certified organic products are generally more expensive, but also of higher quality and added value (FAO, 2022). Only agricultural raw materials and food products that have been produced with respect to the corresponding legislation can be sold as organic,

and this cannot be influenced by any subjective judgement or nutritional trend. The organic food production standards do not refer to the final product and its specific parameters, but to the whole production process, and therefore no food can be certified as organic afterwards on the basis of laboratory tests. There are a number of terms in a common vernacular that appear to be similar, such as 'chemical-free', 'natural', ' reform', and ' traditional', but these cannot be considered in the context of the standards of organic farming.

The UN Food and Agriculture Organization (FAO) is also involved in examining issues related to food security and organic agricultural research. The Codex Alimentarius Commission's Guidelines for the Production, Processing, Labelling and Marketing of Organically Produced Foods help ensure that organic product requirements are uniform worldwide (FAO/OMS, 2007). Legislators worldwide consider the IFOAM standard requirements and the relevant Codex Alimentarius standards when drafting legislation.

The issues of climate change and food safety and quality are real challenges for modern society and future generations. The negative impacts of industrial agriculture and the increasing health risks make sustainability and environmental awareness in farming and consumption increasingly important. Organic food is the most successful green food, and organic farming is one of the most sustainable agricultural production systems in terms of environmental and social well-being (Reganold, Wachter, 2016; Boone et al., 2019; Smith et al., 2019; Panyor, 2020; Kowalska et al., 2021). The principles of organic farming are nowadays applied in many countries all over the world. Further chapters provide information on the current state of organic farming and organic food consumption habits in the Visegrad Group countries.

2.2. The common agricultural policy and the development of organic agriculture

The Common Agricultural Policy (CAP) is crucial in supporting the European agricultural sector. It was launched in 1962 and constitutes a partnership between agriculture and society. It aims first to (The Common Agricultural…):

- support farmers and improve agricultural productivity while ensuring a stable supply of affordable food,

- protect and ensure decent living conditions for farmers,
- support counteracting climate change as well as sustainable management of natural resources,
- maintain rural areas and landscapes across the EU,
- maintain the rural economy by supporting workplaces in agriculture, agri-food, and related sectors.

The CAP is the policy of all EU countries. Its main areas include income support through direct payments, ensuring income stability and rewarding farmers for environmentally friendly practices, and the provision of public services such as caring for the countryside, market-based measures to deal with market barriers such as a sudden drop in demand or a fall in prices due to a temporary market surplus, as well as rural development actions including national and regional programmes.

The CAP has undergone several reforms in recent decades, i.e., towards greater agricultural sustainability. One of the most significant reforms was the MacSharry reform[1], under which, in 1990, work was begun on the rules of organic production and labelling of organic food, as a result of which Council Regulation (EEC) No. 2092/91 of June 24 1991 was adopted (Council 1991). The regulation concerned requirements for organic production, allowed substances used in organic farming, processing requirements, including the content of permitted additives, rules for controlling farmers and processors, labelling of organic food, and rules for import from third countries.

Tools aimed at achieving environmental protection goals, such as the so-called agri-environmental programmes that enabled support for organic farming, were also important elements of this reform. The support system for organic farms is based on the belief that farmers should receive income not only from agricultural production, but also from practices that contribute to maintaining the traditional character of rural areas and using environmentally friendly production systems. This support includes subsidies for crop area and additional tools, such as subsidies for the costs of inspections, training, and research programmes. The direct effect of its implementation was an increase in the number of organic farms and the organic farming area. Initially, agri-environmental programmes resulted from Regulation 2078/92, which introduced a wide range of support options, while at the same time, it was supposed to favour the natural environment and preserve the rural landscape (Council 1992).

[1] Ray MacSharry was an Irish politician and EEC Commissioner for Agriculture and Rural Development from 1989 to 1992. In 1992, he initiated the most significant reforms of the CAP.

Due to the dynamic development of organic farming and the need to update the requirements, Council Regulation (EC) No. 1804/1999 of July 19 1999 came into force, extending the scope of Regulation (EEC) No. 2092/91 on the production of organic agricultural products and labelling of agricultural products and foodstuffs to include animal production. It expanded the scope of organic agricultural production and possibilities of supporting it, and it introduced voluntary labelling of organic food products (Council 1999).

The following CAP reforms have increased the importance of agri-environmental programmes. Regulation 1257/99 on supporting rural development was adopted as part of these changes. It defined the objectives of agri-environmental programmes, conditions for participation in these programmes, the amount of subsidies, and the control system (Council 1999). This support was financed from the European Agricultural Guidance and Guarantee Fund.

Regulation 1257/99 specified the following activities subject to support (Liro 2003, p. 98):

- use of agricultural land following environmental protection standards, in particular maintaining genetic diversity in agricultural production,
- extensification of agricultural production or maintaining extensive grazing on grasslands,
- protection of nature coexisting with agriculture, especially species threatened with extinction,
- maintaining cultural and historical values in rural areas,
- planning to take into account environmental aspects in agricultural production.

The implementation of the agri-environmental programme was obligatory for the Member States. Still, freedom was retained regarding programming activities, selecting objectives, programme participation conditions, and the amount of subsidies. This was mainly due to the diversified economic, geographical, and natural conditions of farms, as well as the type of agricultural economy (Liro, 2003, p. 100).

In 2001, support for organic farming in the EU amounted to approximately EUR 275 million, while in 2003, it was over EUR 460 million, respectively. The subsidised organic area increased from approximately 1.45 to 2.48 million hectares. On average, a supported organic farm obtained EUR 186/ha in 2001 and EUR 185/ha in 2003. The highest number of supported organic

farms was found in Austria, Sweden, and Italy, while the largest organic area was reported in Sweden, Germany, Austria, the UK, and Italy. However, the largest amount of funds was allocated to organic farming in Austria, Sweden, Germany, and Italy. The highest average payment rates were applied in Greece, Italy, Austria, and Belgium (EU Rural… 2006). In 2005, financial support for organic farming amounted to EUR 660 million.

With the development of organic farming, further changes in regulations and support principles were necessary. In 2005 Regulation 1698/2005 on support for rural development by the European Agricultural Fund for Rural Development (EAFRD) was adopted (Council 2005). The primary task of the fund was to promote sustainable development of rural areas in the EU. Its implementation was based on the creation of a single source of financing and the definition of common priority axes for the EU Member States, which was intended to ensure simplification of the administration system and implementation of an integrated approach to the programming process by adopting main recommendations in the area of rural development. Organic farming was primarily supported by Pillar 2 of the CAP, which included the development of rural areas that, in addition to organic farming, included improving the condition of the natural environment and landscape, supporting less favoured areas and afforestation of land. The Member States have elaborated and co-financed multi-annual programmes in rural development based on these common assumptions.

In turn, on January 1, 2009, the new Council Regulation (EC) No. 834/2007 of 28 June 2007 on organic production and labelling of organic products and repealing Regulation (EEC) No. 2092/91 (Council 2007) entered into force. The regulation included, among others, a clear definition of the goals and requirements of organic production and its application at all stages of organic production, accidental use of GMOs, the obligation to label organic products with the EU logo, and increasing the freedom of trade in organic products, including with third countries. It laid the foundation for further changes in the legislation on organic farming, including the list of permitted substances, controls, and other detailed regulations. However, the regulation did not cover detailed provisions such as collective catering.

Although the previously introduced indication facilitated the recognition of organic food and contributed to its popularisation, it was poorly recognisable and not very transparent. It also resembled the logo of the Protected Designation of Origin and Protected Geographical Indication. Therefore, Council Regulation No. 834/2007 changed the graphic design of this indication

(Fig. 1). According to this regulation, in order for a product to be labelled as organic, it must contain at least 95% organic ingredients and the content of accidental GMO residues cannot exceed 0.9%.

Figure 2.1. The organic food logo

Source: The organic logo, https://agriculture.ec.europa.eu/farming/organic-farming/organic-logo_en.

During further work on adapting support to the conditions, in which organic farming operates, Regulation No. 1305/2013 on support for rural development through the EAFRD was adopted for the years 2014-2020, which, among 46 other instruments, introduced a specific measure for organic farming (Regulation 2013).

Since 2015, all the Member States have been obliged to use 30% of their direct payments to finance support to farmers applying sustainable agricultural practices that help improve the climate and environment. This process is called "greening the CAP". It is implemented through three basic measures, i.e., maintaining permanent grassland, crop diversification (agricultural producers must grow at least two different types of crops if their agricultural area is larger than 10 ha, and at least three types of crops if it exceeds 30 ha), maintaining an environmental focus area on at least 5% of agricultural land for farms exceeding 15 ha (permanent grassland), i.e. fallow land, landscape elements, buffer zones, woodland, intercrops and nitrogen-fixing crops. What is important is that the practices used on an organic farm are recognised in advance as meeting these three criteria. It uses the so-called green direct payments without the need to fulfill additional obligations due to their contribution to achieving environmental goals. In the long term, it may contribute to disseminating sustainable food production systems, sustainable

management of natural resources, considering climate change, and sustainable territorial development (Westhoek 2014, p. 2, Przewodnik… 2018).

Organic farming can also be supported by Pillar 1 (concerning specific environmental requirements, animal welfare, and food safety). The Action Plan for the future of EU organic production adopted by the European Commission in 2014 recommends that the Member States use the opportunities and instruments to support organic farming introduced through the new legal framework for rural development, blue growth provisions, and common policy provisions for fishing. New rural development programmes are characterised by a more flexible structure that allows combining various tools to stimulate rural development, including organic producers. The Member States may also decide to allow multiple agri-environment-climate and animal welfare obligations to be combined with organic farming obligations. Suppose a Member State decides in its rural development programme on the possibility of combining instruments. In that case, organic producers can use e.g. the cooperation instrument, under which it is possible to support cooperation in the field of technology, environment, and trade between various entities in the food chain (e.g., in the field of development of innovative products, processes, practices and technologies, investments in physical assets). Another instrument provides support also for agricultural product quality systems. Within them, farmers are encouraged to create organisations that produce high-quality products, e.g., producer groups that strengthen the market power of individual producers. Organic farming may also be supported under thematic sub-programmes of rural development programmes. One of them is, for example, the sub-programme on climate change mitigation and biodiversity. To some extent other instruments, e.g. those dedicated to small farms and short supply chains, may also be important forto organic agricultural producers (Przewodnik… 2018).

At the EU level, direct support for agriculture under Pillar 1 amounted to EUR 321.7 billion, with support for organic agriculture amounting to EUR 6.3 billion, i.e., 1.5% of the total EU budget allocated to agriculture. In turn, the funds allocated to greening, climate measures, and environmental protection in agriculture amounted to EUR 119 billion (with a share of 28.9% of the budget allocated to agriculture). However, the majority of spending, almost two-thirds of the EU budget for agriculture, was therefore directed towards achieving other objectives unrelated to environmental protection and climate-smart agricultural practices or sustainable agricultural systems, to which the EU continues to give higher priority. Thus, despite the reforms, the EU's incentives were still too weak to increase farmers' interest in converting to organic methods.

Table 2.1. Main funds from the EU budget for the transition to environmentally and climate-friendly practices and organic farming under the CAP 2014-2020

Budget Allocation	Billion euro	% of total EAFRD	% of total EU budget for agriculture
Budget allocation for Pillar 1 and Pillar 2			
1. Pillar 1 – European Agricultural Guarantee Fund (EAGF) – Market related expenditure & direct payments (Commitment appropriation)	312.70	-	76.00
2. Pillar 2 – European Agricultural Fund for Rural Development (EAFRD) – as adopted by EC	99.00	-	24.00
3. Total EU budget for agriculture Pillar 1 and Pillar 2 [1 + 2]	411.70	-	100.00
Greening Component (Pillar 1)			
4. Total national ceilings for direct payments 2014-2020	297.60	-	72.30
5. Greening component (maximum 30% of direct payments [4])	89.30	-	21.70
Climate and environmental issues (Pillar 2)			
6. Contribution to environment & climate issues – including organic farming (minimum 30% of EAFRD [2])	29.70	30.00	7.20
Organic farming support (conversion and maintenance payments)			
7. EAFRD organic farming support (Measure 11) – as adopted by EC	6.30	6.40	1.50
8. Total public expenditure (EU & Member States) for organic farming support (Measure 11))	9.90	-	-
Total environmental and climate change spending for agriculture (Pillar 1 and Pillar 2)			
9. EU budget for transition towards environmental and climate-friendly agriculture [5+6]	119.00	-	28.90

Source: Stolze et al. 2016, p. 3.

Regulations concerning organic production required further changes. A new regulation was adopted in 2018, but it did not enter into force until 2022 due to the need for producers to adapt to the changes and because of delays caused by the coronavirus pandemic. Among other things it introduced changes in obtaining seed material for crop plants or animal feed, poultry breeding, and aquaculture. It also tightened the requirements in processing (e.g., restrictions on the use of flavours, the use of ionizing radiation, adsorption resins, nanomaterials, and permitted cleaning and disinfecting agents), in certification and control (facilitations for farmers with a low risk of non-compliance, new certification rules), as well as imports from third countries (need to renegotiate agreements with third countries). The regulation also introduced provisions to make it easier for small farmers to switch to organic production, with the range of products enlarged to include, among others, beeswax, sea salt, or wool, which may be marketed as organic (Regulation 2018).

In terms of support, the next CAP reform was prepared in June 2021 during negotiations between the European Parliament, the EU Council, and the European Commission. This agreement was adopted on December 2, 2021, and the new CAP came into force on January 1, 2023. This reform introduces changes to the existing conditionality and greening regimes to reflect higher environmental protection ambitions and contribute to the achievement of the European Green Deal goals. Order, above all, can be achieved by encouraging climate and environmentally-friendly agricultural practices. Under the EGD, the Commission adopted the Farm to Fork Strategy, the Biodiversity Strategy, the proposal for a Climate Law, and the new Circular Economy Action Plan, all addressing issues important to agriculture and rural areas.

The Farm to Fork Strategy and the Biodiversity Strategy aimed to reduce the use of pesticides, antibiotics, and artificial fertilizers in agriculture, increase the share of organic farming, as well as the share of landscape elements and set-aside areas, while also tightening animal welfare requirements. In addition, several qualitative objectives were planned, including the need to preventthe decline in the number of birds and insects, particularly pollinating insects, in agricultural areas.

In addition to the above-mentioned financial support instruments, other tools used at the level of the Member States are also necessary to achieve the assumed goals. For example, the European Green Deal envisaged the creation of innovative methods to protect crops against pests and diseases, considering the potential role of new, innovative, and safe techniques in increasing sustainability of the food system (https://food.ec.europa.eu/horizontal-topics_pl).

Generally speaking, the original European Green Deal (EGD) aimed at expanding the use of sustainable practices, i.e., precision agriculture, organic farming, agroecology, agro-forestry, and more stringent animal welfare requirements. This is one of the forms of achieving various goals indicated in the EGD, including the EU's ambitions in the field of climate change and the protection and restoration of ecosystems and biodiversity, as well as those aimed at increasing resilience of European agriculture, e.g. by promoting diversification of agricultural production (the so-called agrodiversity). Mandatory requirements under the proposed conditionality regime could help steer agriculture towards more sustainable practices, i.e., crop rotation, soil protection, maintenance of permanent grasslands, protection of wetlands and peat bogs, the Natura 2000 Directive, and the need to protect existing landscape elements or designate an area on each farm for „non-productive" elements.

In turn, the elements which are voluntary for farmers, the so-called eco-schemes in Pillar 1 of the CAP – accounting for over 44.7 bn euro and 23% European Agricultural Fund budget for years 2023-2027 – were to be the primary instrument to support precision farming, organic farming, agroecology, and agro-forestry, as well as other approaches or specific practices relevant to climate change, natural resources management, and biodiversity. Eco-schemes have enabled many farms to increase their environmental efficiency. Unlike previous „greening" instruments, they are elaborated by the Member States according to a „bottom-up" approach, which may promote better adaptation of environmental objectives to existing agricultural conditions, but in some Member States they are not ambitious enough to translate into the dynamic development of organic agriculture (Midler et al. 2023, pp. 20-29, Approved… 2023).

Practices and systems that can be supported under Pillar 1 of the CAP through eco-schemes may still be eligible for funding under the second pillar (35% of the agri-environment and climate budget). This support will be implemented primarily in the form of multi-year contracts (eco-schemes will operate on an annual basis) and will complement eco-schemes. Support for rural development within the scope of commitments will also apply to voluntary actions aimed at improving the state of the environment and mitigating and adapting to climate change. This may be attained through a wide and diverse range of tools established by the Member States, e.g. in terms of biodiversity, especially the Natura 2000 areas, agricultural land with high natural values, extensive permanent pastures, as well as supporting a payment system based on results in the protection of specific species or animal welfare (Midler et al. 2023, pp. 8-11).

The proposed changes could result in a decreased intensity of agricultural production, which will be accompanied by compensation in the form of additional subsidies (Krzyżanowski, 2021, pp. 42-44). Tax incentives could also promote changes towards a more sustainable food system and stimulate demand for organic food. The EU tax systems should be designed so that the price of food products reflects the real costs associated with environmental externalities, i.e., the use of natural resources, greenhouse gas emissions, and environmental pollution in general. The Common Agricultural Policy proposed after 2020 is a continuation of the current agricultural policy of the European Union. The main objective of the Common Agricultural Policy remains to support agricultural income and the coverage of agriculture and rural areas through the agricultural policy. As before, the Common Agricultural Policy

is to be based on three main principles established in the Treaty of Rome, i.e. the single market (providing equal treatment of producers from all the Community Member States), preferences (according to which products from the Community Member States have priority over imported products), and solidarity (primarily in the sense of the solidarity of each Member State in financing the common agricultural policy) (Wąs et al., 2018, p. 42).

During the negotiations on changes to the CAP, the Member States actively opposed a clear legal link between the CAP and the Green Deal. Finally, Commission Implementing Regulation (EU) 2021/2289 provides that the Member States explain their national contribution to achieving the Union's 2030 targets set out in the Farm to Fork Strategy and the Biodiversity Strategy in order to enable the European Commission to assess the coherence and the contribution of the proposed CAP Strategic Plan, as well as the Union's environment and climate legislation and commitments. The Member States' plans are estimated to be insufficient to achieve the assumed goal of a 25% share of organic crops in the EU (Willer, 2023, p. 236).

Currently, due to farmers' protests across the EU, changes are expected to be introduced in the EGD strategy, primarily in terms of relaxing the requirements for farmers. These changes are subject to negotiation and their final shape will be presented in the future.

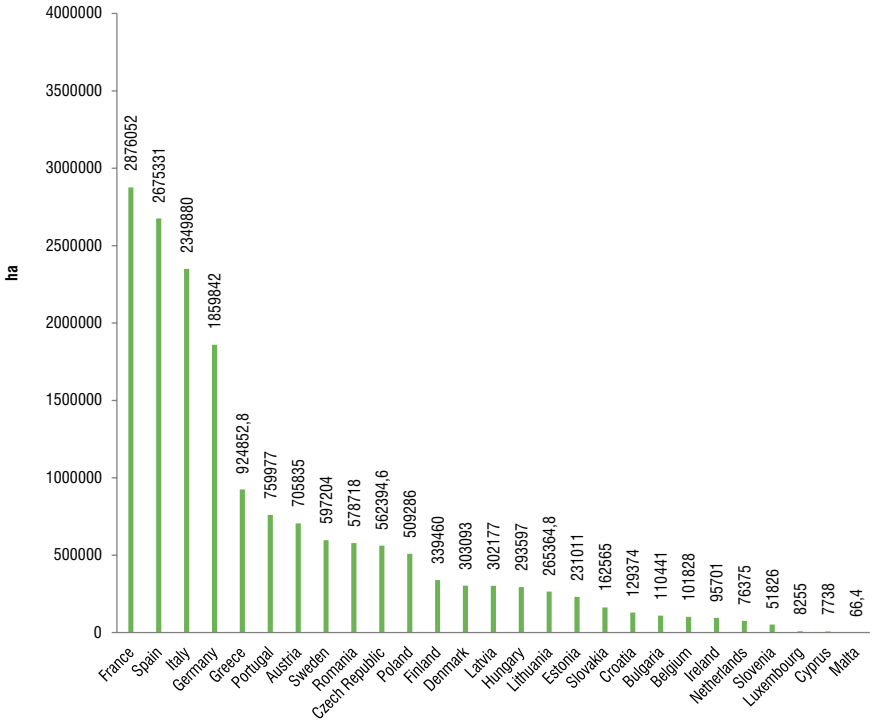
2.3. Quantitative changes in EU organic agriculture with regard to the V4 group

By combining production of safe food with reduced use of artificial fertilisers and pesticides while undertaking comprehensive actions to eliminate water, air and soil pollution, organic agriculture is in line with the green transformation concept, promoted since 2019. Moreover, development of organic production contributes to a shortening of supply chains, strengthening the position of farmers and increasing their income (Miecznikowska-Jerzak, 2022, p. 265).

To a considerable extent the development of organic agriculture in the EU countries is related with natural conditions for farming. In countries with less favourable natural conditions for the development of agricultural production the share of organic farming is greater, whereas in those with more advantageous natural and soil conditions intensive farming is dominant and

the percentage of utilised agricultural area farmed in the organic system is much smaller. The area farmed applying organic methods in the EU in 2022 was 16.87 million hectares of agricultural area, accounting for 10.39% total utilised agricultural area. Interest in organic agriculture in individual EU member countries varies considerably (Figure 2.2). In 2022 the largest organic cropland area was recorded in large agricultural EU countries, such as France (2.87 million ha), Spain (2.67 million ha), Italy (2.34 million ha) and Germany (1.85 million ha). The next positions in this ranking were taken by Greece (0.90 million ha), Portugal (0.76 million ha) and Austria (0.70 million ha). In turn, small countries such as Malta (66.40 ha), Slovenia (51826 ha), Cyprus (7738.00 ha) and Luxemburg (8255.00 ha) ranked last. Among the Visegrad Group countries in 2022 the largest organic cropland area was farmed in the Czech Republic (562394.60 ha), followed by Poland (509286 ha), and Hungary (293597 ha), whereas it was smallest in Slovakia (162565.00 ha).

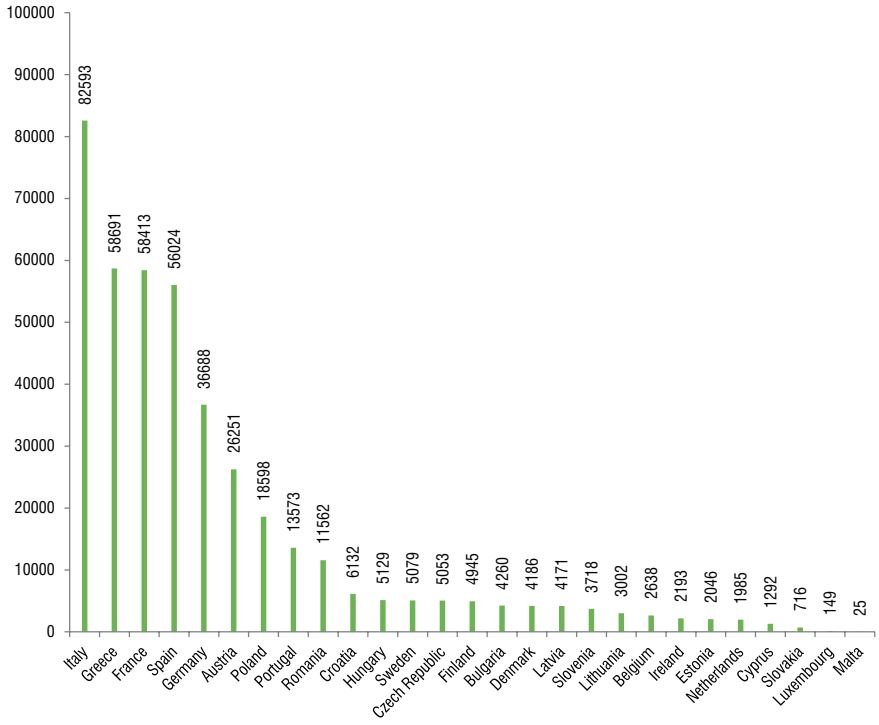
Figure 2.2. Agricultural area under organic farming in the EU countries in 2022 (ha)



Source: the authors' elaboration based on FiBL, https://statistics.fibl.org/data.html.

In the investigated years, along with the increase in the organic agricultural area in the EU the number of organic farms increased as well (Figure 2.3). In 2022 for the total number of organic farms amounting to 419.0 thousand the highest share was found in Italy (82.6 thousand), Greece (58.7 thousand), France (58.4 thousand) and Spain (56.0 thousand). The share of these four countries in the total number of organic farms was 34% (jointly 141.0 thousand farms). In terms of the number of organic producers in the V4 group Poland takes the first place (18.6 thousand), followed by Hungary (51.0 thousand), Czechia (50.53 thousand) and Slovakia (716).

Figure 2.3. The number of organic farmers in the EU countries in 2022



Source: the authors' elaboration based on FiBL, https://statistics.fibl.org/data.html.

The area of organic cropland in the EU countries has been growing systematically (Table 2.2, Figure 2.4). In the analysed period the greatest increase in organic farmland area was recorded in such countries as Latvia (11-fold), Cyprus (9-fold), Lithuania (7-fold), Estonia and France (5-fold each). During that period in Poland the area of organic cropland increased 6-fold, i.e. from 82730 ha in 2004 to 509286 ha in 2022, in Slovakia it was 3-fold, from 51186 ha to 162565 ha, while in the other Visegrad Group countries it was 2-fold, as in Czechia it was from 263299 ha to 562394.6 ha and in Hungary from 133009 ha to 293597 ha, respectively.

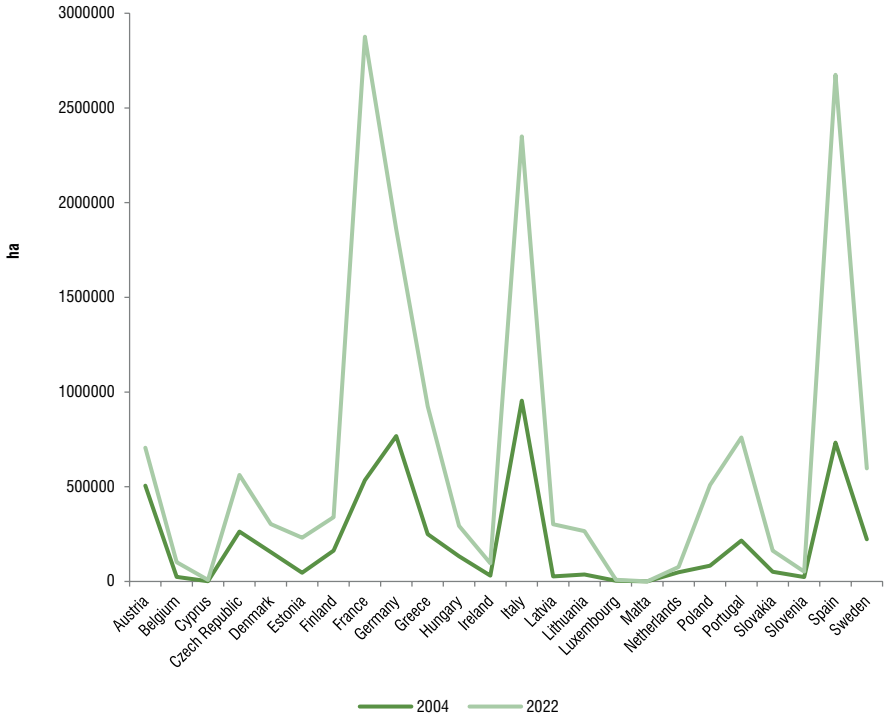
Table 2.2. Changes (in ha and%) for the area under organic farming in the EU* from 2004 to 2022

Country	Area under organic farming 2004	Area under organic farming 2022	Change [ha]	Change [%]
Austria	505802.0	705835.0	200033.0	139.5
Belgium	23728.0	101828.0	78100.0	429.1
Cyprus	867.0	7738.0	6871.0	892.5
Czechia	263299.0	562394.0	299095.6	213.5
Denmark	154921.0	303093.0	148172.0	195.6
Estonia	46016.0	231011.0	184995.0	502.0
Finland	162024.0	339460.0	177436.0	209.5
France	534037.0	2876052.0	2342015.0	538.5
Germany	767891.0	1859842.0	1091951.0	242.2
Greece	249508.0	924852.8	675344.8	370.6
Hungary	133009.0	293597.0	160588.0	220.7
Ireland	30670.0	95701.0	65031.0	312.0
Italy	954362.0	2349880.0	1395518.0	246.2
Latvia	26138.0	302177.0	276039.0	1156.0
Lithuania	36864.0	265364.8	228500.8	719.8
Luxembourg	3158.0	8255.0	5097.0	261.3
Malta	13.0	66.4	53.4	510.7
Netherlands	48152.0	76375.0	28223.0	158.6
Poland	82730.0	509286.0	426556.0	615.6
Portugal	215408.0	759977.0	544569.0	352.8
Slovakia	51186.0	162565.0	111379.0	317.5
Slovenia	22606.0	51826.0	29220.0	229.2
Spain	733182.0	2675331.0	1942149.0	364.8
Sweden	222100.0	597204.0	375104.0	268.8
Total	9861503.0	16878245.0	7016742.0	171.1

* Excluding Bulgaria, Romania, which accessed the EU in 2007, Croatia accessed the EU in 2013.

Source: the authors' elaboration based on FiBL. https://statistics.fibl.org/data.html.

Figure 2.4. Area under organic farming in the EU countries (2004 and 2022)



* Excluding Bulgaria, Romania, which accessed the EU in 2007, Croatia accessed the EU in 2013.

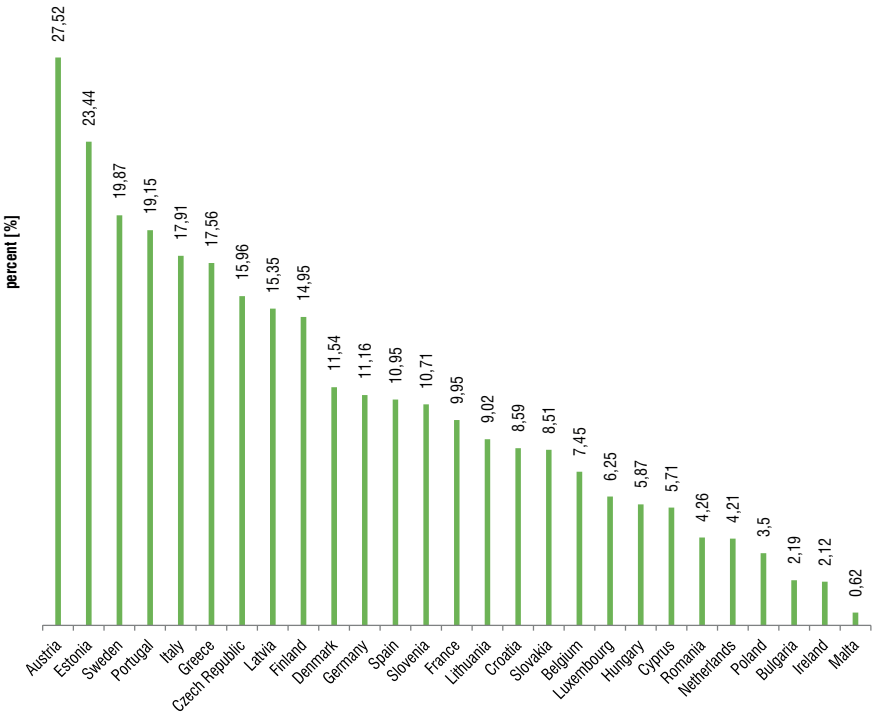
Source: the authors' elaboration based on FiBL. https://statistics.fibl.org/data.html.

Austria continues to be a leader in terms of the area of organic cropland, which in 2022 accounted for over 27%. The following countries ranked next: Estonia (23%), Sweden (almost 20%), Portugal (19%), Italy (almost 18%), Greece (almost 16%) and Czechia (15%). In this ranking Slovakia was 17th (over 8%), Hungary 20th (almost 6%) and Poland 24th (over 3%). Poland outranked only Bulgaria, Ireland and Malta (Figure 2.5).

For more than a decade now we have been observing increased interest in organic agriculture in the European Union, which has been manifested both in the level and structure of production, as well as the number and size of farms. In the years 2004-2022 the area of organic farmland in the EU increased from 9.86 million ha to 16.88 million ha, i.e. 71%. The largest area of organic agricultural area among the EU countries was recorded in France, Spain, Italy and Germany. In each of those countries the area of organic farmland ranged

from 1.85 million (Germany) to 2.87 million (France). During the analysed period, along with an increase in the area under organic agriculture in the EU the number of organic farms was also growing.

Figure 2.5. The share of area under organic farming in the EU countries in 2022 (%)



Source: the authors' elaboration based on FiBL. https://statistics.fibl.org/data.html.

2.4. Development of the EU organic food market

The organic food market is crucial for the development of organic agriculture. The necessary pre-condition for sustainable profitability of organic production is connected with efficient sale of products from organic farms at adequate prices, ensuring compensation for costs incurred on measures protecting the natural environment and climate.

Considering the level of market development in a given country, three categories of countries can be distinguished depending on different growth

rates of the organic food market, its share in the food market, and the level of development of distribution channels. These are mature, developing, and emerging markets. The first group includes Western European countries (e.g., Germany, Italy, France, Switzerland, Austria), the USA, and Canada. The second group comprises Portugal, the Visegrad Group countries, and some Asian countries, whereas the third group comprises the other Central and Eastern European countries.

Mature (established) markets are characterised by a relatively high share of organic products in the food market, high sales value and the predominant presence of retail chains in distribution channels. However, the growth dynamics of these markets is lower due to their high saturation with organic food. In turn, developing markets are characterised by lower sales value and a smaller share in the total food market, as well as a greater share of specialist stores and a higher growth rate of this market. The last group – emerging markets – is characterised by the predominance of direct sales, a small share in the food market, and consequently low sales value. Nevertheless, in view of the high dynamics of development and the size of the potential sales market, this group is considered to have the greatest development prospects (Richter, 2005; Padel, Midmore, 2005, pp. 629-632).

Historically, the global organic food and drink market has grown from 15.2 billion euro in 2020 to 127.7 billion euro in 2022, which means a double-digit annual growth of the organic food market. A significant increase was observed in 2020. The coronavirus pandemic stimulated the demand for organic and healthy foods, as consumers bought organic products trying to boost their immune systems. Future market growth will continue to be affected by macroeconomic and political factors, which are impacting organic food prices, thus, also driving consumer demand.

The EU countries have a dominant position in the organic food market. The value of this market in 2021 was almost EUR 47 billion, which represents 27% of the value of the global organic food market. Between 2000 and 2002, this value increased about 8 times; however, in 2022, a decrease was observed, which may have resulted from a difficult economic and political situation in Europe (Table 2.3).

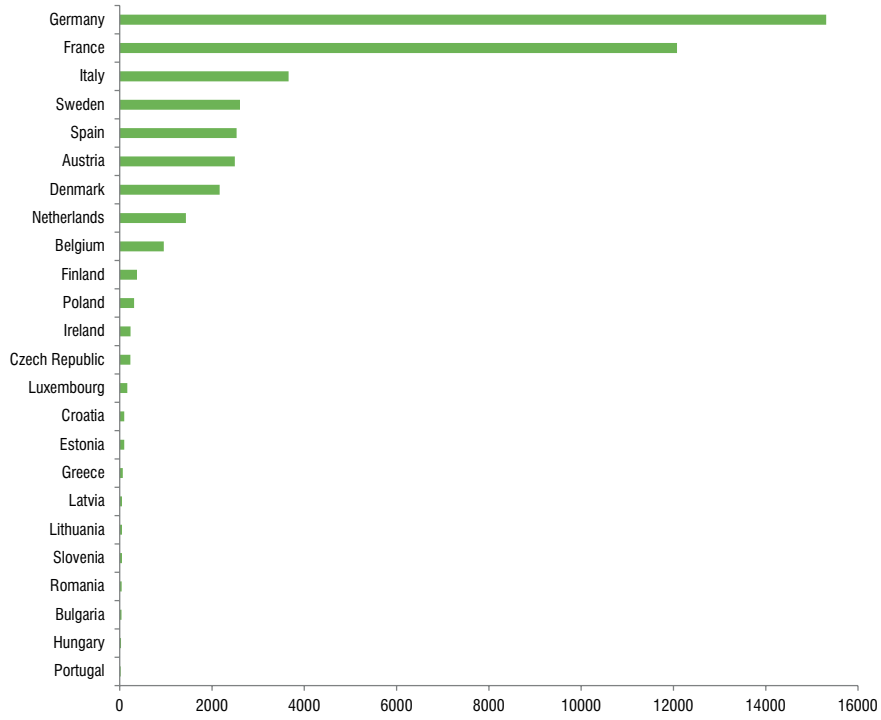
Table 2.3. Changes in the value of the organic food market in the EU in 2000-2022

Year	Value of the organic food market in million euros	Dynamics of changes (previous year = 100)
2000	5557.90	-
2001	6298.50	113.33
2002	7184.10	114.06
2003	7914.67	110.17
2004	8469.58	107.01
2005	8848.10	104.47
2006	10470.96	118.34
2007	12112.95	115.68
2008	13674.30	112.89
2009	14867.49	108.73
2010	16069.98	108.09
2011	17783.41	110.66
2012	18753.54	105.46
2013	20068.31	107.01
2014	21707.01	108.17
2015	24924.62	114.82
2016	28455.63	114.17
2017	32162.96	113.03
2018	35819.83	111.37
2019	38994.83	108.86
2020	45043.73	115.51
2021	46665.00	103.60
2022	45098.46	96.64

Source: the authors' study based on FiBL data, https://statistics.fibl.org/data.html.

Among the EU countries, for the analysed years the German organic food market was the largest in terms of value – in 2022, it amounted to over 15 billion euro (Figure 2.6). The following places were taken by France (€12 billion), Italy (over €3.6 billion), Sweden (€2.6 billion), Spain (€2.5 billion), Austria (€2.5 billion) and Denmark (almost €2.2 billion). It is worth noting that most Central and Eastern European countries, including the V4 group, ranked very low, which may indicate low maturity of their organic food markets and their initial development stage. Nevertheless, Portugal came last (with the organic food market worth 21 million euro).

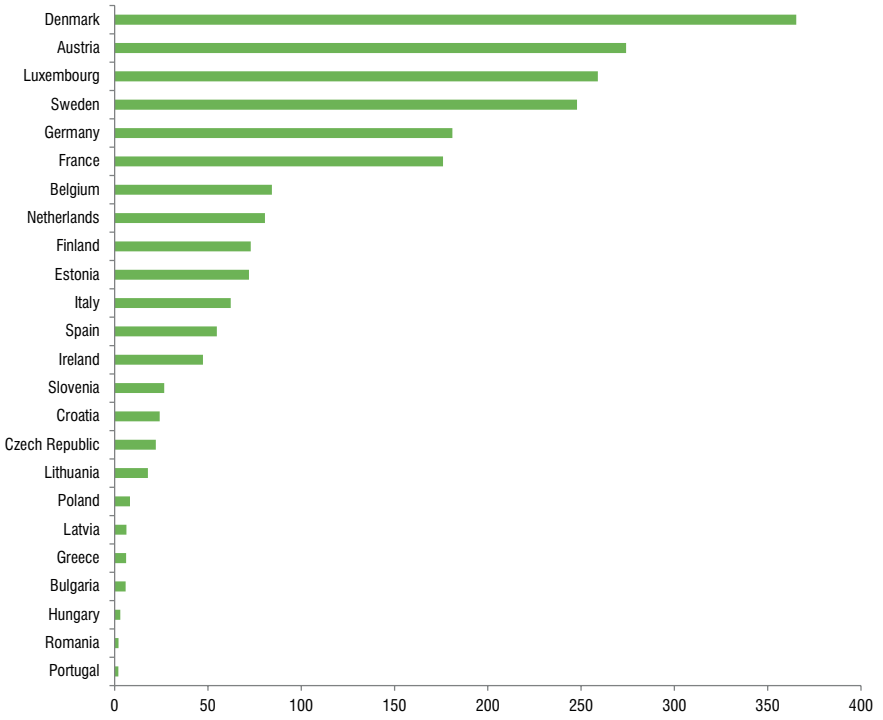
Figure 2.6. Value of the organic food market in selected EU countries in 2022 (million euros)



Source: the authors' study based on FiBL data, https://statistics.fibl.org/data.html.

Market size is closely related to the population of a given country; therefore, the level of spending on organic food per capita is an important indicator for the development of the organic food market. It depends on various factors, the most important of which are income, the level of environmental awareness among consumers, trade strategies, and the development of distribution channels. In 2022 this expenditure amounted on average to 102 euro per year in the EU (Figure 2.7). The first places were taken by Denmark, Luxembourg, Austria, Sweden (above 200 euro), Germany, and France (100-200 euro). As in the previous ranking, the Central and Eastern European countries ranked very low, confirming earlier conclusions regarding the level of development of the organic food market in those countries. Portugal again took the last place (with organic food spending of 2 euro per year).

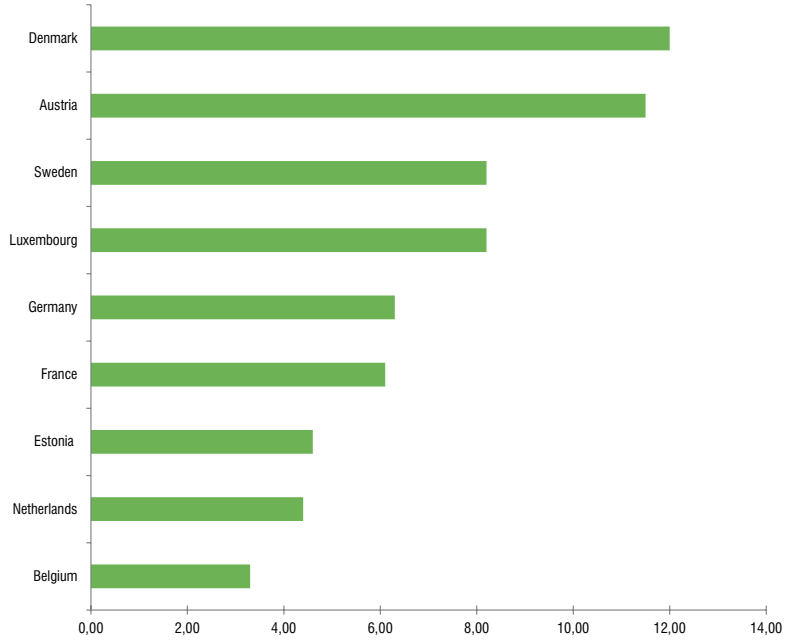
Figure 2.7. Consumption of organic food per capita in selected EU countries in 2022 (in euro)



Source: the authors' study based on FiBL data, https://statistics.fibl.org/data.html.

The share of the organic food market in the total food market in a country adequately measures the importance of the former. As in previous years, the highest market share was achieved in Denmark (12%), Austria (11.5%), Luxembourg and Sweden (with 8.2% each) (Figure 2.8). In the past in many countries, the value of the total food market was growing slowly and food prices remained stable or showed a downward trend, which translated into a relatively rapid increase in the share of organic products in the entire food market. This process was interrupted due to the pandemic and war in Ukraine, which caused inflation and a simultaneous increase in the value of food markets (Willer et al., 2023, p. 135).

Figure 2.8. Share of organic food in the total food market in EU countries in 2022 (%)

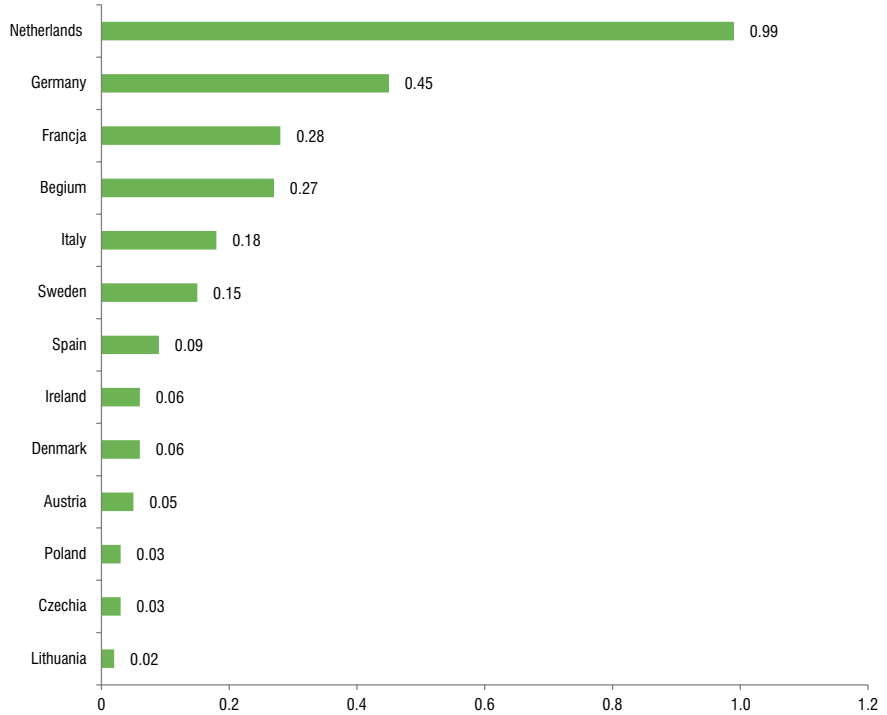


Source: the authors' study based on FiBL data, https://statistics.fibl.org/data.html.

The organic food market in the EU is characterised by shortages of some agricultural products. According to estimates, to meet the growing demand on the EU national markets in 2022, the EU imported 2.73 million tonnes of organic products. The largest importers within the EU were the Netherlands (0.99 million tonnes), Germany (0.45 million), and Belgium (0.27 million tonnes; Figure 2.9). Poland and Czechia ranked eleventh showing increased demand for organic food and further opportunities to develop domestic organic agriculture, which does not fully meet consumer demand. In turn, organic food imports are less significant for other Eastern and Central European countries.

In terms of imports, tropical fruits were the most frequently imported products (almost one-third of all EU imports of organic products – 0.87 million tonnes), followed by oilcakes (0.22 million tonnes) and soybeans (0.19 million tonnes). Ecuador was the largest supplier of organic agri-food products to the EU (0.35 million tonnes, corresponding to nearly 13% of total organic food imports to the EU). The other important third-country suppliers included the Dominican Republic, Ukraine, Peru, and China (9%, 8%, 7%, and almost 7%, respectively).

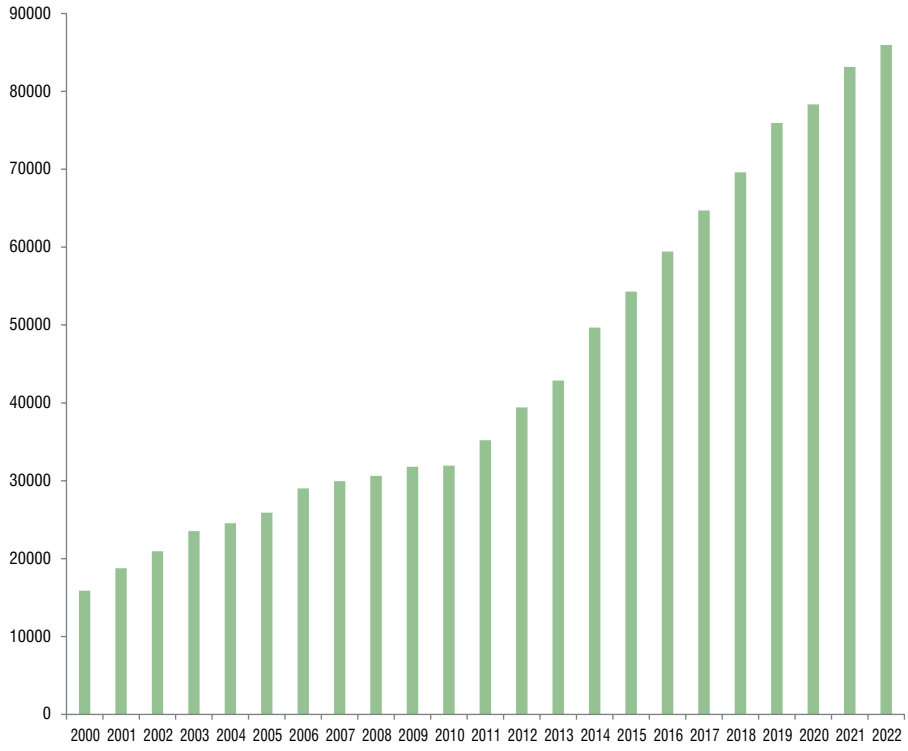
Figure 2.9. Imports of organic food in selected EU countries in 2022 (million tonnes)



Source: the authors' study based on FiBL data, https://statistics.fibl.org/data.html.

Considering the development of organic agriculture and the market for its products, an important component is connected with the number of processors, constituting an essential sales channel for organic farms and, simultaneously, suppliers of a wide range of desirable organic products to consumers. Therefore, organic food processing is a key element of both market development and organic farming. From 2000 to 2022, the number of organic food processing plants in the EU countries increased over 5.4-fold; in 2022, it amounted to nearly 86 thousand (Figure 2.10). This confirms a considerable increase in investments in the business environment of organic farming, which promoted both the development of this agriculture system and increased profitability of organic agricultural production, while leading to expansion of the range of organic food products.

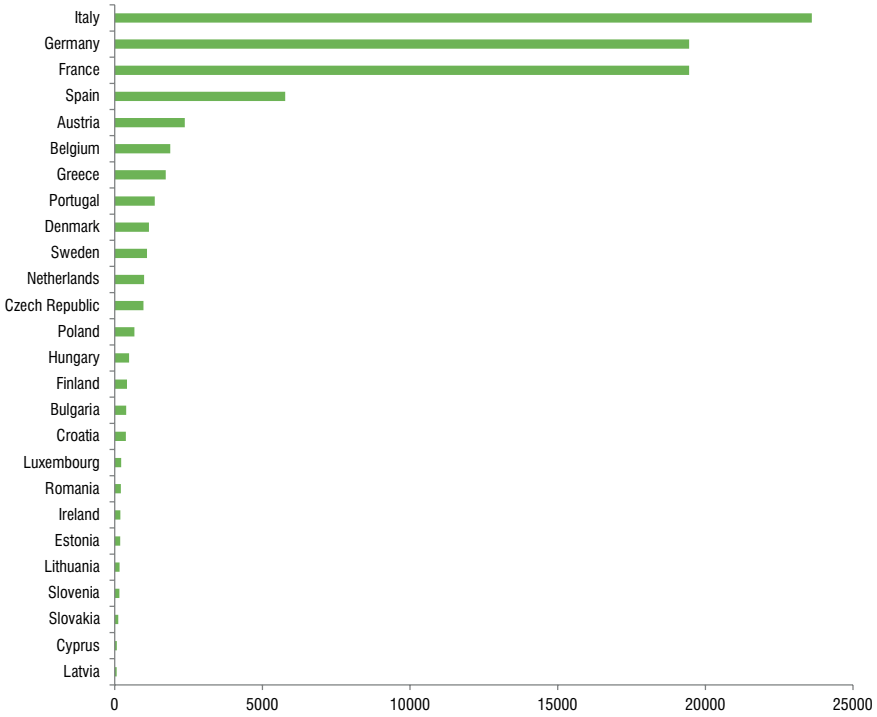
Figure 2.10. Number of organic food processors in the EU in 2000-2022



Source: the authors' study based on FiBL data, https://statistics.fibl.org/data.html.

In the EU countries, the largest number of organic food processing plants are located in Italy (23.6 thousand – nearly 28% of all organic processing plants in the EU), Germany, France (both 19.5 thousand and 23%), and Spain (almost 6 thousand and nearly 7%) (Figure 2.11). The top positions in this ranking are consistent with the ranking of countries with the largest organic area, which indicates that coordinated activities were carried out in those countries, leading not only to an increase in the organic farmland area, but also the development of the entire market infrastructure, complementing and supporting the expansion of organic farming. The last places in terms of the number of organic food processing plants were taken by relatively small countries, i.e., Cyprus, Latvia, and Malta.

Figure 2.11. Number of organic food processors in EU countries in 2022

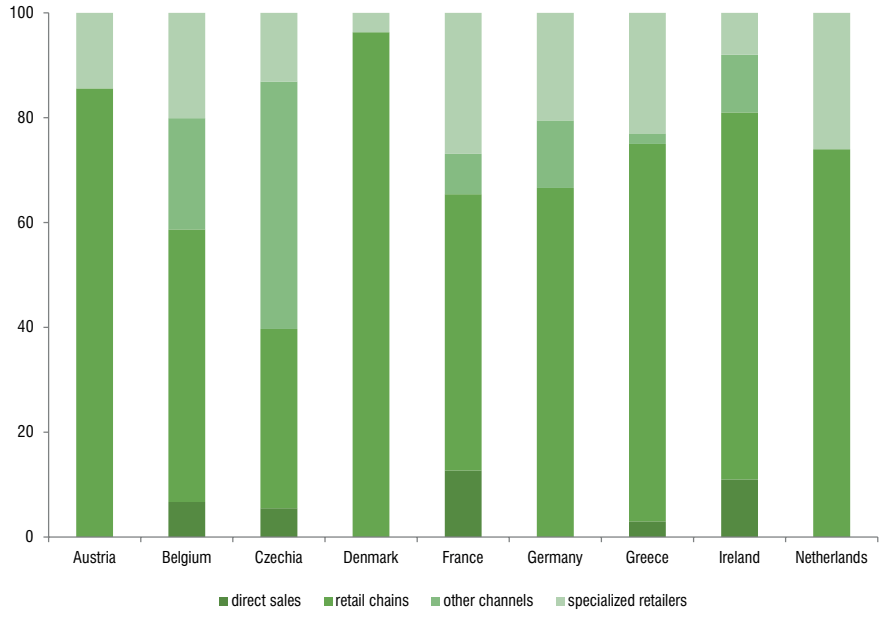


Source: the authors' study based on FiBL data, https://statistics.fibl.org/data.html.

The development of the organic food market largely depends on the efficient organization of distribution channels. A typical method of selling organic products is direct sales, the main advantage of which is offering relatively low prices and an opportunity to become acquainted with this farming system. A drawback of direct sales is connected with a lack or shortage of processed products in the offered range of products and the need to look for producers and therefore incur additional transport costs. Direct selling is more common in France and Ireland (Figure 2.12). In contrast, in the Dutch, Greek, German, Belgian and also French markets the relatively common distribution channels for organic food are specialist stores offering both fresh and processed products. However, the area covered by the operations of such specialist stores is small, which makes it challenging to collect a diverse range of products. Also, organic food prices are relatively high compared to those offered in other distribution channels.

In recent years, large-format stores have been developing dynamically, as numerous super – and hypermarkets began to appear. Essential characteristics of this form of sales include a wide range of products and the convenience of making comprehensive and quick purchases. Offering organic food in such stores significantly increases its availability thanks to the large number of supermarket customers. It is the most common channel in Denmark, Austria, Greece, and the Netherlands.

Figure 2.12. Organic food distribution channels in selected EU countries in 2022



Source: the authors' study based on FiBL data, https://statistics.fibl.org/data.html.

A vital element of the organic food market is price. The price level for organic products is higher compared to food from conventional agriculture. The so-called price premiums are different for individual product groups or countries. Production costs of organic food are higher, because organic production methods require careful management of the whole process, from raw materials and subsidiary materials to packaging (the product is manufactured using an environmentally friendly approach and production method). Yields are lower than in conventional agriculture due to the exclusion of artificial fertilizers and pesticides. Organic production is more complex than

the nonorganic one, as it requires more knowledge and effort from the farmer, is more labour-consuming, and imposes particular restraints in using specific inputs (fertilizers, plant protection means). Apart from the higher production costs, price relation between organic food and conventional food are also influenced by market maturity, demand-supply relations, distribution channels, and the level of product processing development (Pilarczyk, Nestrowicz, 2010, pp. 161-170).

Adding environmental attributes to a product increases initial costs, but also enhances its perceived value (Zeithaml, 1999, pp. 3-4). Relationships between organic and conventional food prices in the European Union vary greatly, reaching over 300% in particular markets and depend, among other things, on market maturity, supply-demand relationships and the development of distribution channels. In more developed markets with effective and efficient distribution channels, with predominant retail chains, price premiums are much lower, reaching several dozen percent. In contrast, in less developed markets, they may amount to several hundred percent.

2.5. The organic food consumer in a view of previous research

Typical characteristics of average purchasers of organic food may be defined based on a review of literature on organic food consumption. Many researchers present those buyers as young, educated, experienced, modern and active, living in inner harmony with themselves and the outside world, open, sensitive and making independent decisions (Padel, Foster, 2005, p. 605; Aertsens et al., 2011, pp. 1353-1378; Akter et al., 2023, p. 5). Thus consumers buying organic food are aware of their needs, make a purchase only when they are convinced of its indispensability and value, while also knowing its origin and further disposal after consumption. Eco-consumers are rational in their actions, they are aware that through their purchases and consumption they have an impact on the natural environment, of which they are part (Kondratowicz-Pozorska, 2011, p. 112). Thus, Żakowska-Biemas (2011, pp. 126-128) and Grzybowska-Brzezińska and Grzywińska-Rąpca (2018, pp. 168-177) indicated that the most numerous group of consumers declaring interest in organic food includes both young people and senior citizens. Generally, it is women rather than men that have a positive attitude towards

organic food, they are more willing to purchase and consume it (Fatha, Ayoubi, 2023, pp. 499-515; Roitner-Schobesberger et al., 2008, pp. 112-121; Wojciechowska-Solis, Śmiglak-Krajewska, 2023, pp. 2350-2367). Moreover, it was found that men are more convinced of their knowledge concerning organic food (Aertsens et al., 2011, pp. 1353-1378). Studies have also shown that purchasers of organic food are typically individuals with above-average income levels (Krystallis et al., 2006, pp. 81-106; Urena et al., 2008, pp. 18-26; Smoluk-Sikorska, 2022, pp. 84-85).

The steadily growing interest in organic food among consumers has attracted the attention of the academic community, as evidenced by the increasing demand for research on the profile, habits, and attitudes of consumers with respect to the topic (Ditschun, 2010). Although a number of publications on organic food have already been presented, comparative studies between various countries are still scarce. Thus, any new investigations on the subject may potentially provide new insights and contribute to the international body of knowledge.

Interest in and preference for organic and local food in the EU has been growing steadily over the last two decades. It is crucial for food producers and retailers to be aware of the changing determinants for organic and local food purchases in the post-COVID world (Aitken et al., 2020; Ham et al., 2018; Smiglak-Krajewska et al., 2021). For several reasons this is also of interest for food policymakers, including particularly the fact that organic food production is based on the use of sustainable technologies with positive impacts on ecosystems and biodiversity (Van Loo, 2017). Many articles published worldwide have identified constructs that help to thoroughly understand factors and motivators that determine consumer behaviour when choosing organic and regional or local foods. It is considered to be a dynamic, multifaceted, and contextual phenomenon (Sobal et al., 2014) that is influenced by various factors, such as moral norms (Tandon et al., 2020), subjective factors such as health and well-being, hygiene (Apaolaza et al., 2018), social pressure (Hansen et al., 2018) and geographical distance, etc.

Consumer attitudes and reasons for buying products labelled as organic are important when examining consumer behaviour towards this type of food. For example, Pilař et al. (2018) identified two main reasons why consumers buy these products: egoistic and altruistic motivations. The main reasons for the egoistic motivation include such factors as the higher perceived quality of organic food and the belief that organic food is associated with health benefits and better nutritional properties compared to conventional products. In turn,

altruistic motivation is mainly based on satisfying higher level needs such as solidarity with the region, environmental reasons, or animal welfare (Kareklas et al., 2014).

Zagata (2014), who studied the Czech market, indicated that organic consumers perceive organic products as "chemical-free food" with health benefits, which was confirmed by research (Soroka et al., 2021). In that study the authors also suggested that both Slovaks and Czechs highly value health benefits of organic food, with Slovak respondents considering the short shelf life of these products as a critical barrier. The most common negative influence on purchase intentions in Czechia and Slovakia is connected with the awareness of its high prices at the time of an unfavourable economic situation (Rödiger et al., 2015; Zámková et al., 2018). In turn, Zivelová et al. (2013) confirmed the growing interest of Czech consumers in these products despite a greater price difference in relation to conventional food compared to that in Western Europe. Wojciechowska-Solis et al. (2022) reported that Polish consumers pay particular attention to freshness and quality of products they consume. Their study even showed that the desire to eat better quality products is the main motivation for Polish consumers to buy organic food. However, Dudziak et al. (2022) stated that although the demand for organic food in Poland is growing, its share in total market sales remains low. Subsequently, Smoluk-Sikorska et al. (2024) reported that the main obstacle to the growth of demand for organic food in Poland is related to high prices of organic food. Similarly, Mazurek-Kusiak et al. (2021) stated that demand in Hungary is almost twenty times lower than in Western European countries. Wos et al. (2022) showed that the main obstacle for Poles is the high price of organic food. This is also the main reason why Hungarians refuse to buy organic food (for details see Wu et al., 2022). Factors supporting growth of organic food consumption in Hungary are discussed e.g. in a study by Kis et al. (2023).

However, there are still many fundamental questions to be answered concerning price-related purchasing behaviour of consumers. In total, in nine countries the annual consumption of organic food exceeded €100 per capita. On average, European consumers spent €65.7 per capita per year on organic food, while across the EU countries the average amount spent on organic food was €104.3 per capita. In the Central and Eastern European countries, consumer spending remains low (Willer et al., 2024; Wunsch, 2024).

Previously, initial research conducted by Dr. Zámková's team pointed out several problems: organic products in Czechia are most often purchased by respondents aged 45+, who also tend to spend more money on this product

range (Zámková et al., 2018). It turned out that the frequency of buying organic food increases with age. Furthermore, it was shown that when it comes to organic food, Czech respondents most frequently purchase fruit and vegetables, milk and dairy products (Zámková et al., 2014), while the number of young Czech and Slovak respondents regularly buying organic food was only negligible (less than 8%). Current research shows that the frequency of buying organic food is generally higher in the Western EU countries than in the V4 countries. University educated women and respondents from households with a higher standard of living more frequently purchase organic food (Zámková, Prokop, 2013; Zámková, Blašková, 2013; Rojík et al., 2022; Zámková et al., 2021; Rojík et al., 2021; Zámková et al., 2020; Zámková et al., 2022; Zámková et al., 2023; Zámková et al., 2024). Respondents tend to buy organic food in shopping centres and supermarkets. Apart from the main reason why consumers decide not to buy organic food, i.e. its price, respondents do not believe that organic food is better than conventional food. According to Zámková and Blašková (2013), a significant number of respondents still are not convinced of benefits provided by organic food.

As already mentioned, in Poland high prices of organic food are the main barrier to the growth in demand for organic food. Smoluk-Sikorska et al. (2024) focused their research on quantifying the size of the gap between consumers' willingness to pay more for organic food and the actual barriers to buying organic food. The study showed low consumer acceptance of high prices for organic food in Poland (only 14% of consumers surveyed were willing to pay more than 40% for organic food). In order to reduce these differences, the authors suggested that measures to promote the development of the organic market should be intensified, with further involvement of supermarket chains. Alongside these activities, the authors argued that organic food should be promoted because, as their research shows, Polish men have a less positive perception of organic food and therefore they should be the primary focus of promotional measures.

The authors then examined food habits of Hungarian organic food consumers (Pércsi et al., 2024). They found that, as in other countries worldwide, Hungarian organic food consumers tend to consume organic food primarily for health reasons. According to those authors, direct sales, including online purchasing, are preferred in the choice of channels in Hungary, as direct contact with producers is very important because of mistrust, which is one of the barriers to further consumption growth. It was also found that Hungarian

organic food consumers are more likely to be environmentally conscious, as they are more aware of the environmental impact of their food choices .

The organic food market is developing worldwide. The area used for organic agricultural production in the EU continues to increase, and in 2022 reached 16.9 million hectares. France continued to lead as the number one country in terms of farmland under organic management with 2.9 million hectares, followed by Spain (2.7 million hectares), Italy (2.3 million hectares), and Germany (1.9 million hectares). In 2022, European consumers spent an average of 64 euros on organic food per person (102 euros in the EU). Retail sales of organic products in Europe reached a total value of 53.1 billion euros in 2022. In the UE, there were 85,956 processors. In the EU countries, the largest number of organic food processing plants are located in Italy (nearly 24,000).

The presented data indicates that among the Visegrad Group countries in 2022 the largest organic cropland area was farmed in Czechia (562394.60 ha), followed by Poland (509286 ha) and Hungary (293597 ha). In contrast, it was the smallest in Slovakia (162565.00 ha). In terms of the number of organic producers in the V4 group, Poland takes first place (18.6 thousand), followed by Hungary (51.0 thousand), Czechia (50.53 thousand), and Slovakia (716).

Many researchers present organic food buyers as young, educated, experienced, modern, and active, living in inner harmony with themselves and the outside world, open, sensitive, and making independent decisions. The typical organic food buyers are mostly females with higher education and income from the urban environment.

Chapter III

Organic agriculture in the V4 group countries

3.1. Development processes in organic agriculture in Czechia

Organic farming started to develop in Czechia in the 1990s. The beginnings of the organic trend were inspired by the ideas of traditional biologists from abroad (Zagata, 2010). In 1992 a decline of organic farming was observed due to the decision of the new liberal government, which ended economic support. In their view, while this direction should not have been completely exempted from certain obligations, it was not entitled to special support from public funds. At that time the designation 'organic food' was unknown to consumers and the whole sector stagnated (Zagata, 2010).

In 1999, Law 242/2000 on organic farming was passed, which established rules for farmers and consumers with regard to organic farming and their practices. In addition, this law regulates the creation and termination of registration for persons engaged in organic farming, defines certification of organic product labelling, while also establishing a control system for the entire agricultural sector (Law 242/2000).

At the end of 2022, there were 5,050 farms in a total area of 575,464 ha, representing a 16.2% share of the total cultivated agricultural land according to the Land Parcel Identification System (LPIS), see Table 3.1.

Table 3.1. Changes in the total area and number of farms under organic farming (1990-2022)

Years	Number of farms under organic farming	Total area under organic farming (ha)	Percentage of total agricultural land production (%)	Year-to-year change in the number of farms under organic farming (%)	Annual change in area under organic farming (%)
1990	3	480	-	-	-
1995	181	14 982	0.35	-3.2	-5.3
2000	563	165 699	3.86	1.9	49.6
2005	829	254 982	5.98	-0.8	-3.2
2010	3 517	448 202	10.55	30.8	12.5
2015	4 115	494 661	11.74	5.9	0.1
2016	4 243	506 070	12.03	3.1	2.3
2017	4 399	520 032	12.37	3.7	2.8
2018	4 606	538 223	12.8	4.7	3.5
2019	4 690	540 993	15.22	1.8	0.5
2020	4 665	543 252	15.28	-0.5	0.4
2021	4 794	558 124	15.71	2.8	2.7
2022	5 050	575 464	16.22	5.3	3.1

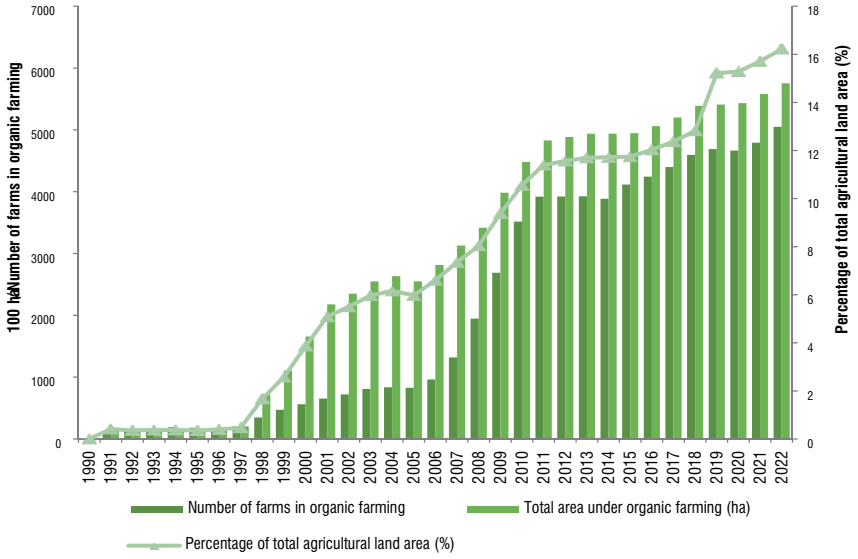
Source: The Ministry of Agriculture of Czechia; the authors' elaboration.

Year-to-year comparisons show a recovery in the organic farming sector after stagnation in 2019 and 2020. The number of organic farms increased in 2022 by 5.3% and the total area in organic farming grew by 3.1% (i.e. 256 farms and 17,340 ha). Out of approximately 43,000 farming entities, one in eight farms is already farming organically.

The area farmed by organic farmers increased again by about 17,340 ha in 2022. This was a higher year-to-year increase than in the previous year. In Figure 3.1 the increase in area is not as significant as in the previous years due to the adjustment of the methodology. From 2019 onwards, areas that are not registered in the LPIS are no longer included. The total change in the number of organic farms, the share of the total agricultural land area, and the area of agricultural land under organic farming in Czechia since 1990 is shown below (see Figure 3.1).

Over the last ten years the number of organic farms increased 1.3 times from the original 3,923 farms, while the area of organic farming increased 1.2-fold from the original 488 thousand ha in 2012. Approximately one-tenth of the area is currently classified to be in the so-called transition period and represents the potential for an increase in organic area in the coming years. The positive development is related to setting conditions for organic farming measures under the Rural Development Programme (Ministry of Agriculture, 2024).

Figure 3.1. Changes in the total land area under organic farming, the number of farms and the share of the total agricultural land in Czechia (1990-2022)



Source: The Ministry of Agriculture of Czechia; the authors' elaboration.

Now Czechia is one of twenty countries in the world with the largest area under organic farming (9th in Europe) and among fifteen countries in the world with the highest share of organic farming in total agricultural land (7th in Europe, 5th in the EU after Austria, Estonia, Sweden and now Italy). In order for Czechia to maintain its position, it is necessary to continue to support the development of organic farming, in view of the slowing increase in the area under organic farming in recent years, which is also confirmed by one of the lowest shares of land classified as being in the transition period (below 10%).

Table 3.2. Comparison of the structure of land under organic farming in selected years (Czechia)

Land use	1999	2003	2005	2008	2011	2014	2017	2020	2021	2022
	%	%	%	%	%	%	%	%	%	%
Permanent grassland	86.7	90.9	82.3	82.4	82.4	83.5	82.3	81.6	80.4	79.4
Arable land	12.4	7.7	8.1	10.3	12.3	11.4	13.8	17.2	18.4	19.5
Permanent crops	0.3	0.4	0.3	0.9	1.5	1.6	1.2	1.1	1.1	1.1
Other land	0.5	1.1	9.2	6.4	3.8	3.5	2.8	0.0	0.1	0.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: The Ministry of Agriculture of Czechia; the authors' elaboration.

In terms of land used in organic farming, permanent grassland still dominates, with an area of more than 457 thousand ha in 2022 (see Tables 3.3 and 3.4) and a 79.4% share of the total area of organically managed land, see Table 3.2. Since 2004, the area of arable land under organic farming increased 5.7-fold (in 2022 arable land was almost 112 thousand ha), see Table 3.4. In the last seven years the share of arable land in the total land area under organic farming increased significantly and in 2022 it was already 19.5% (see Table 3.2). In 2022 the highest-ever share of arable land within the organic farming area was recorded. From 2004 to 2013 the area under permanent crops increased almost 7-fold to more than 7,800 ha. Between 2014 and 2016 a decline was reported, followed by only a slight increase and stagnation. Permanent crops thus account for around 1% of all organically cultivated areas. As in previous years, in the case of permanent crops, fruit crops predominated as orchards (intensive and extensive) accounted for 53.7%, vineyards for 18.3%, and hopfields for 0.4%, respectively. Since 2015 the category of 'other permanent crops' has also been included under permanent crops (largely orchard meadows), which accounted for 27.6% of the area of permanent crops in Czechia (approx. 1 675 ha) (Ministry of Agriculture, 2024).

Table 3.3. Structure of land under organic farming as of 31th December 2022

Land	Area (ha)			Annual change 2022/21	
	transition period	Under organic farming system	Total	(%)	(ha)
Total organic farmland	51 164	524 299	575 464	3.1	17.340
Permanent grassland	30 815	426 200	457 015	1.9	8.313
Arable land	19 568	92 398	111 966	8.9	9.165
Of which: standard arable land	17 637	87 184	104 820	9.3	8.912
– grassland on arable land	1 881	5 177	7 058	4.2	282
– fallow land	50	37	88	-24.9	-29
Permanent crops	659	5 409	6 069	-3.0	-191
Of which: orchards	248	3 010	3 258	-8.5	-302
– vineyards	202	908	1 111	2.6	28
– hopfields	11	14	25	113.0	13
– other permanent crops	198	1 477	1 675	4.3	70
Other land	122	292	414	14.7	53

Source: The Ministry of Agriculture of Czechia; the authors' elaboration.

The total area of organic farmland registered in the Land Parcel Identification System (LPIS) increased again in 2022 year-to-year by almost 17.3 thousand ha, i.e. by 3.1%. The area of arable land also increased compared to 2021 by 9.1 thousand ha (a 8.9% increase), see Table 3.3. The area of permanent grassland also increased by more than 8.3 thousand ha (1.9%), see Table 3.3. The area of permanent crops remained relatively stable for a long time, or minor decreases in its area were recorded. In 2022 there was a year-to-year reduction in the area of permanent crops amounting to 191 ha (i.e. 3.0%). It should be noted that since 2015, in addition to orchards (both intensive and extensive), vineyards, and hopfields, other permanent crops have been classified under permanent crops, which include, among other things, orchard meadows, where the main purpose is not to produce fruit, but to preserve varietal diversity and landscape character (more than 1.6 thousand ha). The area of orchards and other fruit orchards under permanent crops decreased by almost 302 ha (8.5%) yearly. The area under vineyards increased by 2.6% (27.8 ha). The structure of organic farmland in 2022 according to LPIS is shown in Table 3.3. Areas in the transition period accounted for 8.9% of the total area.

Table 3.4. Changes in land use structure in organic farming in Czechia in 2000-2022 (ha)

Land use	2000	2003	2005	2008	2011	2014	2017	2020	2021	2022
Permanent grassland	149 705	231 683	209 956	281 596	398 061	412 644	427 717	443 262	448 703	457 015
Arable land	15 295	19 637	20 776	35 178	59 281	56 395	71 515	93 701	102 800	111 996
Permanent crops	462	928	820	3105	7 429	7 774	6 205	6 070	6 260	6 069
Other land	237	2 747	23 440	21 753	18 157	17 159	14 595	218	361	414
Total	167 699	254 995	254 982	341 632	482 927	493 972	520 032	543 252	558 124	575 464

Source: The Ministry of Agriculture of Czechia; the authors' elaboration.

Czechia is one of the countries with the largest average farm size, both in conventional and organic farming. Czechia has the second-largest average size of organic farms within the EU after Slovakia (311 ha) (116 ha in 2022). Estonia, Sweden, and Lithuania also report sizes above 100 ha. The EU average is 58 ha. In comparison, the average size of an organic farm in Czechia is larger than the average size of a conventional farm (approx. 82.2 ha in 2022).

Table 3.5. Size structure of organic farms in 2021 and 2022

Groups of farms by area (ha)	2021				2022				Annual change 2022/21	
	Number of farms		Area		Number of farms		Area		Number of Farms	Area
	Absol.	(%)	(ha)	(%)	Absol.	(%)	(ha)	(%)	(%)	(%)
0 to < 5	398	8.3	932	0.2	434	8.6	997	0.2	9.0	7.0
5 to < 10	383	8.0	2 879	0.5	395	7.8	3 005	0.5	3.1	4.4
10 to < 50	1 903	39.7	51 491	9.2	1 945	38.5	52 550	9.1	2.2	2.1
50 to < 100	891	18.6	63 762	11.4	979	19.4	70 124	12.2	9.9	10.0
100 to < 500	959	20.0	212 506	38.1	1 043	20.7	228 226	39.7	8.8	7.4
500 to < 1000	200	4.2	138 364	24.8	196	3.9	135 482	23.5	-2.0	-2.1
1000 to < 2000	58	1.2	78 606	14.1	56	1.1	75 470	13.1	-3.4	-4.0
2000 and more	2	0.0	9 583	1.7	2	0.0	9 610	1.7	0.0	0.3
Total	4 794	100.0	558 124	100.0	5 050	100.0	575 464	100.0	5.3	3.1

Source: The Ministry of Agriculture of Czechia; the authors' elaboration.

In terms of the size structure of organic farms, the most typical area of organic farms for a long time was in the range of 10-50 ha, the share of this category slightly decreased year-to-year and amounted to 38.5% in 2022, see Table 3.5. The largest overall decrease in area was in the category of farms of 1000 to <2000 ha, i.e. by 4%. The table also shows that a quarter of the farms (over 100 ha) account for 78% of organic farmland area, and more than 5% of the farms (over 500 ha) account for 38% of organic farmland area.

Table 3.6. Area and production in organic arable farming in 2021 and 2022 and a comparison with the total area and production in Czechia in 2022

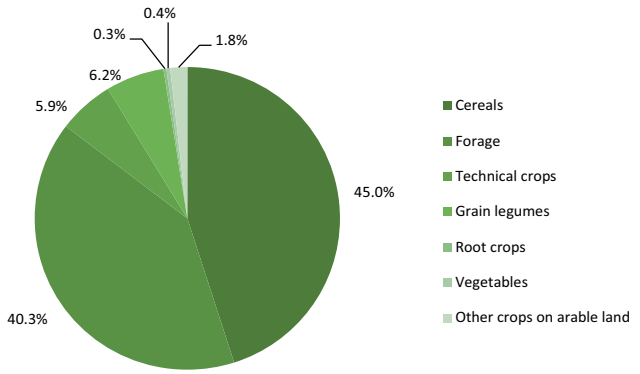
Crops	2021 (organic farming)		2022 (organic farming)		2022 (Czechia)	
	Total area of organic farmland (ha)	Organic production (t)	Total area of organic farmland (ha)	Organic production (t)	Total area (ha)	Total production (t)
Cereals	42 269	112 347	46 658	117 426	1 386 011	8 218 416
Common wheat	11 419	30 136	13 737	34 852	854 434	5 188 687
Spelt	7 250	20 639	8 107	22 974	x	x
Barley	3 972	8 809	4 109	7 918	334 504	1 877 363
Rye	1 694	4 366	2 999	7 198	24 124	128 154
Oats	10 710	29 303	9 826	24 970	45 147	167 995
Triticale	4 571	12 640	4 490	11 622	40 566	207 621
Maize for grain	1 230	4 168	1 367	4 487	80 453	639 467

Crops	2021 (organic farming)		2022 (organic farming)		2022 (Czechia)	
	Total area of organic farmland (ha)	Organic production (t)	Total area of organic farmland (ha)	Organic production (t)	Total area (ha)	Total production (t)
Grain legumes	5 034	8 683	6 468	9 233	45 634	123 948
Peas	2 500	4 396	2 602	3 841	40 627	115 135
Lupin	524	913	565	1068	1988	2 613
Root crops	428	4 259	362	3 567	80417	4 729 460
Potatoes	411	4 064	306	3 534	21680	655 258
Technical crops	5 729	4 090	6 132	4 121	444 977	1 337 021
Oilseeds	3 498	3 448	3 567	3 046	437 077	1 329 132
Rape	909	825	490	377	343 964	1 166 393
Soya	66	48	158	281	28 538	65 541
Mustard	866	796	937	724	13 020	12 208
Aromatic, medicinal plants and spices	2 188	603	2 492	1 020	7 288	5 624
Cumin	1 481	334	1 204	364	3 516	2 236
Vegetables	256	1 394	401	1 444	11 122	246 247
Forage	43 477	144 704	41 752	132 330	467 086	4 610 430

Source: The Ministry of Agriculture of Czechia; the authors' elaboration.

As in previous years, in 2022 the main arable crops were cereals (45.0%) and forage crops (40.3%), see Table 3.6 and Figure 3.2. Forage crops are dominated by perennial forage crops such as clover grasses, temporary grasses, or alfalfa (92.8%). Cereals continue to occupy a significant proportion of area in organic farming, with a 10.4% year-to-year increase. As in previous years, common wheat (29.4%) and oats (21.1%) were the most commonly grown cereals. Together, these two crops accounted for more than 50% of the total cereal area under organic farming. Other important cereals were spelt (17.4%), triticale (9.6%), and barley (8.8%). Compared to the previous year, there was an increase in the area cropped to rye (77.1%), common wheat (20.3%), durum wheat (19.0%) and spelt (11.8%). The area of buckwheat increased by 65.6%, grain maize by 11.1%, barley by 3.4%, and other grain cereals by less than 100 ha, i.e. 175%. Similarly to the previous year, the area under grain legumes also increased in 2022 (28.5% increase). As in 2018-2021, the area under grain legumes was dominated by peas (40.2%). The area under industrial crops increased by 7.0% year-to-year. Increases in the area were recorded for oilseeds (by 2% or 68 ha), aromatic, medicinal plants and spices (by 13.9% or 304 ha) and other industrial crops (by 69.3% or 30 ha). In oilseeds the increase in area was mainly in oilseed pumpkin (379 ha), soya beans (92 ha) and mustard (70 ha). The cultivation of arable crops and vegetables remains consistently low (Ministry of Agriculture, 2024).

Figure 3.2. Structure of crop groups on arable land by acreage in organic farming in Czechia in 2022 (%)



Source: The Ministry of Agriculture of Czechia; the authors' elaboration.

In 2022 over 438 thousand animals were raised on organic farms (organic animals). These are animals that have passed the so-called shortest rearing period (for crop production, referred to as the transition period) and are already reared in the organic regime. Compared to the previous year, there was a slight annual decrease of 0.3% in the number of animals reared in 2022 (see Table 3.7). The representation of different livestock categories is balanced in the long term. Cattle are the most commonly reared species, accounting for 63.8% of all organically reared animals in 2022. Sheep farming followed with a 16.6% share. Poultry was the third species, whose share exceeded 10% of the total number of organically reared animals, as in the previous year (15.0%). Horses represented 2.2% of the total and goats represented 1.8%, respectively. The least numerous livestock species in the organic farming system are pigs. Their share remained below 1% for a long time (0.5% in 2022). Rabbit rearing is negligible in the organic farming system. Table 7 also quantifies the year-to-year change in livestock numbers in each category. In the case of cattle, there was a 0.6% increase in the number of animals kept. There was also an increase of 13.7% in organically reared pigs.

Table 3.7. Numbers of animals raised on organic farms in Czechia in 2021 and 2022

Categories of animals	Number of eco-farms	Number of all organic animals (livestock units)	Number of all organic animals (livestock units)	Annual change in number of organic animals 2022/21 (%)
	2022	2021	2022	
Total animals	3 381	439 921	438 486	-0.3
Cattle	2 998	278 346	279 939	0.6
Sheep	980	75 600	72 912	-3.6
Goats	343	8 342	7 706	-7.6
Pigs	33	2 058	2 339	13.7
Poultry	44	65 815	65 850	0.1
Rabbits	0	2	x	-100.0
Horses (including ponies and donkeys)	1 031	9 758	9 740	-0.2
Bees (number of swarms)	5	451	305	-32.4

Source: The Ministry of Agriculture of Czechia; the authors' elaboration.

According to the Organic Farming Act, every person interested professionally in organic farming must submit an application for registration to the Ministry of Agriculture of Czechia. The registration distinguishes the following categories of subjects: farmer, food producer, trader, importer from third countries (i.e., non-EU countries), exporter to third countries, producer or supplier of feed, producer or supplier of seeds/planting material, beekeeper, fish farmer, mushroom grower, wild plant collector and possibly a subject registering for activities of other nature. An applicant may register for more than one category at the same time.

At the end of 2022 a total of 6 297 entities were registered in organic farming, an increase of 283 or 4.7% compared to 3.6% in 2021. A further rise in actors entering organic farming is expected from 2023 onwards given the new support conditions .

As of 31.12.2022, 5 050 organic farms were registered in the organic farming system in 2022, of which 438 (9%) were registered as organic food producers and 188 were simultaneously registered for organic food distribution. The total number of organic farms increased by 5.3% (256 entities), 149 organic farmers ceased their activity in 2022, while 405 entities were newly registered.

Table 3.8. Number of registered actors in organic farming as of 31 December 2021 and 2022

Environmental entities by type of activity	Number of actors		Annual change 2022/21	
	2021	2022	(Absol.)	(%)
Organic farmers	4 794	5 050	256	5.3
Organic food producer	944	990	46	4.9
Distributor	1 131	1 160	29	2.6
– of which: Importer from 3rd country	359	370	11	3.1
– of which: Exporter from 3rd country	63	175	12	7.4
Producer or supplier of organic feed	77	77	0	0.0
Producer or supplier of organic propagation material	80	85	5	6.3
Organic bee farmer	10	9	-1	-10.0
Organic fish farmer	16	18	2	12.5

Source: The Ministry of Agriculture of Czechia; the authors' elaboration.

At the end of 2022 a total of 990 entities were registered as organic food producers (see Table 3.8). This is an increase of around 5% year-to-year and represents a slowdown from the annual increase of around 10% between 2016 and 2021. A third of producers are farm processors producing organic food directly on farms, often with yard sales. Year-to-year, the number of farm processors increased by 7% (23 operators), yet only around 1,000 farmers processed organic products directly on the farm (6% of organic farms).

The second important category for the development of the organic food market are distributors, i.e. entities that put organic food or products into distribution, including export and import, without any further processing. The number of registered distributors increased to 1 187, representing a 3% increase and also indicating a certain slowdown in the growth rate. The number of registered importers also increased at a similar 3% rate, while the number of exporters increased by 7.4% to 175 entities after three years of stagnation.

There is a large number of entities operating in the organic food market with retail sales, but they are not required to register under the Organic Agriculture Act if they only sell packaged organic food in consumer packaging and do not store it elsewhere than in direct connection with the point of sale. In contrast, wholesalers, e-shops and similar platforms must register as traders, since they carry out storage away from the point of sale to the final consumer and make sales to different customers, not only to the final consumer (Ministry of Agriculture, 2024).

3.2. Changes in organic agriculture in Slovakia

The history of organic agriculture in Slovakia dates back to 1991 when its development was initiated by the Ministry of Agriculture and Food of the Slovak Republic. Based on the principles and requirements of organic agriculture defined by the directive of IFOAM (International Federation of Organic Agriculture Movements), a regulatory framework entitled "Rules of organic agriculture valid for the territory of the Slovak Republic" was published. At that time 31 farms, mostly agricultural cooperatives, with 14 773 ha (0.6% of utilised agricultural area) entered the system. After the transition period 31 entities were allowed to label their production from the harvest of 1994 as "organic" (MARD SR, n.d.).

Later, in 1995 the concept of organic agriculture in Slovakia was a fundamental document that set the basic direction for organic agriculture in the period until 2010, while a set of tools and measures was approved by the government of the Slovak Republic. The first remarkable change in the legal framework of organic agriculture occurred in 1998 when Act No. 224/1998 Coll. on organic agriculture and production of organic food was adopted and entered into force.

The most important changes in the organic agriculture legal framework are related to Slovakia's accession to the European Union in 2004. Slovakia's agricultural sector started to adapt to the EU's Common Agricultural Policy (CAP) and the conditions of the common European market. Next to EU regulations and directives, in compliance with EC policies, the Action Plan for Organic Agriculture in Slovakia became the new strategic document for organic agriculture. At that time, Slovak agriculture was mainly affected by lower subsidies (direct payments) compared to the EU15 states, while the free movement of goods and services resulted in a worse competitive position of Slovak farmers on the European market, consequently leading to a decline in both sectors of agricultural production – crop production and livestock production. According to Némethová and Rybanský (2021), even today it is a priority to close the gap between different levels of direct payments that would strengthen competitiveness of the domestic market and support local production.

In order to provide an effective legal framework for the agricultural sector, the EU launched new legislation relating to the organic sector, binding since 1 January 2022. It is supported by the Action Plan for the Development of

Organic Production in the EU launched by the European Commission in March 2021 (European Commission, n.d.a), which is one of the instruments within the European Green Deal and is part of the EU's vision to achieve sustainability and climate neutrality by 2050. Under the Green Deal's Farm to Fork strategy, the European Commission has set a target of "at least 25% of the EU's agricultural land under organic farming and a significant increase in organic aquaculture by 2030" (European Commission, n.d.b).

In 2022, Slovakia submitted its first proposal for a CAP Strategic Plan, the final version of which was approved by the European Commission on 30 November 2023. This document presents some of the main features of the *CAP Strategic Plan of Slovakia*. *Regarding organic farming, Slovakia aims to cultivate 20% of its agricultural land under organic farming by 2030* (European Commission, 2024).

Following the European Commission´s recommendations and related EU strategic documents, *the National Action Plan for the Development of Organic Production in the Slovak Republic 2023-2027* was launched in 2023. Historically it is the second action plan concerning organic agriculture in the Slovak Republic and is partially connected to the "Action Plan for the Development of Organic Agriculture in the Slovak Republic until 2010". It aims to develop organic production more intensively in Slovakia and sets 7 goals as follows (MARD SR, 2023):

- To increase the area under organic farming to 14% of utilised agricultural area in the Slovak Republic.
- To extend the data base of organic agricultural production.
- To ensure availability of domestic products from organic agricultural production and their sales.
- To increase awareness of Slovak residents concerning organic products and the organic logo.
- To ensure consulting services and education in the field of organic agricultural production.
- To promote science and research on the subject.
- To ensure implementation of new legislation regulating control and certification activities for organic agricultural production.

Currently, organic agriculture in Slovakia operates in compliance with the legal framework at the European and national levels. The national legal framework is provided by Act No. 282/2020 Coll. on organic agricultural

production that sets relevant rules and requirements related to all activities in the field of organic agriculture, e.g., rules for organic agricultural production, labelling of organic products, competence of state administration bodies in the field of organic agricultural production, rights and obligations of organic operators, maintaining the register of organic operators and the register of inspection organisations, as well as official control authorities.

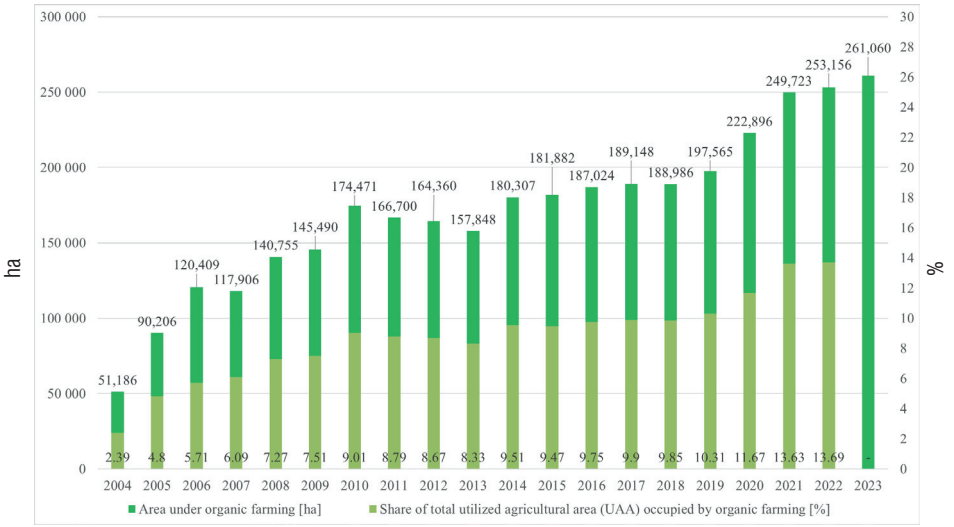
The state administration bodies in the field of organic agricultural production represent the Ministry of Agriculture and Rural Development of the Slovak Republic and the Central Control and Testing Institute in Agriculture (hereinafter referred to as ÚKSÚP), directly managed by the ministry.

In compliance with the European and national legislation, control activities and certification processes are carried out by two authorities (Naturalis SK – international code SK-BIO-002, and Biokont, CZ – international code SK-BIO-003) for operators registered in organic agricultural production.

The development of organic agriculture in Slovakia in 2004-2023, i.e., after the accession of the Slovak Republic to the European Union, is evaluated here based on selected indices.

According to Figure 3.3, the area under organic farming showed a general upward trend from 2004 to 2023. In twenty years, the total area (converted area and area under conversion to organic) increased by 510%, from 51,186 ha in 2004 to 261,060 ha in 2023. Significant increases were observed in the early years (2004-2010), with more pronounced growth in recent years, especially from 2019 onwards. In the mid-2010s, the increase in the area under organic farming slowed down or the area slightly decreased (e.g., in 2011-2013). It was probably caused by the termination of 5-year obligations for supported beneficiaries (Mäsiarová, 2019), since the number of organic operators also decreased in that period. Notable growths were recorded in 2020 (222,896 ha), 2021 (249,723 ha), and 2022 (253,156 ha), indicating a recent acceleration in the adoption of organic farming practices. The percentage share of utilised agricultural area (UAA) under organic farming also increased over the years, starting from 2.39% in 2004 to over 13.69% by 2022. Significant milestones include surpassing 10% in 2019 and continuing to grow to nearly 14% by 2022.

Figure 3.3. Area under organic farming and share of UAA under organic farming in 2004-2023



Source: processed based on data from Eurostat, 2024; Statistical Office of the Slovak Republic – DataCube database, 2024; FiBL, 2024.

Data in Table 3.9 show that the highest annual increase in the area under organic farming by 39,020 ha was observed in 2005 when the annual growth rate was 176%. According to Mäsiarová (2019), the allocation of financial resources for organic farmers was significantly influenced by the Rural Development Plan for 2004-2006. The following years may also be considered successful in view of significant increases in 2006 by 30,203 ha, 2010 by 28,981 ha, 2020 by 25,331 ha, and in 2021 by 26,827 ha, respectively. In terms of the annual index the most marked changes of the area under organic farming were recorded in 2006 (by 33%), in 2010 (by 20%), and in 2008 (by 19%).

Table 3.9. Annual changes and indices of the area under organic farming in Slovakia from 2004 to 2023

Year	Area under organic farming [ha]	Annual change [ha]	Annual index [%]	Share of area under organic farming [%]
2004	51.186	-	-	2.39
2005	90.206	39.020	176	4.8
2006	120.409	30.203	133	5.71
2007	117.906	-2.503	98	6.09
2008	140.755	22.849	119	7.27
2009	145.490	4.735	103	7.51
2010	174.471	28.981	120	9.01
2011	166.700	-7.771	96	8.79
2012	164.360	-2.340	99	8.67
2013	157.848	-6.512	96	8.33
2014	180.307	22.459	114	9.51
2015	181.882	1.575	101	9.47
2016	187.024	5.142	103	9.75
2017	189.148	2.124	101	9.9
2018	188.986	-162	100	9.85
2019	197.565	8.579	105	10.31
2020	222.896	25.331	113	11.67
2021	249.723	26.827	112	13.63
2022	253.156	3.433	101	13.69
2023	261.060	7.904	103	NA
2004/2023	-	209.874	510	-

Source: processed based on data from Eurostat. 2024; Statistical Office of the Slovak Republic – DataCube database, 2024; FiBL, 2024.

As shown in Table 3.10, the area under organic farming currently represents approximately 261,059.6 ha, out of which 86,793.18 ha is arable land, 171,869.3 ha of permanent grassland, 1,813.93 ha of orchards, and 583.23 ha vineyards. The area under organic farming steadily increased over the last 5 years, with significant growth in 2020 and 2021. The total increase from 2018 to 2023 is approximately 35.8%. Areas of arable land and permanent grassland constitute the largest portions of organic farmland and have shown steady growth. The area of orchards under organic farming fluctuated slightly but remained relatively stable over the last 5 years. There was a decrease from 2019 to 2021, followed by a small increase in 2022 and a subsequent slight decrease in 2023. The most dramatic relative increase could be observed regarding the area of organic vineyards, which more than tripled from 172.18 ha in 2019 to 583.23 ha in 2023. This indicates a strong trend towards organic viticulture.

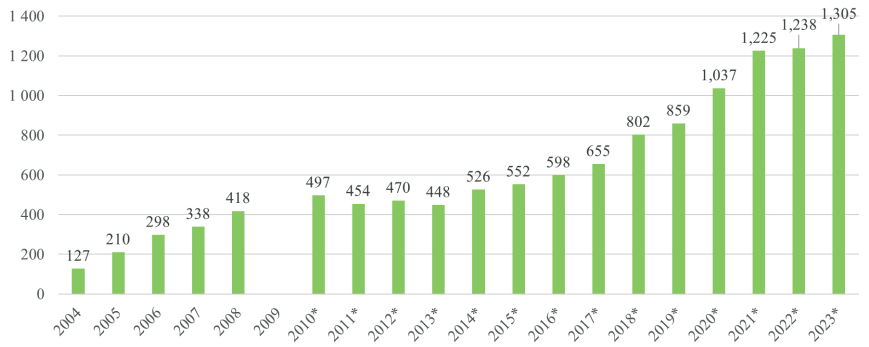
Table 3.10. Area under organic farming in Slovakia in the period of 2019-2023

Year	Area under organic farming [ha]	Arable land [ha]	Permanent grassland [ha]	Orchards [ha]	Vineyards [ha]
2019	196,209.9	66,559.96	127,611.7	1,866.07	172.18
Annual change [%]	102.07	102.61	101.76	103.03	114.67
2020	222,896.1	75,591.97	145,209.1	1,828.56	266.42
Annual change [%]	111.97	111.95	112.12	97.95	135.37
2021	249,723.0	84,906.99	162,564.7	1,787.42	463.89
Annual change [%]	112.03	112.32	111.95	97.75	174.12
2022	253,156.0	86,043.81	164,710.9	1,870.62	530.68
Annual change [%]	101.37	101.34	101.32	104.65	114.4
2023	261,059.6	86,793.18	171,869.3	1,813.93	583.23
Annual change [%]	103.12	100.87	104.35	96.97	109.9

Source: ÚKSÚP, 2020-2024.

Concerning the number of organic operators in Slovakia (Figure 3.4), a significant increase was observed from 127 operators in 2004 to 1,305 operators in 2023. In the period of 2004-2023, the highest annual growth was recorded in 2005, when the number of organic operators increased by 65.35% compared to 2004 (see Table 3.10).

Figure 3.4. Number of organic operators in 2004-2023



Note: * data of ÚKSÚP, 2009 – data not available

Source: Eurostat, 2024; ÚKSÚP, 2012-2024.

In general, the overall changes showed only some fluctuations. As the number of organic operators slightly decreased in only 2 years – in 2011 by 8.65% and in 2013 by 4.68%, it can be concluded that the number of organic operators steadily increased for the last 20 years.

Table 3.11. Development of the organic market based on the number of organic operators in 2004-2023

Year	No. of operators	Annual change [%]
2004	127	-
2005	210	165.35
2006	298	141.90
2007	338	113.42
2008	418	123.67
2009		-
2010*	497	118.90
2011*	454	91.35
2012*	470	103.52
2013*	448	95.32
2014*	526	117.41
2015*	552	104.94
2016*	598	108.33
2017*	655	109.53
2018*	802	122.44
2019*	859	107.11
2020*	1,037	120.72
2021*	1,225	118.13
2022*	1,238	101.06
2023*	1,305	105.41
2023/2004	-	1,027.56

Note: * data of ÚKSÚP, 2009 – data not available

Source: Eurostat, 2024; ÚKSÚP, 2012-2024.

The data indicates a long-term and accelerating trend towards organic farming in terms of the area under organic farming, its share of the total utilised agricultural area, as well as the number of organic operators. This suggests increasing recognition of the benefits of organic farming, including sustainability and health considerations, which are likely driving this shift.

3.3. Development of organic agriculture in Hungary

Organic farming in Hungary started in the 1980s. The transfer of knowledge and experience related to this type of farming started in 1983 within the framework of a club called the Biokultúra Klub, mainly targeting small-scale gardeners. At the same time, the revival of foreign trade relations with the West led to the conversion of large-scale cooperatives and later agricultural enterprises and private farms, covering up to several hundred hectares. In 1987, the Club became the Biokultura Association (Biokultúra Egyesület), while its successor, the Hungarian Biokultura Federation (Magyar Biokultúra Szövetség), was established in 2005. Furthermore, in 1996 the inspection and certification organisation Biokontroll Hungária Nonprofit Kft. (HU-ÖKO-01) was founded, followed by establishment of the Hungária Öko Garancia Kft. (HU-ÖKO-02) in 2000, currently called Bio Garancia Kft. The Research Institute of Organic Agriculture (Ökológiai Mezőgazdasági Kutatóintézet, ÖMKi), the only independent organisation in Hungary specially dedicated to sustainable agriculture, was established in 2011 with the aim of ensuring competitiveness of organic food production through practice-orientated research, credible advice and effective dissemination of knowledge. In the same year, the Organic Farmers' Association in the Carpathian Basin (Kárpát-medencei Ökogazdálkodók Szövetsége, KÖSZ) was also founded.

The EU regulations binding for organic farming are complemented by the national law Regulation No. 34/2013 (14th May 2013) on the certification, marketing, labelling and control procedures of agricultural products and foodstuffs according to organic farming requirements (Ministry of Rural Development, 2013). In the Act XLVI of 2008 on the Food Chain and Official Supervision of Hungary, the Parliament delegated supervisory tasks related to organic production to the food chain supervisory body. Regulation 34/2013 (14th May 2013) of the Ministry of Rural Development describes the tasks and rights of the National Food Chain Safety Office (NFCSO, Hungarian: Nébih), the government agencies, the certification bodies, the procedures for the control and certification of organic farming and the operation of the control system (Ministry of Rural Development, 2013). The NFCSO delegates certain control tasks defined in the legislation to respective certification bodies. The accreditation of certification bodies is performed by the National Accreditation Authority (Ministry of Agriculture, 2022).

The two above-mentioned certification bodies are responsible for certification and verification of organic farming operations. Currently, there is no national or private organic standard in Hungary. Figure 3.5 shows the logo of the two national certification bodies.

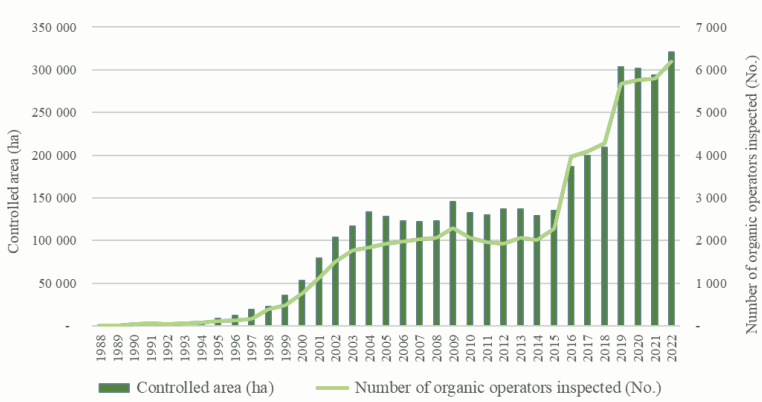
Figure 3.5. Logos of Biokontroll Hungária Kft. (a) and Bio Garancia Kft. (b)

b) c)

Source: the authors' elaboration.

In October 2021 the European Parliament adopted the "Farm to Fork" strategy. One of the EU targets is to reach 25% of the total agricultural area under organic farming by 2030. The organic sector in Hungary has grown dynamically over the last two decades. Figure 3.6 shows that the area under organic farming increased significantly (305%) between 2001 and 2022. The total converted area and the areas under conversion to organic farming reached 6.3% of the utilised agricultural area in 2022 (KSH, 2024).

Figure 3.6. Number of controlled areas and operators involved in organic farming from 1988 to 2022 in Hungary (ÖMKi)



Source: the authors' elaboration, (ÖMKi).

Based on the 2021 data, Hungary ranks 30th in the world, in the middle of the European ranking, and 3rd among the V4 countries in terms of the size of organic areas (Willer et al., 2023). Organic production has been present in domestic small and large farms since the 1980s, defined from the beginning by the low level of production of basic plant-based products, export orientation, and processing. Until 2004, the development of the Western European market and the lack of raw materials were the main drivers for the conversion of Hungarian farmers. After Hungary's accession to the European Union, between 2004 and 2014, the production volume of organic farming did not change significantly. During that period, the number of organic farmers ranged between 1 842 and 2 292, while the area under organic farming was between 122 and 133 thousand hectares. The Agricultural Environment Management Programme launched in 2004 under the National Rural Development Plan and the New Hungary Rural Development Programme between 2009 and 2014 helped farmers to convert by providing area-based subsidies and area-based payments, which increased on the annual basis. The launch of the "Conversion to organic farming, maintenance of organic farming" appeals in 2015 and the "Conversion to organic farming, maintenance of organic farming" announcements in 2018 under the Rural Development Programme can be considered highly successful in terms of increasing the number of farms converting to organic farming and the size of the areas under organic farming. As a result of these programmes, more than twice as many people in Hungary were involved in organic farming between 2015 and 2019 than in all the previous years combined. As a result, 5.7% of the total agricultural area, 303,000 hectares, was under organic farming at the end of the decade. In line with the EU Action Plan for Organic Farming, the National Action Plan for the Development of Organic Farming (ÖCST) defines the objectives for 2022-2027 (European Commission, 2021; Ministry of Agriculture, 2022). The ÖCST aims to increase the share of organic farming to 10% by 2027 and to coordinate the domestic CAP support instruments in a systemic way to develop the sector.

Table 3.12 shows that in 2022 a total of 320 517 hectares were under controlled organic farming in Hungary, an increase of approx. 10% compared to the previous year (KSH 2024), of which 229 870 hectares are already converted, and 90 647 hectares are under conversion. In view of the area data for the period 2016-2022, a dynamic increase in area can be observed. The increase in the area under organic farming first picked up in 2016 and then in 2019, followed by a slow decrease from 2020 and an increase again in 2022. The dynamics of area change in recent years have been significantly influenced

by the five-year periodicity of the support scheme and the different financial frameworks for the transition years included in the scheme.

Table 3.12. Area of controlled organic farmland from 2016 to 2022 in Hungary (ÖMKi)

Area data (ha)	2016	2017	2018	2019	2020	2021	2022
Total controlled areas thereof:	186 322	199 683	209 382	303 190	301 430	293 597	320 517
Converted areas	91 299	104 482	171 112	185 227	193 215	262 906	229 870
Areas under conversion	95 023	95 200	38 271	117 963	108 215	30 691	90 647

Source: the authors' elaboration, (ÖMKi).

The total number of operators registered by the certification bodies in 2022 was 6 808, of which 6,189 were farmers, 4 aquaculture producers, 468 processors, and 49 importers (Table 3.12). The number of farmers almost doubled in the last six years, while the number of processors increased until 2019, after which a downward trend was observed. Notably, in 2019 Hungary was the 10th fastest-growing country in the world regarding organic land expansion (Willer et al., 2021).

Table 3.13. Number of organic operators inspected from 2016 to 2022 in Hungary (ÖMKi)

Number of operators inspected (No.)	2016	2017	2018	2019	2020	2021	2022
ALL OPERATORS	3 968	4 085	4 284	5 667	5 760	5 789	6 808
Agricultural producers	3 414	3 642	3 929	5 136	5 128	5 129	6 189
Aquaculture producers	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	4
Processors	442	492	515	523	521	489	468
Importers	34	36	42	44	48	61	49

Source: the authors' elaboration, (ÖMKi).

Table 3.14 shows that in 2022 57% of the area used for organic farming was grassland (183 110 ha), 36% (116 244 ha) was arable crops and 7% (21 162 ha) was permanent crops (KSH, 2024). Organic farming accounted for 6.3% of agricultural land in Hungary in 2022, which was much higher than the previous 2.5-3% ratio, but still below the EU average.

The conditionalities of the five-year support schemes have clearly contributed most to the increase in the proportion of grassland. The share of grassland in total organic areas increased from 49.9% in 2015 to 60.9% by 2019 and 60.03% by 2020, respectively. Therefore, although the area under arable crops, including vegetables and permanent crops, increased significantly in absolute terms, the share of land used directly for organic food production

decreased within the sector. In 2022 within the arable cultivation sector 40.18% of the area was cropped to cereals, 16.46% to industrial crops (oilseed crops, fibre crops, soybean, spices and herbs), only 3.25% to grain legumes, while 0.18% are root crops (potatoes, sugar beet, Jerusalem artichokes), 3.82% are vegetables, strawberries, and melons, 34.36% are green fodder crops, and 1.74% are other crops, respectively.

Table 3.14. Share of organic areas by land use categories in 2022 in Hungary (ÖMKi)

Sector of activity	Area in Hungary based on KSH* data (ha)	Size of organic areas (ha)	Organic share (%)
Arable cultures	4 162 900	116 244	2.8%
Permanent crops	143 900	21 162	14.7%
Grassland	771 300	183 110	23.7%
Area under agricultural cultivation	5 078 100	320 516	6.3%

* except kitchen garden

Source: the authors' elaboration, (ÖMKi).

The data in Table 3.15 indicate changes in the number of inspected livestock between 2016 and 2022. The increase in the number of animals in 2019 resulted from the subsidy programme for beef cattle and sheep. A decrease in the number of dairy cows was observed, despite a significant role of the product of these animals in everyday nutrition, especially for children, and in public catering. In addition, the pig and goat numbers decreased, while the sheep and poultry populations increased over the period.

Table 3.15. Changes in organic livestock from 2016 to 2022 in Hungary (ÖMKi)

Livestock (head)	2016	2017	2018	2019	2020	2021	2022
Bovine animals (total)	20 815	17 741	18 964	27 007	26 087	27 810	**23 216**
Bovine animals for slaughter	14 769	11 436	13 482	22 348	21 983	n.a.	**19 797**
Dairy cows	3 339	3 272	1 169	1 200	767	1 532	**1 585**
Other bovine animals	2 707	3 033	4 313	3 459	3 337	n.a.	**1 834**
Pigs	8 945	5 333	4 459	5 486	3 499	4 446	**6 801**
Sheep	8 138	6 260	5 538	11 801	8 506	9 206	**10 448**
Goats	1 105	552	572	807	611	670	**410**
Poultry	77 520	106 292	83 538	131 367	95 349	125 371	**130 823**

Source: the authors' elaboration, (ÖMKi).

The number of processing companies fluctuated dynamically in recent years (Table 3.16). According to the 2022 data, there are 415 certified food, feed, or wine processing companies in Hungary (KSH, 2024). While no statistics are available for food manufacturers concerning the percentage of organic production, organic products are an important part of their product portfolio. These operators are present not only in the domestic market, but also in export markets and sometimes they produce solely for export. National subsidy programs support participation in the organic inspection system, as well as production of foodstuffs according to specific quality standards.

Table 3.16. Number of organic feed and food processors from 2016 to 2022 in Hungary (ÖMKi)

Number of processors	2016	2017	2018	2019	2020	2021	2022
MANUFACTURE OF FOOD PRODUCTS (Total number of enterprises active in the processing of organic feed and food and alcoholic beverages, excluding small-scale processing)	491	399	370	443	501	436	415
Processing and preserving of meat and production of meat products	15	13	16	22	15	12	21
Processing and preserving of fish, crustaceans and molluscs	3	1	1	2	2	2	2
Processing and preserving of fruit and vegetables	159	150	160	195	208	193	183
Manufacture of vegetable and animal oils and fats	25	21	25	24	38	23	21
Manufacture of dairy products	11	10	11	10	13	11	7
Manufacture of grain mill products, starches and starch products	35	30	30	32	46	36	37
Manufacture of bakery and farinaceous products	20	22	21	21	21	16	14
Manufacture of other food products	135	103	104	127	148	137	123
Manufacture of prepared animal feeds	5	7	2	10	10	6	7
MANUFACTURE OF BEVERAGES (alcoholic beverages)	45	42	11	53	66	58	61
Manufacture of wine from grapes	31	34	9	42	54	47	51

Source: the authors' elaboration, (ÖMKi).

The market share of organic products in Hungary is low, with an estimated total food sales of only 0.5-1% (Gauvrit, Schaer, 2012; Ministry of Agriculture, 2022). It is estimated that the organic sector in Hungary is highly export-oriented, with 85% of organic produce being exported. Exports consist mainly of raw materials or low value-added products (Organic Europe, 2023). In the major organic food-consuming countries (Southern, Western, and Scandinavian countries are the leaders in this respect), the amount a person spends on organic products per year is over €100, while in Hungary

it is estimated to be only €2.5-3 (Apáti et al., 2019, Willer et al., 2023). When comparing the level of expenditure on organic products with the average net income per capita in each country, it can be concluded that the level of organic product consumption in each country is very closely correlated with the average household income (Apáti et al., 2019; Györéné Kis, 2024).

3.4. Development processes in Polish organic agriculture

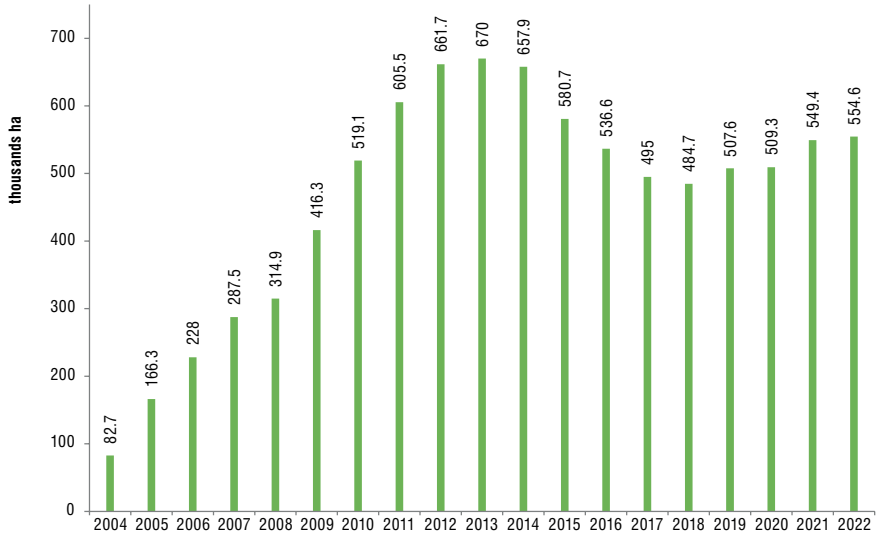
Organic agriculture in Poland dates back to the 1930s, when Stanisław Karłowski founded the first organic farm in his manor estate of Szelejewo. During WWII and in the post-war period this farming method was in decline, replaced by intensification of agriculture. The concept of organic agriculture was revived at the turn of the 1970s and 1980s, when training courses for farmers interested in sustainable farming methods were initiated. In the years 1986-1987 a pioneering group of farmers started to convert their farms to organic production, while in 1989 the EKOLAND Association of Organic Food Producers (Stowarzyszenie Producentów Żywności Metodami Ekologicznymi EKOLAND) was founded, providing certification for 27 farms in 1990. Starting from 1993 the Polish Organic Agriculture Society (Polskie Towarzystwo Rolnictwa Ekologicznego) was another entity authorised to issue such certificates. However, until 1998 organic agriculture in Poland was developing very slowly (Nowogródzka, 2012, p. 54). A more dynamic development of organic production in Poland started as late as 1998, when subsidies to farm control costs were introduced, while in 1999 direct payments to farmland area were implemented and the status of organic agriculture became regulated by binding legal acts.

The legal acts concerning organic agriculture (Act... 2001; Resolution... 2002a; Resolution... 2002b) facilitate its development, while providing organisational and legal frameworks for producers and consumers. The Act regulates conditions binding for agricultural production and agri-food processing applying organic methods, it specifies the control and certification system, as well as regulates turnover of organic products and their labelling. The stipulations of that Act are consistent with the EU legal regulations and those of the International Federation of Organic Agriculture Movements (IFOAM). Based on the authorisation by the Minister of Agriculture and Rural Development, supervision over certifying entities is exerted by the Agricultural and Food Quality Inspection (Inspekcja

Jakości Handlowej Artykułów Rolno-Spożywczych). In turn, organic farms are inspected by private authorised entities. They issue certificates, on the basis of which farmers may apply for subsidies to organic crops and co-financing of farm control costs (Komorowska, 2006, p. 44).

A significant impact on the development of organic agriculture was also connected with Poland's accession to the EU, primarily thanks to the subsidy systems as well as greater potential to sell organic food. In terms of the utilised agricultural area under organic farming, amounting to 554.6 thousand ha in 2022, Poland ranked 11th among the EU member countries. In 2004 utilised agricultural area under organic farming in Poland was only 82.7 thousand ha, accounting for as little as 0.5% total utilised agricultural area. In the early years of Poland's EU membership the area under organic farming was increasing systematically, reaching 670 thousand ha in 2013. However, as a result of the decreasing number of organic farms after 2013 the utilised agricultural area under organic farming also decreased (with the difference between 2013 and 2018 amounting to 185.3 thousand ha). The reasons for the decision made by some farmers to cease organic farming were mainly connected with changes in legal regulations and rates of subsidies to organic agriculture introduced in that period. Starting from 2019 the utilised agricultural area under organic farming started to increase slowly (Figure 3.7).

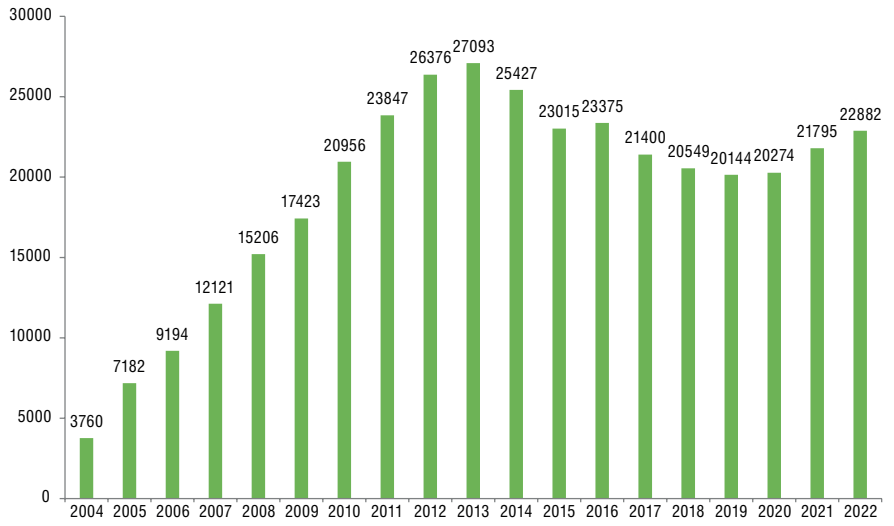
Figure 3.7. Agricultural area under organic farming in Poland in 2004-2022 (thousands ha)



Sources: https://www.gov.pl/web/ijhars/raport-o-stanie-rolnictwa-ekologicznego-w-polsce.

The current dynamic development of the organic production sector in Poland may be confirmed not only by the growing total utilised agricultural area under organic farming, but also by the data on the number of organic producers (Figure 3.8). In 2004 operations in the field of organic agriculture were run in Poland by 3760 producers, while in 2013 this number grew to 27 093 (an increase by over 620% compared to 2004). After 2013 the trend towards development of Polish organic agriculture slowed down and the number of organic farms started to decrease. In the course of seven years, i.e. from 2013 to 2019, approx. 75% organic farms ceased to operate in Poland. The reduction in the number of organic farms after 2014 was caused primarily by the decreased profitability of such farms. Decisions to cease organic farming resulted from the tightening of criteria to be met in order to receive support within the recent Rural Development Programme framework for 2014-2020, including e.g. granting subsidies to meadows and peatland on condition of keeping livestock (ruminants) on the farm, as well as stricter criteria to receive subsidies to orchard (walnut) area. Starting from 2020 a gradual increase in the number of producers may again be observed. In 2022 this number increased by approx. 5% (to 22882) compared to 2021 (21795 producers) (Figure 3.8).

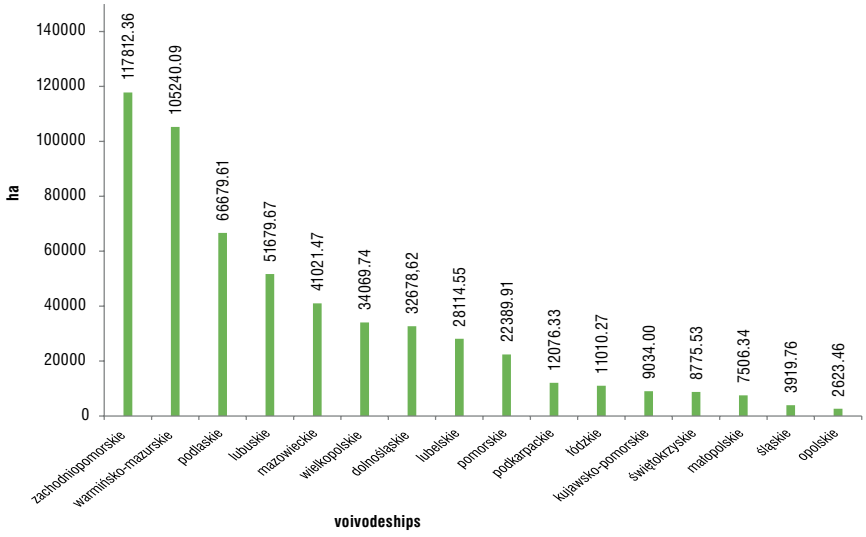
Figure 3.8. Number of organic farmers in Poland in 2004-2022



Source: https://www.gov.pl/web/ijhars/raport-o-stanie-rolnictwa-ekologicznego-w-polsce.

Interest in organic agriculture in individual regions of Poland varies considerably (Figure 3.9). As it was stated by Jończyk and Stalenga (2010, p. 22) *"its development is determined, apart from the quality of the production area, also by such factors as landscape diversity, the share of protected areas, the share of permanent grassland, forest cover, as well as organisational and social factors"*. The largest number of organic farms is found in the Warmińsko-mazurskie, Zachodniopomorskie and Podlaskie provinces (Polish: województwa), accounting jointly for over 50% of all such farms. In turn, limited interest in organic farming is observed in the Opolskie, Śląskie, Małopolskie and Świętokrzyskie provinces.

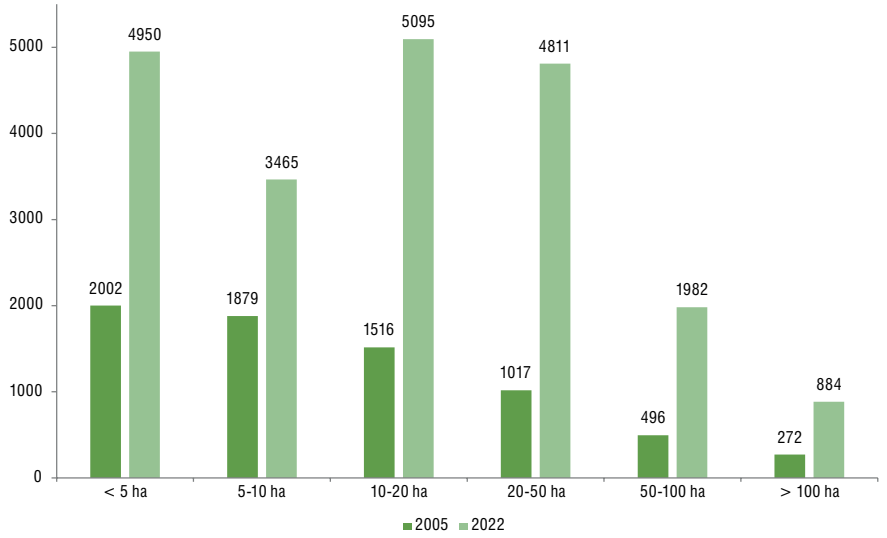
Figure 3.9. The total area of organic agricultural land in Poland in 2022 (ha)



Sources: https://www.gov.pl/web/ijhars/raport-o-stanie-rolnictwa-ekologicznego-w-polsce.

Statistical data concerning the share of organic farms in individual utilised agricultural area (UAA) size classes indicate a trend towards increasing farm area. Since 2005 in Poland the largest decrease has been observed for the organic farms with the smallest UAA, while the number of larger farms has been increasing (Figure 3.10). In 2022 approx. 25% organic farms were max. 5 ha and 10-20 ha in area, approx. 23% farms were 20-50 ha, only 9% farms were 50-100 ha, while the group of farms with an area over 100 ha accounted for as little as 4% of the total number of organic farms.

Figure 3.10. Structure of organic farm size in Poland in 2005 and 2022



Sources: https://www.gov.pl/web/ijhars/raport-o-stanie-rolnictwa-ekologicznego-w-polsce.

According to Kopiński (2019), the trend towards increasing the farm area needs to be seen as positive since it directly affects an increase in the production scale, the economic size of farms, and the level of agricultural income.

Summing up, it may be stated that a significant effect on the establishment and development of organic agriculture in Poland was connected with Poland's accession to the European Union in 2004 and Polish agriculture being covered by the Common Agricultural Policy (CAP). As was stressed by Kopiński (2018), the CAP determines production and economic output and affects the environmental impact of agricultural production. Within the framework of the CAP, e.g., through the Rural Development Programmes (RDP), various development priorities are being implemented and realised, such as, e.g., sustainable development, competitiveness, improved food quality (including organic and integrated agriculture), reduction of greenhouse gas emissions and mitigation of environmental hazards related to agriculture, as well as promotion of climate resilience measures.

Chapter IV

Consumption of organic food as a stimulant of organic food market development – research results

4.1. Structure and characteristics of the surveyed population

Behaviours and perceptions of organic food, as well as motives and barriers to increasing the consumption of this type of food in the Visegrad Group countries were identified based on a conducted survey. Data on the intended scope of research were obtained using a survey questionnaire consisting of 22 main questions (both open and closed) and 10 questions concerning the respondents' data. Research in Poland, Czechia, Slovakia and Hungary was conducted in the native languages. The data was collected between December 2023 and February 2024.

The minimum sample size of populations covered by the study in individual countries was determined based on the following formula (Brzeziński, Stachowski, 1981, p. 104; Sobczyk, 2007, p. 175; Nanjundeswaraswamy, Divakar 2021, pp. 25-30):

$$n = \frac{P(1-P)}{\frac{e^2}{Z_\alpha{}^2} + \frac{P(1-P)}{Ni}},$$

where: n – sample size, e – allowable error, Ni – the size of the population in individual countries of the V4 group ($i = 1,\ldots,4$), $Z\alpha$ – the amount resulting from the adopted confidence level (for a 95 percent confidence level Zα is 1.96, P – structure index, reflecting the estimated proportion in the population).

The minimum sample size in each Visegrad Group country was determined using the same assumptions:

- confidence level 95,
- maximum error $e = 4\%$,
- structure index P equal to 50%, since for such a level the product $P(1\text{-}P)$ is the highest,
- the total number of respondents (population) in Poland, Czechia, Slovakia, and Hungary according to Eurostat data (as of January 1, 2023) is 36 753 736 (N1), 10 827 529 (N2), 5 428 792 (N3) and 9 599 744 (N4), respectively.

Considering the above assumptions, the research sample size in each country of the Visegrad Group was estimated at 600 people. The research was limited to adults only.

Women were dominant among the survey respondents in each country. At the level of the entire Visegrad Group, they constituted nearly 67% – with the highest percentage of women among respondents identified in Poland (73%), and the lowest in Czechia (slightly over 62%).

Over 46% of all respondents declared that they bought organic food. The research shows that in two of the V4 countries – Hungary and Slovakia – more than half of respondents declared purchase of organic food (55.5 and 53.7%, respectively, whereas in Poland it was only every third person). Among all respondents who declared that they bought organic food, only one in seven was male (14.13%), with the largest percentage recorded in Slovakia (nearly 17%). The research shows that almost every third woman (32.08%) bought this type of food (the highest percentage – nearly 41% – in Hungary). Also, research for Western European countries conducted by de Maya et al. (2011, p. 1769) shows that women prevail in the investigations of organic food consumers. It might result from the fact that they are more open than men and willing to participate in any research (Green, 1996, Becker, Glauser, 2018, Becker, 2021). Moreover, they are frequently responsible for food purchases in a household (Szwacka-Mokrzycka el. al 2021, p. 101). They are also more empathetic and care more about the environment and the family's health (Lea, Worsley 2005, Lockie et al., 2002).

Table 4.1. Distribution of the study sample by gender

Specification	Number				
	Total				
	Poland	Czechia	Slovakia	Hungary	Σ
Male	162	227	222	185	796
Female	438	373	378	415	1604
Total	600	600	600	600	2400
	Consumers purchasing organic food				
Male	68	81	101	89	339
Female	144	161	221	244	770
Total	212	242	322	333	1109
	Consumers not purchasing organic food				
Male	94	146	121	96	457
Female	294	212	157	171	834
Total	388	358	278	267	1291
Specification	Percentage of the total				
	Poland	Czechia	Slovakia	Hungary	Σ
	Total				
Male	27.00	37.83	37.00	30.83	33.17
Female	73.00	62.17	63.00	69.17	66.83
Total	100.00	100.00	100.00	100.00	100.00
	Consumers purchasing organic food				
Male	11.33	13.50	16.83	14.83	14.13
Female	24.00	26.83	36.83	40.67	32.08
Total	35.33	40.33	53.67	55.50	46.21
	Consumers not purchasing organic food				
Male	15.67	24.33	20.17	16.00	19.04
Female	49.00	35.33	26.17	28.50	34.75
Total	64.67	59.67	46.33	44.50	53.79

Source: the authors' elaboration.

Respondents in each Visegrad Group country were primarily people with secondary education (Poland and Czechia) or higher education (Slovakia and Hungary). In total, this group of respondents constituted nearly 97% of the total. (Table 4.2). Apart from Poland, in every V4 country, the majority of people (from 59% in the case of Slovakia to 66% in Czechia) with higher education declared purchase of organic food (in Poland, less than 42%). Similar results were obtained in Brazil (Martins et al. 2020, p. 2, de Toni et al. 2020, p. 9), selected European countries (Meyer-Höfer et al. 2014, p. 1530), and the UK (Padel, Foster, 2005, p. 612), where the vast majority of organic food consumers also had higher and secondary education.

Table 4.2. Distribution of the study sample according to education level

Specification	Number				
	Total				
	Poland	Czechia	Slovakia	Hungary	Σ
Primary	4	8	2	2	16
Junior high school	0	1	2	0	3
Vocational	10	16	2	27	55
Secondary	361	392	234	144	1131
Higher	225	183	360	427	1195
	Consumers purchasing organic food				
Primary	1	7	1	2	11
Junior high school	0	1	1	0	2
Vocational	6	6	0	9	21
Secondary	111	107	107	65	390
Higher	94	121	213	257	685
	Consumers not purchasing organic food				
Primary	3	1	1	0	5
Junior high school	0	0	1	0	1
Vocational	4	10	2	18	34
Secondary	250	285	127	79	741
Higher	131	62	147	170	510
Specification	Percentage				
	Poland	Czechia	Slovakia	Hungary	Σ
	Total				
Primary	0.67	1.33	0.33	0.33	0.67
Junior high school	0.00	0.17	0.33	0.00	0.13
Vocational	1.67	2.67	0.33	4.50	2.29
Secondary	60.17	65.33	39.00	24.00	47.13
Higher	37.50	30.50	60.00	71.17	49.79
	Percentage in the group of consumers purchasing organic food				
Primary	25.00	87.50	50.00	100.00	68.75
Junior high school	0.00	100.00	50.00	0.00	66.67
Vocational	60.00	37.50	0.00	33.33	38.18
Secondary	30.75	27.30	45.73	45.14	34.48
Higher	41.78	66.12	59.17	60.19	57.32
	Percentage in the group of consumers not purchasing organic food				
Primary	75.00	12.50	50.00	0.00	31.25
Junior high school	0.00	0.00	50.00	0.00	33.33
Vocational	40.00	62.50	100.00	66.67	61.82
Secondary	69.25	72.70	54.27	54.86	65.52
Higher	58.22	33.88	40.83	39.81	42.68

The percentages of consumers purchasing and not purchasing organic food sum up to 100.

Source: the authors' elaboration.

Almost every third respondent declared that they lived in the countryside. In Poland, Czechia, and Slovakia, rural residents constituted the largest group of respondents. In Hungary, most people participating in the study declared that they lived in the largest cities (over 200,000 inhabitants). At the level of the entire V4 group, this type of territorial unit's residents constituted the second-largest subgroup of respondents (25%). Relatively most people buying organic food are residents of larger cities (over 40,000 inhabitants), where the percentage of people buying this type of food exceeded 54% in each of the categories of cities distinguished for the purpose of the research (in the case of those with 100,000 to 199,999 inhabitants, it was over 59%). Such a high percentage of organic food buyers in urban areas is probably due to the fact that most of the specialised stores distributing organic food are located there. Quite surprisingly, a relatively low percentage of organic food buyers – especially in Czechia and Poland (24.5 and 36.5%, respectively) – was recorded among rural residents.). It may be due to the fact that they are farmers who produce food for their own needs (e.g. fruit, vegetables, eggs, milk, meat), especially smaller entities, hence there is no need to purchase food from outside the farm. For comparison, in Italy, nearly 40% of organic food consumers resided in rural areas (Castellini et al. 2020, p. 4). Producers of this type of food mainly operate in rural areas, meaning consumers may have easier access to this food. At the same time, in many villages, traditional agricultural cultivation methods are still widely practiced, which favours organic farming, while at the same time reducing the demand for ready-made organic products (purchased elsewhere

In the entire V4 group a majority of respondents (over 41%) were employees (working based on an employment contract). The highest percentage of this group of respondents was observed in Hungary (over 61%). Apart from Hungary, the largest group of respondents in individual countries were students and pupils (adult students). Slightly more than 7% of the study participants were retirees, unemployed, and professionally inactive (who did not have student status). The highest percentage of people buying organic food was identified among the professionally inactive (over 71%); however, due to the generally low number of this professional status group it was excluded from detailed analyses (35 people in the entire V4 group).

Table 4.3. Structure of the surveyed sample depending on place of residence

Specification	Number				
	Total				
	Poland	Czechia	Slovakia	Hungary	∑
Rural areas	241	204	221	98	764
Town with less than 20.000 inhabitants	76	136	60	138	410
Town with 20 000-39 999 inhabitants	42	51	74	78	245
City with 40 000-99 999 inhabitants	36	119	74	32	261
City with 100 000-199 999 inhabitants	23	32	12	53	120
City with over 200 000 inhabitants	182	58	159	201	600
	Consumers purchasing organic food				
Rural areas	88	50	116	56	310
Town with less than 20.000 inhabitants	10	49	29	72	160
Town with 20 000-39 999 inhabitants	9	18	40	36	103
City with 40 000-99 999 inhabitants	12	70	41	18	141
City with 100 000-199 999 inhabitants	12	26	7	26	71
City with over 200 000 inhabitants	81	29	89	125	324
	Consumers not purchasing organic food				
Rural areas	153	154	105	42	454
Town with less than 20.000 inhabitants	66	87	31	66	250
Town with 20 000-39 999 inhabitants	33	33	34	42	142
City with 40 000-99 999 inhabitants	24	49	33	14	120
City with 100 000-199 999 inhabitants	11	6	5	27	49
City with over 200 000 inhabitants	101	29	70	76	276
Specification	**Percentage**				
	Poland	**Czechia**	**Slovakia**	**Hungary**	**∑**
	Total				
Rural areas	40.17	34.00	36.83	16.33	31.83
Town with less than 20.000 inhabitants	12.67	22.67	10.00	23.00	17.08
Town with 20 000-39 999 inhabitants	7.00	8.50	12.33	13.00	10.21
City with 40 000-99 999 inhabitants	6.00	19.83	12.33	5.33	10.88
City with 100 000-199 999 inhabitants	3.83	5.33	2.00	8.83	5.00
City with over 200 000 inhabitants	30.33	9.67	26.50	33.50	25.00
	Percentage in the group of consumers purchasing organic food				
Rural areas	36.51	24.51	52.49	57.14	40.58
Town with less than 20.000 inhabitants	13.16	36.03	48.33	52.17	39.02
Town with 20 000-39 999 inhabitants	21.43	35.29	54.05	46.15	42.04
City with 40 000-99 999 inhabitants	33.33	58.82	55.41	56.25	54.02
City with 100 000-199 999 inhabitants	52.17	81.25	58.33	49.06	59.17
City with over 200 000 inhabitants	44.51	50.00	55.97	62.19	54.00
	Percentage in the group of consumers not purchasing organic food				
Rural areas	63.49	75.49	47.51	42.86	59.42
Town with less than 20.000 inhabitants	86.84	63.97	51.67	47.83	60.98
Town with 20 000-39 999 inhabitants	78.57	64.71	45.95	53.85	57.96
City with 40 000-99 999 inhabitants	66.67	41.18	44.59	43.75	45.98
City with 100 000-199 999 inhabitants	47.83	18.75	41.67	50.94	40.83
City with over 200 000 inhabitants	55.49	50.00	44.03	37.81	46.00

The percentages of consumers purchasing and not purchasing organic food sum up to 100.

Source: the authors' elaboration.

Table 4.4. Professional status of respondents

Specification	Number				
	Total				
	Poland	Czechia	Slovakia	Hungary	∑
Unemployed	10	5	0	14	29
Pensioner	32	3	4	68	107
I don't work professionally	0	0	2	33	35
Self-employment (including farmers)	123	29	49	88	289
Contract work	178	280	160	368	986
Student	257	283	385	29	954
	Consumers purchasing organic food				
Unemployed	4	3	0	4	11
Pensioner	29	2	0	30	61
I don't work professionally	0	0	2	23	25
Self-employment (including farmers)	54	17	26	51	148
Employed	57	152	100	213	522
Student	68	68	194	12	342
	Consumers not purchasing organic food				
Unemployed	6	2	0	10	18
Pensioner	3	1	4	38	46
I don't work professionally	0	0	0	10	10
Self-employment (including farmers)	69	12	23	37	141
Employed	121	128	60	155	464
Student	189	215	191	17	612
Specification	Percentage				
	Poland	Czechia	Slovakia	Hungary	∑
	Total				
Unemployed	1.67	0.83	0.00	2.33	1.21
Pensioner	5.33	0.50	0.67	11.33	4.46
I don't work professionally	0.00	0.00	0.33	5.50	1.46
Self-employment (including farmers)	20.50	4.83	8.17	14.67	12.04
Employed	29.67	46.67	26.67	61.33	41.08
Student	42.83	47.17	64.17	4.83	39.75
	Percentage in the group of consumers purchasing organic food				
Unemployed	40.00	60.00	0.00	28.57	37.93
Pensioner	90.63	66.67	0.00	44.12	57.01
I don't work professionally	0.00	0.00	100.00	69.70	71.43
Self-employment (including farmers)	43.90	58.62	53.06	57.95	51.21
Employed	32.02	54.29	62.50	57.88	52.94
Student	26.46	24.03	50.39	41.38	35.85
	Percentage in the group of consumers not purchasing organic food				
Unemployed	60.00	40.00	0.00	71.43	62.07
Pensioner	9.38	33.33	100.00	55.88	42.99
I don't work professionally	0.00	0.00	0.00	30.30	28.57
Self-employment (including farmers)	56.10	41.38	46.94	42.05	48.79
Employed	67.98	45.71	37.50	42.12	47.06
Student	73.54	75.97	49.61	58.62	64.15

The percentages of consumers purchasing and not purchasing organic food sum up to 100.

Source: the authors' elaboration.

While performing the research, respondents were asked to indicate how many people in their household were professionally active (Table 4.4). In each country the largest group of survey participants were members of households, in which two people worked (the highest percentage in Czechia – 61%, and the lowest in Poland – 43%). A rather surprisingly high percentage of those who declared purchasing organic food (for the entire investigated group, it was 49%) was identified in the case of households where nobody is gainfully employed (the highest percentage in Poland (73%) and Slovakia (60%)). It can be substantiated by the fact that households without actively working people (e.g., consisting of old age retirees) decide to buy organic food in view of its health benefits, taste, or environmental issues (Stojić, Dimitrijević, 2020).

Almost 43% of survey participants assessed the income situation of their household as good (41% on average). Notably, in this group of respondents the share of indications was almost twice as high in Poland (54.8%) than in Hungary (30.7%). A relatively small group of respondents were people who assessed their household situation as bad or very bad – less than 5.5%. For the entire V4 group the highest percentage of people declaring purchasing organic food (almost 54%) was recorded among people who assessed their household income situation as very good. In this group of respondents, only in Poland more people declared that they did not buy organic food (nearly 62%) compared to those who did (about 38%). For comparison, in Hungary as many as 68% of those who assessed their household situation as very good bought organic food.

One of the factors influencing purchasing decisions is the size of the household, which significantly determines the amount of disposable income in the household (as the number of household members increases, expenses for basic necessities such as food increase). The research shows that residents of the Visegrad Group countries most often purchase organic food as members of one– and three-person households (52 and less than 50%, respectively). The analyses show that particularly clear disproportions between the V4 countries concerning organic food purchasing decisions are observed in large households (with 5 or more members). In such large households in Slovakia and Hungary, a two– and in some cases four-fold higher percentage of organic food buyers was identified than in Poland or Czechia.

Table 4.5. Number of people working in the household

Specification	Number				
	Total				
	Poland	Czechia	Slovakia	Hungary	∑
Nobody works	45	11	5	45	106
1 person works	95	108	85	183	471
2 persons work	259	365	251	322	1197
3 persons work	136	92	176	41	445
4 persons work	49	18	71	6	144
5 and more people work	16	6	12	3	37
	Consumers purchasing organic food				
Nobody works	33	3	3	13	52
1 person works	30	35	52	103	220
2 persons work	88	172	131	192	583
3 persons work	42	26	90	20	178
4 persons work	15	4	41	3	63
5 and more people work	4	2	5	2	13
	Consumers not purchasing organic food				
Nobody works	12	8	2	32	54
1 person works	65	73	33	80	251
2 persons work	171	193	120	130	614
3 persons work	94	66	86	21	267
4 persons work	34	14	30	3	81
5 and more people work	12	4	7	1	24
Specification	Percentage				
	Poland	Czechia	Slovakia	Hungary	∑
	Total				
Nobody works	7.50	1.83	0.83	7.50	4.42
1 person works	15.83	18.00	14.17	30.50	19.63
2 persons work	43.17	60.83	41.83	53.67	49.88
3 persons work	22.67	15.33	29.33	6.83	18.54
4 persons work	8.17	3.00	11.83	1.00	6.00
5 and more people work	2.67	1.00	2.00	0.50	1.54
Percentage in the group of consumers purchasing organic food					
Nobody works	73.33	27.27	60.00	28.89	49.06
1 person works	31.58	32.41	61.18	56.28	46.71
2 persons work	33.98	47.12	52.19	59.63	48.71
3 persons work	30.88	28.26	51.14	48.78	40.00
4 persons work	30.61	22.22	57.75	50.00	43.75
5 and more people work	25.00	33.33	41.67	66.67	35.14
Percentage in the group of consumers not purchasing organic food					
Nobody works	26.67	72.73	40.00	71.11	50.94
1 person works	68.42	67.59	38.82	43.72	53.29
2 persons work	66.02	52.88	47.81	40.37	51.29
3 persons work	69.12	71.74	48.86	51.22	60.00
4 persons work	69.39	77.78	42.25	50.00	56.25

The percentages of consumers purchasing and not purchasing organic food sum up to 100.

Source: the authors' elaboration.

Table 4.6. Assessment of the household's income situation

Specification	Number				
	Total				
	Poland	Czechia	Slovakia	Hungary	Σ
Very bad	2	3	5	6	16
Bad	9	31	12	62	114
Medium	192	267	220	304	983
Good	329	245	273	184	1031
Very good	68	54	90	44	256
	Consumers purchasing organic food				
Very bad	0	1	3	4	8
Bad	3	9	7	27	46
Medium	73	103	114	164	454
Good	110	101	144	108	463
Very good	26	28	54	30	138
	Consumers not purchasing organic food				
Very bad	2	2	2	2	8
Bad	6	22	5	35	68
Medium	119	164	106	140	529
Good	219	144	129	76	568
Very good	42	26	36	14	118
Specification	Percentage				
	Poland	Czechia	Slovakia	Hungary	Σ
	Total				
Very bad	0.33	0.50	0.83	1.00	0.67
Bad	1.50	5.17	2.00	10.33	4.75
Medium	32.00	44.50	36.67	50.67	40.96
Good	54.83	40.83	45.50	30.67	42.96
Very good	11.33	9.00	15.00	7.33	10.67
Percentage in the group of consumers purchasing organic food					
Very bad	0.00	33.33	60.00	66.67	50.00
Bad	33.33	29.03	58.33	43.55	40.35
Medium	38.02	38.58	51.82	53.95	46.19
Good	33.43	41.22	52.75	58.70	44.91
Very good	38.24	51.85	60.00	68.18	53.91
Percentage in the group of consumers not purchasing organic food					
Very bad	100.00	66.67	40.00	33.33	50.00
Bad	66.67	70.97	41.67	56.45	59.65
Medium	61.98	61.42	48.18	46.05	53.81
Good	66.57	58.78	47.25	41.30	55.09
Very good	61.76	48.15	40.00	31.82	46.09

The percentages of consumers purchasing and not purchasing organic food sum up to 100.

Source: the authors' elaboration.

Table 4.7. Number of people in the household

Specification	Number				
	Total				
	Poland	Czechia	Slovakia	Hungary	Σ
1	53	21	28	69	171
2	130	134	108	184	556
3	119	147	164	115	545
4	162	203	191	134	690
5	81	64	76	71	292
6	29	24	21	23	97
7 and more	26	7	12	4	49
	Consumers purchasing organic food				
1	24	11	20	34	89
2	56	53	63	95	267
3	47	65	87	72	271
4	50	90	98	79	317
5	23	17	36	41	117
6	8	5	11	10	34
7 and more	4	1	7	2	14
	Consumers purchasing not organic food				
1	29	10	8	35	82
2	74	81	45	89	289
3	72	82	77	43	274
4	112	113	93	55	373
5	58	47	40	30	175
6	21	19	10	13	63
7 and more	22	6	5	2	35
Specification	Percentage				
	Poland	Czechia	Slovakia	Hungary	Σ
	Total				
1	8.83	3.50	4.67	11.50	7.13
2	21.67	22.33	18.00	30.67	23.17
3	19.83	24.50	27.33	19.17	22.71
4	27.00	33.83	31.83	22.33	28.75
5	13.50	10.67	12.67	11.83	12.17
6	4.83	4.00	3.50	3.83	4.04
7 and more	4.33	1.17	2.00	0.67	2.04
Percentage in the group of consumers purchasing organic food					
1	45.28	52.38	71.43	49.28	52.05
2	43.08	39.55	58.33	51.63	48.02
3	39.50	44.22	53.05	62.61	49.72
4	30.86	44.33	51.31	58.96	45.94
5	28.40	26.56	47.37	57.75	40.07
6	27.59	20.83	52.38	43.48	35.05
7 and more	15.38	14.29	58.33	50.00	28.57

Specification	Percentage				
	Poland	Czechia	Slovakia	Hungary	∑
	Total				
Percentage in the group of consumers not purchasing organic food					
1	54.72	47.62	28.57	50.72	47.95
2	56.92	60.45	41.67	48.37	51.98
3	60.50	55.78	46.95	37.39	50.28
4	69.14	55.67	48.69	41.04	54.06
5	71.60	73.44	52.63	42.25	59.93
6	72.41	79.17	47.62	56.52	64.95
7 and more	84.62	85.71	41.67	50.00	71.43

The percentages of consumers purchasing and not purchasing organic food sum up to 100.

Source: the authors' elaboration.

The research shows that almost two out of three respondents did not live in a household with children under 18. At the level of the entire Visegrad Group the highest percentage of people declaring purchasing organic food was found in the case of households with four minors (62.5%; however, due to the small number (15 people) some caution should be exercised in drawing conclusions). Nevertheless, in terms of absolute values, the largest number of organic food buyers was found among people who did not have children (660) or had one child (229). Excluding households with at least 5 children (with only one indication in Hungary in the group of organic food buyers), a higher percentage of organic food buyers was identified in the group of people living in a household with 2 to 4 children than in those with maximum one child. According to the literature, families with children (particularly larger ones) are more willing to purchase this type of food. Many buyers do this mainly for the health of their children (Hjelmar, 2011, pp. 336-344; Cairns, Laat, et al., 2020, pp. 100-114; Tekinbaş Ozkaya et al., 2021, pp. 1-25). In general, the presence of children in the household positively impacts the consumption of organic food (Aertens et al. 2011, p. 1373; Thompson, Kidwell, 1998, pp. 280-286; McEachern and Willock, 2004, pp. 536-551).

Table 4.8. Number of children under 18 in the household

Specification	Number				
	Total				
	Poland	Czechia	Slovakia	Hungary	∑
No children	383	335	445	326	1489
1	129	159	121	97	506
2	70	93	29	114	306
3	11	11	0	47	69
4	5	2	2	15	24
5 and more	2	0	3	1	6
	Consumers purchasing organic food				
No children	129	116	242	173	660
1	49	64	62	54	229
2	27	56	17	72	172
3	5	4	0	23	32
4	2	2	1	10	15
5 and more	0	0	0	1	1
	Consumers not purchasing organic food				
No children	254	219	203	153	829
1	80	95	59	43	277
2	43	37	12	42	134
3	6	7	0	24	37
4	3	0	1	5	9
5 and more	2	0	3	0	5
Specification	Percentage				
	Poland	Czechia	Poland	Hungary	Poland
	Total				
No children	63.83	55.83	74.17	54.33	62.04
1	21.50	26.50	20.17	16.17	21.08
2	11.67	15.50	4.83	19.00	12.75
3	1.83	1.83	0.00	7.83	2.88
4	0.83	0.33	0.33	2.50	1.00
5 and more	0.33	0.00	0.50	0.17	0.25
Percentage in the group of consumers purchasing organic food					
No children	33.68	34.63	54.38	53.07	44.33
1	37.98	40.25	51.24	55.67	45.26
2	38.57	60.22	58.62	63.16	56.21
3	45.45	36.36	0.00	48.94	46.38
4	40.00	100.00	50.00	66.67	62.50
5 and more	0.00	0.00	0.00	100.00	16.67
Percentage in the group of consumers not purchasing organic food					
No children	66.32	65.37	45.62	46.93	55.67
1	62.02	59.75	48.76	44.33	54.74
2	61.43	39.78	41.38	36.84	43.79
3	54.55	63.64	0.00	51.06	53.62
4	60.00	0.00	50.00	33.33	37.50
5 and more	100.00	0.00	100.00	0.00	83.33

The percentages of consumers purchasing and not purchasing organic food sum up to 100.

Source: the authors' elaboration.

Among all respondents, 41% declared that not only they themselves, but also nobody in their household consumed organic food (the highest percentage in Poland was 51%, and the lowest in Slovakia was 32.5%). Nearly 3 out of 4 study participants declared that at most 2 people in their household consumed organic food (the highest number in Poland – 79% of all respondents). Every person who did not buy organic food indicated that nobody in their household ate this type of food. At the same time, each group of households consuming organic food (one or more household members) is distinguished; the majority are people who declared that they bought this type of food.

Table 4.9. Number of people in the household who consume organic food

Specification	Number				
	Total				
	Poland	Czechia	Slovakia	Hungary	Σ
No children	383	335	445	326	1489
1	129	159	121	97	506
2	70	93	29	114	306
3	11	11	0	47	69
4	5	2	2	15	24
5 and more	2	0	3	1	6
	Consumers purchasing organic food				
No children	129	116	242	173	660
1	49	64	62	54	229
2	27	56	17	72	172
3	5	4	0	23	32
4	2	2	1	10	15
5 and more	0	0	0	1	1
Specification	Number				
	Total				
	Poland	Czechia	Slovakia	Hungary	Σ
	Consumers not purchasing organic food				
No children	254	219	203	153	829
1	80	95	59	43	277
2	43	37	12	42	134
3	6	7	0	24	37
4	3	0	1	5	9
5 and more	2	0	3	0	5
No children	63.83	55.83	74.17	54.33	62.04
1	21.50	26.50	20.17	16.17	21.08
2	11.67	15.50	4.83	19.00	12.75
3	1.83	1.83	0.00	7.83	2.88
4	0.83	0.33	0.33	2.50	1.00
5 and more	0.33	0.00	0.50	0.17	0.25

Specification	Percentage				
	Poland	Czechy	Poland	Węgry	Poland
	Total				
Percentage in the group of consumers purchasing organic food					
No children	33.68	34.63	54.38	53.07	44.33
1	37.98	40.25	51.24	55.67	45.26
2	38.57	60.22	58.62	63.16	56.21
3	45.45	36.36	0.00	48.94	46.38
4	40.00	100.00	50.00	66.67	62.50
5 and more	0.00	0.00	0.00	100.00	16.67
Percentage in the group of consumers not purchasing organic food					
No children	66.32	65.37	45.62	46.93	55.67
1	62.02	59.75	48.76	44.33	54.74
2	61.43	39.78	41.38	36.84	43.79
3	54.55	63.64	0.00	51.06	53.62
4	60.00	0.00	50.00	33.33	37.50
5 and more	100.00	0.00	100.00	0.00	83.33

The percentages of consumers purchasing and not purchasing organic food sum up to 100.

Source: the authors' elaboration.

4.2. Consumer behaviour in the organic food market

Over the years, changes have been observed in the model of food consumption and consumer behaviour. This results from interactions of many factors, both socio-economic and environmental. Consumer behaviour is defined as any action or activity undertaken in order to acquire goods and services to satisfy needs in accordance with the perceived hierarchy of preferences. Babicz-Zielińska and Jeżewska-Zychowicz (2015, p. 10) distinguished three classes, which may be ascribed individual factors characterising the selection of food by consumers. The authors attributed to class 1 the product-related factors, i.e. nutritive value, chemical composition, sensory attributes and functional characteristics. Class 2 is connected with the consumer and comprises demographic factors, the metabolic status of the organism and psychological factors. In turn, class 3 is composed of environmental factors, including economic, cultural (e.g. religion, tradition, fashion, customs) and social factors. Among economic factors we distinguish the price, income, products, point of sale and advertising, while demographic determinants include sex/gender, age, education, financial status and the stage in the family life cycle.

Green purchase behaviour indicates how much a given consumer is associated with the organic food market. A major characteristic showing

the power of this association is the length of a consumer's presence on the organic food market. Slightly over 37% of respondents representing the entire Visegrad Group declared that if they purchased organic food it was for a period of max. 3 years (in Slovakia this percentage was 50%). Only 13.3% respondents buying organic food had been doing it for over 11 years. In that group of respondents a particularly large disproportion is observed between Czechia and Hungary. In the latter country over 27% survey respondents declared that they had been purchasing organic food for min. 11 years, while in Czechia this percentage is below 5%. When analysing the structure of responses (measured by the percentage of indications) for the entire V4 group no significant differences depending on the sex of the consumer can be seen in the declared duration of the period when they had been purchasing organic food (Table 4.10).

Almost 2 out of 3 survey participants declared that they personally buy organic food, with a much higher percentage of women (71.4%) than men (52.8%). Compared to the other Visegrad Group countries, markedly higher percentages of respondents declaring that they bought organic food personally were recorded in Hungary. In the total population of respondents in that country, it was over 80%, with almost 89% in the group of women (for comparison, Poland ranked second in terms of these percentages, which amounted to 67% and slightly over 72%, respectively) (Table 4.11).

Table 4.10. For how long has organic food been purchased by consumers?

Specification	Number				
	Total				
	Poland	Czechia	Slovakia	Hungary	∑
1 year or less	21	10	26	14	71
2-3 years	71	75	135	60	341
4-5 years	57	86	94	71	308
6-10 years	28	59	56	98	241
11-15 years	21	8	7	37	73
More than 15 years	14	4	4	53	75
	Female				
1 year or less	17	6	14	11	48
2-3 years	55	48	95	42	240
4-5 years	35	61	68	50	214
6-10 years	21	38	36	73	168
11-15 years	10	5	4	30	49
More than 15 years	6	3	4	38	51
	Male				
1 year or less	4	4	12	3	23
2-3 years	16	27	40	18	101
4-5 years	22	25	26	21	94
6-10 years	7	21	20	25	73
11-15 years	11	3	3	7	24
More than 15 years	8	1	0	15	24

Specification	Percentage				
	Poland	Czechia	Slovakia	Hungary	∑
	Total				
1 year or less	9.91	4.13	8.07	4.20	6.40
2-3 years	33.49	30.99	41.93	18.02	30.75
4-5 years	26.89	35.54	29.19	21.32	27.77
6-10 years	13.21	24.38	17.39	29.43	21.73
11-15 years	9.91	3.31	2.17	11.11	6.58
More than 15 years	6.60	1.65	1.24	15.92	6.76
	Female				
1 year or less	11.81	3.73	6.33	4.51	6.23
2-3 years	38.19	29.81	42.99	17.21	31.17
4-5 years	24.31	37.89	30.77	20.49	27.79
6-10 years	14.58	23.60	16.29	29.92	21.82
11-15 years	6.94	3.11	1.81	12.30	6.36
More than 15 years	4.17	1.86	1.81	15.57	6.62
	Male				
1 year or less	5.88	4.94	11.88	3.37	6.78
2-3 years	23.53	33.33	39.60	20.22	29.79
4-5 years	32.35	30.86	25.74	23.60	27.73
6-10 years	10.29	25.93	19.80	28.09	21.53
11-15 years	16.18	3.70	2.97	7.87	7.08
More than 15 years	11.76	1.23	0.00	16.85	7.08

Source: the authors' elaboration.

Table 4.11. Persons responsible for buying food in the household

Specification	Number				
	Total				
	Poland	Czechia	Slovakia	Hungary	∑
Personally	142	143	177	267	729
Another household member	70	99	145	66	380
	Female				
Personally	104	99	130	217	550
Another household member	40	62	91	27	220
	Male				
Personally	38	44	47	50	179
Another household member	30	37	54	39	160
Specification	**Percentage**				
	Poland	**Czechia**	**Slovakia**	**Hungary**	**∑**
	Total				
Personally	66.98	59.09	54.97	80.18	65.73
Another household member	33.02	40.91	45.03	19.82	34.27
	Female				
Personally	72.22	61.49	58.82	88.93	71.43
Another household member	27.78	38.51	41.18	11.07	28.57
	Male				
Personally	55.88	54.32	46.53	56.18	52.80
Another household member	44.12	45.68	53.47	43.82	47.20

Source: the authors' elaboration.

Over 59% of the total respondent population declared that if they purchased organic food, they did it for the entire family. This result may suggest that it is the care for healthy nutrition of family members that may initiate purchases of organic products (Smoluk-Sikorska et al., 2024). In that group of respondents, a markedly higher percentage of responses was recorded in Hungary and Czechia (69.7% and 67.4%, respectively) compared to Poland and Slovakia (51.4% and 47.5% respectively). Slightly over 29% of respondents declared that they purchase organic food only for themselves. In that group of respondents, the percentages were approx. 2-fold higher in Slovakia and Poland (41.3 and 39.6%, respectively) than in Czechia (21.1%) or Hungary (17.1%) (Table 4.12).

Table 4.12. Who is organic food purchased for?

Specification	Total number				
	Poland	Czechia	Slovakia	Hungary	∑
For myself	84	51	133	57	325
For my children	2	5	3	11	21
For myself and my children	8	8	4	11	31
For the entire household	109	163	153	232	657
For a sick/allergic person	8	15	28	21	72
For other family member	1	0	1	1	3
	Percentage				
For myself	39.62	21.07	41.30	17.12	29.31
For my children	0.94	2.07	0.93	3.30	1.89
For myself and my children	3.77	3.31	1.24	3.30	2.80
For the entire household	51.42	67.36	47.52	69.67	59.24
For a sick/allergic person	3.77	6.20	8.70	6.31	6.49
For other family member	0.47	0.00	0.31	0.30	0.27

Source: the authors' elaboration.

It is generally acknowledged that the opinion on the health-promoting value of organic products influences consumer behaviour. Particularly consumers with higher incomes frequently choose products suggesting their organic production method. In view of the above, producers willingly place designations commonly associated with organic production (bio, eco, organic) on their products. The appearance of the packaging with the dominant green colour or the symbol depicting stars and a leaf (the organic food logo) is also important (Bułącz, 2020). However, the use of the above-mentioned phrases and symbols in product packaging is admissible solely after strictly specified legal conditions have been met. The legislator stipulates that each stage of organic production processes, starting from production through processing, storage and transport, up to sale to the end consumer, has to be controlled and certified (Sazońska, 2011, p. 5).

In the entire Visegrad group, the EU symbol of organic production, i.e. the EU logo for organic food, is indicated most frequently (regardless of the consumers' sex) as a method of identifying organic food (69.5%, with a slightly higher percentage of responses in the case of men (71.4%) than women (68.7%)). The highest percentage of responses indicating the EU logo was recorded in Czechia (74.4%), while it was lowest in Poland (64.6%). For the entire V4 group, the logo of the certifying entity ranked second as a method to identify organic food (over 55% of responses). Moreover, a relatively high percentage of respondents declared that they choose this type of food from a specially designated shelf in the shop (almost 46%). The other mentioned options did not exceed 20% of responses (regardless of the respondents' sex) (Table 4.13). A study by Matysik-Pejas and Żmuda (2011) showed that almost two-thirds of respondents identified this type of food based on the logo of the certifying entity, whereas over half of respondents were guided by the graphic logo of organic food. According to earlier studies, the EU organic food logo is recognised by 69% of residents of the EU, Iceland and Norway (Ipsos-London Economics 2013, Anastasiou et al. 2017, Janssen and Hamm 2012).

Table 4.13. Method used to identify organic food*

Specification	Number				
	Total				
	Poland	Czechia	Slovakia	Hungary	Σ
Green Euroleaf	137	180	231	223	771
Logo of the certification body	92	107	193	220	612
Conversation with the seller	25	9	26	56	116
Information „Healthy food"	69	21	52	54	196
I choose from a special shelf/rack in the store	87	113	181	129	510
Other	3	0	2	7	12
	Female				
Green Euroleaf	87	123	161	158	529
Logo of the certification body	61	77	138	161	437
Conversation with the seller	17	6	18	40	81
Information „Healthy food"	49	16	36	34	135
I choose from a special shelf/rack in the store	67	73	127	83	350
Other	1	0	0	5	6
	Male				
Green Euroleaf	50	57	70	65	242
Logo of the certification body	31	30	55	59	175
Conversation with the seller	8	3	8	16	35
Information „Healthy food"	20	5	16	20	61
I choose from a special shelf/rack in the store	20	40	54	46	160
Other	2	0	2	2	6

Specification	Percentage				
	Poland	Czechia	Slovakia	Hungary	∑
	Total				
Green Euroleaf	64.62	74.38	71.74	66.97	69.52
Logo of the certification body	43.40	44.21	59.94	66.07	55.18
Conversation with the seller	11.79	3.72	8.07	16.82	10.46
Information „Healthy food“	32.55	8.68	16.15	16.22	17.67
I choose from a special shelf/rack in the store	41.04	46.69	56.21	38.74	45.99
Other	1.42	0.00	0.62	2.10	1.08
	Female				
Green Euroleaf	60.42	76.40	72.85	64.75	68.70
Logo of the certification body	42.36	47.83	62.44	65.98	56.75
Conversation with the seller	11.81	3.73	8.14	16.39	10.52
Information „Healthy food“	34.03	9.94	16.29	13.93	17.53
I choose from a special shelf/rack in the store	46.53	45.34	57.47	34.02	45.45
Other	0.69	0.00	0.00	2.05	0.78
	Male				
Green Euroleaf	73.53	70.37	69.31	73.03	71.39
Logo of the certification body	45.59	37.04	54.46	66.29	51.62
Conversation with the seller	11.76	3.70	7.92	17.98	10.32
Information „Healthy food“	29.41	6.17	15.84	22.47	17.99
I choose from a special shelf/rack in the store	29.41	49.38	53.47	51.69	47.20
Other	2.94	0.00	1.98	2.25	1.77

* More than one option could be indicated.

Source: the authors' elaboration.

It results from the conducted analyses that the surveyed organic food consumers in the Visegrad Group countries frequently purchase also other types of food (Table 4.14). In the total population of organic food buyers over 58% declared that they purchase regional products. In the entire V4 group it was more often declared by men than women, with 66% and slightly below 55%, respectively (at the level of individual countries a higher percentage (by approx. 1.5 p.p.) among women was recorded only in Slovakia). The following positions (with comparable percentages of responses) were taken by functional food (42.6% for the entire V4 group, but only 29% in Poland) and ethnic food (41% in the entire Visegrad group, but only 12.2% in Poland and as much as 62.4% in Slovakia). Recorded results are rather consistent with those reported by Smoluk-Sikorską (2021, p. 119) for Polish consumers of organic food (showing that 70% respondents purchase regional products, 15% buy functional and convenience food, as well as genetically modified food). This indicates that this group of consumers is not permanently attached to the organic food market, while motivations for the purchase of organic food do not result from their environmental awareness or health literacy, but rather the need to search for new experiences (Smoluk-Sikorska, 2021).

Table 4.14. Purchases of other food types*

Specification	Number				
	Total				
	Poland	Czechia	Slovakia	Hungary	∑
Functional food	62	108	149	153	472
GMO	35	18	33	61	147
Ethnic food	26	96	201	132	455
Adequately labelled regional products	132	180	217	119	648
Convenient food	45	70	141	182	438
Superfoods	52	91	76	90	309
I do not buy these kinds of products	31	8	6	21	66
	Female				
Functional food	35	76	89	111	311
GMO	18	12	14	52	96
Ethnic food	16	68	136	96	316
Adequately labelled regional products	83	116	150	74	423
Convenient food	36	43	88	132	299
Superfoods	38	63	57	73	231
I do not buy these kinds of products	25	7	6	16	54
	Male				
Functional food	27	32	60	42	161
GMO	17	6	19	9	51
Ethnic food	10	28	65	36	139
Adequately labelled regional products	49	64	67	45	225
Convenient food	9	27	53	50	139
Superfoods	14	28	19	17	78
I do not buy these kinds of products	6	1	0	5	12
Specification	Percentage in the group of consumers purchasing organic food				
	Poland	Czechia	Slovakia	Hungary	∑
	Total				
Functional food	29.25	44.63	46.27	45.95	42.56
GMO	16.51	7.44	10.25	18.32	13.26
Ethnic food	12.26	39.67	62.42	39.64	41.03
Adequately labelled regional products	62.26	74.38	67.39	35.74	58.43
Convenient food	21.23	28.93	43.79	54.65	39.50
Superfoods	24.53	37.60	23.60	27.03	27.86
I do not buy these kinds of products	14.62	3.31	1.86	6.31	5.95
	Female				
Functional food	24.31	47.20	40.27	45.49	40.39
GMO	12.50	7.45	6.33	21.31	12.47
Ethnic food	11.11	42.24	61.54	39.34	41.04
Adequately labelled regional products	57.64	72.05	67.87	30.33	54.94
Convenient food	25.00	26.71	39.82	54.10	38.83
Superfoods	26.39	39.13	25.79	29.92	30.00
I do not buy these kinds of products	17.36	4.35	2.71	6.56	7.01

Specification	Percentage in the group of consumers purchasing organic food				
	Poland	Czechia	Slovakia	Hungary	∑
	Total				
	Male				
Functional food	39.71	39.51	59.41	47.19	47.49
GMO	25.00	7.41	18.81	10.11	15.04
Ethnic food	14.71	34.57	64.36	40.45	41.00
Adequately labelled regional products	72.06	79.01	66.34	50.56	66.37
Convenient food	13.24	33.33	52.48	56.18	41.00
Superfoods	20.59	34.57	18.81	19.10	23.01
I do not buy these kinds of products	8.82	1.23	0.00	5.62	3.54

* More than one option could be indicated.

Source: the authors' elaboration.

Conducted studies showed that the most important factor determining purchase decisions concerning organic food is connected with its high quality (Table 4.15). In Poland, Czechia and Slovakia this determinant received the highest percentage of responses as highly significant (53%, 44% and 54%, respectively). The second-ranking factor mentioned most frequently was the fact that organic food is produced with no artificial chemicals or food additives (in Hungary this factor was considered even more important than high quality, receiving 77% indications as highly important). In each country of the Visegrad Group most often the least important factors included the influence of famous people, celebrities and bloggers (the percentage of response indicating it as insignificant ranged from 40.7% in Slovakia to 73% in Hungary), as well as fashion (in the case of this determinant the percentage of responses indicating it as insignificant ranged from slightly below 31% in Slovakia to almost 76% in Hungary). Recorded results of the survey are relatively consistent with the findings reported by other researchers. For example, it results from a study conducted by Olech and Kuboń (2015, p. 169) that the main reason for the purchase of organic food was connected with the conviction on the health-promoting value of such food. In turn, a study by Kucińska (2009, p. 171) showed that "in the case of organic food for the residents of Warsaw the most important attributes included health safety, lesser pollutant levels and high quality". Consumers trust that organic food is healthy and that is why they willingly buy it (Muhammad et al., 2015, pp. 37-45).

Table 4.15. Determinants of organic food purchasing decisions (%)

Specification	Poland					Czechia					Poland	Czechia
	1	2	3	4	5	1	2	3	4	5	Mode	
Produced without agricultural chemicals and food additives	3.30	9.43	21.70	12.74	52.83	2.89	5.79	15.70	35.12	40.50	5	5
It does not contain GMOs	10.85	14.62	24.06	16.04	34.43	9.09	11.98	23.14	29.34	26.45	5	5
It has more nutrients	2.36	8.02	25.47	19.34	44.81	3.31	5.37	19.83	40.08	31.40	5	5
High quality	1.89	4.72	19.34	21.23	52.83	1.24	4.13	7.85	42.98	43.80	5	5
Controlled production	4.25	8.49	25.94	22.64	38.68	3.31	7.02	21.49	40.91	27.27	5	5
Produced using natural. traditional methods	8.96	11.32	21.23	21.70	36.79	3.31	9.50	14.05	42.56	30.58	5	5
Produced locally	11.79	16.04	25.00	19.81	27.36	5.79	6.20	16.12	36.78	35.12	5	5
Visual and sensory values (appearance. smell. structure)	7.55	9.91	21.70	25.00	35.85	2.89	2.89	14.46	41.32	38.43	5	5
Ethical production methods (animal welfare. fair trade)	6.60	14.15	23.11	19.81	36.32	3.31	6.61	24.38	35.12	30.58	5	5
Promotes environmental protection	3.77	11.32	24.53	24.06	36.32	3.72	8.26	21.90	38.84	27.27	5	5
Leading a healthy lifestyle	4.25	7.55	24.06	22.64	41.51	1.65	7.02	18.60	40.91	31.82	5	5
Influence of family/ friends	24.06	16.98	21.23	21.70	16.04	17.36	18.18	24.79	26.45	13.22	1	1
The influence of famous people. celebrities. bloggers	53.77	15.09	16.51	8.49	6.13	46.28	16.53	16.53	14.46	6.20	1	1
Curiosity	23.58	17.92	27.36	18.40	12.74	15.29	17.36	26.45	29.34	11.57	3	3
Fashion	51.42	19.34	15.09	8.02	6.13	45.45	17.36	14.46	16.12	6.61	1	1
Specification	**Slovakia**					**Hungary**					**Slovakia**	**Hungary**
	1	2	3	4	5	1	2	3	4	5	Mode	
Produced without agricultural chemicals and food additives	3.11	9.94	27.02	29.19	30.75	1.50	3.00	5.71	12.91	76.88	5	5
It does not contain GMOs	8.70	16.15	32.61	20.81	21.74	4.80	5.11	15.62	14.71	59.76	3	5
It has more nutrients	2.17	6.21	20.50	35.40	35.71	5.41	4.20	16.82	26.13	47.45	5	5
High quality	1.24	2.17	11.80	30.43	54.35	2.70	3.60	15.02	30.33	48.35	5	5
Controlled production	6.21	19.88	33.85	21.74	18.32	2.40	3.90	14.71	24.02	54.95	3	5
Produced using natural. traditional methods	9.63	22.98	34.78	22.05	10.56	2.40	7.21	16.82	25.53	48.05	3	5
Produced locally	6.21	9.32	26.71	33.85	23.91	3.30	6.61	19.82	27.93	42.34	4	5
Visual and sensory values (appearance. smell. structure)	1.24	5.28	20.81	30.43	42.24	3.90	6.91	18.32	34.83	36.04	5	5
Ethical production methods (animal welfare. fair trade)	4.66	11.49	28.88	31.06	23.91	3.60	6.01	17.12	27.03	46.25	4	5

Specification	Slovakia					Hungary					Slovakia	Hungary
	1	2	3	4	5	1	2	3	4	5	Mode	
Promotes environmental protection	3.42	12.73	27.95	35.09	20.81	2.40	4.20	12.91	21.02	59.46	4	5
Leading a healthy lifestyle	1.86	7.14	19.88	37.58	33.54	2.10	3.30	9.31	20.12	65.17	4	5
Influence of family/ friends	8.70	15.22	31.06	29.19	15.84	36.94	22.22	21.02	11.41	8.41	3	1
The influence of famous people. celebrities. Bloggers	40.68	24.22	21.43	9.32	4.35	72.97	12.31	8.71	3.30	2.70	1	1
Curiosity	9.94	15.22	33.54	26.71	14.60	37.24	23.12	22.22	11.11	6.31	3	1
Fashion	30.75	27.95	24.22	13.66	3.42	75.68	13.51	7.21	2.70	0.90	1	1

* Respondents assigned ranks to individual answer options from 1 – not important at all, 2 – not very important, 3 – moderately important, 4 – important, 5 – very important.

Source: the authors' elaboration.

Organic food consumers acquire knowledge on this food from various sources (Table 4.16). The survey respondents (regardless of their sex) most frequently indicated the following as the most important: websites (overall more than 75%, in the case of women it was almost 77%, for men 72%), social media (almost 48%, for women over 49%, for men 44%), as well a family or acquaintances (46%, although for men the percentage was markedly higher (over 50%) than for women (44%)). At the same time, for the entire V4 group a relatively low percentage of responses indicated celebrities – slightly below 4% (and in Hungary this source of information on organic food was given by less than 1% respondents). Moreover, a relatively low percentage of responses indicated traditional mass media – popular press (slightly over 15% in the entire Visegrad Group, while in Hungary only 9%) and television and radio (12.5%, the lowest percentage in Hungary – below 9%). When comparing these figures with studies conducted in other countries outside the V4 group important results were provided by investigations carried out in Denmark, which indicated that social media are a significant source of information on organic food and healthy nutrition used by consumers (Ragelienė, Grønhøj 2021). Content presented in social media is a significant source of information particularly for young consumers. Additionally, studies conducted in Italy in Tuscany, a region known for its healthy nutrition traditions, show that the young generation most frequently take into consideration opinions of family members, acquaintances and social media news (Corazza et al., 2021).

Table 4.16. Sources of information on organic food*

Specification	Number				
	Total				
	Poland	Czechia	Slovakia	Hungary	∑
Experts	79	100	128	154	461
Websites	148	183	259	245	835
Social media	92	115	210	114	531
Family/friends	89	133	171	119	512
Celebrities	7	12	22	3	44
TV, radio	41	37	32	29	139
Popular press	28	47	62	30	167
Literature and professional press	42	78	70	166	356
Other	1	0	0	0	1
	Female				
Experts	47	65	94	122	328
Websites	106	126	179	179	590
Social media	67	86	147	82	382
Family/friends	61	89	116	76	342
Celebrities	6	7	16	1	30
TV, radio	31	24	22	19	96
Popular press	15	31	45	21	112
Literature and professional press	24	50	48	129	251
Other	1	0	0	0	1
	Male				
Experts	32	35	34	32	133
Websites	42	57	80	66	245
Social media	25	29	63	32	149
Family/friends	28	44	55	43	170
Celebrities	1	5	6	2	14
TV. radio	10	13	10	10	43
Popular press	13	16	17	9	55
Literature and professional press	18	28	22	37	105
Other	0	0	0	0	0
Specification	Percentage of people purchasing organic food				
	Poland	Czechia	Slovakia	Hungary	∑
	Total				
Experts	37.26	41.32	39.75	46.25	41.57
Websites	69.81	75.62	80.43	73.57	75.29
Social media	43.40	47.52	65.22	34.23	47.88
Family/friends	41.98	54.96	53.11	35.74	46.17
Celebrities	3.30	4.96	6.83	0.90	3.97
TV. radio	19.34	15.29	9.94	8.71	12.53
Popular press	13.21	19.42	19.25	9.01	15.06
Literature and professional press	19.81	32.23	21.74	49.85	32.10
Other	0.47	0.00	0.00	0.00	0.09
	Female				
Experts	32.64	40.37	42.53	50.00	42.60
Websites	73.61	78.26	81.00	73.36	76.62
Social media	46.53	53.42	66.52	33.61	49.61
Family/friends	42.36	55.28	52.49	31.15	44.42

Specification	Percentage of people purchasing organic food				
	Poland	Czechia	Slovakia	Hungary	∑
	Total				
Celebrities	4.17	4.35	7.24	0.41	3.90
TV. radio	21.53	14.91	9.95	7.79	12.47
Popular press	10.42	19.25	20.36	8.61	14.55
Literature and professional press	16.67	31.06	21.72	52.87	32.60
Other	0.69	0.00	0.00	0.00	0.13
	Male				
Experts	47.06	43.21	33.66	35.96	39.23
Websites	61.76	70.37	79.21	74.16	72.27
Social media	36.76	35.80	62.38	35.96	43.95
Family/friends	41.18	54.32	54.46	48.31	50.15
Celebrities	1.47	6.17	5.94	2.25	4.13
TV. radio	14.71	16.05	9.90	11.24	12.68
Popular press	19.12	19.75	16.83	10.11	16.22
Literature and professional press	26.47	34.57	21.78	41.57	30.97
Other	0.00	0.00	0.00	0.00	0.00

* More than one option could be indicated.

Source: the authors' elaboration.

In each Visegrad Group country the respondents as the most frequently purchased organic food group mentioned fruit (from 41.7% in Hungary to 49% in Slovakia) and vegetables (from 39.6% in Poland to 49.7% in Slovakia). The next positions in this ranking were taken most frequently by eggs (in Poland and in Hungary) and dairy products (in Czechia and Slovakia). In turn, in each V4 country most frequent responses indicating organic products never purchased by the respondents included baby food (to the greatest degree in Hungary – almost 73%), as well as fish and seafood (the highest percentage in Hungary – almost 44%) (Table 4.17). Recorded results are relatively consistent with the findings presented in earlier studies, e.g. by Bryła (2016, p. 737), Kułyk and Michałowska (2018, p. 275), and Smoluk-Sikorska (2021, p. 105), showing that consumers most often purchase organic fruit and vegetables. This may result from the fact that these groups of products are some of the most readily available on the organic food market. Comparable trends are observed e.g. in Italy, Ireland, Sweden or Germany, where organic fruit and vegetables are the groups of products most frequently offered in supermarkets (Domagalska, Buczkowska 2015, p. 372).

Table 4.17. Frequency of purchases of individual organic food groups (%)

Specification	Poland					Czechia					Poland	Czechia
	1	2	3	4	5	1	2	3	4	5	Mode	
Fruit	6.13	5.19	17.92	28.77	41.98	0.83	3.72	10.33	38.02	47.11	5	5
Vegetables	8.49	3.77	16.04	32.08	39.62	1.24	4.55	10.74	36.36	47.11	5	5
Fruit preserves (including juices)	15.57	15.57	29.72	25.00	14.15	5.37	6.61	26.45	47.11	14.46	3	3
Vegetable preserves	24.53	17.92	25.00	24.06	8.49	6.20	6.61	27.27	49.17	10.74	3	1
Meat	18.87	14.62	22.17	25.94	18.40	9.09	5.79	19.83	42.15	23.14	4	4
Cold cuts	19.34	14.15	26.89	22.64	16.98	12.40	6.61	29.34	39.26	12.40	3	3
Dairy products	8.96	9.43	25.00	33.96	22.64	3.31	4.55	17.77	43.80	30.58	4	4
Eggs	12.26	6.60	18.87	27.83	34.43	8.68	7.02	20.25	38.84	25.21	5	5
Fish. seafood	37.74	16.98	23.11	14.62	7.55	16.12	16.94	33.06	28.93	4.96	1	1
Bread	21.70	10.85	19.34	19.34	28.77	9.09	7.02	17.36	37.60	28.93	5	5
Sweets. snacks. dried fruit	27.83	16.98	22.17	24.06	8.96	14.05	12.40	21.49	40.08	11.98	1	1
Spices. herbs	20.75	16.04	29.25	25.00	8.96	11.16	12.40	30.58	37.19	8.68	3	3
Tea coffee	29.25	16.98	20.28	24.53	8.96	8.68	16.12	28.93	36.78	9.50	1	1
Vegetable fats (oils)	26.89	13.68	30.66	23.11	5.66	10.33	18.60	35.54	28.93	6.61	3	3
Honey	25.47	10.85	31.60	16.98	15.09	11.16	12.40	40.91	23.55	11.98	3	3
Baby food	59.43	8.96	9.91	10.85	10.85	47.11	9.50	11.16	23.55	8.68	1	1
Specification	**Slovakia**					**Hungary**					**Slovakia**	**Hungary**
	1	2	3	4	5	1	2	3	4	5	Mode	
Fruit	2.48	3.11	13.66	31.68	49.07	1.80	1.80	18.62	36.04	41.74	5	5
Vegetables	2.17	4.97	14.60	28.57	49.69	2.40	2.10	16.82	35.14	43.54	5	5
Fruit preserves (including juices)	5.59	10.87	30.12	32.61	20.81	10.21	10.21	30.33	31.83	17.42	4	4
Vegetable preserves	5.90	12.42	24.22	33.23	24.22	9.31	6.61	32.43	32.13	19.52	4	3
Meat	9.94	7.76	18.94	32.61	30.75	23.42	18.32	22.52	25.23	10.51	4	4
Cold cuts	9.94	9.63	21.74	27.64	31.06	27.33	18.32	24.32	20.12	9.91	5	1
Dairy products	4.97	5.59	19.88	32.92	36.65	18.32	12.31	21.62	23.42	24.32	5	5
Eggs	9.94	7.14	18.94	31.37	32.61	14.11	6.91	18.32	30.63	30.03	5	4
Fish. seafood	24.84	17.08	29.50	22.05	6.52	43.84	17.12	22.22	12.61	4.20	3	1
Bread	13.66	8.07	20.19	25.16	32.92	22.82	13.51	20.42	24.02	19.22	5	4
Sweets. snacks. dried fruit	18.01	15.84	22.05	22.98	21.12	29.73	14.11	26.13	20.42	9.61	4	1
Spices. herbs	15.84	18.32	33.85	23.91	8.07	18.92	14.71	32.13	26.73	7.51	3	3
Tea coffee	12.73	17.70	24.84	31.99	12.73	23.12	23.72	24.62	20.72	7.81	4	3
Vegetable fats (oils)	14.91	18.63	32.92	28.26	5.28	23.12	15.32	28.23	24.32	9.01	3	3
Honey	16.77	21.12	32.61	18.01	11.49	20.12	11.71	30.33	22.82	15.02	3	3
Baby food	55.90	16.46	16.77	6.52	4.35	72.67	7.21	6.31	5.71	8.11	1	1

Marks: 1 – never; 2 – less than once a year; 3 – at least once a year; 4 – at least once a month; 5 – at least once a week

Source: the authors' elaboration.

In each Visegrad Group country retail chains (super– and hypermarkets, drugstores, discount stores) were indicated as places, where organic products were purchased most often (at least once a week). In the case of such points of sale the highest percentage was recorded in Czechia (over 54%), while it was lowest in Poland (less than 29%). In Poland and Czechia specialist shops ranked second, while in Slovakia it was small grocery shops and in Hungary – street markets and farmers markets. Results recorded in Hungary, Poland and Czechia are comparable to those reported based on investigations conducted in the USA by Loureiro and Hine (2002), where most respondents did shopping in farmers markets and in street markets, as well as stores specialising in organic products. What is surprising in view of the relatively common Internet access, online shops were frequently indicated as places where organic food was never purchased (it was first of all in Poland, Slovakia and Hungary, with the percentage of such responses exceeded 35%). Similarly, organic farms were relatively often indicated as places, where respondents never bought organic food (primarily in Slovakia – over 43% and in Hungary – almost 34%) (Table 4.18). This may result from the fact that consumers might doubt credibility of certificates for organic products sold these, as well as result from insufficient advertising for such points of sale. Similar results were reported by Hamzaoui-Essoussi and Zahaf (2009), or Zepeda and Deal (2009), with consumers showing distrust in relation to food purchased in online shops, preferring traditional purchase channels such as street markets and farmers markets. The interval of almost 15 years between those studies shows that purchase habits do not change fast and selling products through modern sales channels is not going to replace traditional channels.

Conducted studies showed that in Poland, Czechia and Hungary most of the 16 distinguished groups of organic products, if they were purchased it was in retail chains (Table 4.19). In Czechia such a situation was observed for all the 16 product groups, in Hungary it was for 13, while in Poland for 12 groups, respectively. In turn, in Slovakia all the product groups distinguished in this study were most frequently purchased in small grocery stores. In Poland, Slovakia and Hungary at least 14 out of the 16 groups of products were purchased least often in online shops. In the case of Czechia, for 12 groups of products organic farms were places, where organic food was purchased least frequently. In relation to the research presented in the global report on "Distribution Channel Insights" (Market Analysis..., 2023), the segment of supermarket/hypermarket distribution channels accounted for the largest share amounting to over 60.0% in 2022. Those shops offer

a wide range of organic products. A growing number of supermarket and hypermarket chains in Europe and the changing retail landscape, particularly in the developing economies (such as the countries constituting the investigated V4 group), increase the sales of products using this channel. However, in a study conducted in Israel by Perlman (2021), when presenting an analysis of purchase channels it was stated that consumers of organic products prefer to purchase products directly from producers or in small shops, where in their opinion the standard of customer service is higher.

Table 4.18. Places and frequency of organic food purchases (%)

Specification	Poland					Czechia					Poland	Czechia
	1	2	3	4	5	1	2	3	4	5	Mode	
Specialist store with organic food	22.17	20.28	21.70	20.75	15.09	12.81	9.50	27.69	35.12	14.88	1	4
Retail chains (super– and hypermarkets. drugstores. discount stores)	11.32	10.38	18.40	31.13	28.77	2.07	2.48	11.98	29.34	54.13	4	4
Organic farm	25.47	16.04	25.94	20.28	12.26	28.93	26.03	27.69	12.40	4.96	3	1
Marketplaces. bazaars	20.75	16.51	25.94	24.06	12.74	14.05	18.60	45.87	16.53	4.96	3	3
Small grocery stores	20.75	17.45	25.00	24.53	12.26	28.93	16.53	23.14	22.31	9.09	3	3
Online stores	42.92	16.51	25.00	10.38	5.19	23.55	9.09	22.31	35.54	9.50	1	1
Specification	**Slovakia**					**Hungary**					**Slovakia**	**Hungary**
	1	2	3	4	5	1	2	3	4	5	Mode	
Specialist store with organic food	17.39	30.43	31.68	16.77	3.73	12.31	14.41	31.53	33.33	8.41	3	4
Retail chains (super– and hypermarkets. drugstores. discount stores)	1.55	4.04	14.29	33.85	46.27	2.70	5.41	16.52	39.64	35.74	5	4
Organic farm	43.48	23.60	23.29	6.52	3.11	33.93	18.62	19.52	17.72	10.21	1	1
Marketplaces. bazaars	28.88	22.98	28.57	15.22	4.35	14.71	13.21	26.43	24.32	21.32	1	3
Small grocery stores	13.35	14.60	34.78	28.26	9.01	33.33	24.02	23.12	13.21	6.31	3	1
Online stores	38.82	19.25	23.91	13.35	4.66	35.44	15.32	25.23	17.12	6.91	1	1

Marks: 1 – Never; 2 – less than once a year; 3 – at least once a year; 4 – at least once a month; 5 – at least once a week.

Source: the authors' elaboration.

Table 4.19. Place of purchase for individual groups of organic products (%)

Specification	Poland							Czechia						
	I	II	III	IV	V	VI	VII	I	II	III	IV	V	VI	VII
Fruit	8.49	16.04	26.42	22.17	38.21	24.06	1.42	0.83	33.06	79.75	11.98	36.36	14.05	17.36
Vegetables	9.91	16.51	25.47	21.23	38.68	25.00	0.47	1.65	33.88	78.10	12.81	36.78	13.64	16.94
Fruit preserves (including juices)	21.70	16.04	30.66	11.79	13.21	24.06	3.30	9.50	24.38	78.10	2.89	11.16	9.09	11.16
Vegetable preserves	26.89	16.04	28.30	8.49	9.43	18.87	2.83	11.16	23.97	71.90	3.72	14.88	9.09	9.50
Meat	20.28	23.58	30.66	11.32	6.60	23.58	0.47	11.16	23.55	63.64	16.94	14.88	11.57	11.57
MeatsCold cuts	21.23	24.53	31.13	11.79	6.13	20.28	1.42	16.94	25.21	60.33	9.92	9.92	10.33	9.92
Dairy products	11.79	19.81	37.26	16.98	8.96	22.17	1.42	4.13	22.73	75.21	14.46	17.36	9.92	15.70
Eggs	12.74	13.21	20.28	36.32	15.57	13.68	1.42	12.81	26.86	50.83	17.36	18.18	7.85	8.68
Fish. seafood	38.21	11.32	23.11	5.19	5.19	12.74	0.94	28.51	23.55	52.07	3.31	4.55	4.96	8.68
Bread	20.28	22.17	27.83	8.02	6.60	20.75	1.89	11.57	24.79	71.07	3.31	10.74	10.74	10.74
Sweets. snacks. dried fruit	22.64	11.79	34.43	6.13	6.13	16.51	2.83	20.25	23.97	66.12	2.89	4.96	7.44	22.31
Spices. herbs	16.04	15.09	37.74	7.55	9.43	17.45	2.83	13.22	28.93	60.33	5.37	16.12	7.85	16.12
Tea coffee	25.47	12.74	33.49	2.36	6.13	13.68	3.30	12.40	26.86	60.33	3.72	5.37	7.44	19.42
Vegetable fats (oils)	24.53	12.74	30.66	2.83	5.19	12.74	1.89	16.94	23.14	60.33	4.13	4.96	7.44	13.22
Honey	22.17	10.38	16.51	25.47	15.09	14.15	2.36	15.70	27.27	36.78	19.83	19.83	5.37	7.85
Other	53.77	6.60	16.04	2.83	3.30	11.32	2.83	46.69	19.83	42.15	2.07	2.48	4.13	16.12
Specification	**Slovakia**							**Hungary**						
	I	II	III	IV	V	VI	VII	I	II	III	IV	V	VI	VII
Fruit	2.48	10.87	49.69	8.07	27.33	59.32	1.55	2.40	6.31	35.74	17.42	51.35	32.43	5.11
Vegetables	2.80	10.56	47.52	6.52	28.88	58.70	1.24	2.10	6.01	34.83	18.62	51.95	30.93	5.71
Fruit preserves (including juices)	10.87	7.14	43.48	3.11	5.90	52.48	1.86	12.91	10.81	39.34	7.51	22.82	31.23	6.01
Vegetable preserves	11.18	7.76	44.41	4.97	9.32	50.62	1.86	12.61	10.21	38.74	7.81	26.13	29.73	4.80
Meat	14.60	17.08	36.02	8.39	7.76	46.89	0.62	26.13	3.00	24.62	11.41	24.32	26.73	4.50
Cold cuts	15.22	14.91	34.78	8.39	8.07	45.96	1.24	30.33	3.60	23.42	7.51	23.72	27.33	3.90
Dairy products	6.83	12.42	42.24	9.01	11.80	52.17	1.24	16.82	6.01	39.34	7.21	21.02	30.93	4.80
Eggs	12.42	8.70	32.61	16.15	16.46	43.48	1.24	16.22	3.60	27.63	14.71	32.73	24.62	3.60
Fish. seafood	28.26	7.76	30.43	4.04	7.14	36.96	0.62	43.84	4.20	27.33	1.80	5.71	25.23	3.90
Bread	10.25	16.46	42.55	4.35	6.83	48.76	1.55	18.32	9.31	31.53	6.01	23.42	27.63	4.80
Sweets. snacks. dried fruit	16.46	9.94	35.71	2.17	1.24	49.07	2.80	28.83	13.21	33.03	4.20	9.01	30.33	6.31
Spices. herbs	12.73	12.42	36.02	3.73	7.45	45.96	3.11	17.42	18.92	25.53	7.51	20.42	25.23	7.21
Tea coffee	10.87	16.77	35.09	3.11	4.97	46.27	4.97	19.82	14.11	34.23	3.30	7.51	29.13	10.21
Vegetable fats (oils)	11.49	10.56	34.78	3.73	4.35	50.00	2.17	19.82	16.22	31.83	5.11	9.91	28.23	7.51
Honey	14.60	14.60	25.78	14.91	19.25	28.57	3.11	18.62	7.81	12.91	18.62	39.64	12.91	3.00
Other	46.89	7.76	20.81	0.93	1.55	30.43	1.24	73.27	2.10	13.51	1.20	2.10	10.81	3.00

Marks: I – I don't buy; II – Specialist stores; III – Retail chains; IV – Organic farm; V – Marketplaces, bazaars; VI – Small grocery stores; VII – Online stores

Source: the authors' elaboration.

4.3. Barriers to the purchase of organic food

A crucial issue is connected with causes for limited interest in organic food among consumers. According to Hjelmar (2011), factors reducing purchases of organic food include e.g. its small availability, high prices, and lack of sufficient knowledge concerning organic products. Income levels of the population constitute one of the most important economic factors influencing food demand. Income modifies purchasing power, while its diversification across the socio-professional strata affects the structure and the level of food consumption among individual population groups (Hanus, 2017; Żurek, 2023). This factor is found in combination with the price. In order to satisfy perceived needs, buyers make choices from among the range of goods and services offered on the market, making it possible to satisfy such needs paying affordable prices, adequate to the level of their income (Świetlik, 2019; Inglis et al., 2009).

In each country of the Visegrad Group, the survey respondents indicated high prices as the main barrier to purchases of organic food – to the greatest extent it was the case in Poland (approx. 54%) and Slovakia (over 51%). The next barriers to organic food purchases identified in this study did not receive identical positions in the ranking in all analysed countries. In Poland, the short shelf life was indicated as highly significant (by 17% respondents), ranking second after the price, in Czechia and Hungary it was limited availability of this type of food (less than 11 and 22%, respectively), while in Slovakia it was low palatability (in the opinion of over 22% respondents). This research showed that factors related to recognisability of organic food, its credibility and possibly unattractive appearance were not a considerable barrier in any Visegrad Group country when making decisions on purchase of organic food (in the case of these distinguished barriers providing both a very high level of responses indicating them as insignificant, as well as a relatively low percentage of responses showing them to be highly significant) (Table 4.20).

The survey participants were asked to identify a factor that contributes to more frequent purchases of organic food (Table 4.21). In each Visegrad Group country in this context most frequently, a lower price was indicated as the most significant (from 585% in Poland to over 66% in Hungary) and higher wages (from 54% in Poland to 57.4% in Hungary). In turn, in this context, respondents in Czechia, Slovakia and Hungary, most frequently as absolutely insignificant, indicated an extended range of organic convenience food (to the greatest extent in Hungary – almost 25% of respondents). In contrast, in Poland, the use of more sustainable packaging was indicated

as a completely insignificant factor in the context of potentially causing more frequent purchases of organic food (almost 18% of respondents).

Table 4.20. Barriers to organic food purchases (%)

Specification	Poland					Czechia					Poland	Czechia
	1	2	3	4	5	1	2	3	4	5	Mode	
High price	5.19	8.02	16.51	16.51	53.77	4.55	6.20	19.01	28.93	41.32	5	5
Distasteful	28.30	20.28	21.70	13.21	16.51	25.62	26.03	28.51	11.16	8.68	1	1
Short expiry date	17.45	20.75	29.25	15.57	16.98	20.66	21.90	35.54	14.05	7.85	3	3
Narrow offer	19.81	15.09	30.19	25.00	9.91	15.70	23.97	33.47	18.18	8.68	3	3
Low availability	16.04	18.87	28.77	20.28	16.04	10.33	22.73	35.54	20.66	10.74	3	3
Little information about organic food	18.87	16.51	29.72	21.23	13.68	20.66	24.79	34.71	13.64	6.20	3	3
Low credibility	24.53	19.34	33.96	13.21	8.96	24.38	24.79	31.40	11.16	8.26	3	3
Unattractive appearance	33.02	21.23	25.00	11.79	8.96	33.06	29.34	27.27	8.26	2.07	1	1
I cannot recognize it	35.85	17.92	27.36	10.85	8.02	32.64	25.62	30.58	7.44	3.72	1	1
Poor promotion/advertising	25.47	18.40	30.66	14.15	11.32	26.45	19.01	32.23	17.36	4.96	3	3
Specification	**Slovakia**					**Hungary**					**Slovakia**	**Hungary**
	1	2	3	4	5	1	2	3	4	5	Mode	
High price	1.55	4.35	15.84	27.02	51.24	8.11	3.60	18.32	20.72	49.25	5	5
Distasteful	9.94	21.43	23.60	22.67	22.36	54.95	15.92	18.32	6.31	4.50	3	1
Short expiry date	8.39	16.77	35.71	22.98	16.15	44.14	22.52	19.52	8.11	5.71	3	1
Narrow offer	5.59	14.60	36.02	28.57	15.22	27.93	15.62	18.92	21.02	16.52	3	1
Low availability	5.28	17.70	34.16	25.78	17.08	18.32	12.01	19.82	27.93	21.92	3	4
Little information about organic food	9.32	18.01	35.71	23.91	13.04	40.24	15.62	21.62	12.01	10.51	3	1
Low credibility	15.22	25.47	29.19	19.57	10.56	43.84	19.22	20.72	9.91	6.31	3	1
Unattractive appearance	22.98	26.09	26.40	14.60	9.94	56.46	18.62	15.32	5.71	3.90	3	1
I cannot recognize it	23.60	22.98	33.23	10.25	9.94	57.96	16.22	12.61	6.01	7.21	3	1
Poor promotion/advertising	16.77	21.74	32.92	15.84	12.73	53.75	13.51	15.02	10.51	7.21	3	1

Respondents assigned ranks to individual answer options: 1 – not important at all, 2 – not very important, 3 – moderately important, 4 – important, 5 – very important.

Source: the authors' elaboration.

Within this study the respondents were asked to indicate a factor (Table 4.21), which would contribute to more frequent purchases of organic food. In this context (regardless of the respondents' sex), greater availability of organic products, lower prices, higher income, and a more extensive range of products were most often indicated as the most significant factors. Rather unexpected conclusions in their studies concerning factors influencing changes in the level of organic food consumption were reached by researchers from India, such as Nagaraj (2021), Kumar and Ali (2011), and Chandrashekhar (2014). Their findings indicated that a country, which market of organic products is still at the stage of development

shows a considerable potential for promotion of organic products. Most respondents surveyed by the Indian researchers recognised organic products and were willing to purchase them regardless of their higher prices. In the opinion of those researchers, the factors that need to be improved include relatively poor advertising and absence of an effective organic food lobby, as they hinder an increase in the overall consumption of organic food in a country at the market development stage.

Table 4.21. Factors that contribute to more frequent purchases of organic food (data in %)

Specification	Poland					Czechia					Poland	Czechia
	1	2	3	4	5	1	2	3	4	5	Mode	
Greater availability	8.49	8.02	21.70	21.70	40.09	4.55	4.13	13.22	37.60	40.50	5	5
Lower price	3.77	7.55	10.85	19.34	58.49	4.13	3.31	9.09	17.36	66.12	5	5
A wider offer	9.43	6.13	19.34	23.58	41.51	2.89	4.96	11.57	30.58	50.00	5	5
More accessible information about these foods	10.38	12.26	25.00	20.28	32.08	13.22	11.98	26.03	31.40	17.36	5	5
More ecological packaging	17.92	11.32	27.83	21.70	21.23	12.40	14.46	32.23	23.97	16.94	3	3
A wider range of convenience foods	15.09	10.85	19.81	27.83	26.42	20.66	13.22	29.34	22.73	14.05	4	5
Higher income	7.55	8.02	13.21	16.98	54.25	5.37	5.37	17.36	14.88	57.02	5	5
More market information regarding e.g. sales places	13.68	13.21	23.11	22.64	27.36	11.16	15.70	32.23	29.34	11.57	5	5
Wider promotion	12.74	15.57	21.23	23.11	27.36	16.12	11.57	27.69	26.86	17.77	5	5
Specification	**Slovakia**					**Hungary**					**Slovakia**	**Hungary**
	1	2	3	4	5	1	2	3	4	5	Mode	
Greater availability	4.97	8.07	24.53	25.47	36.96	5.71	3.30	19.52	19.82	51.65	5	5
Lower price	2.17	4.35	10.87	18.32	64.29	2.10	1.50	11.41	20.72	64.26	5	5
A wider offer	2.48	6.83	18.63	26.40	45.65	5.11	4.50	16.22	27.33	46.85	5	5
More accessible information about these foods	5.28	10.25	26.40	27.02	31.06	21.02	12.01	27.93	18.92	20.12	5	3
More ecological packaging	8.70	14.60	29.19	23.60	23.91	17.72	14.71	25.53	15.92	26.13	3	5
A wider range of convenience foods	17.70	18.94	25.16	23.29	14.91	24.92	12.01	24.32	21.02	17.72	3	1
Higher income	2.17	8.07	13.98	20.19	55.59	5.11	6.31	14.11	17.12	57.36	5	5
More market information regarding e.g. sales places	10.25	12.11	31.99	24.53	21.12	14.41	9.01	22.82	24.62	29.13	3	5
Wider promotion	13.04	13.35	28.26	25.16	20.19	21.92	13.81	23.72	18.02	22.52	3	3

Respondents assigned ranks to individual answer options: 1 – not important at all, 2 – not very important, 3 – moderately important, 4 – important, 5 – very important.

Source: the authors' elaboration.

As it was mentioned above, in each V4 country, the largest group of respondents indicated the price of organic food as the main purchase barrier, while its reduction as the primary factor, which would cause increased purchases of organic food. As many as 84% all respondents, who purchase organic food, were of the opinion that it is expensive (the largest number in Slovakia – over 89%, and the lowest number in Czechia – 74%). A markedly higher percentage of women (almost 87%, to the greatest extent in Poland at 91%) than men (78.5%, of which the highest percentage in Slovakia – 88%, and the lowest in Poland – 66%) consider this type of food to be expensive (Table 4.22).

Table 4.22. Evaluation of price levels for organic food

Specification	Number				
	Total				
	Poland	Czechia	Slovakia	Hungary	Σ
Organic food is expensive	176	185	287	287	935
Organic food is not expensive	36	57	35	46	174
	Female				
Organic food is expensive	131	126	198	214	669
Organic food is not expensive	13	35	23	30	101
	Male				
Organic food is expensive	45	59	89	73	266
Organic food is not expensive	23	22	12	16	73
Specification	Percentage of people purchasing organic food				
	Poland	Czechia	Slovakia	Hungary	Σ
	Total				
Organic food is expensive	83.02	76.45	89.13	86.19	84.31
Organic food is not expensive	16.98	23.55	10.87	13.81	15.69
	Female				
Organic food is expensive	90.97	78.26	89.59	87.70	86.88
Organic food is not expensive	9.03	21.74	10.41	12.30	13.12
	Male				
Organic food is expensive	66.18	72.84	88.12	82.02	78.47
Organic food is not expensive	33.82	27.16	11.88	17.98	21.53

Source: the authors' elaboration.

Among the 16 distinguished groups of organic products, at least 40% buyers of this food considered it to be expensive or very expensive in Czechia in the case of all the 16 groups, in Hungary it was 15 (except for baby food), in Poland 14 (a lower percentage only in the case of baby food, and spices and herbs), while in Slovakia it was 9 (of which the lowest percentage in the case of baby food (23.7%) as well as spices and herbs (23.8%)). For the entire

Visegrad Group, most frequently, the following were considered expensive or very expensive: meat (n average 70%), sausages and cold cuts (mean 65.6%) and fish and seafood (approx. 61%) (Table 4.23).

Table 4.23. Evaluation of price levels for individual groups of products (data in %)

Specification	Poland						Czechia						Poland	Czechia
	1	2	3	4	5	6	1	2	3	4	5	6	Mode	
Fruit	1.75	11.70	29.24	33.33	19.30	4.68	0.58	3.49	30.23	58.14	3.49	4.07	4	4
Vegetables	1.73	9.83	32.95	32.37	19.65	3.47	0.59	3.55	33.14	55.03	3.55	4.14	3	3
Fruit preserves (including juices)	1.16	5.78	26.59	31.21	23.12	12.14	0.00	1.81	25.30	57.23	7.83	7.83	4	4
Vegetable preserves	1.15	6.32	29.89	28.74	19.54	14.37	0.56	3.33	26.11	51.11	9.44	9.44	3	3
Meat	2.31	4.05	16.76	23.12	43.93	9.83	1.29	0.65	7.74	66.45	11.61	12.26	5	5
Cold cuts	2.31	5.20	15.03	27.17	38.73	11.56	0.58	2.92	14.04	54.39	14.04	14.04	5	5
Dairy products	1.75	7.60	25.15	32.75	23.98	8.77	0.00	4.68	24.56	54.97	7.60	8.19	4	4
Eggs	2.91	9.88	34.88	23.84	20.35	8.14	0.00	5.65	19.21	50.85	11.86	12.43	3	3
Fish. seafood	2.87	2.87	15.52	20.11	41.95	16.67	0.00	1.55	8.29	38.34	25.91	25.91	5	5
Bread	1.73	10.98	23.70	19.08	32.95	11.56	1.08	11.29	27.42	44.09	8.06	8.06	5	5
Sweets. snacks. dried fruit	2.89	9.83	25.43	25.43	19.08	17.34	2.01	12.06	17.59	44.72	11.56	12.06	4	3
Spices. herbs	4.02	13.22	30.46	19.54	16.09	16.67	0.00	13.40	23.71	40.21	11.34	11.34	3	3
Tea coffee	4.62	10.98	23.70	20.81	25.43	14.45	2.12	8.99	20.63	43.92	12.17	12.17	5	5
Vegetable fats (oils)	3.45	5.75	25.29	21.84	25.86	17.82	0.00	6.45	17.20	43.01	16.67	16.67	5	3
Honey	1.72	6.32	24.14	25.29	31.61	10.92	0.53	4.28	18.18	42.25	17.11	17.65	5	5
Baby food	6.32	6.90	18.97	16.09	22.99	28.74	1.35	1.35	10.76	33.18	26.46	26.91	6	6
Specification	**Slovakia**						**Hungary**						**Slovakia**	**Hungary**
	1	2	3	4	5	6	1	2	3	4	5	6	Mode	
Specification	1.75	9.44	45.45	31.47	8.39	3.50	0.00	0.70	17.07	55.75	23.69	2.79	3	4
Vegetables	1.05	10.49	47.90	31.12	5.94	3.50	0.00	1.39	21.60	52.26	21.60	3.14	3	4
Fruit	1.40	9.09	32.87	32.87	16.43	7.34	0.35	1.05	16.38	40.42	29.62	12.20	3	4
Vegetables	1.05	6.99	47.20	28.67	8.04	8.04	0.00	0.00	20.56	42.16	24.04	13.24	3	4
Fruit preserves (including juices)	0.35	3.14	19.16	33.10	34.15	10.10	0.35	0.70	8.74	31.12	37.41	21.68	5	5
Vegetable preserves	0.70	3.14	23.34	37.63	26.83	8.36	0.70	1.75	10.49	28.67	34.97	23.43	4	5
Meat	1.75	9.09	31.12	33.92	17.48	6.64	0.70	2.09	18.12	41.81	25.44	11.85	4	4
Cold cuts	0.35	8.39	29.72	37.41	16.43	7.69	0.70	3.14	21.60	36.24	26.48	11.85	4	4
Dairy products	2.09	5.23	13.59	25.78	37.28	16.03	0.70	0.70	8.39	22.03	32.52	35.66	5	6
Eggs	3.14	15.68	36.93	23.34	13.24	7.67	0.70	1.40	16.43	39.51	27.97	13.99	3	4
Fish. seafood	2.10	16.78	36.36	23.43	10.14	11.19	1.05	3.14	25.09	28.92	20.56	21.25	3	4
Bread	5.24	24.13	36.36	16.43	7.34	10.49	1.74	2.79	28.22	32.06	16.38	18.82	3	4
Sweets. snacks. dried fruit	2.45	12.94	32.17	30.42	13.99	8.04	0.00	3.48	18.47	33.45	27.87	16.72	3	4
Spices. herbs	2.09	11.50	29.97	25.44	20.56	10.45	0.00	2.10	18.53	34.27	29.37	15.73	3	4
Tea coffee	1.40	10.14	23.43	27.97	25.52	11.54	1.05	1.74	18.12	35.19	28.57	15.33	4	4
Vegetable fats (oils)	9.06	11.85	30.66	16.03	7.67	24.74	4.90	3.50	13.99	17.83	12.24	47.55	3	6

Marks: 1 – it is very cheap, 2 – it is not expensive, 3 – it is neither cheap nor expensive, 4 – it is expensive, 5 – it is very expensive, 6 – I have no opinion

Source: the authors' elaboration.

The respondents were also asked to indicate an acceptable difference in the price between organic and conventional products (Table 4.24). Only 1.4% of respondents purchasing organic food were of the opinion that they would not be able to pay more (in the case of women, this percentage is almost 2-fold higher, amounting to 2.6%). The most decisive in this respect were the respondents in Hungary – 5.4% surveyed in that country would not be able to pay more for this type of food. Almost 28% of individuals buying organic food accept differences in prices between organic and conventional products below 10% (the largest number in this range was recorded in Slovakia – 34.5%), while it was over 38% if this difference was 11-20% (with the highest percentage in this range recorded in Czechia – less than 53%). In research conducted in the Scandinavian countries by Kihlberg and Risvik (2007) on the market of organic baked goods it was shown that consumers, despite being aware of the taste and health-promoting value of organic baked goods, do not want to pay more than for a comparable product produced using the conventional method. Over half of the Scandinavian respondents declared that they do not buy organic products if there is a considerable difference in price, regardless of their health literacy, which is very high in the Scandinavian countries. In Finland, analyses were conducted by Luomala et al. (2020), who showed that Finnish consumers are willing to pay more for organic food motivated most often by their socially responsible attitudes. This results from the fact that the inhabitants of that country are more affluent compared to the other European countries. Their income levels make it possible to purchase organic products without focusing on the price difference. However, it may be hoped that in view of the growing demand for organic food products that technological innovations are going to be introduced and they will increase the benefits of scale. This in turn, should be manifested in the potential to reduce the costs of production, processing, distribution and marketing of organic food.

Table 4.24. Willingness to pay higher prices for organic food compared to conventional food

Specification	Number				
	Total				
	Poland	Czechia	Slovakia	Hungary	∑
1-10%	59	50	111	89	309
11-20%	82	128	152	150	512
21-40%	43	52	43	58	196
41-60%	13	7	8	13	41
61-80%	8	1	3	2	14
81-100%	0	3	1	2	6
More than 100%	2	1	2	1	6
I am not willing to pay more for organic food	5	0	2	18	25

Specification	Number				
	Total				
	Poland	Czechia	Slovakia	Hungary	∑
	Female				
1-10%	42	40	86	74	242
11-20%	55	82	87	107	331
21-40%	29	33	28	34	124
41-60%	8	4	6	9	27
61-80%	7	1	2	1	11
81-100%	0	1	1	2	4
More than 100%	1	0	0	1	2
I am not willing to pay more for organic food	2	0	2	16	20
	Male				
1-10%	17	10	25	15	67
11-20%	27	46	65	43	181
21-40%	14	19	15	24	72
41-60%	5	3	2	4	14
61-80%	1	0	1	1	3
81-100%	0	2	0	0	2
More than 100%	1	1	2	0	4
I am not willing to pay more for organic food	3	0	0	2	5
Specification	Percentage of people purchasing organic food				
	Poland	Czechia	Slovakia	Hungary	∑
	Total				
1-10%	27,83	20,66	34,47	26,73	27,86
11-20%	38,68	52,89	47,20	45,05	38,19
21-40%	20,28	21,49	13,35	17,42	20,14
41-60%	6,13	2,89	2,48	3,90	5,56
61-80%	3,77	0,41	0,93	0,60	4,86
81-100%	0,00	1,24	0,31	0,60	0,00
More than 100%	0,94	0,41	0,62	0,30	0,69
I am not willing to pay more for organic food	2,36	0,00	0,62	5,41	1,39
	Female				
1-10%	29,17	24,84	38,91	30,33	31,43
11-20%	38,19	50,93	39,37	43,85	42,99
21-40%	20,14	20,50	12,67	13,93	16,10
41-60%	5,56	2,48	2,71	3,69	3,51
61-80%	4,86	0,62	0,90	0,41	1,43
81-100%	0,00	0,62	0,45	0,82	0,52
More than 100%	0,69	0,00	0,00	0,41	0,26
I am not willing to pay more for organic food	1,39	0,00	0,90	6,56	2,60
	Male				
1-10%	25,00	12,35	24,75	16,85	19,76
11-20%	39,71	56,79	64,36	48,31	53,39
21-40%	20,59	23,46	14,85	26,97	21,24
41-60%	7,35	3,70	1,98	4,49	4,13
61-80%	1,47	0,00	0,99	1,12	0,88
81-100%	0,00	2,47	0,00	0,00	0,59
More than 100%	1,47	1,23	1,98	0,00	1,18
I am not willing to pay more for organic food	4,41	0,00	0,00	2,25	1,47

Source: the authors' elaboration.

4.4. Demographic characteristics of consumers and purchase of organic food – a correlation analysis

The decision to purchase organic food for the first time and the frequency of purchasing organic food (as in the case of conventional food) in individual V4 countries may vary depending on such characteristics as gender, education level, or professional status. To assess whether there is a relationship in the Visegrad Group countries between buying organic food and these types of features, a chi-square test of independence was used using the statistics (Szymczak, 2010, p. 110):

$$\chi^2 = \sum_{i=1}^{r}\sum_{j=1}^{c}\frac{(n_{ij} - np_{ij})^2}{np_{ij}}$$

where: $p_{i\bullet} = \frac{n_{i\bullet}}{n}$, $p_{\bullet j} = \frac{n_{\bullet j}}{n}$, are the marginal frequencies (symbol • means that the variable, to which this position corresponds, is not taken into account in the current marginal distribution) and $p_{ij} = p_{i\cdot} \times p_{\cdot j}$, n_{ij} – numbers observed, np_{ij} – numbers expected, r – number of rows in the contingency table, and c – number of columns.

In order to assess the strength of the relationship between the considered features, Cramer's V convergence coefficient was used (Pułaska-Turyna, 2008, p. 84):

$$V_C = +\sqrt{\frac{\chi^2}{n \cdot g}},\ g = min(k-1, l-1),$$

where: k – number of rows, l – number of columns in the correlation table.

The value of this indicator is always between 0 and 1, but 1 is practically unattainable (reaching the maximum value is determined by the size of the array – e.g., for a 4 × 4 array, the maximum value of this indicator is 0.87) (Szymczak, 2010, p. 119; Nawojczyk, 2002, pp. 222-223). The closer it is to one, the stronger the connection between the analysed features. Below 0.29 the relationship is assessed as weak, between 0.30 and 0.49 as moderate, and above 0.50 as strong, respectively.

In the study, the results of the chi-square test ($\chi 2 = 6{,}2805$, $p = 0{,}0122$) for data aggregated at the level of the entire Visegrad Group indicate that there is a correlation between gender and the purchase of organic food, but its strength should be assessed as weak (the contingency coefficient C is slightly over 0.05). Considering this relationship at the level of individual countries of the Visegrad Group, only in Poland, Slovakia, and Hungary a statistically significant relationship was identified (with p-value less than 0.05), but in each of these countries, the strength of the relationship should be assessed as weak (the highest value of the contingency coefficient was recorded in Hungary, amounting to 0.1246).

Table 4.25. Gender and purchasing organic food in the Visegrad Group countries – results of the chi-square test

Specification		Chi-square	Degrees of freedom	p-value
Poland	Pearson's chi-square	4.2847	df=1	0.0385
	Contingency coefficient	0.0842		
Czechia	Pearson's chi-square	3.2815	df=1	0.0701
	C-Pearson contingency coefficient	0.0738		
Slovakia	Pearson's chi-square	9.4620	df=1	0.0021
	C-Pearson contingency coefficient	0.1246		
Hungary	Pearson's chi-square	5.9174	df=1	0.0150
	C-Pearson contingency coefficient	0.0988		
Entire V4	Pearson's chi-square	6.2805	df=1	0.0122
	C-Pearson contingency coefficient	0.0511		

Source: the authors' elaboration.

The research also attempted to answer whether there is a relationship between the type/size of the place of residence and purchase of organic food (Table 4.26). Based on the results of the chi-square test conducted at the level of the entire V4 group, it can be assumed that there is a statistically significant relationship between the considered features ($\chi 2 = 49.1496$, $p = 0.0000$); however, the strength of this relationship should be assessed as weak (Cramer's V coefficient is only 0.1431). At the level of individual Visegrad Group countries, a statistically significant relationship was observed only in Poland and Czechia (where Cramer's V coefficient was 0.3272, and on this basis the strength of the relationship between the type of place of residence and the purchase of organic food can be assessed as moderate).

Table 4.26. Type/size of place of residence and purchasing organic food in the Visegrad Group countries – chi-square test results

Specification		Chi-square	Degrees of freedom	p-value
Poland	Pearson's chi-square	29.6767	df=5	0.0000
	C-Pearson contingency coefficient	0.2171		
	Cramer's V coefficient	0.2224		
Czechia	Pearson's chi-square	64.2290	df=5	0.0000
	C-Pearson contingency coefficient	0.3110		
	Cramer's V coefficient	0.3272		
Slovakia	Pearson's chi-square	1.3499	df=5	0.9297
	C-Pearson contingency coefficient	0.0474		
	Cramer's V coefficient	0.0474		
Hungary	Pearson's chi-square	8.0236	df=5	0.1549
	C-Pearson contingency coefficient	0.1149		
	Cramer's V coefficient	0.1156		
Entire V4	Pearson's chi-square	49.1496	df=5	0.0000
	C-Pearson contingency coefficient	0.1417		
	Cramer's V coefficient	0.1431		

Source: the authors' elaboration.

One of the factors that differentiates purchasing decisions may be the education level of consumers. In the study, the chi-square test results ($\chi 2 = 127.1440$ for p-value = 0.0000) indicate that at the level of the entire V4 group, there is a statistically significant correlation between respondents' education level and purchase of organic food. A statistically significant correlation was found in each country of the Visegrad Group. Still, only in Czechia can the strength of this interaction be considered moderate (Cramer's V coefficient exceeded 0.38). In the other countries this correlation can be considered weak (Table 4.27).

Another factor influencing purchasing decisions is the professional status of consumers (Table 4.28). Chi-square test results ($\chi 2 = 78.5152$, p-value = 0.0000) confirm a statistically significant relationship between professional status and buying organic food at the level of the entire V4 group. The strength of this (statistically significant) relationship varied in individual countries. The conducted analyses showed that in Poland and Czechia, the strength of the relationship between the investigated characteristics is moderate (Cramer's V coefficient is 0.3071 and 0.3152, respectively), while in Slovakia and Hungary it is weak (Cramer's V coefficient is 0.1475 and 0.0932, respectively).

Table 4.27. Education level and buying organic food in the Visegrad Group countries – results of the chi-square test

Specification		Chi-square	Degrees of freedom	p-value
Poland	Pearson's chi-square	10.2615	df=3	0.0165
	C-Pearson contingency coefficient	0.1297		
	Cramer's V coefficient	0.1308		
Czechia	Pearson's chi-square	87.1803	df=4	0.0000
	C-Pearson contingency coefficient	0.3562		
	Cramer's V coefficient	0.3812		
Slovakia	Pearson's chi-square	12.6508	df=4	0.0131
	C-Pearson contingency coefficient	0.1437		
	Cramer's V coefficient	0.1452		
Hungary	Pearson's chi-square	17.0332	df=3	0.0007
	C-Pearson contingency coefficient	0.1661		
	Cramer's V coefficient	0.1685		
Entire V4	Pearson's chi-square	127.1440	df=4	0.0000
	C-Pearson contingency coefficient	0.2243		
	Cramer's V coefficient	0.2302		

Source: the authors' elaboration.

Table 4.28. Professional status and buying organic food in the Visegrad Group countries – chi-square test results

Specification		Chi-square	Degrees of freedom	p-value
Poland	Pearson's chi-square	56.5757	df=4	0.0000
	C-Pearson contingency coefficient	0.2935		
	Cramer's V coefficient	0.3071		
Czechia	Pearson's chi-square	59.6109	df=4	0.0000
	C-Pearson contingency coefficient	0.3006		
	Cramer's V coefficient	0.3152		
Slovakia	Pearson's chi-square	13.0506	df=4	0.0110
	C-Pearson contingency coefficient	0.1459		
	Cramer's V coefficient	0.1475		
Hungary	Pearson's chi-square	15.2122	df=6	0.0187
	C-Pearson contingency coefficient	0.0928		
	Cramer's V coefficient	0.0932		
Entire V4	Pearson's chi-square	78.5152	df=6	0.0000
	C-Pearson contingency coefficient	0.1780		
	Cramer's V coefficient	0.1809		

Source: the authors' elaboration.

It is commonly believed that organic food is more expensive than conventional food (as confirmed also in these studies), which is, among other things, related to relatively longer production time, lower efficiency, or a limited number of suppliers. In view of the above, the results of the analysis are quite surprising. Both at the level of the entire V4 group (χ^2 = 8.4709 for p-value = 0.0758), and at the level of individual countries the results of the chi-square test, indicate that the assessment of the household income situation does not correlate with purchases of organic food. Therefore, although over 84% of study participants believe that organic food is expensive, no statistically significant relationship between these characteristics was found. The results of the study may be influenced by the fact that the assessment of the household's situation is declarative and subjective, rather than objective (measured by income levels). In addition, the test result may be influenced e.g. by Russia's war in Ukraine and its economic effects (energy crisis, etc.) or high (cumulative) inflation, which may cause consumers to experience a certain deterioration in their household income situation.

Table 4.29. Assessment of the household's income situation and purchasing organic food in the Visegrad Group countries – chi-square test results

Specification		Chi-square	Degrees of freedom	p-value
Poland	Pearson's chi-square	2.4852	df=4	0.6473
	C-Pearson contingency coefficient	0.0642		
	Cramer's V coefficient	0.0644		
Czechia	Pearson's chi-square	5.1065	df=4	0.2765
	C-Pearson contingency coefficient	0.0919		
	Cramer's V coefficient	0.0923		
Slovakia	Pearson's chi-square	2.0327	df=4	0.7297
	C-Pearson contingency coefficient	0.0581		
	Cramer's V coefficient	0.0582		
Hungary	Pearson's chi-square	7.8116	df=4	0.0987
	C-Pearson contingency coefficient	0.1134		
	Cramer's V coefficient	0.1141		
Entire V4	Pearson's chi-square	8.4709	df=4	0.0758
	C-Pearson contingency coefficient	0.0593		
	Cramer's V coefficient	0.0594		

Source: the authors' elaboration.

The analysis of data obtained in this chapter based on surveys conducted in individual Visegrad Group countries allows to state that over 46% of all respondents (1109 people) declare purchasing organic food. The largest group of people buying organic food are residents of larger cities (over 40 thousand inhabitants). Considering the price conditions, this food type is rather less accessible to people with limited financial resources. The conducted studies show that residents of Visegrad Group countries most often buy organic food as members of one– and three-person households (52 and less than 50%, respectively), and 3 out of 4 study participants declared that at most 2 people in the household consume organic food. 37% of respondents declare that if they buy organic food, it is for a period not longer than 3 years, and only 13.3% of respondents who buy organic food do so for more than 11 years. Almost 2 out of 3 survey participants declare that they personally buy organic food, with a significantly higher percentage recorded in the case of women (71.4%) than men (52.8%). The research shows that high quality is the most important factor determining purchasing decisions regarding organic food. At the same time, in each country of the Visegrad Group, the participants of the research most often indicated high price as the main barrier to purchasing organic food – to the greatest extent in Poland (approx. 54%) and Slovakia (over 51%). On the other hand, retail chains were indicated as places where organic products are most often purchased. In each country of the Visegrad Group, fruit and vegetables were indicated as the most frequently purchased group of organic food.

Conclusions

Transformations taking place in the consumer environment significantly affect consumer behaviour, leading to a multitude of attitudes, lifestyles and changes in food consumption trends. Many authors investigating consumer behaviour on the market agree that new economic and social conditions resulting from the transformation of the economy and accelerated by the country's incorporation into the EU structure, as it was the case in the V4 countries, have markedly altered behaviour of market participants, particularly consumers (Sojkin et al. 2009, p. 7; Kułyk, Michałówska, 2018, p. 270). At present we may observe changes in consumer behaviour reflected in a shift from excessive, unsustainable consumption towards sustainable consumption, leading to improved quality of life both for the present and future generations.

Currently, societies in the analysed countries, due to their geopolitical location, face relatively difficult political and economic conditions resulting from the economic crisis, brought about by such factors as e.g. Russia's war in Ukraine and increasingly evident climate change. All this leads to a sense of public uncertainty and insecurity. For this reason food security remains a highly topical issue. Products from the organic food sector may provide a solution to some problems experienced by contemporary society, such as e.g. lifestyle diseases or environmental problems related to climate change (Smoluk-Sikorska et al., 2024, p. 160).

Organic agriculture is the type of production, which while being environmentally friendly provides quality food products. Thus organic production combines eco-friendly farming practices with promotion of high biodiversity, protection of natural resources, adoption of strict standards concerning animal welfare and application of production methods meeting the requirements of consumers preferring products manufacturing using natural substances and processes. In view of the above, organic production technology serves both an environmental and social function. First, it is a system with a positive environmental impact, contributing to broadly

understood agricultural and environmental benefits. On the other hand, organic agriculture addresses the changing structure of market demand. Consumers are inclined to choose organic products, they are willing to buy them and usually pay higher prices compared to the products, which were not produced using organic methods (Council Regulation (EC) No. 834/2007).

In market terms, food production using organic methods is one of the solutions to the changing structure of market demand. After saturation of the market with food produced by industrial agriculture consumers increasingly often come to a conclusion that only food produced under conditions possibly closest to natural conditions can meet their expectations (Rzytki, 2015, p. 24). A properly operating system of control and certification in organic agriculture is the basic guarantee for consumers that food products available on the market have been produced in accordance with the binding regulations concerning organic agriculture. As a result, such products are free from pollutants, such as pesticide residue and hormones, while no artificial fertilisers and genetically modified organisms have been used during their production (Brągiel, Ślusarczyk, 2017, p. 37).

Competition under free trade conditions is considerable, and consumer requirements are high. An important determinant is not only the quality of products, but also the degree of their processing and their availability. In view of the growing share of organic products in the consumption structure of present-day societies, extensive research needs to be conducted on the potential for their production, broadening of product range, processing, adaptation of distribution to meet consumer expectations and improvement of promotion measures. At the same time, education activities need also to be undertaken to enhance public awareness concerning production, quality and control of organic products, as well as their health benefits and environmental impact. Both global and European organic food markets are facing development opportunities and with an increasing environmental awareness and affluence level of individual societies interest in these products is also growing.

Studies conducted among organic food consumers provide insight into the profile of such consumers in the V4 countries. Statistically speaking, in most cases it is a women with higher education, living in a city of min. 200 thousand inhabitants or in a rural area (a non-urban metropolitan area classified as rural within an agglomeration), typically it is a person running their own business or employed based on a contract. The typical household of an organic food consumer in a V4 country is mostly composed of 4 people (with two underage children), in which, in most cases, two people are professionally active, and

who evaluate their income situation as medium or good. All the family members eat the purchased organic food. As a rule, the respondent is responsible in 70% for purchases of organic products in the household. The conducted analysis of interdependencies additionally showed a correlation between the type/size of the town where they live and purchases of organic products, while there is a statistically significant dependence between professional status (employment or being self-employed) and buying organic food.

The analysed consumer has been buying organic food for 2-3 years (it may be stated here that an impulse to do so was connected with the COVID-19 pandemic, which directed people's attention to the health-promoting value of organic food). Buyers generally identify organic food based on the EU organic food logo (the green leaf) and other label information indicating that it is organic food. Apart from the organic food logo, consumers follow the designation of the certifying entity and they trust sellers, who place organic food on specifically marked shelves in their shops. The young generation of consumers, which is extensively represented in this study, shows high consumer and environmental awareness, paying attention to what they are buying – they read product label information and recognise logos of certifying entities (authorised to grant certificates to products of organic agriculture). Organic consumers coming from the V4 countries are equally willing to purchase organic products and regional food, as well as functional and ethnic food. Organic food consumers belong to the group of consumers, who relatively often use the Internet, thus they gather information concerning organic products also from websites and social media.

Organic fresh fruit and vegetables, eggs, baked goods, dairy products, as well as processed fruit and vegetables are the products most frequently purchased by the analysed organic consumers from the V4 countries, thus they are of key importance for the organic food market. Moreover, the growing importance of the organic meat market also needs to be stressed here, although the percentage of customers buying organic meat among the respondents from the V4 countries varies greatly depending on the country and ranges from less than 11% in Hungary to over 30% in Slovakia (based on the declarations of the respondents buying organic meat at least once a week).

Analyses showed that organic consumers in the group of the investigated countries typically purchase organic food in retail chains (e.g. super– and hypermarkets, drugstores, discount stores). Specialist shops, marked as organic food shops, are slightly more popular in Poland and Czechia. In turn,

consumers from Hungary and Poland also visit organic farms, as well as street markets and farmers markets, to do their shopping.

It needs to be stated here that in the opinion of the respondents organic food still belongs to the category of expensive food. In this study that factor was always indicated. Next consumers mentioned limited availability of organic products and insufficient information on organic food. In the opinion of the respondents, a considerable limitation was also connected with the small range of products offered by organic food shops. The analysed group of respondents from Slovakia stated that for them, a purchase barrier was connected with palatability of organic food. Factors that might reduce the importance of these barriers and at the same time promote more frequent purchases of organic products include lower prices or higher income of consumers. Greater availability of organic products would also make it easier for willing consumers to purchase them. In the opinion of the respondents, the organic food sold in the V4 countries is expensive. This refers mostly to meat, processed meats, fish and seafood, as well as fats. Analysed consumers are able to accept a maximum 20% difference in price between organic products and those produced using other methods. At present it does not seem possible to reduce prices of organic products, since due to the soaring inflation general food prices have grown considerably. Nevertheless, it needs to be stressed that the prices of organic food generally showed lesser growth than those of conventional products. In the future this may be reflected in a certain increase in the demand for organic products.

The conducted analysis of interdependencies showed that the respondents' sex to a relatively limited extent influenced purchases of organic food in the investigated countries, which obviously may result from changes in the model of responsibility for purchases in the household. Interest in organic food is to a greater extent influenced by the place of residence mainly in Poland and Czechia, which results from urban sprawl, leading to depopulation of Polish cities and people moving to suburban areas. A positive finding is related to the fact that purchase of organic food is weakly correlated with the evaluation of the financial situation of respondents – despite the fact that the respondents consider organic food to be expensive, they still buy it willingly. The results of this study may be influenced by the fact that the evaluation of the financial situation of the household is declarative and subjective, rather than objective (measured by the income level). This shows that a key role in the selection of organic food is played by the environmental awareness and health literacy of consumers.

Generally consumers show high potential demand for organic food, which to a considerable extent may not be realised due to the above-mentioned barriers. An insufficient volume of production and a poorly developed processing sector lead to shortages of the most desirable product groups (e.g. meat and processed meats), which is manifested in their relatively high prices. For this reason, greater support needs to be provided for organic farms to produce these product groups, for which demand is the greatest. This would be manifested in greater deliveries to processing plants, and thus in increased supply of organic products on the market, while simultaneously, the needs of buyers would be satisfied to a greater extent.

Problems with shortages of certain products on the organic food market, reflected in high prices for these products, are markedly influenced by weaknesses of individual segments in the supply chain, particularly the lack of structures integrating participants of the supply market sector, e.g. producer groups, which, if ever present, are not well-established and are rather informal in character. Barriers are also connected with a lack of reliable, extensive agricultural advisory network adapted to the needs of producers, as well as problems with supplying processing plants with greater quantities of quality raw material with comparable parameters (Smoluk-Sikorska, 2021). For this reason actions need to be undertaken to organise a system dealing in organic farm produce at the regional level, which would contribute to greater horizontal integration of farmers. Moreover, this system should also include storage or providing loans to producers. This should be combined with the introduction and popularisation of instruments facilitating extensive support for the development of agriculture both on the regional and national level, as well as enhanced cooperation between organic farmers and the other participants of the supply segment of the organic food market, i.e. wholesale and retail distributors, as well as processing plants. On the demand side, it is necessary to conduct continuous social campaigns to increase consumers' environmental awareness and to popularise organic food (including further promotion of the EU organic food logo) by stressing the benefits connected with its consumption. Studies indicate that the primary motivations for purchases of organic food are connected with health benefits and the natural character of the product, thus campaigns enhancing consumer awareness should first of all stress the health-promoting value of organic products, their credibility, as well as relation with nature and sustainability.

The conducted studies made it possible to indicate a specific trend observed on the market of organic products and to characterise the investigated group

of respondents from the V4 countries. Nevertheless, no conclusions may be reliably generalised without further research reflecting characteristics of a larger population. Thus it needs to be stated that in this specific area the research problem may be further explored.

The presented monograph is an original research study. Conducted investigations based on secondary and primary sources made it possible to realise the main aim, which was to diagnose the condition of organic agriculture in the V4 countries, to present the profile of organic food consumers, as well as their typical behaviour on the market. Determination of the frequency of purchases for specific product groups and places of their purchase, indication of main barriers (focusing on the most important one – the level of organic food prices) and proposals on how market participants may overcome them constitute an additional value of this monograph.

Bibliography

Adamczyk, G. (2015): Wybrane aspekty zachowań młodych konsumentów w nowych realiach rynkowych. Handel wewnętrzny, 354(1), pp. 5-16.

Aertsens, J., Mondelaers, K., Verbeke, W., Buysse, J, van Huylenbroeck, G. (2011): The influence of subjective and objective knowledge on attitude, motivations and consumption of organic food. British Food Journal, Vol. 113 No. 11, 2011, pp. 1353-1378.

Aitken, R., Watkins, L., Williams, J., Kean, A. (2020): The Positive Role of Labelling on Consumers' Perceived Behavioural Control and Intention to Purchase Organic Food. Journal of Cleaner Production 255, 120334.

Anastasiou, C.N., Keramitsoglou, K.M., Kalogeras, N., Tsagkaraki, M.I., Kalatzi, I., Tsagarakis, K.P. (2017): Can the "Euro-Leaf" Logo Affect Consumers' Willingness-To-Buy and Willingness-To-Pay for Organic Food and Attract Consumers' Preferences? An Empirical Study in Greece, Sustainability, nr 9(8), 1450.

Annunziata, A., Mariani, A. (2018): Consumer perception of sustainability attributes in organic and local food. Recent Pat. Food, Nutr. Agric, 9 (2), pp. 87-96.

Annunziata, A., Scarpato, D. (2014): Factors affecting consumer attitudes towards food products with sustainable attributes. Agricultural Economics-Zemedelska Ekonomika 60 (8), pp. 353-363.

Apaolaza, V., Hartmann, P., D'Souza, C., López, C.M. (2018): Eat Organic–Feel Good? The Relationship between Organic Food Consumption, Health Concern and Subjective Wellbeing. Food Quality and Preference, 63, pp. 51-62.

Assael, H. (1987): Consumer Behavior and Marketing Action. Boston, MA: Kent Publishing Company.

Babicz-Zielińska, E., Jeżewska-Zychowicz, M. (2015): Wpływ czynników środowiskowych na wybór i spożycie żywności. Handel Wewnętrzny, 2 (355), pp. 5-18.

Bartosik-Purgat, M. (2011): Kulturowe uwarunkowania zachowań konsumentów na przykładzie młodych Europejczyków. Poznań: Wydawnictwo Uniwersytetu Ekonomicznego.

Becker, R. (2021): The Effects of a Special Sequential Mixed-Mode Design, and Reminders, on Panellists' Participation in a Probability-Based Panel Study. Quality and Quantity, .55, 1-26.

Becker, R., & Glauser, D. (2018): Are prepaid monetary incentives sufficient for reducingpanel attrition and optimizing the response rate? An experiment in the context of a multi-wave panel with a sequential mixed-mode design. Bulletin of Sociological Methodology, 137, 74-95.

Benda Prokeinová, R., Hanová, M., Turčeková, N. (2021): Sensitivity analysis of price indices in models of demand systems. In Statistika, 101, 3, pp. 268-282.

Berletta, M. (2006): Marketing skierowany do kobiet, Warszawa: Wydawnictwo CeDeWu.

Bielik, P., Hanová, M., Benda Prokeinová, R (2021): How to be sustainable in beef consumption – Exploring the factors. Case study. In Agricultural economics, 67(9), pp. 382-390.

Boone, L., Roldán-Ruiz, I., Van Linden, V., Muylle, H., Dewulf, J. (2019): Environmental sustainability of conventional and organic farming: Accounting for ecosystem services in life cycle assessment. Science of The Total Environment, 695, 133841.

Brągiel, E., Ślusarczyk, B. (2017): Tendencje na europejskim rynku żywności ekologicznej, Zeszyty Naukowe Szkoły Głównej Gospodarstwa Wiejskiego w Warszawie Problemy Rolnictwa Światowego tom 17 (XXXII), zeszyt 3, pp. 29-38.

Brzeziński J., Stachowski R. (1981): Zastosowanie analizy wariancji w eksperymentalnych badaniach psychologicznych. Warszawa: Państwowe Wydawnictwo Naukowe.

Brzozowska-Woś, M. (2010): Wybrane czynniki wpływające na rynkowe zachowania konsumentów. Gdańsk.

Bułacz, B. (2020): Znaki towarowe w marketingu ekologicznym, Kwartalnik Urzędu Patentowego RP, 2(45), pp. 11-13.

Bylok, F. (2013): Strategia zachowań konsumpcyjnych seniorów na rynku dóbr i usług konsumpcyjnych. Problemy Zarządzania.

Bywalec, Cz. (2010): Konsumpcja a rozwój gospodarczy i społeczny, Warszawa: Wyd. C.H. Beck.

Cairns K., Laat K. de, Johnston J., Baumann S. (2020): The caring, committed eco-mom: consumption ideals and lived realities of Toronto mothers. [w:] B. Barendregt, R. Jaffe (eds), Green Consumption (pp. 100-114). London: Routledge.

Čarnogurský, K. (2023) Výzvy v marketingu a marketingovej komunikacii v digitalnej ére (Challenges in marketing and marketing communication in the digital era), Verbum Ružomberok. ISBN: 978-80-561-1024-9.

Castellini, G., Savarese, M., Castiglioni, C., Graffigna, G. (2020): Organic Food Consumption in Italy: The Role of Subjective Relevance of Food as Mediator between Organic Food Choice Motivation and Frequency of Organic Food Consumption. Sustainability. 12(13). 5367.

Chandrashekhar, D.H. (2014): Consumers perception towards organic products-a study in Mysore city, International Journal of Research in Business Studies and Management, 1(1), pp. 52-67.

Chou, S.F., Horng, J.S., Liu, C.H.S., Lin, J.Y. (2020): Identifying the critical factors of customer behavior: An integration perspective of marketing strategy and components of attitudes. Journal of retailing and consumer services, 55, 102113.

Cleaner and Responsible Consumption, 12, 100162, https://doi.org/10.1016/j.clrc.2023.100162.

Commission Implementing Regulation (EU) 2021/2289 of 21 December 2021 laying down rules for the application of Regulation (EU) 2021/2115 of the European Parliament and of the Council on the presentation of the content of the CAP Strategic Plans and on the electronic system for the secure exchange of information, C/2021/9601, OJ L 458, 22.12.2021, p. 463-485.

Commission Regulation (EC) No 843/2007 of 17 July 2007 amending Regulation (EC) No 712/2007 as regards the quantities covered by the standing invitation to tender for the resale on the Community market of cereals held by the intervention agencies of the Member States, OJ L 186, 18.7.2007, pp. 19-23.

Corazza, I., Pennucci, F., De Rosis, S. (2021): Promoting healthy eating habits among youth according to their preferences: indications from a discrete choice experiment in Tuscany, Health Policy, 125, pp. 947-955.

Council of the European Union (2018): REGULATION (EU) 2018/848 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 30 May 2018 on organic production and labelling of organic products and repealing Council Regulation (EC) No 834/2007. Official Journal of the European Union, pp. 1-92.

Council Regulation (EC) No 1257/1999 of 17 May 1999 on support for rural development from the European Agricultural Guidance and Guarantee Fund (EAGGF) and amending and repealing certain Regulations, OJ L 160, 26.6.1999, pp. 80-102.

Council Regulation (EC) No 1698/2005 of 20 September 2005 on support for rural development by the European Agricultural Fund for Rural Development (EAFRD), OJ L 277, 21.10.2005, pp. 1-40.

Council Regulation (EC) No 1804/1999 of 19 July 1999 supplementing Regulation (EEC) No 2092/91 on organic production of agricultural products and indications referring thereto on agricultural products and foodstuffs to include livestock production, OJ L 222, 24.8.1999, pp. 1-28.

Council Regulation (EEC) No 2078/92 of 30 June 1992 on agricultural production methods compatible with the requirements of the protection of the environment and the maintenance of the countryside, OJ L 215, 30.7.1992, pp. 85-90.

Council Regulation (EEC) No 2092/91 of 24 June 1991 on organic production of agricultural products and indications referring thereto on agricultural products and foodstuffs, OJ L 198, 22.7.1991, pp. 1-15.

Cushman, G., Veal, A.J., Zuzanek, J. (red.). (2008). Free Time and Leisure Participation. International Perspectives. Wallingford–Cambridge: CABI.

Cyran, K. (2014): Dochód jako czynnik różnicujący zachowania konsumentów na rynku żywności (na przykładzie mieszkańców województwa podkarpackiego). Nierówności społeczne a wzrost gospodarczy, 38, pp. 365-374.

Czyż, A. (2018): Współpraca regionalna państw Grupy Wyszehradzkiej: doświadczenia i perspektywy, Prace Naukowe Uniwersytetu Śląskiego w Katowicach, no. 3687., 2018.

Daugbjerg, C., Smed, S., Andersen, L.M., Schvartzman, Y. (2014): Improving eco-labelling as an environmental policy instrument: knowledge, trust and organic consumption. J. Environ. Pol. Plann. 16 (4), 559-575. https://doi.org/10.1080/1523908X.2013.879038.

De Chernatony, L. (2010). From brand vision to brand evaluation. Routledge.

de Koning, J., Crul, M.R.M., Wever, R., Brezet, J.C. (2015): Sustainable consumption in Vietnam: an explorative study among the urban middle class. Int. J. Consum. Stud, 39 (6), pp. 608-618.

De Maya, S., López-López, I., Munuera, J. (2011). Organic food consumption in Europe: International segmentation based on value system differences, Ecological Economics, 70, pp. 1767-1775.

De Toni, D., Milan, G., Larentis, F., Eberle, L., Procópio, A. (2020), Image Configuration of Organic Food and its Motivation for Consumption, Ambiente & Sociedade, 23, pp. 1-25

Ditschun, T.L. (2010): Nurturing and Preserving the Sensory Qualities of Nature. Obesity Prevention: The role of brain and society on individual behaviour; Elsevier: Amsterdam, pp. 555-566.

Domagalska, J., Buczkowska, M. (2015): Rolnictwo ekologiczne – szanse i perspektywy rozwoju, Problemy Higieny i Epidemiolgii, 96(2), pp. 370-376.

Domagalska, J. Buczkowska, M. (2015): Rolnictwo ekologiczne-szanse i perspektywy rozwoju. Problemy Higieny i Epidemiolgii, 96(2), pp. 370-376.

Dudziak, A., Kocira, A. (2022): Preference-Based Determinants of Consumer Choice on the Polish Organic Food Market. International Journal of Environmental Research and Public Health, 19(17), 10895.

Durmaz, Y., Gündüz, G. (2021): A Theoretical Approach To Social Factors Influencing Consumer Behavior. International Journal of Research – GRANTHAALAYAH, 9(11), pp. 252-257.

Eisenberg, B., Eisenberg, J., Davis, L.T. (2006): Waiting for Your Cat to Bark?: Persuading Customers When They Ignore Marketing. Nashville: Thomas Nelson.

El-Hage Scialabba, N., Hattam, C. (2003): Agricultura orgánica, ambiente y seguridad alimentaria. Https://Www.Fao.Org/3/Y4137s/Y4137s00.Htm. Last accessed: 15 May 2024.

Euroepan Commission (2023): Approved 28 CAP Strategic Plans (2023-2027). Summary overview for 27 Member States. Facts and figures. Brussels: European Commission.

European Commission European Green Deal: Commission Prepares New Initiatives to Boost the Organic Farming Sector. (2020): Available at: https://www.europeansources.info/record/regulation-eu-2020-1693-amending-regulation-eu2018-848-onorganic-production-and-labelling-of-organic-products-as-regards-its-date-ofapplication-and-certain-other-dates--referred-toin-that-regul/ (accessed on 11 May 2024).

European Commission. (2024): At a glance: Slovakia's CAP Strategic Plan. Available at: https://agriculture.ec.europa.eu/system/files/2024-01/csp-at-a-glance-slovakia_en.pdf.

European Commission. (n.d.a). Sustainable food consumption and facilitating the shift towards healthy, sustainable diets. Available at: https://food.ec.europa.eu/horizontal-topics/farm-fork--strategy/sustainable-food-consumption_en.

European Commission. (n.d.b). Food information to consumers – legislation. EU law on food information to consumers. Available at: https://food.ec.europa.eu/safety/labelling-and-nutrition/food-information-consumers-legislation_en.

European Commission. (n.d.c). Green claims. New criteria to stop companies from making misleading claims about environmental merits of their products and services. Available at: https://environment.ec.europa.eu/topics/circular-economy/green-claims_en.

European Commission. (n.d.a): Organics at a glance. Available at: https://agriculture.ec.europa.eu/farming/organic-farming/organics-glance_en.

European Commission. (n.d.b): Organic action plan. Available at: https://agriculture.ec.europa.eu/farming/organic-farming/organic-action-plan_en?prefLang=sk.

Eurostat. (2024): Agriculture: Database. Available at: https://ec.europa.eu/eurostat/web/agriculture/database.

Falkowski, A., Tyszka, T. (2001): Psychologia zachowań konsumenckich. Gdańsk: GWP.

FAO (1998): Evaluating the potential contribution of organic agriculture to sustainability goals. IFOAM's Scientific Conference, Mar del Plata, Argentina. https://www.fao.org/4/ac116e/ac116e00.htm#Toc Last accessed: 19 May 2024.

FAO (2020): Organic Agriculture: What is organic agriculture? Food and Agriculture Organization of the United Nations. Last accessed: 19 May 2024.

FAO (2022): Why is organic food more expensive than conventional food? https://www.fao.org/organicag/oa-faq/oa-faq5/en/ Last accessed: 24 May 2024.

FAO/OMS (2007): Codex Alimentarius: Alimentos Producidos Org´anicamente, 3rd ed. FAO, Roma. https://www.fao.org/3/a1385s/a1385s00.pdf Last accessed: 5 May 2024.

FiBL. (2024): Area data on organic agriculture in Europe 2000-2022. The Statistics.FiBL.org website maintained by the Research Institute of Organic Agriculture (FiBL), Frick, Switzerland. Available at https://statistics.fibl.org/europe/key-indicators-europe.html. Accessed 12 May 2024.

Florian. (2023): The major types of online consumer behavior. Available at: https://www.datadiggers-mr.com/post/the-major-types-of-online-consumer-behavior.

Foxall, G.R., Goldsmith, R.E. (1998): Psychologia konsumenta dla menadżera marketingu. Warszawa: Wydawnictwo Naukowe PWN.

Gajjar, N.B. (2013): Factors affecting consumer behavior. International Journal of Research in Humanities and Social Sciences, 1(2), pp. 10-15.

Gao, Z.F., Li, C.G., Bai, J.F., Fu, J.Y. (2020): Chinese consumer quality perception and preference of sustainable milk. China Econ. Rev. 59 (11), 100939.

Gardocka-Jałowiec, A. (2015): Zmiany konsumpcji a kreowanie innowacji, Białystok: Wydawnictwo Uniwersytetu w Białymstoku.

Gburová, J. (2019): Nákupné správanie spotrebiteľov v prostredí elektronického obchodu. Journal of Global Science, (2), pp. 1-6. Available at: https://www.jogsc.com/pdf/2019/2/nakupne.pdf.

Green, K.E. (1996): Sociodemographic factors and mail survey response. Psychology &Marketing, 13(2), 171-184.

Grzega, U. (2010): Czynniki kształtujące zachowania rynkowe konsumentów, w: Konsument jego zachowania na rynku europejskim. Warszawa: Polskie Wydawnictwo Ekonomiczne.

Gustavsen, G.W., Hegnes, A.W. (2020): Individuals' personality and consumption of organic food. Journal of Cleaner Production, 245, pp. 1-9.

Ham, M., Pap, A., Stanic, M. (2018): What Drives Organic Food Purchasing?–Evidence from Croatia. British Food Journal, 120, pp. 734-748.

Hamzaoui-Essoussi, L., Zahaf, M. (2009): Exploring the decision-making process of Canadian organic food consumers: Motivations and trust issues, Qualitative Market Research: An International Journal, 12, pp. 443-459.

Hansen, T., Sørensen, M.I., Eriksen, M.-L.R. (2018): How the Interplay between Consumer Motivations and Values Influences Organic Food Identity and Behavior. Food Policy 2018, 74, pp. 39-52.

Hanus, G. (2017): Wpływ wybranych czynników ekonomicznych, demograficznych i społeczno-kulturowych na zachowania żywieniowe konsumentów-przegląd literatury. Studia Ekonomiczne, 330, pp. 66-75.

Hanus, G. (2021): The phenomena of globalisation in polish consumer's food choices. Optimum. Economic Studies, 2(104), pp. 15-30.

Harvard, T.H. Chan. (2024): School of Public Health. Sustainability. Available at: https://www.hsph.harvard.edu/nutritionsource/sustainability/

Hawkins, D.I., Mothersbaugh, D.L., Best, R.J. (2013): Consumer Behavior: Building Marketing Strategy. New York: McGraw-Hill Education.

Helm, R., Landschulze, S. (2013): How does consumer age affect the desire for new products and brands? A multi-group causal analysis. Review of Managerial Science, 7, pp. 29-59.

Hjelmar U. (2011): Consumers' purchase of organic food products. A matter of convenience and reflexive practices, Appetite, 56(2), pp. 336-344.

Hoek, A., Pearson, D., James, S., Lawrence, M., Friel, S. (2017): Healthy and environmentally sustainable food choices: consumer responses to point-of-purchase actions. Food Qual. Prefer, 58, pp. 94-106.

https://agriculture.ec.europa.eu/common-agricultural-policy/cap-overview/cap-glance_en, Accessed on dostęp 12.05.2024.

https://agriculture.ec.europa.eu/farming/organic-farming/organic-logo_pl, Accessed on dostęp 12.05.2024.

https://statistics.fibl.org/data.html, dostęp Accessed on 12.05.2024.

IFOAM (2008): Definition of organic agriculture. General Assembly. Vignola, Italy https://www.ifoam.bio/why-organic/organic-landmarks/definition-organic Last accessed: 19 May 2024.

IFOAM (2020): PRINCIPLES of ORGANIC AGRICULTURE PREAMBLE. IFOAM, Bonn, Germany, 2020. poa_english_web.pdf (ifoam.bio) Last accessed: 10 May 2024.

IFOAM-Organics International (2020): The Four Principles of Organic Agriculture, IFOAM. IFOAM-Organics International. Https://www.Ifoam.Bio/Why-Organic/Shaping-Agriculture/Four-Principles-Organic Last accessed: 19 May 2024.

Inglis, V., Ball, K., Crawford, D. (2009): Does modifying the household food budget predict changes in the healthfulness of purchasing choices among low– and high-income women? Appetite, 52(2), pp. 273-279.

Ingram, et al. (2012): Sales Managament: Analysis and Decision Making 8. vyd. Londýn: Library of Congres Cataloging.

Ipsos-London Economics (2013): Consumer market Study on the functioning of voluntary food labelling schemes for consumers in the European Union EAHC/FWC/2012 86 04.

Jachnis, A. (2007): Psychologia konsumenta. Psychologiczne i socjologiczne uwarunkowania zachowań konsumenckich, Oficyna Wydawnicza BRANTA, Bydgoszcz.

Jachnis, A., Terelak, J.F. (2002): Psychologia konsumenta i reklamy. Bydgoszcz: Oficyna Wydawnicza Branta.

Janssen, M., Hamm, U. (2012): Product labelling in the market for organic food: consumer preferences and willingness-to-pay for different organic certification logos, Food Quality and Preference, 25(1), pp. 9-22.

Kamerschen, D.R., McKenzie, R.B., Nardinelli, C. (1991): Ekonomia. Gdynia: Fundacja Gospodarcza NSZZ (Niezależnego Samorządnego Związku Zawodowego) „Solidarność".

Karczewska, M. (2010): Determinanty zachowań konsumenckich na rynku, Materiały Krakowskiej Konferencji Młodych Uczonych nr 5, Kraków: Wyd. Grupa Naukowa Pro Futuro, Fundacja dla AGH Akademii Górniczo-Hutniczej, pp. 478-481.

Kardes, R.F., Cronley, L.M. Cline, W.T. (2011): Consumer Behavior. 2. Ed. Boston: Cengage Learning.

Kareklas, I., Carlson, J.R., Muehling, D.D. (2014): "I Eat Organic for My Benefit and Yours": Egoistic and Altruistic Considerations for Purchasing Organic Food and Their Implications for Advertising Strategists. Journal of Advertising, 43, pp. 18-32.

Katona, G. (1964): The Mass Consumption Society. New York: McGraw-Hill Book Company.

Kautish, P., Hollebeek, L.D., Khare, A., Rather, R.A. (2022): The effect of consumer values on engagement and behavioral intent: moderating role of age. Managing disruptions in business: Causes, conflicts, and control. International Journal of Information Management: The Journal for Information Professionals, pp. 263-289.

Kautish, P., Sharma, R. (2020): Determinants of pro-environmental behavior and environmentally conscious consumer behavior: An empirical investigation from emerging market. Business Strategy & Development, 3(1), pp. 112-127.

Kieżel, E. (2003): Zachowania konsumentów – determinanty, racjonalność,. Katowice: Wydawnictwo Akademii Ekonomicznej im. K. Adamieckiego w Katowicach.Kieżel, E. (2003): Zachowania konsumentów-determinanty, racjonalność. Prace Naukowe/Akademia Ekonomiczna w Katowicach.

Kieżel, E. (2004): Racjonalność konsumpcji i zachowań konsumentów. Warszawa: Polskie Wydawnictwo Ekonomiczne.

Kieżel, E. (red.) (2010): Konsument i jego zachowania na rynku europejskim, Warszawa: PWE.

Kihlberg, I., Risvik, E. (2007): Consumers of organic foods – value segments and liking of bread, Food Quality and Preferance, 18 (3), pp. 471-481

Kirchler, E., Hoelzl, E. (2015): Economic and psychological determinants of consumer behavior. Zeitschrift für Psychologie.

Kis G., Drexler D., Soós G., Lugasi A., Ujj A. (2023): Organic Food Consumption in Hungary – Factors Supporting Consumption Growth. European Countryside, 5(4), pp. 579-597.

Kotler, P. et al. (2007): Moderní marketing. Praha: Grada Publishing.

Kotler, P., Armstrong, G. (2004): Marketing. Praha: Grada Publishing.

Kotler, P., Burton, S., Deans, K., Brown, L., Armstrong,, G. (2015): Marketing. Pearson Higher Education.

Kotler, P., Keller, K.L. (2016): Marketing Management. Upper Saddle River, NJ: Pearson Education.

Koudelka, J. (1997): Spotřební chování a marketing. Praha: Grada Publishing.

Kowalska, A., Ratajczyk, M., Manning, L., Bieniek, M., Mącik, R.M., Fanelli, R.M. (2021): "Young and Green" a Study of Consumers' Perceptions and Reported Purchasing Behaviour towards Organic Food in Poland and the United Kingdom. Sustainability, 13(13022), pp. 1-23.

Kramer, J. (2011): Konsumpcja – ewolucja ról i znaczeń. Konsumpcja i Rozwój, (1), pp. 5-15.

Krzyżanowski, J. (2021): Strategia „OD POLA DO STOŁU" i jej implikacje dla rozwoju sektora produkcji wołowiny w Polsce, Zagadnienia Ekonomiki Rolnej, 369(4), pp. 25-44.

Kucińska, K. (2009): Poziom wiedzy o żywności ekologicznej wśród mieszkańców Warszawy, Journal of Research and Applications in Agricultural Engineering, 54(3), pp. 164-171.

Kułyk, P., Michałowska, M. (2018): Zachowania konsumentów na rynku żywności ekologicznej w świetle wyników badań empirycznych w województwie lubuskim, Handel Wewnętrzny, 2(373), pp. 270-282.

Kumar, S., Ali, J. (2011): Analyzing the Factors Affecting Consumer Awareness on Organic Foods in India, „Paper presented at the 21st Annual IFAMA World Forum and Symposium on the Road to 2050: Sustainability as a Business Opportunity", Frankfurt, Germany (4) (PDF) Factors influencing buying behaviour of organic food products, pp. 1-12.

Lazzarini, G.A., Zimmermann, J., Visschers, V.H.M., Siegrist, M. (2016): Does environmental friendliness equal healthiness? Swiss consumers' perception of protein products. Appetite 105, pp. 663-673.

Lea, E.; Worsley, T. A (2005): Australians' organic food beliefs, demographics and values. British Food Journal, 107, 855-869.

Lee, H.-J., Hwang, J. (2016): The driving role of consumers' perceived credence attributes in organic food purchase decisions: a comparison of two groups of consumers. Food Qual. Prefer. 54, pp. 141-151.

Linnworks. (2024): The effortless economy – a new age of retail. Available at: https://www.linnworks.com/guides/the-effortless-economy-a-new-age-of-retail/

Liro, A. (2003). Program rolnośrodowiskowy jako instrument wielofunkcyjnego rozwoju wsi i ekologizacji polskiego rolnictwa, Wieś i Rolnictwo, 2 (119), pp. 96-117.

Lockie, S.; Lyons, K.; Lawrence, G.; Mummery, K. (2002): Eating 'green' motivations behind organic food consumption in Australia. Sociologia Ruralis, 42, 23-40.

Loureiro, M.L., Hine, S. (2002): Discovering Niche Markets: A Comparison of Consumer Willingness to Pay for Local (Colorado Grown), Organic, and GMO-Free Products, Journal of Agricultural and Applied Economics, 34 (3), pp. 477-487.

Luomala, H., Puska, P., Lähdesmäki, M., Siltaoja, M., Kurki, S. (2020): Get some respect – buy organic foods! When everyday consumer choices serve as prosocial status signaling. Appetite, 145, 104492.

Maciejewski, G. (2020): Consumers towards sustainable food consumption. Marketing of Scientific and Research Organizations, 36, 2, 19-30. DOI: 10.2478/minib-2020-0014.

Madzík, P., Čarnogurský, K., Hrnčiar, M., Zimon, D. (2021): Comparison of demographic, geographic, psychographic and behavioural approach to customer segmentation. International Journal of Services and Operations Management, 40(3), 346-371.

Małysa-Kaleta, A. (2015): Płeć, gender i marketing a zachowania konsumentów w ujęciu kulturowym. Handel Wewnętrzny, 357(4), pp. 276-285.

Mancini, P., Marchini, A., Simeone, M. (2017): Which are the sustainable attributes affecting the real consumption behaviour? Consumer understanding and choices. Br. Food J. 119 (8), pp. 1839-1853.

MARD SR. (2023): National Action Plan for the Development of Organic Production in the Slovak Republic 2023-2027. Available at: https://www.mpsr.sk/narodny-akcny-plan-pre-rozvoj-ekologickej-polnohospodarskej-vyroby-v-sr-pre-roky-2023-2027/---18813.

MARD SR. (n.d.): Agriculture of the Slovak Republic: Organic Agriculture. Available at https://www.mpsr.sk/en/index.php?navID=27.

Martins, A., Bezerra, M., Marques, S., De Brito, A., Urbano, S., Borba, L., Macêdo, C., De Oliveira, J,. Rangel, A. (2020), Factors affecting the consumption of organic and functional foods in Brazil, Food Science and Technology, pp. 1-6.

Mäsiarová, E. (2019): Vývoj a súčasný stav ekologického poľnohospodárstva v SR | Development and current state of organic agriculture in the Slovak Republic. Available at: https://www.agrobiznis.sk/clanky/4640-vyvoj-a-suasny-stav-ekologickeho-ponohospodarstva-v-sr.

Mazurek-Kusiak, A., Sawicki, B., Kobylka, A. (2021): Contemporary Challenges to the Organic Farming: A Polish and Hungarian Case Study. Sustainability, 13(14), 8005.

Mc Carthy, B. (2016): Strategy, Marketing Plans and Small Organizations, Townsville: Bookboon.

McEachern, M.G. and Willock, J. (2004), "Producers and consumers of organic meat: a focus on attitudes and motivations", British Food Journal, Vol. 106, pp. 534-552.

Midler, E., Hobeika, M., Riedel, A. and J. Pagnon (2023), Environment and climate assessment of Poland's CAP Strategic Plan, Policy report, Brussels: Institute for European Environmental Policy and Ecologic Institute.

Mihić, M., Anić, I.D., Kursan Milaković, I. (2018): Time spent shopping and consumer clothing purchasing behaviour. Ekonomski pregled, 69(2), pp. 89-105.

Milewski, R., Kwiatkowski, E. (red.). (2005): Podstawy ekonomii, Warszawa: PWN.

Modlinska, K., Adamczyk, D., Maison, D. et al. (2021): Relationship between Acceptance of Insects as an Alternative to Meat and Willingness to Consume Insect-Based Food – A Study on a Representative Sample of the Polish Population. Foods.

Muhammad, S., Fathelrahman, E., Ullah, R.U. (2015): Factors affecting consumers' willingness to pay for certified organic food products in United Arab Emirates, Journal of Food Distribution Research, 46(1), pp. 37-45.

Nagaraj, S. (2021): Role of consumer health consciousness, food safety & attitude on organic food purchase in emerging market: A serial mediation model, Journal of Retailing and Consumer Services, 59, 102423.

Nanjundeswaraswamy, T.S., Divakar, S. (2021): Determination of Sample Size and Sampling Methods in Applied Research, Proceedings on Engineering Sciences, 3, (1), pp. 25-32.

Nawojczyk, M. (2002): Przewodnik po statystyce dla socjologów. Kraków: SPSS Polska.

Némethová, J., Rybanský, Ľ. (2021): Development Trends in the Crop Production in Slovakia after Accession to the European Union – Case Study, Slovakia. Sustainability 2021(13), 1-18. https://doi.org/10.3390/su13158512.

Nowak, L. (2009): Uwarunkowania zachowań konsumenckich młodzieży akademickiej. Eksploracja struktur ukrytych. Poznań: Wydawnictwo Uniwersytetu Ekonomicznego w Poznaniu.

Olech, E., Kuboń, M. (2015): Motywy wyboru produktów ekologicznych przez konsumentów segmentu demograficznego z terenu Małopolski, Roczniki Naukowe Stowarzyszenia Ekonomistów Rolnictwa i Agrobiznesu, 17(1), pp. 164-169.

Padel S., Foster C. (2009), Exploring the gap between attitudes and behaviour, Understanding why consumers buy or do not buy organic food, British Food Journal, 107(8), pp. 606-625.

Padel, S., Midmore, P. (2005). The development of the European market for organic products: insights from a Delphi study. British Food Journal, 107(8), pp. 626-647.

Panyor, Á. (2020): Mezőgazdasági és vidékfejlesztési kutatások a jövő szolgálatában. In: Kis, K., Komarek, L., Monostori, T. (Eds.): Mezgazdasági És Vidékfejlesztési Kutatások a Jövő szolgálatában. Szeged: MTA SZAB Mezőgazdasági Szakbizottság, pp. 83-88.

Pércsi, K.N., Ujj, A., Essoussi, W., Kis, G.G., Jancsovszka, P. (2024): Food Consumption Habits of Hungarian Organic Food Consumers and Their Policy Implications. Agriculture, 14(1), 91.

Perlman, Y. (2021): Establishing a dual food supply chain for organic products in the presence of showrooming – A game theoretic analysis, Journal of Cleaner Production, 321, 128816.

Pilař, L., Kvasničková Stanislavská, L., Rojík, S., Kvasnička, R., Poláková, J., Grasham, G. (2018): Customer Experience with Organic Food: Global View. Emirates Journal of Food and Agriculture, 30, pp. 918-926.

Pilarczyk, B.,; Nestorowicz, R. Marketing ekologicznych produktów żywnościowych. Oficyna a Wolters Kluwer Business 2010.

Pułaska-Turyna, B. (2008): Statystyka dla ekonomistów. Warszawa: Difin.

Rader, C., Comish, R., Burckel, D. (2014): Consumer desire and ability as determinants of purchasing behavior in the different stages of the family life cycle. ASBBS Proceedings, 21(1), 610.

Ragelienė, T., Grønhøj, A. (2021): The role of peers, siblings and social media for children's healthy eating socialization: A mixed methods study, Food Quality and Preference, 93, 104255.

Ramprabha, K. (2017): Consumer shopping behaviour and the role of women in shopping-–a literature review. Research Journal of Social Science & Management, 7(08), pp. 50-63.

Reganold, J.P., Wachter, J.M. (2016): Organic agriculture in the twenty-first century. In Nature Plants 2(2). Nature Research.

Regulation (EU) 2018/848 of the European Parliament and of the Council of 30 May 2018 on organic production and labelling of organic products and repealing Council Regulation (EC) No 834/2007, OJ L 150, 14.6.2018, pp. 1-92.

Regulation (EU) No 1305/2013 of the European Parliament and of the Council of 17 December 2013 on support for rural development by the European Agricultural Fund for Rural Development (EAFRD) and repealing Council Regulation (EC) No 1698/2005, OJ L 347, 20.12.2013, pp. 487-548.

Richter, T. (2005): Organics in Supermakets – Global trends, Presented at Biofach on 24.02.2005, Nuremberg.

Rödiger, M., Hamm, U. (2015): How Are Organic Food Prices Affecting Consumer Behaviour? A Review. Food Quality and Preference, 43, pp. 10-20.

Rojík, S., Chalupová, M., Prokop, M. (2016): Regionální značení potravin v Jihomoravském kraji: Regionální značení v České republice pohledem spotřebitelů. (Regional labeling of food products in the South Moravian Region: Regional labeling in the Czech Republic by consumers' point of view). Zlin: VeRBuM.

Rojík, S., Zámková, M., Chalupová, M., Pilař, L., Prokop, M., Stolín, R., Malec, K., AppiahKubi, S.N.K., Maitah, M., Dziekánski, P., Prus, P., (2022): Pre-COVID-19 Organic Market in the European Union—Focus on the Czech, German, and Slovak Markets. Agriculture, 12(1), 82.

Rojík, S., Zámková, M., Chalupová, M., Prokop, M., Stolín, R., Kauerová, L. (2021): On-line Purchases of Organic Food in the Context of the COVID-19 Pandemic in the Czech Republic. In Agrarian Perspectives XXX. pp. 240-247. Praha: Czech University of Life Sciences Prague.

ROZPORZĄDZENIE RADY (WE) nr 834/2007 z dnia 28 czerwca 2007 r. w sprawie produkcji ekologicznej i znakowania produktów ekologicznych i uchylające rozporządzenie (EWG) nr 2092/91 Dziennik Urzędowy Unii Europejskiej L 189/1 Dz.Urz. L 189 z 20.07.2007 r., 1).

Rudnicki, L. (2012): Zachowania konsumentów na rynku. Polskie Wydawnictwo Ekonomiczne, Warszawa.

Rzytki, M. (2015): Rolnictwo ekologiczne. Biuletyn informacyjny. ARR, 4, pp. 22-25.

Sadman, S. (2023): Fundamentals of Consumer Behavior: Boost Your Sales in 2024. Available at: https://fluentsupport.com/consumer-behavior/#types-of-consumer-behavior

Sahota, A. (2021): The Global Market for Organic Food and Drink. In: Willer, H., Trávníček, J., Schlatter, B. (Eds), The World of Organic Agriculture, Statistics and Emerging Trends 2021. Flick, Switzerland: Research Institute of Organic Agriculture FiBL; Bonn, Germany: IFOAM-Organics International, 138.

Samuk, G., Sidorowicz, I. (2021): Wpływ pandemii COVID-19 na zachowania konsumentów. Akademia Zarządzania, 4, pp. 195-206.

Šarapatka, B., Niggli, U. (2011): Organic agriculture – the way to sustainability in practical farming, Agriculture and Landscape: The way to mutual harmony, pp. 173-192.

Sazońska, B. (2011): Wymogi formalno-prawne dla przetwórstwa ekologicznego. Radom: Wydawnictwo Centrum Doradztwa Rolniczego w Brwinowie Oddział w Radomiu.

Schiffman, L.G., Kanuk, L.L. (2014): Consumer Behavior. Upper Saddle River, NJ: Pearson Prentice Hall.

Schiffman, L.G., Kanuk, L.L., Hansen, H. (2012): Consumer Behaviour: A European Outlook. Financial Times Prentice Hall.

Schiffman, L., Wisenblit, J.L. (2019). Consumer Behavior (12th ed.). New York: Pearson.

Šejnohová, H., Babáčková, J., Hlaváčková, J. (2020): Report on the Organic Food Market in the Czech Republic in the Year 2018. Prague: The Ministry of Agriculture of the Czech Republic.

Smiglak-Krajewska, M., Wojciechowska-Solis, J. (2021): Consumer versus Organic Products in the COVID-19 Pandemic: Opportunities and Barriers to Market Development. Energies, 14, 5566.

Smith, O.M., Cohen, A.L., Rieser, C.J., Davis, A.G., Taylor, J.M., Adesanya, A.W., Jones, M.S., Meier, A.R., Reganold, J.P., Orpet, R.J., Northfield, T.D., Crowder, D.W. (2019): Organic Farming Provides Reliable Environmental Benefits but Increases Variability in Crop Yields: A Global Meta-Analysis. In Frontiers in Sustainable Food Systems (3). Frontiers Media S.A.

Smith, P. (2000): Moderní marketing. Praha: Computer Press.

Smoluk-Sikorska, J. (2021): Szanse i ograniczenia rozwoju rynku żywności ekologicznej w Polsce. Warszawa: Difin.

Smoluk-Sikorska, J., Śmiglak-Krajewska, M., Rojík, S., Fulnečková, P.R. (2024): Prices of Organic Food—The Gap between Willingness to Pay and Price Premiums in the Organic Food Market in Poland. Agriculture, 14(1), 17.

Smoluk-Sikorska, J., Wojciechowska-Solis, J., Śmiglak-Krajewska, M., Malinowski, M. (2024): Rozwój rynku żywności ekologicznej a zachowania konsumentów. Warszawa: Wydawnictwo Naukowe Scholar.

Sobal, J., Bisogni, C.A., Jastran, M. (2014): Food Choice Is Multifaceted, Contextual, Dynamic, Multilevel, Integrated, and Diverse. Mind Brain and Education, 8, pp. 6-12.

Sobczyk, M. (2007): Statystyka. Warszawa: Wydawnictwo Naukowe PWN.

Sojkin B., Małecka M., Olejniczak T., Bakalarska M., (2009): Konsument wobec innowacji produktowych na rynku żywności, Poznań: Wydawnictwo Uniwersytetu Ekonomicznego w Poznaniu.

Solomon, M.R. (2006): Zachowania i zwyczaje konsumentów. Wydanie VI. Gliwice: Helios.

Solomon, M.R., Bamossy, G.J., Askegaard, S., Hogg, M.K. (2016): Consumer Behaviour: A European Perspective. Upper Saddle River, NJ: Pearson Education

Solomon, M.R. (2017): Consumer Behavior: Buying, Having, and Being. Pearson Higher Education.

Soroka, A., Mazurek-Kusiak, A.K., Trafialek, J. (2021): Organic Food in the Diet of Residents of the Visegrad Group (V4) Countries-Reasons for and Barriers to Its Purchasing. Nutrients, 13, 4351.

Sowa, I. (2010): Czynniki demograficzne determinujące zachowania konsumentów [w:] E. Kieżel (red.), Konsument i jego zachowania na rynku europejskim. Warszawa: Polskie Wydawnictwo Ekonomiczne.

Sowa, I. (2010): Czynniki kształtujące zachowania rynkowe konsumentów. In: Kieżel, E. (ed.), Konsument i jego zachowania na rynku europejskim. Polskie Wydawnictwo Ekonomiczne.

Sowa, I. (2010): Konsument i jego zachowania na rynku europejskim. In: Kieżel, E. (ed.), Konsument i jego zachowania na rynku europejskim. Warszawa: PWE.

Stojić, V., Dimotrijević, M. (2020): Consumers' Intentions to Use of Organically Produced Food in the Sumadija Region, Ekonomika poljoprivrede 67(1), 253-267.

Stolze, M., Sanders, J., Kasperczyk, N., Madsen, G., Meredith, S. (2016). CAP 2014-2020. Organic farming and the prospects for stimulating public goods. Brussels: IFOAM EU, Brussels.

Surel, D. (2018): Zachowania konsumenckie mieszkańców województwa podlaskiego w zakresie zakupu samochodów osobowych. Akademia Zarządzania, 2(3), pp. 8-22.

Szwacka-Mokrzycka, J., Rivza, B., Lemanowicz, M., Uljanova, E. (2021): A study on consumer behaviour in the food market. Eastern European countries case. Warsaw: Warsaw University of Life Sciences Press.

Szymczak, W. (2010): Podstawy statystyki dla psychologów. Warszawa: Difin.

Światowy, G. (2006): Zachowania konsumentów. Warszawa: PWE.

Świetlik, K. (2019): Zmienność światowych cen żywności w latach 2000-2018. Zeszyty Naukowe SGGW w Warszawie – Problemy Rolnictwa Światowego, 19(2), pp. 196-209. DOI: 10.22630/PRS.2019.19.2.35.

Tandon, A., Dhir, A., Kaur, P., Kushwah, S., Salo, J. (2020): Why Do People Buy Organic Food? The Moderating Role of Environmental Concerns and Trust. Journal of Retailing and Consumer Services, 57, 102247.

Tekinbaş Ozkaya, F., Durak, M.G., Doğan, O., Bulut, Z.A., Haas, R. (2021): Sustainable consumption of food: Framing the concept through Turkish expert opinions, Sustainability, 13(7), 3946.

The Ministry of Agriculture of the Czech Republic, (2024): Act No. 242/2000 Coll., on organic farming, Availavbe at: https://eagri.cz/public/portal/mze/legislativa/pravni-predpisy-mze/uplna-zneni/zakon-2000-242-cinnost-mze.

The Ministry of Agriculture of the Czech Republic, (2024): Action Plan of the Czech Republic for the development of organic agriculture. Available at: https://www.ctpez.cz/wp-content/uploads/2022/02/akcni_plan_cr_2021_2027.pdf

The Ministry of Agriculture of the Czech Republic, (2024): Downloads – Dialers. Available at: https://eagri.cz/ssl/nosso-app/DataKeStazeni/.

The Ministry of Agriculture of the Czech Republic, (2024): Numbers of organic operators. Available at: https://eagri.cz/public/app/eagriapp/EKO/Prehled/StatistikaPocetEP.aspx?stamp=1717162731785

The Ministry of Agriculture of the Czech Republic, (2024): Organic farming. Available at: https://eagri.cz/public/portal/mze/zemedelstvi/ekologicke-zemedelstvi.

The Ministry of Agriculture of the Czech Republic, (2024): Organic food. Available at: https://eagri.cz/public/portal/mze/zemedelstvi/ekologicke-zemedelstvi/casto-hledate/biopotraviny.

The Ministry of Agriculture of the Czech Republic, (2024): Register of organic businesses. Available at: https://eagri.cz/public/app/eagriapp/EKO/Prehled/

The Ministry of Agriculture of the Czech Republic, (2024): Statistical surveys of Ecological Agriculture, Available at: https://eagri.cz/public/portal.

The Ministry of Agriculture of the Czech Republic, (2024): Statistical surveys of organic farming – Basic statistics (2022). Available at: https://eagri.cz/public/portal/-a29122---EJOLynSh/statisticka-setreni-ekologickeho-zemedelstvi-2022?_linka=a528858

The Ministry of Agriculture of the Czech Republic, (2024): Yearbook 2022 – Organic farming in the Czech Republic. Available at: https://eagri.cz/public/portal/mze/publikace/publikace-zemedelstvi/ekologicke-zemedelstvi/rocenka-2022-ekologicke-zemedelstvi-v-cr

Thi Xuan Dieu Phan. (2024): Understanding the acquisition, usage, and disposal behaviours. Cleaner and Responsible Consumption 12, 100162.

Thompson, G.D., Kidwell, J. (1998): Explaining the choice of organic produce: cosmetic defects, prices, and consumer preferences, American Journal of Agriculture Economics, 80, pp. 277-287.

Tikkanen, I. (2007): Maslow's hierarchy and food tourism in Finland: five cases. British Food Journal, 19 (9), pp. 721-734.

Tomić, S., Leković, K., Tadić, J. (2019): Consumer behaviour: the influence of age and family structure on the choice of activities in a tourist destination. Economic research-Ekonomska istraživanja, 32(1), pp. 755-771.

Trommsdorff, V., Steinhoff, F. (2009): Marketing inovací. (Marketing of Inovations) Warszawa: C.H. Beck.

Turčínková, J., Stejskal, L., Stávková, J. (2007): Chování a rozhodování spotřebitele (Consumer behaviour and decission making). Mendel University Brno.

ÚKSÚP. (2013): Výročná správa za rok 2012 | Annual Report for 2012. Available at: https://www.uksup.sk/storage/app/uploads/public/5c9/a39/22a/5c9a3922a7cf6530581038.pdf.

ÚKSÚP. (2014): Výročná správa za rok 2013 | Annual Report for 2013. Available at: https://www.uksup.sk/storage/app/uploads/public/5c9/a39/22a/5c9a3922ae89e215455352.pdf.

ÚKSÚP. (2015): Výročná správa za rok 2014 | Annual Report for 2014. Available at: https://www.uksup.sk/storage/app/uploads/public/5c9/a39/232/5c9a39232da15485718388.pdf.

ÚKSÚP. (2016): Výročná správa za rok 2015 | Annual Report for 2015. Available at: https://www.uksup.sk/storage/app/uploads/public/5c9/a39/232/5c9a39232c992747697495.pdf.

ÚKSÚP. (2017): Výročná správa za rok 2016 | Annual Report for 2016. Available at: https://www.uksup.sk/storage/app/uploads/public/5c9/a39/23a/5c9a3923a90ff921350228.pdf.

ÚKSÚP. (2018): Výročná správa za rok 2017 | Annual Report for 2017. Available at: https://www.uksup.sk/storage/app/uploads/public/5c9/a39/23b/5c9a3923b0cf3172253620.pdf.

ÚKSÚP. (2019): Výročná správa za rok 2018 | Annual Report for 2018. Available at: https://www.uksup.sk/storage/app/uploads/public/5d8/a04/13c/5d8a0413c12d7771756568.pdf.

ÚKSÚP. (2020): Výročná správa za rok 2019 | Annual Report for 2019. Available at: https://www.uksup.sk/storage/app/uploads/public/5eb/0fd/b79/5eb0fdb79a2d8311834714.pdf.

ÚKSÚP. (2021): Výročná správa za rok 2020 | Annual Report for 2020. Available at: https://www.uksup.sk/storage/app/uploads/public/609/246/7ee/6092467eeb873520901228.pdf.

ÚKSÚP. (2022): Výročná správa za rok 2021 | Annual Report for 2021. Available at: https://www.uksup.sk/storage/app/uploads/public/629/080/094/629080094ab92062973423.pdf.

ÚKSÚP. (2023): Výročná správa za rok 2022 | Annual Report for 2022. Available at: https://www.uksup.sk/storage/app/uploads/public/645/cee/af0/645ceeaf0b603224631470.pdf.

ÚKSÚP. (2024): Výročná správa za rok 2023 | Annual Report for 2023. Available at: https://www.uksup.sk/storage/app/uploads/public/663/33a/371/66333a3719cb1201491883.pdf.

United Nation (2024a): Sustainable consumption and production. Available at: https://sustainabledevelopment.un.org/topics/sustainableconsumptionandproduction.

United Nations (2019): Sustainable Development and Sustainable Development Goals. Available at: https://www.un.org/sustainabledevelopment/.

United Nations (2024): Fast Facts – What are sustainable food systems? Available at: https://www.un.org/sustainabledevelopment/fast-facts-what-are-sustainable-food-systems/.

Van Loo, E.J., Hoefkens, C., Verbeke, W. (2017): Healthy, Sustainable and Plant-Based Eating: Perceived (Mis)Match and InvolvementBased Consumer Segments as Targets for Future Policy. Food Policy, 69, pp. 46-57.

Verain, M.C.D., Dagevos, H., Antonides, G., (2015): Sustainable food consumption. Product choice or curtailment? Appetite, 91, pp. 375-384.

Verplanken, B., Orbell, S. (2003): Reflections on Past Behavior: A Self-Report Index of Habit Strength. Journal of Applied Social Psychology, 33(6), pp. 1313-1330.

Von Meyer-Höfer, M., Nitzko, S., Spiller, A. (2015), Is there an expectation gap? Consumers' expectations towards organic. An exploratory survey in mature and emerging European organic food markets, British Food Journal, 117(5), pp. 1527-1546.

Vysekalová, J et al. 2011. Chování zákazníka. (Consumer behaviour) Praha: Grada.

Wawrzyniak, A. (2017): Racjonalność zachowań konsumentów w wieloagentowych modelach symulacyjnych. Studia Ekonomiczne, 342, pp. 166-178.

Wąs A., Malak-Rawlikowska A., Majewski E. (2018): Nowy model funkcjonowania Wspólnej Polityki Rolnej UE po roku 2020 – wyzwania dla Polski, Zagadnienia Ekonomiki Rolnej, 4, pp. 33-59.

Westhoek, H., Van Zeijts, H., Witmer, M., Van den Berg, M., Overmars, K., Van der Esch, S., Van der Bilt, W. (2014): Greening the CAP. An analysis of the effects of the European Commission's proposals for the Common Agricultural Policy 2014– 2020, Netherlands Environmental Assessment Agency.

Willer, H., Schlatter, B. Trávníček, J. (ed.) (2023). The World of Organic Agriculture. Statistics and Emerging Trends 2023. Research Institute of Organic Agriculture FiBL, Frick, and IFOAM – Organics International, Bonn.

Willer, H., Trávníček, J., Meier, C. Schlatter, B. (Eds.) (2022): The World of Organic Agriculture. Statistics and Emerging Trends 2022. Research Institute of Organic Agriculture FiBL, Frick, and IFOAM – Organics International, Bonn.

Willer, H. Trávníček J., and Schlatter B., (Eds.) (2024): The World of Organic Agriculture. Statistics and Emerging Trends 2024. Research Institute of Organic Agriculture FiBL, Frick, and IFOAM – Organics International, Bonn.

Włodarczyk-Śpiewak, K. (2001): Mikroekonomiczne uwarunkowania konsumpcji na przykładzie Polski. In: Przemiany i perspektywy polityki gospodarczej. Materiały konferencyjne, Konferencja Naukowa Młodych Pracowników Nauki i Studentów, Warszawa, pp. 159-160.

Wojciechowska-Solis, J., Kowalska, A., Bieniek, M., Ratajczyk, M., Manning, L. (2022): Comparison of the Purchasing Behaviour of Polish and United Kingdom Consumers in the Organic Food Market during the COVID-19 Pandemic. International Journal of Environmental Research and Public Health, 19(3), 1137.

Wos, K., Dobrowokski, H., Gajewska, D., Rembialkowska, E. (2022): Organic Food Consumption and Perception among Polish Mothers of Children under 6 Years Old. International Journal of Environmental Research and Public Health, 19(22), 15196.

Wu, Y., Takacs-Gyorgy, K. (2022): Comparison of Consuming Habits on Organic Food-Is It the Same? Hungary Versus China. Sustainability, 14(13), 7800.

Wunsch, N.G. (2024): Organic Food Sales in the U.S. from 2005-2020. Available online: https://www.statista.com/statistics/196952/organic-food-sales-in-the-us-since-2000/ (accessed on 12 May 2024).

Zagata, L. (2010): How organic farmers view their own practice: Results from the Czech Republic. Agriculture and Human Values, 27(3), pp. 277-290

Zagata, L. (2014): Towards Conscientious Food Consumption: Exploring the Values of Czech Organic Food Consumers. International Journal of Consumer Studies, 38, pp. 243-250.

Žák, Š., Miklošík, A., Hasprová, M., Klepochová, D., Kopaničová, J., Korčoková, M., Kuchta, M., Vokounová, D. (2021). Úloha influencerov v procese nákupného rozhodovania spotrebiteľa. Bratislava: Vydavateľstvo Ekonóm.

Žák, Š. et al., (2022): Consumer behavior, Bratislava: Sprint 2.

Žák, Š., Klepochová, D., Kopaničová, J., Vokounová, D. (2022). Consumer behavior. Bratislava: Sprint 2.Žák, Š. et al. (2021): Úloha influencerov v procese nákupného rozhodovania spotrebiteľa. Bratislava: Vydavateľstvo Ekonóm.

Zámková, M., Blašková, V. (2013): The Differences in the Marketability of Organic Products in Greece and the Czech Republic. Agricultural Economics, 59(5), pp. 219-226.

Zámková, M., Prokop, M. (2013): Consumers Behaviour of Students When Shopping for Organic Food in the Czech Republic. Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis. 61(4), pp. 1191-1201.

Zámková, M., Prokop, M. (2014): Comparison of Consumer Behavior of Slovaks and Czechs in the Market of Organic Products by Using Correspondence Analysis. Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis. 62(4), pp. 783-795.

Zámková, M., Prokop, M., Stolín, R. (2018): A Profile of the Organic Produce Consumer. Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis, 66, 1043-1052.

Zámková, M., Rojík, S., Pilař, L., Chalupová, M., Prokop, M., Stolín, R., Dziekánski, P., Maitah, M. (2021): Customer Preferences for Organic Agriculture Produce in the Czech Republic: 2016 and 2019. Agriculture, 11(10), 968.

Zámková, M., Rojík, S., Prokop, M., Činčalová, S., Stolín, R. (2022): Czech Consumers' Preference for Organic Products in Online Grocery Stores during the COVID-19 Pandemic. International Journal of Environmental Research and Public Health, 19(20), 13316.

Zámková, M., Rojík, S., Prokop, M., Činčalová, S., Stolín, R. (2023): Consumers' Behavior in the Field of Organic Agriculture and Food Products during the COVID-19 Pandemic in the Czech Republic: Focus on a Comparison of Hyper-, Super– and Farmers' Markets and Direct Purchases from Producers. Agriculture, 13(4), 811.

Zámková, M., Rojík, S., Prokop, M., Činčalová, S., Stolín, R. (2024): National Labelling System of Organic Agriculture and Food Products – How Familiar Are Czech Consumers with the National Organic Agri-Food Brand? Agriculture, 14(1), 100.

Zámková, M., Rojík, S., Prokop, M., Stolín, R., Střelec, L. (2020): Selected Methods of Categorical Data Analysis and Their Application in Consumer Behaviour Research. In 38th International Conference on MME, pp. 656-661. Brno: Mendel University Publishing Center.

Zaremohzzabieh, Z., Ismail, N., Ahrari, S., Abu Samah, A. (2021): The effects of consumer attitude on green purchase intention: A meta-analytic path analysis, Journal of Business Research, 132(C), pp. 732-743.

Zeithaml, V. (1988): Consumer Perceptions of Price, Quality, and Value: A Means-End Model and Synthesis of Evidence. Journal of Marketing, 52(3), pp. 2-22.

Zepeda, L., Deal, D. (2009): Organic and local food consumer behaviour: Alphabet theory, International Journal of Consumer Study, 33, pp. 697-705.

Živělová, I., Crhová, M. (2013): Organic Food Market in the Czech Republic. Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis, 61, pp. 539-546.

Zrałek, J. (2018): Consumer facing the challenges of sustainable consumption. Sustainable consumer behavior and its determinants. Katowice: Publishing House of the University of Economics in Katowice.

Żelazna, K., Kowalczuk, I., Mikuta, B. (2002): Ekonomika konsumpcji: elementy teorii. Warszawa: Wydawnictwo SGGW.

Żurek, J. (2023): Wpływ wybranych determinant ekonomicznych, demograficznych i kulturowych na zachowania żywieniowe konsumentów, Nierówności Społeczne a Wzrost Gospodarczy, 73 (1), pp. 166-180.

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