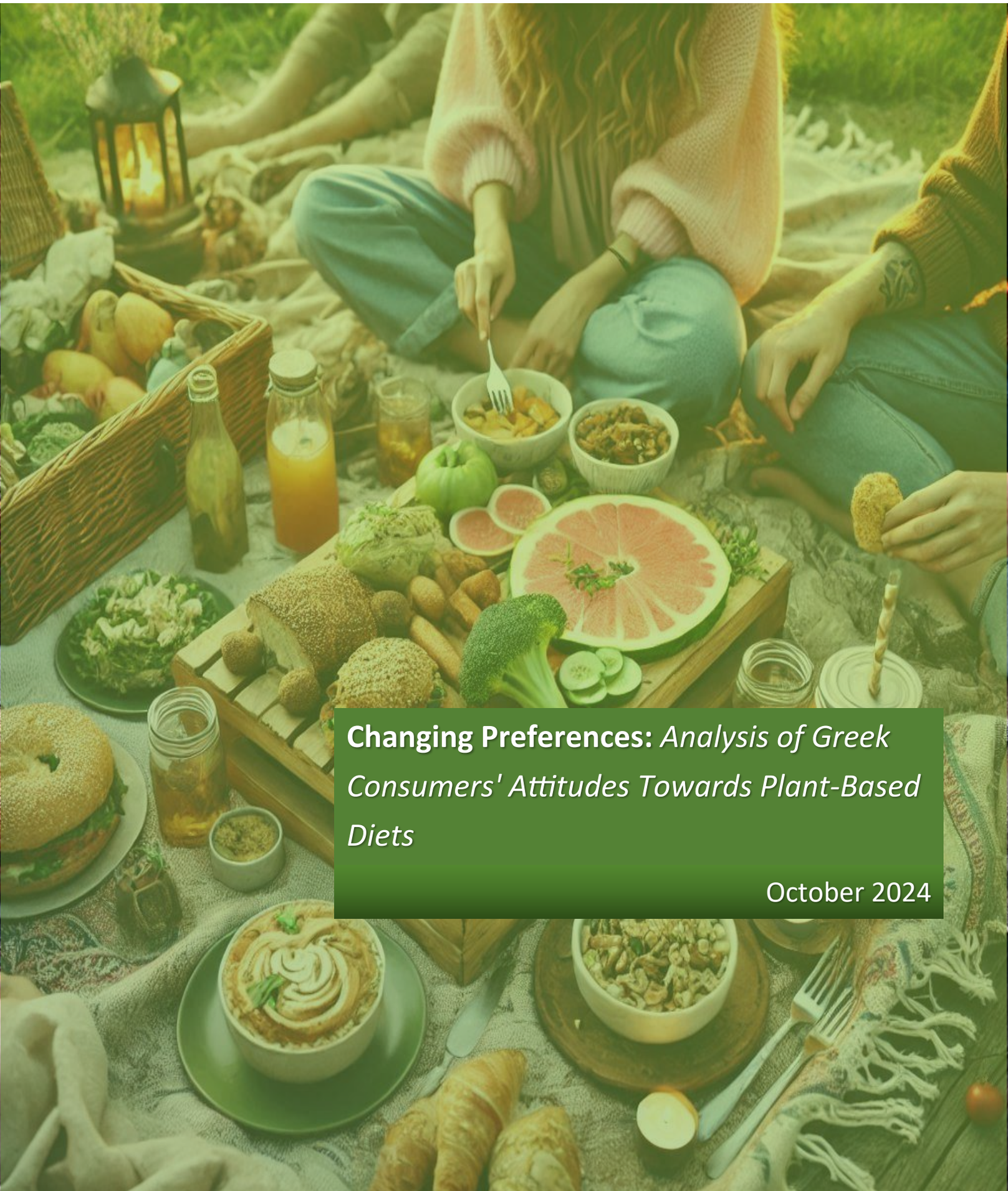
HellasVeg



Changing Preferences: *Analysis of Greek Consumers' Attitudes Towards Plant-Based Diets*

October 2024

Table of contents

EXCECUTIVE SUMMARY

This study was co-funded by the Hellenic Vegetarian Association (HellasVeg) and the European Vegetarian Union (EVU) and continues the research on the dietary habits of Greek consumers conducted in 2022. The data includes a comparative analysis with the Smart Protein consumer research conducted in 2023. It was gathered through nationwide primary research by Kantar AE, with a sample of 750 individuals that is representative in terms of gender, age, and geographical distribution, during June 2024, while data analysis was conducted by HellasVeg.

Comparatively, Greece shows the second highest percentage of omnivores among the 11 countries (73%), after Poland (74%). Italy and Spain follow (69%), while Germany has the lowest percentage (45%). The highest percentage of flexitarians is in Germany with 40%, followed by Austria with 37%, while the lowest percentage is seen in Poland (16%). In Greece, 22% of consumers self-identify as flexitarians, slightly down from 24% in 2022, with the corresponding European figure reaching 27% (also down by 3% compared to 2021). However, the study's findings highlight a significant gap between intention and action, indicating that respondents are not accurately aware of their personal meat consumption levels.

Regarding the consumption of animal products, the percentage of Greeks consuming meat 4-6 times a week decreased by 3% from 2022. Conversely, 10% consume meat only once a week, up from 7% the previous year. Significant reductions were observed in pork (16%) and beef (15%) consumption compared to the previous year, while reductions were also recorded in fish/seafood (10%), alternative meat products (9%), and dairy (8%).

Health emerged as the primary factor (56%) for reducing meat consumption, followed by animal welfare (53%) and environmental protection (31%).

Examining preferences for plant-based foods, legumes were the most popular choice, with 85% of consumers incorporating them into their diet and 60% consuming them at least once a week. Regarding the willingness to adopt alternative plant-based foods, 70% of respondents stated they could adopt plant-based alternatives if they meet criteria such as taste, price, appearance, and availability, while 20% appeared particularly willing. Furthermore, 76% plan to maintain or increase their consumption of plant-based products, emphasizing foods that are tasty (28%), affordable (27%), and healthy (23%).

Concerning consumer trust in alternative proteins, 40% of Greeks trust plant protein sources like legumes and grains, while 25% recognize the value of proteins from fungi, surpassing the European average (20%)

Regarding information surrounding plant foods, 55% of Greek consumers trust digital media as a primary source of information, such as search engines and social media, while content on social media influences 45% of users, mainly regarding the desire for food consumption.

The study highlights the need for policy interventions in the food sector. A significant percentage (71%) of Greek consumers calls for greater transparency in product certifications, a figure higher than the

European average (64%). Additionally, 68% support eliminating taxes on foods with low or zero environmental footprints, while 66% demand reduced taxes on healthy foods, with corresponding European percentages at 63%.

The above findings indicate tremendous potential for plant-based foods in Greece, provided efforts are made for their further improvement. Based on these emerging prospects, recommendations for the industry are provided, emphasizing the need for a coordinated strategy that will enhance the transition to a plant-based diet.

In summary, the study highlights the gradual shift of Greek consumers towards healthier and more sustainable food choices, although there is a gap between intention and actual action. Dietary habits remain largely unsustainable, and leveraging the growing demand for healthy and sustainable foods may accelerate the shift towards plant-based diets, ensuring a healthier and more sustainable future. The development and promotion of alternative plant foods that meet taste, price, and availability needs appear crucial for further boosting vegetarianism in Greece.

To conclude, the key finding from the study is that Greeks generally intend to shift towards plant-based options by reducing meat consumption and have high levels of trust in traditional sources of plant proteins such as legumes and mushrooms. However, this shift is hindered by the lack of a wide variety of available options, the high cost in some cases, lack of knowledge, lack of trust especially in those that are not certified, and the (often mistaken) perception that processed plant-based alternative foods may not be as healthy.

Introduction

It is now known that the global food system plays a crucial role in addressing the climate crisis, being responsible for one-third of total greenhouse gas emissions, with the livestock sector accounting for approximately 14.5% of anthropogenic gas emissions, according to the Food and Agriculture Organization of the United Nations (FAO, 2023). Globally, the production of animal-based foods causes 57% of greenhouse gas emissions from food production (Xu et al., 2021).

Meat consumption has significant implications for greenhouse gas emissions (GHG_e) and climate change both per kilogram of food and overall, primarily due to the intensive production and consumption of animal-based foods, leading to unsustainable resource use. Livestock farming is one of the largest contributors to greenhouse gas emissions, with meat consumption in China accounting for approximately 89.5 million tons of CO_2 equivalent annually (Wang et al., 2023). Meanwhile, dietary models in France reveal that meat consumption may influence up to 85% of the variation in GHG_e between different dietary patterns, underscoring the critical role of meat consumption in environmental impacts (Kesse-Guyot et al., 2024).

Predictions for the future are equally concerning. Global food consumption, particularly from sources with high methane levels, such as ruminant meat, could contribute nearly 1°C to temperature rise by 2100, while reducing meat consumption and improving agricultural practices could reduce this risk by over 55% (Ivanovich et al., 2023). Additionally, meat consumption is linked to land-use changes, resulting in significant CO_2 emissions and biodiversity loss, as evidenced by data from Germany, where products like beef and pork significantly contribute to these impacts (Michalke et al., 2023). It seems unlikely that global climate goals will be achieved without dietary changes (Theurl, M.C. et al., 2020).

Greenhouse gas emissions and land use could be reduced by 50-70% with a reduction in the consumption of animal products, the magnitude of the reduction primarily depending on the extent to which animal products are removed from the human diet. If the land released due to reduced animal product consumption is used for vegetation regeneration (such as reforestation), the potential for carbon sequestration from the atmosphere and mitigation of climate change is substantial (Röös et al., 2017).

In recent years, the rise of vegetarianism and veganism presents significant market opportunities, with the alternative meat sector reaching $7.4 billion in 2021 from $3.6 billion in 2018 (Yang, 2023), while estimates suggest the global plant-based meat market is expected to grow at a compound annual growth rate of 19.4% from 2024, reaching $24.77 billion by 2030 (Grand View Research, 2024). Given the increasing demand and as more individuals become aware of the health risks associated with excessive consumption of red and processed meat, they are actively seeking healthier plant-based alternatives. Over the past decade, the alternative protein sector has attracted $14.2 billion in investment,

with annual investments nearly doubling each year on average (GFI, 2023).

Understanding changing dietary patterns and the growing demand for plant-based foods is critical for multiple reasons. This study aims to examine the evolution of dietary habits among Greek consumers, focusing on current consumption, challenges, and opportunities presented by the plant-based food market at both local and European levels. It also analyzes consumer attitudes towards plant-based alternatives, motivations, and barriers related to their adoption. Finally, the study highlights the need for targeted policies and marketing strategies that will promote consumer access and trust in plant-based options, contributing to the formation of a more sustainable and healthier dietary model.

Profile of the study

The results of this study are based on a sample of 750 participants, aged over 18 and under 70. The survey was conducted in June 2024 and continues from the previous research conducted in June 2022 by HellasVeg. The results of the latter are used as references in this study to compare changes in behaviors and dietary habits of Greek consumers over the past two years. Similar in both surveys, the Greek citizens who participated are from Attica, Thessaloniki, Central Macedonia, Eastern Macedonia, Thrace, Western Macedonia, Epirus, Thessaly, Sterea Ellada, Western Greece, Peloponnese, Crete, Aegean Islands, and Ionian Islands in percentages proportional to the 2021 Census.

The participants in this online survey were selected by the marketing data and analytics company KANTAR GREECE S.A. on behalf of HellasVeg, with representative parameters regarding gender, age, and geographical division. The KANTAR Group has a strict quality and data management protocol, as provided by ISO 2700, ISO 9001, ISO 20252, and applicable laws for the security of their systems.

Regarding the methodology of the research, the same method used in 2022 was followed, where data was collected for various demographic categories, such as age, gender, and educational background, and scaling was applied for age and gender across all regions of the country to ensure that the samples were representative of the general population and evenly distributed concerning these variables. Additionally, since many of the survey questions relate to purchasing decisions and the purpose of the research is to assess the behaviors of individuals responsible for shaping the market, participants were asked to complete the questionnaire only if they were fully or partially responsible for their household shopping. Examining the demographics of respondents, the distribution of men and women was equal across the country. The sample consisted mainly of individuals with different dietary lifestyles (food tribes), for which there were clear definitions, and participants were asked to select the one that best aligns with their dietary preferences. The present analysis is based on the self-identification of participants with each dietary lifestyle.

All participants were subjected to 40 questions and were required to answer all of them. These questions were distributed across the following categories:

- Demographics (gender, age, residence, household size, educational level)
- Dietary habits and consumer behaviors
- Market of plant-based foods
- Social media’s influence on attitudes and purchase behavior
- Opinion on food policy actions

Review of Survey Results from 2022

The 2022 survey on the dietary habits of Greek consumers served as an important benchmark for understanding trends in the Greek dietary landscape and Greece's comparative position relative to other European countries. According to the findings, Greek consumers are categorized into similar "food tribes" as in other countries, with the dominant category being omnivores. However, the presence of vegetarians remained low in the Greek context, indicating limited adoption of sustainable dietary habits.

The initial survey showed that the majority of Greek consumers (73%) self-identify as omnivores, a percentage higher than all other 11 countries studied. A smaller percentage of consumers identified as flexitarians (24%), a figure that aligns with countries like Poland and Denmark, while nearly half of Greek consumers stated they are considering reducing meat consumption. Notably, 82% of omnivores acknowledge that there are reasons to become vegetarian, primarily for improving animal treatment, health, and environmental reasons. Additionally, 40% of omnivores express intentions to reduce meat consumption in the future.

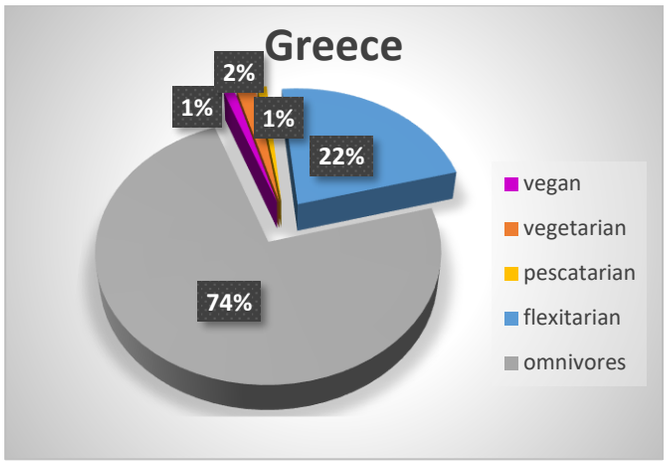
When examining the acceptance of plant-based products by consumers, flexitarian consumers appear hesitant towards alternative plant foods, citing economic affordability, unsatisfactory taste, limited availability of different options, and uncertainty about their healthiness as the main barriers to widespread adoption.

New technologies, such as cultured meat and insect protein foods, pique consumer interest. A significant percentage of Greek consumers (49%) expressed willingness to try cultured meat, while 26% would try foods containing insect protein.

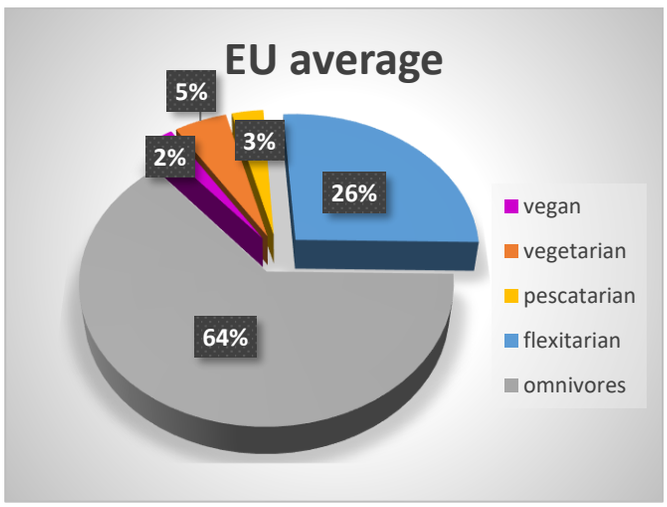
These findings not only highlight the enormous growth potential for the plant-based food industry in Greece but also serve as a compelling call to action towards sustainable dietary policies and practices for all stakeholders involved in the industry. Recognizing the environmental, ethical, and health advantages of plant-based options suggests that there are opportunities for expanding the market for these products.

"Food Tribes" in Greece Compared to the European Union

The sample studied in the 2024 survey consists mainly of individuals following different dietary practices, specifically: mixed diet (omnivores), flexitarians (consumers who choose flexible dietary practices with limited meat consumption), pescatarians (consumers who eat only fish and/or seafood as a form of meat), vegetarians, and vegans, as illustrated in Figure 1a.



A)



B)

Figure 1a. Question: What are your current dietary habits? A) Greece, B) European Average

25% of Greeks claim to follow a non-meat-based diet (flexitarians, vegetarians, or vegans), highlighting a clear trend towards reducing or eliminating the consumption of animal products, which appears to shape a new reality at the national level.

Overall, out of the 750 participants, 160 individuals (61 men and 99 women) stated that they follow a flexible diet (flexitarians), consuming limited amounts of meat occasionally, which they attempt and wish to reduce.

On a European level, the percentage of flexitarians reaches 27% of the population according to a ProVeg International survey within the Smart Protein project, which received funding from the European Union's Horizon 2020 research and innovation program. The current study by HellasVeg serves as a comparative analysis with the corresponding European study, given that the European Vegetarian Union (EVU),

which co-funds the study, has indirect involvement in both surveys.

The goal is to gather data for Greece that forecasts future trends for both the general public and the domestic industry. The data for Greece derived from the study is subsequently compared with the corresponding data from the European study, which collected data from 10 countries (more information in Appendix 1).

After defining the current dietary lifestyle of participants, it was deemed important to explore the duration for which they have been following this diet. When asked, 80% of participants following a mixed (omnivorous) diet responded that they have been doing so for more than five years. The majority of flexitarians (64%) stated that changes in their dietary habits occurred in the last five years, while 43% reported that these changes have taken place in the last two years. It is also noteworthy that **65% of vegetarians have adopted and maintained this lifestyle for more than five years.** Conversely, the majority of vegan and pescatarian participants reported that they have followed this dietary pattern for a duration of fewer than six months to two years.

Categorization Based on Gender, Age, and Geographical Region

This research highlights significant differences in dietary preferences between men and women, demonstrating that in Greece, the adoption of more sustainable dietary practices is generally more prevalent among women than men. Specifically, a smaller percentage of women follow a mixed diet (67% compared to 80% of men), while a larger percentage of women identify as flexitarians (27% compared to 17% of men). Additionally, the percentage of men identifying as vegetarians or vegans stands at 2%, while the corresponding figure for women is 5%. Flexibility in dietary practices with limited or zero meat consumption seems to be more popular among women compared to men, while meat-based diets appear to be more common among men.

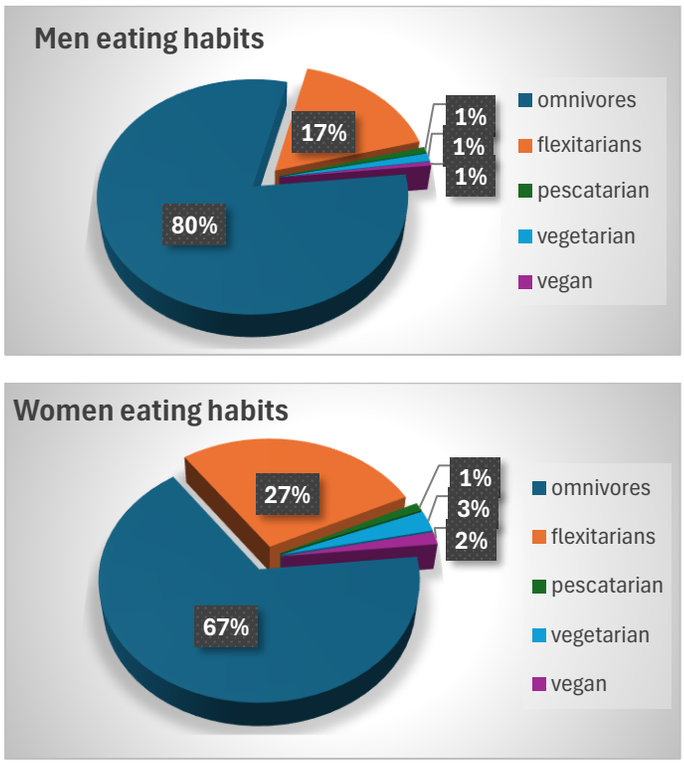


Figure 1b. Question: What are your current dietary habits? C) Men, D) Women

At the same time, the dietary preferences of Greek consumers were categorized based on age and geographical area (Figures 2a, 2b). In Figure 2a, the largest percentage of omnivorous consumers is found in the age groups 25-34 and 45-54, while the percentage of flexitarian consumers increases in individuals aged over 55. This indicates a trend towards a decrease in meat consumption and a shift towards plant-based foods in ages above 45. Furthermore, a smaller but significant variation in flexitarian percentages is observed in younger ages, such as those aged 18 to 24, concluding that the intention to reduce meat consumption transcends generational boundaries and represents a cross-generational interest.

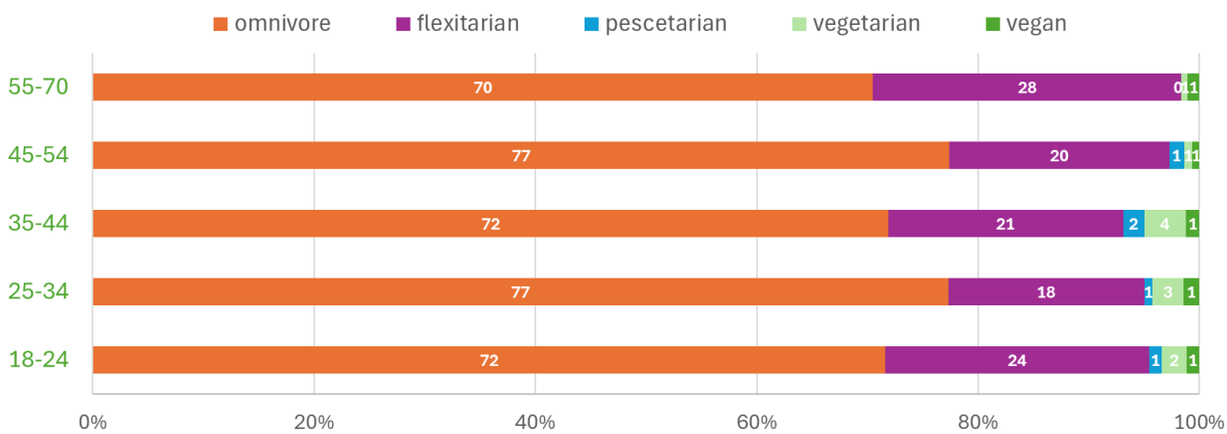


Figure 2a. Question: What are your current dietary habits? (by age)

The age distribution of vegan and pescatarian consumers remains stable across all groups. However, the percentages of vegetarians among the youth (18 to 34) are higher in these subgroups (2% and 3% respectively), with the highest percentage recorded in the 35-44 age group. This observation may be attributed to greater access to information and the easier adaptability of young people to dietary changes.

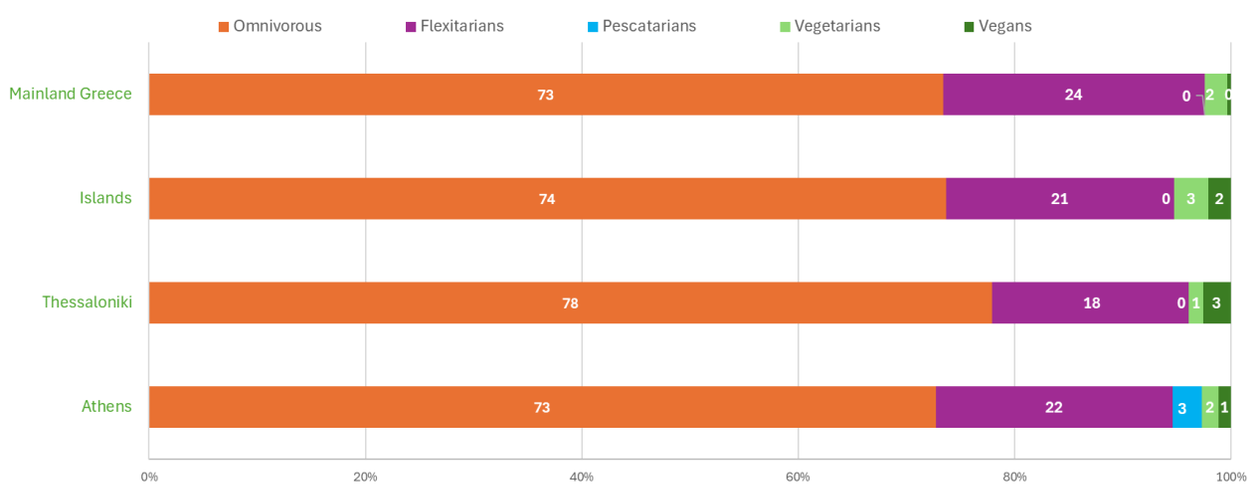


Figure 2b. Question: What are your current dietary habits? (by geographical region)

Regarding geographical distribution (Figure 2b), a higher percentage of flexitarian consumers is located in mainland Greece and Athens, while the lowest is recorded in Thessaloniki. In Athens and mainland Greece, 3% identify as vegan or vegetarian, with this percentage reaching 5% in the islands. This distribution may be due to better access to plant-based foods and alternative products for residents of Athens, while in the islands, the adaptation of stores to the dietary preferences of visitors due to tourism contributes to the increase in options compared to 2022. Conversely, a higher percentage of omnivorous consumers is found in Thessaloniki.

In conclusion, the living conditions of households (location, size) appear to significantly affect their ability to reduce their footprint, even through their dietary choices. Decisions to change dietary and lifestyle habits can be dynamic and vary depending on an individual's life stage and living environment.

Chapter I

Examining the Reduction of Meat Consumption and the Motivations Behind it

This section provides an overview of the current state of consumer patterns regarding animal and plant-based foods in Greece. Additionally, it provides forecasts regarding foods that Greek consumers may consume in the near future to offer as clear guidance as possible to the food industry.

Current State of Meat Consumption in Greece and Europe

In the context of exploring the dietary habits of Greek consumers, participants were asked to determine the frequency of their consumption of meat and meat products, milk and dairy products, eggs and egg products, as well as fish, seafood, and related products. Simultaneously, a comparison was made with the corresponding data from European consumers.

According to Figure 3, eggs, milk, and dairy products are the food categories most frequently consumed by Greek consumers. In particular, milk and dairy seem to play a significant role in daily nutrition, being consumed almost on a daily basis. Meat, fish, and seafood are also frequently consumed on a weekly basis.

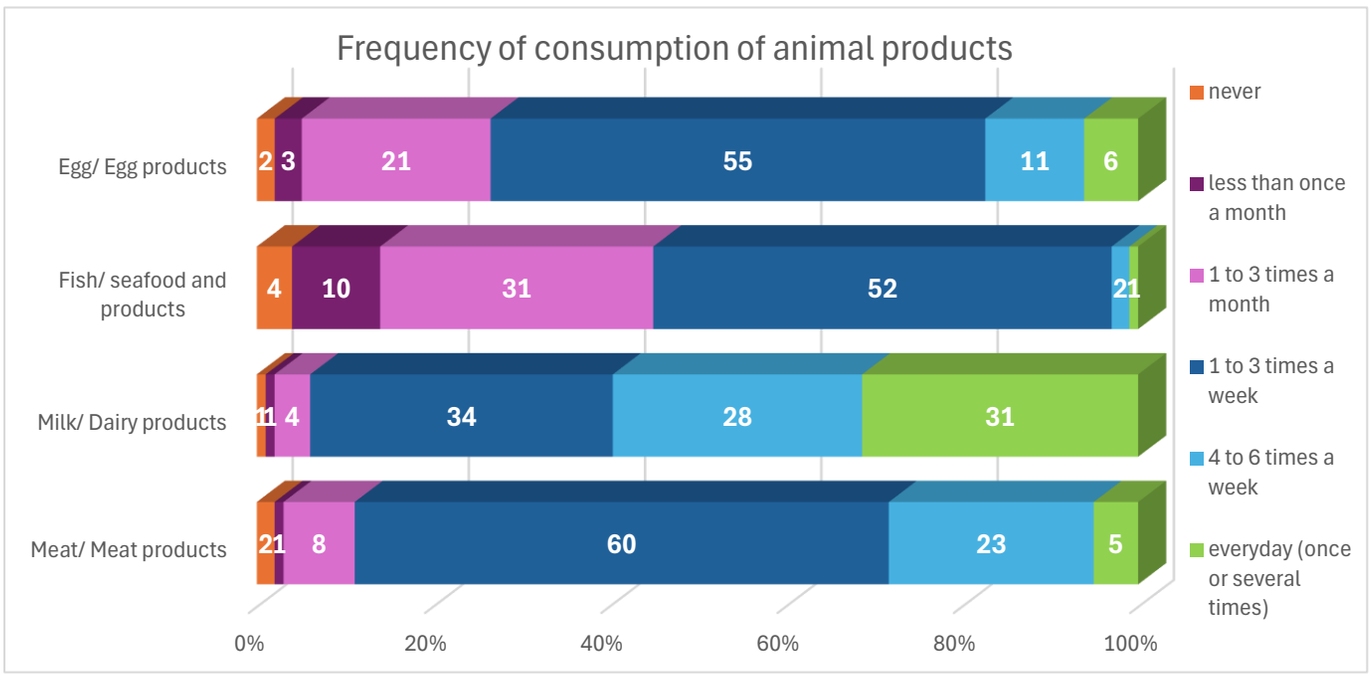


Figure 3. Frequency of consumption of animal products in the total sample of respondents.

In comparison to European consumers, both differences and similarities are observed in the frequency of consumption of specific foods (Figure 4). For example, fish, seafood, eggs, and their products are consumed with similar frequency on a monthly basis by both groups, while the same meat consumption occurs daily in Greece (5%) and Europe (5%).

Examining the differences, it is found that Greek consumers tend to consume milk, eggs, and fish more frequently compared to the European average. Specifically, 60% of Greeks consume meat 1-3 times a week, while the corresponding percentage in Europe stands at 32%. Similarly, regarding daily milk consumption, 31% of Greeks consume milk daily compared to 19% of Europeans. In terms of fish consumption, Greeks seem to consume it less frequently, with 55% reporting consumption 1-3 times a month compared to 32% in Europe. Regarding eggs, 17% of Greeks consume them daily, while the corresponding percentage among Europeans is 5%.

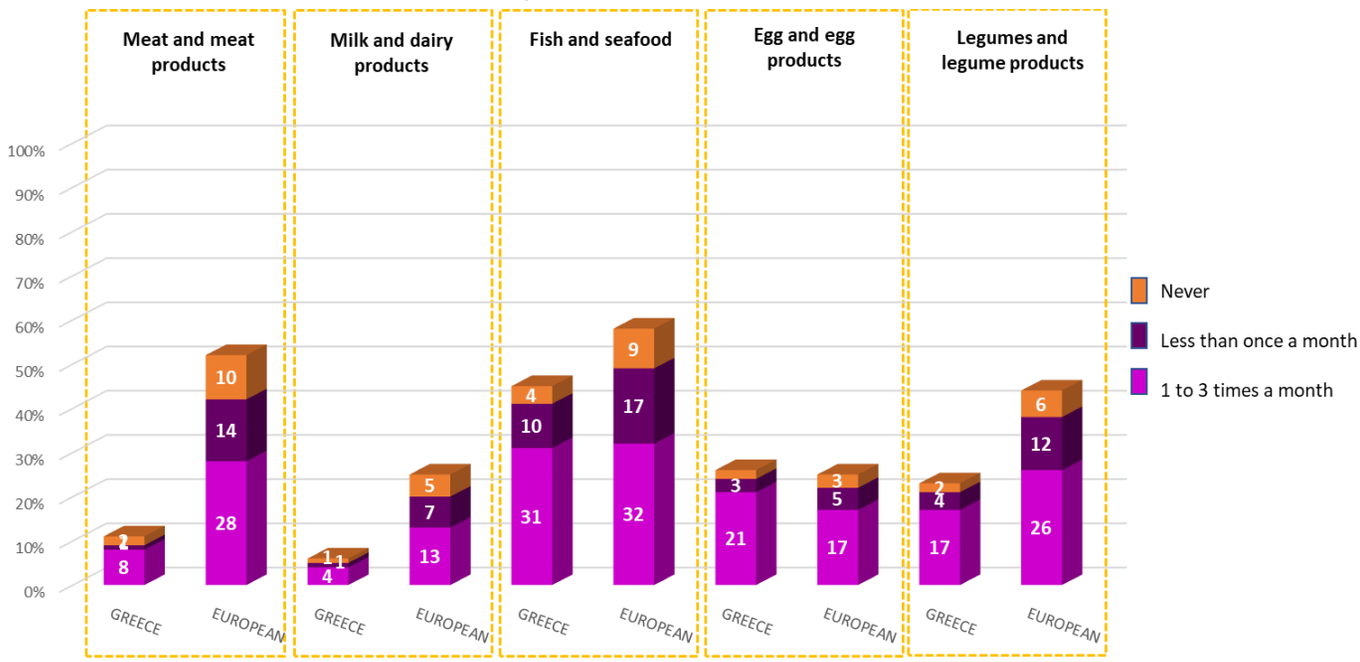


Figure 4. Frequency of consumption of animal products in the total sample of respondents in Greece and Europe.

Dairy products and eggs, however, constitute basic consumption products both on a daily and weekly basis for Greeks and European consumers. The consumption levels of dairy products and eggs reported by Greeks are similar to those of Europeans, with 70% of both groups including them in their meals at least once a week. Milk is consumed at least four times a week by 54% of European respondents, followed by cheese (49%), yogurt (46%), and eggs (37%).

There is also differentiation in the categories of low-frequency meat and dairy consumption. In Greece, in 2024, 11% and 6% of consumers reported consuming meat and dairy less than once a week, compared to 7% and 5% respectively in 2022. However, in Europe, these percentages have seen a larger increase from 2021 to 2023, rising from 29% to 47% for meat and from 18% to 74% for dairy.

Comparing the frequency of animal product consumption in Greece between the years 2022 and 2024, there is a slight increase in the percentage of consumers reporting consumption of these specific products "1 to 3 times a month" in 2024 (31%-32%) compared to 2022 (30%). The percentage of those consuming animal products "less than once a month" remains almost stable between the two years, while the category "never" saw a slight increase in 2024.

Self-Reported Meat Consumption Compared to Previous Year

In general, there appears to be a slight trend towards reducing the frequency of animal product consumption, as more consumers seem to be limiting their consumption to monthly or less in 2024 compared to 2022. Significant reductions were particularly observed in the consumption of pork and beef (16% and 15%, respectively) compared to the previous year, followed by fish and seafood (10%), alternative meat products (9%), and milk (8%) (Figure 5). In a corresponding question in the European study, beef (35%) and pork (31%) were the products with the highest reduction in consumption, while dairy products had lower reductions (milk: 6%, cheese: 5%, eggs: 4%, yogurt: 3%). Although dairy consumption also shows a declining trend, it appears that the reduction is less than that of meat. Additionally, recent data on European consumption published in July 2024 estimates that between 2021 and 2023, the consumption of pork and beef decreased by approximately 2.8% and 0.8%, respectively (OECD/FAO, 2024). This change may reflect increased awareness of sustainability and health or a shift among consumers towards alternative protein sources or limited animal product dietary options for Greece. It may also relate to economic factors, as reducing consumption of more expensive foods like meat may be a consumer effort to limit their expenses.

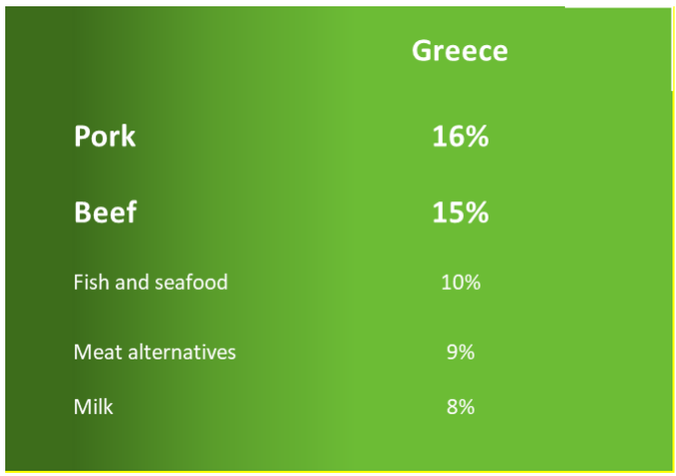


Figure 5: Top 5 food categories that Greeks have reduced their consumption of

Future Intentions to Increase or Decrease Meat Consumption

Furthermore, the desire of Greek consumers to change their dietary choices concerning their current eating habits was examined. Comparing respondents' intentions to increase or decrease their consumption of meat and dairy products in the immediate future indicates a clear trend among Greeks towards reducing meat consumption. Specifically, almost 40% of the total sample stated that they intend to limit their consumption of meat and meat products (Table 1).

A similar trend is observed in the consumption of milk and dairy products, with 25% of Greek consumers expressing intentions to reduce their consumption of these products. These findings demonstrate an increasing shift towards reduced consumption of animal products, possibly in response to environmental concerns, healthy eating trends, and awareness of the benefits of plant alternative.

Table 1.: Future intentions to increase or decrease the consumption of animal products in the future

	Meat and meat products	Milk and dairy products	Egg and egg products	Fish, Seafood and their products
I intend to eat less	18%	8%	5%	6%
I intend to eat a little less	21%	16%	9%	9%
I intend to eat the same amount	53%	68%	72%	51%
I intent to eat a little more	3%	6%	11%	26%
I intend to eat more	1%	1%	2%	6%

Greek Consumers Include More Plant-Based Foods in Their Diet

Data on future consumption in 2024 compared to 2022 shows relatively stable intentions in the consumption of dairy, meat, eggs, and fish among Greek consumers. In dairy products, 68% of respondents in 2024 state that they plan to consume the same amount, a percentage slightly lower than the 70% in 2022. In the meat category, a significant change is observed: 53% state they will consume the same amount in 2024, compared to 46% in 2022, while the percentage of those intending to reduce meat consumption has also decreased (from 32% in 2022 to 21% in 2024 for those stating "a little less"). At the European level, it was similarly found that the percentage of individuals reducing their annual meat intake (much less and slightly less) has increased from 46% to 51%, while the percentage of individuals stating "no change" in meat consumption has decreased from 48% to 39%. For eggs, the intention to maintain consumption among Greeks remains high at 72% in 2024, slightly down from 77% in 2022. Finally, for fish and

seafood, the majority of consumers (51%) intend to maintain the same amount of consumption in both years, although there is a slight decrease in the intention to consume larger quantities in 2024 (26%) compared to 2022 (31%). The above findings indicate that consumers seem to understand the relationship between meat consumption and its influence on issues such as the environment, animal welfare, food security, and health. However, the smaller trend towards reducing dairy consumption compared to meat consumption highlights that the impact of dairy consumption and its consequences on climate, animals, health, etc., is not as evident to them as it is for meat.

Motivations for Reducing Meat or Dairy Intake

In Figure 6, the motivations driving consumers towards a vegetarian or vegan diet with the aim of reducing meat and/or dairy consumption are presented, indicating that the primary motivations focus mainly on factors such as health, the environment, and ethics towards animals.

The main reason for transitioning to a plant-based diet concerns health benefits, with 56% of respondents indicating that they prefer to reduce animal product consumption to improve their personal well-being. This suggests widespread recognition of the positive effects of plant-based diets on health, as well as increasing awareness of the risks associated with excessive meat and dairy consumption, such as cardiovascular diseases, hypertension, type 2 diabetes, and obesity.

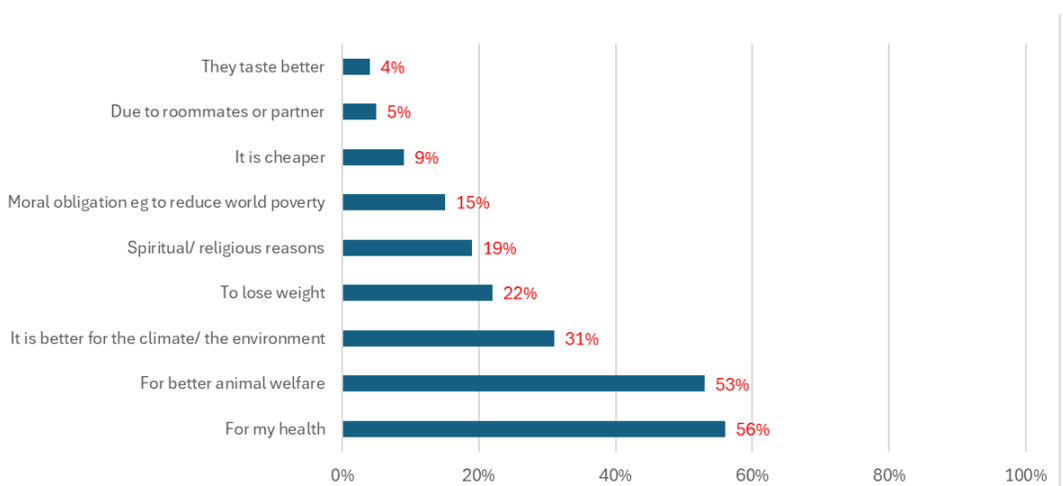


Figure 6: Motivations driving consumers towards a vegetarian or vegan diet (total sample)

Plant-based diets are associated with reduced risks of chronic diseases such as obesity and diabetes (Sachchan et al., 2024). Global recommendations for a healthy diet state that less than 30% of total energy intake should come from fats. Unsaturated fats found in plant sources such as avocados, nuts, soy, olive oil, and fish are preferred over saturated fats predominantly found in animal products such as fatty meat, butter, cream, cheese, and lard, as well as industrially produced trans fats mainly found in baked and fried foods. The World Health Organization recommends reducing saturated fat intake to less than 10% of total energy intake and trans fats to less than 1% of total energy intake as part of a healthy diet (WHO, 2020).

Furthermore, a significant percentage of 53% supports the idea that reducing the consumption of animal products contributes to better animal welfare. This finding reflects increased consumer concerns about the conditions of raising and treating animals in the meat and dairy industry.

The environment is also an important motivation, with 31% of respondents stating that a plant-based diet is better for the climate. The environmental crisis and concerns about climate change seem to play a crucial role in consumers' dietary choices. Reducing meat and dairy consumption is viewed by many as a way to lower greenhouse gas emissions and waste of natural resources like water and land (cropland). Alternative proteins play a significant role as a technology for mitigating climate change. A report by Boston Consulting Group (BCG) and Blue Horizon in 2022 compared the potential for emissions reductions across ten climate mitigation sectors and found that investment in plant proteins saved more CO_2 equivalent emissions than any other sector. If the entire market for animal products, which is responsible for 15% of global greenhouse gas emissions (GHG), shifts to alternatives, it could eliminate 11% of currently projected emissions by 2030. This could be the best investment opportunity we have yet to combat the climate crisis. It is indicative that replacing conventional animal-derived meat with plant-based meat can reduce greenhouse gas emissions by 90%, while using 99% less land and water.

Health and animal welfare are the primary motivations driving consumers towards plant-based diets

Moreover, 22% of respondents wish to reduce their consumption of animal products for weight loss purposes. This trend, adopted by an increasing number of people, suggests that plant-based diets are also seen as a tool for managing body weight, considering the generally lower calorie and fat content of plant foods compared to animal foods.

Finally, notable motivations that concern a smaller percentage of respondents include spiritual or ethical obligations (19%), moral responsibility to reduce global poverty (15%), and the perception that plant-based products are cheaper (9%). These factors reveal the various personal and social values that may influence individuals' dietary habits and preferences.

Overall, taking all of the above into account reveals the multifaceted nature of motivations for reducing meat and dairy consumption, as well as the increasing social awareness and sensitivity regarding human health, environmental health, and ethics towards animals.

Chapter II

Exploring the transition towards a plant-based diet

This chapter focuses on understanding consumer behaviors by examining current consumption and readiness for plant-based food consumption.

Current Frequency of Plant-Based Food Consumption

In the context of this research, the frequency of plant-based food consumption, such as legumes and alternative plant-based meat and dairy products, was also determined.

Studying the consumption of plant-based proteins like legumes reveals that 6% of Greeks consume legumes daily, 37% consume them 2 to 3 times a week, and 35% consume legumes at least once a week. Conversely, 11% of Europeans consume legumes daily, while 31% consume them 1 to 3 times a week. Among European countries, Spain and Italy record the highest consumption of legumes (75% and 69% respectively), reflecting the cultural affinity for legumes between these two countries and Greece. In contrast, Poland, the United Kingdom, and Austria have the lowest levels of legume consumption (46%, 48%, and 49% respectively).

Overall, **77% of Greeks consume legumes at least once a week, compared to 57% of European consumers.**

This difference indicates that legumes are a significant part of the daily diet of Greeks, likely due to the long-standing tradition of the Mediterranean diet, in which legumes are a key pillar. The high percentage of daily consumption underscores the importance of legumes as an affordable, nutritious, and plant-based protein source, potentially replacing other forms of protein, such as meat, to a greater extent in Greece than in other European countries.

Regarding **alternative plant-based meat and dairy products**, data on future consumption of plant-based alternatives show significant changes in the intentions of Greek consumers in 2024 compared to 2022. Specifically, there is an increase in the stability of consumption, as 70% of respondents intend to maintain the same amount of consumption, compared to 50% in 2022. Furthermore, the proportion of those indicating they will significantly reduce their consumption of plant-based alternatives has decreased from 21% in 2022 to 8% in 2024. At the same time, the intention for increased meat consumption remains at the same levels, with only 4% planning to consume slightly or significantly more in 2024, compared to 3% in 2022. These figures indicate a trend towards stabilization in the consumption of plant-based alternatives, potentially reflecting the establishment of stable dietary habits among consumers.

Comparing the frequency of consumption of plant-based alternatives between Greece and Europe, it is noted that despite a higher percentage of individuals stating they never consume such products (42% in Greece versus 38% in Europe), there is interest in periodic consumption (Figure 7). 25% of Greeks report consuming alternative proteins "less than once a month," a percentage that indicates that contact with these products has already begun. Equally encouraging is the fact that weekly consumption habits (1-3 times or more per week) show remarkable rates, creating the basis for greater acceptance in the future. In the most frequent consumption (e.g., 1 to 3 times a week or daily), Europe seems to show slightly higher percentages. This divergence may be related to cultural preferences for traditional Mediterranean diets in Greece, which are more based on plant foods like legumes and vegetables than on alternative plant-based solutions, which are mostly highly processed. Additionally, factors such as the limited variety of available alternative products in the Greek market and differing dietary habits may influence overall consumption.

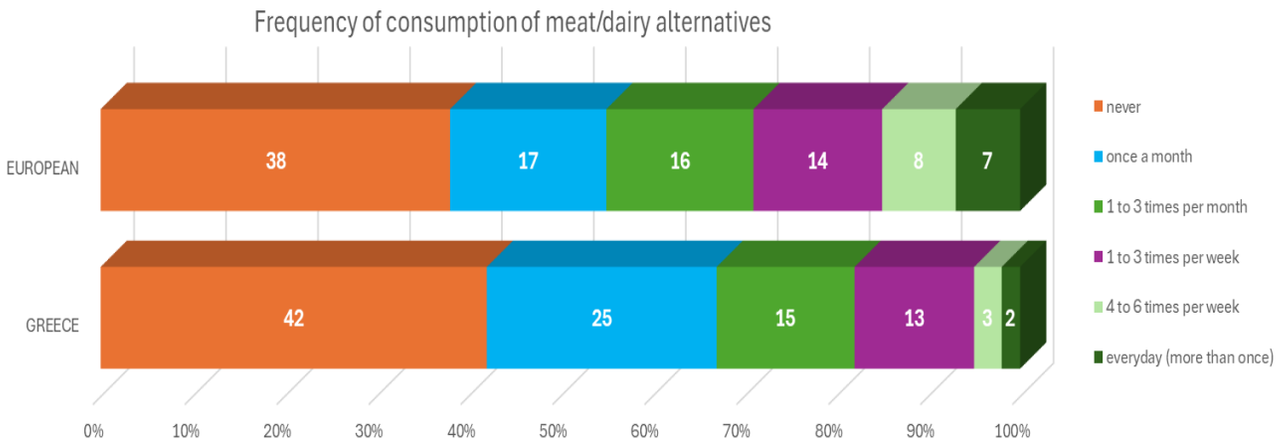


Figure 7: Frequency of consumption of alternative plant-based foods in Greece and Europe

Likelihood of Switching to Plant-Based Alternatives

When asked how likely they are to transition to plant-based alternatives if these are equal in taste, appearance, price, and availability to their animal-based counterparts, Greek consumers appear open to changes, provided these alternatives meet these basic requirements. Specifically, 24% state that it is "somewhat likely" they would make the transition, while nearly 20% consider it quite or extremely likely (Table 2). These percentages reveal that almost half of consumers are positively inclined, which forms an important basis for promoting plant-based solutions.

Table 2. Likelihood of Greek consumers transitioning to plant-based alternatives if they are equal in taste, appearance, price, and availability to animal-based counterparts

	Not Likely	Somewhat Likely	Likely	Quite Likely	Extremely Likely
How likely are you to switch to plant-based alternatives if they are the same in taste, appearance, price and availability as animal-based alternatives?	**32%**	**25%**	**24%**	**13%**	**6%**

On the other hand, a significant percentage of those who appear negative, stating that such a transition is "not likely at all" (32%). The lack of willingness to transition, even when equivalence in basic parameters such as taste, appearance, price, and availability is ensured, indicates deeper barriers. The lack of information, biases, or general hesitation towards new dietary habits may be some factors affecting consumers' readiness for such a transition. With targeted campaigns focusing on the benefits of plant proteins (health, sustainability, ethics) and further enhancing sensory characteristics, the 6% considered "extremely likely" to make the transition could increase significantly, while reluctance could decrease with increased awareness.

Overall, there remains significant room for growth in the consumption of alternative proteins in Greece. Ensuring equivalence in quality, taste, and cost, as well as providing information about the benefits of plant-based diets, could enhance their acceptance at both domestic and European levels. The data presents an optimistic outlook for the adoption of alternative plant solutions, especially considering the stage of development of these products in the Greek market.

Regular and Occasional Consumption of Plant Protein Sources

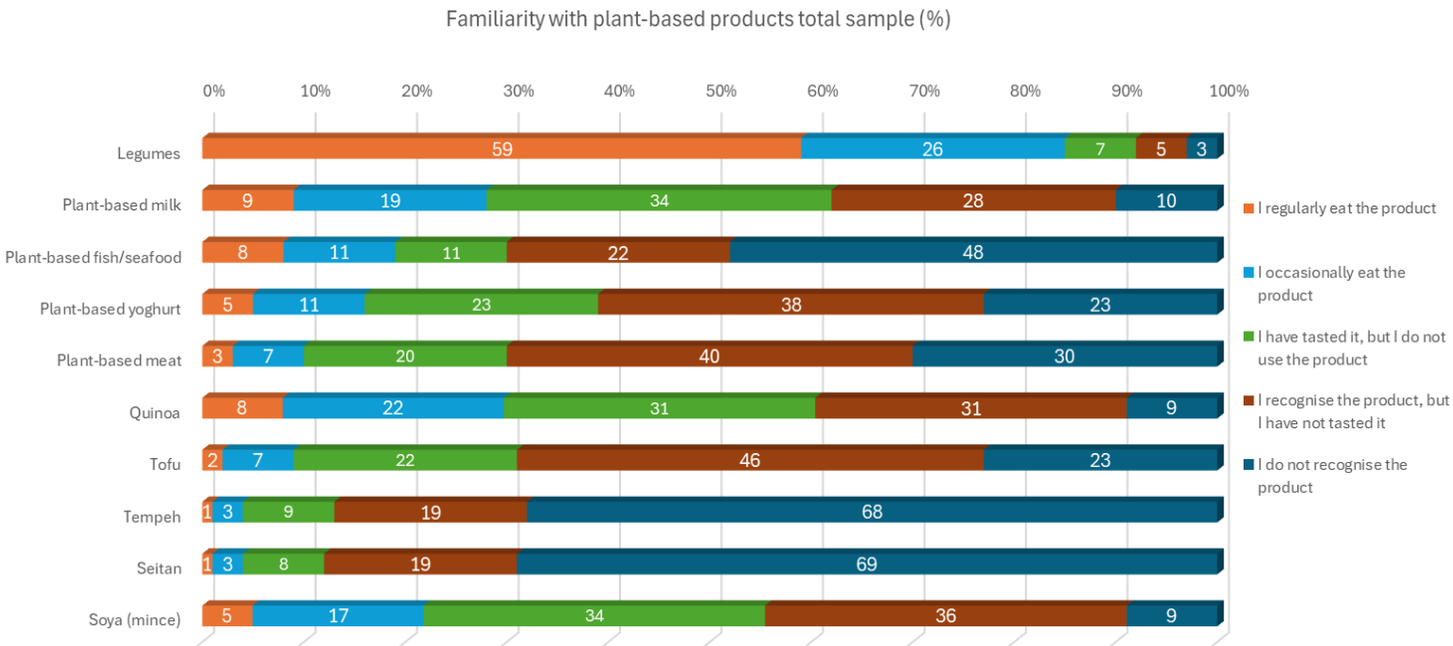


Figure 8: Familiarity and current consumption patterns for plant-based food products

According to Figure 8, the familiarity of Greek consumers with various plant proteins shows significant variations depending on the type of product. Legumes emerge as the most recognized and widely consumed product, with 59% of Greeks reporting regular consumption and an additional 26% consuming them occasionally. These data indicate that legumes have established themselves as a staple in the diet of Greeks, likely due to their traditional role in Greek cuisine and their overall recognition as a healthy source of protein. Aside from legumes, **quinoa and soy are observed to have upward trends, gaining a share of the market.**

In contrast, products considered more specialized and less widespread in the Greek market, such as seitan and tempeh, do not have the same level of recognition. Specifically, a striking percentage of 69% for seitan and 68% for tempeh report being unaware of these products, highlighting the low familiarity with such alternative protein sources. Additionally, products like tofu and plant-based meat register medium levels of recognition, with many consumers recognizing them without having tried them. This differentiation in familiarity may be attributed to the limited promotion and availability of these products in the Greek market, as well as the general lack of information and education for consumers.

Comparing Familiarity of Greek and European Consumers with Plant Proteins

Comparing the Greek data with that of European consumers, as presented in the European study, reveals interesting differences in trends regarding familiarity and consumption of plant products. In Europe, legumes are also consumed at a high rate, with 31% reporting regular consumption and 35% occasional consumption, indicating a widely accepted practice (Table 2, Appendix I). However, in the case of plant products that are less known in the Greek market, such as plant-based meat and cheese, European consumers exhibit greater familiarity. Specifically, in Europe, 27% of consumers report occasionally consuming plant-based meat, while 27% have tried the product but do not consume it regularly, demonstrating the broader acceptance of such alternatives in the European market.

Furthermore, products such as plant-based milk and yogurt, while relatively known in Greece, show higher consumption levels in Europe, with regular and occasional consumption rates at 19% and 27% respectively for plant-based milk, and 15% and 25% for plant-based yogurt. These data highlight the increased familiarity and integration of plant products into the daily diets of European consumers compared to Greeks.

Overall, the data demonstrate a clear difference in the degree of familiarity and consumption of plant products between Greek and European consumers. Greek consumers are more familiar with legumes compared to the European average. However, in general, Greek consumers are less familiar with plant products and plant proteins compared to their European counterparts. The reduced familiarity of Greeks with specific products such as seitan, tempeh, and tofu indicate the need for further information and education regarding alternative sources of plant protein and their benefits. Conversely, the greater penetration of these products in the European market highlights the trend of Europeans adopting a more sustainable dietary approach, a trend that could gradually be encouraged in Greece through promotional strategies and consumer awareness.

The emphasis on vegetarian and vegan products is supported by a majority of Greeks

A promotion strategy that enhances trust, which is fundamental for the gradual adoption of more sustainable dietary habits, could be the clear and reliable labeling of vegetarian and vegan products.

The importance of labeling plant-based and vegan products is underscored by the overwhelming majority of Greek consumers who consider it important for these products to have certification logos. When respondents were asked how important it is for products to carry a certification logo when purchasing vegan or vegetarian products, 80% of participants responded that the presence of certification is important, while 31% consider it particularly critical (Figure 9). These data reveal a fundamental need among the consumer public: the easy and clear identification of products that meet vegetarian or vegan criteria. The presence of a certification logo from reliable bodies helps build trust and reduce uncertainty, especially in a market that is still evolving. Focusing on specific consumer categories, flexitarian consumers—who choose flexible dietary habits and reduce meat consumption—appear even more aware of the importance of certification, with 87% rating it as important. This group likely relies more on labeling to identify products that align with their environmental or dietary values, particularly in a context where they do not strictly adhere to exclusive vegetarian or vegan practices.

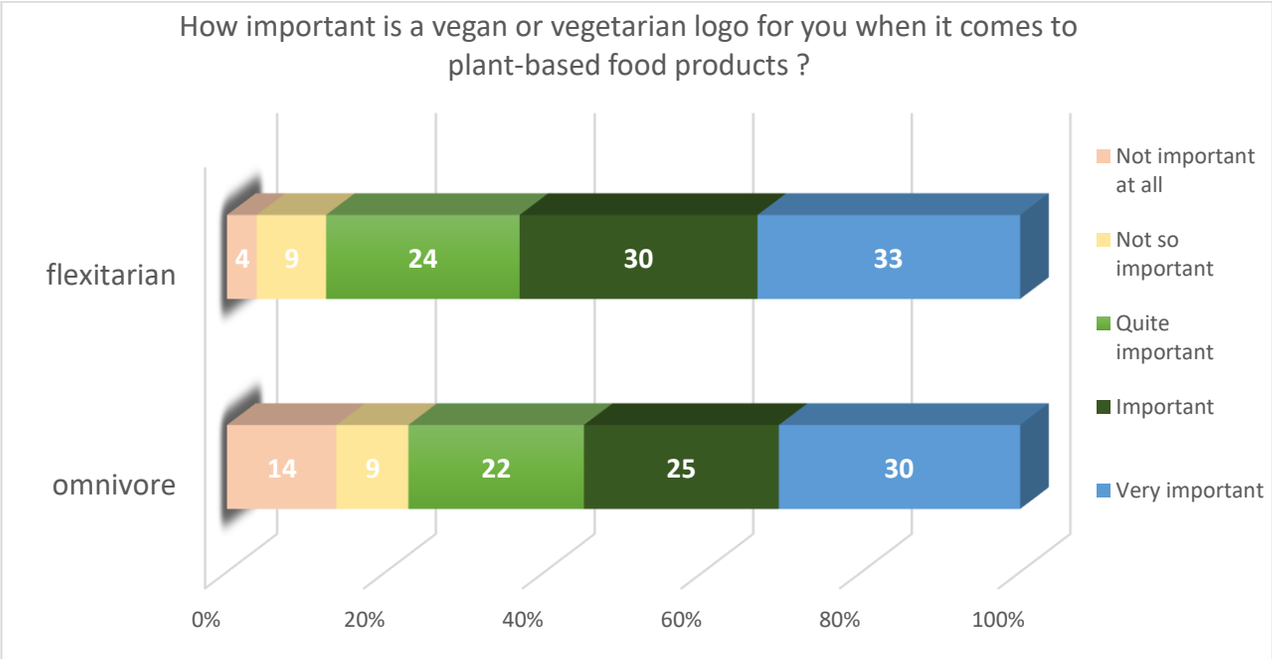


Figure 9. Question: How important is it for you that vegan and vegetarian products carry a certification logo? (total sample)

It is also notable that a significant percentage of omnivorous consumers who maintain a diet with frequent meat consumption (77%) recognize the importance of labeling, believing it facilitates the selection of plant products, while three in ten consumers in this group rate certification as very important. This differentiation may be interpreted as the fact that omnivorous consumers do not depend solely on plant foods and are therefore less likely to actively seek certified plant products.

In general, at a time when consumers are steadily leaning towards dietary practices that support sustainability, the strategic utilization of certified products through recognized logos and the education of Greek consumers about the benefits of plant-based diets can accelerate the transition in the domestic market.

Chapter III

Exploring Future Trends in Consumption

As already mentioned in this analysis, the category of "flexitarians" or "meat reducers" constitutes a significant part of the plant protein market, as these consumers, although not excluding meat from their diet, significantly reduce its consumption frequency while increasing the inclusion of plant foods. In reality, these consumers seek products that offer an experience similar to that of traditional animal foods, without "sacrifices" in taste or texture. Therefore, analyzing the habits and consumer behaviors of this group is vital for the plant food industry.

Consumer Habits in Animal and Plant-Based Eating – Spotlight on Flexitarians

To gather more data on the current consumption habits of flexitarian consumers, this sample was asked to report how often they consume animal-based foods and how long they have been following their current consumption habits. Along with frequency, they were asked to estimate the quantity of the usual serving size of animal-based foods they consume. With proper calculations, the average amount of pure meat consumption among flexitarian consumers was found to be 168.76 g per week, which is approximately 700 g per month. Flexitarian consumers show a clearly reduced consumption of pure meat compared to 2022 (a reduction of 30% from 2022).

Studying the reduction of consumption in specific foods compared to the previous year, it was found that pork (22%) and beef (20%) were the main foods whose consumption was reduced by flexitarian consumers, followed by fish and seafood (10%) as well as chicken (8%). In fifth place were alternative plant-based meat products (8%). The significant reduction in the consumption of pork (-22%) and beef (-20%) suggests that flexitarian consumers consciously adopt dietary choices associated with environmental and ethical issues, as both types of meat have some of the highest carbon footprints. There is generally a large degree of variation in the carbon intensity of different foods, with red meat and dairy having relatively high carbon intensities per protein unit compared to chicken and eggs (IGD, 2024). Conversely, plant protein sources have much lower carbon intensity than meat, and thus, transitioning to the consumption of more plant foods may play a crucial role in reducing emissions and improving sustainability. Studies show that the average carbon footprint for plant-based foods is 0.66 kg CO2-eq per kilogram, representing only 10.7% of the corresponding footprint for animal products, which is recorded at 6.15 kg CO2-eq per kilogram (Feng et al., 2023). Comparisons through life cycle assessments (LCA) highlight this difference, as a beef burger incurs more than double the environmental impacts compared to a plant-based burger (Tang et al., 2024). Additionally, the reduction in the consumption of fish and seafood (-10%) may be due to concerns about the sustainability of marine stocks, such as overfishing and water pollution.

As noted in the section on "Current Consumption Status and Prospects," 40% of Greek consumers stated they wish to change their dietary choices and intend to limit the consumption of meat and its products in the immediate future. In the context of

exploring trends to assess future meat and dairy consumption patterns, specific responses from flexitarian consumers were distinguished.

According to Table 3, 17% of flexitarians state that they intend to reduce dairy consumption, with similar percentages observed in 2022. At the same time, 36% of flexitarians express intentions to reduce meat consumption compared to 35% in 2022. These percentages highlight a stable trend towards limiting animal products over the past two years, thus reflecting the commitment of flexitarians to this change.

Table 3. Intent to increase or decrease consumption of animal and alternative plant-based products in the future (flexitarian sample)

	Milk and Dairy Products	Meat and Meat Products	Alternative Plant-Based Meat and Dairy Products
Intend to eat less	**17%**	**36%**	21%
Intent to eat a little less	**18%**	**34%**	7%
Intend to eat the same amount	59%	30%	49%
Intend to eat a little more	5%	1%	**21%**
Intend to eat more	2%	1%	**3%**

Notably, the percentages of those intending to maintain the same amount of meat (29%) and dairy (59%) consumption remain relatively high, although a slight decrease is observed compared to 2022. Nonetheless, the low percentages of those intending to increase their consumption of animal products indicate that the prospect of increasing meat consumption has reduced support.

Regarding acceptance of alternative plant-based products, significant progress is observed in the flexitarian sample. Although 28% of flexitarians state they intend to reduce their consumption of alternative plant-based meat and dairy products, only 24% express a desire to increase it (overall, 24% plan to eat a little or much more) (Table 3). This differentiation may suggest the ongoing exploration of plant foods by an increasing percentage of flexitarians. It is important to note that nearly 50% of flexitarians plan to maintain the same amount of consumption in alternative plant-based products, highlighting a stable trend of acceptance of these products among a large group as part of their daily diet. Compared to data from 2022, there is a small increase in the percentage of flexitarians who intend to reduce the consumption of alternative plant-based meat and dairy products (28% up from 26%), while the intention to increase consumption of these products shows a slight decrease (24% down from 32%). Flexitarian consumers seem to accept plant products, albeit somewhat cautiously, indicating that there is room for further market development. At the same time, the reduction of animal products remains

and continues at a steady pace, while a noticeable shift towards plant-based and alternative foods emerges, aligning with global trends for sustainability, reducing environmental footprints, and adopting healthy dietary patterns.

Flexitarian Consumers: Likelihood of Transitioning Further

In response to the question of how likely it would be to transition to alternative plant-based options if they were equal in taste, appearance, price, and availability to those based on animals, over 30% of flexitarian consumers indicate that such a transition to alternative plant-based products is very likely, while nearly 50% are somewhere in the middle (Table 4).

Table 4. Likelihood of flexitarian consumers transitioning to alternative plant-based solutions if they are equivalent in taste, appearance, price, and availability to animal-based counterparts.

	Not Likely	Somewhat Likely	Likely	Quite Likely	Extremely Likely
How likely are you to switch to plant-based alternatives if they are the same in taste, appearance, price and availability as animal-based alternatives?	**17%**	**24%**	**28%**	**21%**	**11%**

With 11% stating "extremely likely" to switch to alternatives and 21% considering it "quite likely," flexitarian consumers represent a key ally in spreading plant proteins and transitioning to more sustainable dietary models. Compared to the overall sample, as found in the previous chapter, flexitarian consumers appear more accepting, demonstrating that small changes in dietary habits can create significant outcomes due to the size of this population group.

Engaging this target group can be achieved by positioning plant-based products as healthy and tasty solutions that enhance variety in the diet, without requiring a complete exclusion of animal products.

In conclusion, the general population sample indicates that despite the challenges, there is a substantial foundation for the penetration of these products, while flexitarian consumers pave the way for greater acceptance and adoption of such products. However, the fact that nearly half of flexitarian consumers express hesitation about this transition raises questions regarding perceptions and trust in this category of foods. The reasons why this group of

consumers is reluctant to follow a fully plant-based diet are explored in the next section.

Omnivores and Future Prospects for the Industry

To better understand the current consumption habits of omnivores, a survey was conducted asking them to state the frequency and quantity of their consumption of animal-based foods. Participants were asked to estimate the typical daily quantity they consume, which enabled the calculation of the average weekly pure meat consumption at 555.8 grams. This corresponds to approximately 2.22 kg per month, a quantity about 1.6 times greater than that consumed by flexitarians. According to WHO guidelines, consuming 50 g of processed meat daily is associated with an 18% increased risk of colorectal cancer. This is equivalent to 350 g/week. Omnivores significantly exceed this safety threshold, consuming about 60% more (556 g/week). In contrast, flexitarians in 2024 consume only 170 g/week, which is 30% of the amount consumed by omnivores and 50% below the WHO upper limit, placing them within safe consumption levels.

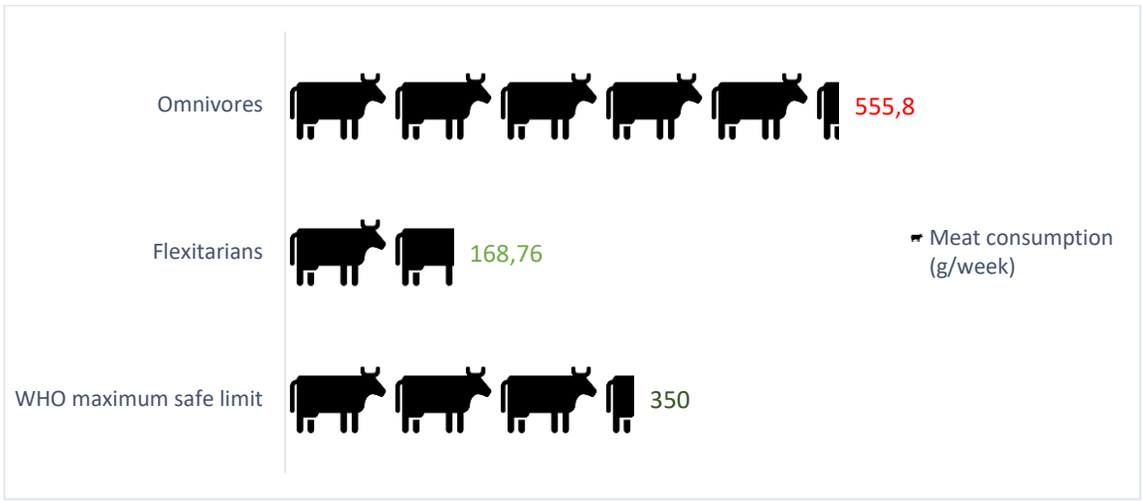


Figure 10. WHO recommendations for the upper limit of red meat consumption compared to the average consumption of omnivores and flexitarian consumers

The recommendations provided by various national dietary guidelines (European Union, 2024) typically suggest a maximum weekly intake of red meat between 300 and 500 grams. For Greece, recommendations indicate one serving of red meat per week, and 1-2 servings of white meat/poultry per week (serving: 120-150 grams cooked) (FBDG, 2024). Therefore, a key recommendation is to limit red meat and avoid processed meat.

The gradual shift from a meat-based diet towards a more plant-based diet can offer multiple benefits for both human health and environmental sustainability. High meat consumption, particularly red and processed, has been shown to be associated with severe health impacts, increasing the risk of chronic diseases and premature mortality. Scientific studies indicate that excessive consumption of red meat is linked to a 21% increased risk of developing colorectal cancer and a 19% increased risk of developing type 2 diabetes (Nian, T. et al,

2023). A recent study showed that a higher ratio of plant to animal proteins is associated with lower risks of cardiovascular and coronary disease, while the highest ratio combined with higher protein density showed the greatest cardiovascular benefit (Glenn, A.J et al., 2024). Regarding environmental health, even limited reductions in meat consumption can lead to significant reductions in natural resource use and greenhouse gas emissions, enhancing the protection of the planet. Studies show that reducing meat consumption by 100 grams per week can significantly lower the water, carbon, and land use footprints associated with meat production (Trasca et al., 2024).

Flexitarians can serve as an essential model for this change. Conversely, omnivores require further education and awareness regarding the risks of overconsumption of meat, as documented by international organizations. This research underscores the need for raising awareness among omnivores about the impacts of excessive meat consumption on both health and the environment. On the other hand, flexitarians seem to follow more balanced practices, significantly exceeding WHO recommendations. The data demonstrate that the reduction in meat consumption, as observed among flexitarians, could lead to long-term positive effects for both public health and environmental protection.

Shifting Patterns Among Mixed-Diet Consumers

The finding that 62% of Greeks consider meat consumption in the country excessive and that 46% intend to reduce their personal intake within two years reveals a gradual shift towards more sustainable dietary habits (Good Food Institute Europe, 2024). The analysis of data concerning omnivorous consumers, as presented in Table 5, reveals significant aspects for future consumption of animal (AB) and plant-based (PB) products. Examining intentions for future meat consumption, 13% of omnivores state that they intend to significantly reduce meat consumption, a percentage that remains unchanged from 2022. However, a notable decrease is observed in the intention for "a little less" meat consumption, from 33% in 2022 to 20% in 2024. This likely indicates a stabilization in the dietary habits of those who have already reduced their meat consumption.

Table 5. Future consumption of animal and plant-based products (omnivore sample)

	Meat and meat products	Milk and dairy products	Meat/Dairy Alternatives
I intend to eat less	13%	6%	30%
I intend to eat a little less	20%	15%	9%
I intend to eat the same amount	61%	70%	52%
I intent to eat a little more	3%	6%	8%
I intend to eat more	2%	1%	2%

Regarding intentions for dairy products, the majority of omnivores (70%) express intent to maintain the same level of dairy consumption, a percentage that is slightly reduced from 2022 (74%). The percentage of consumers intending to reduce dairy consumption remains low (6%), with this percentage stable compared to 2022.

Plant-based options seem to be losing some ground among omnivores, as although there is a significant increase in the intention to reduce the consumption of animal products, the desire to adopt plant-based products has little support. Specifically, 30% of omnivores state that they intend to reduce their consumption of alternative plant-based products, while the corresponding percentage in 2022 was 24%. However, the percentage of consumers intending to maintain the same level of consumption of alternative plant-based products remains stable (52% in both 2022 and 2024), indicating a consistency in acceptance and consumption of these products. The intention to increase consumption of these products shows a slight decrease compared to 2022 (8% down from 13%), which may reflect dietary habits that have already stabilized.

Is a future change in dietary habits for this segment of consumers possible?

While the reduction in the consumption of animal products (dairy and meat) shows slight variations, the overall picture reveals a trend of maintaining the current status by the majority of consumers. Regarding plant-based products, the stable consumption by the majority of omnivores (52%) combined with the steady intention to reduce meat consumption highlights that there is room for further enhancement of the adoption of plant foods.

At the same time, it cannot be overlooked that a significant percentage of omnivorous consumers appears aware of the need to reduce meat consumption but is hesitant to do so.

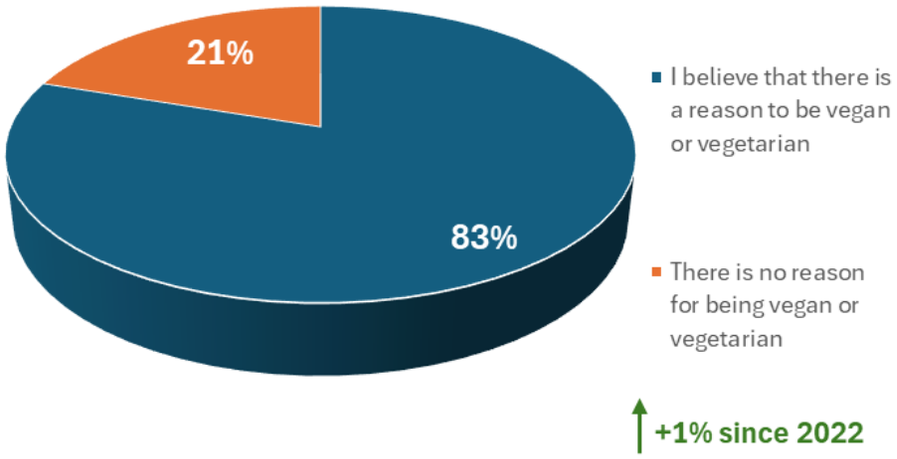


Figure 11. Omnivores' perceptions regarding vegetarians

As shown in Figure 11, a striking 83% of this consumer segment agrees that there are reasons to reduce or eliminate meat consumption, recognizing that such a transition is valid. The perception and awareness of the value of vegetarianism, even though these consumers have not yet taken action towards transitioning, highlight the level of awareness present within the general population, which may lead to similar actions in the near future. It is therefore emphasized once again the importance of promoting high-quality, tasty, and affordable plant-based products to gain more ground from this consumer group.

Chapter IV

Market Opportunities for Plant-Based Foods

Can plant-based products be the key to transitioning omnivorous consumers and the food industry?

When consumers were asked where they purchase plant-based foods, supermarkets topped the preferences, with 50% of respondents choosing them as their primary source for these products. Organic stores followed in second place, with over 20% of consumers seeking plant-based products there. The internet (15%) and farmers' markets (8%) were the next preferred sources for consumers.

Plant-Based Products Consumers Want to See More Of

Preferences for purchasing alternative plant-based products in supermarkets vary from country to country, as noted in the European study.

In Figure 12, the levels of interest among respondents for the existence of alternative plant-based products in various animal products in Greece are presented. Specifically, participants expressed a greater desire for plant-based alternatives to cheese (12%), which may be attributed to the widespread use of cheese in daily diets and the difficulty of replacing it with plant products that maintain the same taste and texture.

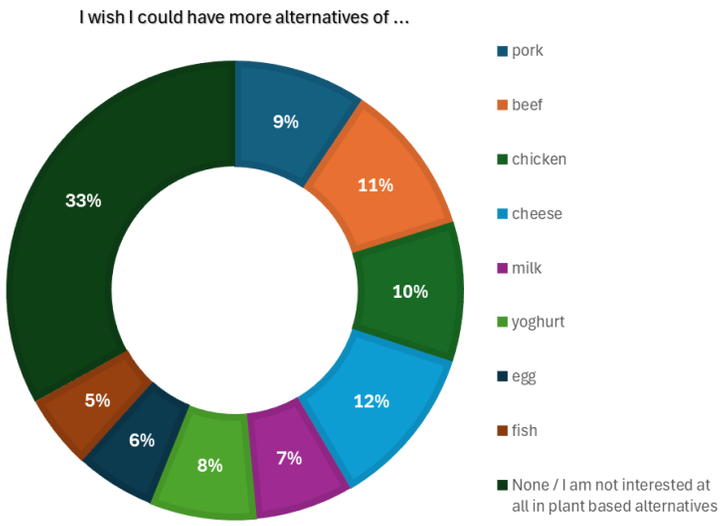


Figure 12: Question: What plant-based alternatives do you wish to see more of?

Similarly, interest in plant-based alternatives to beef (11%), chicken (10%), and pork (9%) indicates that consumers are looking for more satisfying solutions in plant-based products that mimic the taste and nutritional value of these foods, in order to further reduce or eliminate them from their diet. These indicators reveal a market perspective that could be addressed by producers of alternative plant-based products, as meat remains a fundamental element in most diets and the search for corresponding plant options is quite high.

At the same time, the desire for plant-based alternatives in products such as milk (7%), yogurt (8%), and eggs (6%) remains lower compared to meat and cheese. This may be due to the already existing variety of plant-based dairy products available in the market, such as almond, soy, and oat milk, which satisfactorily meet consumers' needs.

Additionally, it is worth noting that a significant percentage of respondents (33%) answered that they do not miss any alternative options or are not interested in more plant-based alternatives. This percentage suggests that for a significant segment of the population, either existing options are considered sufficient, or there is no need to incorporate plant-based products into their daily diet. This finding is important for businesses in the plant product production space, as it highlights the existence of a conservative consumer base that may require further information and education regarding the benefits of plant alternatives.

Motivations for Choosing Plant-Based Foods

In Table 6, the main factors guiding consumers' decisions to reduce or eliminate meat consumption based on dietary preference (food tribe), age, and gender are presented. The primary factors include animal welfare, health care, and environmental sensitivity, and the analysis of data by dietary preference, age group, and gender reveals interesting patterns that contribute to understanding consumer motivations.

Table 6. Reasons why reducing or eliminating meat consumption is important by dietary preference, age, and gender (Highlighted in green: the highest % per column by demographic, and in yellow: the highest % per row by demographic| Multiple Choice | Total = 750 | Flexitarians n= 160 | Omnivores n = 529 | 18-24 n= 92| 25-34 n=150 | 35-44 n= 170 | 45-55 n= 150 | 55-70 n= 188

	Animal Welfare	Health	Environment
Flexitarian	61%	24%	11%
Omnivore	60%	21%	11%
18-24	68%	21%	2%
25-34	66%	14%	10%
35-44	64%	17%	10%
45-54	58%	27%	10%
55-70	53%	25%	15%
Women	67%	17%	9%
Men	55%	25%	12%
Weighted Average	61%	21%	11%

When participants were asked what reasons, they consider valid for reducing or eliminating meat consumption, both flexitarian and omnivorous consumers cited animal welfare as the main reason, with nearly identical percentages (61% and 60%, respectively). This shows that even consumers who eat meat care about animal welfare, reinforcing the view that reducing meat consumption is not solely a decision for those adopting an exclusively vegetarian diet, but a broader ethical issue. Health follows as a key motivation for reducing or eliminating meat consumption, with rates of 24% among flexitarians and 21% among omnivores, while environmental concerns appear at lower rates (11% for both groups).

Analysis based on age group

The analysis by age group shows that younger consumers, particularly those aged 18-24, are the most sensitive regarding animal welfare (68%). This percentage gradually decreases as age increases, with consumers aged 55-70 showing a lower percentage (53%). This may reflect the greater awareness of ethical issues related to livestock farming and animal exploitation among the younger generation. In terms of health, consumers in the 45-54 age group exhibit the highest percentage (27%), which may be related to increased awareness of the impacts of diet on health as they age. Regarding the environment, the age group of 55-70 appears to show greater concern (15%) compared to younger groups, indicating that environmental motivation

may be more linked to awareness of the long-term consequences of climate change.

Analysis based on gender

Women show a higher percentage of interest in animal welfare (67%) compared to men (55%), which may indicate a broader sensitivity among women to ethical issues. Additionally, men place greater emphasis on health (25%) compared to women (17%), possibly showing more focus on personal health. In terms of environmental concern, both genders present lower percentages, but men appear to show slightly greater interest (12% compared to 9% for women).

The results of the survey indicate that animal welfare is the most significant reason for reducing meat consumption, especially among younger age groups and women. Health is also an important factor for this transition, particularly among those aged 45-54, indicating that concern for health increases with age. Finally, while environmental concern appears at lower rates, it remains a factor to consider, especially in strategies aimed at promoting a more sustainable and responsible diet.

These findings underscore the need for public awareness regarding the impacts of diet, specifically meat consumption, on the environment. A coordinated awareness campaign could support the transition to dietary choices that promote sustainability and respect for animals, while simultaneously improving consumer health. Reducing meat consumption is essential for mitigating climate change and protecting human health. Implementing such a strategy requires understanding the socio-economic factors influencing dietary choices while maintaining a balance between nutritional needs and sustainability.

Animal welfare is the primary reason for reducing or eliminating meat consumption

What Greek Consumers Look for When Buying Plant-Based Products

When it comes to purchasing alternative plant-based products, Greek consumers' buying decisions focus on affordability (26%), health (19%), and seasonality of the product (17%), followed by a preference for foods without additives (15%). Affordability maintains its significance and influence on Greek purchasing decisions over the past two years, which is not surprising given the increase in inflation over the last two years. At the European level, consumers focus on taste (53%), health (46%), and affordability (45%) when selecting alternative plant-based products.

Affordability and Health influence the purchasing choices of Greek consumers

Table 7. Question: When I shop for food, my choice is influenced by the following.. (Highlighted in green: the highest % per column by demographic, and in yellow: the highest % per row by demographic) Multiple Choice | Total = 750 | Flexitarians n= 160 | Omnivore n = 529 | 18-24 n= 92| 25-34 n=150 | 35-44 n= 170 | 45-55 n= 150 | 55-70 n= 188

	Price Accessibility	Health	Freshness (seasonality)	No additives
Flexitarians	74%	65%	57%	-
Omnivores	84%	57%	54%	-
18-24	86%	50%	-	49%
25-34	84%	51%	42%	-
35-44	81%	60%	48%	-
45-54	82%	-	61%	46%
55-70	77%	-	66%	54%
Women	83%	60%	58%	-
Men	79%	58%	50%	-
Weighed Average	81%	49%	53%	48%

The percentages in Table 7 indicate the key priorities of different demographic groups regarding the adoption of a plant-based diet. Comparing preferences between flexitarians and omnivores, both groups emphasize affordability, with omnivores showing a higher percentage (84%). However, flexitarian consumers place slightly less emphasis on price (74%) compared to omnivorous consumers, suggesting that those adopting more flexible dietary habits may be more willing to invest extra money in plant foods, while still having significant concern regarding cost. At the same time, flexitarian consumers also show greater concern for health (65%) compared to omnivorous consumers, reflecting this group's tendency to choose foods based on health benefits.

Analyzing age groups, younger consumers aged 18-24 place particular emphasis on affordability (86%), which likely reflects financial concerns at younger ages, where incomes may be lower. High percentages are also seen in age groups 25-34 (84%), 35-44 (81%), and 45-54 (82%), reflecting financial pressures and saving needs in these ages, where individuals may have family responsibilities or professional priorities. The age group 55-70 shows higher preference for the freshness of products (66%) and for products without additives (54%), indicating a trend for fresh and clean-label plant-based foods. This preference may be linked to greater awareness of food quality and the need to avoid chemicals or substances whose effects on health are not known, especially in older ages.

In gender analysis, women place greater emphasis on affordability (83%) and health (60%) compared to men, who primarily focus on price (79%). This difference may reflect variations in the priorities of the two genders regarding their dietary behaviors.

The analysis shows that while consumers are interested in plant-based foods, price remains a decisive factor for their adoption and integration into daily life across all analyzed groups. This finding underscores the importance of the economic accessibility of plant products for their widespread acceptance. Additionally, freshness and seasonality of products are primary concerns, especially for older age groups. These insights provide guidance for improving the accessibility of plant products according to the needs of each population, while indicating the necessity for developing strategies that further highlight the health benefits of these foods to attract broader consumer groups.

Barriers to Choosing Plant-Based Foods

In this research, the reasons why Greek consumers avoid plant-based foods and do not choose them were explored. Table 8 presents the main barriers faced by various population groups in selecting plant-based foods, referencing three key factors: price, taste, and health.

Tableç 8. Question: What are the reasons for not purchasing alternative plant-based meats/dairy? (Highlighted in green: the highest % per column by demographic, and in yellow: the highest % per row by demographic) Total = 750 | Flexitarians n= 160 | Omnivore n = 529 | 18-24 n= 92| 25-34 n=150 | 35-44 n= 170 | 45-55 n= 150 | 55-70 n= 188

	Price Accessibility	Health	Freshness (seasonality)	No additives
Flexitarians	74%	65%	57%	-
Omnivores	84%	57%	54%	-
18-24	86%	50%	-	49%
25-34	84%	51%	42%	-
35-44	81%	60%	48%	-
45-54	82%	-	61%	46%
55-70	77%	-	66%	54%
Women	83%	60%	58%	-
Men	79%	58%	50%	-
Weighed Average	81%	49%	53%	48%

Flexitarian consumers express higher concern about the price of plant foods, with 47% citing it as the primary barrier. Conversely, for omnivorous consumers, the main barrier to choosing these products is taste (45%), indicating that consumers who follow a conventional meat-based diet find it more challenging to adapt to the taste differences observed in plant products compared to their conventional animal-based counterparts.

When it comes to a purchasing decision among various products, taste and price emerge as key criteria, as consumers are not willing to pay extra for a product that offers only equivalent taste to animal-based products. In both consumer groups, health also plays a prominent role as it ranks second, significantly influencing the choice of these products. These findings address questions arising about the reduction in the consumption of alternative plant-based meat from the sample of omnivores and flexitarian consumers (10% and 8% respectively from the previous year).

Regarding age groups, younger consumers (18-24 years) appear to be more concerned about health (43%), which may relate to the increasing awareness of the importance of diet on health at a young age. In the 25-44 age groups, cost emerges as the most significant deterrent to choosing plant foods or alternative plant-based solutions, with rates of 42% and 47% respectively. On the other hand, adults aged 55-70 seem to place greater importance on taste (47%), which is likely due to the strength of habit regarding

their dietary choices that they find difficult to change.

In terms of gender, women exhibit increased concern about the price of plant products (46%) compared to men who cite taste (46%) as the primary barrier. This difference may reflect variations in priorities regarding dietary behaviors between the two genders.

The analysis indicates that **cost and taste are the primary barriers to choosing plant foods, with the health factor primarily influencing younger age groups**. This observation can be interpreted through various factors related to dietary habits, perceptions, and the accessibility of plant products. The high cost of many plant-based products could be a significant deterrent for younger age groups (18-24 years), who often have a limited budget and cannot exclusively choose these foods for their diet. .

However, even though younger consumers are strongly interested in health, ignorance or misconceptions about plant foods may act as deterrents. As noted, a percentage of consumers perceive plant-based products as less healthy, especially if they are processed. According to a report by the Plant-Based Foods Association (PBFA) and the Good Food Institute (GFI) in 2023, approximately 30% of consumers view plant-based products as less healthy compared to their animal-based counterparts. This belief may prevent them from trying plant-based proteins, despite the general interest in healthier dietary habits. Younger consumers seem to worry even about the nutritional adequacy of these foods, such as protein intake, as there is a prevailing notion that consuming meat is the healthiest source of protein, and that choosing plant-based foods does not provide sufficient protein, even though this perception is scientifically inaccurate. The limited information regarding the benefits of plant foods, combined with the increasing availability of processed options, may create confusion among a large segment of consumers. While younger consumers are more open to new dietary trends, they may not have access to sufficient evidence to debunk the myths surrounding the nutritional value of plant foods.

Processed Plant-Based Foods

It is essential to recognize that processing can positively impact the nutritional value and healthiness of a product, for example, by improving food safety, enriching them with nutrients, and increasing digestibility and absorption of nutrients. A report comparing certain meat substitutes with their animal-based counterparts showed that there are significant differences in the nutritional profiles of the latter products, which can only be partially attributed to the degree of processing. For instance, minimally processed lean beef contains more saturated fats than most highly processed meat substitutes. Conversely, highly processed plant-based bacon and sausage are, on average, less salty than their animal-based versions. At the same time, there are numerous efforts to improve the nutritional value of alternative plant-based meat products, such as enhancing their protein and fiber content, increasing vitamin levels, and eliminating unhealthy ingredients like phytic acid (Lappi 2022).

Trust Levels in Alternative Proteins

Alternative protein sources, such as plant-based products and proteins from single-celled organisms, show significant potential for reducing environmental impacts compared to conventional meat (Bry-Chevalier, 2024). Data regarding trust in alternative forms of protein among Greek consumers and consumers across Europe reveal interesting insights and differences in acceptance and preference for specific protein sources.

Initially, it is observed that plant protein, which includes grains and legumes, is the most accepted alternative protein both in Greece and in the rest of Europe. Specifically, 43% of European consumers express trust in this category, compared to 36% of Greek consumers. This finding likely reflects the greater familiarity of Europeans with plant proteins, which may be due to the wider dissemination of vegetarian and vegan diets across Europe, as well as the more available options for plant-based products.

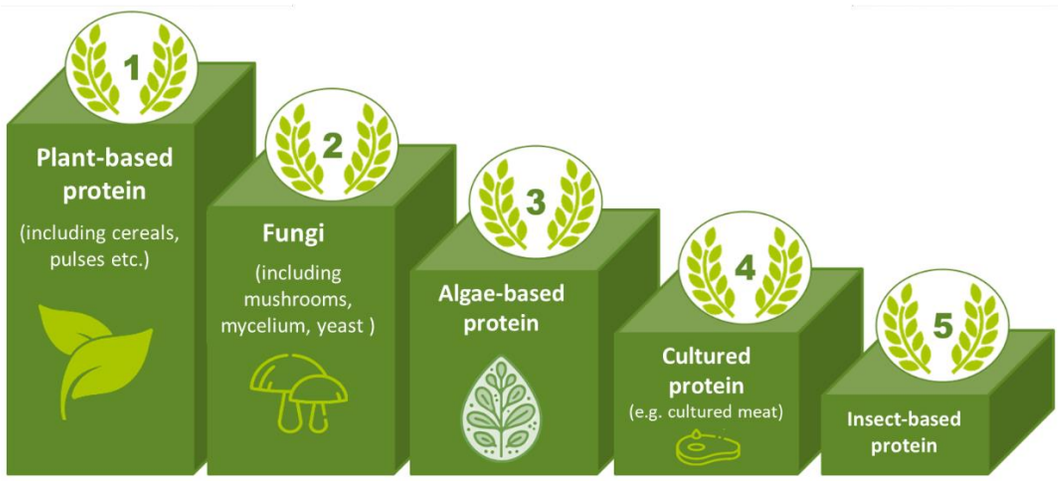


Figure 13: Which of the following alternative proteins do you trust the most? Rank them from 1 (least trusted) to 5 (most trusted)

In contrast, in the case of protein from fungi (e.g., mushrooms, mycelium, and yeasts), the trust of Greek consumers is higher (25%) compared to the European average (20%). This result may reflect the increased use of mushrooms and fungi in the Greek diet, as mushrooms are already part of local cuisine and are becoming increasingly popular as a tasty and nutritious alternative to meat.

Regarding seaweed proteins, acceptance is similar between Greeks and Europeans, with rates of 19% and 17% respectively. This small difference indicates that seaweed proteins are known and accepted to some degree but remain peripheral as a protein source. This acceptance may increase in the future with the evolution and spread of products containing seaweed as an ingredient, as well as better awareness regarding their nutritional benefits and positive contributions to sustainability.

Cultured meat proteins show extremely low levels of trust, with only 11% of consumers, both in Greece and the rest of Europe, trusting it as an alternative. Cultured meat is meat like the beef, pork, and chicken we consume today, but it is not produced by raising and slaughtering animals. Instead, it involves taking a small sample of cells from an animal and placing them in a bioreactor, where they are provided with water, nutrients, and warmth necessary for the cells to grow. This form of protein, while ambitious in its potential to reduce dependence on conventional livestock farming, seems to have failed to gain the trust of the general public. This may be due to a lack of information or concerns about the safety and quality of cultured products, as this is a relatively new technology.

Lastly, insect proteins record the lowest trust percentage with only 9% of consumers, both in Greece and in Europe, stating they trust them. Despite the increasing promotion of insect consumption as a sustainable protein source, the lack of insect products in the market and the limited awareness of consumers regarding their nutritional benefits may contribute to the observed reluctance.

Studying trust in alternative proteins among flexitarian and omnivore consumers in Greece reveals small but significant differences in their preferences and perceptions regarding these protein sources. These results contribute to the understanding of trends surrounding alternative protein sources, especially in an environment where dietary habits are shifting towards more sustainable choices.

Regarding plant-based protein, trust levels are relatively similar, with 35.3% of flexitarians and 36.6% of omnivores expressing confidence in plant-based protein. This indicates that plant-based protein is considered equally reliable by consumers from both groups, despite differences in their dietary habits. Although the difference is small, it shows that flexitarians do not necessarily have higher trust in all alternative proteins, while plant-based proteins serve as common ground for both groups.

Mushroom protein is the next most trusted protein source for both consumer groups. Fungi, such as mushrooms and other mycelia, seem to be accepted by both categories (26%), likely due to their existing presence in Greek diets. This percentage indicates the growing recognition of mushrooms as a viable and healthy alternative to meat.

As for seaweed proteins, only 20% of flexitarians and 18% of omnivores reported trusting this protein source. Although seaweed is more common in Asian cuisines, it is beginning to gain traction in the West as a viable option, thanks to its nutritional properties. The gradual acceptance by both groups may increase over time with greater market availability of seaweed-based foods.

The last two categories include cultured cell proteins and insect proteins, which show the lowest trust levels for both analyzed groups (11% and 8%, respectively). The low trust in cultured proteins may reflect a lack of knowledge and confidence in this new technology, as well as concerns regarding the safety and quality of such products.

Regarding insect proteins, which show the lowest acceptance, there is a potential aversion to consuming insects, despite efforts to promote them as a sustainable protein source. The gradual incorporation of insect proteins into the diets of Greeks will require changes in dietary preferences and possibly education regarding the nutritional benefits and sustainability of this source. A study conducted in 2022 by HellasVeg found that 27% of flexitarians would likely consume cultured meat, while 52% showed openness to this prospect, albeit with some hesitation. In contrast, regarding edible insect protein, only 10% of these flexitarian consumers stated they are very likely to consume such products, while the majority (57.5%) ruled out such a possibility.

Plant protein and mushroom protein represent the primary alternative protein sources that flexitarian and omnivore consumers trust the most.

Greek Consumers' Attitudes Towards Cultivated Meat

In a survey conducted in April 2024 by the Good Food Institute Europe regarding consumer attitudes towards cultivated meat across 15 European countries, including Greece, 33% stated they have heard about the new way of producing meat in the past, with only 6% knowing a lot about cultivated meat.

When asked about consuming cultivated meat, 55% of respondents would try it at least once, indicating curiosity and willingness to explore new dietary options. However, only 27% stated they would replace traditional meat with cultivated meat, while 38% completely rejected the idea of consuming it. These percentages align with the findings of the HellasVeg 2022 research on the dietary habits of Greek consumers.

Regarding the regulatory framework for cultivated meat, 62% of respondents support the sale of cultivated meat provided it has been approved by regulatory authorities, and 65% believe the approval process should be independent of commercial interests. These percentages indicate a high level of trust in institutions related to food safety, while also highlighting a clear demand for transparency and reliability in decision-making. Simultaneously, the fact that 60% of Greeks prefer domestic production of cultivated meat shows interest in leveraging this technology for the benefit of the national economy. However, only 39% support funding for research and development in this area, revealing limited willingness to invest in innovations despite interest in their benefits.

In summary, traditional plant proteins continue to hold the top position in consumer preferences, both in Greece and Europe, while newer and less traditional forms of protein, such as cultured meat proteins and insect proteins, require significant efforts to gain consumer trust and acceptance. Additionally, the analysis reveals that flexitarian and omnivore consumers in Greece exhibit relatively similar perceptions regarding alternative proteins, with acceptance of more traditional alternatives, such as plant proteins and fungi, being higher compared to newer and less widespread alternatives, such as cultured meat and insect proteins.

Chapter V

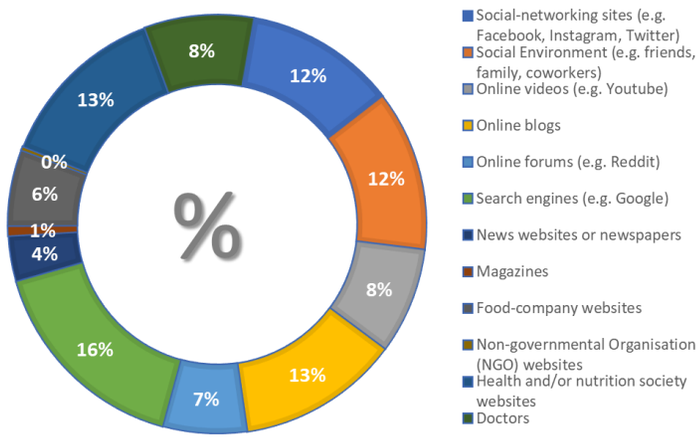
Social Media's Influence on Greek Food Attitudes and Purchase Behaviors

Search engines and health and nutrition websites are the top channels of information for plant-based foods

55% of Greek consumers trust digital media more, such as search engines (Google) and social media, when seeking information about plant-based foods and alternative proteins, while only 13% are informed by official health and nutrition bodies (Figure 14). This finding confirms the role of digital media as quick and easy sources of information.

On the other hand, news websites or newspapers and magazines ranked as less reliable sources, with only about 5% of consumers getting information from these sources.

Figure 14. Sources of information for Greek consumers regarding plant-based products



Top Social Media Platforms

Examining the sources of information and levels of trust across various sources, it was deemed important to investigate the main social media platforms in terms of preferences and usage frequency among Greek consumers, as they are the top sources of information for plant-based foods. The main social media platforms for all respondents were found to be Facebook (25%) and YouTube (25%), followed by Instagram at 19%. Other platforms, such as TikTok (14%), Twitter (7%), Pinterest (6%), and Snapchat (4%), show lower popularity.

In Table 9, the differentiation in the use of social media platforms by age group is highlighted, both in terms of preferences and usage frequency. Younger consumers aged 18-33 prefer Instagram and TikTok as their daily social media platforms, while older users aged 35-70 primarily choose Facebook for their daily interactions on social media. A significant percentage of those aged 45-54 even spend more time on Facebook (38%).

Table 9. The top three social media platforms by age group

	Facebook	YouTube	Instagram
18-24	11%	25%	26%
25-33	23%	22%	23%
35-44	25%	24%	17%
45-54	32%	25%	14%
55-70	38%	24%	13%

The observed differences reflect the varying relationships each generation has with the platforms in terms of familiarity and preferences. Platforms like Instagram and TikTok are oriented towards audiovisual and interactive content, which explains the increased usage among younger users for entertainment and short content. Facebook, on the other hand, appears to be used more for social interaction and content sharing in a more traditional environment, explaining the preference of older ages. YouTube, although not ranked at the top for any age group, maintains high usage rates across all ages, making it a timeless popular platform.

The penetration of these platforms indicates the necessity to adapt marketing strategies according to the age demographic of the target audience. For example, a business targeting younger users may focus on Instagram or TikTok, while for older consumers, Facebook remains a key option that may yield better results.

The varied use of platforms suggests that there is no one-size-fits-all strategy; rather, a tailored approach is required based on the demographic profile of users.

Further analysis of the flexitarian consumer sample revealed that their preferences for social platforms include YouTube and Facebook as the most popular platforms, with 25% of flexitarians preferring them. Instagram follows with 19%, indicating that this consumer group is also interested in visual content that may relate to lifestyle and diet, features in which Instagram specializes, while TikTok (13%) and Twitter (7%), which appear to have less appeal, still attract the interest of flexitarians, possibly due to the ability to rapidly disseminate new trends and brief updates on topics like nutrition and health. These findings are important for businesses as they can leverage YouTube and Facebook for educational content or recipes, while Instagram can provide opportunities for inspired visual content suitable for promoting a lifestyle with more plant-based foods.

Facebook and YouTube emerge as the main social networking platforms

How Social Media Influences Consumer Behavior

Examining the influence of social media on dietary behaviors and perceptions among Greek consumers reveals their significant impact on both enhancing the desire for food and on decisions related to the selection of specific foods.

Social media platforms influence 45% of consumers, increasing their desire for food through the presentation of appealing dishes. Nearly the same percentage is observed among European consumers exposed to social media content regarding increased food cravings (44%). Additionally, 28% of consumers indicate that their opinion of a product is shaped by how it is presented on social media. At the European level, this percentage, which leads to changes in their perception of a specific product, shows an increase (36%) compared to Greece. These findings underscore the power of visual stimuli, making social media a powerful tool for promoting products, especially in the plant-based food sector.

From a psychological and social capability perspective, it is found that although 56% of Greeks find it easy to prepare a plant-based meal, only 43% are aware of the benefits of consuming plant-based foods. This indicates that while there are basic skills, a full understanding of the nutritional value of alternative plant-based products is lacking. Meanwhile, 50% of consumers state that social media facilitates their search for and selection of plant-based foods, reinforcing the importance of social media as a source of information.

Digital platforms affect perceptions of food consumption and sustainability.

From an emotional influence and motivation standpoint, conscious thought about health and environmental benefits motivates approximately 30% of consumers to choose plant-based foods. This attitude suggests that Greek consumers adopt a more reflective approach when considering the positive characteristics of plant options, rather than following automated patterns.

The strong connection between social media exposure and increased food desire creates opportunities for businesses to invest in marketing strategies that focus on the aesthetic presentation of their products. Simultaneously, raising awareness about the benefits of plant-based diets is essential to enhance acceptance of these products. With the appropriate use of social networks, consumers can gain better information and more motivation to integrate plant-based foods into their diets.

Chapter VI

Greek Opinions on Food Policy Action

Greek consumers express distinct views on food policy and the changes they believe are necessary to create a more transparent and sustainable food system. Notably, 71% of Greek respondents call for a greater transparency in product certifications (such as environmental, health, and organic labels) to enable more informed purchasing and consumption decisions (Table 10). This figure exceeds the European average of 64% for support for transparency in environmental and ethical certifications, suggesting a heightened awareness among Greek consumers regarding the impacts of food production – likely influenced by growing environmental concerns. There is also stronger support in Greece for removing taxes on foods with low or neutral environmental footprints and on healthier options, with 68% and 66% of Greek respondents in favor, respectively, compared to 63% across Europe. Research shows that health-oriented policies, such as taxing meat, can be effective in both reducing consumption and achieving environmental goals (Bonnet & Coinon, 2024). Among individual countries, Italy, Spain, the United Kingdom, and Greece show the highest levels of public enthusiasm for various policy interventions, particularly in the areas of certification transparency and tax reform.

Another noteworthy finding is that 68% of Greek respondents support government incentives for farmers transitioning to plant-based agriculture, compared to 56% in Europe, reflecting a greater recognition of sustainable farming as a priority. Similarly, 61% of Greeks support policies promoting plant-based meals in public institutions such as schools, hospitals, and public events—also slightly above the European average of 57%. Evidence from universities shows that multifaceted strategies can effectively reduce meat consumption, reinforcing the value of structured policy interventions (Chang et al., 2023).

When it comes to terminology, about 48% of Greek consumers favor the use of familiar terms—like “plant milk” or “plant burger”—for plant-based alternatives, in line with the 49% EU average. Such terminology helps ease the transition toward new eating habits.

Table 10. Greek and European consumers opinion on Food Policy Action

	Greece	Eu Average
To enhance transparency in food certifications related to environment, health, animal welfare, and organic	71	64
To eliminate taxes on foods that carry health claims and contribute to a healthier lifestyle	66	63
To eliminate taxes on foods with negative or zero environmental footprints	68	63
To financially support media campaigns aiming to reduce the consumption of meat or dairy products	51	61
To support policies aimed at increasing plant-based meals in schools, cafeterias, hospitals, and other dining venues	61	57
To support producers and farmers wishing to transition to plant-based and sustainable agriculture	68	56
To support the use of "terms" or "names" referring to meat or milk or products thereof in alternative plant-based products (such as plant milk, plant sausage, plant burger, etc.)	48	49
To reduce subsidies aimed at the production of meat/meat products or dairy products	38	45

However, support for measures aimed at reducing animal product consumption is noticeably lower in Greece. Only 51% of Greeks support awareness campaigns to reduce meat and dairy consumption, compared to 61% across the EU. Similarly, just 38% agree with reducing subsidies for meat production, compared to 45% in Europe. These lower figures may reflect a cultural affinity for animal-based products, which could present challenges to promoting dietary shifts. Yet, reducing animal product consumption, particularly in high-income populations, is a key strategy for addressing climate change, protecting biodiversity, and combating chronic health issues, according to the EU's Scientific Advisory Group (SAPEA, 2023).

In summary, Greek consumers clearly signal a desire for policymakers to play a more active role in transforming the European food system toward one that is healthier and more sustainable. A balanced policy framework for sustainable meat consumption must align individual dietary behavior with broader environmental goals (Cué Rio et al., 2022).

The comparative analysis shows that Greek consumers are more attuned to issues of transparency, taxation incentives, and support for sustainable agriculture than the average

European consumer. However, less enthusiasm for reducing animal product consumption points to deeper cultural factors that will require time, education, and trust-building to shift. Moving forward, coordinated efforts between industry and government, such as those seen in Denmark, may offer valuable guidance.

In the context of European food policy, the Smart Protein project calls on the European Commission to adopt policies that enhance sustainability and innovation in the plant-based food sector. Its approach centers on the following key policy areas:

- **Sustainability Labeling:** Establish a standardized EU-wide labeling system that clearly communicates a product's environmental impact, promoting sustainable consumption.
- **Clear Legal Definitions**: Define "vegan" and "vegetarian" within EU legislation to build consistency and consumer confidence.
- **Naming of Plant Products**: Update regulations to allow terms like "milk" or "cheese" to be used for plant-based alternatives, provided there is no risk of consumer confusion.
- **Organic Certification Standards**: Extend organic certification criteria to include a wider range of plant-based products.
- **VAT Reform**: Equalize or lower VAT rates on plant-based foods to make them more affordable and competitive.
- **Agricultural Policy Review**: Strengthen support for sustainable agriculture with a focus on crop-based food production.
- **Increased Research Funding**: Boost investment in R&D to support innovation and improve the quality and appeal of plant-based products.

These recommendations align with the objectives of the European Green Deal, aiming to lower the environmental footprint of food systems and accelerate the transition toward sustainable agriculture across the EU.

For these strategies to be effective, they must consider cultural, economic, and behavioral nuances. Information campaigns alone are not enough to change habits. A successful transition to a sustainable food system will require a combination of regulatory frameworks, economic incentives, and tailored communication strategies that respect the complexity of food culture and personal choice.

Chapter VII

Final Reflections and Key Recommendations for the Future

The study highlights that the success of plant-based products depends largely on the industry's ability to meet consumers' core needs. These needs are multifaceted and include taste, health, sustainability, affordability, and accessibility. Promoting plant-based proteins effectively requires a coordinated strategy that emphasizes education, nutritional awareness, innovation, and transparency. This chapter outlines opportunities for the industry by summarizing consumer needs and presenting strategic recommendations for businesses and retailers to better attract and retain consumers. These include proposals related to education, product development, and placement strategies.

- ❖ **Improving Taste and Texture**

Taste is consistently identified as the most critical factor in product success. According to the study, many existing plant-based alternatives fail to meet consumer expectations. Flexitarians and other experimental consumers seek plant-based products – particularly in taste and texture – without compromise. Ensuring high sensory quality is vital for the long-term viability of these products.

Recommendations:

- ✓ **Invest in Food Technology:** Strengthen research and development departments to improve taste and texture, using techniques such as advanced protein extraction, microencapsulation, and smart food technologies.
- ✓ **Incorporate Local Flavors:** Leverage familiar elements from the Mediterranean Diet to enhance local market acceptance. Greece, with its culinary heritage, holds unique potential in this sector.
- ✓ **Collaborate with Culinary Experts:** Work with chefs and culinary professionals to create appealing high- quality products.

Products that successfully meet sensory expectations while maintaining health and sustainability profiles will have a competitive edge.

- ❖ **Enhancing Affordability**

Price remains one of the biggest barriers to broader adoption of plant-based products. Consumers often compare plant-based products to conventional animal products, and when the former are more expensive, price becomes a deterrent.

Recommendations:

- ✓ **Scale Production:** Increase production volumes to reduce per-unit costs.

- ✓ **Government Incentives:** Advocate for subsidies or tax incentives on plant-based ingredients and sustainable food options
- ✓ **Dynamic Pricing Strategies:** Implement discounts**,** trial promotionals, or bundle offers to encourage initial adoption.

Improving affordability will make plant-based products accessible to a broader audience, especially price-sensitive consumers..

- ❖ **Increasing Availability and Strategic Placement**

Accessibility is essential. Many consumers struggle to locate plant-based products or are unaware of where to find them.

Recommendations:

- ✓ **Strategic Shelf Placement:** Position plant-based products alongside conventional animal products in stores.
- ✓ **Expand Distribution Channels:** Ensure availability in a wide range of outlets, including small local shops and mini-markets.
- ✓ **Sales Staff Training:** Educate retail employees about the products so they can guide consumers and answer product-related questions.

Greater visibility and availability will simplify purchasing decisions and help make plant-based products part of everyday consumption.

- ❖ **Educating and Informing Consumers**

Limited awareness of the benefits of plant-based eating continues to hinder acceptance. Clear and trustworthy information is essential.

Recommendations:

- ✓ **Awareness Campaigns:** Develop marketing efforts that highlight the nutritional and environmental benefits of plant-based foods.
- ✓ **Transparent Labeling:** Offer clear, detailed product information, including ingredients, sourcing, and environmental impact.
- ✓ **Certifications:** Obtain scientifically backed certifications to validate nutritional and ecological claims.
- ✓ **Educational Programs:** Partner with educational institutions to introduce plant-based nutrition into school curricula.
- ✓ **Social Media Engagement:** Use credible content and expert collaborations to share reliable, engaging content online.

Educating consumers builds trust and encourages long-term engagement. Transparency further empowers informed choices.

❖ **Fostering Innovation and Product Development**

Diversity in product offerings is key to maintaining consumer interest. Products that cater to evolving tastes and dietary needs—such as allergen-free options—can broaden appeal.

Recommendations:

- ✓ **Prioritize Innovation:** Develop novel textures, flavors, and formats to attract diverse consumer groups.
- ✓ **Collaborate with Local Producers:** Use Greek-sourced ingredients to add cultural reference and support the local economy.
- ✓ **Enhance Nutritional Value:** Fortify products with vitamins, minerals, and dietary fibers to improve healthy profiles.

Innovation helps differentiate products in a growing market and encourages brand loyalty..

❖ **Emphasizing Health and Sustainability**

Health and environmental concerns are major drivers of plant-based consumption. Consumers want to feel their choices make a positive impact.

Recommendations:

- ✓ **Promote Health benefits:** Communicate the advantages of plant-based diets, such as lower cholesterol, reduced saturated fat, and potential to prevent chronic diseases.
- ✓ **Use Scientific Evidence:** Ground all claims in reputable research to ensure credibility.
- ✓ **Form Strategic Partnerships:** Collaborate with NGOs and environmental groups reinforce messages of sustainability.
- ✓ **Support Sustainable Practices:** Focus on reducing environmental impact through sustainable sourcing and minimizing food waste.

Aligning product messaging with consumer values on health and sustainability enhances relevance and trust.

❖ **Addressing Social Misconceptions**

tereotypes—such as the belief that plant-based diets are only for vegans or vegetarians—limit broader adoption. Flexitarians now make up more than a quarter of the population in many European countries, highlighting growing mainstream interest.

Recommendations:

- ✓ **Inclusive Marketing:** Portray plant-based foods as suitable for all dietary lifestyles..
- ✓ **Product Sampling Events:** Offer tasting opportunities to reduce hesitation and build familiarity.
- ✓ **Influencer Collaboration:** Work with nutritionists and trusted public figures to reach a wide audience.

Changing perceptions takes time but is critical for normalizing plant-based eating as a common and appealing option.

These strategic recommendations point to the need for a holistic approach within the plant-based food industry. By continually improving product quality, pricing, accessibility, communication, and innovation, the sector can better align with evolving consumer expectations. If effectively implemented, these strategies can help the industry support public health, contribute to environmental goals, and secure a growing share of the food market.

References

- Blue Horizon and BCG Costumer Survey (2022). The Untapped Climate Opportunity in Alternative Proteins. [Online] Available at: https://web-assets.bcg.com/6f/f1/087a0cc74221ac3fe6332a2ac765/the-untapped-climate-opportunity-in-alternative-proteins-july-2022.pdf [Last access: 22.12.2024]
- Bonnet, C., & Coinon, M. (2024). Environmental co-benefits of health policies to reduce meat consumption: A narrative review. *Health Policy, 143,* 105017. https://doi.org/10.1016/j.healthpol.2024.105017
- Bry-Chevalier, T. (2024). Comparing the potential of meat alternatives for a more sustainable food system. https://doi.org/10.31219/osf.io/ze5yt
- Coyle, C. W. (2023). The benefits and burdens of meat consumption. *Voices in Bioethics*, 9. https://doi.org/10.52214/vib.v9i.11036
- Cué Rio, M., Bovenkerk, B., Castella, J.-C., Fischer, D., Fuchs, R., Kanerva, M., Rounsevell, M., Salliou, N., Verger, E. O., & Röös, E. (2022). The elephant in the room is really a cow: Using consumption corridors to define sustainable meat consumption in the European Union. *Sustainability Science.* https://doi.org/10.1007/s11625-022-01246-7
- Chang KB, Wooden A, Rosman L, Altema-Johnson D and Ramsing R (2023). Strategies for reducing meat consumption within college and university settings: A systematic review and meta-analysis. *Frontiers in Sustainable Food Systems*. 7:1103060. doi: https://doi.org/10.3389/fsufs.2023.1103060
- European commission (January 2024): Food-Based Dietary Guidelines in Europe. [Online] Available at: https://knowledge4policy.ec.europa.eu/health-promotion-knowledge-gateway/topic/food-based-dietary-guidelines-europe_en [Last access: 22.12.2024]
- FAO. (2023). *Pathways towards lower emissions – A global assessment of the greenhouse gas emissions and mitigation options from livestock agrifood systems.* Rome: Food and Agriculture Organization of the United Nations. https://doi.org/10.4060/cc9029en [Last access: 22.12.2024]
- Feng, S., Lakshmanan, P., Zhang, Y., Zhang, T., Liang, T., Zhang, W., Chen, X., & Wang, X. (2023). A comprehensive continental-scale analysis of carbon footprint of food production: Comparing continents around the world. *Journal of Cleaner Production.* 446, 138939. https://doi.org/10.1016/j.jclepro.2023.138939
- Glenn A.J., Wang F., Tessier A., Manson J.E., Rimm E.B., Mukamal K.J., Sun Q., Willett W.C., Rexrode K.M., Jenkins D.J., Hu F.B. (2024). *Dietary plant-to-animal protein ratio and risk of cardiovascular disease in 3 prospective cohorts, The American Journal of Clinical Nutrition. 120, 6, pp. 1373-1386. https://doi.org/10.1016/j.ajcnut.2024.09.006*
- Grand View Research (2024). *Plant-based meat market size, share & trends analysis report, 2024 - 2030*. [Online] Available at: https://www.grandviewresearch.com/industry-analysis/plant-based-meat-market [Last access: 22.12.2024]
- Good Food Institute Europe (2024). Attitudes to cultivated meat across 15 European countries. [Online] Available at: https://gfieurope.org/blog/survey-finds-european-consumers-want-freedom-to-choose-cultivated-meat/ [Last access: 22.12.2024]
- Good Food Institute Europe (2023). A deeper dive into alternative protein investments in 2022: The case for optimism. [Online] Available at: https://gfi.org/blog/alternative-protein-investments-update-and-outlook/ [Last access: 22.12.2024]

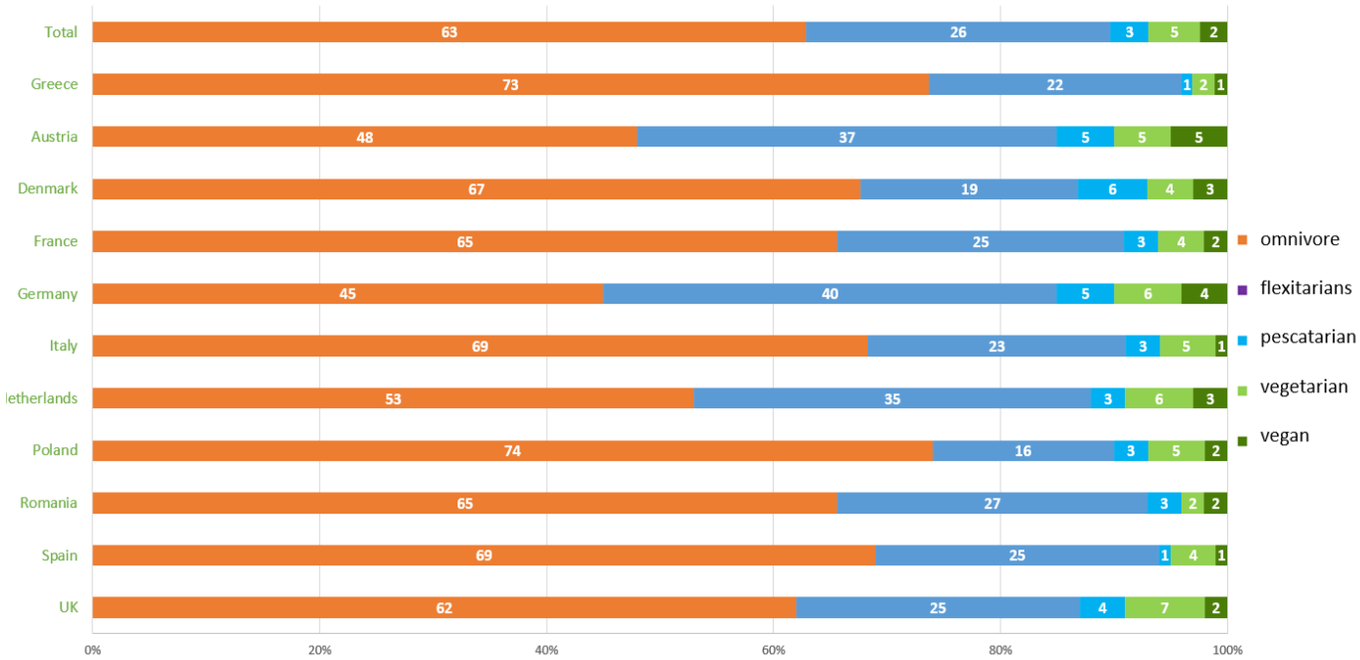
- Hellenic Vegetarian Association (2022). What consumers want: Survey on the eating habits of Greek consumers. [Online] Available at: https://hellasveg.gr/meletigr/ [Last access: 22.12.2024]
- Ivanovich, C. C., Sun, T., Gordon, D. R., & Ocko, I. B. (2023). *Future warming from global food consumption*. Nature Climate Change, 13(3), 297–302. https://doi.org/10.1038/s41558-023-01594-1
- Kesse-Guyot, E., Baudry, J., Berlivet, J., Perraud, E., Julia, C., Touvier, M., Allès, B., Lairon, D., Herçberg, S., Fouillet, H., Pelletier, P., & Mariotti, F. (2024). To be climate-friendly, food-based dietary guidelines must include limits on total meat consumption – Modeling from the case of France. *Cold Spring Harbor Laboratory*. https://doi.org/10.1101/2024.06.11
- Lappi, J., Silventoinen-Veijalainen, P., Vanhatalo, S., Rosa-Sibakov, N., & Sozer, N. (2022). The nutritional quality of animal-alternative processed foods based on plant or microbial proteins and the role of the food matrix. *Trends in Food Science & Technology*, 129, 144-154. https://doi.org/10.1016/j.tifs.2022.09.020
- Messina, M., Sievenpiper, J. L., Williamson, P., Kiel, J., & Erdman Jr, J. W. (2022). Perspective: soy-based meat and dairy alternatives, despite classification as ultra-processed foods, deliver high-quality nutrition on par with unprocessed or minimally processed animal-based counterparts. *Advances in Nutrition*, 13(3), 726-738 https://doi.org/10.1093/advances/nmac026
- Michalke, A., Pieper, M., Gaugler, T., & Stoll-Kleemann, S. (2023). Dietary change and land use change: Assessing preventable climate and biodiversity damage due to meat consumption in Germany. *Sustainability Science*. https://doi.org/10.1007/s11625-023-01312-1
- Ministry of Food, Agriculture and Fisheries of Denmark The Department (2023) Danish Action Plan for Plant-based Foods [Online] Available at: https://en.fvm.dk/Media/638484294982868221/Danish-Action-Plan-for-Plant-based-Foods.pdf [Last access: 22.12.2024]
- Nian, T., Shang, X., Zhou, W., E, F., Yan, Y., Hu, P., Xin, T., Chen, K., Cai, Z., Lu, C., Yang, K., & Li, X. (2023). Association of high red meat consumption with risk of cancer and adverse health outcomes: An umbrella review and meta-analysis. *OSF Registrations.* https://doi.org/10.17605/OSF.IO/X4AGN [Online] Available at: https://osf.io/x4agn [Last access: 22.12.2024]
- OECD/FAO (2023). OECD-FAO Agricultural Outlook 2024-2032. OECD Publishing. Paris. https://doi.org/10.1787/08801ab7-en . [Online] Available at: https://stats.oecd.org/ [Last access: 22.12.2024]
- Plant Based Foods Association & Good Food Institute (2023). Growth in the plant based space: what the industry needs to know in 2024. [Online] Available at: https://diginsights.com/resources/plant-based-protein-report/ [Last access: 22.12.2024]
- Röös, E., Bajželj, B., Smith, P., Patel, M., Little, D., & Garnett, T. (2017). Greedy or needy? Land use and climate impacts of food in 2050 under different livestock futures. Global Environmental Change, 47, 1-12. https://doi.org/10.1016/j.gloenvcha.2017.09.001
- Sachchan, T. K., Chaturvedi, S., Singla, D., & Choudhary, P. (2024). Sustainable food system—Plant-based alternatives and health impacts. *In World Sustainability Series* (pp. 25–34). Springer International Publishing. https://doi.org/10.1007/978-3-031-35245-4_3
- SAPEA. (2023). *Towards sustainable food consumption: Evidence review report* (Version 1.0). Zenodo. https://doi.org/10.5281/zenodo.8031939

- Smart Protein Policy Brief (2023). Policy tools for promoting alternatives proteins in the EU. Smart Protein Project, European Union's Horizon 2020 research and innovation program. [Online] Available at: https://smartproteinproject.eu/policy-brief/ [Last access: 22.12.2024]
- Tang, M., Miri, T., Soltani, F., Onyeaka, H., & Al-Sharify, Z. T. (2024). Plant-powered plates: A life cycle assessment of plant-based meats in tackling climate change. DOI:10.20944/preprints202404.1262.v1
- Theurl, M. C., Lauk, C., Kalt, G., Mayer, A., Kaltenegger, K., Morais, T. G., Teixeira, R. F. M., Domingos, T., Winiwarter, W., Erb, K.-H., & Haberl, H. (2020). *Food systems in a zero-deforestation world: Dietary change is more important than intensification for climate targets in 2050.* Science of The Total Environment, 735, 139353. https://doi.org/10.1016/j.scitotenv.2020.139353
- Trasca, T.I., Ocnean, M., Gherman, R., Lile, R.A.; Balan, I.M., Brad, I., Tulcan, C., Firu Negoescu, G.A. (2024). Synergy between the Waste of Natural Resources and Food Waste Related to Meat Consumption in Romania. *Agriculture,* 14, 644. https://doi.org/10.3390/agriculture14040644
- Institute for Grocery Distribution (IGD) (2024). A Net Zero Transition Plan for the UK Food System. [Online] Available at: https://craftguildofchefs.org/sites/default/files/attachment/news/A%20Net%20Zero%20Transition%20Plan%20for%20UK%20Food%20System%2C%20Summary%2C%20Nov%202024.pdf [Last access: 22.12.2024]
- Wang, W., Deng, X., & Wang, Y. (2023). Changes in non-CO2 greenhouse gas emissions from livestock production, meat consumption, and trade in China. *Sustainable Production and Consumption*, 36, 1–10. https://doi.org/10.1016/j.spc.2023.10.001
- WHO (2020): Healthy diet. [Online] Available at: https://www.who.int/news-room/fact-sheets/detail/healthy-diet [Last Access: 22.12.2024]
- WHO (2015): Press Release. «*IARC Monographs evaluate consumption of red meat and processed meat*». [Online] Available at: https://www.iarc.who.int/wp-content/uploads/2018/07/pr240_E.pdf [Last Access: 22.12.2024]
- Yan, D., Liu, K., Li, F., Shi, D.-C., Wei, L., Zhang, J., Su, X., & Wang, Z. (2023). Global burden of ischemic heart disease associated with high red and processed meat consumption: An analysis of 204 countries and territories between 1990 and 2019. *BMC Public Health, 23.* https://doi.org/10.1186/s12889-023-17014-2
- Yang, C. (2023). Research on plant-based food market implications and opportunities. *Advances in Economics, Management and Policy, 6*(1), 398–402. 10.54254/2754-1169/6/20220177
- Xu, X., Sharma, P., Shu, S., Lin, T.-S., Ciais, P., Tubiello, F. N., Smith, P., Campbell, N., & Jain, A. K. (2021). Global greenhouse gas emissions from animal-based foods are twice those of plant-based foods. *Nature Food*, 2(9), 724-732. https://doi.org/10.1038/s43016-021-00358-x

Appendix

Appendix I: Additional Charts and Information

Table 1. Current dietary habits at the European level (by country)



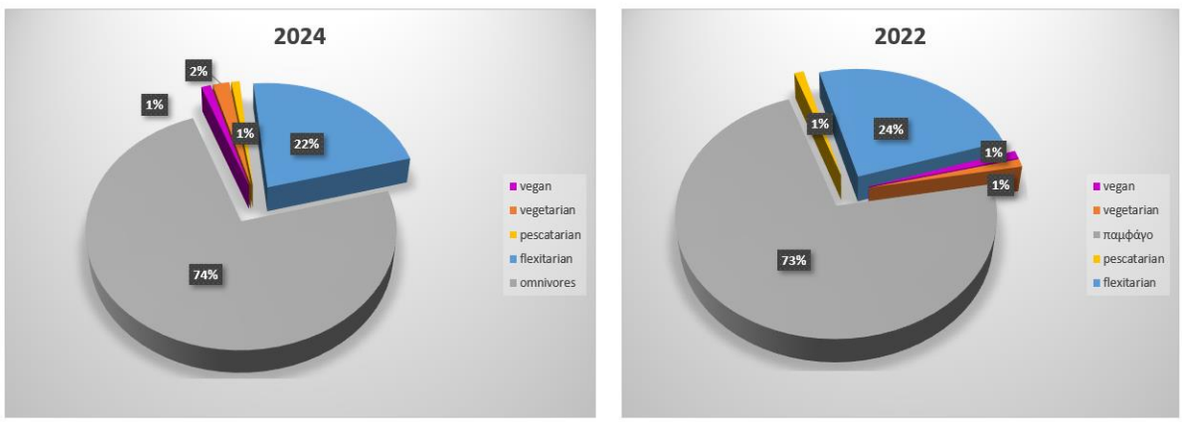


Figure 1: Dietary habits of Greeks a) 2024, b) 2022

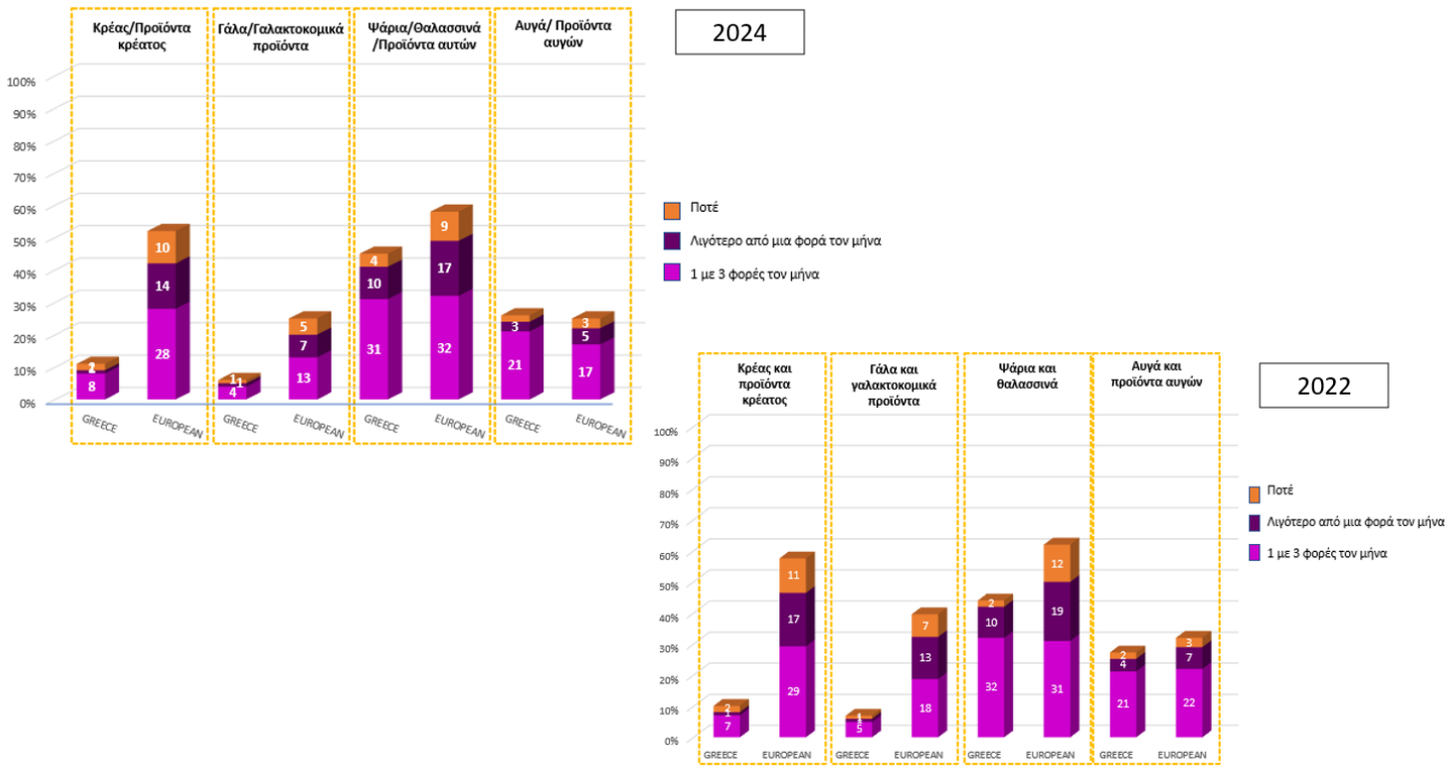


Figure 2: Frequency of consumption of animal products in the total sample of respondents in Greece a) 2024, b) 2022

Table 2: Familiarity and current consumption patterns for plant-based food products (European Sample)

	I regularly eat the product	I occasionally eat the product	I have taste it, but I do not use the product	I recognize the product but I have not tasted it	I do not recognize the product
Legumes	31%	35%	16%	12%	6%
Plant-based Milk	19%	27%	25%	22%	7%
Plant-based fish/seafood	16%	24%	18%	26%	16%
Plant-based yoghurt	15%	25%	23%	30%	13%
Plant-based meat	12%	27%	27%	24%	9%
Quinoa	9%	26%	24%	22%	19%
Tofu	8%	20%	32%	30%	10%
Tempeh	3%	10%	15%	21%	50%
Seitan	3%	10%	15%	21%	51%

Appendix II: Overview of Questions

Q 1	Which of the following best describes your current dietary habits?
Q 2	What are your reasons for being vegetarian or vegan?
Q 3	How long have you been following your current dietary habits?
Q 4	Please estimate one serving size of meat or meat products you eat whenever you consume them
Q 5	I consume meat and meat products (including poultry, sausages, cold cuts, minced meat)…
Q 6	I consume milk and dairy products, such as cheese and yogurt…
Q 7	Please estimate one serving size of milk and dairy products you eat whenever you consume them.
Q 8	I consume fish, fish products, or other seafood (including shellfish, scallops, shrimp, squid)…
Q 9	Please estimate one serving size of fish, fish products and seafood you eat whenever you consume them.
Q 10	I consume eggs…
Q 11	Please estimate one serving size of eggs you eat whenever you consume them
Q 12	I consume legumes and products based on legumes…
Q 13	Please estimate one serving size of legumes or products based on legumes that you eat whenever you consume them.
Q 14	Which of the following foods have you reduced consumption of compared to last year?
Q 15	Do you plan to increase or decrease your consumption of meat and meat products in the future?
Q 16	Do you plan to increase or decrease your consumption of milk and dairy products in the future?
Q 17	Do you plan to increase or decrease your consumption of fish, fish products, and other seafood in the future?
Q18	Do you plan to increase or decrease your consumption of eggs and egg products in the future?
Q 19	When I shop for food, my choice is influenced by the following...
Q 20	When purchasing vegan or vegetarian products, how important is it for you that the products carry a certification label?
Q 21	How familiar are you with the following vegan/vegetarian certification labels?
Q 22	How familiar are you with the following products?
Q 23	I have tried meat/dairy alternatives (from plant proteins).
Q 24	Do you plan to increase or decrease your consumption of plant-based meat/dairy alternatives in the future?
Q 25	What are your reasons for not purchasing plant-based meat/dairy alternatives?
Q 26	Which plant-based alternatives do you feel are lacking?
Q 27	How likely are you to switch to plant-based alternatives if they are the same in taste, appearance, price, and availability as animal-based counterparts?
Q 28	Which channel would you look for plant-based meat/dairy alternatives?
Q 29	Where are you most likely to ask and seek information about plant foods and diets, as well as plant-based alternatives?
Q 30	On an average day, how much time do you spend on the following social media platforms?
Q 31	Please indicate how much you disagree or agree with each of the following statements regarding social media and dietary behaviors.

Q 32	Please indicate how much you disagree or agree with each of the following statements regarding the consumption of plant-based food alternatives and dietary behaviors.
Q 33	Please indicate how much you disagree or agree with each of the following statements regarding the consumption of plant-based food alternatives and dietary behaviors.
Q 34	Please indicate how much you agree or disagree with the following statements regarding actions that should be taken by lawmakers concerning the food industry.
Q 35	Which of the following types of alternative proteins do you trust or would you trust the most?
Q 36	When you go out to eat at a restaurant, how often do you choose a main dish that contains meat? Choose one of the following.
Q 37	Are you satisfied with the available vegetarian meal options (main dishes) on the menus of the restaurants you visit? Choose one of the following.

Imprint

Research Title: Changing Preferences: Analysis of Greek Consumers' Attitudes Towards Plant-Based Diets

The research by HellasVeg, co-funded by the European Vegetarian Union (EVU), explores attitudes and readiness to adopt a plant-based lifestyle in Greece. This study is a continuation of the 2022 report "What Do Consumers Want?" and was conducted by HellasVeg in collaboration with Kantar S.A.

HellasVeg - Profile

The Association of Greek Vegetarians (HellasVeg), a member of the European Vegetarian Union (EVU), based in Vienna, aims to promote the vegetarian lifestyle. It focuses on health, nutrition, consumer protection, sustainability, and environmental issues.

HellasVeg aims to inspire all individuals to take responsibility for their personal health, the planet, and the ecosystem, promoting an inclusive and non-dogmatic vegetarian lifestyle.

Publication Date: October 2024

Primary Research: Kantar S.A.

Secondary Research, Statistical Analysis, and Editing: Maria Chamilaki, Scientific Advisor at HellasVeg.

Supervision: Thomas Vassaras, General Secretary at HellasVeg.