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A dissertation submitted in partial fulfillment of the requirements for the degree of Professional Master in Marketing Management

Theme:

Impact of Ecolabels on Consumers' Purchasing Behavior: A quantitative study in the Agri-food Sector in Algeria.

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Abstract:

This thesis investigates the impact of ecolabels on consumers' purchasing behavior within the Agri-food Sector in Algeria, addressing a notable gap in research on green consumption patterns in the country. Drawing on the Theory of Planned Behavior (TPB) and subscribing to the broader framework of sustainable marketing's contribution to sustainable development, the study focuses on ecolabels as a sustainable marketing practice indicative of progress towards Sustainable Development Goal 12 (responsible production and consumption). Employing a quantitative approach with a questionnaire, data were collected from 416 respondents. Findings revealed significant positive impacts of environmental concern, green advertising, and green trust on consumers' purchasing behavior, along with factors such as ecolabel awareness and green product knowledge. Regarding the influence of socio-economic factors, no significant effect of education level and income level on consumers' purchasing behavior was observed in the study. Overall, the study underscores a shift towards responsible consumption patterns contributing to Sustainable Development Goal 12, highlighting the potential for businesses to align with consumer values and contribute positively to environmental sustainability.

Keywords: sustainable marketing, sustainable development, ecolabels, responsible consumption, purchasing behavior.

ملخص:

يهدف هذا العمل إلى استقصاء تأثير العلامات البيئية على السلوك الشرائي للمستهلكين في قطاع الزراعة والغذاء في الجزائر، متناولة الفجوة الملحوظة في البحث حول أنماط الاستهلاك الأخضر في البلاد. بالاعتماد على نظرية السلوك المخطط (TPB) وفي الإطار الأوسع لمساهمة التسويق المستدام في التنمية المستدامة، تركز الدراسة على العلامات البيئية كممارسة تسويقية مستدامة تشير إلى التقدم نحو الهدف التنموي المستدام 12 (الإنتاج والاستهلاك المسؤول). باستخدام نهج كمي مع استبيان، تم جمع البيانات من 416 مستجيبًا. كشفت النتائج عن تأثيرات إيجابية ملحوظة للقلق البيئي والإعلان الأخضر والثقة البيئية على سلوك شراء المستهلكين، بالإضافة إلى عوامل مثل الوعي بالعلامات البيئية ومعرفة المنتجات الخضراء. فيما يتعلق بتأثير العوامل الاجتماعية والاقتصادية، لم يلاحظ أي تأثير ملحوظ لمستوى التعليم ومستوى الدخل على سلوك شراء المستهلكين في الدراسة. تسلط الدراسة الضوء على تحول ملحوظ نحو أنماط استهلاك مسؤولة والتي تسهم في تحقيق الهدف التنموي المستدام 12، مشيرة إلى الفرص الواعدة في السوق للمنتجات المعتمدة على العلامات البيئية وتأكد أهمية تعزيز ثقافة الاستدامة بين المستهلكين الجزائريين. بشكل عام، تسلط الدراسة الضوء على إمكانية الشركات لتوفيق منتجاتهم ونشاطاتهم مع قيم المستهلكين والمساهمة بشكل إيجابي في التنمية المستدامة.

الكلمات المفتاحية: تسويق مستدام، تنمية مستدامة، أوسمة بيئية، استهلاك مسؤول، سلوك شرائي.

Résumé :

Ce travail explore l'impact des étiquettes écologiques sur le comportement d'achat des consommateurs dans le secteur agroalimentaire en Algérie, en abordant un vide de recherche notable sur les modèles de consommation verte dans le pays. Fondé sur la théorie du comportement planifié (TCP) et se rattachant au cadre plus large de la contribution du marketing durable au développement durable, l'étude se concentre sur les étiquettes écologiques comme une pratique de marketing durable indicative de progrès vers l'Objectif de Développement Durable 12 (production et consommation responsables). En employant une approche quantitative avec un questionnaire, des données ont été recueillies auprès de 416 répondants. Les résultats ont révélé des impacts positifs significatifs de la préoccupation environnementale, de la publicité verte et de la confiance verte sur le comportement d'achat des consommateurs, ainsi que des facteurs tels que la conscience des étiquettes écologiques et la connaissance des produits verts. Concernant l'influence des facteurs socio-économiques, il n'a pas été observé d'effet significatif de niveau d'éducation et de niveau de revenu sur le comportement d'achat des consommateurs dans l'étude. En résumé, l'étude souligne un déplacement vers des modèles de consommation responsables contribuant à l'Objectif de Développement Durable 12, mettant en avant le potentiel pour les entreprises de s'aligner sur les valeurs des consommateurs et de contribuer positivement à la durabilité environnementale.

Mots clés : Marketing durale, développement durable, étiquetage écologique, consommation responsable, comportement d’achat.

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SDG	Sustainable development goal
SCP	Sustainable consumption and production
TPB	Theory of planned behavior
TCP	Théorie du comportement planifié
TBL	Triple Bottom Line
GEN	Global ecolabeling network
LCA	Life cycle assessment
CALEC	Algerian Center for Circular Economy
CREAD	Center de recherche en statistiques appliquées pour le développement
SPSS	Statistical Package for the Social Sciences
AFS	Agri-Food sector
SLR	Simple linear regression
MLR	Multiple linear regression

Introduction

Introduction

In an era marked by escalating environmental concerns and a burgeoning awareness of sustainable development, the role of marketing in fostering responsible consumption practices has emerged as a pivotal area of study (Murphy, 2005). As global initiatives, such as the Sustainable Development Goals (SDGs) set forth by the United Nations, underscore the imperative of sustainable production and consumption, examining the efficacy of sustainable marketing practices becomes imperative for both scholars and practitioners.

In Algeria, the burgeoning trend of responsible consumption and green advertising has become increasingly pronounced in recent years. Though still in its nascent phase, the country's dedication to sustainable development, coupled with a growing consumer consciousness and preference for eco-friendly products, bodes well for the future of green production and consumption patterns.

While the SDGs provide a comprehensive framework for sustainable development, the complexity and interconnectedness of the goals necessitate focused inquiries to yield meaningful insights. Hence, this study delves into the specific realm of sustainable marketing, with a particular emphasis on the impact of ecolabels, as an indicator of progress towards the 12th SDG which calls for “responsible production and consumption”, within the context of the Agri-food sector in Algeria

The choice to examine ecolabels as a sustainable marketing practice stems from their role as tangible symbols of eco-friendly attributes, which wield significant influence over consumers' purchasing behaviors (Wojnarowska, Sołtysik, & Prusak, 2020). Drawing upon the Theory of Planned Behavior (TPB) as a conceptual lens, this research seeks to clarify the underlying mechanisms through which ecolabels shape consumers' attitudes, subjective norms, and perceived behavioral control, ultimately impacting their purchasing decisions within the Agri-food sector.

This inquiry revolves around one main question: **“What is the impact of ecolabels on consumers’ purchasing behavior within the Agri-food sector in Algeria?”**
In an effort to address this question, we employed a quantitative approach involving the administration of an online questionnaire survey.

By providing empirical insights into the impact of ecolabels on consumers' purchasing behavior within the Algerian context, this study contributes to both theoretical understanding and practical implications for sustainable marketing strategies. Moreover, the findings of this research can inform policymakers, businesses, and consumers alike, facilitating informed decision-making towards achieving sustainable consumption patterns and advancing progress towards the 12th SDG.

The present thesis is structured into three chapters. The first chapter will provide a comprehensive theoretical framework. This chapter will begin with a literature review, highlighting previous studies on the factors influencing consumers' purchasing behavior towards ecolabeled products. Next, it will define each studied concept along with its key elements, as well as the theoretical model and research hypotheses. This chapter will serve as a foundation for the subsequent chapters. The second chapter will focus on the methodological framework, where we will justify the methodological choices made. This chapter will provide a detailed explanation of the research design, data collection procedures, and analytical techniques employed. The third and final chapter will present the main results of the quantitative study along with their analysis and discussion. This chapter will provide an in-depth examination of the empirical findings, highlighting the key insights and implications of the study.

Chapter I: Literature Review and Conceptual Framework

This first chapter is divided into two sections. In the first section, we present literature review. The second section is devoted to the presentation of the conceptual framework of our research, where we will review the main concepts research model and the hypotheses proposed and to be tested in the practical chapter.

I. Literature review

This review examines the influence of eco-labels on consumer behavior and evaluates green marketing's efficacy in promoting sustainable consumption (SDG12). It covers various aspects, such as eco-labels' effects on purchasing decisions across product categories (fashion, food, seafood), the effectiveness of green marketing strategies (e.g., advertising, packaging), and factors like consumer awareness, trust, and socioeconomic. Additionally, it addresses concerns like "greenwashing" and highlights potential benefits for businesses and consumers.

Effectiveness of Eco-Labels and Green Marketing Strategies

This section will delve into researches that investigate the impact of eco-labels and green marketing strategies on consumer choices towards sustainable products.

The research conducted by (Huang, Solangi, Magazzino, & Solangi, 2024) examines how environmental labels influence consumer buying decisions, particularly the effectiveness of green marketing and innovative strategies. The study utilizes a combined approach of Fuzzy AHP and Fuzzy WASPAS methodologies. Their analysis reveals seven crucial factors, twenty-one sub-factors, and six strategic tactics. Importantly, the findings emphasize the significance of product features, marketing strategies, and a company's sustainability practices in shaping consumer behavior. Furthermore, the research suggests that environmentally friendly packaging, clear labeling, and collaborative partnerships are the most successful green marketing and innovation tactics to promote sustainable purchases. Nevertheless, to strengthen the generalizability of these findings, future research should explore consumer trust in the validity of environmental labels and potential cultural variations in consumer responses to them.

In Ecuador (Carrión-Bósquez, et al., 2024) investigate the effectiveness of green marketing strategies in influencing young, environmentally conscious millennials consumers. Their study focuses on millennials who purchase eco-friendly products in shopping centers and examines

how green advertising and eco-labels affect their environmental attitudes, awareness, and ultimately, their buying behavior. A survey with 430 participants revealed that green advertising has a strong positive impact on millennials' environmental stance, knowledge, and directly translates into buying more eco-friendly products. Interestingly, eco-labels, while not directly influencing purchases, significantly increase environmental awareness and positive attitudes towards sustainability among these consumers. The findings suggest that green marketing strategies, particularly advertising, are effective in promoting environmental consciousness and influencing purchasing habits towards sustainable products among this generation. This research is a pioneer in exploring the link between green advertising and eco-product purchases by millennials in a developing nation.

In Italy, (Proi, Cubero Dudinskaya, Naspetti, Ozturk, & Zanoli, 2023) examine how the visual design of eco-labels on seafood products influences consumer choices by investigating the impact of size and saliency (visual prominence) on how consumers look at and choose these products. Using eye-tracking technology, choice experiments, and symbol analysis with 61 participants, the research reveals that both size and saliency significantly influence visual attention, but only the size of the eco-label directly affects product choice. However, the word association task suggests that the shape, symbols, and language used in the label's design also play a role in consumer preferences. While these findings offer valuable insights for marketing and food research, the limited sample size and lack of consideration for cultural factors like traditional fish choices or religious dietary restrictions might limit generalizability. Furthermore, the effectiveness of eco-labels hinges on consumer awareness and trust in the specific labeling system used, which might not be familiar in the Algerian market.

In their turn, (Potter, et al.) examine how eco-labels influence food choices when shoppers are also looking at nutrition labels. A 4-arm parallel design randomized controlled trial was conducted to test two labels (one providing an A-E grade regarding health impact and one an A-E grade on environmental impact), presented alone or in combination, compared to a no label control. Nearly 2,730 participants browsed a virtual supermarket with various product labeling options. The study found that eco-labels significantly reduced the environmental impact of chosen foods, regardless of whether nutrition labels were present. Interestingly, nutrition labels themselves did not have a measurable effect on the environmental impact of chosen products. These findings suggest that eco-labels are a valuable tool for promoting sustainable food choices, even in supermarkets where nutrition labels are already displayed. This highlights the potential of eco-labels for influencing dietary habits in a way that benefits both human health

and planetary health. In an Algerian context, upcoming studies could investigate ways to tailor eco-labels to align more closely with Algerian cultural values and understanding of environmental issues. This may entail partnering with local stakeholders to create eco-labeling systems that are informative and culturally resonant for Algerian consumers.

(Rizqiyana & Wahyono, 2020) examine how green marketing tools influence consumer choices for Ades products in Indonesia. Assuming people care about the environment and companies respond with green marketing, the research through questionnaires and documentation explores the effects of three tools: eco-labels, eco-branding, and environmental advertising. Surprisingly, while eco-labels and eco-branding directly increase the likelihood of people buying Ades, environmental advertising has the opposite effect. However, all three tools indirectly promote Ades purchases by creating a positive brand image. This brand image acts as a bridge between the marketing tools and consumer behavior. While the study offers valuable insights for Ades' green marketing strategy in Indonesia, the negative effect of advertising needs further exploration, and a larger, more representative sample could strengthen the findings.

Consumer Decision-Making and Green Consumption

This subsequent section will focus on studies that investigate the factors influencing consumer choices related to sustainable products.

(Lou & Xu, 2024) posit that, fueled by growing environmental and social awareness, consumers are demanding more sustainable fashion options, particularly in denim. This study explores the trade-offs consumers make when purchasing sustainable denim jeans and examines how sociodemographic factors influence their decision-making process. Using a conjoint analysis approach, the study evaluates four attributes: price, brand name, materials used, and eco-labeling. Also, a questionnaire was distributed online through a sampling company where convenience sampling was used to recruit participants for the survey. A total of 417 valid responses were retained for data analysis. The findings reveal that price remains the most significant factor, followed by material, brand name, and eco-label. Although eco-labeling holds little importance for consumers, it offers valuable insights for effectively communicating sustainable practices. Denim with a blockchain eco-label is preferred by consumers, followed by those with a fair-trade certificate. Nevertheless, the study's lack of geographic context limits

generalizability, specifically on Algerian consumers that might have distinct sociodemographic factors influencing their choices, such as cultural preferences or price sensitivity. Furthermore, the effectiveness of specific eco-labels like blockchain may be limited by consumer awareness and trust in these labeling systems within the Algerian market.

In a separate investigation, (Iqbal, Kazmi, Anwar, Ramish, & Salam, 2023) explore how green marketing tactics influence eco-friendly product choices and overall green consumption habits. The study utilizes a survey with 383 participants and finds that high-quality, valuable eco-friendly products significantly increase both the intention to purchase them and overall green consumption. Additionally, environmental concern strengthens this relationship. However, the belief in one's ability to impact the environment through purchases wasn't a major factor for this Pakistani sample. While valuable, generalizing these findings to Algeria requires caution. Algerian cultural values might influence this belief, and the success of green marketing could also depend on environmental policies and the ease of finding and using sustainable products in Algeria. Future research in Algeria could build on this study by incorporating these contextual factors and potentially religious beliefs or specific green marketing practices familiar to Algerians.

(Nekmahmud, Naz, Ramkissoon , & Fekete-Farkas, Transforming consumers'intention to purchase green products : Role of social media , 2022) delve into the determinants of consumers' green purchasing intentions within the context of social media influence on sustainable consumption behavior. The authors propose an extended Theory of Planned Behavior (TPB) model incorporating green thinking, social media usage, and social media marketing as factors influencing GPI. Employing a self-administered questionnaire with 785 participants and partial least squares structural equation modeling (PLS-SEM) for analysis, the study yields significant findings. The results indicate that positive attitudes, subjective norms, perceived behavioral control, green thinking, and SMM all have a strong positive association with GPI on social media. Moreover, this research is the first to empirically examine the moderating-mediating effect of the SMU interaction on the proposed TPB model and furthering our understanding of the influence of social media on sustainable consumption behaviors. However, while the study employs a sizable sample, and considering the digital divide and the different cultural perspectives on environmentalism in Algeria, replicating the study with an Algerian sample would be crucial to confirm the generalizability of the findings.

(Lestari, KPU, & Hartawan, Antecedents of Attitude Toward Green Products and its Impact on Purchase Intention, 2020) investigate the factors influencing purchase intention in Indonesia. The data was collected by using a questionnaire of 17 items with five-point Likert-type scale ranging from 1 "strongly disagree" to 5 "strongly agree". Focusing on eco-labeled, FSC-certified paperboard packaged Ready-to-Drink beverages, the research uses the Theory of Reasoned Action to show how eco-labels, environmental concern, and peer pressure all significantly increase a positive attitude towards these green drinks. This positive attitude in turn leads to a higher likelihood of purchase. While valuable for marketing green RTD beverages in Indonesia, the study's focus on a specific product and location limits its generalizability. Future research could explore a wider range of green products across Indonesia and consider additional factors like price or perceived quality to provide a more comprehensive understanding of green consumption behavior in this developing market.

The study by (Nguyen & Trung Le, The effect of agricultural product eco-labelling on green purchase intention , 2020) explores what factors drive people in Hanoi, Vietnam to buy eco-labeled agricultural products. Researchers built on existing models of consumer behavior and conducted a survey in Hanoi where they examined how factors like knowledge of eco-labels, consumer trust, perceived value of the products, and environmental concern all influence consumer attitudes towards these products. Ultimately, the study finds that a strong belief that the products are valuable and a genuine concern for the environment lead to a higher likelihood of people choosing to buy eco-labeled agricultural products. This research offers valuable insights into green consumption in developing countries and suggests ways to improve marketing strategies and government policies to promote sustainable food choices. However, future research could explore how these intentions translate into long-term behavior and investigate consumer choices in other regions of Vietnam or even other developing countries to provide a more comprehensive picture.

Green Ecolabels or Greenwashing?

The paper by (Shahrin, et al., 2017) examines the issue of greenwashing, a deceptive marketing tactic where companies mislead consumers into believing their products are environmentally friendly. The research focuses on five key questions: understanding the growing importance of environmentally conscious consumerism, examining the reliability of eco-labels in identifying genuine sustainable products, exploring the negative consequences of misleading environmental claims, equipping consumers with tools to differentiate between genuine and

deceptive green claims, and highlighting the ethical obligations of marketers in promoting truly sustainable practices. The review analyzes relevant literature to address these questions, aiming to raise awareness of greenwashing and empower consumers to make informed choices. The rise of environmentally conscious consumers has made sustainability a profitable market segment, driving companies to adopt eco-labels. However, the increased prevalence of greenwashing erodes consumer trust in all green claims, making it crucial to educate consumers about false environmental claims associated with eco-labels.

Subsequently, (Vilaça, 2022) investigates the influence of eco-labels on eco-conscious consumers' purchasing decisions. Specifically, she explored the paradox between consumers' skepticism and confusion regarding eco-labels, and their ultimate purchase intention. The researchers employed a qualitative approach, conducting one focus group discussion and eleven individual interviews with self-identified eco-conscious consumers. This method allowed for in-depth exploration of participants' attitudes and motivations. A paradoxical situation has been identified: while eco-conscious consumers expressed suspicion and confusion surrounding eco-labels, these feelings did not necessarily translate into a decreased intention to purchase the labeled products. However, encountering blatant greenwashing completely deterred participants from buying the product. While valuable, the study's generalizability to the Algerian context might be limited due to several factors such as: cultural Differences, the limited sample size, and the actual awareness level among Algerian consumers in regard to these labels which may lead to a less skepticism or confusion when exposed to greenwashing tactics.

Eco-Labels and Sustainable Consumption: A Broader Perspective

This last section will explore the broader implications of eco-labels for sustainable consumption and highlight the potential benefits for businesses.

According to (Wojnarowska, Sołtysik , & Prusak , Impact of eco-labelling on the implementation of sustainable production and consumption, 2021) Eco-labels are gaining attention as a potential tool to promote both sustainable production and consumption (SDG 12). While traditionally viewed as a one-way communication tool for consumers, recent studies suggest potential advantages for businesses as well. This research utilizes the Analytical Hierarchical Process (AHP) to assess the role of eco-labels in influencing both companies'

product decisions based on ecological considerations and consumer purchasing choices. By building and comparing three separate models within the AHP framework, the study evaluates the impact of eco-labeling on sustainable production, consumer behavior, and ultimately, the need for mandatory eco-labeling on products. The findings suggest that eco-labels act as a bridge between eco-friendly businesses and environmentally aware consumers. They can benefit both sides: companies can design better products and target the right audience, while consumers can make informed choices. However, a lack of general environmental awareness limits the effectiveness of eco-labels.

Conclusion:

In summary, this review highlights the significant role of eco-labels in influencing consumer behavior towards sustainable products. It emphasizes the importance of clear labeling and green marketing strategies, while also acknowledging the diverse factors impacting consumer decisions. However, while the studies reviewed offer valuable insights globally, applying these findings to Algeria requires considerations of unique cultural, economic, and environmental factors. Enhancing eco-labeling systems in Algeria could contribute to fostering a culture of sustainable consumption aligned with national and international sustainability goals. By addressing specific challenges and tailoring strategies to the Algerian context, eco-labels can play a pivotal role in promoting responsible consumption practices in the country.

Table 1 summarizes the studies cited in the literature review from which we selected the variables to form our study model.

Table 1 : Studies selected for studying the impact of Ecolabels on Consumers' Purchasing Behavior.

Authors	Study Focus	Studied Variables	Retained Variables
(Huang, Solangi, Magazzino, & Solangi, 2024)	Examination of the ecolabels influence on consumers' buying decisions, particularly the effectiveness of green marketing and innovative strategies.	Product attributes Environmental impact Credibility Prices Advertising Environmental management systems	Environmental impact Credibility Prices Product attributes

		Accessibility to information Eco-friendly packaging	
(Iqbal, Kazmi, Anwar, Ramish, & Salam, 2023)	How green marketing tactics influence eco-friendly product choices and overall green consumption habits	Green Product Quality Green Value Perceived Consumer Effectiveness Environmental Sustainability Green Concern Green Purchase Intention. Green Consumption Behavior.	Green Concern Green Purchase Intention. Green Consumption Behavior.
(Nekmahmud, Naz, Ramkissoon , & Fekete-Farkas, 2022)	The determinants of consumers' green Purchasing intentions (GPI) within the context of social media (SM) influence on sustainable consumption behavior.	Green Thinking Green Product Knowledge Social Media Usage Social Media Marketing Attitude Subjective Norms Perceived Behavioral Control Green Purchase Intention	Green Product Knowledge Green Purchase Intention
(Lestari, KPU, & Hartawan, 2020)	Antecedents of Attitude Toward Green Products and its Impact on Purchase Intention	Eco-label Environmental Concern Peer Pressure Attitude towards Green Products Green Purchase Intention	Eco-label Environmental Concern

(Nguyen & Trung Le, 2020)	The effect of agricultural product eco-labelling on green purchase intention	Eco-label knowledge Consumer's Trust Perceived Value Environment Concern Consumer Attitude Green Purchase Intention	Eco-label knowledge Consumer's Trust Environmental Concern Green Purchase Intention
(Rizqiyana & Wahyono, 2020)	How green marketing tools influence consumer choices for Ades products in Indonesia.	Eco-brand Eco-labeling Environmental advertisement Consumer Purchasing Behavior	Eco-labeling Environmental advertisement Consumer Purchasing Behavior
(Carrión-Bósquez, et al., 2024)	The effectiveness of green marketing strategies in influencing young, environmentally conscious millennials consumers in Ecuador.	Green Advertising Ecolabel Environmental Attitude Environmental Awareness Green Purchasing	Ecolabel Green Advertising Environmental Awareness

Source: Elaborated by us.

II. CONCEPTUAL FRAMEWORK

In this section, we present our research concepts, theoretical model and research hypotheses.

1- Research concepts:

In the following, we will define the main concepts of our research.

1- **Sustainability in the Marketing Context:**

During the last 20 years of the 20th century sustainable development emerged as a potential pathway towards sustainability as a state of the word and society within it (Belz & Peattie, 2012). In 1987, the United Nations World Commission on Environment and Development often referred to as the "Brundtland Commission" as it was shared by the Norwegian Prime Minister

Doctor Gro Harlem Brundtland, published the influential report “Our common future” which was renowned for its prominent definition of sustainable development as “meeting the needs of the present without compromising the ability of future generations to meet their needs’. (Belz & Peattie, 2012, p. 10). (MELER & MAGAŠ, 2014) found this definition to be the ultimate response to the claims of the neoclassical economic school about unlimited resources and endless economic growth, especially after the publication of the book entitled “The Limits to Growth” by (H. Meadows , L. Meadows , Randers, & W. Behrens Ill, 1972), the global oil crises of 1973 and 1979/1980, as well as environmental disasters such as the Bhopal tragedy (1984), the discovery of the Antarctic ozone hole (1985), and Chernobyl (1986). The report recognized the interdependencies between the natural environment, Human social welfare and economic activity and the need to establish and maintain a dynamic balance between these three elements (Belz & Peattie, 2012).

On the other hand, according to (Belz & Peattie, 2012), marketing can be conceived in various forms: as a business activity, a managerial function or department, a business process, a philosophy, or a discipline. The term "marketing" has a history dating back at least 400 years, and prior to the 20th century, it primarily referred to the activities facilitating transactions between buyers and sellers, often within a physical marketplace. The author argue that these marketing practices have existed as long as commerce itself (p. 13).

1-1 A Brief History of Unsustainable Marketing

Modern marketing evolved from the industrial revolution. Initially, businesses focused on production, relying on consumer demand. Competition then intensified through aggressive tactics, embodying "let the buyer beware." In the third generation, the marketing concept emerged, emphasizing satisfying consumer needs while achieving business goals. This expanded to include societal marketing, integrating social responsibility. However, the traditional paradigm no longer aligns with today's realities of limited resources, persistent waste, and abundant labor. This discrepancy called for a new, sustainable paradigm to replace the broken traditional model (Martin & Schouten, 2011, pp. 14-15)

Figure 1 below describes the evolution of the marketing perspective that encompasses these three main orientations: the production orientation is centered internally on organizational objectives. In contrast, the consumer orientation prioritizes addressing people's needs and wants. The societal orientation takes into account ecological and social objectives alongside these (Belz & Peattie, 2012, p. 24).

Figure 1 : the evolution of the Marketing perspective *(Belz & Peattie, 2012, p. 24)*

In the view of sustainability challenges facing society, (Belz & Peattie, 2012) in their book, tackle a pressing question that confronted the marketing discipline: **"What would a sustainability-oriented vision of marketing look like?"**. They posit that the answer to that comes in the form of **"a pseudo-mnemonic sustainability marketing. It's marketing that endures forever and that it delivers solutions to our needs that are"** (pp. 16-17).

1-2 The Evolution of a New Paradigm: Sustainable Marketing

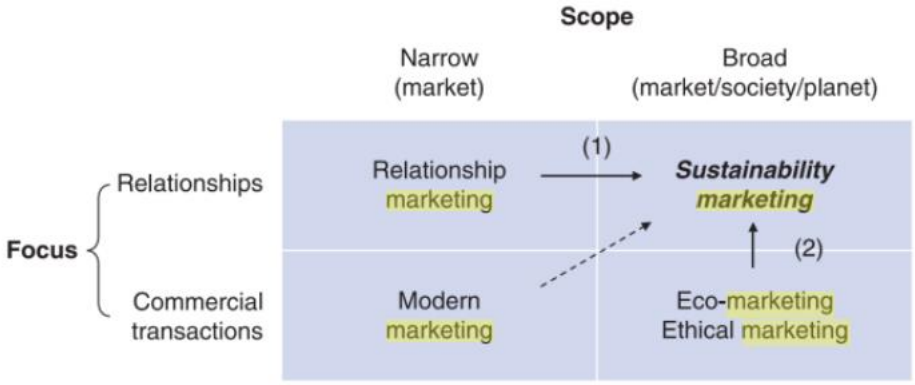
While the public's concern for the environment increased, governments passed laws and environmental organizations advocated for alterations in how humanity interacts with the natural world. Concurrently, certain business executives and scholars began recognizing the significance of adopting sustainable approaches (Fuller, 1999). Green products, typically referring to products that have a lower impact on the environment or human health compared to conventional alternatives, started to appear (Ottman, 1993). In 1970, Tom's of Maine introduced eco-conscious products, starting with phosphate-free laundry detergent. Over time, the company expanded its range to include all-natural personal care items like toothpaste, deodorant, soap, and mouthwash. Colgate-Palmolive acquired Tom's of Maine in 2006. Thought leaders in marketing and management started integrating the constraints of the natural world into their theories (Hart, 1995). Instead of viewing the environment, society, and profits as distinct, conflicting interests, innovative business thinkers developed comprehensive concepts, such as the "Triple bottom line" (TBM), to simultaneously enhance the economic, environmental, and social value of a business (W Savitz & Weber, 2006). Paul Hawken's 1993 book, "The Ecology of Commerce: A Declaration of Sustainability", became highly influential among a few pioneering business leaders.

1-3 Sustainable marketing defined

(Martin & Schouten, 2011, p. 23) define sustainable marketing as "the process of creating, communicating, and delivering value to customers in such a way that both natural and human capital are preserved or enhanced throughout". (Fuller, 1999, p. 4) define it as follows "The process of planning, implementing, and controlling the development, pricing, promotion, and distribution of products in a manner that satisfies the following criteria: (1) customer needs are met, (2) organizational goals are attained, and (3) the process is compatible with ecosystems". (Fuller) view sustainable marketing as not simply an exercise in corporate goodwill. Rather, it urges marketers to address the pressing issue of environmental degradation caused by consumer demand. According to him, the key message is that marketers can rethink their approach and create "win-win-win" scenarios where customers, companies, and ecosystems all benefit simultaneously. From a different standpoint (Belz & Peattie, 2012) in their book entitled (Sustainability marketing : a global perspective) define sustainable marketing as "A kind of marketing that builds long-lasting customer relationships effectively without any particular reference to sustainable development or consideration of sustainability issues" (pp. 28-29). Instead, they used the term "sustainability marketing" as it relates more explicitly to the sustainable development agenda.

Figure 2 demonstrates the emergence of sustainability marketing concept according to (Belz & Peattie, 2012, p. 18)

Figure 2: the emergence of sustainability marketing



Source: (Sustainability marketing : a global perspective, p. 18)

As mentioned earlier in the introduction, to comprehensively assess the role of sustainable marketing in achieving sustainable development goals within the unique context of Algeria, we deemed it necessary to narrow our research to focus on the impact of ecolabels on consumers' purchasing behavior, serving as an indicator of progress towards the 12th SDG on Sustainable Production and Consumption (SCP). In the following sections, we will provide definitions of the key research components.

2- The Rise of Eco-Labeling as a Response to Unsustainable Consumption

Following the 1992 UN Earth Summit, Agenda 21 highlighted unsustainable consumption patterns as a major environmental concern, particularly in industrialized nations. To address this, eco-labeling was proposed as a tool to empower consumers and promote environmentally conscious production practices. The document emphasizes the educational role of eco-labeling. By advocating for life-cycle assessments and clear environmental indicators, Agenda 21 envisions eco-labeling as a means to inform consumers and decision-makers. These programs, ideally third-party and government-run with industry collaboration, embody the "bottom-up" approach of Agenda 21, fostering societal engagement in environmental protection. The first of such programs was the Germany's Blue Angel program, which began in 1978. A number of programs have been developed in other countries: The Swan (Nordic Eco labeling), Environmental Choice (Canada 1988), Eco Mark (Japan 1989), Green Seal (US 1990), Eco-Mark (India 1991) and Eco-label (EU 1993) (Ramli & Abdul Rashid, 2009, p. 2).

2.1 Definition of Ecolabels:

(Frca, 1998, p. 86) defines ecolabels as optional tags found on goods that consumers purchase, granted by an organization and sought after voluntarily by the manufacturer. The criteria for ecolabels are set by the sponsor to distinguish products deemed to have a lower environmental impact compared to those without the label. The author posit that it is important to note that ecolabels are not mandatory for the sale of consumer goods in any country and are entirely discretionary. Furthermore, the eco-labeling process is typically not subject to legal regulations and may or may not be overseen by a government entity. According to (Jean-Yves & Gérard, 1993) an ecolabel is a certification awarded to a product or entity by a certifying organization, assuring that the said product has a reduced environmental impact, based on adherence to criteria outlined in a published specification document (or standard). The definition provided

in the bulletin (An Introduction to Eco-labeling, 2003) posit that ecolabeling involves offering details regarding the eco-friendliness of a product or service, showcasing an added value aspect of the product or service. It represents a voluntary approach to certifying and labeling environmental performance that is implemented globally.

2.2 Significance of Ecolabels:

According to (Frca, 1998) ecolabels labels aim to highlight products meeting specific standards set by the issuing body, aiding consumers in making environmentally conscious choices. It has been stated in the bulletin (An Introduction to Eco-labeling, 2003) that the primary objective of environmental labels and declarations can be summarized as follows: by providing transparent and precise information that is free from deception regarding the environmental attributes of products and services, the aim is to promote the consumption and production of goods and services that exert a reduced negative influence on the environment. This, in turn, fosters the opportunity for ongoing environmental enhancement driven by market forces. (Royon, 1998) state that ecolabelling is gaining increasing attention from major corporations, who view it as a vital aspect of their business strategies. To him this interest is particularly significant in today's globalized market environment, where product certification serves as a powerful tool for both protecting domestic markets and accessing international markets.

2.3 Types of Ecolabels:

(Mansvelt, 2011) in her book (Green Consumerism: An A-to-Z Guide) posit that According to the International Organization for Standardization (ISO), there are three main types of ecolabels that we present in the table below:

Table 2: types of ecolabels according to the ISO *(Mansvelt, 2011, p. 112)*.

Type 1: **ISO 14024 (2018)**	**Type 2**: **ISO 14021 (2016)**	**Type 3**: **ISO 14025 (2006)**
- Labels assess products against others in the same category, granting recognition to those that demonstrate environmental superiority throughout their entire life	- Labels are environmental assertions made by the product's manufacturer, importers, or distributors. These claims are not independently verified and	- Labels provide a comprehensive list of a product's environmental impacts across its entire life cycle. They resemble nutrition labels on food items that

cycle. These standards are established by an impartial organization and upheld through a certification or auditing procedure. Evaluating products in this manner involves making challenging decisions: for instance, when faced with two identical products, one causing air pollution and the other water pollution, determining which holds the higher environmental merit can be complex. - The labeling criteria are elaborated under the ISO system guidelines.	lack standardized criteria for reference, making them potentially the least informative of the three label types. For example, a label claiming a product is "biodegradable" without providing a clear definition of the term is a type II label, which may not provide consumers with meaningful environmental information. - Not subject to the same level of scrutiny as Type 1 labels.	specify contents like fat, sugar, or vitamins. These information categories can be established by industry sectors or independent organizations. Unlike type I labels, they do not make judgments about products, leaving that assessment to consumers. Critics argue that the average consumer may lack the time and expertise to determine whether, for instance, sulfur emissions are more harmful than cadmium emissions, questioning the effectiveness of this approach. -Labels based on life cycle assessment (LCA) data.

Source: Elaborated by us from (Mansvelt, 2011).

The most well-known ecolabels are often attached to official government schemes in terms of financing and governance. In these cases, the ecolabeling bodies are typically national (or regional, in the case of the EU) standardization institutions that define the criteria, evaluate processes, and grant the labels. Examples include the EU Ecolabel and the Nordic Swan.

In Algeria, there are four ecolabels listed in the independent global directory of ecolabels and environmental certification schemes known as "Ecolabel Index." This index stands as the largest global directory of ecolabels, currently monitoring 456 ecolabels across 199 countries and 25 industry sectors.

The four types are presented in table 3.

Table 3: ecolabels in Algeria, *(Ecolabel Index, 2024)*

Ecolabel	Description
	Bonsucro is a global sustainability platform and standard for sugarcane, it aims to collectively accelerating the sustainable production and uses of sugarcane, focusing on climate action, human rights, and value in the supply chain. Bonsucro's global network brings together over 300 members from more than 50 countries including Algeria to address critical challenges in the sugarcane sector and drive both performance and impact through its system of sustainability standards. The organization works across all sugarcane products and derivatives, including: sugar, ethanol, molasses, and bagasse, in traditional and newer market sectors such as sugar, alcohol, biofuels, and bioplastics. https://bonsucro.com/
	The Institute for Marketecology (IMO) is a global organization specializing in the inspection, certification, and quality assurance of environmentally friendly products. With over two decades of experience, IMO has been primarily involved in organic certification. However, the organization also operates in areas such as natural textiles, sustainable forestry, and monitoring social accountability. https://www.ecocert.com/de-CH/home
	The Program for the Endorsement of Forest Certification (PEFC) is an international non-profit organization dedicated to promoting sustainable forest management through independent third-party certification. PEFC works across the entire forest supply chain to encourage best practices in forestry and ensure that timber and non-timber forest products are produced while respecting ecological, social, and ethical standards. As an umbrella organization, PEFC endorses national forest certification schemes that are developed through multi-stakeholder processes and tailored to local priorities and conditions. Each national forest certification scheme undergoes a rigorous third-party assessment against PEFC's Sustainability Benchmark to ensure alignment with its standards.

	Currently, PEFC has over 35 national certification schemes among its membership, collectively accounting for more than 220 million hectares of certified forests worldwide. https://www.pefc.org/
	TCO Certified is an international sustainability certification for IT products that encompasses a broad range of criteria. These criteria ensure that the manufacturing, use, and recycling of IT products are carried out with consideration for environmental and social responsibility. TCO Certified combines requirements for: 1. Social responsibility at the manufacturing facilities 2. User safety and ergonomic design 3. Minimal environmental impact for both the product and its production throughout the entire life cycle The certification process includes verification to ensure that the sustainability requirements are being followed and implemented effectively. https://tcocertified.com/

Source: Elaborated by us from Ecolabel Index website.

Remaining within the Algerian context, the Algerian Center for Circular Economy (CALEC) is actively working to advance the concept of eco-labeling, aiming to promote sustainable practices in various sectors, including eco-labeling, eco-design, eco-innovation, and environmental startups. Through collaborations with industry stakeholders, institutions, and scientific experts, CALEC is driving the implementation of eco-labeling standards and practices to foster a more sustainable and environmentally conscious economy in Algeria.

2.4 Presentation of the Algerian Center for Circular Economy:

Figure 3: Algerian Circular Economy Network. [1]

The Algerian Center for Circular Economy (CALEC) was Founded in 2020 by the University of Boumerdes, the National Association for Eco-design, Life Cycle Analysis and Sustainable Development (ANEADD), an industrial group, university experts, and the Food Technology Research Laboratory (LRTA). The aim was to create a platform for exchanging knowledge and promoting collaboration between industrial, institutional and scientific stakeholders to advance the implementation of the circular economy as an economic concept aligned with sustainable development.

CALEC is a cooperative research structure governed by its active members and guided by a Scientific Directorate. It serves as an e-learning platform to raise awareness, provide training, and share expertise in the circular economy on a national scale, drawing upon solid scientific foundations and years of practical experience. The center supports industries, organizations and consumers in their transition towards sustainable development, with a mission to develop, interpret, integrate and transfer the knowledge necessary for operationalizing and implementing the circular economy concept. CALEC's mission is to undertake actions in scientific research, technological innovation, valorization, and training in the fields of circular economy, eco-design, eco-innovation, and ecolabeling. Through its missions, CALEC actively contributes to the development of knowledge and its transformation into technological know-how and products necessary for sustainable economic and societal development.

3- Consumers' Purchasing behavior:

3.1 Consumer behavior and consumer green behavior:

Consumer behavior has been defined as the "acquisition, consumption and disposition of products, services, time and ideas by decision making units" (Jacoby, 1975). (D. Reid & C. Bojanic, 2009) view that awareness plays a crucial role in consumers' decision-making, enabling them to assess the disparity between their preferences and the information they

[1] https://www.calec-dz.org/

acquire. Moreover, (Patrick & Peppard, 1998) suggest that consumers must acquaint themselves with products and services to evaluate their purchasing habits.

Specifically, green consumer behavior refers to actions that demonstrate concern for the environmental consequences of production and consumption. In addition to legal reforms over the past decade, companies are now influenced by market forces, including shifts in consumer purchasing habits driven by environmental awareness (Wagner, 1997). The author attributes this shift partly to media coverage and activism by pressure groups, which have led to changes in consumer behavior. Green consumers remain a new market that is worth catering for, however, the author views green consumer as a "sleeping giant" who only awakes from time to time to flex his muscles (Understanding Green Consumer Behaviour, p. 1), a concept referred to as "the green gap".

3.2 Consumer behavior in developing nations:

Despite our differences, one common thread that underscores our homogeneity is our shared identity as consumers. However, unique factors within each society may still distinguish consumption patterns, limiting the applicability of generalized theories (Gbadamosi, 2016). The author posits that consumers in developing societies are influenced by personal, social, and cultural factors, as well as marketing stimuli. Moreover, the conventional notion of developing nations as stagnant in various aspects is challenged by globalization and civilization, introducing changes in consumer tastes and awareness.

3.3 The Impact of Product Certification on Consumer Behavior

Anecdotal evidence suggests that seals of approval can significantly influence consumer purchasing habits (Morris, Green Goods? Consumers, Product Labels, 1997). For instance, after the American Dental Association (ADA) awarded its seal to Crest toothpaste in 1960, Crest's market share rose from 10% to 12% within two months and eventually became the top-selling brand with a 30% market share within two years (T. BENNETT & F. McCROHAN, 1993). Similarly, a 1990 survey by the Roper Organization found that 84% of respondents believed the Good Housekeeping seal signified a product of superior or fairly good quality (G. Schiffman & Kanuk, 1994).

(Parkinson, 2005) found that consumers ranked ‘seals of approval’ highest, above ‘friends’, ‘salespersons’, and ‘advertisements’, in terms of their ‘expertise’ and ‘impartiality’ and second highest, behind friends, on ‘trustworthiness’. However, he also suggests that consumers often misinterpret seals of approval. He attributes this partially to the insufficient public education regarding the significance of these seals. For example, while 87% of consumers were aware of the Good Housekeeping seal, 68% claimed to be aware of a non-existent Better Homes and Gardens seal according to a survey (F. Beltramini & R. Stafford, 1993). Furthermore, the same survey by Beltrami and Stafford found that only the UL seal improved the believability of advertising claims, suggesting that consumers do not differentiate between certification marks, assuming them all to have equal value. Consequently, (Wynne, 1993) judge that despite these findings, it is difficult to determine the exact impact of certification marks on purchasing decisions due to the numerous factors involved.

Theoretical model

Previous studies have commonly found positive correlations between individuals' environmental attitudes and their environmental behavior (A. Roberts a & R. Bacon b, 1997). However, some researchers have questioned this assumption by demonstrating a weak or non-existent relationship between consumers' pro-environmental attitudes and their actual green purchasing behaviors. This suggests that while green marketing campaigns may foster positive environmental sentiments, they do not necessarily translate into real-world green purchase decisions by consumers (Hanas, 2007). In the existing literature, it is collectively suggested that many consumers may accept green claims, but fewer actually intend to act on their accepted beliefs. This disparity between consumers' intentions to engage in environmentally friendly behaviors and their actual actions has been referred to as the "green gap" (R. Fowler III & G. Close, 2012). To advertisers of green products, the discrepancy between what consumers believe and what they intend to purchase indicates that significant resources are being wasted on green advertising. This is particularly concerning if the advertising succeeds in increasing consumer acceptance of the green message but fails to translate into actual purchase intent (Fishbein & Ajzen, 1975).

To effectively bridge the so-called “Green-gap”, the research model should incorporate the critical factors that drive consumers to act on their green attitudes and intentions. Consequently, we will draw upon the Theory of Planned Behavior (TPB) (Ajzen, 1991), a theory of Behavioral Intention, as intentions are believed to capture the motivational factors that influence behavior.

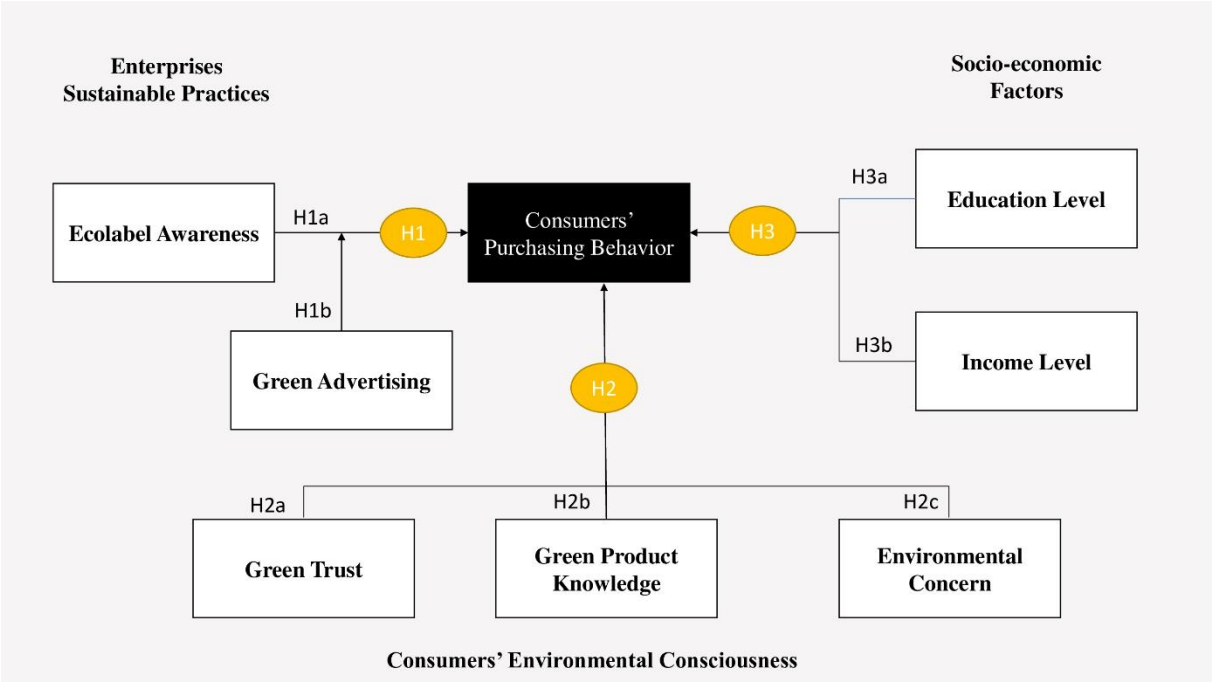
Intentions reflect how much effort and determination individuals are willing to expend in order to perform a particular behavior.

The TPB posits that behavioral intentions are shaped by three key factors:

1) Attitudes: An individual's overall evaluation of the behavior as favorable or unfavorable
2) Subjective Norms: The perceived social pressure to perform or not perform the behavior
3) Perceived Behavioral Control: The perceived ease or difficulty of performing the behavior

According to the TPB, the more positive the attitude and subjective norm, and the greater the perceived behavioral control, the stronger the individual's intention to perform the behavior in question (Ajzen, 1991). Applying this framework to the context of green purchasing behavior, we can expect that consumers with stronger intentions to buy ecolabeled products will be more likely to actually engage in green purchasing behaviors. By applying the TPB framework to the context of green purchasing behavior, we aim to gain a deeper understanding of the factors that influence consumers' intentions to buy eco-labeled products and how these intentions translate into actual green purchasing behaviors, ultimately contributing to strategies for bridging the so called “green-gap”.

Figure 4: theoretical model



Source: Elaborated by us.

The research model has several constructs; the definitions of these concepts are listed in table 4 below.

Table 4: Definitions of key concepts presented in the model.

Concept	Description	Source
Ecolabel Awareness	Eco-label awareness signifies the degree to which consumers are familiar with and comprehend the significance of eco-labels on products. This awareness is crucial in determining the effectiveness of eco-labels in encouraging environmentally responsible consumer behavior.	(Hammond, et al., 2023)
Green Advertising	"any ad that meets one or more of the following criteria:"1. Explicitly or implicitly addresses the relationship between a product/service and the biophysical environment. 2. Promotes a green lifestyle with or without highlighting a product/service. 3. Presents a corporate image of environmental responsibility".	(Subhabrata Banerjee, S. Gulas, & Iyer, 1995)

Green Trust	‘‘a willingness to depend on a product, service, or brand based on the belief or expectation resulting from its credibility, benevolence, and ability about its environmental performance.’	(Ganesan, 2002)
Green Product Knowledge	Green product knowledge refers to the level of understanding and awareness consumers have about environmentally friendly products, including their characteristics and personal opinions about them.	(Nekmahmud , Naz, Ramkissoon , & Fekete-Farkas , 2022)
Environmental Concern	Environmental concern is a measure of how much individuals care about the environment and its well-being. This affects how people think about and act on environmental issues, and it can be shaped by factors like knowledge about environmental problems, personal values, and attitudes towards the environment.	(Tunçel & Buğday, 2022)
Income Level	Income levels categorize households or individuals into segments based on their total earnings from all sources prior to tax deductions.	(Income Levels - Definition, Analogy, and Study Resources | Fiveable, 2024)
Education Level	Education level refer to the various educational routes and paths that individuals can take, which are often defined by the amount of time spent in formal education.	(What Are Levels in Education? (Definition and Requirements), n.d.)

Source: Elaborated by us.

Hypotheses:

Based on the literature review and the chosen conceptual model, we have formulated hypotheses that express the links between the variables retained in our research.

The impact of enterprises sustainable activities on consumers' purchasing behavior:

Enterprises' endeavors towards sustainability, when aptly communicated through green marketing strategies, possess the capacity to positively impact consumers' buying tendencies. (L. Govender & P. Govender, 2016). This influence is manifested through heightened consumer awareness, a proclivity towards eco-conscious products, and an inclination to patronize socially responsible businesses (Quang Hung , 2021).

In recent years, environmental economists have shown growing interest in utilizing information as a substitute for conventional regulatory approaches to address externalities. One such method is 'eco-labeling,' where an independent entity certifies the products of companies as products that are less harmful to the environment (Mason, 2013). These ecolabels are seen by prominents as a way to nudge consumers and businesses towards environmentally friendly practices. By giving consumers clear information about a product's environmental impact, ecolabels can build trust in green claims and encourage purchases of sustainable goods. Nonetheless, while (Morris, Green Goods? Consumers, Product Labels and the Environment, 1997) acknowledges that environmental information on ecolabels may improve consumers' capacity to select the most environmentally friendly products, he asserts that eco-labels offer consumers only the most basic information regarding a product's environmental impact, and even this information may be of questionable accuracy.

As already mentioned, enterprises' efforts to respect the environment and produce responsibly must be communicated to consumers in pertinent and coherent techniques.

Advertising significantly contributes to raising public awareness about environmental concerns, establishing a positive eco-friendly brand perception, and stimulating consumer interest in environmentally sustainable products (Segev, Fernandes, & Hong, 2016). (Subhabrata Banerjee, S. Gulas, & Iyer, 1995) define green advertising as "any ad that meets one or more of the following criteria:"1. Explicitly or implicitly addresses the relationship between a

product/service and the biophysical environment. 2. Promotes a green lifestyle with or without highlighting a product/service. 3. Presents a corporate image of environmental responsibility". Thus, green advertisements aim to sway consumers' purchasing decisions by encouraging them to buy products that are environmentally benign and by directing their focus to the favorable outcomes of their buying behavior, both for themselves and for the environment (Rizwan , Mahmood, Siddiqui, & Tahir, 2014). However, many green advertisements present partial truths that lack detailed information about the genuine environmental characteristics of their products (Schmuck, Matthes, & Naderer, 2018), a phenomenon known as greenwashing, which denotes "the act of misleading consumers regarding the environmental practices of a company or the environmental benefits of a product or service" (D. T. de Jong, Huluba, & D. Beldad, 2019).

Thus, we can wind up that the awareness of ecolabels can positively impact consumers' purchasing behavior towards green product, while perceived green advertising can moderate the link between eco-labels and the purchasing behavior. Excessive exposure might diminish this connection, whereas clear, informative green advertising might enhance it.

H1: Enterprises Sustainable Activities have a positive impact on consumers' purchasing behavior.

H1a: There is a positive relationship between the awareness of eco-labels and consumers' purchasing behavior towards green product.

H1b: The positive influence of eco-labels awareness on purchasing behavior might be moderated by perceived green advertising.

The impact of consumers' environmental consciousness on their purchasing behavior:

Consumer trust and the credibility of messages play a pivotal role in matters concerning green consumption and assertions about green products, as these claims are classified as credence claims (Atkinson & Rosenthal, 2013, p. 34). (Nuttavuthisit & Thøgersen, 2017) concluded that for a market to exist for credence goods like 'green' products, especially when they command a higher price point, consumer trust is indispensable. Without trust, consumers are unlikely to purchase these products or believe the claims made about their environmental benefits. (Schmuck, Matthes, & Naderer, 2018, p. 16) in their turn found that consumers are capable of

recognizing false environmental claims. Consequently, when they question the authenticity of marketing claims or perceive them as misleading or involved in greenwashing, they become much less inclined to purchase the product or develop a positive opinion of it (Atkinson & Rosenthal, 2013).

The notion that green product knowledge directly predicts green purchase intention, implying that consumers with such knowledge will buy eco-friendly products, is an oversimplification according to (Wang, Ma, & Bai, How Does Green Product Knowledge Effectively Promote Green Purchase Intention?, 2019) findings. A phenomenon exists where consumers do not always purchase green products despite having knowledge about them and being aware of their attributes. The researchers posit that consumers with green product knowledge form a cognitive assessment and evaluation of green products by integrating product information, resulting in green trust in their environmental benefits and boosting their likelihood to purchase.

In Oman (Alshali, Alhattali, & Ahmed, 2021), found a positive correlation between green brand Knowledge and intent to buy green products. Agreeing with the mentioned studies, (Suki, 2016, p. 12) found that green brands Knowledge proved to be the most influential factor in determining consumers' intention to purchase green products. Familiarity with green brands has led to the development of positive perceptions towards green marketing strategies and has reinforced consumers' interest in protecting the environment and preventing further degradation. Moreover, knowledge of green brands has also shaped consumers' attitudes towards these environmentally responsible brands in a favorable manner.
This study has suggested that a person having some concern for the environment would have a stronger preference for purchasing a green product, if he is made much more aware of its environmentally friendly features through the use of an eco-label.

The growing awareness of environmental issues has significantly shaped consumer behavior, leading to a notable expansion of the green product market. (B. Schlegelmilch, M. Bohlen , & Diamantopoulos, 1996). (Rashid, 2009) suggest that individuals demonstrating environmental concern are more likely to exhibit a preference for purchasing green products, particularly when they are provided with heightened awareness of the product's eco-friendly attributes via the utilization of an eco-label.

Plausibly, (A. Bickart & A Ruth, 2012) found that consumers with a high level of environmental concern perceived manufacturers' eco-labels more favorably compared to consumers with lower environmental concerns. The latter group tended to view the manufacturer's eco-certification as a biased source.

In their turn, (Troudi & Bouyoucef, 2020) found that environmental concern has a significant impact on attitude toward green food; an indirect effect on intention and on purchase behavior of green food has been reported. The indirect effect of EC on purchase behavior is stronger than its direct effect on attitude toward green food. But in the present study, environmental concern is not the top factor influencing attitude toward green food.

Building on the listed literature and considering the particularity of the Algerian context we assume that:

H2: Consumer Environmental Consciousness positively influences purchasing behavior towards eco-labeled products.

H2a: Consumers with higher eco-labels trust are more likely to exhibit positive purchasing behavior towards eco-labeled products.

H2b: Consumers with greater green product knowledge are more likely to understand the significance of eco-labels and be receptive to their message, leading to a positive influence on purchasing behavior.

H2c: Consumers with a stronger environmental concern are more likely to be receptive to eco-labels and demonstrate positive purchasing behavior towards eco-labeled products.

The impact of socio-economic factors on consumers' purchasing behavior:

Multiple empirical studies have found that demographic and socio-economic factors play a substantial role in shaping consumers' green purchasing behavior and attitudes towards environmentally-friendly products (Kaufmann, et al., 2012, p. 11), factors like age, gender, education level, and income have been shown to significantly influence environmental concern, knowledge, and ultimately the likelihood of buying green products.

In our research, we have chosen to focus on income level and education level as the key socio-economic variables that are more likely to have an impact on Algerian consumers.

(Witek & Kuźniar, 2020) found that education level along with other sociodemographic variables have an impact on awareness and purchasing behavior towards green products, they also indicated that female consumers exhibit more favorable attitudes towards buying green products compared to their male counterparts.

Education level was identified by (Susanty, Ulkhaq, Puspitasari, & Prastawa, 2021) as a factor influencing environmental awareness and knowledge among the Semarang population, with individuals possessing higher levels of education being more inclined to participate in environmental awareness and knowledge activities. The outcomes of this study align with prior research on gender disparities in environmental awareness and understanding. Generally, females tend to exhibit greater levels of concern and knowledge compared to males.

The research by (Al Mamun, Mohamad, Bin Yaacob, & Mohiuddin, 2018, pp. 3-9) revealed that lower-income households recognize the benefits of eco-friendly products through daily use, with attitudes towards green products influenced by eco-literacy and self-efficacy in purchasing them. Income level influences attitudes and intentions towards green consumption, highlighting the importance of educating low-income households on environmental matters to encourage eco-friendly purchases. Limited information on green products suggests low-income households may opt for them if accessible and competitively priced compared to non-green alternatives, underscoring the impact of product availability and affordability on their consumption choices. Contrary to the previous study, (Laheri, 2017) found that respondents' income levels do not have a significant influence on their social pressures or norms regarding the purchase of green products.

H3: Socioeconomic factors have a positive impact on consumers' purchasing behavior.

H3a: Consumers with higher education levels will be more receptive to eco-labeled products.

H3b: consumers with higher income level will more likely have a positive purchasing behavior towards eco-labeled products.

The summary of hypotheses is presented in table 5 below.

Table 5: Summary table of hypotheses

	Hypotheses	
H1	**Enterprises Sustainable Activities have a positive impact on consumers' purchasing behavior.**	
	H1a	There is a positive relationship between the awareness of eco-labels on products and consumers' purchasing behavior towards them.
	H1b	The positive influence of eco-labels on purchasing behavior might be moderated by perceived green advertising.
H2	**Consumer Environmental Consciousness positively influences purchasing behavior towards eco-labeled products.**	
	H2a	Consumers with higher eco-labels trust are more likely to exhibit positive purchasing behavior towards eco-labeled products.
	H2b	Consumers with greater green product knowledge are more likely to understand the significance of eco-labels and be receptive to their message, leading to a positive influence on purchasing behavior.
	H2c	Consumers with a stronger environmental concern are more likely to be receptive to eco-labels and demonstrate positive purchasing behavior towards eco-labeled products.
H3	**Socioeconomic factors have a positive impact on consumers' purchasing behavior.**	
	H3a	Consumers with higher education levels will be more receptive to eco-labeled products.
	H3b	Consumers with higher income level will more likely have a positive purchasing behavior towards eco-labeled products.

Source: Elaborated by us.

Chapter II: Methodological Framework and Research Context

In this chapter, we will discuss in the first part the methodological framework and the research context in the second part.

I. Methodological Framework:

In this section, we discuss the epistemological approach and the methodological approach chosen to conduct our study, in terms of methods, collection instruments and analysis of the information gathered.

1. Epistemological approach:

Positivism, also known as the 'scientific method' or 'science research', is rooted in the rationalistic, empiricist principles established by historical figures such as Aristotle, Francis Bacon, John Locke, August Comte, and Emmanuel Kant (Mertens, 2005, p. 8). It embodies a deterministic philosophy where causes are seen to likely determine effects or outcomes (W. Creswell & Creswell, 2003, p. 7). Positivism can be applied to the study of the social world based on the following assumptions: 1. The social world can be examined using the same methods and approaches as the natural world. 2. There exists a value-free method for investigating the social world. 3. Causal explanations can be provided for social phenomena, similar to how causes are attributed to effects in the natural sciences. In essence, positivism suggests that the social realm is amenable to objective, scientific inquiry, and that universal laws governing human behavior can be uncovered through rigorous, value-neutral research methods. (Mertens, 2005, p. 8). “Positivists aim to test a theory or describe an experience "through observation and measurement in order to predict and control forces that surround us” (O’leary, 2004, p. 5). Positivism was replaced after World War II (Mertens, 2005) by post-positivism. (Mertens, 2005). Post positivists work under the assumption that any research is influenced by a multitude of well-established theories, in addition to the specific theory being tested or examined (D Cook & Campbell, 1979, p. 24). (O’leary, 2004) posits that postpositivism is characterized by its intuitive and comprehensive approach, emphasizing induction and exploration, resulting in qualitative findings in nature (pp. 6-7). This definition of postpositivism seems to be in conflict with the more widely used definition provided by (Mertens, 2005). Positivists and postpositivist research typically adhere to quantitative methods of data collection and analysis.

2. Methodological Approach:

(Mertens, 2005) posit that a "researcher's theoretical orientation has implications for every decision made in the research process, including the choice of method" (pp. 3-4). According to

(O'leary, 2004) qualitative data involves information presented through words, pictures, or icons and analyzed through thematic exploration. Quantitative data, on the other hand, are numerical in nature and analyzed using statistical methods.

In academic literature, the terms qualitative and quantitative are frequently employed in two separate contexts: one concerning the research paradigm, and the other relating to research methods. This distinction is exemplified in the following definition by (H. McMillan & Schumacher, 2006) "At one level quantitative and qualitative refers to distinctions about the nature of knowledge: how one understands the world and the ultimate purpose of the research. On another level of discourse, the terms refer to research methods - how data are collected and analyzed - and the types of generalizations and representations derived from the data" (p. 12).

In this research we have tested the impact of ecolabels on Algerian consumers' purchasing behavior. Consequently, we adopted a quantitative research methodology. This approach is part of a hypothetico-deductive research approach, which involves first formulating hypotheses, then confirming or refuting them in the research field.

3. Methods and data collection instruments:

To test our hypotheses, an online survey questionnaire was developed to assess the impact of ecolabels on consumers' purchasing behavior in Algeria. The questionnaire was distributed through online platforms as well as via QR codes displayed in public spaces.

The questionnaire was designed in three languages: Arabic, as it is the native language of Algerians, and French and English as they represent the two most widely spoken foreign languages in the country. This multilingual approach ensured that the questionnaire was easily understood by all categories of respondents, thereby enhancing the reliability and validity of the data collected.

3-1 Measurement instrument:

We utilized a questionnaire as a data collection instrument (Consult Appendix A). In the following, we are presenting the questionnaire structure as well as the measuring scales of the variables retained in our conceptual model.

3.1.1 Questionnaire:

The questionnaire contains four sections structured as follows:

- Questionnaire introduction: involved articulating the research aim and assuring participants of the confidentiality of their responses, also we sought to encourage their participation by emphasizing how their involvement actively contributes to the progress of knowledge in the domain of responsible marketing and consumption in Algeria.
- A brief definition of ecolabels: A concise explanation of ecolabels was provided to ensure that respondents are adequately informed and prepared to provide their responses.
- Perceptions and attitudes towards eco-labels and green consumption: We administered eighteen questions to assess participants' perceptions and attitudes regarding ecolabels and green consumption. Among these, twelve questions utilized a five-point Likert scale to facilitate measurement, five questions were multiple-choice, and one question required a short-answer response to identify ecolabeled products participants may have purchased. Open-ended questions were not included in our research methodology.
- Respondents identification: A descriptive section was employed to define the characteristics of each respondent, comprising seven questions. These questions classify participants based on their gender, age, educational level, current occupation, social status, parental status, and monthly disposable income.

Figures below illustrate the introduction and the definition provided in the questionnaire.

Figure 5: the questionnaire introduction. [2]

The Impact of Ecolabels on the Purchasing Behavior of Algerian Consumers

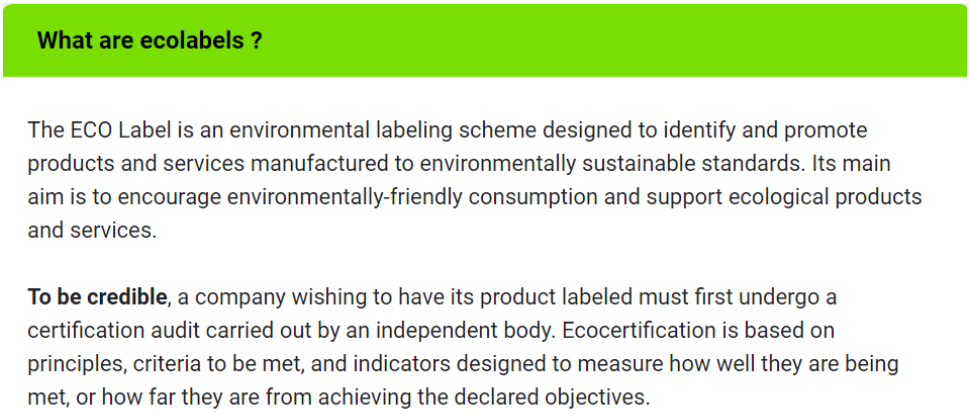
Dear Participant,

This study aims to analyze in depth the influence of ecolabels on the choices of Algerian consumers like you. We want to understand the concrete implications for sustainable consumption practices in our country.

Your answers will remain strictly confidential. We would be grateful if you could answer as sincerely and accurately as possible. By taking part in this study, you are actively contributing to the advancement of knowledge on responsible marketing and consumption in Algeria.

[2] Screenshot taken from Google Forms, 28th May, 2024.

Figure 6: the definition of ecolabels.[3]



3.1.2 Measuring Scales:

The questionnaire employs a five-point Likert scale, which is generally regarded as more precise and informative compared to a three-point scale (Jill L & D. Betsy, 2010). The questions were developed based on insights from previous studies to ensure content validity, with careful consideration given to the specific context of Algeria.

Table 6 below present the measuring scales used in the study.

Table 6: Measuring scales used in the questionnaire.

Variables	Scales	Authors
Ecolabel awareness (EA)	1- I am familiar with ecolabels.	(Nguyen & Trung Le, 2020)
Green Advertising (GA)	1- I am exposed to advertisements promoting environmentally-friendly products. 2- I agree with the following statement: "Green advertising can be trusted".	(Vazifehdoust, Taleghani, Esmaeilpour, Nazari, & Khadangd, 2013)
Green Trust (GT)	1- I trust eco-labels on food products. 2- Eco-labels are important in my food purchasing decisions.	(Nguyen & Trung Le, 2020)

[3] Screenshot taken from Google Forms, 28th May, 2024.

Green product knowledge (GPN)	1- I am familiar with ecolabels attributed to food products.	(Wang, Ma, & Bai, 2019)
Environmental Concern (EC)	1- I am concerned about environmental issues in Algeria. 2- I consider the environmental impact of a food product before I buy it. 3- I am likely to choose environmentally-friendly products over conventional ones.	(Lestari, Hanifa, & Hartawan, 2020)
Purchasing Behavior (PB)	1- agree with the following statement: "I am willing to pay more for environmentally-friendly products". 2- I agree with the following statement: "I have bought more ecological products over the past year than in previous years". 3- I agree with the following statement: "I plan to buy more eco-friendly products in the future".	(Lestari, Hanifa, & Hartawan, 2020)
Education Level (ED)	1- The highest level of education I attained is higher studies.	(Khar & Irfan, 2021)
Income Level (IL)	1- My income level varies between less than 30.000 DZD and more than 100.000 DZD.	(Khar & Irfan, 2021)

Source: Elaborated by us.

4. Sample and practical survey modalities:

4.1 Sampling:

In this section, we present the study population, the sampling method and the sample size.

4.1.1 Study population:

In the context of our research, we centered our investigation on Algerian citizens, specifically directing our attention to consumers within the Agri-food sector.

4.1.2 Sampling method:

To facilitate our research, we employed a convenience sampling method, which is classified as a non-probabilistic sampling approach. This involved distributing our questionnaire online through platforms like Google Forms and disseminating QR codes in public spaces to reach a diverse range of participants.

We opted for convenience sampling due to several factors. Firstly, there was a lack of an established survey database for our target population. Secondly, our research primarily focuses on consumers within a broad mass market context. Finally, time and budgetary constraints necessitated the use of convenience sampling as a practical means of data collection that will allow a rapid analysis while minimizing costs.

4.1.3 Sample size:

In the case of absence of precise knowledge regarding the total population size, experts advise that for large populations, a sample size of at least 400 respondents is necessary for it to be statistically representative. Consequently, given the unavailability of a reliable database regarding the population of the whole Agri-food sector, our sample comprised 416 respondents, surpassing this threshold and thereby considered representative as per established guidelines.

4.2 practical survey modalities:

In this section, we present the duration and period of the survey, as well as the method used to administer the questionnaire.

4.2.1 Survey duration:

We carried out a test of the questionnaire from April 18th, 2024 to April 28th, 2024. The test allowed us to correct and remove a few items that didn't work. Data collection took place from May 14th, 2024 to May 26th, 2024.

4.2.2 Administration mode:

The survey was conducted online through social media platforms, specifically Facebook and LinkedIn, by posting the questionnaire in relevant groups and pages to reach a broad audience.

Additionally, we distributed QR codes for the three versions of the questionnaire in public areas, including markets, gardens, and student gathering spaces, to further increase the reach and accessibility of the survey to the general public.

5. Data processing and analysis methods:

Following the administration of the questionnaire and the subsequent data collection, we proceeded with the analysis and interpretation of the collected data. This involved utilizing IBM SPSS software (Statistical Package for the Social Sciences), version 20, for statistical data analysis purposes.

For our analytical approach, we initiated with a univaried descriptive analysis focusing on one variable at a time. Then, we carried out mean comparisons to obtain initial understandings from the data. This process enabled us to detect any notable variations in responses among various groups or variables. We tested and validated our measurement items with a simple linear regression. We also verified their reliability using a reliability test (Cronbach's Alpha). To test and validate the hypotheses of our research, we employed a multiple linear regression.

II. Research context:

1. Brief presentation of the sector:

1.1 Agri-food sector in Algeria:

The agri-food sector AFS encompasses the entire continuum of activities involved in producing, processing, distributing, and consuming food and agricultural goods. It comprises key elements such as: agriculture, manufacturing, retail and supporting functions (activities such as logistics, transportation, marketing, and regulatory compliance that facilitate the smooth operation of the AFS).

In Algeria, the agri-food sector holds a prominent position in the country’s economy. It accounts for 40% of the non-hydrocarbon industries' revenue and 13% of the national GDP. The sector employs 1.6 million people, which is 16% of the active population, and contributes 47.68% to the country's gross production and 38.4% to the added value.

1.1.1 The sector in numbers:

Algeria is the third largest importer of F&B within the African continent, with a total of 2,872,711 million euros.

Regarding food:

- The revenue of the food market amounts to 10,775 million euros in 2022.
- The largest segment of the market is confectionery and snacks, with a market volume of 2,402 million euros in 2022.

Regarding beverages:

- The revenue of the non-alcoholic beverage market is 1,886 million euros in 2022.
- The largest segment of the market is carbonated drinks, with a market volume of 1,383 million euros in 2022.
- The revenue of the hot beverage market is 2,642 million euros in 2022. The market is expected to grow annually by 0.61% (CAGR 2022-2025).
- The largest segment of the market is coffee, with a market volume of 2,147 million euros in 2022.

Food represents an average of 42% of Algerian household budgets, primarily consisting of minimally processed staple products. The government maintains low prices for essential products such as sugar, seed oil, bread, semolina, and packaged pasteurized milk, leading to their high consumption. However, the emergence of a growing middle class demands higher quality, availability, and convenience in consumed products including those bearing eco-labels. A wealthier class seeks even more refined products with Algerian and Muslim specificities, while also considering the environmental impact of their choices, but also with consideration to the environmental impact of these products.

Algeria's primary objective is to develop local production to improve self-sufficiency in widely consumed products. Once this production meets international standards, Algerian companies can start exporting. There is currently a demand in Europe for certain typical Algerian products, opening new opportunities for large Algerian groups already prepared to export.

1.1.2 Algeria's Principal Partner: The European Union

The EU accounts for 49.2% of Algerian imports and 68.3% of its exports. In 2017, a cooperative program between Algeria and the EU was initiated, known as the Program for Rural Development and Agriculture in Algeria (PAP-ENPARD-Algeria). With a budget of 20 million

euros, evenly financed by Algeria and the European Union, the program aims to support Algeria's economic diversification strategy and revitalize rural areas through productive activities to increase income and employment opportunities. However, China is Algeria's top supplier (16%), followed by France (10.5%), Italy (9.4%), Spain (7.6%), Germany (6.6%), the United States (5.3%), Turkey (4%), Argentina (2.5%), South Korea (2.3%), and Brazil (2.2%)[4].

Consult Appendix B for the presentation of the "AGRI-FOOD TRADE STATISTICAL FACTSHEET European Union – Algeria" [5].

[4] https://www.djazagro.com/fr-FR/actualites-tendances/tendances-prospectives/marche-algerien
[5] **Source spécifiée non valide.**

2- Host organization

The Research Center for Applied Economics for Development (CREAD) is a public research institution in Algeria that focuses on applied economics for development. Established in 1985, CREAD has been a public scientific and technological institution (EPST) since 2003, under the supervision of the Ministry of Higher Education and Scientific Research (MESRS) and intersectoral.

Figure 7: CREAD Logo.

Source: CREAD'S Website.

- **Activities and Research Focus**

CREAD's research activities have centered on development economics, the social and labor economy, the economics of education, the economics of natural resources and the environment, and the economy of the center and its organization, the **Agri-economy** and the rural economy, the international economy and foreign trade, and more. The center designs and conducts research projects with socio-economic partners and national and international scientific institutions, occasionally surveying populations, institutions, and professionals in the economy to collect data and statistical information on all economic and socio-economic phenomena. CREAD also performs studies and research on behalf of institutions, public or private, national or foreign, based on internal and external expertise, exploiting various themes and issues relating to various economic and socio-economic structures.

- **CREADs Missions**

The missions devolved to CREAD, defined in the decree of creation in 1985, are directly related to its field of competence, which is the economy and the social economy of development.

These missions include:

· Conducting theoretical and applied research on economic development,

- Studying the economic and social conditions needed to strengthen intersectoral integration, technological creation and mastery, and effective macro and microeconomic management,
- Conducting research in labor economics, education, training, health, and housing, and studying monetary and financial management systems at national and international levels.
- Additionally, CREAD is responsible for carrying out scientific research and technological development programs in the field of development economic.

➢ CREAD's Organization

The Research Center for Applied Economics for Development (CREAD) is accountable for implementing the scientific research and technological development programs outlined in its founding decree. Under the leadership of a director, CREAD is governed by a board of directors and a scientific council, and is structured into four research divisions, three technical departments, and three administrative departments.

Key Roles and Responsibilities

Table 7 : Key Roles and Responsibilities at the CREAD.

Director	Manages the establishment and ensures its proper functioning.
Board of Directors	Deliberates on research programs, financial management, and the annual activity report.
Scientific Council	Decides on scientific and technological activities, research programs, and the creation of research teams and training programs.
Deputy Director	Assists the Director in scientific activities and technological development, coordinating technical department activities.
Secretary General	Coordinates administrative services, including personnel, budget, and general resources.

Organizational Structure

Table 8: Organizational Structure.

Technical Departments	External relations and valorization, Economic and Socio-Economic Statistics, and Supporting Scientific Activities in Economics and Applied Socio-Economics.
Administrative Departments	Personnel and Training, Budget and Accounting, and General Resources.

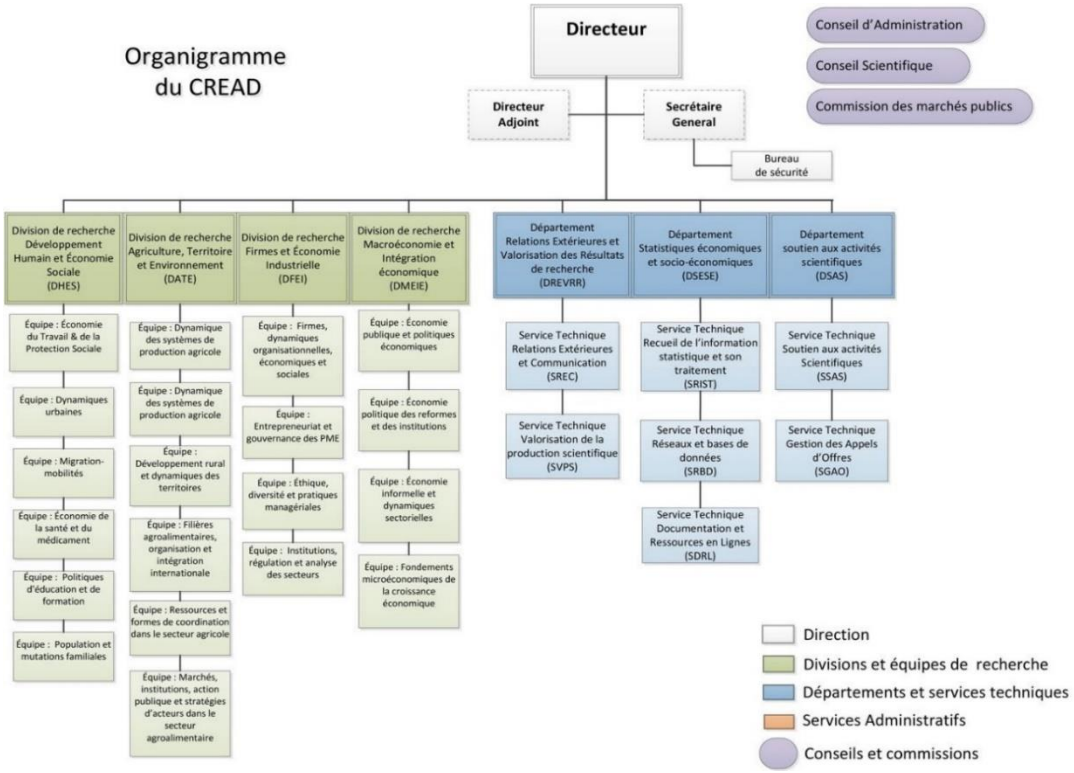
- **CREAD' Organigram**

As shown in the figure below, CREAD's core activities are divided into four research divisions:

1- Human and Social Development: This division explores topics like labor economics, social protection, urban dynamics, migration, and development patterns in agriculture and territories.
2- Development, Agriculture, Territory and Environment: This division focuses on the economic and social aspects of agricultural production systems, rural development, international integration, health economics, and agri-food sectors.
3- Firms and Industrial Economy: This division researches firm dynamics, public policies, entrepreneurship, economic institutions, and the microeconomic foundations of growth.
4- Macroeconomics and Integration: This division examines economic policies, reforms, the informal economy, ethics in management practices, and macroeconomic integration.

Beyond the research divisions, CREAD has essential departments and technical services. The Department of External Relations promotes research, while the Department of Economic Statistics gathers and processes data. The Department of Support to Scientific Activities provides technical assistance for research projects, manages networks and databases, and maintains online resources.

Figure 8: CREAD organigram.



Source: CREAD's personal.

Research departments and research projects at the CREAD are presented in table 9 below.

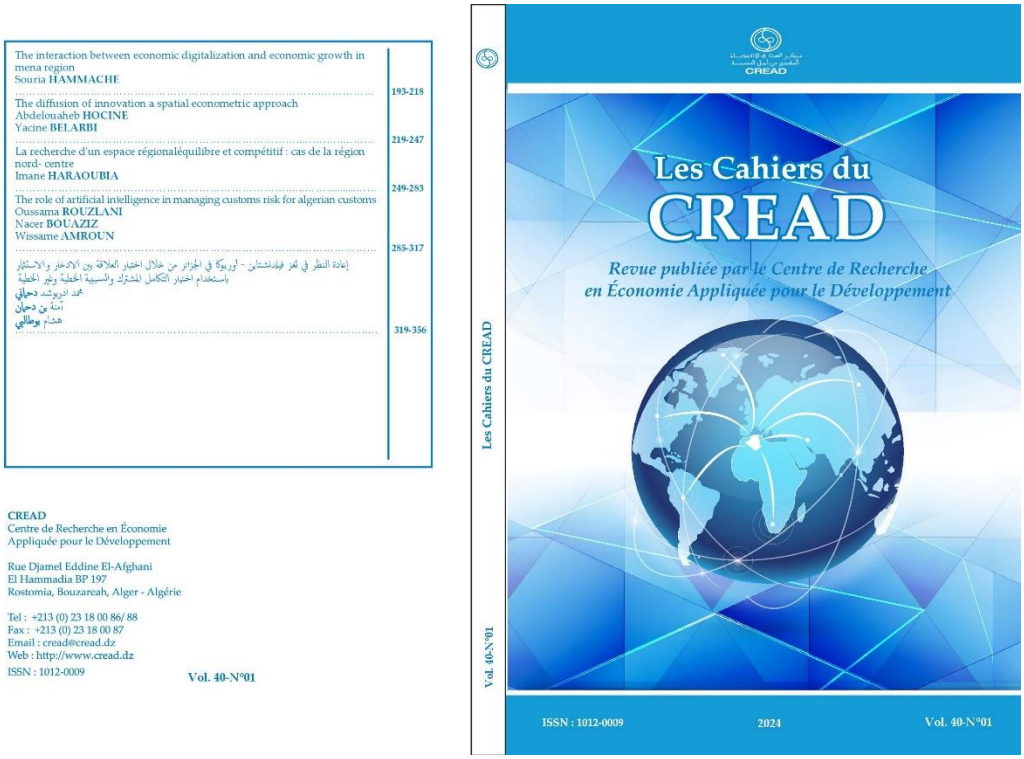
Table 9: Research departments and research projects at CREAD.

Research departments	Research projects
Human Development and Social Economics	Settlement projects
Firms and Industrial Economics	Projects in partnership
Macro Economy and Economic Integration	PNR projects
Agriculture Territory and Environment	International projects

Source: CREAD' personal.

- **The Journal "Les Cahiers du CREAD"**

Figure 9: the cover page of *"Les Cahiers du CREAD"*



Source: CREAD's website

The journal "Les Cahiers du CREAD" was founded in March 1984 under the name "Les Cahiers du CREA" and has been published as "Les Cahiers du CREAD" since 1986, coinciding with the creation of CREAD. The journal is published quarterly, with an average of 25 articles published annually. It is a journal of economics and socio-economics, covering a wide range of topics including:

- Applied economics and socio-economics for development
- Macroeconomics, international relations, and regional integration
- Agri-economics and rural development
- Firms, industrial economy, regulation, and competition in network industries
- Social economy, education, health, poverty, unemployment, and human development

The journal's audience is diverse, targeting the research community, both nationally and internationally, as well as the economic and socio-economic sector, teachers and students, and

anyone interested in economic and socio-economic phenomena. The Center publishes annual scientific activity balance which presents the entire range of research and publication activities. **Current Issue**: Vol. 40 No 1 (2024).

- **Points of Sale:**

As it continues to uphold its esteemed reputation, "Les Cahiers du CREAD" stands as a cornerstone in economic and socio-economic discourse, offering a diverse array of topics, the journal is sold in various outlets, including:

- OPU Ben aknoun
- Edition chihab BEO
- Librairie el ijtihade Rue charasse
- Bibliothèque tiers monde rue Laarbi ben mehidi

Chapter III: Results and Discussion

This last chapter focuses on analyzing the survey data collected to assess the impact of ecolabels on consumers' purchasing behavior within the Algerian Agri-food sector.

The first section outlines the composition of our sample, followed by a univariate descriptive analysis. Subsequently, we employ both simple and multiple linear regressions to uncover correlations and test our research hypotheses. Finally, the second section discusses our findings in relation to previous studies and offers insights for future research directions.

I. Results presentation:

In this section, we present the analyses of the survey results and the testing of hypotheses.

1-Sample characteristics:

This sample consists of 416 individuals and is characterized by a relatively balanced gender distribution, with 45% males and 55% females. In terms of age groups, the majority fall within the 25-34 years category (49%), followed by 18-24 years (25%). Most participants are single (58%) and have attained university studies/diploma level education (59%). The majority also have children (71%) and are employed, either as students (24%), employees (41%), or independent workers (20%). Regarding income levels, the largest proportion falls within the range of less than 30,000 DZD (34%), followed by 30,000-50,000 DZD (25%).

The table 10 below presents the detailed profile of the sample.

Table 10 : Sample characteristics.

Variable	Category	Frequency	Percentage
Gender	Male	188	45%
	Female	228	55%
	Total	**416**	**100%**
Age group	Less than 18 years	5	1%
	18 – 24 years	105	25%
	25 – 34 years	202	49%
	35 – 44 years	68	16%
	45 -54 years	25	6%
	More than 55 years	11	3%
	Total	**416**	**100%**
Marital Status	Single	240	58%
	Married	142	34%
	Divorced	26	6%
	Widowed	8	2%
	Total	**416**	**100%**
Education Level	No formal education	29	7%
	Basic-primary, intermediate-	16	4%

	High school -baccalaureate-	69	17%
	University studies / diploma	245	59%
	Higher Education	57	14%
	Total	**416**	**100%**
Parental Status	Yes	294	71%
	No	122	29%
	Total	**416**	**100%**
Current Occupation	Student	101	24%
	Employee	170	41%
	Independent	83	20%
	Looking for a job	51	12%
	Retired	11	3%
	Total	**416**	**100%**
Income level	Less than 30000 DZD	180	34%
	30000 – 50000 DZD	104	25%
	50000– 100000 DZD	98	24%
	More than 100000 DZD	34	8%
	Total	**416**	**100**

Source: SPSS outputs.

2- **Univariate descriptive analysis**

In this section, we will provide a detailed overview of the univariate descriptive analysis conducted for the key variables employed in our research.

2.1 Ecolabel Awareness:

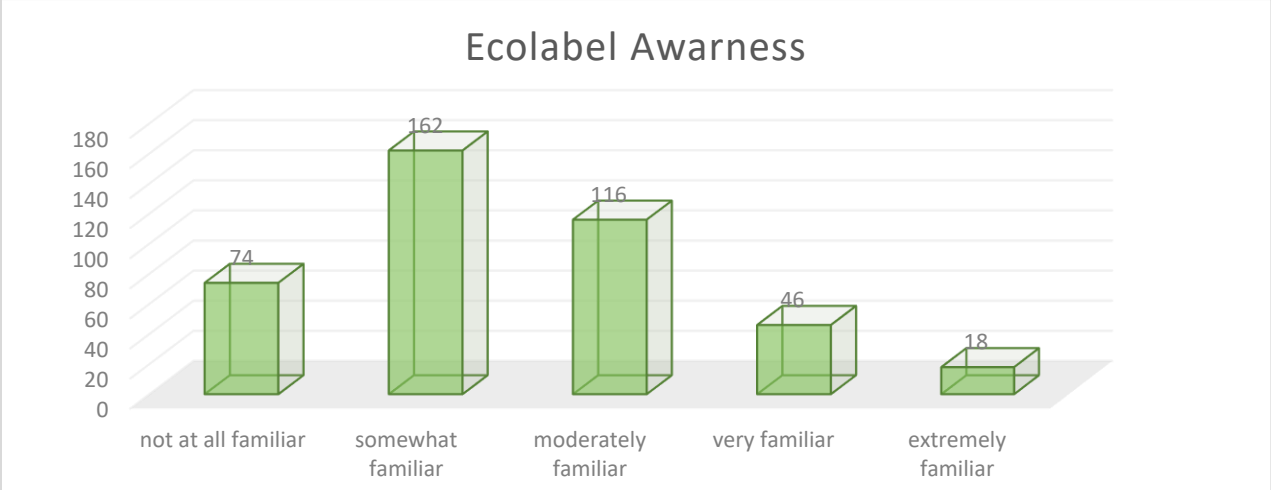
The study categorizes ecolabel awareness into five levels. The distribution of responses is as follows:

Table 11: Frequency and percentage of ecolabel awareness.

Ecolabel Awareness		
Categories	**Frequency**	**Percent**
Not at all familiar	74	18%
Somewhat familiar	162	39%
Moderately familiar	116	28%
Very familiar	46	11%
Extremely familiar	18	4%
Total	**416**	**100%**

Source: SPSS outputs.

Figure 10: How familiar are you with ecolabels?



Source: SPSS outputs.

A significant majority of the sample, 67%, falls within the 'Somewhat' to 'Moderately familiar' range. This suggests a moderate level of awareness where individuals have some knowledge of ecolabels but may not fully understand their implications or significance.

Only a small fraction, 15%, claim to be 'Very' or 'Extremely' familiar, indicating a deeper understanding and likely engagement with ecolabels. The least number of respondents, 18%, are 'Not at all familiar', showing a complete lack of awareness or exposure to ecolabels.

2.2 Green Advertising:

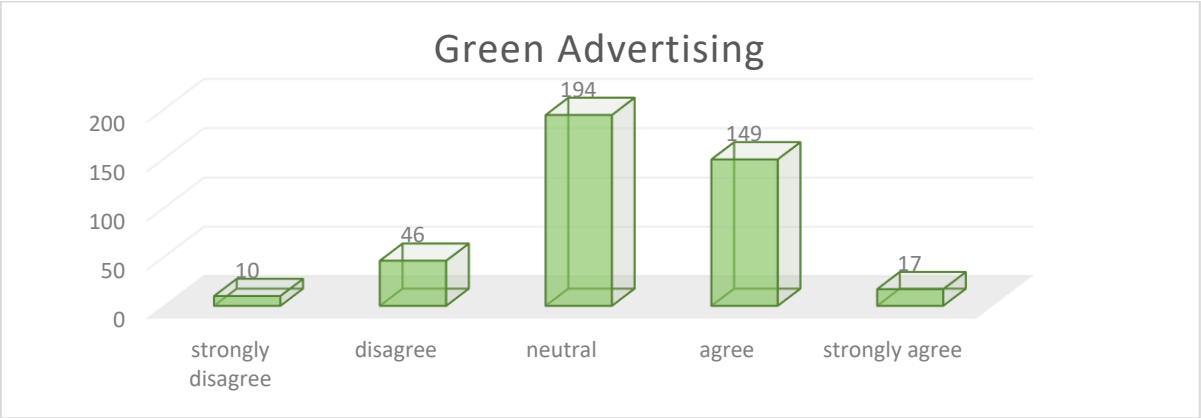
2.2.1 Exposure to Green Advertising:

Table 12: Frequency and percentage of the exposure to Green Advertising.

Exposure to Green Advertising		
Categories	**Frequency**	**Percent**
Never	10	2%
Rarely	46	11%
Occasionally	194	47%
Often	149	36%
always	17	4%
Total	**416**	**100%**

Source: SPSS outputs.

Figure 11: Exposure to green advertising.



Source: SPSS outputs.

The data suggests that the sample's exposure to advertisements promoting environmentally-friendly products is varied. A small portion of the sample, 11%, strongly disagrees with being exposed to such advertisements, indicating a lack of awareness or access to green advertising. Another 9% disagrees, suggesting some awareness but perhaps a limited frequency of exposure. The largest group, 37%, remains neutral. This could imply occasional exposure or indifference to the content of the advertisements. 33% agree that they are exposed to green advertising, which points to a significant level of awareness and possibly a positive reception. Lastly, 11% strongly agree, indicating a high level of exposure and likely a positive attitude towards environmentally-friendly products.

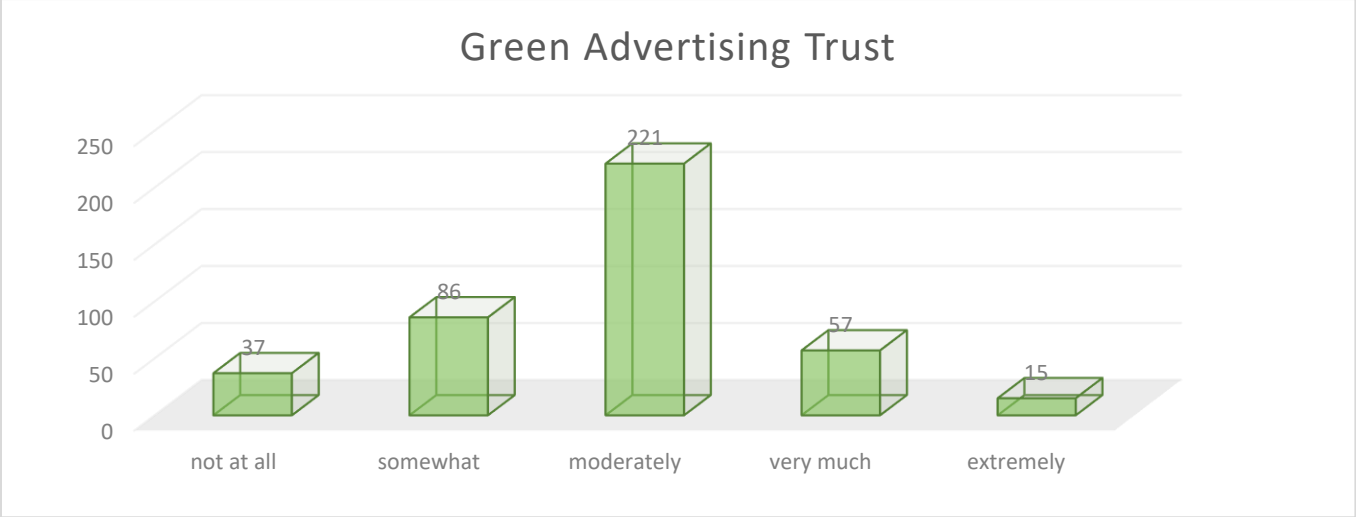
2.2.2 Trust in Green Advertising:

Table 13 : "Green advertising can be trusted".

Trust in Green Advertsing		
Categories	**Frequency**	**Percent**
Not at all	37	9%
Somewhat	86	21%
Moderately	221	53%
Very much	57	14%
Extremely	15	4%
Total	**416**	**100%**

Source: SPSS outputs.

Figure 12: "Green advertising can be trusted".



Source: SPSS outputs.

Trust in green advertising appears to be a point of contention among the sample.

11% strongly disagree that green advertising can be trusted, reflecting skepticism or distrust in the claims made by such advertisements. A similar number, 11%, strongly agree, showing a high level of trust and possibly a belief in the authenticity of green advertising.

The majority, 47%, are neutral, which may suggest uncertainty or a wait-and-see approach to the veracity of green advertising claims. Those who agree (38%) might be inclined to trust green advertising but may require more evidence or consistent messaging to fully commit their trust.

2.3 Green trust:

This variable was measured using two items, in the following we present a detailed breakdown based on the analyzed data.

Table 14: "I Trust Ecolabels on Food Products".

Green Trust		
Categories	**Frequency**	**Percent**
Not at all	87	21%
Slightly	155	37%
Moderately	81	19%
Very much	57	14%
Extremely	36	9%
Total	**416**	**100%**

Source: SPSS outputs.

Table 15 "Ecolabels Are Important in My Food Purchasing Decisions".

Green Trust		
Categories	**Frequency**	**Percent**
Not at all important	91	22%
Somewhat important	87	21%
Moderately important	55	13%
Very important	33	8%
Extremely important	21	5%
Total	**416**	**100%**

Source: SPSS outputs.

2.4 Green Product Knowledge:

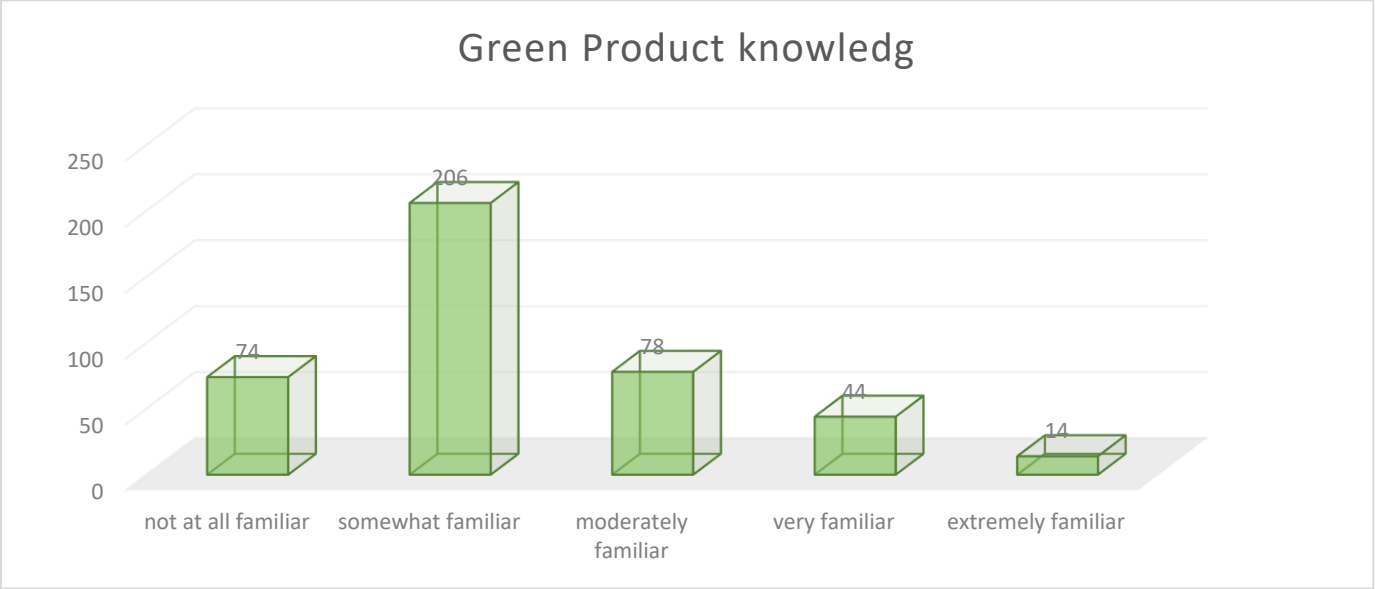
The analysis categorizes consumers' knowledge regarding ecolabeled food products into five levels. The distribution of responses is as follows:

Table 16 : Frequency and percentage of consumers' green product knowledge.

Green Product knowledge		
Categories	**Frequency**	**Percent**
Not at all familiar	74	18%
Somewhat familiar	206	50%
Moderately familiar	78	19%
Very familiar	44	11%
Extremely familiar	14	3%
Total	**416**	**100%**

Source: SPSS outputs.

Figure 13: "I am familiar with ecolabeled food products".



Source: SPSS outputs.

This data suggests that the level of familiarity of ecolabeled food products varies among the respondents. The majority of respondents fall into the categories of "Somewhat familiar" (50%) and "Moderately familiar" (19%), indicating a considerable awareness of green products among the sample population. However, a notable portion of respondents (18%) reported being "Not at all familiar" with green products, while smaller proportions reported being "Very familiar" (11%) or "Extremely familiar" (3%). This suggests that there is still room for improvement in increasing awareness and understanding of green products.

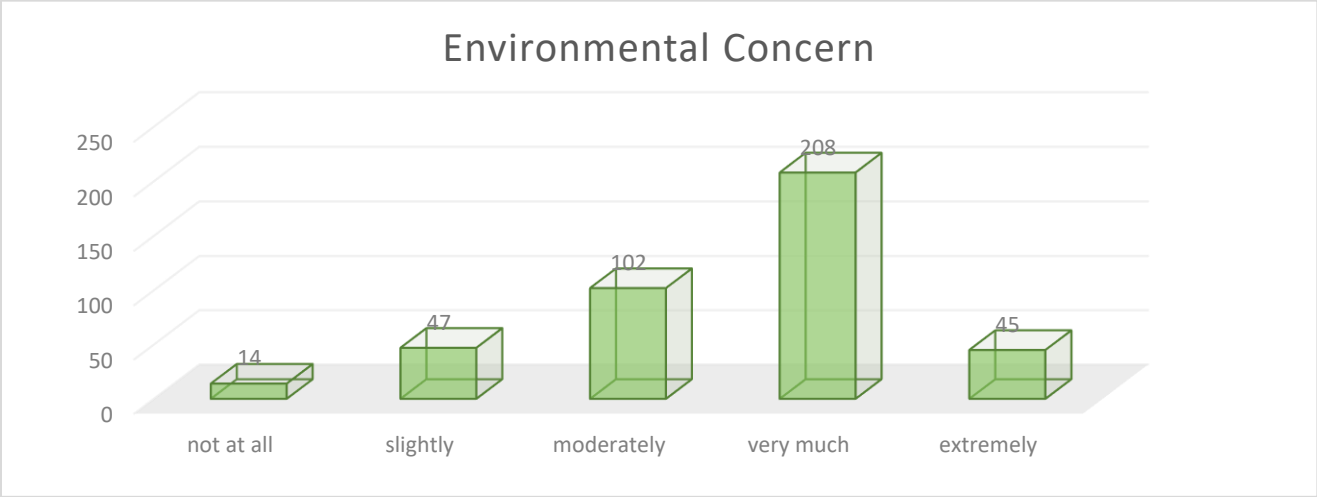
2.5 Environmental Concern: The analysis categorizes Algerian consumers' environmental concern into five levels. The distribution of responses is as follows:

Table 17: Frequency and percentage of Algerian consumers' environmental concern.

Environmental Concern		
Categories	**Frequency**	**Percent**
Not at all	14	3%
Slightly	47	11%
Moderately	102	25%
Very much	208	50%
Extremely	45	11%
Total	**416**	**100%**

Source: SPSS outputs.

Figure 14: "I am concerned are you about environmental issues in Algeria".



Source: SPSS outputs.

The data indicates varying levels of environmental concern among the respondents. The majority of respondents (50%) reported being "Very much" concerned about the environment, followed by 25% who reported being "Moderately" concerned. Additionally, 11% of respondents reported being "Extremely" concerned. However, there are also smaller proportions of respondents who reported lower levels of concern, with 11% reporting "Slightly" concerned and 3% reporting "Not at all" concerned about the environment. Overall, these findings suggest a significant degree of environmental awareness and concern among the surveyed individuals, with a notable portion expressing high levels of concern.

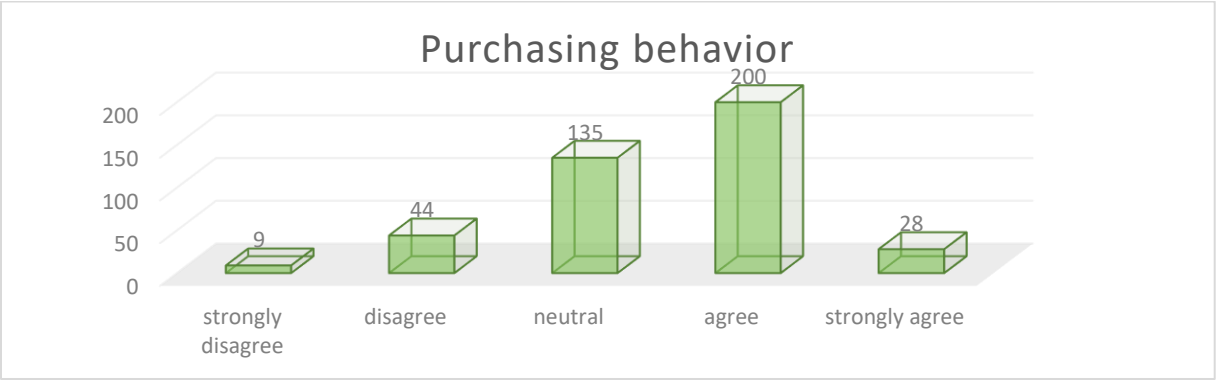
2.5 **Purchasing behavior:** The analysis categorizes Algerian consumers' purchasing behaviors and intentions towards ecolabeled products into five categories. The distribution of responses is as follows:

Table 18: Frequency and percentage of respondents' purchasing behavior.

Purchasing behavior		
Categories	**Frequency**	**Percent**
Strongly disagree	9	2%
Disagree	44	11%
Neutral	135	32%
Agree	200	48%
Strongly agree	28	7%
Total	**416**	**100%**

Source: SPSS outputs.

Figure 15: "I plan to buy more eco-friendly products in the future".



Source: SPSS outputs.

1) The survey results reveal a positive shift in consumer behavior towards ecolabeled products.
2) The willingness to pay more indicates that consumers are recognizing the long-term benefits and value of sustainability.
3) The reported increase in purchasing behavior over the past year highlights a significant change in consumer habits.
4) The intention to continue buying ecolabeled products suggests that this is not a temporary trend but a growing movement.

Implications for Marketers and Policymakers:

The findings suggest strategic opportunities for both, marketers and policymakers.

- Marketers could build on these results to:

- Leverage existing consumer awareness and knowledge of ecolabels and green products to influence purchasing behavior through educational campaigns and marketing efforts.

- Optimize green advertising by increasing frequency, credibility, and compelling evidence to sway neutral consumers.

- Emphasize the credibility and importance of ecolabels in purchasing decisions.

- Enhance consumer knowledge about available ecolabeled products through educational campaigns.

- For policymakers, they could use these results in order to:

- Promote ecolabeled products and encourage sustainable consumer choices through targeted campaigns and ecolabels.

- Develop fiscal, monetary, and regulatory policies that support economic growth, stability, and sustainability.

- Invest in infrastructure, innovation, and technology to adapt to changing consumer behavior and promote long-term economic development.

There is a clear market opportunity for ecolabeled products, as consumers show readiness to support sustainable brands. Marketers should emphasize environmental impact to appeal to value-driven consumers, while manufacturers should invest in sustainable practices to align with consumer values and promote more sustainable consumption and production patterns in the Agri-food sector.

2 Hypotheses testing (Simple Linear Regression -SLR- Results)

3.1 Case Processing Summary and Reliability:

Table 19: Case Processing Summary

		N	%
Cases	Valid	416	100%
	Excluded[a]	0	0%
	Total	416	100%

a. Listwise deletion based on all variables in the procedure.

Source: SPSS outputs.

The Case Processing Summary table indicates the following:

1) Valid Cases: There were 416 valid cases included in the analysis. This represents 100% of the surveyed sample.
2) Excluded Cases: No cases were excluded (0%).
3) Total Cases: The total number of cases analyzed was 416 (100%).

Reliability Statistics

Table 20: Reliability Statistics

Cronbach's Alpha	N of Items
0,83	6

Source: SPSS outputs.

The "Reliability Statistics" table provides the following information:

1) Cronbach's Alpha: The reliability coefficient (Cronbach's Alpha) is 0.83 for this sample. Cronbach's Alpha measures the internal consistency of a scale or set of items. A value above 0.7 is generally considered acceptable, so 0.83 indicates good internal consistency.
2) Number of Items (N): The study used 6 items to assess reliability.

In summary, our study achieved a high level of reliability (Cronbach's Alpha = 0.83), suggesting that the measurement tool used consistently produced reliable results across the six items analyzed.

3.2 Correlations

Table 21: correlations results.

		Purchasing behavior
Ecolabel Awareness (EN)	pearson Correlation (r)	0,334**
	Sig. (2-tailed)	0,000
Green Advertising (GA)	pearson Correlation (r)	0,548**
	Sig. (2-tailed)	0,000
Green Trust (GT)	pearson Correlation (r)	0,486**
	Sig. (2-tailed)	0,000
Green Product Knowledge (GPN)	pearson Correlation (r)	0,314**
	Sig. (2-tailed)	0,000
Environmental Concern (EC)	pearson Correlation (r)	0,627**
	Sig. (2-tailed)	0,000
Education Level (EL)	pearson Correlation (r)	-0,034
	Sig. (2-tailed)	0,491

Income Level (IL)	pearson Correlation (r)	0,081
	Sig. (2-tailed)	0,100

Source: SPSS outputs.

**Correlation is significant at the 0.01 level (2-tailed), therefore we can judge that:

- Ecolabel Awareness has a positive correlation with Purchasing Behavior (**r = 0.334**), which is statistically **significant** at the 0.01 level. This suggests that as awareness of ecolabels increases, so does the likelihood of purchasing behavior that favors ecolabeled products. This could imply that educational campaigns to raise awareness about ecolabels might effectively encourage more sustainable purchasing decisions.
- Green Advertising shows a moderate positive correlation with Purchasing Behavior (**r = 0.548**), **significant** at the 0.01 level. This indicates that advertising efforts that highlight the environmental benefits of products can have a positive impact on consumers' purchasing choices, albeit to a lesser extent than ecolabel awareness.
- Green Trust is moderately correlated with Purchasing Behavior (**r = 0.486**), with **significance** at the 0.01 level. Trust in green products appears to be an important factor influencing purchasing behavior, suggesting that building credibility and consumer confidence in the environmental claims of products is crucial.
- Green Product Knowledge has a lower, **non-significant** correlation with Purchasing Behavior (**r = 0.314**). While knowledge about green products is positively related to purchasing behavior, the relationship is not strong enough to be considered statistically significant in this study. This might indicate that simply knowing about green products isn't a strong predictor of purchasing behavior without the presence of other factors like awareness and trust.
- Environmental concern has the **highest significant** correlation with Purchasing behavior (**r= 0,627****). This suggests that as environmental concern increases, purchasing behavior also tends to increase. In other words, individuals who are more environmentally concerned are more likely to engage in environmentally friendly purchasing behaviors.
- Education Level and Income Level both show very weak and **non-significant** correlations with Purchasing Behavior (**r = -0.034** and **r = 0.081**, respectively).

The results highlight the importance of ecolabel awareness and trust in influencing consumer behavior in the Agri-food sector. It seems that for consumers to choose ecolabeled products, they must first be aware of and trust the ecolabels. Green advertising, while beneficial, appears to be less influential than these other factors. However, socio-economic factors may not play a significant role in influencing purchasing decisions related to ecolabeled products in the context of this study.

It's important to note that **correlation does not imply causation**, and these results only show associations between variables. Further research could explore why some factors are more strongly correlated with purchasing behavior than others and whether there are underlying causes that drive these relationships. The sample size (N) for each factor isn't provided in the image, but it's an important aspect to consider when interpreting these results, as a larger sample size can provide more confidence in the statistical significance of the correlations observed. (Consult Appendix C for SPSS results output).

3 Hypotheses Test (Multiple Linear Regression Results- MLR):

4.1 Enterprises Sustainable Activities have a positive impact on consumers' purchasing behavior.

Hypothesis 1 was tested using multiple linear regression between the sub-hypotheses (H1a, H1b,) of sustainable practices as independent variables with purchasing behavior as the dependent variable.

Table 22: Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Green Advertising, Ecolabel Awareness		Enter

a. Dependent Variable: Purchasing behavior

b. All requested variables entered.

Source: SPSS outputs.

Table 23: Model Summary.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0,557[a]	0,311	0,307	0,709

a. Predictors: (Constant), Green Advertising, Ecolabel Awareness

Source: SPSS outputs.

The model summary provides essential information about the overall performance of the regression model. Unfortunately, the specific values for R, R Square, Adjusted R Square, and the Standard Error of the Estimate are not visible in the image.

Table 24*:* ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	93,705	2	46,852	93,108	0,000[b]
	Residual	207,824	413	0,503		
	Total	301,529	415			

a. Dependent Variable: Purchasing behavior

b. Predictors: (Constant), Green Advertising, Ecolabel Awareness

Source: SPSS outputs.

The ANOVA table assesses the overall significance of the regression model. Again, due to visibility issues, we can't see all the details. However, we know that the F-statistic is significant ($p < 0.05$), indicating that the model as a whole explains a significant portion of the variance in the dependent variable (purchasing behavior).

Table 25*:* Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1,513	0,147		10,270	0,000
	Ecolabel Awareness	0,092	0,037	0,113	2,481	0,014
	Green Advertising	0,526	0,048	0,498	10,918	0,000

a. Dependent Variable: Purchasing behavior

Source: SPSS outputs.

The coefficients table provides information about the impact of predictor variables on the dependent variable (purchasing behavior). The details for the visible coefficients are as follows:
Constant (Intercept):
Coefficient (B): **1.513**
Significance (Sig.): **0.000** (highly significant)

- **Ecolabel Awareness:**

Coefficient (B): 0.092
Significance (Sig.): 0.014 (highly significant)
Interpretation: For each unit increase in ecolabel awareness, purchasing behavior increases by 0.251 units (holding other variables constant).

- **Green Advertising:**

Coefficient (B): 0.526
Significance (Sig.): 0.000 (highly significant)
Interpretation: For each unit increase in green advertising, purchasing behavior increases by 0.335 units (holding other variables constant).

- **Prediction Equation:**

Based on the coefficients, we can construct a prediction equation for purchasing behavior:
[{Purchasing Behavior} = 1.513 + 0.526(Green Advertising) + 0.092(Ecolabel Awareness)]

Conclusion:
Ecolabel awareness and green advertising both significantly influence consumers' purchasing behavior. The positive relationship between ecolabel awareness and purchasing behavior is stronger than that of green advertising. The model suggests that enterprises' sustainable activities (not visible in the image) may also play a role in shaping purchasing behavior.
The correlation does not imply causation, and further research is needed to explore the underlying mechanisms driving these relationships.
Based on the significance thresholds of the sub-hypotheses, we can say that hypothesis H1 on "The impact of Enterprises Sustainable Activities on consumers' purchasing behavior" is **supported**.

4.2 Consumer Environmental Consciousness positively influences purchasing behavior towards eco-labeled products.

Hypothesis 2 was tested using multiple linear regression between the sub-hypotheses (H2a, H2b, H2c) of as green trust, green product knowledge and environmental concern as independent variables with purchasing behavior as the dependent variable.

Table 26*:* Variables Entered/Removeda.

Model	Variables Entered	Variables Removed	Method
1	Environmental Concern, Green Product knowledge, Green Trust[b]		Enter

a. Dependent Variable: Purchasing behavior

b. All requested variables entered.

Source: SPSS outputs.

Table 27*:* Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0,664[a]	0,441	0,437	0,639

a. Predictors: (Constant), Environmental Concern, Green Product knowledge, Green Trust

Source: SPSS outputs.

The model summary indicates the goodness of fit for each hierarchical model. The R Square value increases with each model, suggesting that adding variables improves the model's ability to predict purchasing behavior.

Table 28*:* ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	133,070	3	44,357	108,483	0,000[b]
	Residual	168,459	412	0,409		
	Total	301,529	415			

a. Dependent Variable: Purchasing behavior

b. Predictors: (Constant), Environmental Concern, Green Product knowledge, Green Trust

Source: SPSS outputs.

The ANOVA table tests the overall significance of the model. The F-statistic is significant for each model, indicating that the predictors explain a significant portion of the variance in purchasing behavior.

Table 29*:* Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1,150	0,133		8,640	0,000
	Green Trust	0,197	0,041	0,208	4,750	0,000
	Green Product knowledge	0,073	0,034	0,085	2,132	0,034
	Environmental Concern	0,450	0,039	0,499	11,677	0,000

a. Dependent Variable: Purchasing behavior

Source: SPSS outputs.

The coefficients table provides the estimated impact of each predictor variable on the dependent variable, purchasing behavior.

- **Green Trust**:

Unstandardized Coefficient (B): 0.197

Standardized Coefficient (Beta): 0.208

Significance (Sig.): 0.000

Interpretation: Higher levels of green trust significantly increase the likelihood of positive purchasing behavior.

- **Green Product Knowledge:**

Unstandardized Coefficient (B): 0.073

Standardized Coefficient (Beta): 0.085

Significance (Sig.): 0.034

Interpretation: Green product knowledge has a smaller, yet significant, positive effect on purchasing behavior.

- **Environmental Concern:**

Unstandardized Coefficient (B): 0.450

Standardized Coefficient (Beta): 0.499

Significance (Sig.): 0.000

Interpretation: A one-unit increase in environmental concern leads to a 0.450 unit increase in purchasing behavior, holding all other variables constant.

- **Prediction Equation:**

Based on the coefficients, the prediction equation for purchasing behavior can be formulated as:

Purchasing Behavior=1.150+0.450(Environmental Concern)
+0.073(Green Product Knowledge) + 0.197(Green Trust)

Conclusion:

The results support the hypotheses that environmental concern, green product knowledge, and green trust are significant predictors of purchasing behavior towards eco-labeled products. Environmental concern has the strongest impact, followed by green trust, while green product knowledge has a modest but significant effect.

Based on the significance thresholds of the sub-hypotheses, we can say that hypothesis H2 on "The impact of Consumer Environmental Consciousness on consumers' purchasing behavior" is **supported**.

4.3 Socioeconomic factors have a positive impact on consumers' purchasing behavior.

Hypothesis 3 was tested using multiple linear regression between the sub-hypotheses (H3a, H3b) as education level and income level as independent variables with purchasing behavior as the dependent variable.

Table 30*:* Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Income Level, Education Level[b]		Enter

a. Dependent Variable: Purchasing behavior

b. All requested variables entered.

Source: SPSS outputs.

Table 31*:* Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0,103[a]	0,011	0,006	0,850

a. Predictors: (Constant), Income Level, Education Level

Source: SPSS outputs.

R: 0.103

R Square: 0.011

Adjusted R Square: 0.006

Std. Error of the Estimate: 0.850

Table 32*:* ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3,216	2	1,608	2,226	0,109[b]
	Residual	298,313	413	0,722		
	Total	301,529	415			

a. Dependent Variable: Purchasing behavior

b. Predictors: (Constant), Income Level, Education Level

Source: SPSS outputs.

Regression:

Sum of Squares: 3.216

df (Degrees of Freedom): 2

Mean Square: 1.608

F (F-statistic): 2.226

Sig. (Significance): 0.109

Table 33*:* Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,508	0,164		21,453	0,000
	Education Level	-0,059	0,045	-0,068	-1,314	0,189
	Income Level	0,088	0,044	0,103	1,993	0,047

a. Dependent Variable: Purchasing behavior

Source: SPSS outputs.

(Constant**):**

B (Unstandardized Coefficient): 3.508

Std. Error: 0.164

t (t-statistic): 21.453

Sig. (Significance): 0.000

- **Education Level**

B (Unstandardized Coefficient): -0,059

Std. Error: 0,045

t (t-statistic): -1,314

Sig. (Significance): 0,189

- **Income Level:**

B (Unstandardized Coefficient): 0.088

Std. Error: 0.044

t (t-statistic): 1.993

Sig. (Significance): 0.047

Interpretation:

The R Square value of 0.011 suggests that only 1.1% of the variance in the receptiveness to eco-labeled products is explained by the model, which is quite low.

The ANOVA results indicate that the model is statistically not significant as a whole ($p > 0.05$), meaning that **the included predictors haven't a significant impact on the dependent**

variable. The coefficient for the constant suggests that, holding all else constant, the baseline receptiveness to eco-labeled products is slightly positive.

The positive coefficient for Income Level suggests that as income increases, the receptiveness to eco-labeled products increase too, However, this effect is not significant at the 0.05 level.

This analysis provides insights into the complex relationship between socioeconomic factors and consumer behavior towards eco-labeled products. It highlights the need for further research to understand the underlying reasons for these findings and to explore the roles of other mode rating variables such as age.

Based on the significance thresholds of the sub-hypotheses, we can say that hypothesis H1 on "The impact of Socioeconomic factors on consumers' purchasing behavior" is **refuted**.

4.4 General hypothesis: Ecolabels have a positive impact on consumer purchasing behavior.

Table 34*:* Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Ecolabels[b]		Enter

a. Dependent Variable: Purchasing behavior

b. All requested variables entered.

Source: SPSS outputs.

Table 35*:* Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0,462[a]	0,213	0,211	0,757

a. Predictors: (Constant), Ecolabels

Source: SPSS outputs.

- R (Correlation Coefficient): The value of R is 0.462, which indicates a moderate positive correlation between ecolabels and purchasing behavior. This suggests that as the presence of ecolabels increases, there is a tendency for consumer purchasing behavior to also increase.

- R^2 (Coefficient of Determination): With an R^2 value of 0.213, approximately 21.3% of the variance in purchasing behavior can be explained by the ecolabels. This leaves a large portion of the variance unexplained, which may be attributed to other factors not included in the model.
- Adjusted R^2: The adjusted R^2 value of 0.211 takes into account the number of predictors in the model and adjusts for the sample size. This value is still relatively close to the R^2, indicating that the model is not overly complex given the number of predictors.
- Standard Error of the Estimate: The standard error of 0.757 is a measure of the accuracy of predictions made with the regression line. A lower value indicates more precise predictions.

Table 36*:* ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	64,284	1	64,284	112,178	0,000[b]
	Residual	237,245	414	0,573		
	Total	301,529	415			

a. Dependent Variable: Purchasing behavior

b. Predictors: (Constant), Ecolabels

Source: SPSS outputs.

- F-value: The F-value of 112.178 suggests that the model is statistically significant, meaning that there is a linear relationship between ecolabels and purchasing behavior.
- Significance (Sig.): A significance value of 0.0000 indicates that the results are statistically significant, and the probability of these results occurring by chance is less than 0.1%.

Table 37*:* Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1,902	0,152		12,492	0,000
	Ecolabels	0,561	0,053	0,462	10,591	0,000

a. Dependent Variable: Purchasing behavior

Source: Elaborated by us via SPSS.

- **Unstandardized Coefficients (B):** The B value for ecolabels is 1.902, which means for each unit increase in ecolabels, there is a 0.561 unit increase in the purchasing behavior score, holding all other variables constant.
- **Standardized Coefficients (Beta):** The Beta value of 0.462 is a standardized version of the B coefficient, allowing for comparison between variables that are on different scales.
- **t-value:** The t-value of 10.591 indicates that the coefficient for ecolabels is significantly different from zero, providing evidence for the impact of ecolabels on purchasing behavior.
- **Significance (Sig.):** A significance value of 0.000 for ecolabels further confirms the statistical significance of this predictor in the model.

Conclusion:

The statistical analysis supports the hypothesis that ecolabels have a positive impact on consumer purchasing behavior in the Agri-food sector in Algeria. However, it's important to note that other unaccounted factors might also play a role in influencing consumer behavior. Future research could explore additional variables to provide a more comprehensive understanding of the factors affecting consumer decisions in this sector.

A summary of the results obtained from the hypotheses tests is presented in the table 32 below.

Table 38: summary of the results obtained from the hypotheses tests.

	Hypotheses		**Confirmation**
H1	**Enterprises Sustainable Activities have a positive impact on consumers' purchasing behavior.**		**Fully Supported**
	H1a	There is a positive relationship between the awareness of eco-labels on products and consumers' purchasing behavior towards them.	Supported
	H1b	The positive influence of eco-labels on purchasing behavior might be **moderated** by perceived green advertising.	Supported
H2	**Consumer Environmental Consciousness positively influences purchasing behavior towards eco-labeled products.**		**Fully Supported**

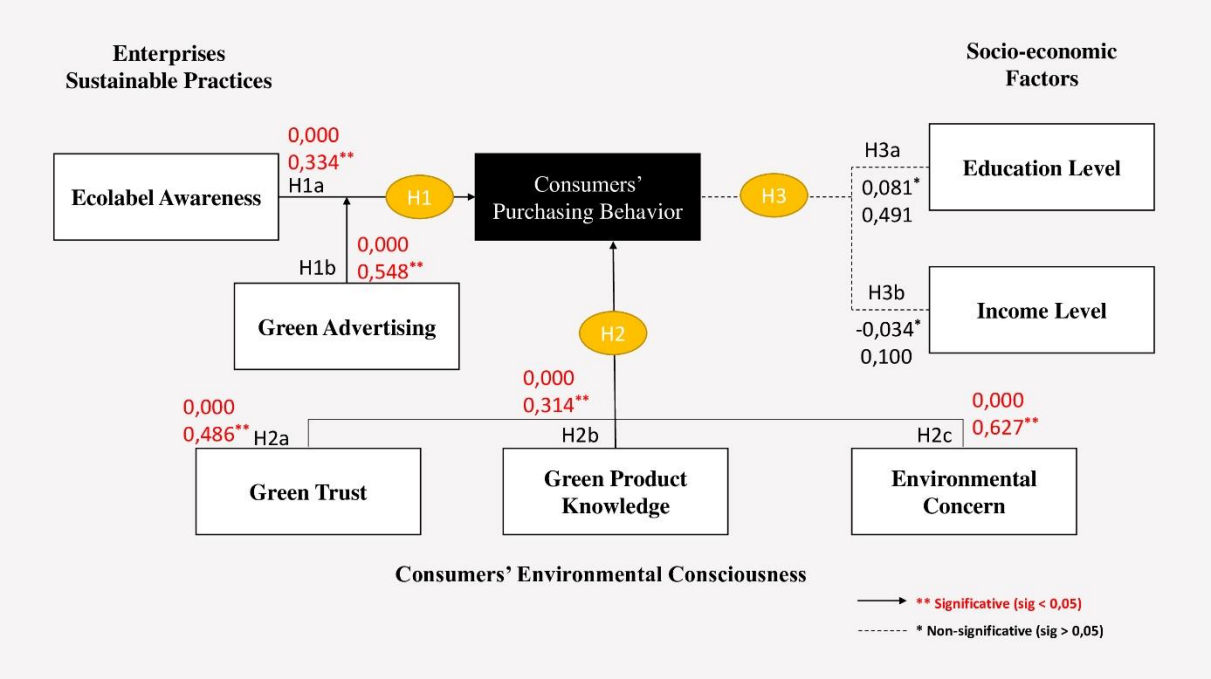
	H2a	Consumers with higher eco-labels trust are more likely to exhibit positive purchasing behavior towards eco-labeled products.	supported
	H2b	Consumers with greater green product knowledge are more likely to understand the significance of eco-labels and be receptive to their message, leading to a positive influence on purchasing behavior.	Supported
	H2c	Consumers with a stronger environmental concern are more likely to be receptive to eco-labels and demonstrate positive purchasing behavior towards eco-labeled products.	Supported
	Socioeconomic factors have a positive impact on consumers' purchasing behavior.		**Fully Refuted**
H3	**H3a**	Consumers with higher income level will more likely have a positive purchasing behavior towards eco-labeled products.	Refuted
	H3b	Consumers with lower education levels will be less receptive to eco-labeled products, compared to consumers with lower education levels.	Refuted

Source: Elaborated by us.

Theoretical model validated:

We used hypothesis testing to confirm or refute our initial hypotheses that link the central variables of our study, as illustrated in the proposed conceptual model. Now that we have tested our hypotheses and obtained the results of their validations, we can validate our theoretical model by demonstrating significant links between variables based on their significance thresholds (Sig). The validated conceptual model is illustrated and presented in Figure 17 below:

Figure 16: Validated theoretical framework.



Source: Elaborated by us.

II. Results discussion:

Examining the outcomes of our study enables us to draw insights on the impact of ecolabels on consumers' purchasing behavior in the Agri-food sector in Algeria.

According to our results, the three main factors that had a positive impact on consumers' purchasing behavior included: **environmental concern, green advertising** and **green trust** (**sig**: **0,627****, **0,548**** and **0,486**** respectively). The confirmation of the sub-hypotheses H2c, H1b and H2a along with other factors (Ecolabel Awareness, Green Product Knowledge, H1a and H2b respectively) is supported by anterior studies (A. Bickart & A Ruth, 2012), (Troudi & Bouyoucef, 2020), (Rashid, 2009), (Suki, 2016), (Alshali, Alhattali, & Ahmed, 2021), (Schmuck, Matthes, & Naderer, 2018), (Nuttavuthisit & Thøgersen, 2017), (Atkinson & Rosenthal, 2013).

The results indicate varying degrees of willingness among participants to pay a premium for ecolabeled products. A segment of our sample demonstrates a readiness to invest more in products that are better for the environment, reflecting a value-driven approach to purchasing. The data suggests an uptick in the purchase of ecological products over the past year compared to previous years. This trend points to a growing consumer preference for sustainable goods, possibly influenced by increased environmental awareness or product availability. Results also show that many participants plan to buy more eco-friendly products in the future, this intention

to purchase reflects an ongoing commitment to environmental responsibility and suggests a positive outlook for the market of ecolabeled products.

The findings regarding the impact of socio-economic factors on Algerian consumers' purchasing behavior are mixed. While this study found no significant effect of education level and income level, the study by (Laheri, 2017) supports this result. However, other research has found contradictory evidence. (Al Mamun, Mohamad, Bin Yaacob, & Mohiuddin, 2018)), and (Witek & Kuźniar, 2020) all reported that socio-economic factors, such as education and income, do influence consumers' attitudes and purchasing decisions related to green and eco-friendly products. Interestingly, this study revealed that female consumers in Algeria exhibit more favorable attitudes towards buying green products compared to males. This aligns with the findings of (Witek & Kuźniar, 2020). However, more research is needed to fully understand the complex interplay between socio-economic variables, gender, and eco-label effectiveness in the Algerian context. Additionally, the insignificant impact in this case may indicate that ecolabeled products in Algeria are becoming more recognizable and accessible for consumers across different demographic groups

In summary, while this study did not find a significant impact of education and income on Algerian consumers' responses to ecolabels, the broader literature presents a mixed picture. The role of socio-economic factors in shaping eco-conscious purchasing behavior remains an important area for further investigation, particularly in developing country contexts like Algeria where consumer attitudes are still evolving.

The findings of this study are in line with the prevailing research on the impact of ecolabels on consumers' purchasing behavior. The results highlight that sustainable practices, including ecolabeling and green advertising, alongside subjective factors such as green trust, green product knowledge, and environmental concern, play a significant role in shaping Algerian consumers' purchasing behavior within the Agri-food sector. These findings demonstrate a shift towards responsible consumption patterns that directly contribute to the retained Sustainable Development Goal in our study, SDG12. The observed trends indicate a promising outlook for the market of ecolabeled products, emphasizing the ongoing need to encourage sustainability and environmental responsibility among Algerian consumers.

Conclusion

Conclusion:

We conclude our work by recalling its objectives, the methodology adopted to answer the research question, the results obtained, and the recommendations made. We will also present the limitations and future research directions.

The objective of this research was to determine the impact of ecolabels on consumers' purchasing behavior within the Agri-food sector in Algeria.

To achieve this, we adopted a quantitative approach and conducted an online survey, receiving 416 responses. Our results allowed us to validate the following hypotheses:

- Enterprises Sustainable Activities have a positive impact on consumers' purchasing behavior. (H1)
- There is a positive relationship between the awareness of eco-labels on products and consumers' purchasing behavior towards them. (H1a)
- The positive influence of eco-labels on purchasing behavior might be moderated by perceived green advertising. (H1b)
- Consumers with higher eco-labels trust are more likely to exhibit positive purchasing behavior towards eco-labeled products. (H2)
- Consumers with greater green product knowledge are more likely to understand the significance of eco-labels and be receptive to their message, leading to a positive influence on purchasing behavior. (H2a)
- Consumers with greater green product knowledge are more likely to understand the significance of eco-labels and be receptive to their message, leading to a positive influence on purchasing behavior. (H2b)
- Consumers with a stronger environmental concern are more likely to be receptive to eco-labels and demonstrate positive purchasing behavior towards eco-labeled products. (H2c)

However, our findings have refuted the following hypotheses:

- Socioeconomic factors have a positive impact on consumers' purchasing behavior. (H3)
- Consumers with higher education levels will be more receptive to eco-labeled products. (H3a)
- Consumers with higher income level will more likely have a positive purchasing behavior towards ecolabeled products. (H3b)

Research implications

Based on the findings and insights gained from this study, we now turn our attention to the practical implications and recommendations that can be derived from the results:

1. Enhancing consumer awareness and engagement with ecolabels through education and information campaigns can cultivate a more environmentally conscious consumer base, driving demand for ecolabeled products.
2. Leveraging the balanced exposure to and trust in green advertising among consumers presents an opportunity for marketers to enhance the credibility and frequency of green advertising, influencing purchasing behavior positively through education on environmentally-friendly products.
3. Recognizing the significance of ecolabels in food purchasing decisions among consumers allows marketers to emphasize their credibility and impact, tailoring messaging to varying levels of trust and importance attributed to ecolabels for targeted consumer engagement.
4. Addressing the need for increased education on ecolabels and sustainable options can empower consumers to make informed purchasing decisions, highlighting the importance of educational campaigns to bridge knowledge gaps and promote sustainability.
5. Capitalizing on the market opportunity for eco-friendly products, brands can appeal to value-driven consumers by emphasizing the environmental benefits of their products and investing in sustainable practices to meet the growing demand for environmentally conscious choices.

In conclusion, the survey underscores a notable shift in consumer purchasing behavior, with a strong inclination towards environmental sustainability. This presents an opportunity for businesses to align with consumer values and contribute positively to the environment and sustainability endeavors.

While our research has yielded valuable results, it is important to acknowledge the limitations that were present.

- Although our sample size of 416 respondents is considered representative, it is still relatively small compared to the vast number of consumers in the Agri-food sector, which encompasses thousands of consumers nationwide.

To further expand the horizons of future research, we propose the following research directions:

- Conducting a similar study with a larger sample size that is more representative of the entire Algerian Agri-food sector customer base.
- Investigating the impact of ecolabels on consumer purchasing behavior in other sectors beyond Agri-food to assess the generalizability of the findings.
- Employing a mixed-methods approach that combines quantitative surveys with qualitative interviews to gain deeper insights into the underlying motivations and perceptions driving consumer responses to ecolabels.
- Exploring the role of cultural factors and social norms in shaping Algerian consumers' attitudes towards eco-friendly products and their willingness to pay premium prices for ecolabeled goods.
- Conducting longitudinal studies to track changes in consumer behavior over time and assess the long-term impact of ecolabels and sustainable marketing practices on purchasing decisions.

By pursuing these research directions, future studies can build upon the findings of this research and provide a more comprehensive understanding of the complex interplay between ecolabels, consumer psychology, and purchasing behavior in the Algerian context.

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Appendices

Appendix A- Questionnaire

Section 01: The Impact of Ecolabels on the Purchasing Behavior of Algerian Consumers

Dear Participant,

This study aims to analyze in depth the influence of ecolabels on the choices of Algerian consumers like you. We want to understand the concrete implications for sustainable consumption practices in our country.

Your answers will remain strictly confidential. We would be grateful if you could answer as sincerely and accurately as possible. By taking part in this study, you are actively contributing to the advancement of knowledge on responsible marketing and consumption in Algeria.

Section 02: definition of ecolabels

What are Ecolabels?

The ECO Label is an environmental labeling scheme designed to identify and promote products and services manufactured to environmentally sustainable standards. Its main aim is to encourage environmentally-friendly consumption and support ecological products and services.

To be credible, a company wishing to have its product labeled must first undergo a certification audit carried out by an independent body. Ecocertification is based on principles, criteria to be met, and indicators designed to measure how well they are being met, or how far they are from achieving the declared objectives.

Section 03: Perceptions and attitudes towards ecolabels and green consumption

➢ Ecolabel awareness

1- How familiar are you with ecolabels? *

- Not at all familiar
- Somewhat familiar
- Moderately familiar
- Very familiar
- Extremely familiar

2- What does the ecolabel represent for you? *

- Commitment to the environment
- Transparency and Reliability
- Responsible choice
- Environmental quality standards
- Individual and collective health
- Good value for money
- Confidence in the product

➢ Green product knowledge

3- How familiar are you with eco-labelled food products? *

- Not at all familiar
- Somewhat familiar
- Moderately familiar
- Very familiar
- Extremely familiar

4- Have you ever bought an eco-labelled food product? *

- Yes
- No
- I don't know

5- If yes, which product?

- **Green trust**

6- How important are eco-labels in your food purchasing decisions? *

· Not at all important
· Somewhat important
· Moderately important
· Very important
· Extremely important

7- To what extent do you trust eco-labels on food products? *

· Not at all
· Slightly
· Moderately
· Very much
· Extremely

- **Green advertising**

8- How often are you exposed to green advertising (ads promoting environmentally-friendly products)? *

· Never
· Rarely
· Occasionally
· Often
· Always

9- On which supports are you most exposed to these ads?

· Foreign channels
· Local channels
· Social networks
· Billboards
· Point-of-sale advertising (POS)
· Newspapers and magazines

- Other:

10- To what extent do you agree with the following statement: "Green advertising can be trusted"? *

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

➢ **Environmental concern**

11- How concerned are you about environmental issues in Algeria? *

- Not at all concerned
- Slightly concerned
- Moderately concerned
- Very concerned
- Extremely concerned

12- Do you consider the environmental impact of a food product before you buy it (e.g. its carbon footprint, packaging materials, sustainable sourcing)? *

- Never
- Rarely
- Sometimes
- Often
- Always

13- How often are you likely to choose environmentally-friendly products over conventional ones? *

- Very unlikely
- Unlikely
- Neutral
- Likely
- Very likely

- **Purchasing behavior**

14- To what extent do you agree with the following statement: "I'm willing to pay more for environmentally-friendly products"? *

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

15- What factors influence your decision to buy environmentally-friendly products? (Select all that apply) *

- Eco-labels
- Green advertising
- Environmental concern
- Product quality
- Price
- Availability
- Other:

16- What might be holding you back from buying eco-labelled products? *

- Higher prices compared to non-eco-labeled products
- Doubts about the authenticity of eco-labels, or fear of being misled by greenwashing (using the ecological argument in a deceptive way to improve one's image).
- The perception that eco-labeled products are not as effective or efficient as non-eco-labeled products.
- Lack of information on the environmental and social benefits of eco-labeled products.
- Preference for familiar or habitual products, even if they are not eco-labelled
- Skepticism about the real environmental impact of buying eco-labelled products
- Priority given to other purchasing criteria, such as convenience, quality or brand name
- Lack of confidence in eco-label certification bodies.
- Other:

17- To what extent do you agree with the following statement: "I have bought more ecological products over the past year than in previous years"? *

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

18- To what extent do you agree with the following statement: "I plan to buy more eco-friendly products in the future"? *

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

Section 04: Respondent identification

19- Are you? *

- Male
- Female

20- How old are you? *

- less than 18 years
- 18-24 years
- 25-34 years
- 35-44 years
- 45-54 years
- 55 and over

21- What is your highest level of education? *

- No formal education
- Basic (primary, intermediate)
- High school / Baccalaureate
- University studies / Diploma
- higher education

22- What do you do for a living? *

- Student
- Employee
- Independent
- Looking for a job
- Retired

23- What is your social status? *

- Single
- Married
- Divorced
- Widow/widower

24- Do you have kids? *

- Yes
- No

25- What is your monthly disposable income? *

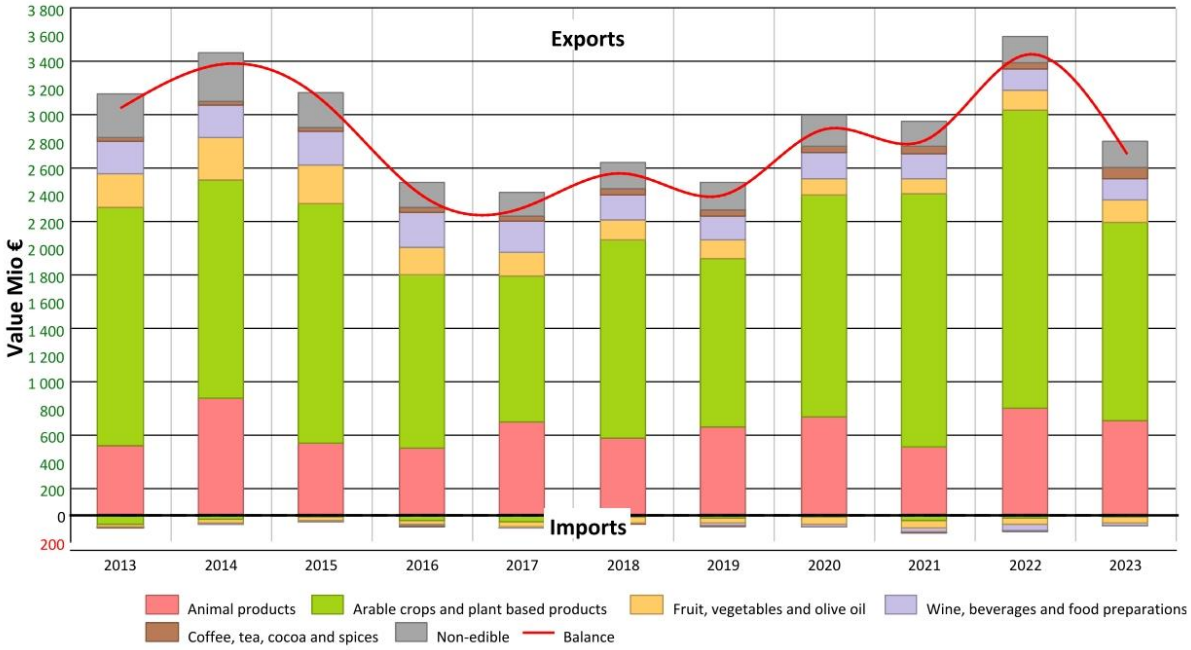
- Less than 30 000 DZD
- 30 000-50 000 DZD
- 50 000-100 000 DZD
- More than 100 000 DZD

Appendix B- the AGRI-FOOD TRADE STATISTICAL FACTSHEET European Union – Algeria.

Figure 17: Ranking of EU main Agri-food trade partners and Algeria. [6]

	Top Destinations: 2023	Value Mio €	% Share Extra-EU		Top Origins: 2023	Value Mio €	% Share Extra-EU
1	United Kingdom	51 266	22.6	1	Brazil	17 229	10.9
2	USA	27 180	12.0	2	United Kingdom	15 454	9.8
3	China	14 588	6.4	3	Ukraine	11 830	7.5
4	Switzerland	11 528	5.1	4	USA	11 744	7.4
5	Japan	7 876	3.5	5	China	8 334	5.3
6	Russia	6 809	3.0	6	Türkiye	6 621	4.2
7	Norway	5 975	2.6	7	Indonesia	5 484	3.5
8	Türkiye	4 850	2.1	8	Switzerland	4 852	3.1
9	Saudi Arabia	4 628	2.0	9	Argentina	4 648	2.9
10	South Korea	4 538	2.0	10	Ivory Coast	4 040	2.5
11	Canada	4 466	2.0	11	India	3 297	2.1
12	Morocco	3 789	1.7	12	Vietnam	3 210	2.0
13	Australia	3 770	1.7	13	Morocco	3 177	2.0
14	Ukraine	3 458	1.5	14	Peru	3 094	2.0
15	United Arab Emirates	3 337	1.5	15	Malaysia	2 933	1.9
16	**Algeria**	2 799	1.2	16	South Africa	2 891	1.8
17	Israel	2 775	1.2	17	Canada	2 852	1.8
18	Brazil	2 574	1.1	18	Australia	2 547	1.6
19	Serbia	2 405	1.1	19	Colombia	2 283	1.4
20	Singapore	2 385	1.1	20	Ecuador	2 110	1.3
				85	**Algeria**	83	0.1
	Rest of the World	55 391	23.9		Rest of the World	39 856	24.6

Figure 18: Structure of EU Agri-food trade with Algeria, 2013 – 2023. [7]



[6] **Source spécifiée non valide.**
[7] **Source spécifiée non valide.**

Figure 19: Top EU Agri-food exports to Algeria in 2023. [8]

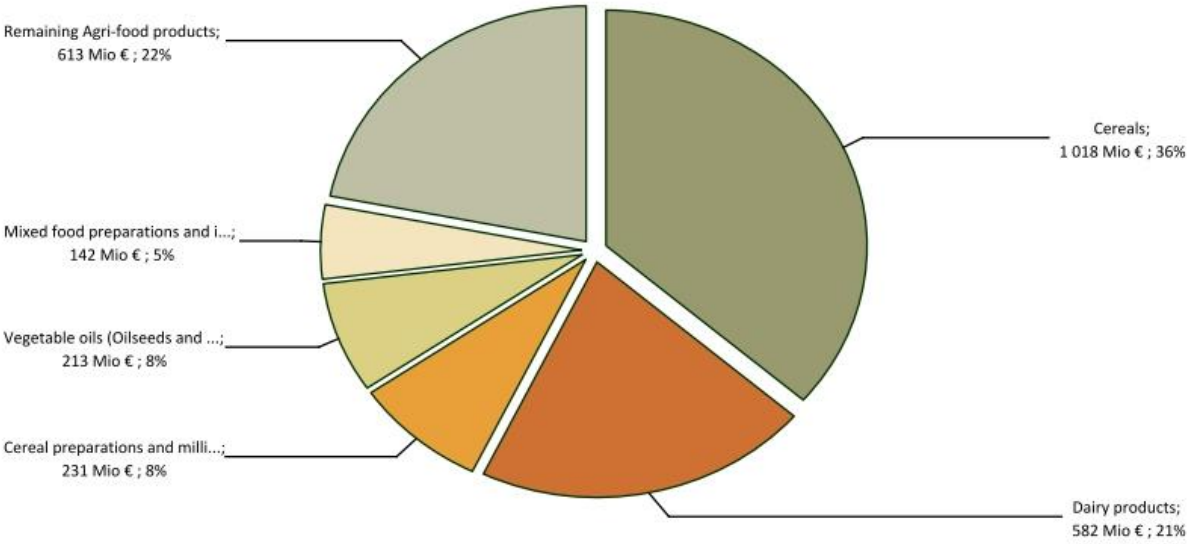
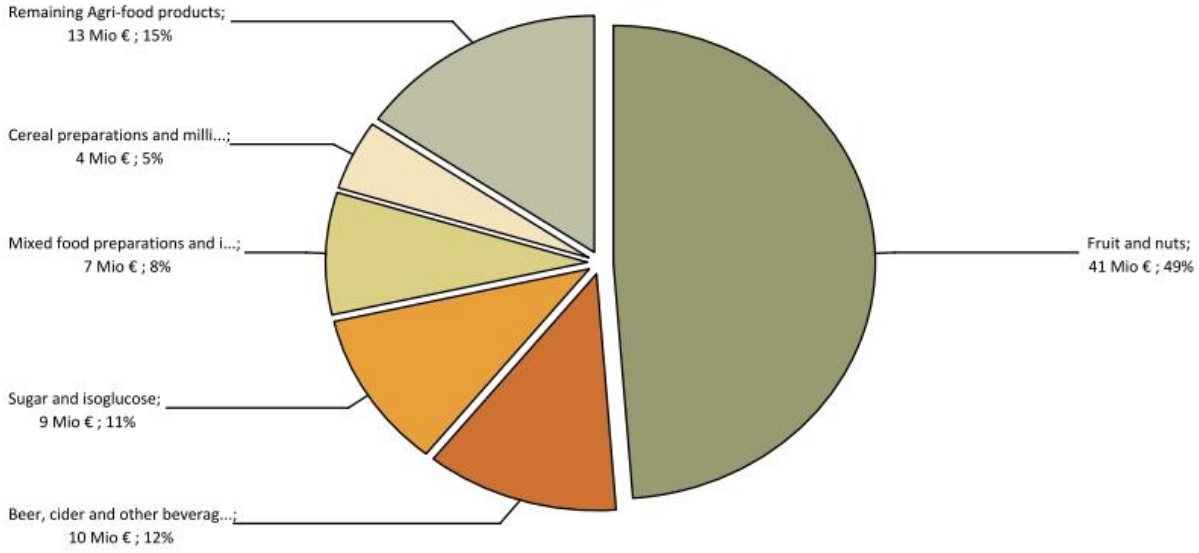


Figure 20: Top EU Agri-food imports from Algeria in 2023. [9]



[8] **Source spécifiée non valide.**
[9] **Source spécifiée non valide.**

Figure 21 : Evolution of 15 top EU Agri-food imports from Algeria, 2019 – 2023. [10]

		Imports						
		Value Mio €					%	
		2019	2020	2021	2022	2023	Share in all Agri 2023	Change 2022-2023
	Agri-food	86	93	134	122	83	100.0	-32.0
1	Fruit and nuts	40	49	50	38	41	49.4	7.9
2	Beer, cider and other beverages	3	3	6	7	10	12.0	42.9
3	Sugar and isoglucose	12	15	39	15	9	10.8	-40.0
4	Mixed food preparations and ingredients	10	13	22	40	7	8.4	-82.5
5	Cereal preparations and milling products	2	3	2	7	4	4.8	-42.9
6	Confectionery and chocolate	0	1	3	1	3	3.6	200.0
7	Coffee, tea, cocoa and spices	8	6	5	4	3	3.6	-25.0
8	Preparations of fruit, nuts and vegetables	0	0	1	0	1	1.2	
9	Margarine and other oils and fats (vegetable)	0	0	1	0	1	1.2	
10	Other animal products	0	0	0	1	1	1.2	0.0
11	Olives and olive oil	0	0	1	1	1	1.2	0.0
12	Non edible for technical use	0	0	1	3	1	1.2	-66.7
13	Vegetables	3	2	2	2	1	1.2	-50.0
14	Wine and wine based products	0	0	0	1	1	1.2	0.0
15	Vegetable oils (Oilseeds and Palm)	0	0	0	1	0	0.0	-100.0
	Remaining Agri-food products	7	0	1	3	0	0.0	-100.0

Figure 22: Evolution of EU Agri-food imports from Algeria, 2019 – 2023. [11]

	Imports						
	Value Mio €					%	
	2019	2020	2021	2022	2023	Share in all Agri 2023	Change 2022-2023
Agri-food	86	93	134	122	83	100.0	-31.9
Animal products	7	0	0	3	1	1.3	-63.9
Beef and veal				2			
Pigmeat							
Poultry and eggs			0	0			
Sheep and goat							
Dairy products	6	0	0	0	0	0.0	-99.7
Other animal products	0	0	0	1	1	1.3	57.1
Arable crops and plant based products	15	18	43	24	14	17.0	-40.5
Cereals	0	0	1	0	0	0.1	-20.0
Cereal preparations and milling products	2	3	2	7	4	4.6	-41.5
Oilseeds and protein crops	0	0	0	0	0	0.0	395.7
Vegetable oils (Oilseeds and Palm)	0	0	0	1	0	0.3	-81.8
Margarine and other oils and fats (vegetable)	0	0	1	0	1	1.4	169.7
Sugar and isoglucose	12	15	39	15	9	10.5	-42.9
Fruit, vegetables and olive oil	44	51	54	41	44	53.4	8.9
Vegetables	3	2	2	2	1	0.9	-57.8
Fruit and nuts	40	49	50	38	41	49.6	8.5
Preparations of fruit, nuts and vegetables	0	0	1	0	1	1.8	273.9
Olives and olive oil	0	0	1	1	1	1.2	42.7
Wine, beverages and food preparations	13	17	31	48	20	24.0	-58.6
Wine and wine based products	0	0	0	1	1	0.7	4.2
Spirits and liqueurs	0	0		0	0	0.0	50.0
Beer, cider and other beverages	3	3	6	7	10	11.5	43.8
Confectionery and chocolate	0	1	3	1	3	3.6	101.4
Mixed food preparations and ingredients	10	13	22	40	7	8.2	-82.8
Coffee, tea, cocoa and spices	8	6	5	4	3	3.4	-22.1
Coffee, tea, cocoa and spices	8	6	5	4	3	3.4	-22.1
Non-edible	0	0	1	3	1	1.0	-71.0
Pet food and forage crops	0	0	0	0	0	0.0	-85.7
Tobacco, cigars and cigarettes	0	0	0	0	0	0.0	28.2
Horticulture	0	0	0	0	0	0.0	130.0
Non edible for technical use	0	0	1	3	1	0.9	-69.8
Unspecified							

[10] **Source spécifiée non valide.**

[11] **Source spécifiée non valide.**

Figure 23: Evolution of EU Agri-food exports to Algeria, 2019 – 2023. [12]

		Exports						
		Value Mio €					%	
		2019	2020	2021	2022	2023	Share in all Agri 2023	Change 2022-2023
	Agri-food	2 491	2 989	2 948	3 575	2 799	100.0	-21.7
01	Live Animals	230	189	124	193	116	4.1	-39.9
02	Meat and edible meat offal	70	27	8	0	3	0.1	3364.7
04	Dairy produce	337	492	353	563	570	20.4	1.3
05	Products of animal origin	2	3	3	0	0	0.0	-34.3
06	Live trees and other plants	16	15	12	14	16	0.6	15.0
07	Edible vegetables, roots & tubers	82	53	62	84	91	3.3	8.5
08	Edible fruits & nuts	23	16	12	13	14	0.5	7.6
09	Coffee, tea, mate & spices	5	5	6	7	8	0.3	4.7
10	Cereals	919	1 346	1 486	1 861	1 003	35.8	-46.1
11	Products of the milling industry	18	14	10	20	22	0.8	9.6
12	Oil seeds & oleaginous fruits	36	43	35	52	52	1.9	0.5
13	Lacs, gums, resins & other veg. saps	12	13	12	13	18	0.7	36.0
14	Vegetable products n.e.s.	0	0	0	0	1	0.0	163.1
15	Animal or vegetable fats & oils	141	138	266	210	226	8.1	7.6
16	Preparations of meat	2	2	1	0	0	0.0	115.7
17	Sugars & sugar confectionery	18	17	19	16	17	0.6	3.4
18	Cocoa & cocoa preparations	55	61	72	49	65	2.3	31.8
19	Preps. of cereals, flour, starch, etc.	158	140	115	121	194	6.9	59.8
20	Preps. of vegetables, fruits, nuts & plants	16	14	17	17	20	0.7	12.3
21	Miscellaneous edible preparations	127	154	128	101	129	4.6	27.3
22	Beverages, spirits & vinegar	40	32	30	18	4	0.1	-79.9
23	Residues and waste from food industry	53	55	37	50	53	1.9	5.2
24	Tobacco & tobacco products	87	108	88	90	97	3.5	7.9
	Other WTO products outside chapters 1-24	42	50	52	81	82	2.9	0.7

[12] **Source spécifiée non valide.**

Figure 24: Evolution of Agri-food imports from Algeria, 2019 – 2023. [13]

		Imports						
		Value Mio €					%	
		2019	2020	2021	2022	2023	Share in all Agri 2023	Change 2022-2023
	Agri-food	86	93	134	122	83	100.0	-31.9
01	Live Animals		0	0	2	0	0.0	-99.7
02	Meat and edible meat offal							
04	Dairy produce	6	0	0	0	0	0.0	-99.3
05	Products of animal origin	0		0	0	0	0.0	187.5
06	Live trees and other plants	0	0	0	0	0	0.0	236.6
07	Edible vegetables, roots & tubers	3	2	2	2	1	0.9	-53.5
08	Edible fruits & nuts	40	49	50	38	41	49.6	8.5
09	Coffee, tea, mate & spices	0	0	1	0	0	0.2	178.8
10	Cereals	0	0	1	0	0	0.0	-64.0
11	Products of the milling industry	0	0	0	0	0	0.1	509.4
12	Oil seeds & oleaginous fruits	9	12	21	39	7	7.8	-83.4
13	Lacs, gums, resins & other veg. saps	0	0	0	0	0	0.0	155.4
14	Vegetable products n.e.s.			0	0	0	0.0	137.5
15	Animal or vegetable fats & oils	0	1	2	3	2	2.7	-15.2
16	Preparations of meat			0	0			
17	Sugars & sugar confectionery	12	15	42	17	12	14.1	-30.4
18	Cocoa & cocoa preparations	8	6	5	4	3	3.3	-23.3
19	Preps. of cereals, flour, starch, etc.	2	3	2	7	4	4.6	-42.5
20	Preps. of vegetables, fruits, nuts & plants	0	0	1	0	2	2.0	232.7
21	Miscellaneous edible preparations	0	1	1	1	0	0.4	-42.6
22	Beverages, spirits & vinegar	3	4	6	7	10	12.2	40.6
23	Residues and waste from food industry	0	0	0	0	0	0.6	40.3
24	Tobacco & tobacco products	0	0	0	0	0	0.0	28.2
	Other WTO products outside chapters 1-24	0	0	0	3	1	1.5	-52.3

Figure 25: Evolution of 15 top EU Agri-food exports to Algeria, 2019 – 2023 [14]

		Exports						
		Value Mio €					%	
		2019	2020	2021	2022	2023	Share in all Agri 2023	Change 2022-2023
	Agri-food	2 491	2 989	2 948	3 575	2 799	100.0	-21.7
1	Cereals	928	1 353	1 492	1 873	1 018	36.4	-45.6
2	Dairy products	341	502	359	592	582	20.8	-1.7
3	Cereal preparations and milling products	180	163	130	139	231	8.3	66.2
4	Vegetable oils (Oilseeds and Palm)	131	129	256	195	213	7.6	9.2
5	Mixed food preparations and ingredients	102	132	116	113	142	5.1	25.7
6	Vegetables	104	83	81	118	132	4.7	11.9
7	Tobacco, cigars and cigarettes	87	108	88	90	97	3.5	7.8
8	Beef and veal	272	193	112	171	85	3.0	-50.3
9	Coffee, tea, cocoa and spices	47	51	57	51	79	2.8	54.9
10	Pet food and forage crops	54	51	38	53	54	1.9	1.9
11	Non edible for technical use	17	19	26	30	30	1.1	0.0
12	Poultry and eggs	28	21	21	17	28	1.0	64.7
13	Confectionery and chocolate	34	39	46	30	22	0.8	-26.7
14	Preparations of fruit, nuts and vegetables	16	14	17	17	20	0.7	17.6
15	Horticulture	16	15	12	16	19	0.7	18.8
	Remaining Agri-food products	134	116	97	68	46	1.6	-32.4

[13] **Source spécifiée non valide.**
[14] **Source spécifiée non valide.**

Figure 26: Evolution of EU Agri-food exports to Algeria, 2019 – 2023 [15]

	Exports						
	Value Mio €					%	
	2019	2020	2021	2022	2023	Share in all Agri 2023	Change 2022-2023
Agri-food	2 491	2 989	2 948	3 575	2 799	100.0	-21.7
Animal products	653	730	507	793	707	25.3	-10.8
Beef and veal	272	193	112	171	85	3.0	-50.4
Pigmeat	2	2	1	0	0	0.0	-47.0
Poultry and eggs	28	21	21	17	28	1.0	60.6
Sheep and goat			0				
Dairy products	341	502	359	592	582	20.8	-1.6
Other animal products	10	11	14	12	12	0.4	-1.5
Arable crops and plant based products	1 263	1 669	1 900	2 233	1 480	52.9	-33.7
Cereals	928	1 353	1 492	1 873	1 018	36.4	-45.7
Cereal preparations and milling products	180	163	130	139	231	8.2	66.5
Oilseeds and protein crops	4	8	5	4	3	0.1	-27.4
Vegetable oils (Oilseeds and Palm)	131	129	256	195	213	7.6	9.0
Margarine and other oils and fats (vegetable)	18	15	16	21	15	0.6	-26.9
Sugar and isoglucose	3	1	1	0	0	0.0	42.8
Fruit, vegetables and olive oil	143	113	110	149	166	5.9	11.5
Vegetables	104	83	81	118	132	4.7	12.1
Fruit and nuts	23	16	12	13	14	0.5	7.6
Preparations of fruit, nuts and vegetables	16	14	17	17	20	0.7	12.3
Olives and olive oil	0	0	0	0	0	0.0	-77.7
Wine, beverages and food preparations	176	200	188	160	166	5.9	3.7
Wine and wine based products	6	6	7	7	1	0.0	-92.5
Spirits and liqueurs	26	16	13	7	0	0.0	-96.8
Beer, cider and other beverages	7	8	6	3	1	0.0	-78.8
Confectionery and chocolate	34	39	46	30	22	0.8	-26.0
Mixed food preparations and ingredients	102	132	116	113	142	5.1	26.0
Coffee, tea, cocoa and spices	47	51	57	51	79	2.8	54.3
Coffee, tea, cocoa and spices	47	51	57	51	79	2.8	54.3
Non-edible	209	226	186	190	201	7.2	5.8
Pet food and forage crops	54	51	38	53	54	1.9	0.3
Tobacco, cigars and cigarettes	87	108	88	90	97	3.5	7.9
Horticulture	16	15	12	16	19	0.7	19.2
Non edible for technical use	17	19	26	30	30	1.1	2.9
Unspecified	34	33	21	0	0	0.0	-36.9

[15] **Source spécifiée non valide.**

Appendix- C SPSS Outputs

Green Trust

		Frequency	Percent
Valid	not at all	37	8,9
	somewhat	86	20,7
	moderately	221	53,1
	very much	57	13,7
	extremely	15	3,6
	Total	416	100,0

Green Product knowledg

		Frequency	Percent
Valid	not at all familiar	74	17,8
	somewhat familiar	206	49,5
	moderately familiar	78	18,8
	very familiar	44	10,6
	extremely familiar	14	3,4
	Total	416	100,0

Environmental Concern

		Frequency	Percent
Valid	not at all	14	3,4
	slightly	47	11,3
	moderately	102	24,5
	very much	208	50,0
	extremely	45	10,8
	Total	416	100,0

Purchasing behavior

		Frequency	Percent
Valid	strongly disagree	9	2,2
	disagree	44	10,6
	neutral	135	32,5
	agree	200	48,1
	strongly agree	28	6,7
	Total	416	100,0

Correlations

		Purchasing behavior
Ecolabel Awarness	Sig. (2-tailed)	,334 ,000 416
Green Advertising	Sig. (2-tailed)	,548 ,000 416
Green Trust	Sig. (2-tailed)	,486 ,000 416
Green Product knowledg	Sig. (2-tailed)	,314 ,000 416
Environmental Concern	Sig. (2-tailed)	,627 ,000 416
Education Level	Sig. (2-tailed)	-,034 ,491 416
Income Level	Sig. (2-tailed)	,081 ,100 416

Regression

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Green Advertising, Ecolabel Awarness[b]	.	Enter

a. Dependent Variable: Purchasing behavior

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,557[a]	,311	,307	,709

a. Predictors: (Constant), Green Advertising, Ecolabel Awarness

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	93,705	2	46,852	93,108	,000[b]
	Residual	207,824	413	,503		
	Total	301,529	415			

a. Dependent Variable: Purchasing behavior

b. Predictors: (Constant), Green Advertising, Ecolabel Awarness

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1,513	,147		10,270	,000
	Ecolabel Awarness	,092	,037	,113	2,481	,014
	Green Advertising	,526	,048	,498	10,918	,000

a. Dependent Variable: Purchasing behavior

Regression

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Environmental Concern, Green Product knowledg, Green Trust[b]	.	Enter

a. Dependent Variable: Purchasing behavior

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,664[a]	,441	,437	,639

a. Predictors: (Constant), Environmental Concern, Green Product knowledg, Green Trust

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	133,070	3	44,357	108,483	,000[b]
	Residual	168,459	412	,409		
	Total	301,529	415			

a. Dependent Variable: Purchasing behavior

b. Predictors: (Constant), Environmental Concern, Green Product knowledg, Green Trust

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1,150	,133		8,640	,000
	Green Trust	,197	,041	,208	4,750	,000
	Green Product knowledg	,073	,034	,085	2,132	,034
	Environmental Concern	,450	,039	,499	11,677	,000

a. Dependent Variable: Purchasing behavior

Regression

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Income Level, Education Level[b]	.	Enter

a. Dependent Variable: Purchasing behavior

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,103[a]	,011	,006	,850

a. Predictors: (Constant), Income Level, Education Level

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3,216	2	1,608	2,226	,109[b]
	Residual	298,313	413	,722		
	Total	301,529	415			

a. Dependent Variable: Purchasing behavior

b. Predictors: (Constant), Income Level, Education Level

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,508	,164		21,453	,000
	Education Level	-,059	,045	-,068	-1,314	,189
	Income Level	,088	,044	,103	1,993	,047

a. Dependent Variable: Purchasing behavior

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Ecolabels[b]	.	Enter

a. Dependent Variable: Purchasing behavior

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,462[a]	,213	,211	,757

a. Predictors: (Constant), Ecolabels

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	64,284	1	64,284	112,178	,000[b]
	Residual	237,245	414	,573		
	Total	301,529	415			

a. Dependent Variable: Purchasing behavior

b. Predictors: (Constant), Ecolabels

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1,902	,152		12,492	,000
	Ecolabels	,561	,053	,462	10,591	,000

a. Dependent Variable: Purchasing behavior

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[16] Screenshot from IBM SPSS, 28TH May, 2024.