

EUROPEAN UNIVERSITY STUDENTS' ATTITUDES TOWARD THE EUROPEAN GREEN DEAL: A COMPARATIVE STUDY

Mihai Dan CARMIHAI¹, Nicoleta RADU^{2,3}, Zina PARASCHIV²,
Francisca BLANQUEZ CANO⁴, Oksana MULESA⁵,
Adrián SILVA⁶, Razvan TEODORESCU²

¹National University of Science and Technology Politehnica Bucharest,
313 Splaiul Independenței Street, District 6, 060042, Bucharest, Romania

²University of Agronomic Sciences and Veterinary Medicine of Bucharest,
59 Mărăști Blvd, District 1, 011464, Bucharest, Romania

³National Institute for Research and Development in Chemistry and Petrochemistry – ICECHIM,
202 Splaiul Independenței, District 6, 060021, Bucharest, Romania

⁴Autonomous University of Barcelona, 08193, Bellaterra (Cerdanyola del Vallès), Barcelona, Spain

⁵Uzhhorod National University, 3 Narodna Square, 88000, Uzhhorod, Ukraine

⁶University of Porto, Praça de Gomes Teixeira, 4099-002, Porto, Portugal

Corresponding author email: nicoleta.radu@biotehnologii.usamv.ro

Abstract

The attitudes of students toward the European Green Deal were assessed through a survey involving master's and doctoral students from four European universities: Universitat Autònoma de Barcelona (Spain), University of Porto (Portugal), University of Agronomic Science and Veterinary Medicine of Bucharest (Romania), and Uzhhorod University (Ukraine). Results revealed strong overall support among students for actions promoting environmental sustainability and reducing carbon footprints. Significant variations were observed across countries, with students from Spain, Portugal, and Romania demonstrating particularly high agreement regarding the importance of balancing economic growth with environmental protection. While respondents generally recognized the long-term benefits of the Green Deal, concerns regarding implementation costs were notably higher among students from Romania and Ukraine. Additionally, a vast majority expressed interest in tools to monitor personal carbon footprints, highlighting growing awareness of individual environmental responsibilities. These findings suggest a positive attitude among European university students toward environmental sustainability initiatives, though addressing concerns about economic implications could enhance broader support.

Key words: European Green Deal, environmental sustainability, students attitude, higher education, comparative study.

INTRODUCTION

Anthropogenic climate change is an undeniable reality that requires immediate and coordinated action. In response, the European Union has established ambitious targets to reduce carbon emissions by 55% by 2030 compared to 1990 levels (European Commission, 2019; 2021). Achieving these goals demands broad societal engagement, including the active participation of educational institutions. To support this transition and improve understanding of climate-related challenges, universities across the EU are revising and adapting their curricula. This educational shift aims to equip students with the knowledge and skills essential for effectively addressing environmental concerns.

A growing body of research suggests that higher education plays a significant role in shaping environmental attitudes and policy preferences. For example, survey studies by Harring & Jaegers (2017) demonstrated that university education influences students' support for environmental policies. Their findings highlighted that economics students were more inclined to support market-based environmental policies, illustrating the impact of academic discipline on environmental perspectives. Subsequent studies have expanded on these insights by exploring the roles of education, socioeconomic background, and cultural context. Mónus (2022) examined the effects of environmental education policies and socioeconomic factors on secondary school

students' attitudes and behaviors. The study concluded that schools with robust environmental education programs more effectively foster pro-environmental behaviors. Similarly, Concina & Frate (2023) analyzed university students' beliefs and attitudes toward sustainability in various countries. Their results showed that while students were generally aware of sustainability issues, this awareness did not always translate into environmentally responsible behaviors.

In alignment with these trends, the present study was designed to assess the attitudes of master's and doctoral students toward the European Green Deal. The research was conducted among students from universities in Spain, Portugal, Romania, and Ukraine - the latter currently a candidate for EU membership. By evaluating students' perceptions and perspectives on this major policy initiative, the study aims to provide valuable insights into how higher education contributes to shaping future leaders' environmental commitments.

MATERIALS AND METHODS

This study assessed the attitudes of master's and doctoral students toward the European Green Deal through a survey-based approach, building on previous research frameworks (Radu et al., 2019; Radu et al., 2020). The participants were selected from four European universities: Universitat Autònoma de Barcelona (Spain), University of Porto (Portugal), University of Agronomic Sciences and Veterinary Medicine of Bucharest (Romania), and Uzhhorod National University (Ukraine).

Participant selection

The target population consisted of students enrolled in engineering sciences at the master's and doctoral levels. This group was selected for several reasons:

1. *Advanced knowledge*: graduate students possess a deeper understanding of complex topics such as environmental policy, sustainability, and European legislative initiatives, allowing them to critically assess the implications of the European Green Deal.

2. *Relevant training*: due to their academic backgrounds and involvement in research related to environmental issues and public

policy, these students are capable of providing more informed and nuanced responses.

3. *Future policy influence*: as potential future decision-makers, graduate students often engage more readily in academic research and are motivated by the opportunity to contribute to scientific understanding and policy development. Participants were recruited via email invitations, and responses were collected anonymously through an online questionnaire. All participants were informed of the study's objectives prior to participation, and their involvement was entirely voluntary. No personally identifiable information - such as names, contact details, or addresses - was collected, ensuring full anonymity and compliance with ethical research standards.

Survey design

The survey consisted of six closed-ended questions designed to evaluate students' attitudes toward the principles and implementation of the European Green Deal. These questions addressed the following core dimensions:

1. *Individual responsibility*: "I believe that my actions can contribute to solving environmental problems."

2. *Willingness to act*: "I am willing to reduce my personal carbon footprint to support the European Green Deal."

3. *Sustainability and growth*: "Economic growth should not occur at the expense of the environment."

4. *Perceived value*: "The cost of implementing the European Green Deal is justified by its long-term benefits."

5. *Self-assessment tools*: "It is appropriate for students to calculate their carbon footprint through their regular daily activities."

6. *Engagement through tools*: "Do you consider that you would pay more attention to your carbon footprint if you had an appropriate tool to quantify it?"

Responses were rated using a 5-point Likert scale, where: 1 = Not Important, 2 = Low Importance, 3 = Medium Importance, 4 = High Importance, and 5 = Very High Importance.

Data collection and analysis

By September 2024, a total of 40 valid responses had been received. The geographic distribution of participants was as follows: 28% from Ukraine, 28% from Romania, 26% from Portugal, and

18% from Spain. Although the sample size is modest, the random selection of participants from each institution helped minimize selection bias and offered a degree of representativeness within the target population.

Given the exploratory nature of the study and the limited sample size, data analysis was primarily descriptive. No inferential statistical tests were applied. The goal was to identify prevailing trends and general patterns in student perceptions of and attitudes toward the European Green Deal and related environmental policies.

RESULTS AND DISCUSSIONS

Regarding the first statement, "I believe that my actions can contribute to solving environmental problems", fewer than 30% of respondents from each university strongly agreed (Figure 1a). Specifically, 29% of respondents from Spain, 27% from Romania, and only 10% each from Portugal and Ukraine expressed strong agreement. However, a higher proportion of respondents expressed high agreement: 70% from Portugal, 50% from Ukraine, 43% from Spain, and 19% from Romania (Figure 1a). Overall, 66% of respondents either highly agreed (44%) or strongly agreed (22%) with this statement, while only 13% considered it of low importance or not important (Figure 1b).

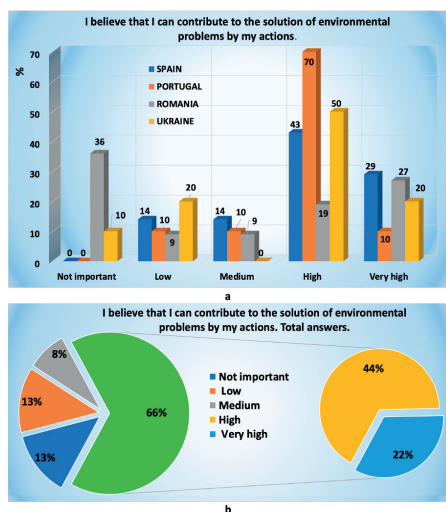


Figure 1. Students' attitudes regarding the statement: "I believe that I can contribute to solving environmental problems through my actions."
 a) Distribution of responses by country; b) Overall distribution of responses across all participants

In response to the statement, "I am willing to reduce my personal carbon footprint to support the European Green Deal", a high level of strong agreement was observed among students: 60% from Portugal, 64% from Romania, and 57% from Spain (Figure 2a).

In Ukraine, strong agreement was slightly lower at 30%, but a significant proportion expressed high agreement (60%). Overall, 92% of respondents strongly agreed (53%) or highly agreed (39%) with the statement, while only 2% rated it as medium importance, and 3% considered it unimportant (Figure 2b).

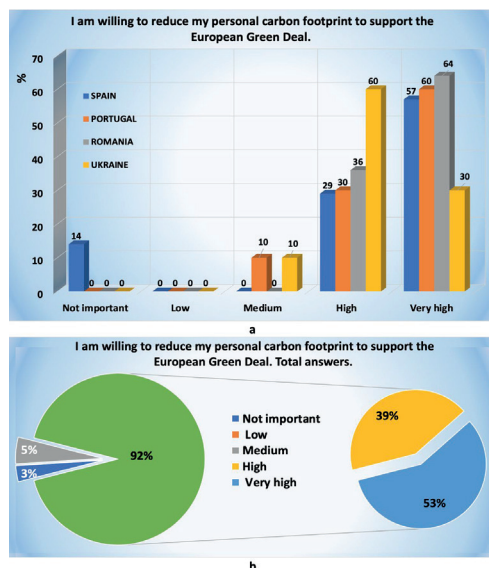


Figure 2. Students' attitudes regarding the statement: "I am willing to reduce my personal carbon footprint to support the European Green Deal."

a) Responses categorized by country; b) Overall distribution of responses across all participants

Concerning the statement, "Economic growth should not occur at the expense of the environment," students showed substantial consensus, with 100% from Spain, 82% from Romania, 80% from Portugal, and 60% from Ukraine strongly agreeing (Figure 3a).

Less than 30% from each university expressed high agreement. Overall, 97% of respondents either strongly agreed (79%) or highly agreed (18%), and only 3% viewed this as of low importance (Figure 3b).

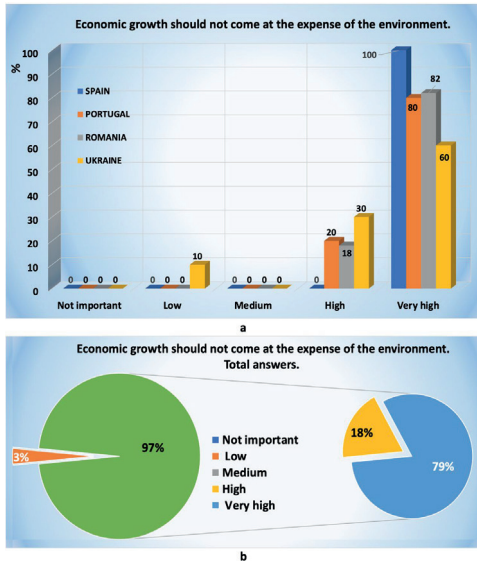


Figure 3. Students' attitudes regarding the statement: "Economic growth should not come at the expense of the environment." a) Responses categorized by country; b) Overall distribution of responses across all participants

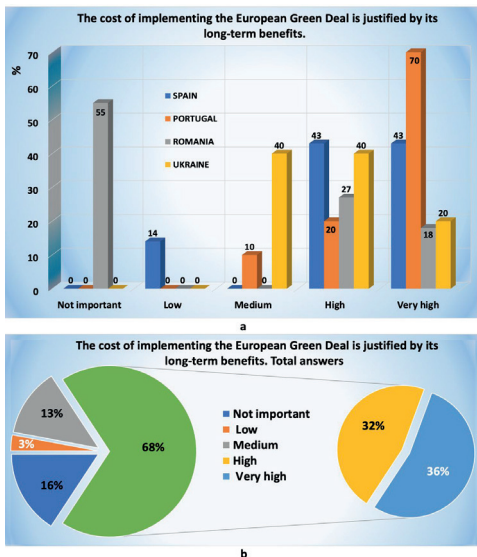


Figure 4. Students' attitudes regarding the statement: "The cost of implementing the European Green Deal is justified by its long-term benefits." a) Responses categorized by country; b) Overall distribution of responses across all participants

When evaluating the statement, "The cost of implementing the European Green Deal is justified by its long-term benefits", 70% of respondents from Portugal strongly agreed, followed by 43% from Spain, 20% from

Ukraine, and 18% from Romania (Figure 4a). High agreement ranged from 20% to 43% across universities.

Overall, 68% of respondents either strongly agreed (36%) or highly agreed (32%), while 16% considered this statement of no importance, 13% as medium importance, and 3% as low importance (Figure 4b).

Regarding the appropriateness of calculating personal carbon footprints in daily activities, strong agreement was high in Romania (82%) and Spain (57%), while lower in Portugal and Ukraine (20% each) (Figure 5a). High agreement was substantial, especially in Portugal (70%). Overall, 77% of respondents either strongly agreed (45%) or highly agreed (32%), while 13% considered it of medium importance and 10% as low importance (Figure 5b).

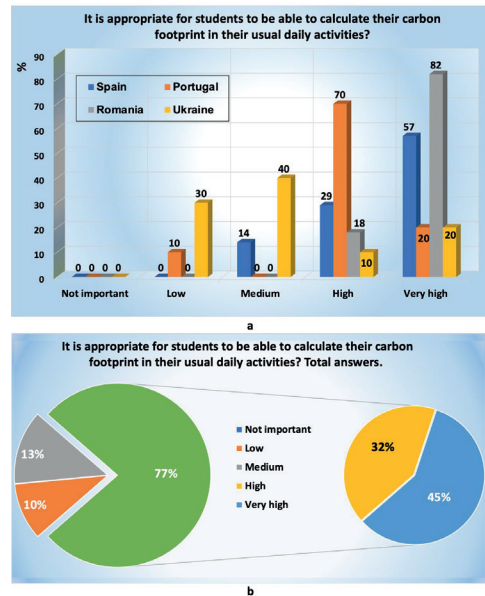


Figure 5. Students' attitudes regarding the statement: "It is appropriate for students to calculate their carbon footprint in their regular daily activities." a) Responses categorized by country; b) Overall distribution of responses across all participants

In response to the question about whether using an appropriate tool to quantify carbon footprints would increase personal awareness, 91% of students from Romania, 71% from Spain, 50% from Portugal, and only 10% from Ukraine expressed strong agreement (Figure 6a). High

agreement varied, with notable percentages from Ukraine (50%) and Portugal (40%). Overall, 87% of respondents strongly agreed (55%) or highly agreed (32%) with this statement, with only 5% rating it as medium importance and 8% as low importance (Figure 6b).

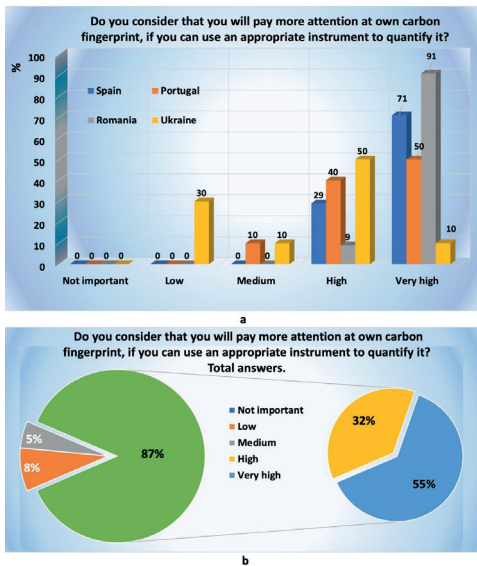


Figure 6. Students' attitudes regarding the statement: "Do you consider that you will pay more attention to your own carbon footprint if you had an appropriate tool to quantify it?" a) Responses categorized by country; b) Overall distribution of responses across all participants

Respondents from these European universities generally showed strong support for environmental sustainability, expressing high levels of agreement on the importance of reducing personal carbon footprints, supporting the European Green Deal, and prioritizing environmental protection over economic growth.

While the level of support varies among the different countries, there is a consistent preference for environmentally conscious actions and initiatives. Students expressed significant interest in tools designed to track their carbon footprints, reflecting a growing awareness of their individual environmental impacts. The majority of respondents from the four European universities believe that individual actions can effectively contribute to solving environmental problems. Nevertheless, the strength of agreement varies by country,

with students from Portugal and Ukraine more frequently expressing strong agreement compared to those from Spain and Romania. Overall, a substantial proportion of respondents (66%) strongly agree about the importance of individual actions in addressing environmental issues. Additionally, students from all universities indicated high agreement with reducing their personal carbon footprints in support of the European Green Deal, with the highest levels observed in Romania (64%) and Portugal (60%), followed by Spain (57%) and Ukraine (30%). Collectively, 92% of respondents support the Green Deal, demonstrating strong endorsement for this environmental initiative among European students.

The statement "Economic growth should not come at the expense of the environment" received nearly unanimous support, with the highest levels of strong agreement in Spain (100%) and Romania (82%). This suggests that European students strongly prioritize environmental sustainability over economic growth, with 97% of respondents overall agreeing that economic growth should not harm the environment.

Respondents expressed mixed feelings about the cost of implementing the European Green Deal about its long-term benefits. Students from Portugal are the most supportive (70%), while Ukraine and Romania show lower levels of agreement (20% and 18%, respectively). However, a majority (68%) agree that the Green Deal's long-term benefits justify its costs, though a notable portion still considers these costs a problem.

A significant number of respondents believe it is important for students to calculate their carbon footprint. Romania shows the highest agreement (82%), followed by Spain (57%). While a lower percentage of respondents from Portugal and Ukraine agree with this idea, overall, 77% of respondents express the importance of tracking personal carbon footprints, signalling an awareness of individual environmental impact.

There is strong support among students for using tools to calculate and track their carbon footprints. Romania leads again with 91% of respondents very highly agreeing, while Spain (71%) and Portugal (50%) show notable support as well.

Ukraine lags with only 10% agreeing strongly. Nevertheless, 87% of all respondents believe that having the right tools would encourage them to be more conscious of their carbon footprint. The data obtained in this study are in agreement with those reported by other scientific publication.

Economic growth should not come at the expense of the environment," received nearly unanimous support among respondents, with the highest levels of strong agreement observed in Spain (100%) and Romania (82%). This indicates that European students strongly prioritize environmental sustainability over purely economic growth, as 97% of all respondents agreed that economic development should not compromise environmental health.

Respondents expressed mixed opinions regarding whether the long-term benefits of the European Green Deal justify its implementation costs. Students from Portugal showed the strongest agreement (70%), whereas agreement levels were lower among students from Ukraine (20%) and Romania (18%). Nevertheless, the majority (68%) concurred that the Green Deal's long-term advantages justify the associated costs, although a notable proportion remained concerned about the financial implications.

A considerable number of respondents acknowledged the importance of enabling students to calculate their personal carbon footprints. The highest level of strong agreement was recorded in Romania (82%), followed by Spain (57%). Although agreement was lower among respondents from Portugal and Ukraine, overall, 77% recognized the significance of monitoring personal carbon footprints, reflecting increased awareness of individual environmental impacts.

Furthermore, respondents widely supported the use of tools designed to calculate and track carbon footprints. Romanian students again expressed the highest level of strong agreement (91%), followed by students from Spain (71%) and Portugal (50%). Ukrainian students showed less enthusiasm, with only 10% strongly agreeing. Overall, however, 87% of respondents indicated that having appropriate tools available would encourage greater awareness and management of their personal carbon footprints. These findings align well with previous studies reported in the scientific literature.

A survey study conducted by Cernicova-Buca et al. (2023) among Romanian students revealed a high level of interest and readiness to engage in basic sustainable behaviors concerning environmental issues. Similarly, Khanam et al. (2022), in a survey-based analysis conducted across four European countries, found that nations in Central and South-Eastern Europe recorded the highest willingness to reduce their carbon footprints, indicating strong regional support for climate change mitigation.

Bassi (2023) also confirmed that attitudes toward the environment significantly influence ecological behavior, based on research into European consumers' perspectives on climate change.

Predictive studies by Smith et al. (2013), Mielcarek-Bocheńska et al. (2021), and Panchasara et al. (2021) have shown that greenhouse gas emissions are largely produced through agricultural waste and sector-specific processes. Research by Li et al. (2025) emphasized that integrating both nature-based and technological solutions is crucial for sustainable agricultural development. Such integration is essential not only for mitigating climate change but also for ensuring long-term global food security.

CONCLUSIONS

This study reveals that European university students exhibit strong support for the European Green Deal and show high levels of environmental awareness and willingness to adopt sustainable behaviors. The findings highlight that while support for reducing personal carbon footprints is consistently strong across all countries, notable differences emerge regarding economic concerns. Students from Portugal and Romania demonstrate the highest levels of agreement with sustainability goals, whereas respondents from Ukraine show comparatively more apprehension, particularly regarding the financial costs associated with implementing the Green Deal. The results suggest that educational initiatives and policy communication strategies should be tailored to address these national differences. For policymakers, the findings underline the importance of transparent and context-sensitive communication about the costs and long-term

benefits of environmental policies. For educators, integrating practical tools for calculating carbon footprints into university curricula could foster greater personal responsibility and engagement in climate action among students. However, the study is not without limitations. The sample size is relatively small and limited to master's and doctoral students from only four universities, which may not fully represent the broader student population across Europe. Additionally, the survey's reliance on self-reported attitudes introduces the possibility of social desirability bias. Future research should consider expanding the study to include undergraduate students and a more diverse range of universities across different EU regions. Longitudinal studies could also explore how student attitudes evolve over time, particularly in response to policy changes or increased climate-related education. This expanded scope would provide deeper insights into the effectiveness of the European Green Deal's outreach and implementation strategies at the academic level.

ACKNOWLEDGEMENTS

This research was conducted with the support of the project 2023-1-RO01-KA220-HED-000154433, entitled “*Gender, Digitization, Green: Ensuring a Sustainable Future for All in Europe*”, co-funded by the European Union.

REFERENCES

- Bassi, F. (2023). European consumers' attitudes towards the environment and sustainable behavior in the market. *Sustainability*, 15(2), 1666.
- Cernicova-Buca, M., Dragomir, G.-M., Gherheș, V., & Palea, A. (2023). Students' awareness regarding environment protection in campus life: Evidence from Romania. *Sustainability*, 15(23), 16444.
- Concina, E. & Frate, S. (2023). Assessing University Students' Beliefs and Attitudes towards Sustainability and Sustainable Development: A Systematic Review. *Trends High. Educ.* 2, 705-717, <https://doi.org/10.3390/higheredu2040041>
- European Commission. (2019). *The European Green Deal*. https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en (Accessed on 15 December, 2023).
- European Commission. (2021). *'Fit for 55': Delivering the EU's 2030 climate target on the way to climate neutrality*. Final communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee, and the Committee of the Regions. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021DC0672> (Accessed December 15, 2023).
- Harring, N. & Jagers, S. C. (2017). Why do people accept environmental policies? The prospects of higher education and changes in norms, beliefs and policy preferences. *Environmental Education Research*, 24(6), 791–806. <http://dx.doi.org/10.1080/13504622.2017.1343281>
- Khanam, T., Rahman, A., Xu, X., Mola-Yudego, B., Mouna, M. E., & Pelkonen, P. (2022). Assessing the awareness and willingness of European experts to reduce their carbon footprint in everyday consumption. *Environmental Impact Assessment Review*, 94, 106889.
- Li, L., Awada, T., Shi, Y., Jin, V. L., & Kaiser, M. (2025). Global greenhouse gas emissions from agriculture: Pathways to sustainable reductions. *Global Change Biology*, 31(1), e70015.
- Mielcarek-Bocheńska, P., & Rzeźnik, W. (2021). Greenhouse gas emissions from agriculture in EU countries - State and perspectives. *Atmosphere*, 12(11), 1396.
- Mónus, F. (2022). Environmental education policy of schools and socioeconomic background affect environmental attitudes and pro-environmental behavior of secondary school students. *Environmental Education Research*, 28(2), 169–196. <https://doi.org/10.1080/13504622.2021.2023106>
- Panchasara, H., Samrat, N. H., & Islam, N. (2021). Greenhouse gas emissions trends and mitigation measures in the Australian agriculture sector: A review. *Agriculture*, 11(2), 85.
- Radu, N., Chirvase, A. A., Babeanu, Begea, M. (2019). Entrepreneurship in the field of life sciences: the personal skills needed to start an innovative SME. *Scientific Papers Series Management Economic Engineering in Agriculture and Rural Development*, 19(2), 375-379.
- Radu, N., Chirvase, A. A., Babeanu, Begea, M. (2020). Studies regarding personal skills needed in entrepreneurship- case study in France, Lithuania and Romania. *Scientific Papers Series Management Economic Engineering in Agriculture and Rural Development*, 20(2), 403-408.
- Smith, P., Haberl, H., Popp, A., Erb, K.-H., Lauk, C., Harper, R. J., ... & Rose, S. K. (2013). How much land-based greenhouse gas mitigation can be achieved without compromising food security and environmental goals? *Global Change Biology*, 19(8), 2285–2302.