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INTEGRATING AGROECOLOGY INTO STRATEGIES FOR COMBATING CLIMATE CHANGE

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Abstract. *Climate change represents one of the most significant challenges facing contemporary agriculture, affecting crop productivity, natural resources, and the stability of food systems worldwide. At the same time, agricultural activities are important sources of greenhouse gas emissions, highlighting the need for sustainable transformation pathways. Agroecology has increasingly emerged as an integrated approach that applies ecological principles to agricultural systems while promoting environmental sustainability, climate resilience, and resource efficiency. This paper provides a conceptual analysis of the role of agroecology in climate change mitigation and adaptation strategies. Through a synthesis of recent scientific literature, the study examines how agroecological practices contribute to greenhouse gas emission reduction, carbon sequestration, biodiversity conservation, and improved soil and water management. Furthermore, the paper explores the integration of agroecological principles within current European agricultural and climate policies. The originality of the study lies in its integrated assessment of agroecology as a strategic framework capable of simultaneously supporting climate change mitigation, adaptation, and long-term agricultural sustainability, with particular relevance for the European and Romanian agricultural context. The analysis demonstrates that the incorporation of agroecological principles into climate strategies can strengthen ecosystem services, enhance the resilience of farming systems, and contribute to long-term food security and sustainable rural development.*

Keywords: *agroecology; climate change; sustainable agriculture; climate change mitigation; climate adaptation; resilience*

INTRODUCTION

Climate change represents one of the most important global challenges affecting contemporary agricultural systems, with direct consequences on crop productivity, soil fertility, water availability, biodiversity, and the stability of food systems. Rising temperatures, changes in precipitation regimes, more frequent droughts, heat waves, floods, and other extreme weather events increasingly affect the capacity of agricultural systems to ensure stable production under sustainable conditions (IPCC, 2022; IPCC, 2023). At the same time, agriculture is both highly vulnerable to climate change and an important contributor to greenhouse gas emissions, mainly through intensive use of external inputs, land-use change, soil degradation, and energy consumption (FAO, 2018; WILLETT et al., 2019).

From an agronomic and environmental perspective, climate change imposes major constraints on the functioning of agroecosystems. Reduced water availability, increased evapotranspiration, soil organic matter depletion, erosion, nutrient imbalance, and biodiversity loss directly affect crop performance and farm resilience. Under these conditions, conventional agricultural models based on high external input use and simplified production systems may

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become increasingly vulnerable and less efficient in responding to climate variability. Therefore, the transition toward sustainable agricultural systems requires approaches capable of reducing environmental pressure while maintaining productivity and strengthening the adaptive capacity of farms.

Agroecology has emerged as an integrated scientific, practical, and policy-oriented approach that applies ecological principles to the design and management of agricultural systems. It promotes biodiversity conservation, diversification of cropping systems, optimization of nutrient cycles, improvement of soil health, efficient use of water resources, reduction of external inputs, and enhancement of ecosystem services (ALTIERI et al., 2015; WEZEL et al., 2009). Compared with conventional agricultural systems, which are often characterized by high dependence on external inputs, agroecological approaches aim to use natural ecological processes in order to increase productivity stability, reduce environmental risks, and adapt agricultural practices to local ecological, climatic, and socio-economic conditions (FAO, 2018; HLPE, 2019).

Within the framework of climate change mitigation, agroecology contributes to reducing greenhouse gas emissions by limiting dependence on synthetic fertilizers and pesticides, improving nutrient recycling, increasing soil organic matter, and promoting carbon sequestration in soil and biomass. Practices such as diversified crop rotations, cover crops, reduced soil disturbance, organic amendments, agroforestry systems, and the integration of perennial species can improve soil structure and biological activity while increasing the capacity of agroecosystems to store carbon (GATTINGER et al., 2012; LAL, 2020). These practices also contribute to reducing the environmental footprint of agricultural production and support the long-term functioning of agroecosystems.

In relation to climate change adaptation, agroecology plays an important role in increasing the resilience of agricultural systems under conditions of climatic uncertainty. Diversified agroecosystems are generally better able to withstand drought, heat stress, pest pressure, and irregular rainfall patterns, because different species and functional groups respond differently to environmental disturbances (ALTIERI et al., 2015). At the same time, agroecological practices improve soil water retention, infiltration capacity, nutrient availability, and biological interactions, thereby supporting crop stability and reducing production risks under adverse climatic conditions (BOMMARCO et al., 2013; IPCC, 2022).

The relevance of agroecology is also reflected in current European agricultural and climate policies. Strategic documents such as the European Green Deal and the Farm to Fork Strategy emphasize the need to transform agriculture into a more sustainable, climate-resilient, and biodiversity-friendly sector (EUROPEAN COMMISSION, 2020; EUROPEAN COMMISSION, 2021). These policy directions support the reduction of chemical inputs, the conservation of natural resources, the protection of biodiversity, and the development of resilient rural areas. In this context, agroecology can provide a coherent framework for linking environmental objectives with agricultural productivity, food security, and sustainable rural development.

In Romania, the importance of agroecological approaches is particularly relevant due to the diversity of agroecological zones, the significant presence of small and medium-sized farms, and the increasing exposure of agriculture to drought, heat stress, soil degradation, and rainfall irregularity. Southern and eastern regions are especially vulnerable to climate variability, which affects crop productivity, soil quality, and the economic stability of farms. Under these conditions, agroecological practices such as crop diversification, use of locally adapted varieties, reduced tillage, cover crops, organic amendments, and improved soil and

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water management may contribute to increasing the resilience and sustainability of agricultural systems (POPOVICI et al., 2018; SOARE and DOBRE, 2016).

Under these conditions, the integration of agroecology into climate change strategies is essential for identifying sustainable pathways capable of combining mitigation and adaptation objectives. Agroecology should not be regarded only as a set of environmentally friendly practices, but also as a strategic framework for redesigning agricultural systems in accordance with ecological principles, climate resilience, and long-term food security.

The aim of this study is to conduct a conceptual analysis of agroecology as an integrated approach for addressing the challenges posed by climate change in agriculture. Based on a synthesis of recent scientific literature and relevant policy documents, the paper examines how agroecological principles and practices contribute to greenhouse gas emission reduction, carbon sequestration, biodiversity enhancement, soil and water management, and increased resilience of agroecosystems.

The originality of this paper lies in its integrated analysis of agroecology as a strategic framework capable of simultaneously supporting climate change mitigation, climate adaptation, and sustainable agricultural development. By linking agroecological principles with current European policy objectives and discussing their relevance for Romanian agriculture, the study provides a contextualized perspective on the role of agroecology in the transition toward more resilient and sustainable agri-food systems.

MATERIAL AND METHODS

The present study was developed within a conceptual research framework based on the systematic analysis and critical synthesis of scientific literature addressing the relationship between agroecology and climate change. The methodological approach was designed to identify, organize, and interpret relevant scientific evidence concerning the contribution of agroecological principles and practices to climate change mitigation, climate adaptation, sustainable agricultural development, biodiversity conservation, soil and water management, and the enhancement of ecosystem services.

The research was based on the analysis of peer-reviewed scientific articles, reports issued by international organizations, and European policy documents relevant to agroecology, sustainable agriculture, and climate change. The literature review included publications indexed in major academic databases, as well as official documents published by institutions such as the Food and Agriculture Organization of the United Nations, the Intergovernmental Panel on Climate Change, and the European Commission. In addition, foundational and high-impact studies in the field of agroecology were considered in order to ensure the scientific coherence and continuity of the conceptual framework used in the analysis.

The selection of bibliographic sources was performed according to clearly defined criteria. The first criterion was the relevance of the studies to agroecology, understood both as a scientific discipline and as a set of agricultural practices and policy orientations. The second criterion was the explicit connection of the selected sources with climate change mitigation and/or adaptation in agricultural systems. The third criterion referred to the applicability of the findings to sustainable agriculture, rural development, food system resilience, and the European agricultural context. Priority was given to studies focusing on diversified farming systems, sustainable soil and nutrient management, biodiversity conservation, reduction of dependence on external inputs, carbon sequestration, and the role of ecosystem services in agroecosystem functioning.

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The selected literature was examined using a thematic synthesis approach. This method allowed the organization of the information into several major analytical directions: the role of agroecology in reducing greenhouse gas emissions, its contribution to carbon storage in soil and biomass, its importance for increasing the adaptive capacity of agricultural systems, and its integration into agricultural and climate-related policy frameworks. The thematic synthesis also facilitated the identification of recurring concepts, complementarities between agroecological practices, and potential limitations or trade-offs associated with their implementation under different environmental and socio-economic conditions.

Particular attention was given to the European policy context, especially to strategic documents addressing climate action, biodiversity protection, sustainable land use, and the transformation of agri-food systems. In this respect, the European Green Deal and the Farm to Fork Strategy were analyzed as policy frameworks that support the transition toward more sustainable, climate-resilient, and biodiversity-friendly agricultural systems.

Since the study is conceptual in nature, it does not rely on experimental field data, but on the interpretation and synthesis of existing scientific and policy-related information. This approach provides a coherent basis for understanding how agroecology can be integrated into climate change strategies and how agroecological practices may contribute to reducing climate pressures, strengthening the resilience of agroecosystems, and supporting the transition toward sustainable agricultural models adapted to current and future climate conditions.

This approach is consistent with conceptual and synthetic analyses commonly used in studies addressing agroecology, sustainable agriculture, and climate change adaptation (ALTIERI et al., 2015; HLPE, 2019).

RESULTS AND DISCUSSION

Agroecology and climate change mitigation

The analysis of the scientific literature indicates that agroecology can contribute significantly to climate change mitigation by reducing several major sources of greenhouse gas emissions associated with modern agricultural systems. One of the main mechanisms is the reduction of dependence on synthetic fertilizers and pesticides, whose production, transport, and application require high energy inputs and may generate important emissions, particularly nitrous oxide emissions from nitrogen fertilizers. In this context, agroecological systems promote integrated nutrient management, biological nitrogen fixation, crop diversification, and the recycling of organic matter, thereby contributing simultaneously to emission reduction and soil fertility improvement (ALTIERI et al., 2015; FAO, 2018).

Another important contribution of agroecology to climate change mitigation is related to carbon sequestration in soil and biomass. Practices such as diversified crop rotations, cover crops, reduced soil disturbance, the incorporation of organic amendments, agroforestry systems, and the integration of perennial species contribute to increasing soil organic matter content and improving soil structure. These processes enhance the capacity of agroecosystems to store carbon and reduce the vulnerability of soils to degradation under changing climatic conditions (GATTINGER et al., 2012; LAL, 2020). Compared with conventional systems, agroecologically managed soils may show higher biological activity, improved aggregate stability, and greater capacity for long-term carbon storage, especially when management practices are continuously applied.

Biodiversity enhancement represents another key mechanism through which agroecology supports climate change mitigation. Greater crop, species, and functional diversity increases the stability of agroecosystems and reduces the need for external inputs by strengthening ecological processes such as biological pest control, nutrient cycling, pollination, and natural regulation of diseases. Through these mechanisms, agroecological systems can reduce the carbon intensity of agricultural production while maintaining the functional stability and productive capacity of agroecosystems over the long term (BOMMARCO et al., 2013; HLPE, 2019).

Agroecology and climate change adaptation

In addition to its mitigation potential, agroecology plays an important role in increasing the adaptive capacity of agricultural systems. Climate variability, expressed through more frequent droughts, heat stress, irregular rainfall patterns, and extreme weather events, directly affects crop productivity, soil quality, water availability, and farm economic stability. Under these conditions, agroecological practices contribute to improving system resilience by enhancing soil physical properties, increasing water infiltration, improving soil water-holding capacity, and reducing erosion risks (ALTIERI et al., 2015; IPCC, 2022).

Soil management is central to the adaptive function of agroecology. The use of cover crops, organic amendments, crop residues, reduced tillage, and diversified rotations improves soil structure and biological activity, which are essential for maintaining productivity under conditions of water scarcity and climatic stress. Soils with higher organic matter content and improved structure are more capable of retaining water, supporting root development, and buffering crops against drought and temperature extremes (LAL, 2020; IPCC, 2023).

The use of locally adapted crop varieties, resilient hybrids, and genetic resources tolerant to drought, heat stress, and other adverse conditions increases the flexibility of agricultural systems and reduces their vulnerability to extreme climatic events. Diversified systems are generally less exposed to total production failure because different crops, varieties, and functional groups respond differently to environmental stress. In this respect, agroecology supports risk reduction by promoting biological diversity, crop diversification, local knowledge, farmer innovation, and context-specific technological solutions (ALTIERI et al., 2015; HLPE, 2019).

Agroecological approaches also strengthen ecosystem services that are essential for adaptation to climate change, including pollination, biological pest control, nutrient cycling, soil formation, and water regulation. By enhancing these ecological processes, agroecology reduces production risks, improves the stability of agroecosystems, and supports the maintenance of crop yields under unfavorable climatic conditions. These effects are closely associated with increased biodiversity and more complex ecological interactions within agricultural landscapes (BOMMARCO et al., 2013; WEZEL et al., 2009).

Based on the literature synthesis, the main agroecological practices identified in this study can be grouped according to their contribution to climate change mitigation and adaptation. These practices act through complementary mechanisms, including emission reduction, carbon sequestration, biodiversity enhancement, improved soil and water management, and increased resilience of agroecosystems. A synthetic overview of the principal agroecological practices and their expected climate-related benefits is presented in Table 1.

Table 1

Main agroecological practices and their contribution to climate change mitigation and adaptation

Agroecological practice	Contribution to climate change mitigation	Contribution to climate change adaptation	Main expected benefit
Diversified crop rotations	Reduce dependence on synthetic inputs and improve nutrient	Increase crop system stability under variable climatic	Improved soil fertility and production stability

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	cycling	conditions	
Cover crops	Increase soil organic matter and contribute to carbon sequestration	Improve water infiltration, reduce erosion, and enhance soil moisture retention	Better soil protection and increased drought resilience
Reduced tillage	Decrease soil disturbance and support carbon storage in soil	Improve soil structure and reduce vulnerability to erosion	Enhanced soil conservation and long-term fertility
Organic amendments	Reduce reliance on mineral fertilizers and stimulate soil biological activity	Improve soil water-holding capacity and nutrient availability	Improved soil health and resource efficiency
Agroforestry and perennial species	Increase carbon storage in biomass and soil	Reduce exposure to climatic extremes and improve microclimatic regulation	Increased ecosystem stability and climate resilience
Crop diversification and locally adapted varieties	Reduce production risks and input dependency	Increase tolerance to drought, heat stress, and pest pressure	Greater adaptive capacity of farming systems
Biodiversity conservation	Support biological pest control and reduce chemical input use	Strengthen ecosystem services such as pollination and nutrient cycling	Enhanced agroecosystem functionality
Integrated nutrient management	Reduce greenhouse gas emissions associated with excessive fertilizer use	Improve nutrient use efficiency under climate stress conditions	Balanced fertilization and reduced environmental pressure

Note: The table summarizes the main agroecological practices identified through the literature synthesis and highlights their dual role in supporting both climate change mitigation and adaptation in agricultural systems.

The synthesis presented in Table 1 highlights the multifunctional role of agroecological practices in addressing climate change in agriculture. The analyzed practices do not contribute exclusively to either mitigation or adaptation, but rather generate combined effects that support both objectives. For example, cover crops, reduced tillage, organic amendments, and diversified crop rotations contribute to carbon sequestration and emission reduction, while simultaneously improving soil structure, water retention, and resistance to drought-related stress.

The table also shows that biodiversity-based practices, including crop diversification, locally adapted varieties, agroforestry systems, and the conservation of functional biodiversity, play an essential role in strengthening the ecological stability of agroecosystems. These practices enhance ecosystem services such as pollination, biological pest control, nutrient cycling, and water regulation, thereby reducing production risks under conditions of increasing climate variability.

Overall, the integrated application of agroecological practices can provide a coherent strategy for combining climate change mitigation with agricultural adaptation. Their effectiveness depends on the specific edaphic, climatic, socio-economic, and technological conditions of each region. Therefore, agroecology should be implemented as a context-specific management framework rather than as a uniform set of practices, with particular attention to local farming systems, resource availability, and policy support mechanisms.

Policy context and practical implications

The results of the literature synthesis show that agroecology is increasingly recognized within policy frameworks aimed at addressing climate change, promoting sustainable agriculture, and transforming agri-food systems. At the European level, agroecological principles are consistent with the objectives of the European Green Deal, the

Farm to Fork Strategy, and the Common Agricultural Policy, which encourage the reduction of chemical inputs, the protection of biodiversity, the sustainable use of natural resources, and the development of climate-resilient food systems (EUROPEAN COMMISSION, 2020; EUROPEAN COMMISSION, 2021).

From a practical perspective, the integration of agroecology into climate strategies requires coherent policy instruments, financial incentives, advisory services, farmer training, and effective knowledge-transfer mechanisms. Although the transition toward agroecological systems may involve short-term challenges, including changes in farm management, reduced dependence on external inputs, and the need for new technical knowledge, the long-term benefits are significant. These benefits include improved soil health, increased resilience to climate variability, reduced environmental pressure, and greater stability of agricultural production (FAO, 2018; HLPE, 2019).

In the Romanian context, agroecology is particularly relevant due to the diversity of agroecological zones, the significant share of small and medium-sized farms, and the increasing exposure of agriculture to drought, heat stress, soil degradation, and irregular rainfall patterns. Southern and eastern Romania are especially vulnerable to climate variability, which affects crop productivity, soil fertility, and the economic stability of farms. Under these conditions, agroecological practices such as crop diversification, reduced tillage, cover crops, organic amendments, improved soil management, and the use of adapted varieties can contribute to enhancing water retention, improving soil fertility, and increasing the resilience of agroecosystems (POPOVICI et al., 2018; SOARE and DOBRE, 2016).

At the same time, many traditional and resource-efficient farming systems still present in rural Romania include elements compatible with agroecological principles. These systems may provide a valuable basis for the development of locally adapted agroecological models, especially if supported through agricultural extension services, public policies, research programs, and farmer-oriented knowledge transfer. The integration of agroecology into national agricultural practices is also consistent with European objectives regarding sustainable land use, biodiversity conservation, climate adaptation, and the development of resilient rural areas (FAO, 2018; EUROPEAN COMMISSION, 2020).

Overall, agroecology provides a coherent framework for aligning agricultural development with climate change objectives by combining mitigation and adaptation benefits within a systemic approach. Its relevance lies not only in reducing environmental pressure, but also in supporting the long-term resilience, competitiveness, and sustainability of agricultural systems. Therefore, agroecology should be regarded as both an environmental and socio-economic strategy capable of contributing to the transition toward sustainable and climate-resilient agri-food systems.

CONCLUSIONS

The present conceptual analysis highlights agroecology as an integrative and relevant approach for addressing the challenges generated by climate change in agriculture. By applying ecological principles to the design and management of agricultural systems, agroecology can contribute both to reducing the climate impact of agriculture and to increasing the adaptive capacity of agroecosystems through sustainable agricultural production and improved resource management.

The analysis shows that agroecological systems may play an important role in climate change mitigation by reducing dependence on external inputs, optimizing nutrient cycling, improving soil organic matter content, and increasing carbon storage in soil and biomass.

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Practices such as diversified crop rotations, cover crops, reduced soil disturbance, organic amendments, and the integration of perennial species contribute not only to reducing greenhouse gas emissions, but also to improving soil health, biological activity, and the functional stability of agroecosystems.

At the same time, agroecology supports the adaptation of agriculture to increasingly variable climatic conditions. By enhancing biodiversity, improving soil structure, increasing water infiltration and retention capacity, and strengthening ecological interactions, agroecological practices contribute to greater resilience against drought, heat stress, irregular precipitation, and other climate-related disturbances. These effects are particularly important for maintaining crop productivity and reducing production risks under conditions of climatic uncertainty.

From a policy perspective, the integration of agroecology into climate strategies depends on the existence of coherent institutional frameworks that support sustainability, resilience, and the transformation of agri-food systems. European initiatives focused on climate action, biodiversity conservation, sustainable land use, and resilient food systems provide a favorable context for the promotion and implementation of agroecological practices. However, the transition toward agroecological systems requires consistent policy support, functional advisory services, farmer training programs, financial incentives, and effective mechanisms for knowledge transfer and innovation.

The originality of this paper lies in its integrated interpretation of agroecology as a strategic framework capable of simultaneously supporting climate change mitigation, climate adaptation, and long-term agricultural sustainability. By linking agroecological principles with current European policy objectives and with the specific challenges of Romanian agriculture, the study provides a contextualized perspective on the role of agroecology in the transition toward more resilient and sustainable agri-food systems.

Overall, agroecology can be considered a viable pathway for harmonizing agricultural productivity with environmental protection in the context of intensifying climate change. By reducing agriculture’s ecological footprint and strengthening the resilience of agroecosystems, agroecology can contribute significantly to the development of food systems adapted to current and future climate risks. Future research should focus on the development of applied policy instruments, regional implementation models, and practical decision-support tools capable of promoting agroecology on a wider scale.

BIBLIOGRAPHY

ALTIERI, M.A., NICHOLLS, C.I., HENAO, A., LANA, M.A., 2015. Agroecology and the design of climate change-resilient farming systems. Agronomy for Sustainable Development, 35(3), pp. 869–890. https://doi.org/10.1007/s13593-015-0285-2.

BOMMARCO, R., KLEIJN, D., POTTS, S.G., 2013. Ecological intensification: Harnessing ecosystem services for food security. Trends in Ecology & Evolution, 28(4), pp. 230–238. https://doi.org/10.1016/j.tree.2012.10.012.

EUROPEAN COMMISSION, 2020. A Farm to Fork Strategy for a fair, healthy and environmentally-friendly food system. Brussels, European Commission. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52020DC0381.

EUROPEAN COMMISSION, 2021. The European Green Deal. Brussels, European Commission. Available at: https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en

FAO, 2018. The 10 elements of agroecology: Guiding the transition to sustainable food and agricultural systems. Rome, Food and Agriculture Organization of the United Nations. Available at: https://openknowledge.fao.org/server/api/core/bitstreams/3d7778b3-8fba-4a32-8d13-f21dd5ef31cf/content.

GATTINGER, A., MÜLLER, A., HAENI, M., SKINNER, C., FLIESSBACH, A., BUCHMANN, N., MÄDER, P., STOLZE, M., SMITH, P., SCIALABBA, N.E.-H., NIGGLI, U., 2012. Enhanced top soil carbon stocks under organic farming. Proceedings of the National Academy of Sciences, 109(44), pp. 18226–18231. https://doi.org/10.1073/pnas.1209429109.

HLPE, 2019. Agroecological and other innovative approaches for sustainable agriculture and food systems that enhance food security and nutrition. Rome, High Level Panel of Experts on Food Security and Nutrition. Available at: https://openknowledge.fao.org/server/api/core/bitstreams/ff385e60-0693-40fe-9a6b-79bbef05202c/content.

IPCC, 2022. CLIMATE CHANGE 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge, Cambridge University Press. Available at: https://www.ipcc.ch/report/ar6/wg2/.

IPCC, 2023. CLIMATE CHANGE 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. Geneva, Intergovernmental Panel on Climate Change. Available at: https://www.ipcc.ch/report/ar6/syr/.

ISTUDOR, N., CONSTANTIN, M., IGNAT, R., CHIRIPUCI, B.C., PETRESCU, I.E., 2022. The complexity of agricultural competitiveness: Going beyond the Balassa index. Journal of Competitiveness, 14(4), pp. 61–77. https://doi.org/10.7441/joc.2022.04.04.

LAL, R., 2020. Managing soils for negative feedback to climate change and positive impact on food and nutritional security. Soil Science and Plant Nutrition, 66(1), pp. 1–9. https://doi.org/10.1080/00380768.2020.1718548.

POPOVICI, E.A., GRIGORESCU, I., MITRICĂ, B., MOCANU, I., DUMITRAȘCU, M., 2018. Farming practices and policies in shaping organic agriculture in Romania: A showcase of southern Romania. Romanian Agricultural Research, 35, pp. 163–175. Available at: https://www.incda-fundulea.ro/rar/nr35/rar35.21.pdf.

SOARE, E., DOBRE, I., 2016. Changes and trends of corn production in Romania. Scientific Papers. Series Management, Economic Engineering in Agriculture and Rural Development, 16(1), pp. 511–516. Available at: https://managementjournal.usamv.ro/pdf/vol.16_1/Art80.pdf.

WEZEL, A., BELLON, S., DORÉ, T., FRANCIS, C., VALLOD, D., DAVID, C., 2009. Agroecology as a science, a movement and a practice: A review. Agronomy for Sustainable Development, 29(4), pp. 503–515. https://doi.org/10.1051/agro/2009004.

WILLETT, W., ROCKSTRÖM, J., LOKEN, B., SPRINGMANN, M., LANG, T., VERMEULEN, S., GARNETT, T., TILMAN, D., DECLERCK, F., WOOD, A., JONELL, M., CLARK, M., GORDON, L.J., FANZO, J., HAWKES, C., ZURAYK, R., RIVERA, J.A., DE VRIES, W., MAJEELE SIBANDA, L., AFSHIN, A., CHAUDHARY, A., HERRERO, M., AGUSTINA, R., BRANCA, F., LARTEY, A., FAN, S., CRONA, B., FOX, E., BIGNET, V., TROELL, M., LINDAHL, T., SINGH, S., CORNELL, S.E., SRINATH REDDY, K., NARAIN, S., NISHTAR, S., MURRAY, C.J.L., 2019. Food in the Anthropocene: The EAT-Lancet Commission on healthy diets from sustainable food systems. The Lancet, 393(10170), pp. 447–492. https://doi.org/10.1016/S0140-6736(18)31788-4.